Distinguishing Ernst von Glasersfeld's "Radical Constructivism" from Humberto Maturana's "Radical Realism"

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Purpose: Ernst von Glasersfeld has dedicated a lot of effort to trying to define just where his views and those of his friend Humberto Maturana part company, epistemologically speaking (Glasersfeld 1991, 2001). As a contribution to unravelling this puzzle I propose in this article to delineate just where they seem to differ most and why these differences arise.
Approach: Part of my contribution is to propose drawing a distinction between von Glasersfeld's Radical Constructivism as the last viable outpost of constructivism before entering into the domain of solipsism, in contrast to Maturana's position which is saved from being located within the solipsistic domain by virtue of his ideas on "structure determined systems" and his theory of how language arises in human experience.
Findings: Von Glasersfeld's puzzle arises due to what Kant called "transcendental illusion," that is, the error of trying to encompass two mutually untranslatable phenomenal domains within the same language framework. **Conclusions:** After an examination of some of the crucial differences between von Glasersfeld and Maturana I typify Maturana's positioning as that of "radical realism" in contrast to von Glasersfeld's "radical constructivism."
Key words: Epistemology, transcendental illusion, radical realism, map–territory.

The leaking constructivist boat adrift in an ocean of realism

It is not my intention to compare their entire works in this short paper. It would be like comparing apples and pears – they have produced very different models and for very different purposes. While Ernst von Glasersfeld has always limited himself to a sharp focus on epistemology, Humberto Maturana has developed several different models relating to the different areas of cellular biology, experimental epistemology, neurophysiology, language, visual perception, and the "definition of the living," among others. Indeed, in recent years Ernst von Glasersfeld (1995) has written that he now tries to avoid even using the term "epistemology" and writes about human "knowing."

"…(this book) is an attempt to explain a way of thinking and makes no claim to describe an independent reality. That is why I prefer to call it an approach to or a theory of knowing. Though I have used them in the past, I now try to avoid the terms 'epistemology' or 'theory of knowledge' for constructivism, because they tend to imply the traditional scenario according to which novice subjects are born into a ready-made world, which they must try to discover and 'represent' to themselves. From the constructivist point of view, the subject cannot transcend the limits of individual experience." (Glasersfeld 1995, pp. 1–2)

In his early studies Ernst von Glasersfeld noted a problem in Wittgenstein's (1933) assertions about comparing our picture of reality with the reality in question in order to determine whether or not our own picture was true or false. Ernst von Glasersfeld (1987) comments:

"How could one possibly carry out that comparison? With that question, although I did not know it at the time, I found myself in the company of Sextus Empiricus, of Montaigne, Berkeley, and Vico … the company of all the courageous sceptics who … have maintained that it is impossible to compare our image of reality with a reality outside. It is impossible, because in order to check whether our representation is a 'true' picture of reality we should have to have access not only to our representation but also to that outside reality *before* we get to know it. And because the only way in which we are supposed to get at reality is precisely the way we would like to check and verify, there is no possible escape from the dilemma." (Glasersfeld 1987, pp. 137–138).

So here is a very clear condemnation of "epistemological cheating" – the impossible feat of trying to peep around our perceptual "goggles" to see if our "picture" is approximating to the "real reality" or not. Over the past 20 years Ernst von Glasersfeld has put a lot of effort into understanding just where his work and the work of Humberto Maturana differ, especially in the fundamental matters of epistemology. Apart from his grave reservations about key concepts of Maturana's work such as the "observer" (and how he comes about), "consciousness," "awareness," and "language" (its genesis, and that it precedes cognition, etc.), Ernst von Glasersfeld shares the perplexity of other authors regarding the ways in which Maturana can be seen to be "smuggling realism" back into his opus in one form or another (Mingers 1995, Johnson 1991, Held & Pols 1987). In Maturana's writings there are many passages where one gets the impression that he edges over into the terrain of "realism" in his discussions and phraseologies. In attempting to understand this Ernst von Glasersfeld (1991) tries to explain that Maturana

