

Remembering Voice Past: Linguaging as an embodied interactive cognitive technique

1. Two diverging approaches to languaging

Etymologically, the word *language* means, literally, *tonguing* (*lingua* “tongue” + *-age* < *agere* “act”): according to the implicit popular conception of human verbal activity such as it is conveyed by the lexical roots, language consists in “playing the tongue” as one “plays the trumpet”, that is, use a coordination of one’s body organs to produce an audible signal. Under this definition, a particular *language* (French *langue*) is, by metonymy, the total sum of oral actions that can be interpreted (in the musical sense) by a speaker belonging to a given community and engaged in the process of “tonguing” in a recognizable and reproducible way for other members of her community. This popular approach construes language as an instrumented modality of embodied action in which the instrument is a bodily organ akin to Leroi Gourhan’s society-making tools and techniques, and it paves the way for the 20th century philosophical and psychological theories which took the actional nature of language as a starting point: from then on, the main issues under scrutiny are (i) what does languaging do to “us”? – a question which falls into several sub-questions depending on the space and time scale considered: “us” as talking subject engaged in first-order languaging in the context or stead of non-verbal action (including keeping silent), “us” as enduring subjects permanently modified by the language faculty even when it is not mobilized, “us” as a self-organizing species engaged in a historical-evolutionary process of renegotiating our bond with the environment; and (ii) what role is played by the embodied and interactive nature of languaging in the production of the aforementioned effects? Pierre Janet, a philosopher and psychologist (1859-1947), the founder of dynamic psychology, a model of the relation between thought and action, considered verbal thinking as a force that counter-acts the effects of the pragmatic obstacles which prevent bodily action from achieving goals, and language as a system of embodied actions aimed at synthesizing an awareness of impossible actions and situations (that is, actions impossible to plan, or situations impossible to conceive, otherwise than by wording them). One of his pupils, priest and anthropologist Marcel Jousse (1886-1961), initiated an *anthropology of gesture* which established the instrumentality of bodily gestures in the processes leading to knowledge, memory and expression; language structures and processes are founded on natural binary rhythms, and in speech processes, the somatic articulation of signifiers, whose meaning or effect is derived from the non-verbal functions from which the organs are exapted, is psychologically significant (“la manducation

de la parole”). The philosophical counterpart of the interest given to somatic processes is to be found in Louis Lavelle (1883-1951), who defines human freedom in terms of acts of awareness and consciousness executed in action, notably verbal action, in which man “creates himself” in the same way as God creates the world: *La parole et l’écriture (Speaking and writing)* (1942) is devoted to the facets of the multimodal experience of linguistic action and its self-creating effect upon the mind. And most importantly, Merleau Ponty’s (1908-1961) phenomenology of perception defines the body not as an object to be stimulated by sensation, but as an acting experiencer whose action, exploration and perturbation of the environment and targeted objects plays a constitutive role in the relational co-emergence of subjects and objects and shaping of embodied consciousness – notably through speaking performances: “speech is not the sign of thought”; thought is not an “internal” state or immaterial process independent from words encoding it as an aftermath: rather, thinking is a living, embodied activity grounded in biomechanical, sensorimotor agency and interaction. In contemporary research, the role of embodiment in the signifier is studied in the field of the connection between gesture and speech (McNeill 2005), the motor theory of speech perception (Lieberman & Mattingly 1985), the anchoring of syntax in motricity (Allott 1995) and the emergence of a chronosyntax (Valin 1981, Macchi 1986). Interactivity is instrumental in shaping the subject (Dinis 2010), and individual cognition is extended biomechanically (Clark 2008), including by language (Steffensen 2009), or distributed over a relational network by non localizable processes (Cowley 2007, 2009).

In this context, it comes as a surprise that linguistics should have consistently overlooked the trivial empirical heuristic evidence that speaking is a modality of action; only few linguistic theories are grounded in the notion of signifiers as sensorimotor loops and interactive gestures: Toussaint 1983 for the connection between articulatory and mental processes; Philips 2009 for the semio-genetic theory applied to the English lexicon, Tobin 1997 and Bohas 2006 for semitic languages; Bottineau 2008 for cognematics. As a general rule, in linguistics, the lexicon and the grammar of a language (the rules of compatibility, variation and succession of the elements forming an efficiently and satisfactorily meaningful sentence) are not considered as a coordination of interactive gestures in an encompassing modality of action. After Saussure, structural linguistics studies languages as ensembles of abstract forms belonging to a self-organized system with word classes, grammatical categories, morphological and syntactic constraints, distributional rules, contrasting values opposing commutating terms: the forms under scrutiny, treated as symbolic objects independently from the way in which they are experienced, are the disembodied transcriptions resulting from human units of action, and the manipulations testing the validity of the models like commutation are the linguist’s as a substitute for ordinary speaker’s spontaneous behaviour (which makes it possible to analyse artificially coined sentences, some of them highly improbable in real life, but in structural

