(Re)Sensing the Observer

Offering an Open Order Cybernetics

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> I would say, first-order cybernetics is the cybernetics of observed systems, while second-order cybernetics is the cybernetics of observing systems. (…) When taking the latter position one develops notions like "closure", "self-organization", "self-reference", "self", "auto-poiesis", "autonomy", "responsibility", etc., etc. (*Heinz von Foerster, 2003, p. 303)*

Abstract

Instead of presuming the "observer" as given, we are (re)sensing the observer and are thereby offering an "Open Order Cybernetics" (OOC). We are first of all concerned about our acquisition and use of language as the precondition for any meaningful statement. This self-reflexive point of departure distinguishes our project from philosophers who are presuming "something" ("closure", "self-organization", "self", "auto-poiesis", "senses", "objects", "subjects", "language", "nervous-systems" etc., etc.) in the first place without being aware of their presumptions i.e., that they are able to already talk meaningfully about "something". We are undertaking a self-reflexive loop towards our already undertaken "meaningful" actions, reflecting inside of our concepts on our concepts, trying to find out how our concepts about "something" have come into existence. We are reflecting on our concepts through this on-going open investigation. We are sketching the ramifications of such a self-reflexive loop for epistemology as well as for the main research-areas within cognitive science (i.e. language-acquisition, perception, consciousness). We are also pointing towards virtual reality in combination with the arts as an awareness-aid, helping us in our self-reflexive endeavors.

Keywords: 2nd order cybernetics, linguistics, conception, consciousness, arts and virtual reality

1. Open Order Cybernetics (OOC) – General Issues

Heinz von Foerster has labeled the following statement "Humberto Maturana's Theorem Number One" (Foerster, 2003, p. 283): "Anything said is said by an observer" (Maturana & Varela, 1980, p. 8)[1]. But what *is* the presumed "observer" and how is it possible to offer such a statement? How is it possible to talk meaningfully about an "observer", about a "nervous system", about the "living". We are raising this question at the beginning of our philosophical investigation, instead of blindly presuming an "observer", a "nervous-system" or "autopoiesis" etc. as being "inherently existent" (i.e. independently of already drawn distinctions, say between the "nervous-system" and the "rest of the organism").

In the context of 2nd order cybernetics or cybernetics of observing systems (Foerster, 2003, p. 285) the "observing system" is an a-priori presumed "system". Yet, by what means does a "subject" (e.g. an "observer") come into the position to articulate whatsoever logical or illogical philosophical perspective (e.g. stating that the observer is part of observations)? Is the statement that "the observer is part of observations" also an "observation"? And if this were the case, the question emerges how such a statement can be considered as providing "absolute truth". It seems, after all, as if it is only "relatively true" i.e., true for the observer who utters it. Yet, how does an "observer" come into existent as an "observer" in the first place?

We are trying to clarify these self-reflexive questions in order to grasp an understanding of "ourselves" (being observers, after all). We are trying to sense the preconditions that make it possible to state that "anything said is said by an observer".

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[1] It is worth quoting at length Maturana's presupposition of a "system":
"In fact, to the extent that an autopoietic system is defined as a unity by its autopoiesis, the only constitutive constraint that it must satisfy is that all its state trajectories lead to autopoiesis; otherwise it disintegrates. Therefore, an autopoietic system, while autopoietic, is a closed dynamic system in which all phenomena are subordinated to its autopoiesis and all its states are states in autopoiesis." (Maturana, 1978, p 37 – 38).
It is, however, never considered by Maturana that it is a linguistic forming that enables one to articulate the existence of an "autopoietic system". The process of linguistic forming is open and ongoing and arises through reciprocal actions. We are providing evidence for understanding any system (including necessarily oneself as the observer) as being an open and ongoing system of becoming, that is only considered as "closed" if we are forming the linguistic concept of "closure". "Closure" is a conceptual linguistic construction, and we are interested in the build-up of meaningfully formed conceptual constructions rather than presuming them absolutely and without awareness of their potential relative nature.

Our analysis attempts to trace a "middle-course" philosophy, instead of being "radical" in whatsoever sense. We are leaving the "operationally closed nervous system" as an a-priori presumed structure behind us. We are also leaving 2nd order cybernetics behind us and are, on the contrary, offering an "Open Order Cybernetics" (OOC).

OOC, as we posit it, is concerned with (re)sensing the observer, instead of merely presuming the "observer". We are trying to (re)sense how "the observer" is meaningfully formed as such an "observer". Alternately we are trying use the full capacity of the senses to understand this formation process. Instead of separating between our senses a-priori, we are "merging our senses" (Stein & Meredith, 1993), and *if* we are separating between them, we are aware of our already drawn, man-made distinctions. Instead of drawing a circle that closes upon itself[2], we are trying to sense the preconditions for drawing "something" (be it "closed" or "open") in the first place.