"… is obliged to use a language in his expositions that has been shaped and polished by more than two thousand years of realism – naïve or metaphysical – a language that forces him to use the word 'to be' which, in all its grammatical forms, implies the assumption on an ontic reality." (Glasersfeld 1991, p. 66)

However, I believe that there is more involved here than the constraints of the "language of realism," because Maturana (1986) has frequently not helped matters by inserting passages in his writings which are epistemologically ambiguous. For example, he has claimed that it is an "epistemological necessity" to expect that there is a "substratum" as the ultimate medium in which everything takes place. Such remarks can lead one to question whether or not he is smuggling "realism" back into his model.

In this brief article I will try to throw a little light on Ernst von Glasersfeld's puzzle about where he and Maturana part epistemological company. I will try to trace several important differences in their theories, relating my discussion to how they variously define the way the person experiences their living. I will try to point out some forks in the road where they

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Vincent Kenny about himself: "I was born in Ireland and studied for degrees in philosophy and psychology at Trinity College Dublin in the 1960s. I graduated from there at a time when these subjects were still called "Mental and Moral Science" and have spent my subsequent years wondering which was which. Since the 1970s I have worked applying constructivist ideas in the very different fields of psychotherapy, consulting to organisations, and to tennis psychology – working with professionals in the ATP and WTA tours. I live in Rome, where I also work much of the time. My main current position is as director of the "Accademia Costruttivista di Terapia Sistemica" in Rome, which is a new center for training in radical constructivist psychotherapy approaches. I have a long-term writing project with Ernst von Glasersfeld – a book on the application of radical constructivism to the area of psychotherapy – which I seem reluctant to finish."

wander off in different directions, being mindful that while Maturana has tried consistently to build up a major overarching philosophical model, von Glasersfeld has strictly limited himself to the epistemological task of delineating what human knowing can be and cannot be.

Structure-determinism and the dilemma of "choice"

A good starting point for this task is the issue of how "free" or "constrained" we are in our interactions with our world and others. Both Ernst von Glasersfeld and Humberto Maturana can be read as dealing with how much freedom to manoeuvre we have in coping with life's events. Ernst von Glasersfeld describes how we must "fit" with the constraints of the environment, while Humberto Maturana's notion of structure determinism can be read as implying that the system has no "real choice" when it comes to the moment of taking action. Let us look a little more closely at these two positions.

The relation of fitting that von Glasersfeld (1984) has in mind is conveyed in his metaphor of a key fitting a lock:

"A key fits if it opens the lock. The fit describes a capacity of the key, not of the lock. Thanks to professional burglars we know only too well that there are many keys that are shaped quite differently from our own but which nevertheless unlock our doors. …. From the radical constructivist point of view, all of us – scientists, philosophers, laymen, school children, animals, and indeed, any kind of living organism – face our environment as a burglar faces a lock that he has to unlock in order to get at the loot." (Glasersfeld 1984, p. 21).

To continue his elaboration, von Glasersfeld (1995) says that our knowledge does not constitute a picture of the world.

"It does not represent the world at all – it comprises action schemes, concepts, and thoughts, and it distinguishes the ones that are considered advantageous from those that are not. In other words, it pertains to the ways and means the cognizing subject has conceptually evolved in order

to fit into the world as he or she experiences it." (Glasersfeld 1995, p. 114)

In this relationship of knowledge to "reality" we see that it is a matter *not* of searching for an iconic representation of reality but rather the search for ways of "*fitting*" the constraints that the environment provides. The real world is "contacted" by the system only where his modes of fitting the constraints break down and do not manage to allow him to circumnavigate the encountered impediments. It is also clear from his use of the metaphor of lock/key that one may be outfitted with a range of alternative keys one of which may work better than others to open the lock. This is an idea common to other constructivists, notably among them George Kelly (1955), whose constructivist theory applied to clinical psychology and psychotherapy was premised on the notion of "constructive alternativism." Kelly believed that in order to continue to learn and to positively elaborate the personal construct system, the person must choose those alternatives which will lead to the extension and/or definition of the construction system. Survival simply means constructing *any alternative means whatever* which manage to get by the constraints. In any given environment there may be an infinite variety of viable alternative solutions.

