How Hermeneutic Spirals may reduce Complexity to Narrative Schemata - expanding on "Complexity and the Userly Text"

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Working Paper

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Introduction

In this presentation I will expand on the model and mechanism originally proposed in "Complexity and The Userly Text" (Knoller, 2019) to explain the potential of IDS&N artefacts to serve as semiotic scaffolds to cognitively reduce complexity (see Fig. 1). There are at least two, and potentially three reductions at play: a primary reduction if performed during the authoring of a *userly text* by modelling the complex phenomenon as an interactive narrative artefact, and it may be scaffolded by authoring tools (cf. Thue 2020 for a relevant recent proposal). The secondary, *cognitive reduction* - the one introduced in the chapter - is the product of the interactive narrative experience by the user and specifically of the *hermeneutic spiral* mechanism. A possible third reduction, which I have not dealt with in the chapter and has not been explored much to the best of my knowledge, may be a deliberative reduction, an intersubjective process that may be produced through well designed audience dynamics (a possible work to examine in this regard could be Fort McMoney (Dufresne, 2013-2014)[1]).

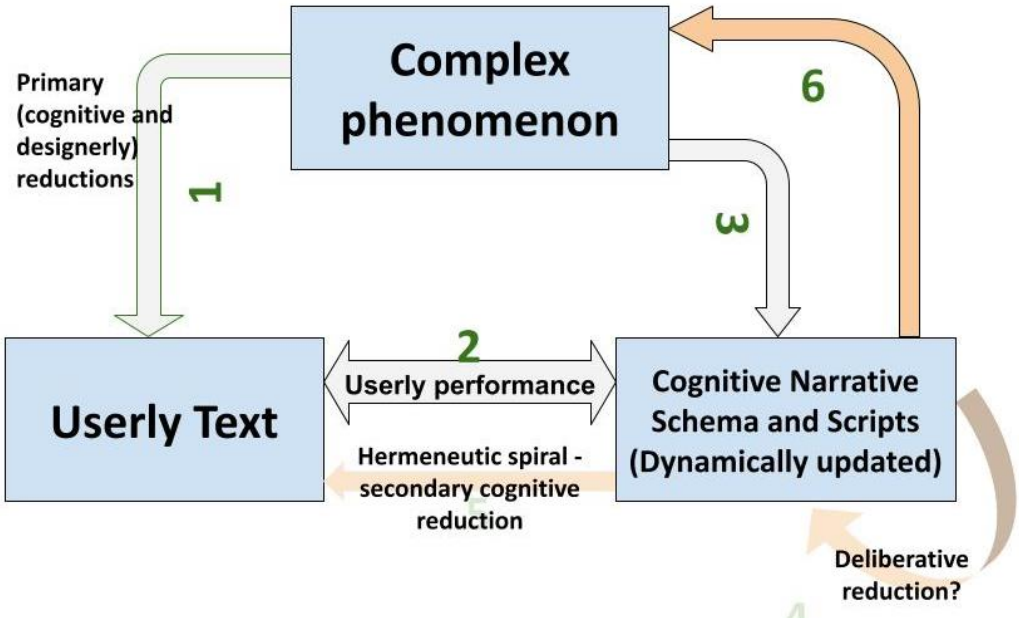

Figure 1: A process diagram mapping the main concepts to the INDCOR problem space (see appendix)

The model and mechanism described in Complexity and the Userly Text are both premised on the more general model of the Userly Text (Knoller, 2012), in which digital interactive texts[2], are understood as systems that appear phenomenologically to a user as having two major constructs: an *encoded storyworld* and an *interaction model* (fig. 2). In relation to complex systems, creating this distinction between the two phenomenological constructs is useful, because it allows us to

[1] cf. discussions also in (Knoller & Ben-Arie, 2015) and (Koenitz & Knoller, 2017)
[2] Whether organised as narrative texts in order to convey a story, or in any other way for any other purpose.

also correlate it with two orders of complexity and of complexity representation: an *encoded storyworld* can be understood as a representation of a first-order complex system, viewed by an external observer. The *interaction model* is a representation of the second-order complex system, in which the subject is not an external observer but a participating agent, affecting the system. For an application of this distinction in analysis and evaluation see Knoller, Roth and Haak (2021).