Describing an organism as "operationally closed" seems to stem from blindly drawing on the "visual sense" that makes an organism appear as "closed" at first *sight* (possessing visible boundaries). If we take into account, however, that our visual sense is formed in the course of reciprocal (linguistic) (inter)actions, we are (re)sensing the observer and are becoming aware of the full measure of sensing that is always intermingled if an observer senses "something". We are stressing the importance of integrating our human social and cultural linguistic framing that becomes intermingled with any assemblage of multi-sensual observations, rather than leaving it aside for the sake of simplicity.

In the course of this reconstructive process the "observer" will appear as emerging out of yet "another" observer and the "other" observer out of "oneself", in an ongoing lifelong circular process. We are moving away from any "inherent" epistemological starting point (e.g. presuming the inherent existence of "observers", "operationally closed systems", "brains" etc.) and are, once again, trying to get aware of the

[2] In an interview of Heinz von Foerster (undertaken by Yveline Rey) the former states that he wouldn't create a "third order cybernetics" simply because "ascending into "second-order", as Aristotle would say, one has stepped into the circle that closes upon itself. One has stepped into the domain of concepts that apply to themselves." (Foerster, 2003, p. 301). Since we are interested in the preconditions of "closure", the preconditions of whatsoever "concept", we have

preconditions for talking about “the observer”, “the operationally closed system”, or e.g. a “brain”.

The logical backbone of Open Order Cybernetics can be summarized by means of the following self-reflexive statements: *The notion/linguistic expression “something” does not “label” or “signify” something that exists independently of the notion/linguistic expression “something”, since signifying “something” as “something” requires “something” already. “Something” does not tell us from its own side that it is “something”. Rather: Once we articulate “something”, once we are playing the linguistic-game[3] “something”, “something” arises simultaneously. We cannot step out of “something” once “something” is there. Whatsoever “something” we sense is dependently co-arisen[4]. It is dependent on our linguistic expression, does not exist inherently or independently of our linguistic expression as “something”.*

If we are taking a self-reflexive look at any “concept” we are having in “mind” i.e. the concepts “concept” and “mind”, we need to be able to use these terms in a meaningful way already. We cannot claim that we are (here-and-now) outside of the linguistically formed concept “concept”, just as we cannot claim that there is no world around us. Yet, instead of separating between our linguistically formed concepts and our already meaningfully formed world, we are trying to provide arguments for the view that our world arises *simultaneously* with our discourse about this world, and that our discourse arises due to an already meaningfully formed world. This is an ongoing reciprocal process of arising.

As long as human beings are describing themselves as “human beings”, as long as they are inside of their linguistic reciprocal actions, their world is formed accordingly. Without linguistic interactions self-reflexive questions could not even be raised – nor questions about the “world” and its coming into being. If we are e.g. talking about a

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decided to label our approach “Open Order Cybernetics” rather than 2nd or 3rd order cybernetics (numbers are our own creations, after all).

[3] We are referring to Ludwig Wittgenstein’s notion of “language-games” here (Wittgenstein, 1953), though intending to broaden his ideas in numerous ways in the course of the given investigation. We are repositioning “language-games” into the (re)sensed territories of social/technological/multi-modal reciprocal actions.

[4] The notion of “dependent co-arising” alludes to Nagarjuna’s Mulamadhyamakakarika (MMK): “Whatever is dependently co-arisen. That is explained to be emptiness. That, being a dependent designation. Is itself the middle way.“ (vers 18, chapter XXIV; translated by Garfield, 1995). Providing insight into Nagarjuna’s philosophy lies beyond the scope of the given paper. We

“nervous-system” or a “brain”, our concepts “nervous-system” and “brain” are intermingled with the structures that we seem to merely “label” using our concepts. In fact, the idea of a “label” is rather misleading, since a “label” is usually attached to something that is already “formed”. We are saying, on the contrary, that a form arises due to our linguistic dance.

Our linguistic act of pointing “at” something creates boundaries and certain “forms” or “spatial temporal patterns” in the first place. Therefore we do not merely “label” an already formed structure using our concepts, but rather form these structures in the course embodied performance and build-up of our linguistic conventions.

One might object, that there are preconditions for acquiring language and that these preconditions (i.e. a biological body-brain-system) have to be considered *before* one is talking about “linguistics”. Even though it is obviously correct that we could not acquire a language without our body, it is also obvious that we wouldn’t possess a concept of our “body” without already using our language. Our body is a meaningfully formed structure, only because of linguistic interactions with other already meaningfully formed “bodies”. Therefore, the arising of our meaningfully formed concepts are the preconditions for considering a body-brain-system, rather than the other way around.