"There are other consequences of the constructivist approach to knowing that are sometimes met with indignation. If viability depends on the goals one has chosen – goals that necessarily lie within one's world of experience – and on the particular methods adopted to attain them, it is clear that there will always be more than one way. When a goal has been attained, this success must, therefore, never be interpreted as having discovered *the* way. This goes against the notion that repeated success in dealing with a problem proves that one has discovered the workings of an objective world. Solutions, from the constructivist perspective, are always relative – and this, in turn, makes clear that *problems* are not entities that lie about in the universe, independent of any experiencer. Instead, problems arise when obstacles block the way to a subject's goal." (Glasersfeld 1988, p. 88)

While Ernst von Glasersfeld, on the one hand, seems to share with George Kelly the outlook of "constructive alternativism," on

the other hand, as I have previously observed (Kenny 1989), Maturana would seem to pre-empt out any alternative structural compensations at the moment of interacting with the perturbation at hand:

> "Maturana is *not* a constructive alternativist because at the moment of choosing there are no other alternatives possible. The 'choice' made was determined by the system's coherence. It had to be made. Kelly himself would also appear not to be an alternativist with his emphasis on 'choice' as a form of self-involvement and self-ordering, rather than saying much about the 'objects chosen'." (Kenny 1989, p. 120).

So while for von Glasersfeld the person may hold several alternative "keys," for Maturana the person *is* the key, and the person's structures have *implied* the character of the "lock" – or brought it forth – as part of their cognitive domain in such a way that there exists an effective structural intersection between the "person-as-key" and the "lock."

The structural autonomy of the system is paramount for Maturana. This means that the system can only do what it does at any particular moment of doing. *There are no other choices in the system.* A system is always in its proper place and cannot be mistaken. For Maturana, at the moment of taking action the system has *no* other choice than what it does. The system does what its structure is set up to do. Unlike von Glasersfeld's images of "bumping into" the constraining features of the environment, for Maturana it is as if the system/medium structural coherences were "full up-" and every-"thing" was in its reciprocally complementary positioning – there being little or no space for new or extra elements to easily enter into the picture. In other words, there *are* no spare components "hanging around" in the environment waiting for us to bump into them.

From this point of view, to speak of having a range of "choices" is misleading. Since these implicative construct pathways are already laid down within the ongoing system one could argue that the "choices" are illusory since the structures of the system already contain the preferential direction of movement and action.

Even though he has usually avoided labelling his approach, Maturana once said jokingly to me that if Ernst was a "radical constructivist" then he (Maturana) was a "radical radical constructivist," because at the moment of perceiving there *is* no alternative other than what our structure-determined system dictates that we *must* do in order to compensate effectively to the current perturbation

On this analysis, the fact of having "no choice" is a crucial parting of the ways between Ernst von Glasersfeld and Humberto Maturana. Humberto Maturana's position is that our system specifies our medium in such a way that it is co-existent, co-extensive, conterminous with our own embodied existence.

So in this relationship of knowledge to reality, for von Glasersfeld the notion of "truth" is replaced by that of "viability" and "fit." For Maturana it is not so much an issue of "fitting" or "viability" as it is an issue of structural coherences of the system in its medium. Maturana tries to elaborate this by describing the ways in which the observer brings forth his own reality, and in doing so generates a pattern of structural synchrony or structural coherences.

