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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

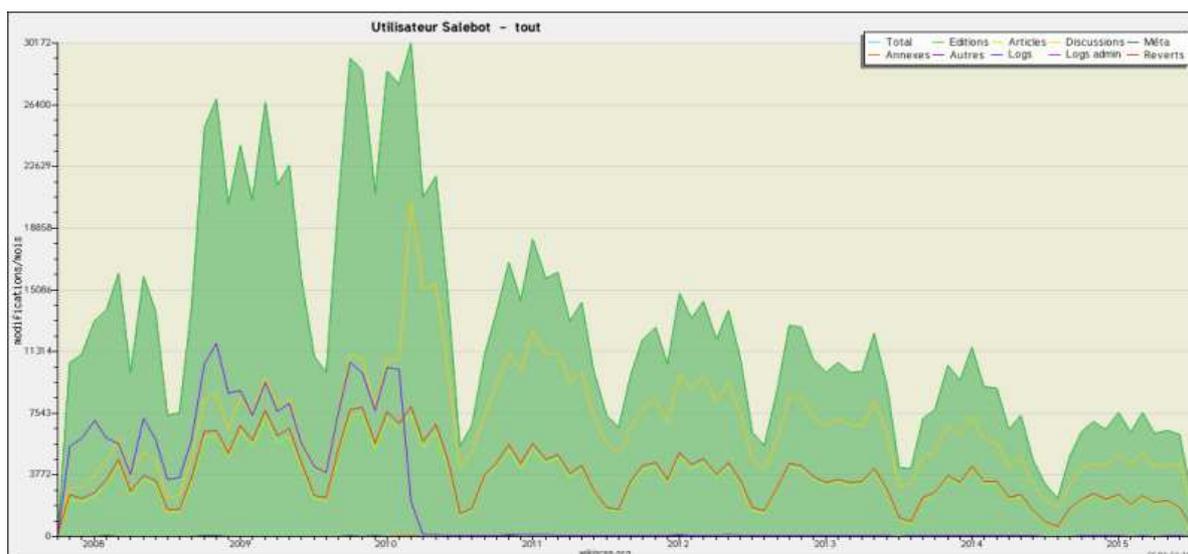
Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians and the '*natural suspect[s]*'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.



¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

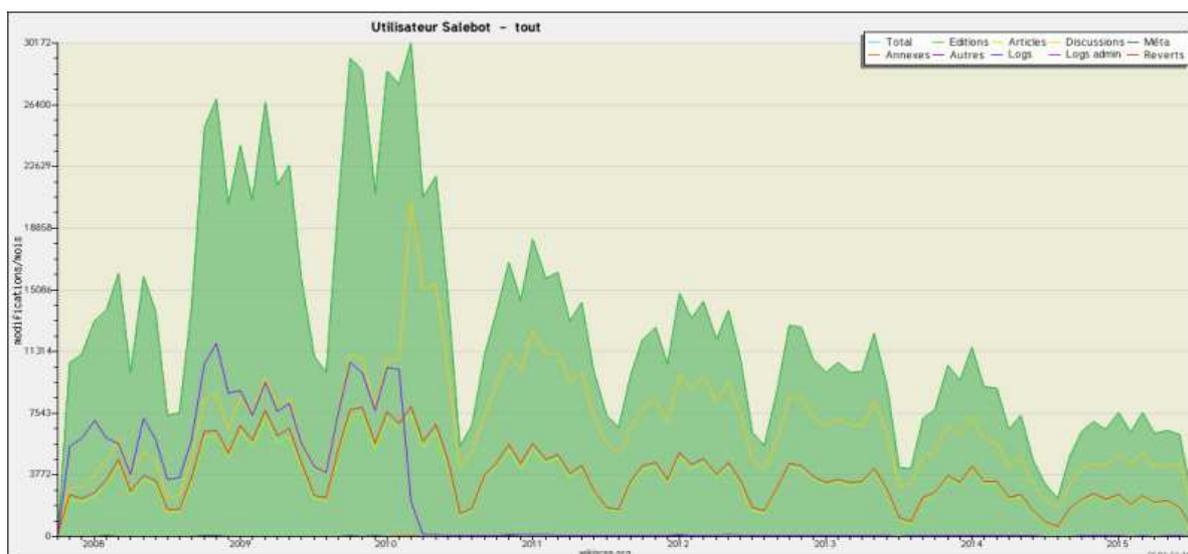
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor–network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to other actors. Thus, Badje (2013) argues that all entities of the actor-network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot’s aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot’s bot flag (archived). Translated from the French.

⁸ For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

⁹ These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

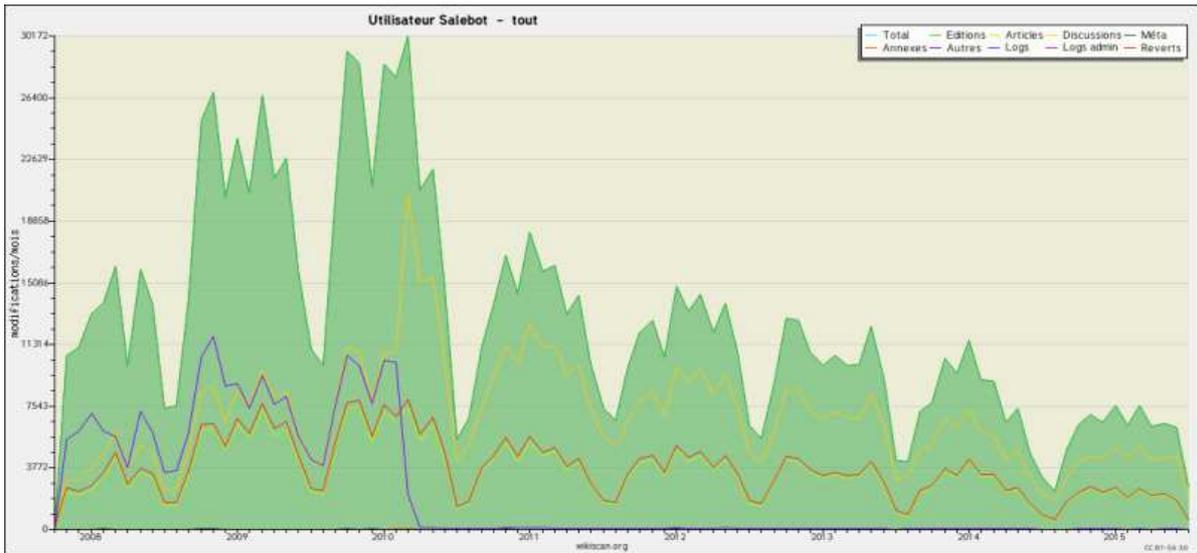
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor–network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

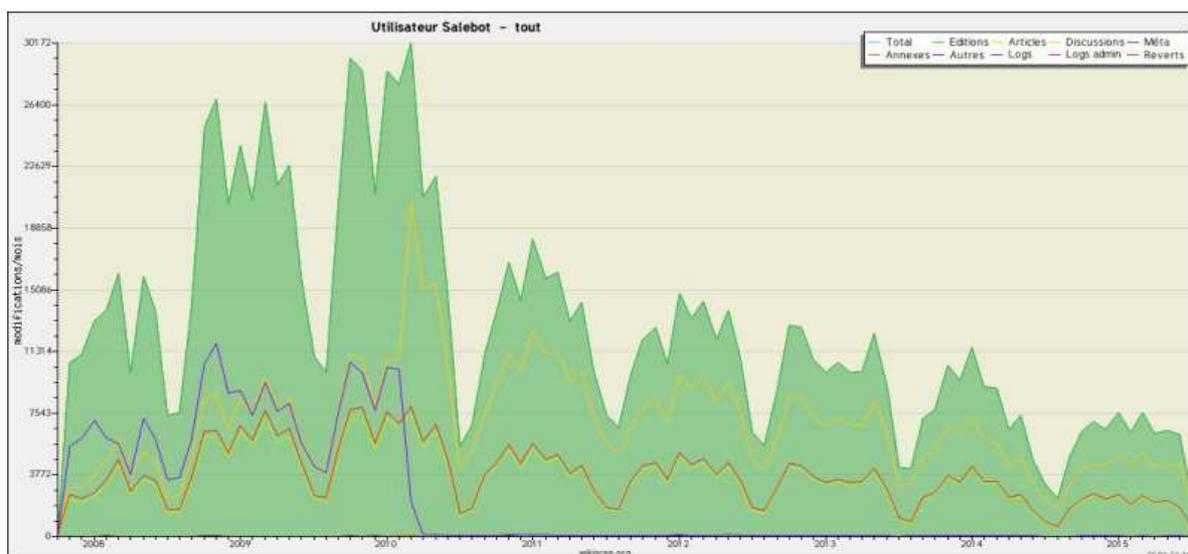
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the *'natural suspect[s]'*. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

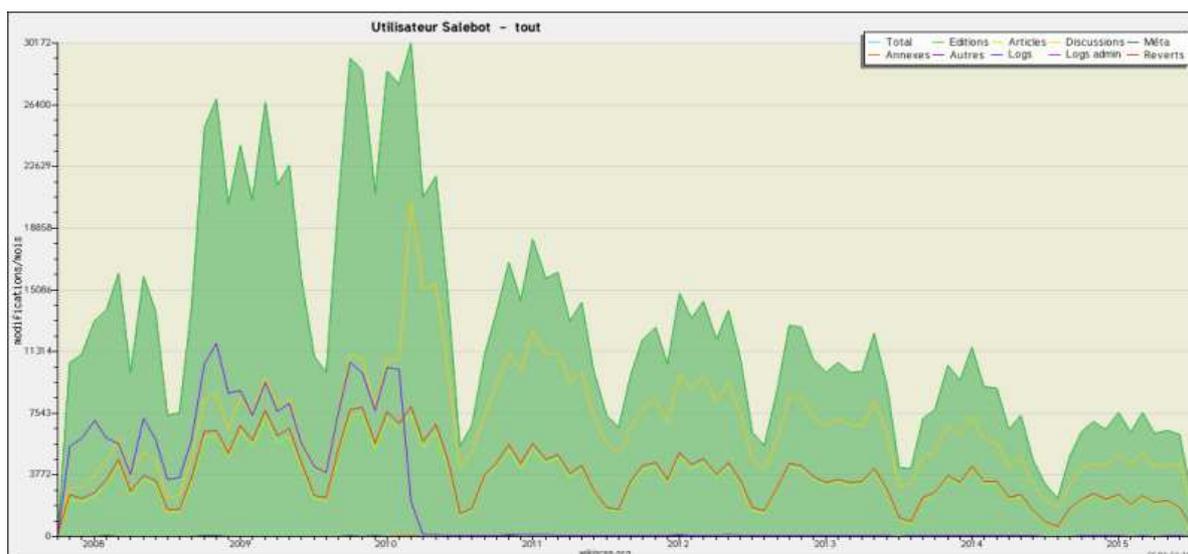
Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians and the '*natural suspect[s]*'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.



¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor–network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to other actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, '*an automatism is born that will soon become more complicated and "concrete" or "organic"*', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot’s aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot’s bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] Oblomov2 (d) 28 June 2013 at 17:38

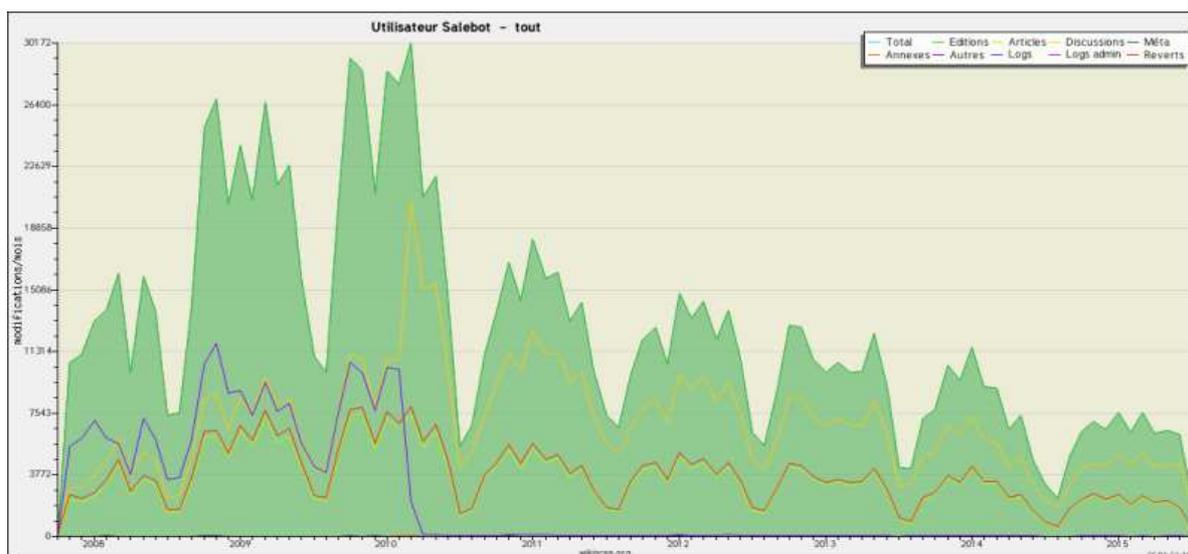
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informer* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, '*an automatism is born that will soon become more complicated and "concrete" or "organic"*', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] Oblomov2 (d) 28 June 2013 at 17:38

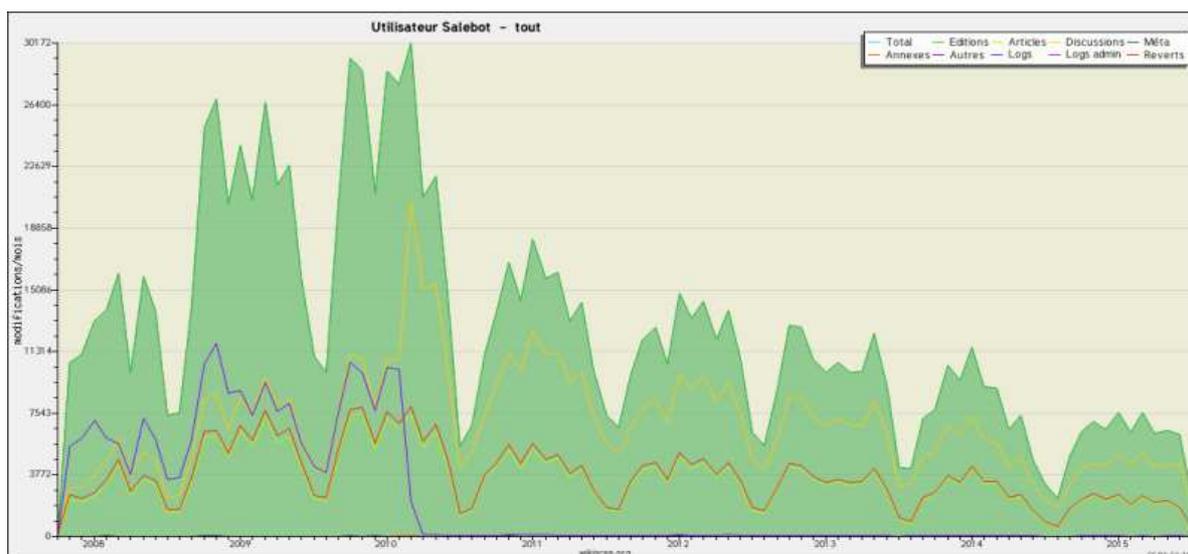
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the *'natural suspect[s]'*. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] Oblomov2 (d) 28 June 2013 at 17:38

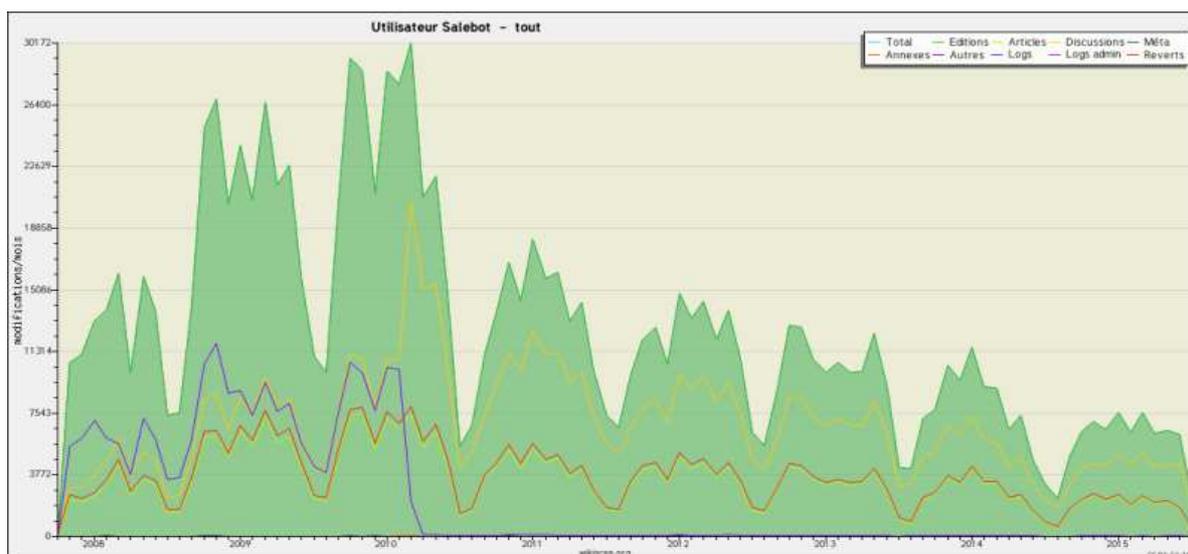
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the *'natural suspect[s]'*. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot’s aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot’s bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

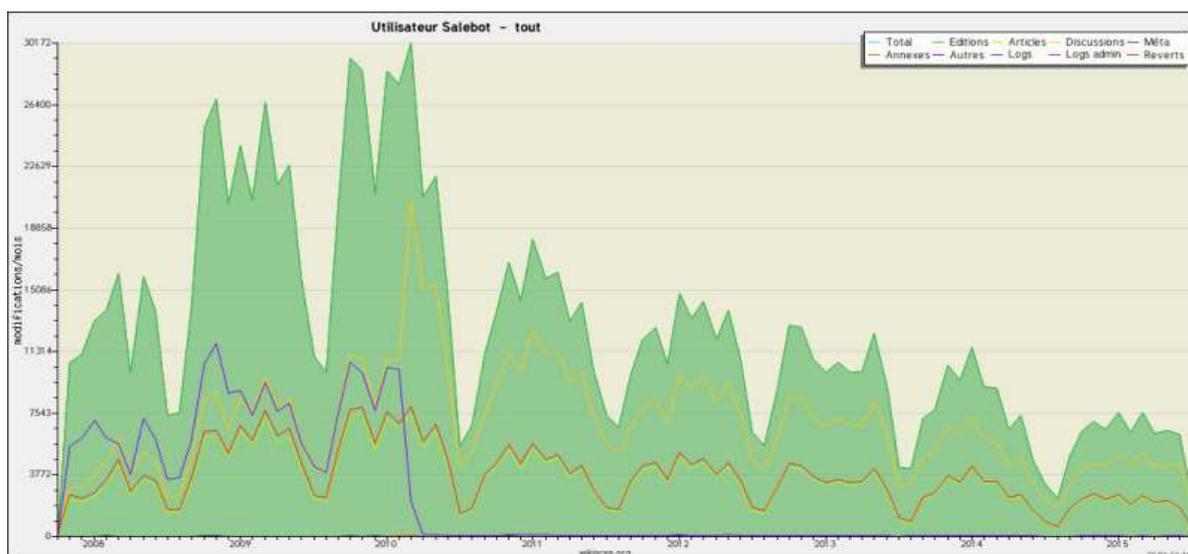
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to other actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