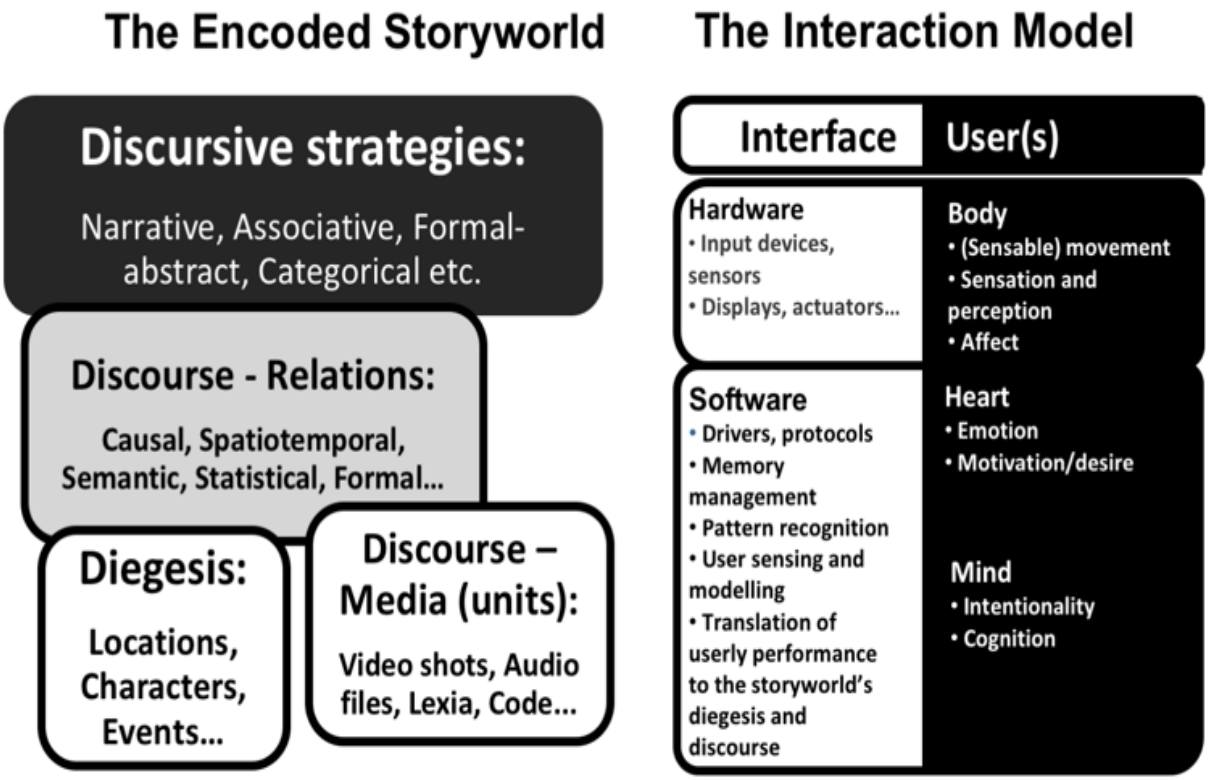

Figure 2: The Userly Text model

The hermeneutic spiral is a model and metaphor that that can function as both a design strategy, to scaffold interpretation of complexity through replay, and a description of the hypothesised hermeneutic process that allows interactors to produce this interpretation. The result of this second-order hermeneutic process is a multi-linear, procedural and participatory *narrative schema*, a cognitive-narrative model of the complexity structure and dynamics of a phenomenon grounded in interaction.

Narrative Schema

This narrative schema is a specific extension of the narrative frame as defined by David Herman (Herman, 2002). Herman views narrative as essentially a cognitive capacity, which is at the basis of the human, social, communicative phenomenon of storytelling, which allows humans to organise meaning, to experience it narratively, to communicate it to others, and for them to reconstruct that meaning (Herman, 2002). He describes narrative, thus, as a *"cognitive frame for constructing, communicating, and reconstructing mentally projected worlds"*.

Narrative is always-already participatory

Expanding this to be more congruent with a view of cognition as enactive and embodied, and as being distributed between a person and their environment - in line with cognitive philosophical approaches known as 4E Cognition (Newen, de Bruin, & Gallagher, 2018) - I suggest that narrative, as a basic capacity for human communication and sense-making, may in fact be essentially participatory[3], and put forward a modification of Herman's description, characterising

[3] cf. (Allbriton & Gerrig, 1991) (Gerrig, 1993) about the participatory response in narrative experience.

narrative capacity as incorporating *"both a cognitive frame and cognitive scripts for enactive performance in mentally projected worlds"* (Knoller, 2019). Cognitive scripts are templates for possible or potential action in a narrative situation.