The inside–outside distinction

In their rejection of "realism" both authors have been obliged to demonstrate how they avoid the epistemological quagmire of solipsism. Here there is another difference that opens up in their various approaches, with von Glasersfeld taking the road of *denying* that he is saying that "nothing exists outside of people's heads," and repeating that he is *not* saying that reality does not exist. As a wry aside he says that: "In practice, solipsism is refuted daily by the experience that the world is hardly ever what we would like it to be" (Glasersfeld 1995, p. 113). For Maturana's part, his refutation of solipsism takes off along the road of languaging (coordinations of coordinations of actions) – which seems in my view to lead him to the area of "structural realism."

Ernst von Glasersfeld reminds us that constructivists must be unwavering agnostics as regards "existence" because whatever may lie beyond our experience is inaccessible to our reasoning. He has many times attempted to clarify that his concern is with

what can be known rationally; he does not deny that mystics and artists may access some "ulterior reality" in their own ways but only that such access must not be confused with a rational theory of knowing.

Among his many refutations of being a solipsist, Maturana refers to his theory of "languaging" which states that language comes about through the coordinations of the coordinations of actions among people in a co-ontogenic structural drift. The fact that later on we come to use this language to invent notions such as "solipsism" saying that the mind alone creates the world, is a notion simply refuted by the fact that his (Maturana's) view of language development is premised on the precedent existence of people who are coordinating their activities together – clearly not a solipsistic context! Maturana and Varela positioned this problem as part of an epistemological Odyssey, "sailing between the Scylla monster of representationism and the Charybdis whirlpool of solipsism" (Maturana & Varela 1987, p. 134).

As part of his strategy to deal with the "outside world" and not be trapped in accusations of solipsism, von Glasersfeld proposes the use of the notion of the "black box." This also helps in the task of avoiding the confusions of epistemological cheating by pretending that we can compare our "picture" of the world to the "actual reality." He comments:

> "If it is the experiencer's intelligence or cognitive activity that, by organizing itself, organizes his experience into a viable representation of a world, then one can consider that representation a model, and the 'outside reality' it claims to represent, a black box." (Glasersfeld 1987, p. 156)

This helps emphasise that for von Glasersfeld there is a clear separation of what is "inside" the person and what is "outside" as the "environment" or "reality." It means that everything that is outwith oneself – the environment, other people, children, dogs, etc. – are all black boxes from the observer's point of view. It means we can never "really know" what others are thinking or what they "really mean." It means that we can never know that what another person is feeling is "really like" what I am feeling. We can never find out what the other is "really like" because all we have to go on are our interpretations of what our

senses tell us about our experience of them. The most we can do is to construct models of the others which establish and "explain" certain regularities in our experiences of these others. Our task, also in the "interpersonal" domain, is to "get by the constraints" which are continually posed to us. One has to "squeeze between the bars of the constraints" – but how one manages to achieve this is not determined by the environment.

To be more clear about his use of the concept of "adaptation" and viability in this context von Glasersfeld notes that:

> "What organisms adapt to, and what ultimately determines the pragmatic viability of their constructs, are certain regularities in the input–output relations the organism registers, with respect to the black box which they experience as 'environment' or 'world.' … The structures he calls 'things,' 'events,' 'stages,' and 'processes' are the result of the particular way in which he himself has coordinated his 'particles of experience.' (Glasersfeld 1987, p. 113)

However for Maturana this distinction of "inside/outside" is blurred to the point of irrelevance. Since the person's structure-determined system has instantiated its cognitive domain there is little sense in even making this "inside/outside" distinction.

> "This circularity, this connection between action and experience, this inseparability between a particular way of being and how the world appears to us, tells us that every act of knowing brings forth a world … all doing is knowing, and all knowing is doing."(Maturana & Varela 1987, p.26)

This contrasts sharply with von Glasersfeld's notion that the environment is a "black box" for the observer. Instead for Maturana there is no "outside-as-black-box" because the "system-in-its-medium" is the result of millions of years of co-ontogenic structural drift. Rather, for Maturana, the person operates not only as if there is *no* "black box" but *as if there were no "outside" at all.*

So here we can see the radical consequences of the fact that the structure-determined system is implicative in nature. The structure-determined system *implies* a very specific medium as a structural extension of itself. In implying this medium the system brings forth a world where it is in adaptive co-

evolution, and where the "inside–outside" distinction is meaningless for understanding the "causes" of our experiences.