We are moving towards a reflexive look at our linguistic (inter)actions and are moving away from reflexivity as mere reflexive turn within a system[5]. We are (re)constructing how a “system” emerges as a product of an already linguistically learned and understood separation between “systems”. We are (re)constructing how numbers emerge as “numbers” or hands as “hands”. How “distinctions” become “distinctions”. How the understanding of contextual language use arises and changes over time. We do not claim that “diverse languages influence the thought of those who speak them” (so called “linguistic relativity hypothesis”; Lucy, 1992, p. 1). We rather claim that those who speak languages arise as “those who speak languages” through their use of language. A self-reflexive statement that appears trivial at first sight, yet will unveil its non-trivial ramifications within OOC. At this point the paradoxical nature of our

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recommend e.g. Jay Garfield’s translation and commentary (Garfield, 1995) for deeper studies.

investigation becomes explicit, since we'd like to show that a "system" can only be separated from another "system" in the course of linguistic interactions that focus on constructed boundaries, but we are at the same time talking about "a separation between systems" (which presumes "the system" once more). This paradox emerges out of the (non)dualistic nature of language itself. James Liu (1988) points at the "seeming contradiction" that is inherent to our questioning:

> The paradox of language may assume one of two basic forms, which may be considered two sides of the same coin. In the first form which may be called the obverse side of the coin, paradox arises from the seeming contradiction between the allegation made by many poets, critics, philosophers, Eastern and Western, in earnest or in feigned despair, that language is inadequate for the expression of ultimate reality, or deepest emotion, or sublime beauty... At any rate, if language is inadequate to express the reality about itself, then the allegation cannot be true. Even on the level of everyday discourse, when we say, "words fail me," we are expressing some kind of feeling and when we say of something, "It is indescribable" we are giving it a kind of description. (Liu, 1988, p.3)

We are acquiring our language in the course of an intersubjective or better reciprocal "pointing-processes" towards "something" that is already "outside" for the person that "points" (otherwise we could never "point"), but still "inside" of the "world" for the child acquiring the language (see 2.2). Once we are "inside of the game" and "point towards something" (e.g. a "system", "numbers", "hands", "the observer" etc.) we are therefore both inside of a dualism, but on the other hand also united with what we have "separated" from us. In order to point towards this paradoxical situation, we are using brackets claiming that our approach is (non)dualistic.

We don't perceive the "human system" or the "observer" as an absolute starting point, we don't draw hands drawing themselves, for we question the very concept of "hand" and its "coming into being" in-itself. Taking a self-reflective look means for us to question the very origin of "hands", the origin of their "form" as well as the origin and ongoing redefinition of their "meaning".

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[5] As undertaken e.g. by Kurt Gödel or M. C. Escher. Hayles (1999) defined reflexivity as follows: "Reflexivity is the movement whereby that which has been used to generate a system is made, through a changed perspective, to become part of the system it generates." (Hayles, 1999, p. 8).

We are elaborating a philosophy that doesn't leave our *human reciprocal linguistic actions* aside for the sake of simplicity. We rather perceive exactly these interactions as crucial for constructing the "observer" as "observer", the "environment" as "environment", the "brain" as "brain", the "computer" as "computer" – or generally speaking, an "X" as "X". We claim that if we are *leaving the build-up of our human linguistic interactions aside, we will never be able to grasp an understanding of human cognition.* The term "interaction" is, however, misleading again, since "to interact" means to "interact" with "something" that is already "there". The "inter" suggests a separation where we are interested in a *reciprocal generation — a mutual forming*. We'd thus prefer the term "reciprocal action" instead of "interaction" – meaning that any word and any thing is constantly formed in the course of an ongoing bi-directional stream, yet, without perceiving one as being "separated" from the other. We are forming each other as well as our "language" reciprocally in through dynamic patterns of recurrent action[6].

Instead of presuming the "observer" as statically existing "subject", we are interested in providing strong evidence for the view that we are constantly constructing/forming/generating ourselves as "observers" as well as other subjects as "observers observing observers". We are stuck in ongoing linguistic reciprocal actions once we are able to conceptualize "ourselves".