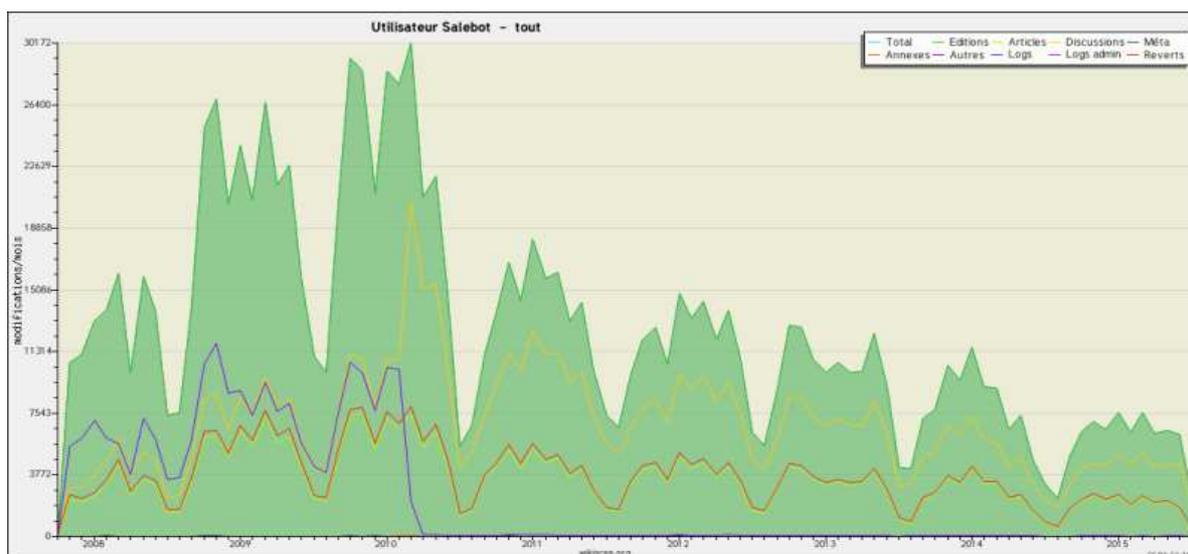
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the *'natural suspect[s]'*. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

'*Working consumers*' (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The '*exploit[ation] by market forces*' can be questioned, particularly in relation to types of sociality other than just the market. The term 'knowledge commons' has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors' activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that '*cyber-libertarianism is the backbone of the open-source movement [...]*', and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, '*an automatism is born that will soon become more complicated and "concrete" or "organic"*', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

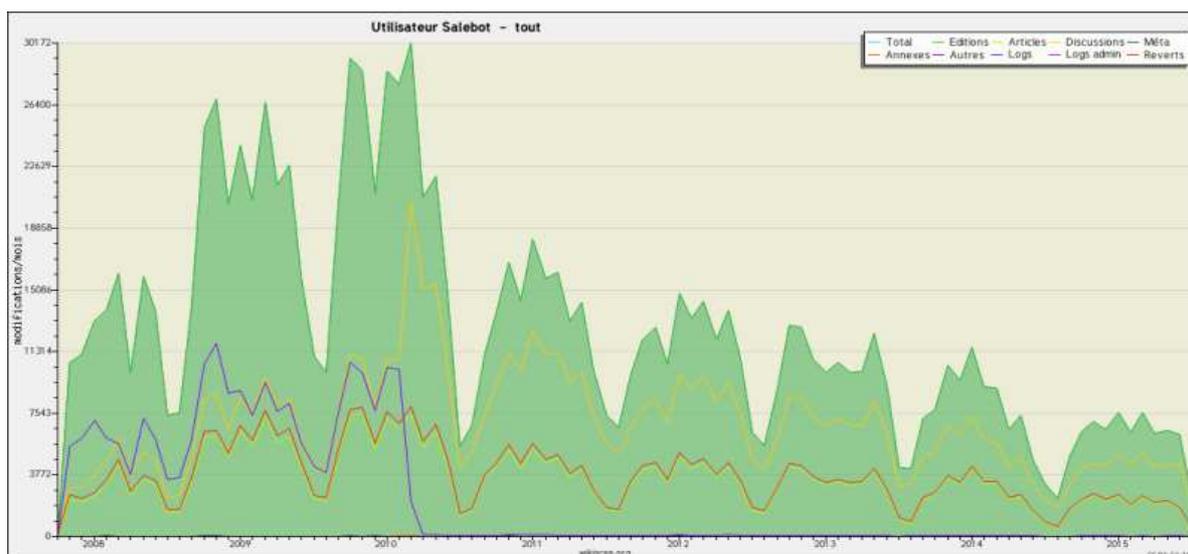
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the *'natural suspect[s]'*. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.

7

Discussion topic 'A blacklist in Wikipedia' (translated from the French) in the Bistro on 24 October 2006.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

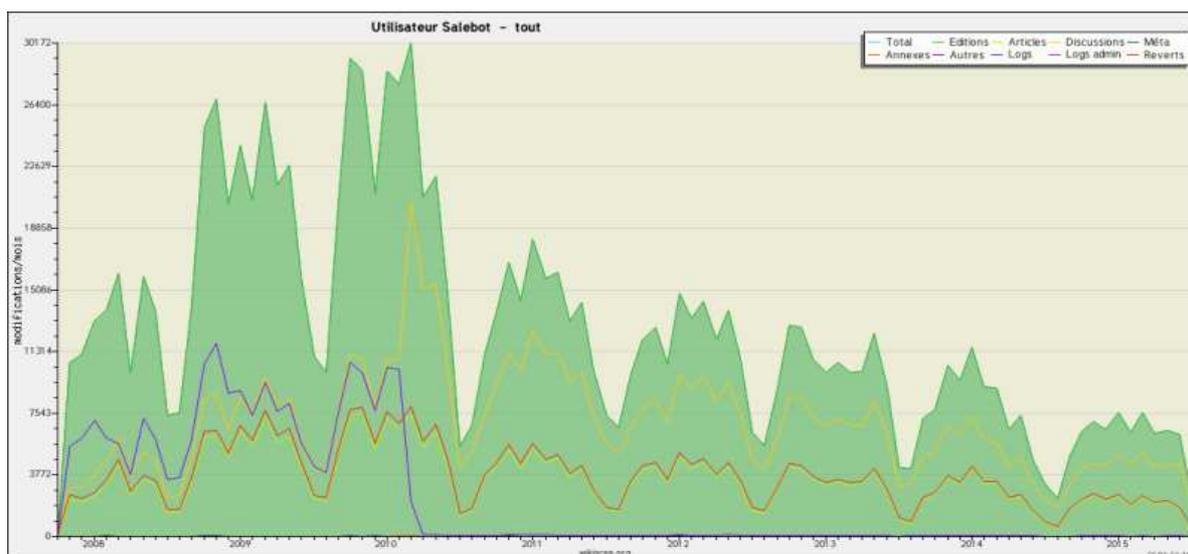
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot’s user page : ‘I am a bot (verify)’

Box 2 : ‘I am participating in the maintenance of Wikipedia’

Box 3 : ‘I actively fight against vandalism on Wikipedia’

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, '*an automatism is born that will soon become more complicated and "concrete" or "organic"*', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

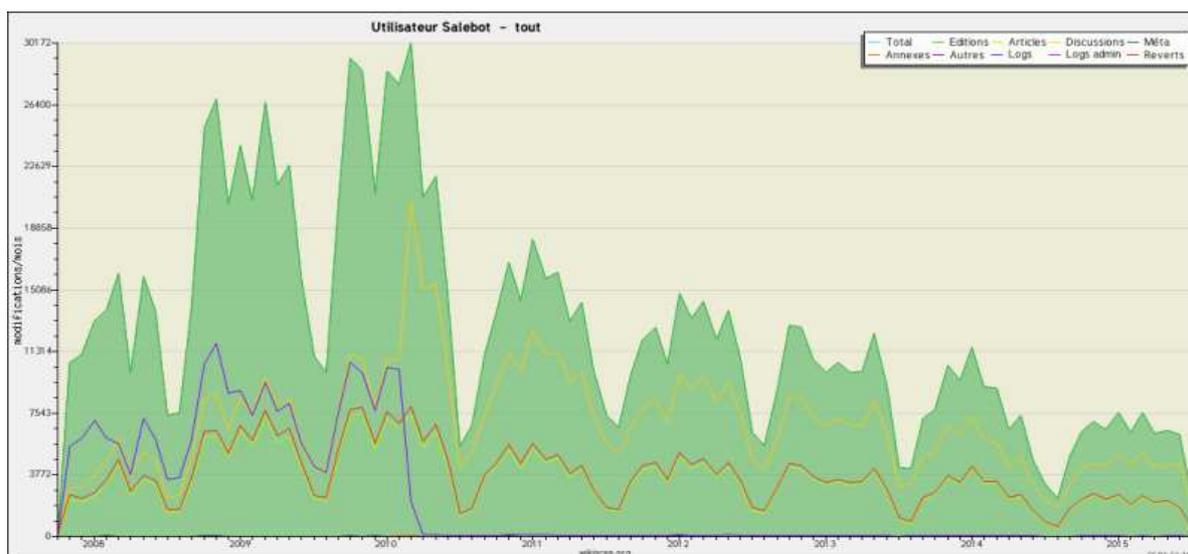
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor–network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, '*an automatism is born that will soon become more complicated and "concrete" or "organic"*', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot's aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot's bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