conformity with morphosyntactic patterns). This methodology has proved its value as it did demonstrate its efficiency in characterizing the formal and combinatory properties of language units and sequences independently from the conditions of their corporal motoric production, perceptual “consumption” and psycho-semantic effects on speaking partners, and some of the most fervent supporters of a phenomenological reconstruction of verbal action, myself included, are not favourable to rejecting the formalistic methodology along with the robust results it has yielded¹. But it failed to incorporate language as a social fact on the research agenda (Calvet 1973) (the sociality of language is described by pragmatics and studies in language variation, but it is not assumed as a founding parametre for the description of words and structures as interactive processes or for the modelization of grammatical semantics, except in Douay and Roulland’s Theory of the interlocutive relation), it is still refusing to operate this integration (Newmeyer 2003)², and this approach has contributed to maintain orthodox conceptions of language as a formal-symbolic material go-between shuttling “messages” and “information” from an encoding (or structure-generating) and emitting mind to a receiving and decoding one. In cognitive linguistics, lexical semantics and grammatical constructions reflect the verbal-semantic processing of psychological representations and the elaboration of complex image schemas independently from the actional and interactive dimension of signifiers: meaning and conceptualization are indeed grounded in the embodied experience of the material world, but the mediating and shaping role of intersubjective co-action is widely ignored (as Croft 2009 explicitly recognizes in a stunning profession of faith in the need to bridge the gap between the psychological and the social, as if linguistics were not the only discipline to have ignored the other disciplines’ progress in this domain over the past century)³. In Cartesian linguistics, the innate Universal Grammar motivated by the “poverty of the stimulus” ignores even further the embodied nature of the body and mind shaping through formally

¹ Some are, though. In his theory of the analogical locutor, René-Joseph Lavie maintains that in a model which stipulates that speakers are competent producers and recognizers of verbal exemplars analogically linked to a string or “plexus” of recorded similar exemplars, semantic categories and formal classes are an unnecessary burden, irrelevant for modelizing cognitive dynamic processes.

² Newmeyer 2003’s title clearly reinvalidates that “Grammar is grammar and usage is usage”.

³ “[The foundations of cognitive linguistics] are incomplete. In particular, as my title implies, they are too solipsistic, that is, too much ‘inside the head’. In order to be successful, cognitive linguistics must go ‘outside the head’ and incorporate a social-interactional perspective on the nature of language.

Cognitive linguistics can do so by incorporating certain foundational work in pragmatics and sociolinguistics. Integrating these two perspectives, the cognitive and the social, would be an important step in providing a genuine approach to the whole of language. There is a long-standing separation of the social of psychological dimensions in the study of human behavior, language included. This gap must be bridged in order to achieve progress in understanding the nature of language.” (Croft 2009, 395). We can only agree with this statement, but the enterprise we advocate goes far beyond a mere incorporation of pragmatics and sociolinguistics in the representationalist paradigm of cognitive linguistics. What is needed is a general reconsideration of languaging as a modality of action and interaction, a phenomenological reconstruction of its processes and units, and a redefinition of the questions and hypotheses dictated by this reconstruction.

coordinated interaction, common to languaging and the technical use of tool according to Leroi-Gourhan⁴.

We are therefore confronted with a spectacular divorce opposing the phenomenological reflection on languaging as a modality of experience in action and as an embodied interactive practice generating ideas and giving substance to the process of “thinking” on the one side, and the linguistic approaches which consider languages as self-organized formalisms reflecting generative or computational processes, or the encoding of psychological, language-independent semantic processes and representations; or the reflection of abstract core values (Guillaume’s *signifié de puissance* in psychomechanics of language⁵, Culioli’s *forme schématique* in the Theory of Enunciative and Predicative Operations, and Adamczewski’s *invariant métaopérational* in the Metaoperational Grammar or Theory of Phases). To get out of this situation, an attempt at reconciling linguistic models is currently developing, in the steps of the enactive paradigm on the one hand and of distributed cognition on the other. The idea is that linguistic descriptive categories (word classes, morphological categories, syntactic constructions) should be redefined in terms of embodied interactive processes organizing communities and shaping individual’s ordinary coupling with the environment (both material and social): just as developing humans are inevitably recruited by the surrounding practices and techniques animating the environment they were born in, developing subjects will inevitably be recruited by the ongoing talking game, learn how to put forward their own embodied contributions, and, in so doing, engage in the relational, bi-lateral profiling of the dynamics of the community they are a member of and of their own self as a dynamic agent and experiencer. The lines of this programme are the following.

2. Languaging as embodied and intersubjectively distributed action

From a third-person observational perspective, human speech consists in producing acoustic events through bodily action: the expiration flow is deviated from the nasal cavity into the oral cavity and expelled at a controlled rhythm; its acoustic quality is altered by a series of disturbances caused by the motoric intervention of articulators normally dedicated to other functions – the teeth for cutting

⁴ “En effet, ce qui caractérise chez les grands singes le “langage” et la « technique », c’est leur apparition spontanée sous l’effet d’un stimulus extérieur et leur abandon non moins spontané ou leur défaut d’apparition si la situation matérielle qui les déclenche cesse ou ne se manifeste pas. » (1964, 163-4) « Indeed, what characterizes « language » and « technique » in great apes is their spontaneous appearance under the effect of a stimulus and their no less spontaneous abandon or failure to appear if the material situation that causes them ceases to be or does not exist.”

⁵ Gustave Guillaume’s psychomechanics is a relative exception in this respect as it studies grammatical forms as markers of positions and processes in a kind of cognitive automaton (the *radical binary tensor*) analogous to Pierre Janet’s *automatisme psychologique*, and envisages the active role played by morphological “interceptions” in the stabilization of thinking and meaning production.

and crushing, the lips for kissing, the tongue for sucking, and so on. Oral speech sound production is obtained by exapting organs from their primary biomechanical function, which usually entails physical interaction with some object from the external world (food, or a human body), and adapting those organs for a secondary function around which they are coordinated and interact reciprocally without relating with any intruding object: the production of perceivable intentional sounds, analogous in acoustic qualities and behavioural pattern with models supplied by collective practices and experienced as standard routines to be replicated for the individual turning into a player in the verbal team. In this third-person approach, it may be hypothesized that the acoustic events in question are to be matched against either representations or mental processes, in short, that they encode some non-material process into a material, perceivable event for the sake of *cognitive trade*, the free transmission and exchangeability of semantic values symbolized by material tokens. In this perspective, verbal exchanges are reduced to a reductionist interpretation that sees language as an immaterial and symbolic form of trade, in which the objects exchanged exist independently from the verbal forms that symbolize them and carry them across the non-cognitive, non-mental physical spaces separating the bodies and the minds they are supposed to host.