Instead of presuming the "nervous system", the "brain" as absolutely given structures, instead of talking of the "nervous system" as if it were an a priori separated thing, we are pointing towards the fact that we humans have already separated "the nervous system" from "the body". We have also separated the "body" from the environment that it is embedded within, once we are talking about a "body" and an "environment". Instead of overlooking this conceptual process of separation, and ignoring our already undertaken distinctions, we are trying to sketch how we come to be able to draw these

[6] It is important to mention at this point that our endeavor harmonizes rather nicely with certain aspects of called "dynamic" approaches in Cognitive Science (e.g. Thelen & Smith, 1994, Kelso, 1995, Port & VanGelder, 1995 etc.). However, none of them question the system's inherent existence, nor the brain's inherent existence. None of them undertakes a self-reflexive look towards their own conceptual construction of "dynamics" itself. Their focus lies rather on describing the mutual forming of subject and object, without picturing our linguistic games and reciprocal actions as rule-guiding forces of dynamics itself. Discussing these differences in detail lies beyond the scope of the present paper.

distinctions — how we come to be able to picture a “nervous system” or a “brain” as being separated from the “body” and the “world”.

The lack in our understanding related to how our brain functions “in principle” stems from the simplified general focus on “the brain” as it has been historically “visualized” in educational material on a piece of paper. We suggest, however, that it is the complex intermingling of *all of our reciprocally formed senses functioning in tandem* that make our “pictures” appear to be “meaningfully formed” – we are aware of our history of multi-modal forming processes. Instead of focusing blindly on our own inventions, instead of trying to find out how “pictures” or “symbols” are stored in the brain, research should rather try to reconstruct how “pictures” and “symbols” are formed in the course of reciprocal linguistic (inter)actions. If we learn what a “picture” or a “symbol” is in the course of linguistic actions within a given society, it is logical that there can be no “pictures” or “symbols” inside of the brain. Rather, our brain enables our body to interact within a given here-and-now; and due to our reciprocal actions we come into the position to separate the “brain” out of the entire game. Yet, understanding the logic of the brain requires that we keep the entire game in mind, and not just one part that seems to exist “inherently” merely due to our (conceptual) conventions.

We are therefore particularly interested in how our linguistic conventions arise and are intermingled with embodied multi-sensed activities. Our brain has nothing in common with a “book”, nor our “mind” with a pencil. Rather, our entire body with all its intermingled senses brings these concepts into existence, whereby our concept of a “body” is dependent on somebody who shows us how to entertain and come to understand experience with it. The environment we live in is meaningfully formed due to our meaningfully formed actions. Objects do not form themselves, they do not tell us how to interact with them; rather we are taught within a specific here-and-now, within a social/cultural milieu, how we are supposed to use them, what we are supposed to do with them. In the course of these reciprocal (linguistic) actions, objects and behaviors gain their meaning, just as our body that interacts with these objects and behaviors in a specific way is “meaningfully formed” in the course of recurrent actions.

We are, however, no longer “drawing” distinctions, as e.g. formulated by George Spencer-Brown (Spencer-Brown, 1979), we are no longer “drawing lines” on a piece of

paper, we are rather trying to (re)sense how we come into the position to use "written language" in order to *draw lines* on a piece of paper in the first place. This includes a reconstructive analysis of the multi-perceptual understanding of drawing itself. The meaning of "drawing" intermingles the sense of bodily motion, the smell and taste of the pencil, it's sound as it is moving over the paper, the feeling of the utensil, its sharpness, the art history of drawing etc.

We are first of all concerned about "acting distinctions" playing linguistic games (Wittgenstein 1953) with each other, and are only because of these linguistic reciprocal actions able to "draw distinctions" (or to picture the "nervous system" or the "brain" as separated structures).

We are necessarily moving beyond classical semiotics, we are no longer separating between "a sign" and "the signified" as e.g. Ferdinand de Saussure (1959) suggested, but are reconstructing and (re)sensing the preconditions for separating between "a sign" and "the signified" at all[7]. We will elaborate the huge difference between orally played linguistic games and written language in detail (see 2.2).

Technologies help us to better point at this difference and to elaborate a linguistics that is no longer centered in the written tradition. Virtual Reality helps us to become aware of our ongoing linguistic forming-processes, of a linguistics that is no longer "linked" to a world, but rather *one with the world*.