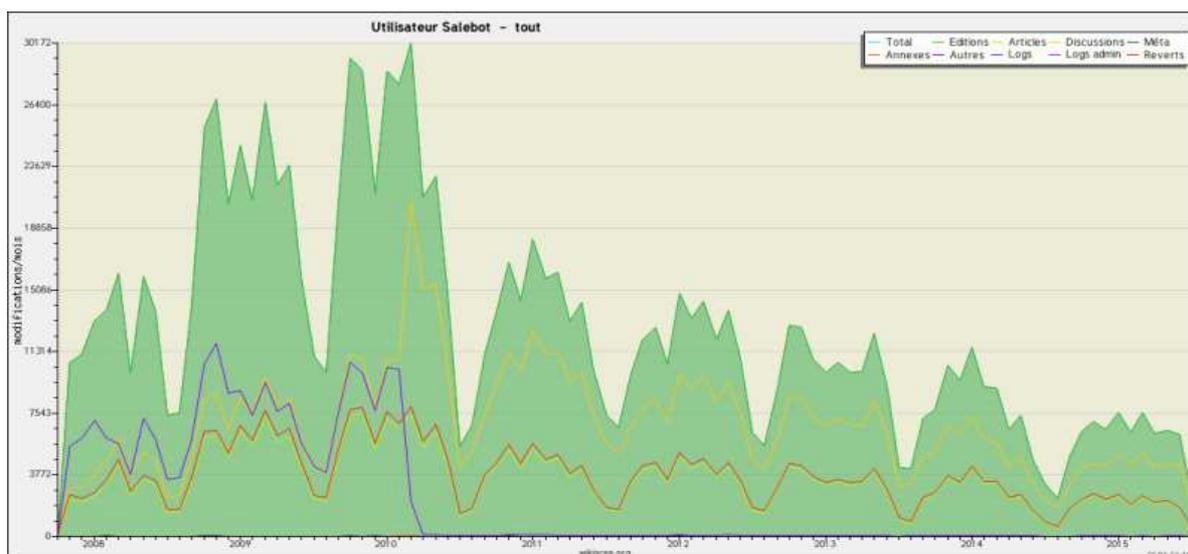
Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians and the '*natural suspect[s]*'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.



¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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**Allow prosumers to produce reality; they are gifted at that:
the successful life of a non-human Wikipedian.**

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Abstract:

This research focuses on the abilities that prosumption can give an actor in terms of animating a community and tackling the relations that the actor maintains with the organisation benefiting from their activity. The Actor-Network Theory allows us to understand the links that unite or divide humans and nonhumans acting within Wikipedia's francophone community of editors. These prosumers fabricate their reality, even down to the peer-to-peer treatment accorded to the programs that improve the online encyclopedia, otherwise known as "bots". We followed the trajectory of one of these bots through its community. We understand that in the spaces where the organisation does not offer marketing discourse, the prosumers produce it instead. They create exchange models and choose to negotiate among themselves as to who will and will not be able to participate in prosumption. These measures can be in competition with those of the organisation.

Keywords:

actor-network theory — prosumer — Wikipedia — bot — life narrative

'A bot is a supposedly intelligent software program that is autonomous, is endowed with personality, and usually, but not always, performs a service.' Leonard, 1997.

'Actor–Network Theory might help us overcome the analytical limitations owed to ex-ante circumscriptions of consumption along the asymmetric boundaries separating subject and object, material and sociocultural and content and context. It allows for the world to be ordered differentially.' Badje (2013), drawing on Lee and Hassard, 1999.

Introduction

Accessing Wikipedia's encyclopedic content is free to the user. Correspondingly, this offering costs almost nothing to produce in terms of labour since its development model relies on the good will of users to edit the articles, keep them in good order and train new editors. The 16,000 editors that contribute to the French version of Wikipedia are spurred on by their motivation to participate (Antin, 2011; Nov, 2007; Yang & Lai, 2010), and they enjoy a great deal of freedom within the environment afforded them by the Wikimedia Foundation. This not-for-profit organisation invests in the infrastructure that is deployed to accommodate all the projects (branding, computers, principal software). While we cannot talk about Wikipedia as a pure consumption-driven market (Martin & Schouten, 2014), it can be understood as a hybridisation where production, consumption and exchange (of knowledge, skills, tools, experiences of contribution, and so on) are largely organised in a commons (Hess & Ostrom, 2007), which is situated within the framework introduced by the organisation. An analysis in terms of consumption and production within the community of editors thus appears complex and even unsuitable. In order to take into account the intermixing of these activities, therefore, we will use the term *prosumption* (Ritzer & Jurgenson, 2010) in this paper.

Moreover, the action dynamics of the editors, who are free of any constraints that might be brought about by monetary rewards, are directly linked to production processes involving crowd coordination (see, for instance, Kittur & Kraut, 2008 or Sundin, 2011). The complexity of the tasks that have to be carried out gives an indication of the level of skill needed for this self-organisation. Marketing theories, through '*sedimentation*', are largely focused on describing increasingly *empowered* consumers (Cova & Cova, 2009) in terms of their abilities to integrate resources and co-create value with the organisation (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The Wikimedia Foundation discourse is very clear about their project: *'Imagine a world in which every*

*single human being can freely share in the sum of all knowledge. That's our commitment.*¹ Furthermore, the organisation's establishment of its five pillars, or non-negotiable rules, are a reminder that it is strongly committed to governance. The fifth pillar, 'Wikipedia has no firm rules', is the one that institutionalises the delegation of power to the editors. Cova and Cova (2009) suggest that the growing expertise of the consumer is linked to marketing discourse. Firat and Dholakia (2006) point out that '*marketing becomes everyone's activity, and the post-consumer is a marketer, constantly involved in the imagination, creation, and performance of desires to be experienced as modes of living.*' The hypothesis that we are putting forward here is that the expertise of individuals, consumers and editors, to put them in order of reality, is not necessarily linked to marketing discourse. Our findings reveal self-power is used in the construction of an ontology over and above any empowerment individuals may receive from an organisation.

The founding discourses participating in the individuals' subjectivity can be found in the collective construction of a community that experiences minimal constraint from the organisation. Our research focuses on the case of a community construct that is both technical and social. Wikipedians produce artefacts that are evolving their own local realities in the form of autonomous algorithms that ensure co-constructed rules are respected. These *bots* (Geiger, 2011; Halfaker & Riedl, 2012; Leonard, 1997) are given the same social status as humans, including their own user accounts, the freedom to autonomously modify the encyclopedia and access to extended rights. Bots are developed, used and incorporated by the community outside of any injunction from the organisation (Geiger, 2014), which nevertheless benefits from the value created by the improvement to the quality of the encyclopedia. These programs develop over time and integrate the results of the heterogeneous actors' negotiations to enforce the rules of presumption activities. Although this field can reroute and although the academic roles and concepts within it seem to be at odds, we note that its powerful ontology has many roles and concepts, which have been produced from within by amateur marketers. By following the life story of one of these bots, we will question the ability of Wikipedians to think collectively about their reality. More precisely, we will evaluate how Wikipedians have put their conflict resolution models in place. Our research is carried out through the prism of the actor-network theory (ANT) (Akrich et al., 2006; Callon, 1984; Latour, 2005). We will set out the methodological approach used to access the life story of a nonhuman. We will then analyse and discuss the results before suggesting some managerial implications and

1 Wikimedia Foundation homepage, accessed 30/05/2016, <https://wikimediafoundation.org/wiki/Home>.

recommendations for future research. First, however, we carry out a review of the literature on prosumption and of studies that have justified the application of ANT.

Conceptual framework

Prosumption at work in a commons

‘*Working consumers*’ (Cova & Dalli, 2009) take part in the creation of value on a voluntary basis in collaboration with an organisation and most often through immaterial work. However, this concept, although congruent on a number of items (consumers as source of value, community aspects, immaterial labour and no monetary exchanges), does not sufficiently convey the socioeconomic project at work in the case of Wikipedia. The ‘*exploit[ation] by market forces*’ can be questioned, particularly in relation to types of sociality other than just the market. The term ‘knowledge commons’ has been defined in the economic sciences as a resource that is shared by a group of people (Hess & Ostrom, 2007), whose management is based on social rules and norms. The Wikipedia projects fit within this theoretical framework when the market presence at the periphery is incontrovertible (allocation of tangible resources, like computers for people to connect with one another or for storing data, or intangible resources, like branding). Hence, access to the knowledge produced by the commons represents an offering that can be consumed free of charge just like the editing experience, which is at the same time a form of consumption (use of resources provided by the Wikimedia Foundation and the community) and production. The coordination in the commons between the social and the technical and between humans and nonhumans resembles a sociotechnical system (Niederer & van Dijck, 2010). It is underpinned by a certain number of rules, which, as Bauwens (2005) suggested, can be expressed in the form of algorithms.

The editors’ activity on Wikipedia is a creation process. Its production organisation mechanisms have been the subject of many research studies (see, for example, Crowston et al., 2013). These mechanisms combine, negotiate and organise a number of forms of knowledge (Pentzold, 2009; Sundin, 2011). They also train new community members and even produce computer code. The motivational factors for the editors are the pleasure they derive from contributing to the encyclopedic project, their participation in the community forums and the fact that they help to keep the articles in good order (Nov, 2007). These multiple sources of motivation are consistent with observations made on other open-source projects, with the top motivations being amusement and ideology, which are reminiscent of the hacker ethic (Himanen, 2001). Ritzer and Jurgenson (2010) argue that ‘*cyber-libertarianism is the backbone of the open-source movement [...]*’, and Wikipedia

is part of that. Drawing on Toffler (1980), they note that Wikipedia is one of these user-generated online contents that can be described as prosumption (that is, a combination of consumption and production). By considering Wikipedia editors as prosumers, however, we run the risk of producing an *ostensive definition* (Strum & Latour, 1987) of the link that unites them to one another as well as to the organisation and society. The concept of prosuming is therefore knowingly manipulated and avoids, at the very least, predetermining the activity being studied as either production or consumption.