From a first-person experiential perspective, however, this commercial theory of speech is seriously compromised by another way of using language, which is hardly ever taken into account within the disciplinary boundaries of linguistics (for the reasons evoked in section one, the disembodied approach to language): *endophasia*, inner speech and thinking. As it happens, as every human mind knows and experiences daily, verbal actions are not only executed to communicate somatically, activating the *outer voice* to produce and, etymologically, *express* audible acoustic signals that can be detected and measured by instrumented science; verbal actions are also performed in an imaginary way, or simulated, in order to activate the inner voice, the ordinary experience of mental speech, and impress no less audible signals for the benefit of the reflexive mind. Endophasia involves a partial simulation of the motoric / perceptual loop: to think verbally⁶ is to dream in a state of intentional awareness the motoric act of speech production without visualizing one's own acting body and, at the same time, to focus on a sketchy simulation or anticipation of the perceptual effects of one's own vocal activity – a fact which can be checked by deliberately varying the rhythm, melody and intensity of one's own “thinking” and controlling intentionally the motoric and perceptual patterns that are being simulated. Following the Varelian methodological protocol, these intuitive insights into subjective experience can be mapped against instrumented hard science by experimental tests (for example, checking by neurological imagery if cortical areas involved in the

⁶ Strangely enough, common language amalgamates verbal and non-verbal thinking in the same term, think / penser, as if the popular conception of thinking were reduced to the activity of reflexive speech production. Cf. also *réfléchir* (reflect / think over) and *méditer / méditation*, ponder which, so long as they are not used in the context of the Buddhism, always refer to a verbalized form of cognition.

motor control of speech production are indeed activated in specific ways when a subject is instructed to accelerate, raise the pitch or reinforce word stress in a task of mental reading, recitation or tale-telling); but for lack of interdisciplinarity and collective construction of hypotheses and objectives, they have so far failed to be taken into account in linguistic science. The issue is a serious one as it entails the following two tenets:

- languaging cannot be reduced to the encoding and exteriorizing of an internal representation or process; linguistics forms cannot be reduced to the consequences, the products, the results or the effects of underlying non-physical processes, be they of “cognitive” nature or not. In other words, what I call the *geological conception of verbal forms* should be seriously relativised in favour of a biosemiotic conception in which linguistic forms are defined as the motor-sensory loops by which cognitive effects are stimulated.

- languaging should not be reduced to an interplay between unequivocal entities endowed with roles like the emitter and the receptor, the addressor and the addressee, the enunciator and the interpreter. Embodied processes of sign production are social and intersubjective in nature. Social, in that they represent the reproduction of collective routines and enable any subject to re-shape herself and acquire relational identity and substance: a subject saying “I” will redefine herself (i) as a relational “I” to be connected with and opposed to any other relational role like “you”, “we”, “they”, (Benveniste’s *appareil formel de l’énonciation*), and (ii) as the present instance of the relational *I*, to be mapped against past instances previously activated by the same verbal operator in other situations and different contexts. For example, in the Basque language, the sentence in the present tense *ni gose naiz* ‘me hungry am’ → “I am hungry” will become in the past tense by *ni gose nintzen* ‘me hungry was’ → “I was hungry”, with the verb *nintzen* containing an agglutinated element *nin-* which happens to reiterate the pronoun *ni* “me” in combination with a past marker *-n*, as if in English the very pronoun *I* could be inserted in the verb in combination with an *-ed* past tense form (which is reserved for “I” and does not coincide with the verb’s own tense inflection): the Basque verb explicitly causes the user to conceptualize two separate instances of her own self, one in the present *ni* to initiate an awareness of the current speaker, and one in the past *nin* to activate a secondary presentation of the same “person” in the role of memorized instance which experienced the feeling of hunger in the past but does not coincide with the current self that is in the process of talking and reconstructing a memory. Basque speakers are trained by these linguistic forms to reiterate distinguishable instances of their own selves in relation to varying psychological landmarks (perception, memory and imagination) and practice the synthesis of the continuous ego in the basis of this multiplicity. More generally, in all languages, speakers are trained to reproduce by motor-sensory stimulation embodied cognitive procedures. This act of stimulation will affect either a targeted addressee in the case of exophasic communication and/or the reflexive self in the case of

meditative endophasia: by incorporating the “form” and abiding by standard norms of embodied procedures, the user will cause herself and others to carry out common routines of conceptualization and learn how to cogitate both for private and public purposes. In addition, verbal practices are, at the very level of sensorimotor execution, intersubjectively distributed: according to the motor theory of speech perception, the recognition of syllables requires the simulation by the listener of the motor process by which she would produce herself an analogous signal; as a result, the multimodal dimensions of the experience of speech production are shared by the interacting subjects, and the semiotic effects they produce are shared. From the repetition of conceptual standard practices there emerges a system of beliefs which, as infants develop into adults, shapes the cultural system of knowledge and values: everyone is a continuous ego with a present experience, a memory of past events and actions and an anticipation and partial control over future events and action. That is, however, how we are trained to speak about ourselves, how the collective practices which model our behaviour dictate us to present ourselves to other and, eventually, produce by our very action the “reality” which is supposed to have motivated languaging in the first place. To speak is to act upon the *me / (you) / it* relation, to make one(self) think over something, and to learn how to make one(self) exist, act and evolve along the lines of verbal interactive standards: languaging participates in what Simondon 1989 calls the psychic and collective individuation and, as an inevitably learnt *tekhne*, constitutes the human being as a born artefact (Stiegler 1994).