(Radical) constructivists as Heinz von Foerster, Humberto Maturana or Ernst von Glasersfeld (among others) have a realistic notion in common: All of them presume the "observer", who uses its "brain" or "nervous system" in order to construct "a world". They do not, however, seem to question the assumptions that give rise to this perspective – that the "observer" or "brain" might be a multi-modal conceptual construction in itself. That such an "observer" was itself in the midst of an ongoing open linguistic and biological becoming. Kelso (1995) also elaborates that living systems are open systems:

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[7] Claiming that we are leaving Saussure's "Course" (Saussure, 1959) behind us (insofar as we are reconstructing the dualistic presupposition of a reference between "language" and "world"; insofar as we are interested in the embodied practice *prior* to our acquisition of "signs"), requires deeper discussions of our exact critique and, indeed, of linguistics who have criticized Saussure's ideas out of a similar motivation. We'd like to mention Roy Harris' "integrational

> Only systems that are pumped or energized from the outside (or, like living systems who happen to possess metabolic machinery, from the inside and the outside) are capable of producing the kinds of patterns and structures that interest us. These are called open, non-equilibrium systems: open in the sense that they can interact with their environment, exchanging energy, matter or information with their surroundings; and non-equilibrium, in the sense that without such sources they cannot maintain their structure or function. (Kelso, 1995, p. 4)

Kelso also does not draw the kind of self-reflexive loop we are articulating here, however. He does not self-reflexively question how we come to know an "observer" or a "nervous system". In other words: What is lacking is a self-reflexive loop back towards their (static) dynamic claims. We are, on the contrary, (re)sensing exactly these (dynamic) static assumptions[8].

We are trying to undertake such a self-reflexive observation and are thereby ironically moving away from "radical constructivism" towards a "middle course philosophy". We are moving away from the notion that what is "out there" is the construction of a system towards the claim that what is "out there" (as well as "in there") stems from social conventions and interactions — from an ongoing process of reciprocal actions. We are therefore talking about our "conventionally real reality", as build up through ongoing linguistic recurrent actions – first with other humans, and later within "oneself". If even our brain is a matter of conceptual construction, the world we live in is just as real as our brain, just as real as our concepts and just as real as our conceptual constructions. Since our brain, our body – our world – is simultaneously arising once we are inside of conceptual construction, we no longer point at a "world beyond construction", we no longer claim that there is a "world" behind our conceptual constructions. Rather, our reality and our conceptual constructions are *always* fused. If we are describing "something" using language, we are simultaneously generating "something". Imagining a world beyond conceptual construction is impossible inside of conceptual constructions. Yet, being aware of our conceptual constructions (e.g.

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linguistics" at this point (Harris & Wolf, 1998) and have to apologize for not elaborating our critique at length here and now. It requires a separate treatise, however.

separating between brain, body and world) alters our understanding of these structures. Awareness of our "conceptual conventions" changes what we are searching for "in the brain", and how we treat our "body" as well as our "world".

The most important ramifications are of ethical nature, after all. As we become "observers" in the course of an ongoing linguistic dialogue, we are constantly in discourse within ourselves. We are constantly (re)sensing our "self" in the course of ongoing forming processes. There is no "subject" without these negotiations, there is no "self" without these linguistic games – and therefore necessarily no "self-regulation" or "autopoiesis" beyond our human way to describe an organism in such a way.

If we take our ongoing reciprocal actions seriously, we have to question the notion of a "subjective language" since language always requires a discourse (between so called "subjects" as well as within "oneself"). We are picturing "solipsism" as also being a human linguistic construction in itself. Our conceptual constructions are build up in the course of embodied conceptual reciprocal actions with "somebody else". It is therefore obvious that the so called "other" is always part of any single subject, rather than being absolutely and inherently separated from the so called "other".

2. Ramifications for Cognitive Science – An Interdisciplinary Sketch

2.1 Perception as Intermingled with Cognition and Reciprocal Action

Historically, when talking about human "perception" the focus has been on vision, more than on any other "sense". This over-conceptualization of "vision" causes a number of misconceptions, among them the idea that "concepts" are mere "designations" for "percepts" as if we "label" "pictures" in the world out there. If, however, our concepts are developed/learned in the course of linguistic reciprocal actions with other humans, arising through diverse forms of embodied multi-sensed activities, we can conclude that what we "perceive" and "cognize" is constructed in the

[8] See also N. Katherine Hayles (1999, p. 140ff.) for an alternate cybernetic critique of "radical constructivism" as articulated by Humberto Maturana.