In Bateson's (1972) terms, whenever scientists use the notion of the "black box" they are making a conventional agreement to *stop trying to explain* things at a certain point – at least temporarily. In this sense, von Glasersfeld's use of the notion of the black box is his way of clearly signalling the limits to his task – of specifying what can and cannot be explained in his model of knowing, and what will necessarily be left out.

This characterises von Glasersfeld's view that there *is* a strict "inside–outside" differentiation of the person/environment relationship – and this is another place where Maturana takes off in a different direction. Maturana uses different metaphors to that of von Glasersfeld's black box when he describes the organisational closure of the autonomous system. He has often used the image of an aeroplane pilot flying and landing his plane (on a dark night with zero visibility) by using his instrument panel, or the image of a submarine captain guiding his craft "sightless" to the outside world, but who, by using his electronic instruments, succeeds in his task. So here, while von Glasersfeld uses the "black box" imagery to be careful to maintain his "inside/outside distinction, Maturana (1987) instead depicts the person as operating blind to, and out of all awareness of, what an observer would call the person's "medium" or environment (perhaps like Piaget's "self uncognizant of itself").

> "All that exists for the man inside the submarine are indicator readings, their transitions, and ways of obtaining specific relations between them. It is only for us on the outside, who see how relations change between the submarine and its environment, that the submarine's behaviour exists and that it appears more or less adequate according to the consequences involved." (Maturana & Varela 1987, p. 137)

and also they say that,

> "… for the operation of the nervous system, there is no inside or outside, but only maintenance of correlations that continuously change (like the indicator instruments in the submarine) …" (Maturana & Varela 1987, p.169)

Radically different

At this point I will try to clarify some of the differences between Ernst von Glasersfeld and Humberto Maturana by positioning their approaches in relation to Realism. Both authors define themselves in epistemological positions far away from that of "naïve realism." Let us recall, in summary form, some of the primary features of both theorists – why they are variously radical in their departures from the mainstream of thinking.

Ernst von Glasersfeld's model is radical because he says that "the map is *not* the territory."

- The "map" cannot ever be the territory.
- The "map" can never be compared to the presumed territory.
- The "map" is where we know and create meanings for our experiential world.
- Environment is a "black box." We can only know what it is not.
- We are forever banished from the Garden of Eden of Ontological Truths.
- "Inside–Here Vs Outside–There" is a fundamental distinction, reminding us that we can say nothing about the ontological status of the world we experience.
- Environment is a type of "obstacle race."
- The notion of "fit" and "viability" is central in describing the relationship of the person to their world.

From a whimsical viewpoint, this model appears to me as if an endless experiential Sudoku puzzle where we may exclude or eliminate numbers from every cell, but we may never fill in the "actual number" which occupies any cell. The whole matrix must always remain blank! With this in mind it is easy to understand the frustrations with which many readers greet von Glasersfeld's model!

Von Glasersfeld (1987) describes the situation as follows:

> "…the only indication we may get of the 'real' structure of the environment is through the organisms and the species that have been extinguished; the viable ones that survive merely constitute a selection of solutions among an infinity of potential solutions that might be equally viable … What I suggest now, is that the relationship between what we know, i.e., our *knowledge*, is similar to the relation-

ship between organisms and their environment. In other words, we construct ideas, hypotheses, theories, and models, and as long as they survive, which is to say, as long as our experience can be successfully fitted into them, they are *viable*." (Glasersfeld 1987, p. 139)

Humberto Maturana's model is radical because he says that "the map *is* the territory."