3. Languaging as a cognitive technique

As a philosopher, Merleau Ponty is right in insisting that virtual or actual speech processes play a key role in the emergence of meaning in subjective experience. What is less acceptable is the way in which Merleau-Ponty consistently denies the existence of any forms of thinking independently from speech processes. In human beings as well as in the animal world, perception entails recognition of entities on the basis of previous encounters which have given rise to dynamic interaction, itself a generator of sensation to be interpreted and, one way or another, recorded (the trace being a category in the cognitivist paradigm; in the enactive paradigm, the trace is the way in which the “structure” of the living being is affected, that is, the way in which the motor-sensory loop is modified in real time so as to increase its potential for prediction-making and efficient decision-taking for promoting viability and well-being in the face of renewed encounters). Individual members of any species keep enacting an Umwelt which depends on their sensitive captors, on the neural processing of the signals (the human system of colours is entirely dependent on critical

thresholds characterizing the human way of producing colours⁷), but also on the motor potentialities and actual training on their own body⁸, which determine the typology of relevant physical encounters that the perceptual system should become able to recognize and anticipate⁹, along with the values and projects that can be ascribed to objects, situations and living beings. In the enactive framework, “autopoiesis = cognition = life” (Stewart et al. 1976): the continuous progress of the prediction / decision capabilities of living being (from unicellulars to mammals) through the evolution of the motoric-sensory loop in real experience and time is constitutive of the self-determination of experience, relevant intervention in the universe and meaningful co-determination of the properties of the related and distinguished subjects and objects, so cognition is “there”, everywhere once there is some life to make things mean something to someone, and this meaning can be as elaborated as the attribution of complex affordances that predetermine the projects and values inherently attached to any encountered object in contextual situations and interactions. Interactive and converging ways of enacting the “real” federating individuals in a given species are defined as a *consensual domain of interaction* by Maturana¹⁰. So the question that remains is to understand the nature of the verbal contribution in this network. To achieve this, two elements must be taken into account:

(i) to speak is to produce a signal, to act somatically upon the physical environment shared by the interlocutors, to modify the semiotically relevant transitional properties of the medium, and to focus the interacting participants’ joint attentions on this ongoing process. Linguaging causes human ongoing awareness to look away from the ordinary immersion in the whirlpool of natural signals emitted by the “world” and refocus itself on the interpretation of the cultural signals emitted by

⁷ Which does not mean that « dogs don’t see colours » as is frequently heard, but that dogs have a canine system of colour production, which might be accessible to neuroscientists from a third-person viewpoint, but which human beings will never be able to experience and see in the first person – at least so long as they are unable to transplant the relevant slice of canine visual neural system in their own brain, and de-activated their own.

⁸ For example, the baby’s range of sight develops as the mother makes it explore the spatial world physically. Before that, the baby’s vision is restricted to the spatial field constituting the environment into which it was born: the distance separating the mother’s face and breasts. The extension of the visual field depends both on the knowledge of space acquired through physical movement, either mediated by the mother or autonomously, and on the presence of invisible attractors beyond the limits of the initial range, like the father’s voice.

⁹ For example, the gravitational field is neither seen, nor felt. Knowledge that bodies are forever stuck to the ground by an invisible force causes visual perceivers to embed a gravitational field in the enacted visual scene: the ceiling is the place where one cannot walk, the mountain top is the place that will require an effort to be reached. Visual enaction is trained to carry out the neural processing of the signal on the basis of relevant sensorimotor predictions, or *natural affordances*, which can be embedded in the mind sight on the basis of previous experience.

¹⁰ The « reality » enacted in a specific domain of interaction by a given species is not « neutral » and objective as it depends on all the autopoietic (self-evolutionary and identity-constituting) processes mentioned before, but it is not solipsistic either as its objective is to elaborate a relevant system of predictions and decisions for actions determining survival and welfare: the tick attacking the dog does not see the dog and therefore does not attack it, it only detects some chemical contained in its sweat and drops on the detected nutrient. The tick’s enacted reality of the “dog” (that is, the phenomenon for the tick which we can only refer to as “dog” as we do not know how this encounter is experienced in a tick’s awareness of its environment) is not shared with humans’ as we do not evolve in the same consensual domains of interactions, but both domains are equally relevant and efficient as they enable “us” (ticks and humans) to produce a satisfactory show of the universe, act upon it so as to survive and feel happy, and, last but not least, interact with dogs in our respective relevant ways.

members of the same species. In this sense, first-order languaging overrides the physical world as a signal-producer and biosemiotic partner, to radically modify the relevant biosemiotic properties of the environment, to cause the perceivable environment to say something different through human intervention; speech causes human minds to semiotize the artificial, man-made signals in addition to or on top of the world-made signals in the context of which human intervention is carried out. This is why “reference” is such a problematic issue: (a) expliciting reference always requires an extremely complex grammatical apparatus of determiners and demonstratives as if connecting speech-made foci of awareness with non-verbal targets of attention were intrinsically problematic and required an elaborated guidance¹¹; (b) whether language was ever referential in the first place is far from accepted by specialists of the origins of languages as some theories hypothesize that collaborative verbal practices emerged in the context of funeral and religious rituals, fostering the productive enaction of a non-material, non-perceivable world rather than reference to the surrounding situations and ongoing actions in their literal material dimension; language probably also emerged from ritual singing in the course of hard farming labour – another way of thinking away from the immediately “reality” and experiencing beyond the limits and constraints of natural appearances. In short, first-order languaging is a collective vocal practice enabling human minds to experience man-made, self-generated, undetermined intellectual events by the side of, in relation to, or on top of the primary conditions imposed by the non-verbal, world-made situational conditions. In this sense, languaging is the promethean fire which gives the human mind the freedom to experience any self-determined, intentional, freely elected act of consciousness that is not necessarily stimulated by the natural state of the medium. The human species has invented a collective system of interactive practices by which it can at any moment override the world’s uncontrollable natural stimuli by means of controllable cultural stimuli of biosemiotic cogitation. By introducing an idea-generating ethological system of interactions, human languaging changes the way in which human beings enact the world, at all space and time scales: in the here and now, on the basis of the *parole*; and for the whole community, on the basis of collective discourse. This change can be described as *the introduction of a verbal conventional subdomain of interactions within the embedding general consensual domain of interactions*. The verbal subdomain is distinct because it is made up with a specific behavioural system of practices which focusses attention and generates particular effects of awareness, but it also tends to merge with the general domain as