course of a complex intermingling of experiences derived from all of our senses that are always present if we are expressing ourselves and experiencing “something”.
Meaning is always changing subtly over time with the knowledge we gain through ongoing multi-modal experiences.
We do not presume any “information” out there beyond our ongoing reciprocal actions and we are trying to reconstruct the process of how we generate a “(meaning)-full” world – as we do it in any single moment. We expect for example red wine in glasses, a tumor inside of a body or mushrooms whenever we search for mushrooms. The red wine might finally flow down our throat (as we have learnt how to “drink” “something” in the course of our cultural education), the tumor might be removed from the body (if we are trained in the course of a medical education – reciprocal linguistic actions with medical doctors – how to “remove” a tumor as well as how to differentiate it from healthy tissue) and the mushrooms will be placed into the basket (if we have learnt how to pick them correctly and to distinguish them from the forest’s underbrush or poison varieties). In the course of these actions the objects change. The red-wine is mixed up with the stomach-acids, the tumor dies and the mushrooms dry up. With every moment the object subtly changes. The object as such an “object” (wine, tumor or mushroom) is, however, only formed as somehow being a static object (since we are always using the same expression for “something” that is in undergoing change) if somebody articulates it is as a “static thing” in the course of a linguistic game. We, through the illusion and pragmatics of stability, are therefore forming our world as well as ourselves as “static” in the course of our linguistic games. Beyond these games, we couldn’t even talk about “something”, since the “something” would be gone right in the second of addressing *it*.
We do not separate any more between “linguistic reciprocal actions” and “the world beyond” these actions, we thus perceive “perception” and “conception” as forming an ongoingly changing unity, though not inseparably united since we are always able to separate between them (as we are doing it here and now in order to speak of a “unity”).

2.2 Language-Acquisition

The term “language-acquisition” is a process-term, since an “acquisition” takes place over time. Our concept of “language” does change dramatically in the course of this ongoing process, from a baby’s “first utterances” to the “written tradition”.

The widespread view of language-acquisition is, however, that children learn to attach name-tags onto objects. The widespread view of language is that it is used in order to “refer” to a world. To trace this dualistic concepts back to their roots (dating as far back as Plato’s dialogue Kratylos) requires yet another treatise.

We are interested in the process of learning to perceive a name as a “symbolic form” *standing for* the object and being separated from it. Out of an OOC perspective objects carry their meaning due to (reciprocal) linguistic actions that form them as meaningful things in the here-and-now. Articulating a “name” is first of all an embodied activity and only in a second step a “linguistic symbol” *standing for* something. It seems, after all, that “concepts” and “conceptually structured objects” (“categories”) are “naturally” united and the separation between them is developed in the course of a meta-linguistic understanding of language, i.e. picturing language as a “system of symbols and signs” standing for “something” rather than “orally played, embodied and embedded linguistic games” that are the precondition for perceiving “symbols”, “signs” or “objects” as meaningfully formed things. Such an expanded linguistics explores “linguistic games” which encompass a broad range of reciprocal actions manifested through embodied multi-sensual relations. In other words: If the separation between “name” and “benamed” is acquired in the course of our linguistic education, we could just as well state that the separation is in itself our human invention/convention/construction.

How and why does this separation between “name” and “benamed” appear? What is it that makes a word appear as “separated entity” that can be attached to objects. Gaugusch (2003) claims that this separation is due to learning reading and writing, since on the level of “spoken language” words are invisible and can therefore not be

attached to objects[9]. Literacy gives us the ability to "place" "words" in front of us and attach them (even physically) to an object. Literacy requires already a meta-understanding of language. Our orally played *linguistic games*, the games we learn to play using our entire body (our gestures, timbre, speech etc.) to articulate ourselves, are – on the contrary – inseparably united with the "thing" we "talk about", and the concepts we "construct". We can not "attach" a spoken sequence "physically" to an object, we can not hold a spoken word in our hands, as we can hold a piece of paper with the letters in our hands. Deepthi Kamawar and Bruce D. Homer (1998) also elaborate that children's metalinguistic understanding of words and names is strongly influenced by literacy.

A "tumor", once cognized as such, can hardly be perceived as "non existent" as tumor. We can not step out of our concepts, we cannot step out of our linguistic games once we are inside of them. It therefore appears logical that the idea of a tumor's existence as being dependent on our human linguistic interactions causes many people's hair to stand on end.

At this point we are asking the reader to become newly, self-reflexively, (re)sensed. Our concepts are so well acquired, the training we are forced to undertake is so severe and culturally supported, that we cannot hope to get rid of them inside of language. This is indeed impossible. We are, however, trying to re-understand, (re)sense and re-write language-acquisition, moving away from presuming a meaningfully formed world out there that we merely learn to "label". We are moving away from presuming that "language" is a "system of symbols and signs" (as presumed within semiotics), that writing simply represents spoken language in visible form (Saussure, 1959, pp. 23 – 24) and are pointing towards the ongoing process of "language/world construction" in the ongoing stream of our reciprocally formed embodied linguistic actions.