The cognitive narrative frame, whether innate or culturally mediated, interacts with enactive and embodied narratively framed experiences to produce a cognitive narrative schema of the storyworld, incorporating narratively framed, scripted experiences. (Re)playing a *userly text*, experiencing different outcomes and possibilities, trying out different perspectives - these are strategies of *userly performance*, the procedural, embodied-cognitive and enactive reception of such texts.

Hermeneutic Spiral

In traditional hermeneutics, interpretation by skilled critics, even of non-interactive narratives, is already understood to engender a flexibility of perspectives. This skilled hermeneutic reception is based on reading and rereading, a return to the text known as the 'hermeneutic circle' (Gadamer, 1985). In narratology, a similar metaphor is used to describe the movement of the fabula[4] from possibility, through events, to a result, which Mieke Bal has called a "narrative Cycle" (Bal, 1997, p. 189).

In the case of replayable narrative *userly texts*, however, circles or cycles are not the appropriate metaphor. *Userly texts* that are designed to represent complexity may not even be exhausted in one narrative cycle, and therefore cannot be fully understood as systems based on just one narrative cycle, with just one result. The type of text that they are invites, as well as requires, multiple "readings" (in a generalised semiotic sense), and each of these readings requires input from the user and produces a different version leading from possibility, maybe through some other events, to probably some other result. Each single playthrough (arguably a more appropriate term here than "reading") may still be said to create its own narrative cycle, but that cycle alone is not the entire text. That text – what there is to interpret – is composed also of the relations between variable cycles, with later cycles furthermore assuming the previous ones along the temporality of their reception. The cycles are stacked one on top of the other, creating a *Narrative Spiral* rather than a cycle, and inviting the user to reflect on her own specific choices within this compact narrative multiverse (Ryan, 2006) of possibilities, events and results, to re-interpret their potential meaning within the *encoded storyworld* and to attempt to adjust her own actions, her own *userly performance*. And, if the structure of the fabula produced by repeated performances and playthroughs can be described as a spiral, the structure of this process of interpretation, which is part of *userly performance*, can likewise be described as a *hermeneutic spiral*. And it is, more specifically, a double helix.

A Double Helix

The hermeneutic spiral can be thought of as having a double helix because it is active within a second-order complex system, that is within a user - an agent - who is part of the complex system and acting upon it. Therefore, users need to perform in tandem two related interpretations: of the first-order complexity of the *encoded storyworld* (and through it - to use Herman's terms – of the mentally projected storyworld), and of the second-order complexity of their own complicity as agents within this *encoded storyworld* (and by a similar projection – within the mentally projected storyworld). This double helix is scaffolded by the double structure of the narrative *userly text*, the IDN artefact: with one helix, users interpret the multilinear plot structures of the *encoded storyworld*; with the other they interpret the multilinear performance scripts afforded by the *interaction model* and the way this second aspect of the *userly text* structures *userly performance*, which can then itself become the subject of reflexive attention and interpretation.

[4] In Bal's narratology, as in others, the term (taken from the Russian Formalist tradition) denotes a series of events that are causally and chronologically related.

The process of narrative sense-making scaffolded by replayable narrative *userly texts* for complexity is a tacking, driven by engagement and interest, between the parts – variable *userly performances* structured by the *interaction model*, and the variable plotlines through the *encoded storyworld* that they enact – and the text-as-a-whole, which includes the complex, dynamic system of possible relations between these parts. The third dimension of the hermeneutic spiral is therefore required, in order to account for the possibility of developing a meta-level understanding of, or a penetrating insight into, the structure of this dynamic underlying system.

Implications for the cognitive reduction of complexity

What makes this particularly relevant for the problem of the cognitive reduction of complexity is that it becomes possible – with careful design - to hold together several competing or complementary logics and perspectives. This may be the case because while (re)playing enacts different chains of events that are externally scripted by the narrative system, the permutations of a given playthrough and respective (cognitive) script can be experienced and organised as the result of variations of the interactor's own *userly performance*. The interactor's first-person enactive experience focalises the various permutations, binding them together into a cognitively integrated structure of potentials. Repeated performances can thus elicit a potentially large-space narrative schema expressed as optional narrative developments, that combines with multi-linear scripts for potential action, to produce related narrative outcomes, a "structure that can embrace contradictory emotional and perhaps factual outcomes" (Bolter, 2001, p. 126). Such a structure is uniquely suited to function as a dynamic cognitive-narrative subjective (and potentially intersubjective) construct that encompasses a schema of a complex environment that has shift between multiple possible phases and states, as well as scripts that guide action possibilities upon and within this environment, including what new media phenomenological philosopher Mark B. N. Hansen has called the hypercomplexified environment (Hansen 2009, 114) we now inhabit. Such a schema, I suggested in (Knoller, 2019) is how narrative *userly texts* can offer the possibility of imposing "some provisional closure, some fleeting reduction of complexity, on a world, a technosphere, increasingly characterized by relentless heterogenesis" (Hansen 2009, 125).