- There is no distinction between "map" and "territory" because we create our reality by living it, enacting it. For this reason the observer ends up in a position which is indistinguishable from that of the realist observer.
- At the moment of perceiving one cannot distinguish a hallucination from a perception.
- At the moment of perceiving/acting you have no "choice" – you do that which your structure-determined system is set up to do.
- To all intents and purposes "the map is the territory."
- Environment is an intimate part of the evolution and survival pattern of the unity "person + medium."
- The "Inside–Outside" distinction pertains to the position of an observer. Maturana reminds us to be very careful in our observer's "book-keeping" regarding from what point of view we are making our statements.
- Environment is implied by the structure of the person, and as such is "co-extensive" with the bodyhood of that person. Environment cannot be an "obstacle," even though the person can make a "mistake."
- The notions of "fit" and "viability" are replaced by Maturana's emphasis on the minimum "unit of survival" which is defined as "the person + medium." Here the survival of both is in question, and not just whether one manages to "fit the constraints." Survival depends on the simultaneous double conservation of "internal coherence" and of "external fitting."

Clearly, in these two summaries we have two very different forms of "radicality" leading to different positions in the range of epistemologies.

Where von Glasersfeld and Maturana part company

It is clear that having created two different maps these two authors end up in different worlds. It is interesting to note that despite their many conversations and familiarity with one another's writings, they are unable to put a consensual finger on where exactly they do not agree – or to explain how it is that they end up in very different worlds – "worlds apart."

Recently, Maturana (2004) has jokingly described himself as, "a super-realist who believes in the existence of innumerable equally valid realities. Moreover, all these different realities are not relative realities because asserting their relativity would entail the assumption of an absolute reality as the reference point against which their relativity would be measured." (Maturana 2004, p. 34).

Over millions of years of co-ontogenic structural drift with a medium, the structures of the human body are configured in an inferential, anticipatory and implicative manner. The structures anticipate the *ongoingness* of those congruent structural features of the environment. A Martian examining a human body on Mars could come up with a very accurate description of what our environment is like, doing a kind of "reverse engineering" from the body's structures to infer the necessary properties of the medium with which the human system is structurally intersected for survival. For example, the fact that we have lungs implicates the existence of a medium with oxygen and other gases for breathing; the presence of a stomach implicates a medium with consumable food objects; the structure of the eyes implicates the presence of a certain range of light waves, and so on through the whole range of bodily structures. Maturana (2004) himself puts this a bit more romantically where he says:

> "The fundamental condition of existence is trust. When a butterfly has slipped out of its cocoon, its wings and antennae, its trunk and its whole bodyhood trust that there will be air and supporting winds, and flowers from which to suck nectar. The structural correspondence between the butterfly and its world is an expression of implicit trust. When a seed gets wet and begins to germinate, it does so trusting that all the necessary nutrients will be there for it to be able to grow." (Maturana 2004, pp. 198–199).

Maturana describes a world where organism and medium are structurally intersected, co-extensive and coessential. There is no "separation"; there is no "in here/out there" except for some observer. All of this means that Maturana is not at all a "constructivist" (indeed he has always denied it) but rather occupies a novel position in the epistemological chart which I see to be based upon a form of "structural realism."

I want to suggest that this "super-realist" position can be seen as a novel location in the varied terrain of the epistemologies which already contain these well-known features, among many others:

Naïve Realism, Direct Realism, Critical Realism, Representationalism, Trivial Constructivism, Critical Constructivism, Constrained Constructivism, Communal Constructivism, Pragmatism, Scepticism, Social Constructionism, Phenomenalism, Internal Realism, Radical Constructivism, Radical Idealism, and what I would now like to call *radical realism.*

It is "radical realism" because the implication of Maturana's theory is that we can directly and intimately know the "reality" we are living because it is we ourselves who have made it. It is not a black box for us, it is *our* cognitive domain and we can know about our effective actions in this domain. So the way I intend the term "radical realism" arises from the fact that our sense of "objective reality" derives radically from our "subjective reality-making." This in turn derives from the implicativeness of structure determinism. So this is the sense in which I read Maturana as a "radical realist." We have no choice in the world we ourselves have instantiated through our structure-determined system. What we do next is always structure-determined and thus has the sense of "inevitability" that we attribute to an "objective reality." With the dissolution of the "inside/outside distinction we attribute our lived experience of our *own structural objectivity* to what an observer would call our "environment."