One could argue that we have to "store content" in our brain – such as "linguistic skills". We argue, on the contrary, that what we finally perceive as "linguistic skills" requires our body, our mouth- and tongue-movements, our entire repertoire of bodily actions as well as the historical build-up of these embodied behaviors through repetition. Brain-damage causes therefore not the loss of an "ability" stored in a

[9] See Walter Ong (Ong, 1982) as a first reader on the difference between orality and literacy.

specific region, but rather the ability to act and interact in a specific way – described by the neurologist e.g. as “linguistic impairment”. What at first sounds like semantics, moves the discourse from focusing “on the brain” towards focusing on our human bodily linguistic reciprocal actions and contextually relevant environmental embeddedness in order to finally grasp an understanding of multi-sense-oriented “brain mechanisms”. Instead of focusing on “content” in the brain, we should begin to notice the perspective that we tend to overlook the process of on-going socially enacted “content-construction” as well as the multi-sensual environmental relations that inform this ongoing set of processes.

2.3 Consciousness

Consciousness, as being an object-matter, is in the course of an OOC discourse, studied as being intermingled with and stemming from our concepts, our cultural and conventional extended linguistic games.

We are therefore trying to make the arising, the origin of what we understand, of what we mean by “consciousness” explicit. Our linguistic reciprocal actions are a necessity in order to be able to articulate “consciousness” (and any other “thing”) at all. We could therefore say that it is not “consciousness” but rather our “linguistic reciprocal action” that makes us “conscious”. However, our “state of consciousness” is intermingled with our body as well as with the “environment” we are able to “perceive”. We would like to shift the discourse from presuming “conscious sensations” (in many other creatures than humans also), to elaborating the preconditions for knowing about such sensations with certainty. Our linguistic reciprocal actions enable us to articulate the existence of “consciousness” in the first place. We could just as well state that we do not “possess” consciousness without these ongoing linguistic games of becoming. Julian Jaynes (1977) claims that “consciousness” is inseparably united with our ability to understand the appropriate metaphors surrounding it. Instead of stopping the analysis at this point we are interested in how a metaphor gains meaning, shifting the discourse from “reflection on consciousness” to “reflection on communication”, and the mutual linguistic forming of this communication. We are interested in the build-up

of “metaphors we live by” (Lakoff & Johnson, 1980). Once we are able to reconstruct how our body is formed as a “meaningful body” in the course of our human social reciprocal actions, we may – simultaneously – begin to understand how “consciousness” arises.

We are therefore not presuming the “body” nor “the world”, but are first of all concerned about our *linguistic reciprocal actions* as preconditions for possessing a meaningfully formed “body” or “world”. It should be obvious in the end that we perceive our meaningfully formed body as deeply intermingled with our meaningfully formed concepts — matter as deeply intermingled with mind – rather than separated[10].

2.4 The World Generator/The Engine of Desire as a Virtual Mirror to Broaden Linguistics

We have so far made an attempt to broaden linguistics, in the sense that we have tried to provide evidence for the fusion of our linguistic constructions and our meaningfully shaped reality. If we are constructing virtual realities, we require (linguistic) code as well. And if we are interacting with media-elements, we have to perceive them as meaningfully formed already. This would be impossible without the underlying code as well as without our background-knowledge of what counts as a meaningfully formed structure and what doesn’t. *The World Generator/The Engine of Desire* functions an abstraction of our mutual forming processes. It is a process-oriented meta-system that helps us to become self-aware of expanded, technologically driven linguistic processes, to make us aware of our ongoing reciprocal (linguistic) actions. *The World Generator/The Engine of Desire* is just an example though – we could, in fact, point at all sorts of reciprocally formed (virtual) environments. What is crucial, however, is to extend these reflections into our “conventionally real reality”, to sense our ongoing process of linguistic world- as well as self-creation in the here-and-now.

[10] See e.g. Browman and Goldstein’s theory called “Articulatory Phonology” as pointing in the same direction, as they state: “In our view, the relation between the physical and cognitive, i.e. the phonetic and phonological, aspects of speech is inherently constrained by their being simply two levels of description – the microscopic and macroscopic – of the same system.” (Browman & Goldstein, 1995, p. 180)

The World Generator/The Engine of Desire[11] is a techno-poetic device developed by Bill Seaman in collaboration with the programmer Gideon May. One of the goals of Bill Seaman's project is to present a computer-based platform for the examination of meaning production. Central are reciprocal actions of the muser[12] with all sorts of media-elements and processes.

Within Seaman's environment we become aware of "language" being in-worlded. We can observe a world arising through permanent linguistic reciprocal actions with various media-elements and processes. Language does not merely signify pictures "out there", rather each media-element (pictures, music, spoken words etc.) represents a temporarily "frozen state" of the on-going reciprocal linguistic building-up process. At any given moment we are the sum of all past experiences of reciprocal actions. The World Generator points at such a given state and suggests that one can then continue and build new intra-actions and form new meanings by combining and re-combining previously formed linguist vehicles — media elements. Meaning arises as soon as the participant selects these various language-vehicles, and intermingles them.