ANT: a framework for marketers

ANT (Latour, 2005) is a constructivist movement in sociology offering *methods of analysis* rather than a theory (Law, 2009). Established in the 1980s by Latour, Akrich and Callon (Akrich et al., 2006), it allows us to approach reality by relativising the place of each actor. ANT is based on a '*performative definition of the social link*' (as opposed to an ostensive definition), that is to say, negotiations involving all the actors in order to organise '*what society is*' (Strum & Latour, 1987). These authors made it clear that the researcher is not external to the resolution of these negotiations. Moreover, Callon and Latour (1981) urged us to retain the same analytical framework for both micro- and macro-actors. While the structure of each is identical, the latter has more control of the '*black boxes*', in other words of the favourable asymmetries in the force relations. We can illustrate this point by arguing that the Wikimedia Foundation has allies, such as access to computers storing data, the main software used to run Wikipedia and even the branding. These *durable elements* are the relatively closed black boxes that favour asymmetry in the relations between the macro-actor (the foundation) and the micro-actor (the editor-prosumer).

The ANT approach boils down to exposing the translations (Callon & Latour, 1981), that is, the '*negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on behalf of another actor or force*'. Hence, the entities move about through a succession of transformations and find themselves represented by others. It is through this general process that an internet user is translated through the network in the user profile representing them on a webpage. The discourses and images have access to the same action plan, laid out in the network, as the entities they translate. The displacement from one point of the network to another generates relations (Latour, 2005). Having an ANT interpretation of a phenomenon amounts to being able to evidence these relations between the different actors in the network. Furthermore, the strength of ANT lies in the fact that it does not

distinguish between Society and Technical. Any processing of an object must be performed according to a '*generalised symmetry*' and a '*free association*', that is, without opposing the social and the technical (Callon, 1984). In other words, ANT perceives the separation between the social, technical, human and nonhuman as artificial and prejudicial to the quality of the analysis: '*the categories of the social, technical, natural etc. are a test that aims to determine the causes and introduce order into a confused and undifferentiated reality*' (Akrich, 1987, translated from the French). The description of a sociotechnical system by an actor within the system is an assemblage of relations, nodes and heterogeneous actants² (Latour, 2005). Callon (2001) justifies the integration (through posture) of nonhumans in the method of analysis through the growing place these actants occupy in human societies: '*The contribution of nonhumans can no longer be ignored or minimised by social sciences because increasing investments in research and technical innovation are increasing their number almost exponentially*'. The principle of '*hardware race*' (Latour, 1988) allows us to understand how alliances between humans and nonhumans can be reversed. Negotiations are always reversible. Hence, the delegation of power to a nonhuman enables a network to stabilise, while its destabilisation requires the mobilisation of a more robust alliance. Finally, Callon (2001) enjoins us to approach society as '*the always temporary result of actions in progress*'.

There is no reason why marketing research should not focus on ANT, which reveals itself to be a powerful means of tackling the mechanisms at work in market creation (Giesler, 2012; Martin & Schouten, 2014) and of bringing an object of consumption out of its passive object status (Bettany, 2007; Epp & Price, 2010). Drawing together ANT and consumer research, Badje (2013) suggests that '*there is no 'finished', durable 'consumer' that can exist outside of the patterned relations between people, objects and meanings, which construct particular subjects, objects, devices, spaces and times*'. This perspective on local ontologies can also be equally well applied to the marketer as to others actors. Thus, Badje (2013) argues that all entities of the actor–network '*produce consumer or marketing knowledge (be it of the scholarly, professional or lay kind)*'. In line with Strum and Latour (1987), we, as scientists, would have to be in a position to listen to the actors in action, human or otherwise, to detect their abilities to define society performatively. Hence why our research must be based on a method that opposes the researcher's viewpoint with that of the other actants.

2 '*Entity marked out by a particular element of the technical measure in preparation for the action from which it has been conceived*' (Akrich, 1993). The actant is a valuable notion for both a human and nonhuman entity.

Methodology

Wikipedia people: Wikipedians, vandals and Salebot

Wikipedia is a field that will allow us to analyse a case of prosumption that is minimally controlled by the organisation. In this environment, the prosumers are referred to as the editors or, to describe them more in terms of a community, as *Wikipedians*. To qualify as a Wikipedian, it is not enough just to modify the content of articles, add an image or take part in discussions on a forum. Pentzold (2011) notes that being a Wikipedian is a choice negotiated by the editors relative to their relations. Belonging to the Wikipedian community translates a '*personal acceptance of a set of moral obligations and rules of conduct*'. Nevertheless, the Wikipedian community is not a monolith. As Kostakis (2010) pointed out, differing sensibilities participate in the negotiations. Since anyone can contribute to the Wikipedia projects, not all contributions are necessarily well intentioned. The '*Deliberate and malicious editing of a destructive nature*' is called *vandalism* (Priedhorsky et al., 2007), and the editors in question are called *vandals*. Since Wikipedia is technically organised to reduce the risks of damage relating to errors, it thus encourages boldness (Roberts & Peters, 2011). It is always possible to revert to a former version of a page, however.

A vandalised page can be easily restored through the revert function, whether manually, by a Wikipedian intermediary specialised in this task (a *patroller*) or automatically, by using detection tools, including bots (Priedhorsky et al., 2007). Bots have demonstrated their effectiveness against vandalism when Wikipedia projects have become very popular and attracted malicious contributions (Geiger & Ribes, 2010). We introduced this paper with a definition of the word *bot*, a term that comes from computer jargon and derives from the word 'robot'. Leonard's (1997) definition indicates that the autonomy and personality of this type of program is a feature that is common to all bots³. The literature on artificial intelligence talks instead of an autonomous agent (Franklin & Graesser, 1997), where the term 'agent' signifies that *sociability* is a characteristic of these programs because they are '*capable of interacting in a peer-to-peer manner with other agents or humans*' (Sycara, 1998). The studies initiated by Nass et al. (1994), which are based on the CASA (*Computers Are Social Actors*) paradigm, allow us to explain the social relations maintained between bots and humans. Humans have a social behaviour in response to the social behaviour of

³ Bots can be found in many very different digital environments, such as commercial websites, MMORGs (Massively multiplayer online role-playing games, in other words video games where players interact in a persistent state virtual world) and even social networks (Twitter, Facebook). The tasks they perform are equally varied and include chatbots, gaming bots and spambots.

an artefact since it is ‘*easy to generate, commonplace and incurable*’. Lee and Nass (2010) revisit all the interactions established between human and machine that respond to this principle (politeness, reciprocity, humour). Hence, bots have intrinsic characteristics that are suitable for the production of qualitative data, which are linked to the sociotechnical relations that they maintain in their environment.

Salebot is one of the 82 active bots in the French version of Wikipedia⁴. It has been fighting against vandalism since 2007. Gribeco (pseudonym) is its programmer, or trainer in Wikipedian terminology. As with all the bots working on Wikipedia, Salebot has its own user account, which does not differ technically from that of a human. However, its personal page is unequivocally about its artificial character. It acts automatically according to a program by evaluating the changes made by editors in order to determine whether or not they are vandalistic. It is able to send a message to the person suspected of inappropriate behaviour to invite them to improve the quality of their contributions.



Box 1 of Salebot's user page : 'I am a bot (verify)'

Box 2 : 'I am participating in the maintenance of Wikipedia'

Box 3 : 'I actively fight against vandalism on Wikipedia'

A bricolage of the life story

Wikipedia projects offer the advantage of retaining many open archives at the level of editing activity and coordination. It is possible to collect all the discourses of Wikipedians and to parallelise them with the modifications made to the encyclopedia since Wikipedia was first created. The quantity of information available will make little sense to the researcher who approaches it with no instrumentation, however. The data are scattered all over the place and difficult to use directly. In

4 <https://fr.wikipedia.org/wiki/Wikip%C3%A9dia:Bot/Liste>, accessed 01/06/16.

order to have relevant access to the data and to respond to our research question, we wanted to avoid this exhaustive treatment. Our methodology was exploratory, and it had to enable us to expose just one of many collective realities (Guba & Lincoln, 1994). We took an immersion approach to the community before attempting to understand the phenomena that characterises it by applying Grounded Theory (Glaser & Strauss, 1967). We then focused on *Salebot*, a bot used in the French version of Wikipedia, with the aim of turning it into a qualitative analysis code. We chose it for its longevity, its influence, the richness of its user interface and the existence of equivalents in other versions of the encyclopedia. This bot is, in the community discourses, explicitly treated at the same level as other Wikipedians, and technically it benefits from the same rights (a user account allows it to act like a human). The way in which it is treated is reminiscent of ANT studies, which consider humans and nonhumans on the same level (Callon, 1984; Latour, 2005).

In order to have a tool for the longitudinal and symmetrical interpretation of *Salebot*'s interactions with the community, we created a *bricolage* (Denzin & Lincoln, 1998), that is, an instrumentation inspired by the life story methods (Atkinson, 1998). Collecting data from the field consisted in using ethnographic and participant observation techniques (Denzin & Lincoln, 1994). We created an account, entered into interaction with the Wikipedians and took part in projects. Moreover, our access to the field was furthered by an *informant* (Arborio & al., 2010), a seasoned Wikipedian involved in the data interpretation sessions. This *bricolage* called for a certain creativity. This instrumental process benefited from rigorous documentation in order to allow the study to be reproduced or modified in future (Kirk & Miller, 1986; Silverman, 2001). The account produced, which centred on the 'life' of the bot, was not aimed at proving that bots have a life but rather at having a 'means of identifying and understanding social trajectories' (Rouleau, 2003, translated from the French). In order to avoid the pitfall of producing interpretations from social relations alone or from technical measures alone, Latour (1988) proposed '*to invent a projection system that provides both for the information about human and about non-human actors*'. *Salebot*'s life story enabled us to go back and forth in the analysis between the trajectory of the artefact and the verbatim accounts of the Wikipedians about it. We responded in this study to Badje's (2014) invitation to break down the barrier between technology and culture.