Considering this mapping of Maturana as contrasted with von Glasersfeld, we can understand how it is that Maturana is often misunderstood as a "determinist," "behaviourist," "cognitivist," "reductionist" etc which are all positions defined in part by their sharing a realist epistemology.

Conclusion

While von Glasersfeld claims that the person or cognitive system may make contact with ontological reality *only* when and where their schemes to eliminate perturbations break down – when our constructions are invalidated, we can know only what the world is *not* – for Maturana this is not the case because he has positioned his observer-actor in the midst of a process of structural coherences (co-ontogenic structural drift etc.). For Maturana this means that the system cannot make a "mistake," and that it is always in the "right place" because of its long history of structural drift in the medium.

We can also appreciate how Ernst von Glasersfeld therefore holds the bulwark position on the extreme borders of "idealism" just before it goes on to various forms of solipsistic closure. As von Glasersfeld says,

"… a model is a good model whenever the results of its functioning show no discrepancy relative to the functioning of the black box. That relation, I claim, is analogous to the relation between our knowledge and our experience. Given that there is nothing but a hypothetical connection between our experience and what philosophers call ontological reality, that reality has for us the status of a black box." (Glasersfeld 1995, p. 157)

In this analogy I believe we have a major clue for understanding where von Glasersfeld and Maturana part company. Von Glasersfeld uses the analogy of organism/environment to illustrate how he conceives of the relationship of what we know to our own experiencing. However, as an analogy it can only take us so far because on the one hand von Glasersfeld is locked into the strictly limiting domain of experiencing and how one may variously construct meaning for these experiences. In the case of organisms and their environment we are in a very different phenomenal domain of activity. This is where Maturana's structure determinism takes care of survival – it is a question of "know-how," and not, as for von Glasersfeld, a question of "say-how" (saying or describing or cognitively constructing sense out of our experiences). In effect, we cannot really compare these two domains proposed in this analogy because von Glasersfeld is describing the interfacing of a domain of experience with the domain of

explanations in order to produce rational knowledge, while for Maturana the organism/environment is a matter of flowing in the phenomenal domain of structural coupling (of experiencing the structural relatedness) – out of which, later, the system-observer may or may not have to enter the domain of explanations to work out what "really happened" during a given experience. From this point of view, von Glasersfeld is always already at the business of producing rational knowledge, while Maturana may describe the person or system as being simply in a drift of ongoing structural transformations, without necessarily arriving to a domain of "reflections."

For von Glasersfeld the main focus is on the cognitive effort to make sense of experience, rather than on describing events in the physiological or biological domain. The bodily senses have already produced the experiences which must now be organised to make sense, and to fit with the existing framework of sense that we have built up. But also, in the mind, because there is no "embodiment," we can invent or imagine all sorts of things to be going on. In fact this is what the mind does best; endless inventions, conjectures and hypotheses are churned out given half an excuse. This in effect is the source of the problems of many impatients[1] in psychotherapy who enter into self-paralysing self-interrupting loops of negative, frightening, destructive and maladaptive ideas – which produce a very poor "fit" indeed. This is an example which helps to clarify the fact that for von Glasersfeld the constraints that we have to "fit" with are not necessarily inherent in an ontological reality (Glasersfeld 1987, p. 140). *Rather, the dominant constraints arise from within our own patterns of constructions and the ways in which we have learned to organise these into a working system.*

By now, at the end of this article, it seems clear that the solution to the puzzle of von Glasersfeld as to how and why his theorising and that of Maturana become so different lies in what Kant called the "*transcendental illusion*" – the error of trying to use the same language descriptions for two incompatible phenomena, or for two different phenomenal domains that are non-collapsible (or mutually untranslatable). I have tried to grasp this difference by shifting backwards and forwards across what seems to be an unbridgeable gap between these two theorists.