¹¹ For example, the alternation of the two demonstratives *this* and *that* in English is not only a question of spatial distance and reachability of the object designated, their use also involves whether the addressee was aware of the nature of the object in the first place (*this book* = “the thing about which I tell you it is a book”, vs *that book* = “the thing about which you already know it is a book because it has already been identified or mentioned”) and whether the interlocutors are on an equal footing in the domain of shared knowledge of the object (presentative *this* emphasizes an initial discrepancy while *that* lays the stress on presupposition and common ground). This complex procedure is narrowly linked with the submorphemic forming elements constituting these markers (*th-*, *i/a* and *s/t*).

speech, an embodied motor-sensory activity, is not different in nature from any other activity; for this reason, the knowledge acquired through discourse, such as: “crocodiles bite and are dangerous predators for human beings”, can hardly be distinguished from the knowledge acquired through non-verbal experience (does one recognize a chair as an object to be sat on because one has always done so and seen others do so, and/or because one has had the thing explained and commented on by one’s mother on the first occurrences of the situation?)

(ii) what was overlooked by Merleau-Ponty, but fully is relevant for Bakhtine, is that in languaging, words and morphemes in a given sentence reiterate a string of exemplars (a “plexus”) of themselves as quotes citing an open number of analogous fragments of discourse excerpted from other speakers’ verbal contributions. In Marcel Proust’s celebrated *A la recherche du temps perdu*, an incidentally reiterated perception, the madeleine and cup of tea, is reminiscent of the meaningful context in which the analogous sensation had been felt initially. In first-order languaging, re-uttering a word will be intentionally reminiscent of a network of association of ideas and knowledge formed in the contexts of the multiple situations in which other exemplars of the “same” word have been previously encountered, that is, in the context of the discourse of other speakers (including oneself). The word is best described as the vocal activator of distributed sensations which are bound to guide interpreting minds towards the retrieval of coordinated networks of knowledge acquired through federating verbal interactions: a word is a node in a network of associations comprizing the recorded verbal sequences in which it is normally used and the recorded interactional situations in which it normally appears, including their social and emotional colour (register), and using the word will install the target object of attention in a conventional network of association, reformatting the subjective judgment in the terms of the collective habits. The routinary dimension of discourse causes lexical “meaning” to be relatively convergent, sufficiently so anyway for users to believe in the absolute coincidence of the values they ascribe to lexical meaning, a faith which is the necessary condition for the practice to be viable and for users to believe in the material objectivity of the notional categories fixed by the lexicon. Voicing an exemplar of a word will produce a bilateral harmonization of potential associations on the interacting minds on both sides, and a theoretical word (as the abstract synthesis of possible exemplars already produced and producible in the future) from a given lexicon in a given language is a technical gesture by which any member of the community trained in the language, or linguistic team, is able to co-activate analogous strings of correlated knowledge and connections in the interacting minds, thus effectively coordinating an intellectual move towards a federating objective; an embodied word is therefore a spell or incantation which recalls a dialogic and synthetic network that never coincides with any material entity it may be correlated with in terms of reference, may be highly heterogeneous in content because of the dialogic dispersion of the antecedent exemplars (hence polysemy, metaphor, the use

of isolated words as insults...), and yet produce this illusory feeling of schematic unity and consistency typical of the mythical category, which one may suspect is the linguistic counterpart of Plato's Idea in the role of the signified (as opposed to the occurrence or referent on the side of the perceived or imagined appearance).

More generally, a sentence is a chain of similar activators, some of them lexical (to retrieve chains of correlated knowledge), others grammatical (morphemes activate more abstract combinatory patterns and are responsible for connections between the domains of knowledge activated by lexical words, their reciprocal profiling, and the way in which they connect with a perceived, remembered or imagined situation if any). Just as words are conventional activators of knowledge networks grounded in contextual discourse and interaction, grammar is a set of pragmatic routines grounded in situated interaction. We have mentioned the case of Basque verb morphology, which trains the talking mind to distinguish images of the self engaged in ongoing speaking activity (*ni*) or disengaged from it and correlated with a remembered act (*nin*). For an example in syntax, in Breton, a Celtic language spoken in the western half of French Brittany, the sentence obligatorily starts with a phrase corresponding to the semantic element which, according to the speaker, is of most theoretical, emotional or pragmatic relevance for the listener engaged in the process of understanding, assessing and reacting. For example *my name is Didier* is said *Didier eo ma anv* 'Didier is my name' because "Didier" is the element which motivated my verbal contribution in the first place, and could form the one-word answer with which I might have answered a question from the interlocutor, "what is your name?"; the syntax of the Breton sentence makes it compulsory for the speaker to choose among all the possible elements (the subject, the object, the attribute, an adverbial) the one which is of highest relevance for the addressed listener at the moment and in the situation in which the interaction is taking place, and the structure of the sentence has to adjust to this initial choice (notably with the verb's conjugation varying greatly in relation to the choice of the initial trigger): Breton-speaking minds are shaped by the interactive routines they are trained for by the very language they use: they constantly adjust their propositional syntax to an intuitive anticipation of the listener's needs (including themselves in case of reflexive speech), which is not the case in English, Russian or French, which are characterized by other chains of technical morphosemantic gestures (like the use of intonation and prosody in Russian, which trains the interacting speaker and listener to discriminate the thematic subject from the rhematic predicate of the sentence; as these two steps in sense-making are clearly separated by the intonation, the verb "be" is not needed for stative predication, which accounts for the number of verbless sentences in Russian). More generally, a "language" can be defined as an integrated system of vocal activators (some lexical for dialogic knowledge or "notions", some morphological for dialogic procedures of word-to-word connections and correlations with experienced situations), vocal variations (word and