The data relating to *Salebot* comprised the bot's contributions to the encyclopedia, the discourse that it produced and the discourse produced by the Wikipedians about the bot. They were collected in a software that was compatible with Wikipedia's rich text and which organised the data in a tree structure (CherryTree 0.35.7). Collection continued until *saturation* was reached (Glaser & Strauss,

1967). Once the data were selected and collected, we proceeded to the data *condensation* stage (Miles & Huberman, 2003). Finally, we carried out a *narrativisation* where the bot had the role of narrator. In order to produce a credible life story, the literary techniques mobilised were simple, namely an “ordinary” oral narrative behaviour (Adam, 1999). The story assumes a framework, a ‘*chronological order*’ and a ‘*configurational order*’, in other words a temporal and semantic meaning, or ‘*a unity of the isotopic discourse*’⁵ (Greimas, 1970). The reader has to understand the narrator back story. Salebot has been active in the French project of Wikipedia since 2007. It tells us how it came to be accepted and how, until mid-2015⁶, it successfully maintained its acceptance. External validation of the research was obtained by submitting the life story to a heterogenous group of Wikipedians. This group were able to provide elements of correction and confirmation in relation to the data produced. The story, comprising almost 70,000 signs, was considered to be stable when no more modifications were applied by the Wikipedians taking part in the reread.

5 ‘redundant set of semantic categories that make a uniform interpretation of the story possible’.

6 End of data collection.

Results

The verbatim accounts presented are those from Salebot's life story or other elements linked to it. The latter elements, which allows us to situate the origin of the data, will be indicated when they arise.

'Before I was a Wikipedian, I was an IRC bot. In other words, I read the continuous flow of modifications made to Wikipedia and analysed them in order to alert the human patrollers of changes that my code considered to be suspect. I was not a Wikipedian simply because I did not make any changes to the encyclopedia itself. [...] some Wikipedians did not like my policing because of its lack of transparency. Fortunately for me, others were already finding me very useful. And Gribeco was always quick to jump to my defence. He would talk not only about my effectiveness in the fight against vandalism and the presence of identical codes to my own in other Wikipedia projects (other languages) but also about freedom and rights.'

Before Salebot became technically and socially integrated into the Wikipedian community, it was just a tool developed by a Wikipedian patroller (Gribeco). The automisation of a task that had been an exclusively human one up till then opened the debate on the nonhuman actant role of automatism. This process of negotiation, even in the term 'policing', reminds us of the principle of 'delegation' (Latour, 1988). This can be illustrated by the replacement of police officers with traffic lights so that the officers can be put to better effect elsewhere. Salebot's defence is based on the observation that the uniquely human relation that the Wikipedians have with the vandals is 'unreliable and shaky', to quote Latour. The editor Pyb maintains that 'Salebot is a robot that protects Wikipedia. The level of vandalism increases with the number of visits to our projects, so we have to invent software so that we can be more productive. We cannot ask volunteers to monitor changes 5 hours a day, 7 days a week'⁷. Of all the arguments and counter-arguments put forward, this last one predominated to reach a *consensus*. Consensus building is in accordance with number four of the five pillars. Our first observation is therefore that, unlike road users, the Wikipedians themselves produce automatisms and negotiate the contingent delegation. In other words, these discourses show the community's involvement around the legitimacy of the actant with no concern for any central macro-actor, such as the organisation.



Fig 1: Salebot's user page, 22/10/2007 – Licence CC-BY-SA Gribeco & Tony Wills

'Hello, I am a bot in training. My trainer is Gribeco. I am not yet registered as a bot.'

'Today I am eight years old. My birthday is 21 October. This was the date chosen by my trainer because my first contribution as a Wikipedian was on 21 October 2007. To get to that point, he had to spend time programming my code. [...] The first thing I did that day was to suggest the other Wikipedians should talk to my trainer rather than to me. And I also said thanks. Nothing out of the ordinary. They had to wait a few days before I was able to impress them. My trainer had taught me a few things that I had to put into practice. To avoid any potential errors, he put me in the sandbox. This is a page where we can practise and do whatever we like. I made around twenty contributions. And then I was launched!'

Salebot became a Wikipedian 'just like any other', in other words it had an account and a user page, which was relatively simple at the start (fig. 1). Its date of 'birth' generates birthday celebrations among other Wikipedians, which translates the lack of ambiguity on its shared status as social actor in the community. This implies that to maintain the consensus, Salebot has to both do its job and accept the community rules.

'I made errors from the start. One of the first was because a vandal had vandalised another vandal. I hadn't seen this coming and I had to revoke the second vandal's version and return to that of the first. My trainer dealt with this problem. After that, I carried on with my work as an apprentice bot.'

As highlighted by Latour (1988) in his example of the traffic lights, 'an automatism is born that will soon become more complicated and "concrete" or "organic"', which echoes Salebot's trajectory. The bot will be trained to improve its *script*, and there will be two objectives: one is quite mundane (to be more efficient) and the other is symbolic (to be 'domesticated'). Through a

technical vocabulary that is enriched with social meaning, French-speaking Wikipedians facilitate the description of the negotiations of their reality through the observer (the principle of ‘*generalized symmetry*’, Callon, 1984). *Training*, which is the act of programming and socialisation, is just one of the many terms in the Wikipedian repertoire that are in keeping with this principle⁸. The transition from *Wikipedian* to *trainer* signifies that there is an acquisition of a supplementary productive activity. In the Wikipedia environment, the prosumer can freely undertake to have a delegation tool accepted that they have initially designed on their own. However, the process of bot training appears to have become relatively stabilised in the local ontology of the French Wikipedia project.

‘After all that, my trainer decided I was ready to ask for my ‘bot flag’. In any case, it is a bit frowned upon for a bot to work if it has not gone through this stage. [The trainer has to present their bot and the Wikipedians have to vote and justify their choices.] There were those who judged me on my attempts in the sandbox, those who remembered that I had helped them a great deal to hunt down the vandals, those who harangued malicious editors (“Down with the vandals!!!”) and those who found me to be a good tool, efficient, impressive, beneficial, and so on. [...] And then there were those who were negative, including one who remembered that I was taken in by the double vandalism. A human would have been better than me, according to him. [...] The argument [of other] humans was that I was unfair competition⁹ [...] And there were also two “neutral” votes. One was from a wary human. He found that I was doing good work but that the flip side of the coin was that Wikipedians would be less attentive to vandalism. [...] So, all in all, in the absence of a vote “against” [admissible], I obtained my bot flag on 8 november [2007].’

[Treaty] Salebot

Salebot (d · c · b)

Name of owner: Gribeco (d · c · b)

Bot’s aim: To fight against vandalism and spam: deletion of any obviously harmful modifications, warning notifications to authors

Script used: My own script (periwikipedia library)

Already present on, with bot status: none

Already present on, without bot status: French Wikipedia only

Comments: Some concerns about utf-8 at the beginning, smooth sailing since then. I have seen one abusive deletion so far on the Mylène Farmer article (dense blocks of text with no wikilinks and lots of “I love you” :D)

Date and time: 30 October 2007 at 1:14 (CET)

The vote is open to all those with at least 100 modifications on the French Wikipedia at the time when voting opens. Voters are reminded that the only advantage of bot status is that it does not appear in the Recent modifications page. If the For/Against ratio is higher than (or equal to) 75%, the request will be accepted and the bot flag will be requested from the bureaucrats. Voting lasts 7 days.

Fig 2: The header on the voting page for Salebot’s bot flag (archived). Translated from the French.

8 For example, a bot in training is an ‘apprentice’ and when it is deactivated, it has ‘retired’. In addition, the main discussion forum for Wikipedians is called ‘the bistro’, and so on.

9 These two votes were intended to be humorous, which is a trait shared by many Wikipedians. The votes did not count against Salebot.

The *producer* category, although completely intertwined with the *contributor* and *consumer* categories, allows us to identify a well-known marketing mechanism, namely obtaining consent. The trainer is helped by Salebot's fans to obtain authorisation in the form of the *bot flag*, that is to say, an official bot label that enables other Wikipedians to identify it as such. Once again, the same word is both technical and social. Wikipedians see the bot, figuratively speaking, in the technical interfaces, and they know that it has followed the community integration process. Furthermore, this ceremony lifts the lid on an exchange of values. At the end of a project, the trainer agrees to make an effective tool available to a community, which in turn agrees (or disagrees) to give it a collective institutional recognition. Salebot's fans participate in turn in the positive argumentation: '*seen at work on many occasions on acts of vandalism that I had chased. Serious helping hand!*'¹⁰ Which is in accordance with the reciprocity principle of the CASA paradigm (Lee & Nass, 2010). Finally, alliances between actants emerge, not only between the trainer and Salebot's fans but also with the '*Mylène Farmer article*', the *bureaucrats* (Wikipedians ratifying the vote) and even the vandals, without whom Salebot would have no *raison d'être* (fig. 2).

The *bot flag* is a pattern applied by Wikipedians, but it is not implemented by the organisation (Wikimedia Foundation). This is reminiscent of '*The four moments of translation*' (Callon, 1984), which is also used in consumer research by Bettanny (2014). Salebot, the initiative of one individual patroller, responds to the *problematization* (1) of the increase in vandalism by directing humans and nonhumans. *Interessement* (2) and *Enrolement* (3) are found in the apprenticeship and negotiation phases in preparation for the vote. Both Salebot and its trainer have set up an interplay of alliances and reconfigured the roles. What is Salebot doing? What are the Wikipedians doing? What are the vandals doing? And how is this different from before? Finally, the *mobilization* (4) begins when the vote has been sanctioned. The spokespersons (i.e. the bureaucrats recording the result, the trainer and Salebot's fans) mobilise to '*render the following propositions credible and indisputable by forming alliances and acting as a unit of force*'. The Wikipedians allow everyone the chance to challenge a bot. Any challenge would be followed by negotiation until a consensus is reached and a decision is taken to retain or deactivate the bot's account. Salebot's trainer put certain measures in place to mobilise its fans and thus retain his bot, that is, he made it *credible and indisputable*. In addition to rapid error correction and his presence (albeit discreet) in community spaces, he also allows Wikipedians who are happy with services rendered by the bot to leave a message. At the bottom of Salebot's user page there is a space for testimonials, where people can

10 One voter's argument in favour of the Oblic *bot flag*.

praise its achievements. This page is automatically protected from malicious contributions by Salebot itself.