This kind of puzzle may arise due to the error of attempting to apply concepts and language descriptions beyond the domain wherein they were evolved or constructed. In George Kelly's terms we are attempting to apply a construct way beyond its "range of convenience," creating only the illusion of having "described" or even "explained" the other phenomena arising in a different domain.

In trying to warn us about the error of "*transcendental illusion*," Kant (1968) urges us to pay adequate attention to the differentiating boundaries which mark off one territory as appropriate and another as not for the application of certain categories. He says he is warning us about

"… actual principles which incite us to tear down all those boundary-fences and to seize possession of an entirely new domain which recognises no limits of demarcation." (Kant 1968, p. 299)

In the present case it is perhaps important to realise that the theorising of von Glasersfeld and Maturana takes place in two very different domains of activity: one in the philosophical domain of inquiry into our possibilities for knowing; the other in the construction of a biological basis for knowledge, language, consciousness and more.

Along with Piaget, von Glasersfeld recognises that there are two very different domains of "survival," one at the biological level where there is at stake the viability of the organism/environment relation; and the other at the level of "cognitive reflection" where what is at stake is the viability of the person's conceptual network or "construct system." It is clear that the process of adaptation in the biological domain is different in many ways to adaptation in the cognitive domain. There are different forms of "viability" and "instrumentality" pertinent in the two different domains of action – on the biological level it is literally a matter of survival, while on the conceptual level it is a matter of maintaining one's internal coherence or equilibrium. It is interesting to note again here that for Maturana "survival" is defined as the *simultaneous* conservation of *both* one's internal coherence (organisational closure) *and* the conservation of one's fit or relevance to one's niche. This is another major difference in the focus of the writings and research of the two authors under examina-

tion here. Ernst von Glasersfeld once described constructivism as "a theory of what thinking produces" – which is sometimes called knowledge – and this shows clearly the domain of optimal application of his model, which indeed has seen more successful applications in the field of teaching and training than in any other.

So while von Glasersfeld is extremely careful to stay with his definition of RC as a "theory of knowing" and avoids any attempts or temptations to describe what "exists," Maturana's writings do seem to be replete with affirmations of what exists, such as the description of the "living" as *being* "autopoietic." Indeed, the main disagreements that von Glasersfeld expresses in relation to Maturana's writings are to do with asking how Maturana comes to take as "given" many different features of his theory, as if he *knew* how "things really are." This is a major parting of the ways since von Glasersfeld's entire effort is to present a model of how the cognising subject is able to construct their knowledge without any reference to a "given" or "pre-existing reality."

It seems therefore that the main impossibility in "joining" the theorising of von Glasersfeld with that of Maturana lies in the fact that von Glasersfeld has focussed on the adaptations and learnings that go on at the "cognitive" level whereas Maturana's work is principally in the biological domain. Perhaps if Maturana is taken seriously in his repeated denials that he is a "constructivist" we would more readily recognise the non-collapsible distance between him and von Glasersfeld. To this end I have found it useful to locate Maturana's approach as existing in the interstices of theory between the various "constructivisms" and the various "realisms." Since Maturana seems to "go beyond" the epistemological positioning of von Glasersfeld's Radical Constructivism, and since Maturana is clearly outwith the domain of the "realists" (despite the impressions of "leaking realism"), I think the name "radical realism" describes this interstitial epistemological space which Maturana has brought forth in his theorising over the past 40 years or so.

POSITIVIST VIEW: IT'S A CAT

CONSTRUCTIVIST VIEW:
I PERCEIVE SOMETHING I THOUGHT WAS A CAT

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Note

1. I use the term "impatients" for those who participate in psychotherapy because the medical term "patient" has nothing to do with what goes on in psychotherapy, and moreover, unless the person has a certain impatience about getting on with things they are unlikely to make much progress in changing their life experiences.

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