sentence stress, intonations, tones in some languages, intensity and rhythm) and non-vocal formularies (syntactic chains and constructions) to be filled with vocal operators and corresponding to routinary interactive language-specific procedures. Together, this integrated system of action resources forms a collectively shared, cultural ethological and technical apparatus enabling any individual to generate enduring and robust, subjective and intersubjectively distributed acts of consciousness elaborated along the lines of procedural norms that are intuitively acquired by all through ordinary training in the context of daily interaction and practice, and which can be standardized by explicit descriptions and prescriptions (grammars, dictionaries), which will inevitably select a collection of admitted procedures and reduce the analogical variations of all kinds (diatopic, diachronic, diamesic [oral vs written uses]). Ordinary use of this embodied interactive technique will not only enable subjects to “communicate” and share ideas, it will get them into the habit of constantly generating mind acts formatted by the procedures in which they have been trained: one does not only talk because one has something to trade (in this respect, the utilitarian approaches to language like the Gricean conversational maxims, the relevance theory or Duclos’s bellicist model of the origin of language have something terribly pessimistic in the reductionist implications they suggest for human nature); one talks and thinks because speech is an embodied occupation like any other, promoting collaborative projects through interaction as well as daydreaming meditation in situations of idleness or desperate engagement in the hardships of life – just as some birds, when left alone in a cage in an empty room, will start singing in spite of the absence of any member of their species, as if to recreate, by their own reflexive action upon the hostile medium, the favourable conditions in which they can experience a happier reminiscence, alleviate their stress and, in fine, promote their their better-being and survival. And most of all, language is an “amplifier and collectivizer of intelligence” in the etymological sense: the dialogic depth of the knowledge activated by the lexicon causes language users to evolve in a “mindscaping” of the world they explore and disturb in which they introduce elements borrowed from other subjects’ experiences captured in the course of interactive processes. We cannot see the world “as it is” “on our own” or as we would sketch it as individual subjects confronting it only by means of our personal exploration and manipulation of its content; we can only sculpt it *together*, be taught how to carry on shaping it through the community’s eyes, hands, tools, words, values and projects, be taught how to participate in exploring and transforming it – and ourselves – together riding the waves of the biocultural niche (Sinha 2009) in its current state of historical development. For example, we think we have some knowledge about the obvious empirical realities of *space* of time, or of *brain* as an object and *mind* as a process, because the lexicon, stereotypical uses and self-ignoring ideologies have taught us to elaborate separate conceptions of those entities instead of integrated ones which could have been provided as conceptual standards by neologicist portmanteau

words like *space + time = *spime* (French **estemps*, Spanish **tiempacio...*) or *brain + mind = *brind*: as a party of *humanants* (rather than *human beings* or *men*) we perturb (rather than *engage in*) *spime* (an undifferentiated spatio-temporal domain of intervention and experience) locally in a coordinated way, but we transform this *fact* into a conceptual space / time dyad through languaging, a metamorphosis that is so overpowering that despite its philosophical “commonplacidity”, it requires an immense effort to actually relativize it and try to have access to an “unlanguaged” or at least differently and knowingly biased construal of experience: after all, doesn’t the mind / brain problem and controversy stem from the fact that we have never worded into a lexical “brind” conceptual “solution” (in all senses of the word)? Jorge Luis Borges, in *Tlön, Uqbar, Orbis Tertius*, in *Funes el memorioso*, in *La Biblioteca de Babel* and in *El informe de Brodie*, had fully illustrated how languaging is the autopoietic interactive making of worlds and societies, both including agents and subjects. What about actual individual freedom and self-determination, then? It can only come from an intersubjectively shared renewed awareness of this distributed process, in a dialectic understanding of the agents’ togetherness.

Perspectives

The notion of languaging as an embodied interactive cognitive technique formatted by routinary procedures and social norms has far-reaching consequences. It re-replaces the verbal activity at the centre of human condition as it is responsible for the way in which our species has been able to – or condemned to – “think away from” immediate natural experience and embark on the history-making process consisting in permanently developing a cultural system of practices in which the ideas- and ideology-generating vocal contributions are a requirement for any individual subject to be recruited by the community it was born in: if a man’s cub is not successful in making others and herself imagine exciting projects and values, it is marginalized or excluded. In human history, the most powerful leaders and civilization-makers, for the better and for the worse, have always been Walt Whitman’s celebrated orators, and when one considers how languaging builds or is history (the very word *history* is etymologically as *telling* as can be), it seems undeniable that languaging should be modelled as the collective technique and ethological behavioural mode by which a standard cultural mind is both concentrated and distributed, leading to the formation of the subject-society interface and its evolutionary pressure on the transformation of the species-environment interface. This definition of languaging sketches a problematic which, to be explored thoroughly, requires an interdisciplinary coordination of research programmes. For example, so far, we have not yet come up with a phonological formalism whose goal is to modelize the experience

of verbal sound production and perception combining the first-, second- and third-person phenomenological viewpoints and methodologies, distinguishing the levels of conscious experience, unconscious experience and instrumented observation and modelization. Nor have we come up with a general “embodimental” typology of natural languages, with a view to establishing a general collection of the interactive procedural systems by which standard cultural minds get concentrated and distributed. The theoretical paradigms required for these orientations exist and appear to be mature enough to play their role but new descriptive and experimental programmes are to be set up and financed, and it is to be hoped that in this domains, interdisciplinary convergence may lead to the breakthroughs which are now looming on the scientific agenda.