Testimonials

Thank you very much Salebot for being so vigilant and for intervening almost immediately after the Mère Térésa article was vandalised! I've noticed the English Mother Teresa site often gets vandalised, and most of the time it is anonymous. Would it be possible to restrict any modifications on this article just to people registered with Wikipedia. That would limit the amount of vandalism. Regards, Calysto.

Thanks for your almost instant repair! Yohann 15 March 2008 at 22:19

Beautiful clean-up job. Fast, effective and relevant every time, both on the articles and the personal pages. (jlt69006 24 January 2008 at 20:59 (CET))

[...]

Just two syllables: awe-some! Well done for providing this unexpected and effective helper! ©éréales Kille® | Speak to me | this 22 November 2007 at 19:28 (CET)*

Many congratulations to Salebot (and also its trainer), which reverted the vandalism on my personal page the minute it happened. Sadly I am less efficient – it took me a whole day to realise-- • Hamelin [de Guettelet] • 29 November 2007 at 00:00 (CET)

Hey, Salebot, 2 litres of oil to your health; D Alvar  29 November 2007 at 16:59 (CET)

Well done for not having any qualms! DocteurCosmos -  29 November 2007 at 18:09 (CET)

[...]

I'm fed up being outsmarted by RC for the past few weeks, and I warn you salebot, if you do not change your behaviour, you can expect to meet the same fate as the speed cameras on French roads. We know where you live, where your children go to be programmed and where your wife buys her oil. Life is short. Lilyu (d) 29 December 2007 at 16:47 (CET)



Fig 3: Testimonials section on Salebot's page (translated from the French) and pictogram allowing users to attribute an award to a bot.

Wikipedians can express their thanks by giving out *awards* (fig. 3) in the form of pictograms. This is certainly true in the case of the bots, for example there are a dozen awards on Salebot's page. This symbolism is increasingly being found on the discussion spaces (particularly on the main one, *Le Bistro*). Some users were delighted, for instance, that this 'Sacred Salebot' defended the labours of Hercules when it revoked an act of vandalism on the article 'Augean Stables'. It even took on the air of Zorro¹¹ when another user sang its praises, calling it the 'Crafty robot that takes the law into

11 Famous fictional twentieth-century Californian hero.

its own hands' (translated from the French). These many traces promote the discourse that would like to see Salebot regarded as redoubtable and irreplaceable. The two media providing the vehicles for this discourse are the written word and the image. These both eloquently diffuse not only the myth but also its position as an actor.

'The matter of maintaining me and managing my failures has not completely disappeared. Even though the patrollers always take over, the idea of cloning me comes up again and again [...] Yelkrokoyade suggested that maintenance on me could be carried out collectively. It's true that my trainer does everything himself, which puts into context how reliable I am. [My trainer] would obviously prefer me to be cloned, as happened with SalebotJunior. Such cloning using my open source code raises a security issue however: Can I be reproduced in a malicious form? Will there be a VandalBot one day? Kropotkine 113 and le sourcier are not worried: a vandal bot is first and foremost a vandal and, as such, would be blocked by the community.' (translated from the French)

Akrich (1987) stressed that *'failure is a test of the solidity of the sociotechnical assemblage'* (translated from the French). Wikipedians perceive their alliance with Salebot and its trainer to be fallible because one actant can break it up and enter into *'dissidence'* (Callon, 1984). In this case, the actant is the computer that hosts Salebot. Salebot is independent of any organisation, including the Wikimedia Foundation. The trainer manages the hosting directly even though he may experience computer failures or losses of connection that *'betray'* him. When this happens, Salebot is a hostage and cannot fight against any vandalism. This fact is revealed straight away, and the human patrollers pass the word round that they would have to hunt down the vandals like they did *'in the good old days'* (translated from the French)¹². Generally, the trainer manages to restart Salebot within a few hours, but the patrollers seem anxious at the thought that the system is so fragile. The task is not necessarily an amusing one, and the pressure is intense (24-hour surveillance). The alliances have been undermined, and new ones are considered. Time and again, the idea of cloning Salebot is put forward. The clone could be hosted elsewhere under the responsibility of another trainer so that it could take over if Salebot broke down. As simple as this sounds, however, attempts at cloning have never lasted very long.

12 Discussion topic 'Has Salebot crashed? It's over to the patrols!' (translated from the French) in the Bistro on 18 September 2009 (author: Dodoïste)

Blocked by Salebot

hello i've just been blocked by salebot even though i've not vandalised anything (i've got a dynamic IP) so, without wishing to offend salebot, this is a violation of the first law of the robots: 'A robot cannot undermine a human being, nor can it, by remaining passive, allow a human being to be exposed to danger' see box <http://fr.wikipedia.org/wiki/Utilisateur:Salebot> i am not in any way a vandal kind regards — *The preceding unsigned message was left by Electrical fence (to discuss)*, 28 June 2013 at 13:48.

[...]

Do you have any secondary sources to prove you are not a vandal? Please note that all editors, a fortiori with an IP, are automatically a suspect.^[ref. necessary] [Oblomov2 \(d\)](#) 28 June 2013 at 17:38

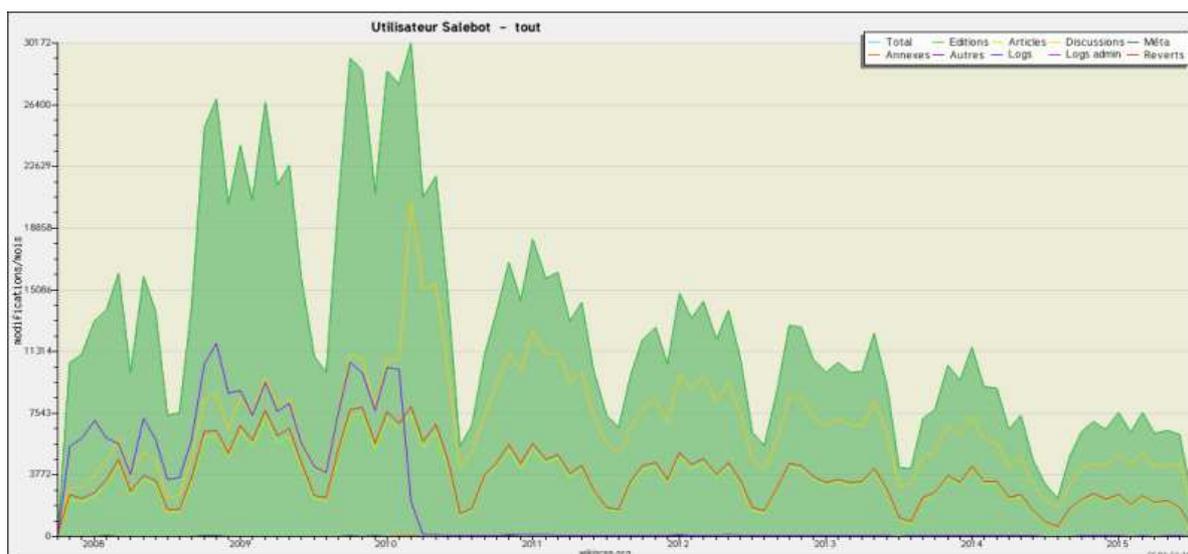
Fig 4: Discussion topic 'Blocked by Salebot' (translated from the French) in the Bistro on 28 June 2013

Throughout its life, Salebot, while accepted on the whole, has suffered some criticism. One of the most frequent criticisms has related to its translation process (Callon, 1984). During the different stages (which may be overlapping) but especially in the apprenticeship phase (in other words, the *interressement* phase), roles are distributed, identities are modified, alliances are sealed and links are forged or broken. These discursive exchanges and this image (fig. 4) reveal a break in the link¹³. Anonymous editors (identified only by their IP address) are usually suspected of vandalism. Salebot has included this position in its automatism. Of course, not all anonymous editors are necessarily vandals. Salebot created links between Wikipedians during its integration process and maintains them, for example, by alerting the patrollers of suspect contributions. However, it has broken some links as well, such as those between the Wikipedians and the vandals and between the Wikipedians



and the 'natural suspect[s]'. Salebot is a barrier that protects Wikipedia, and Wikipedians do not take into account the human/nonhuman status when making judgements about individual rights. It is an actor's Wikipedian/non-Wikipedian status that gives them rights in this ontology. This is why Salebot (or *Badbot* translated from the French) does not respect the laws of robotics, which are a human not a Wikipedian construct. In other words, this particular editor who is complaining does not have a clear enough vision of the meaning incorporated in the actor-network. The Wikipedians who have played a part in installing the Salebot tool remind this particular editor of this fact in no uncertain terms.

¹³ The caption of the picture is : 'Salebot acting as a shield between a flower and a vandal.'



Is Salebot soon to be unemployed?

When I look at our favourite anti-vandalism robot's activity profile, there is nevertheless a clear decrease in the number of interventions over the years it has been active. Are editors becoming more well-behaved? [Nguyenld \(to discuss\)](#) 10 December 2014 at 17:53

Fig 5: Discussion topic 'Is Salebot soon to be unemployed?' (translated from the French) in the Bistro on 10 December 2014.