We can not step out of language – we need a rule-guided program, and we have to feed the generator with language-vehicles in-advance as they are authored by Seaman and function as part of the system. We are inside of linguistic forming processes that arise out of our history of embodied formings at any moment as an ongoing process. What we finally perceive as "language" (or "virtual world") is dependent on the participant's reciprocal actions with a "memory like" menu system, calling forth relevant linguistic forms and associated experiences to construct a world. The virtual world arises based on the formings the participants have brought with them, as intermingled with the perspectives they encounter through this *mutual* forming process. Thus a generative experience arises through their *reciprocal forming* of the new virtual world. Yet, this experience seeks to be a *meta-forming* experience where one can observe in a self-reflexive manner a specific environment arising out of an interauthorship conjoining and unifying Seaman as initial poetic author with the user of the generator as a re-articulator of the potential of linguistic experience. Thus the work

[11] See *http://www.fondation-langlois.org/e/activites/seaman/*

enables reflection on “world generation” arising out of a mutual linguistic forming. Reciprocally, Seaman’s actions make only sense as he is constantly keeping reciprocal actions with the musers in mind — reflecting an artistic mindset and particular intentions.

The work is a poetic artwork so the media elements loaded into the system have a poetic pre-disposition although other sets of media elements could be selected as the “pre-condition” for constructing alternate worlds.

In terms of best reflecting the concepts we are elucidating related to an Open Order Cybernetics, given the appropriate code, the mechanism could also function as a generator of media worlds of open potential. Where the system now has been focused to explore particular poetic media elements, with the appropriate adjustments of the code, the user could load any media-element they were interested in dynamically exploring. Future systems may enable the real time sensing of environments to load such systems in an ongoing manner. Thus, this techno-poetic mechanism could be used to build a variety of personalized virtual worlds, based on the collection of media-elements and processes, authored and entered into these alternate linguistic-environment generators. Any individual might load their own media sources, informing a particular open reciprocal becoming. Thus the generative properties that have enabled the exploration of emergent meaning, have the potential to be extended beyond artistic application, to facilitate the construction and navigation of diverse, complex, emergent virtual media-environments. We could also imagine a networked approach, where numerous environment generators were linked together across the World Wide Web, enabling the construction of hybrid worlds, combining the media-elements of numerous participants within one highly complex visual and sonic MOO or MUD. In terms of poetic form, other artists might use the system, developing their own particular sets of media-elements and processes to be loaded into the system. Thus, an entirely new form of poetic media-authoring environment could be facilitated. The device might also potentially function as a virtual memory theatre, extending ideas that have been described by Yates in *The Art of Memory* (Yates, 1966). The emergent potentials of the device for both creative and functional application are immense.

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[12] A “muser” is a term coined by Bill Seaman intermingling multi-modal “viewer” and “user”.

New technological exploration leads us towards reciprocal pointing, embodied practice and technologically engendered environments. The meaning of the world is continuously in a state of becoming as is the understanding of the participant.

This new space of technological production points toward a unity between what we "perceive" and what we "cognize" or "construct" as being "meaningful". These spaces point toward a "form-content-space" that arises through permanent linguistic reciprocal actions – reciprocal actions understood as a reciprocal forming of a world acting linguistically with other "subjects" (in this case Bill Seaman) as well as with the "environment" be it physical or quixotically electronic. We increasingly learn and are informed about the world within such spaces.

Bill Seaman's artifice has the potential of *making us aware* of our constant acting in language, our constant linguistic reciprocal dance, our constant world-creation in the course of our linguistic games. But most importantly: It makes us aware of "language" understood as *an embedded, in-worlded practice.*

We can not step out of these linguistic games, we can not step out of our meaningfully formed world and allege to simultaneously *be aware* of our world-creation. We can, however, step out of the World Generator, (re)enter the so called "real world" and try to transmit our broadened view into our conventionally real reality. This is exactly what we have tried to provide through this text.

This set of perspectives asks us to (re)sense our way of living – to examine the multi-sensual potentials of future research in various domains. Pointing towards a percept-concept-(reciprocal)action-unity, pointing at our human linguistic process of separating our "brain" from our "body" as well as the "body" from an environment. Necessarily this approach outruns research-projects that focus on any one of these elements, overlooking how they require each other reciprocally.

We have tried to provide an initial sketch of what is a world-view with endless ramifications that are as yet not articulated.

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