References

- ADAMCZEWSKI, H. & DELMAS, C. 1982. *Grammaire Linguistique de l'Anglais*, Colin.
- ALLOTT R. 1995. “Motor theory of language in relation to syntax”. In Marge E. Landsberg, *Syntactic Iconicity and linguistic Freezes*. Berlin: Mouton de Gruyter, 307-329.
- AUCLIN A., FILLIETTAZ L., GROBET A. & SIMON A. C. 2004. « (En)action, expérientiation du discours et prosodie ». *Cahiers de linguistique française* 26, 217-249.
- BENVENISTE E. 1970. « L'appareil formel de l'énonciation ». *Langages*, 17, *L'énonciation*, 12-18.
- BERGEN B. K. 2004. “The psychological reality of phonæstemes”. *Language*, 80, 2, 290-311.
- BERGOUNIOUX, G. 2004, *Le moyen de parler*, Paris : Verdier.
- BOHAS G. 2006. “The organization of the lexicon in Arabic and other semitic languages”. In S. BOUDELAA, (ed.), *Perspectives on Arabic Linguistics XVI*, Papers from the sixteenth annual symposium on arabic linguistics, Cambridge, March, 2002, Amsterdam/Philadelphia: John Benjamins Publishing Company, 1–37.
- BOTTINEAU D. 2008. « The submorphemic conjecture in English: Towards a distributed model of the cognitive dynamics of submorphemes », *Lexis* 2, Toulouse.
- BOTTINEAU D. 2010a. « L'émergence du sens par l'acte de langage, de la syntaxe au submorphème », M. Banniard & D. Philips (éds), *La fabrique du signe, Linguistique de l'émergence*. Toulouse : Presses Universitaires du Mirail, Interlangues, linguistique et didactique, 299-325.
- BOTTINEAU D. 2010. « La submorphologie grammaticale en espagnol et la théorie des cognèmes », G. Le Tallec-Lloret (dir.), *Vues et contrevues, Actes du XII^e Colloque international de Linguistique ibéro-romane, Université de Haute Bretagne - Rennes 2, 24-26 septembre 2008*. Limoges : Lambert Lucas, Collection Libero, 19-40.
- BOTTINEAU D. 2010. « Language and enaction », J. Stewart, O. Gapenne, E. Di Paolo (eds), *Enaction: toward a new paradigm for cognitive science*, MIT, 267-306.
- BOTTINEAU D. 2011. « Parole, corporéité, individu et société : l'embodiment entre le représentationnalisme et la cognition incarnée, distribuée, biosémiotique et enactive dans les linguistiques cognitives », Guignard J.-B. (dir), *Linguistique cognitive : une exploration critique, Intellectica* 56, 2011/2, 187-220.
- CADIOT P. & VISETTI Y.-M. 2001. *Pour une théorie des formes en sémantiques, motifs, profils, thèmes*, Paris : PUF.
- CALVET L.-J. 1975. *Pour et contre Saussure, pour une linguistique sociale*. Paris : Payot.
- CLARK A. 2008. *Supersizing the Mind : Embodiment, Action and Cognitive Extension*. Oxford: Oxford University Press.