The Hermeneutic Spiral, Double Hermeneutic Circle and the Hermeneutic Strip

This third dimension introduced by replay distinguishes this model from two double-circle models proposed to describe game hermeneutics. Velle-Matti Karhulahti (2012) had proposed to use Anthony Giddens' concept of double hermeneutics (Giddens, 1987, p. 18) to describe the hermeneutic of adventure games as a *double hermeneutic circle*. Giddens' notion of a double hermeneutic accounts for the fact that in social sciences (and this can be extended to all second-order complex systems) the interpreter is also an agent within the interpreted system. Karhulahti observes that something similar is going on in video games, when a player both interprets and acts upon the storyworld, and thus needs to interpret her own role within it. Karhulahti's proposal was then one of the inspirations in an extension of the SPP model with a "hermeneutic strip", consisting of two interconnected circles: a first circle looping through an interpretation of the currently instantiated narrative (or plot, in my terminology), and a second looping through an interaction with, and interpretation of, the system (Roth, Van Nuenen, & Koenitz, 2018).

I concur with the double nature of hermeneutics processes in agents who act upon the system they interpret. Note, however, that the double hermeneutic of the *hermeneutic spiral*'s double-helix is different from the one proposed by the hermeneutic strip: both helices perform the task of the strip, as they loop through multiple successive narrative cycles (with replay), developing an interpretation of the systemic relations along the third dimension, rather than as a second circle. They are two helices - rather than one spiral - for another reason: one helix attends to the first-order system, and the other attends to the agent's complicity within it, developing a reflexivity of agency that is itself systemic and potentially complex.

This leads me to suspect that the two-dimensional circles or strips are limited as a metaphor for the type of hermeneutic processes likely to be effective for a cognitive reduction of complexity.

First, Karhulahti's model was originally used to describe adventure games. While such games are indeed *userly texts* and even *narrative userly texts*, their underlying systemic narrative structure is not one in which a complex multiverse of possibilities can resolve into a multitude of possible results. Rather, they are semi-linear in their narrative structure, plotting a "correct" or "preferred" (or dominantly-coded (Hall, 1980)) narrative trajectory through the *encoded storyworld*, that is made salient by game mechanics such as winning conditions. Any plot variations would be local in scope, likely to be either dead ends or foldbacks.

Second, given their semi-linear narrative structure, typical adventure games are less likely to invite a narratively motivated replay. Without replay at all, there would not even a hermeneutic circle to begin with – after all, the metaphor of a circle was meant to describe the way skilled interpreters (think about literary critics or philologists) develop their interpretations as they repeatedly return to the text they are interpreting, thus necessarily rereading or at least recalling some parts of it. Without replay, and thus without a hermeneutic circle, it is then also less likely that a complex systemic understanding will form. If players do replay parts of an adventure game, it is usually only to overcome a challenging task or puzzle, and only if they have not yet completed the game. They would then be repeating a partial sub-plotline, one of the dead-ends or foldbacks mentioned above, doing so only to play *better* according to the criteria set by the mechanics and winning conditions, and to progress further along the "winning" plotline. It would be a-typical for adventure games to be replayed once completed, in the hope of reaching a different result, or from another character's perspective or from some other set of starting conditions, and that is precisely because the underlying *encoded storyworld* is not narratively organised as a complex multiverse.

Granted, the text of an adventure game changes while being played, in response to the player's *userly performance*, and players may well be aware of the fact that there is an underlying system generating some variability, and this awareness may indeed elicit a strategic approach to playing that takes into account the underlying system, as (Roth, Van Nuenen, & Koenitz, 2018) have suggested. However, mere *awareness* of an underlying system may not be sufficient to form *a model* of that system, and the more complex the underlying system is, the more unlikely it becomes that such a model would form. Forming such a complex dynamic cognitive model would more likely require ample opportunities to spiral through the system's variable phases and states, already guided by dynamically updated and expanding cognitive-narrative schemata and scripts.