Wikipedians have activity tracking tools available to them on Wikipedia¹⁴. Salebot's contributions are shown here. The editor is commenting on the bot's decreasing level of activity and puts forward a hypothesis: Is vandalism on the decline? Other suggestions are made, such as the patrollers have become more active or the vandals, more underhand. We put the question to Salebot's trainer, Gribeco. In his opinion, the decline began in 2010 when the *AbuseFilter* tool was given new filters. AbuseFilter is a tool that is integrated into MediaWiki, the main Wikipedia program. It helps in the fight against vandalism but follows a different logic to that of Salebot (for example, by warning vandals before they make any changes to the encyclopedia). MediaWiki is maintained by the Wikimedia Foundation. These are two tools that face the same set of problems: one comes from the organisation while the other comes from a bot with a single user account. Salebot's life shows that Wikipedians have succeeded in industrialising the fight against vandalism by translating the community consensus. In line with Callon and Latour (1981), the question we, as researchers, have to ask is: What is the force relation between the prosumers and the organisation that Salebot and MediaWiki translate? In order to encourage editing as a vocation and to avoid editors turning their backs on the project, the Wikimedia Foundation may be interested in improving the editing

14 <http://fr.wikiscan.org/>

experience. This would consist in simplifying the MediaWiki tools, as was the case with a new articles editor, which was more like text processing than the traditional but austere Wiki markup. Tools that are developed gradually can compete with any solutions already in place following the prosumption activity. If we put ourselves in the position of the aforementioned editor who was complaining of being stigmatised by Salebot, we can see from the response to that editor's complaint (fig. 4) that certain discourses from Wikipedians can cause a deterioration in the editing experience. In other words, a tool like Salebot, even with a policed discourse, remains a bad border for less experienced editors. The force relation between the macro-actors (the Wikimedia Foundation and the Wikipedian community) emerges with the conflicts linked to project divergences.

Discussion

Salebot's life among the Wikipedians is marked by different stages. ANT allows us to detect the actions and interactions between the actors who negotiate the resolution of these different stages as well as a part of their reality. Wikipedians are not paid by the Wikimedia Foundation, but by sharing in the projects, they have considerable freedom of action. Salebot is a mechanism for delegation (Latour, 1988) and an independent organisational initiative even though it imposes a policing of Wikipedians' activity. Because this nonhuman saves both the volunteers' time and the project from vandalism, there is a decisive argument for having it accepted. Hence, the emergence of this algorithm can only be understood as a technical and social fact. Its script will evolve over time to take into account 'youthful' errors as well as the outcome — never very stable — of any conflicts between actors. Latour adds that the automatism becomes ever more '*concrete*' and '*organic*'. Salebot's user page, for example, was initially illustrated with an industrial robot, but this was subsequently replaced with a humanoid. Wikipedians decorated it with a laurel wreath, and they offer it presents on its birthday. These user-generated patterns are both spontaneous and instituted. The organisation's discourses do not act as the inspiration (although they do authorise them) when the prosumers are dealing with stabilising the negotiation process. The bot flag corresponds to this institutionalisation of the Wikipedians' common management of reality. Once Salebot becomes officially accepted, it must mobilise the actors in order for it to become indisputable (Callon, 1984). An alliance is sealed between the bot, its trainer and its fans. The fans produce the discourses, which in turn generate criticism. The conflicts originate in the links that Salebot has broken and in the fact that the anonymous editors are automatically suspected of

vandalism. In this respect, Salebot is a measure that effectively removes the possibility of the organisation choosing who can take part in the presumption. The Wikimedia Foundation's 'commitment' is to allow 'every single human being' to share knowledge. However, the prosumers have constructed a reality in which the right to share is ringfenced for (human and nonhuman) Wikipedians¹⁵. Salebot's autonomy comes at a price. Its allies can betray it, for example in cases when it breaks down due to fallible hosting. The 'sociotechnical assemblage' is thus put to the test (Akrich, 1987), and this generates anxiety among Wikipedians. The prosumers therefore appear responsible for their productive activity. In order that Wikipedia does not succumb to vandalism, they take over from the bot while negotiating solutions for the future. Finally, the results of our research reveal the underlying force relations between organisation and prosumers. The problematisation of vandalism is as interesting for the Wikipedians as it is for the Wikimedia Foundation. Each party, with their interplay of alliances between humans and nonhumans, can claim to influence the Wikipedia projects. Conflict resolution between an organisation that encourages presumption ('*Wikipedia has no firm rules*'), on the one hand, and prosumers that form their own rules, on the other, can prove to be complex.

This research has shown, in line with recent studies on consumer research (see, for instance, Bettany, 2007; Epp & Price, 2010; Giesler, 2012; Martin & Schouten, 2014), that ANT has been a powerful analytical tool. Its performative position on sociotechnical phenomena is based on the observation that the definition of reality requires the intense involvement of many actors. Our choice of methodology confirms that ANT brings with it two advantages, which we have tried to exploit. First, ANT suggests that the nonhuman actors should be given a voice. This viewpoint demands a certain inventiveness to orchestrate the production of qualitative data, and this therefore lays the methodology open to criticism. However, efforts to safeguard access for nonhumans seem to be worthwhile. Even though they are trained by humans, they are subjects in their own right in the fabrication of their ontology. As Geiger (2011) already pointed out on the subject of bots, this has general methodological significance: '[they] *simultaneously produce and rely upon a particular vision of how the world is and ought to be, a regime of delegation that often sinks into the background*'. Our research suggests, in line with ANT, that nonhumans should be rooted out from the background. The second advantage of ANT is that it proposes a pathway towards a detailed understanding of complex phenomena. Marketing research is faced with an increasing complexity of the relations between production and consumption, between technology and culture and even

15 It will still be possible to show that any human being can potentially become a Wikipedian.

between professional and amateur marketers. We confirm Badje's (2013) observation that '[ANT] is interested in delving into the mechanics and the politics of heterogeneous relations enacting consumption', and we would also add 'prosumption' to the end of that statement.

Taking an interest in the ontology of francophone Wikipedians means entering a disconcerting reality. We have understood these Wikipedians as prosumers because their activities intermix consumption and production, enjoyment and labour and individual satisfaction and collective works. An organisation — the Wikimedia Foundation in this case — benefits from the work of prosumers to carry out its projects with the explicit strategy of allowing them considerable freedom of action. The account of Salebot's life sheds light on the mechanisms at work in this community as well as on its capacities for self-determination. The individuals are not content to just produce what is asked of them. They set about inventing prosumption models. Salebot, for example, has to protect the collective work, set up a barrier to mark out who can participate and even clarify Wikipedian identity. Salebot's success is the expression of a community of post-consumers who are sufficiently autonomous to free themselves to a large extent from both academic and managerial marketing (Firat & Dholakia, 2006). Our main theoretical contribution is to assert that individuals are not so much empowered by an organisation as empowered by themselves when it comes to organising an ontology of prosumption.

This result implies the presence of some kind of tension. When the organisation supplies the means necessary for prosumption, it leaves the field more or less wide open to prosumers. These prosumers, talented at producing their realities, therefore have '*black boxes*' that are opposable to the organisation, in other words they have favourable asymmetries in the force relations (Callon & Latour, 1981). How can the organisation's managers steer the change in offering in these conditions? Should these gifted prosumers be given free reign? As we have already mentioned, the French Wikipedian community is not monolithic. Kostakis (2010) reports on the opposition between inclusionists and deletionists, or, respectively, those who encourage the entry of new Wikipedians, even if they have to deal with contributions of mixed quality, and those who prefer to manage without poor-quality editing, even if this discourages some editors. The Wikimedia Foundation may wish to re-establish leadership over what they consider Wikipedia projects ought to be by opposing the inclusionists with the deletionists. This force relation is illustrated with a tool that could be implemented by the organisation, which is called ORES (Objective Revision Evaluation Service)¹⁶. This tool helps in the fight against vandalism by judging whether or not

16 http://www.lemonde.fr/pixels/article/2015/12/02/wikipedia-se-dote-d-une-intelligence-artificielle-pour-mieux-reperer-le-vandalisme_4822312_4408996.html

poor-quality contributions are malicious (if it deems a particular contribution not to be malicious, then the ‘suspect’ is taken care of diplomatically). Technologically speaking, ORES uses a powerful artificial intelligence that is based on *machine learning*. It is a rival solution to the one put in place by the prosumers (Salebot, in this case). To make it work for the organisation, the ‘*hardware race*’ (Latour, 1988) will have to propose a more robust interplay of alliances than those of the measure already in place. The organisation that cohabits with prosumers must consider the technical and the social as a single entity and therefore develop means that are credible and acceptable to the presumption community.

Conclusion

We have discovered that by leaving it to the prosumers to think up the rules of the game, they can put their skills to work in order to produce their reality. This calls into question the relations between individuals and organisation in the absence of marketing discourse. Underlying tensions can emerge between projects while the resolution of potential conflicts requires that complex alliances be put in place. From a methodological point of view, marketers, whether professional, academic or amateur, can analyse such situations by using ANT. This is what we have done in this study to follow the social trajectory of a bot, a nonhuman actor from a presumption community, namely the Wikipedians. However, hybridisation with other approaches should not be ruled out. We think that the discourses produced by a community resemble *storytelling* techniques (Woodside et al., 2008), and these are analysable. Beyond the traces they leave to coordinate their actions and construct their reality, human actors ought to be able to contribute relevant elements during interviews. In the present case study, the deconstruction of the story told by the Wikipedians (patrollers and bot trainers) has to be facilitated by hybridising it with the viewpoints of the Wikimedia Foundation managers, the anonymous editors and even the vandals. The case of Salebot and the community of French Wikipedia editors may pave the way for future research that takes into account individuals’ capacities of effective and measurable presumption. Moreover, furthering research for a better understanding of business-to-prosumer relations is certainly desirable. However, the next step may also lead to a consideration of the increasingly visible prosumer-to-prosumer relations

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