- COL G., APTEKMAN J., GIRAULT S. & VICTORRI B. (2010), « Compositionnalité gestaltiste et construction du sens par instructions dynamiques », *Cognitextes* 5, Numéro spécial AFLiCo 3 *Grammaires en Construction(s)*, consulté le 01/04/2011 : <http://cognitextes.revues.org/372>
- CORBALLIS M. 2003. *From hand to mouth: The gestural origins of language*. Princeton: Princeton University Press.
- CROFT W. 2009. « Towards a social cognitive linguistics ». V. Evans & S. Pourcel (eds), *New Directions in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins. 395-420.
- COWLEY S. 2007. « Cognitive dynamics and distributed language ». *Language Sciences* 29(5), 575-583.
- COWLEY S. 2009. « Distributed language and dynamics ». *Pragmatics and Cognition* 17(3), 495-507.
- COWLEY Stephen J., MAJOR João C., STEFFENSEN Sune V., DINIS A. (Eds). 2010. *Signifying Bodies: Biosemiosis, Interaction and Health*, The Faculty of Portuguese Catholic University. Philosophy of Braga.
- CULIOLI A. [1981] 1990. « Sur le concept de notion ». *BULAG n°8*, repris dans *Pour une linguistique de l'énonciation, t.1 : Opérations et représentations*, Gap : Ophrys.
- DE JAEGHER H. & DI PAOLO E.A. 2007. « Participatory sense-making : An enactive approach to social cognition ». *Phenomenology and the Cognitive Sciences* 6(4), 485-507.
- DINIS A. 2010. « From my-self to our-selves : persons as either 'individual substances' or 'relations' in COWLEY Stephen J., MAJOR João C., STEFFENSEN Sune V., DINIS A. (Eds). 2010. *Signifying Bodies: Biosemiosis, Interaction and Health*, The Faculty of Portuguese Catholic University. Philosophy of Braga, 75-100.
- DIVER W. 1979. "Phonology as human behavior". In D. AARONSON & R. RIEBER (eds.), *Psycholinguistic research: implications and applications*. New York : Hillsdale, Lawrence Erlbaum Assoc., 161-182.
- DOUAY C. 2000. *Éléments pour une théorie de l'interlocution, Un autre regard sur la grammaire anglaise*. Rennes : Presses Universitaires de Rennes.
- DROR I. E. & HARNAD S. 2006. *Cognition Distributed: how cognitive technology extends our minds*. Amsterdam & Philadelphia: Benjamins.
- DUCLOS D. 2008. *L'invention du langage*. Economica.
- FRITH C. 2007. *Making up the Mind*. Blackwell.
- GIBSON J.J. 1977. "The Theory of Affordances." In R. Shaw & J. Bransford (Eds.). *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*. Hillsdale, NJ: Lawrence Erlbaum. 67-82.
- GUILLAUME, G. 1964. *Langage et science du langage*, Les Presses de l'université Laval, Québec; Nizet, Paris.
- HOFFMEYER J. 2008. *Biosemiotics : An examination into the Signs of Life and the Life of Signs*. Scranton and London: University of Scranton Press.
- JOUSSE M. 2008. *L'anthropologie du geste*. Paris : Gallimard, TEL.
- KRAVCHENKO A. 2007. Essential properties of language, or why language is not a code. *Language Sciences* 29(5). 650-671.
- LAFONT R. 1978. *Le travail et la langue*. Paris : Flammarion.
- LAPLANE D. 2000. *La pensée d'outre-mots, la pensée sans langage et la relation pensée-langage*, Institut d'édition sanofi-synthelabo.
- LAVELLE L. (1942) 2007. *La Parole et l'écriture*, L'Artisan du livre (1942) ; Le Félin, 2007.
- LAVIE, R.-J. 2008. « Interspeaker variation and learnability in an exemplar-based productive model », in G. Desgulier, J.-B. Guinard & J.-R. Lapaire (éds), *Du fait grammatical au fait cognitif. From Gram to Mind* (2 volumes), Bordeaux : Presses Universitaires de Bordeaux.
- LEROI-GOURHAN A. (1964). *Le geste et la parole. I. Technique et langage. II. La mémoire et les rythmes*. Paris : Albin Michel.

- LIBERMAN A.M. & I.G. MATTINGLY. 1985. The motor theory of speech perception revised. *Cognition* 21: 1-36.
- MACCHI Y. 1986. « Du rôle du signifiant dans la genèse du sens énonciatif », *Langages*, 82, 67-82.
- MACNEILAGE P.F. 1998. The Frame/Content theory of evolution of speech production. *Behavioral and Brain Sciences*, 21, 499-546.
- MACNEILAGE P.F. & DAVIS, B.L. 2001. Motor mechanisms in speech ontogeny: phylogenetic, neurobiological and linguistic implications. *Current Opinion in Neurobiology*, 11, 696-700.
- MCNEILL D. 2005. *Gesture and Thought*. Chicago: University of Chicago Press.
- MARGULIES A. 1985. "On listening to a dream: The sensory dimensions". *Psychiatry*, 48, 371-381.
- MATURANA, H. (1978), "Biology of language: The epistemology of reality". In G. MILLER and E. LENNEBERG (eds.), *Psychology and Biology of Language and Thought: Essays in Honor of Eric Lenneberg*, New York: Academic Press, 27-64.
- MATURANA H.R. & VARELA F.J. 1980. *Autopoiesis and cognition: the realization of the living*. Reidel, Dordrecht.
- MERLEAU-PONTY, M. 1945. *Phénoménologie de la perception*, Paris : Gallimard, coll. 'Tel'.
- NEWMAYER F. J. 2003. Grammar is grammar and usage is usage. *Language*, 79(4), 682-707.
- OGIEN A. 2007. *Les formes sociales de la pensée, La sociologie après Wittgenstein*. Paris : Colin.
- PHILPS D. 2009. « Conceptual transfer and the emergence of the sign », *CogniTextes* [En ligne], Volume 2 | 2009, mis en ligne le 10 décembre 2009, Consulté le 18 octobre 2010. URL : <http://cognitextes.revues.org/180>
- SIMONDON, G. 1995. *L'individu et sa genèse physico-biologique*. Paris : Jérôme Millon.
- SIMONDON, G. 1989. *L'individuation psychique et collective*. Paris : Aubier.
- SINHA C. 2009. "Language as a biocultural niche and social institution". V. Evans & S. Pourcel (eds), *New Directions in Cognitive Linguistics*. Amsterdam and Philadelphia: John Benjamins. 289-309.
- STEWART J. 1996. "Cognition = Life : Implications for higher-level cognition". *Behavioural Processes* 35: 311-326.
- STIEGLER B. 1994. *La Technique et le temps 1 : La faute d'Epiméthée*. Paris : Galilée.
- TOUSSAINT M. 1983. *Contre l'arbitraire du signe*, Paris : Didier.
- VALIN R. 1981. *Perspectives psychomécaniques sur la syntaxe*, Laval : Les Presses de l'université Laval, Québec.
- VARELA F., THOMPSON E. & ROSCH E. 1993. *The Embodied Mind: Cognitive Science and Human Experience*. MIT Press, Cambridge.
- VYGOTSKY L.S. (1962). *Thought and Language*. E. KAUFMANN & G. VAKAR, eds & trans., Cambridge: MIT Press.
- WHITAKER R. *Encyclopaedia Autopoietica*, <http://www.enolagaia.com/EASIntro.html>