Therefore, adventure games, despite being themselves somewhat complex and even second-order complex, are not a good model for a hermeneutics of narrative *userly texts* that are designed to semiotically and hermeneutically (i.e. through *skilled* interpretation) scaffold a cognitive reduction of (some other) complexity. Because they can be understood to afford, at best, a flat double circle, they are limited in their ability to break out into the deep systemic, embodied meaning structure of a complex narrative *userly text*.

If, however, we consider texts that are designed for replay and capable of generating multiple different outcomes, coupled perhaps to multiple subject positions that focalise the same *encoded storyworld* through multiple agents[5], or that allow any other set of narratively meaningful variability, then repeated performance must be considered a necessary part of such a design's preferred interactive reception. A single playthrough cannot be assumed to exhaust the meaning of such a text. There would not necessarily be any winning conditions that would flag the closure of the experience and of the hermeneutic process when the desired result has been reached, since other results and other perspectives would remain available. The user's awareness of such

[5] cf. (Thue, 2020), again, for a relevant suggestion of such an interactive narrative design.

optional narratives afforded by the narrative system, in which the user would be implicated, are more likely to elicit a narrative curiosity that would motivate users to replay, and thus to develop a systemic understanding of first- and second-order narrative complexity and a cognitive reduction of those complexities.

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Appendix – The INDCOR Problem Space

The INDCOR problem space (Figure 3) is a high-level visual representation of the components (boxes A-C) and processes (arrows 1-6) that INDCOR[6], and EU COST action network of researchers is working on. It is an extension of the Complexity Triad (Knoller, 2020), intended to create a common reference point to the action's conceptual models and mechanisms, specifically those that could help the action conceptualise how to create, analyse, evaluate and critique IDN artefacts that may function as a **complex representation** of (1) **complex phenomena**, and/or of (2) how interacting with such representations may help further **the goal of cognitively reducing complexity to advance positive societal outcomes**.

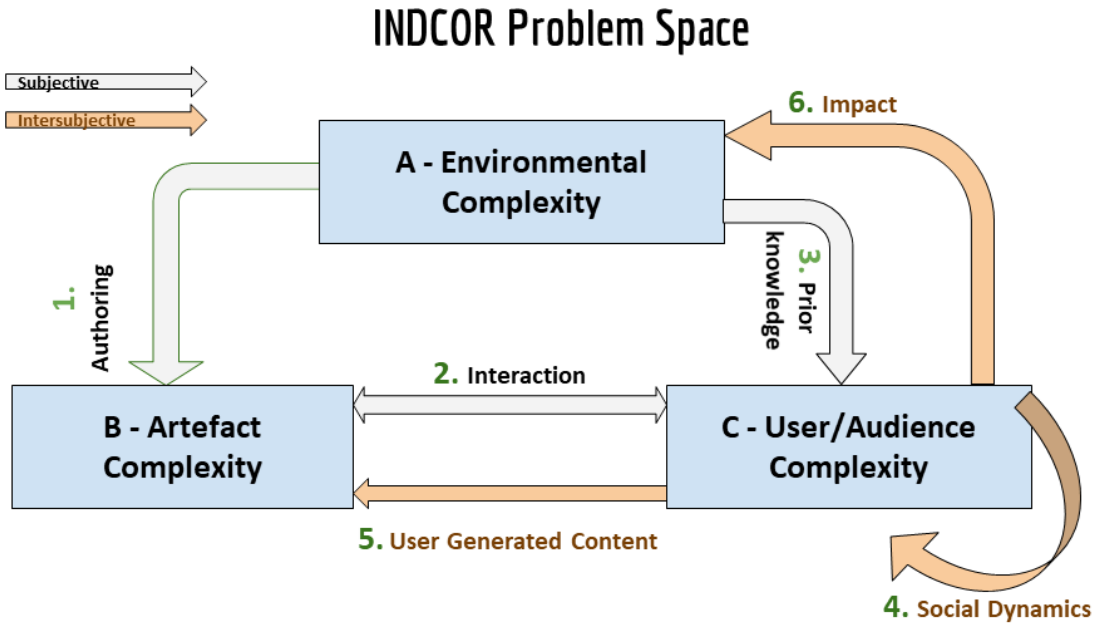

Figure 3: The INDCOR Problem Space (created by Noam Knoller, Mattia Bellini and David Thue).

[6] https://indcor.eu