

Facts and the Self from a Constructivist Point of View

*Of what should absolute reality be independent?
If you want it independent of humans, you should
consider that it would then be useless for humans.*
Ludwik Fleck (1929; p.429)

The title of a conference that begins with the phrase “The invention of facts...” is bound to create a variety of reactions. For a constructivist who has for a long time been engaged in the investigation and reconstruction of the concept of knowledge the phrase expresses an epistemological attitude that is diametrically opposed to the philosophical heritage that has come down to us in the Western world. It also raises the awkward questions: What is a fact? What do we intend when we use the word “knowledge”? What follows is this constructivist’s current answer to these questions.

For some 2500 years the Western world has manifested an overwhelming tendency to think of knowledge as a cognitive organism’s representation of an outside world, its structure, and how it works. The representation might not yet be quite perfect, but, in principle, it was thought to be perfectible. In any case, its goodness was supposed to depend on the degree of correspondence between it and the outside world called “reality”. Today, this way of thinking is no longer viable

The Problem of Representation

There are two points I want to make about this notion of representational knowledge, one logical, the other semantic. First, at the time of the pre-Socratics, when our epistemological tradition began, there already were some thinkers who held that any conception of knowledge that required correspondence to a “real” world was illusory and useless. It was illusory, they argued, because there was no way of checking any such correspondence. These thinkers saw with admirable clarity that, in order to judge the goodness of a representation that is supposed to depict something else, one would have to compare it to what it is supposed to represent. In the case of “knowledge” this would be impossible, because we have no access to that “real world” except through further experience from which we abstract what we call “knowledge”; and this knowledge, by definition, would simply be another representation. In other words, we have no difficulty in comparing one representation with another to decide whether they are different, similar, or equivalent; but we cannot compare a representation with

something it is supposed to depict, if that something is supposed to “exist” in a real world that lies beyond our experiential interface.

The second, semantic point pertains to the word “representation” and in particular how it has come to be used in English. Like many other words, it has different meanings. Speakers of the language usually handle ambiguity quite well; but in the case of the word “representation” there is a peculiar difficulty: one of its ambiguities seems to have sprung, not from the word’s original use in English but from an unfortunate use that was made of it by translators of German philosophy. Perhaps already earlier, but certainly since Kant’s Critique of pure reason was translated, the two German words “Vorstellung” and “Darstellung” have been rendered in English by one and the same word “representation”. In epistemological contexts, this conflation is disastrous: although both the German words are used to refer to conceptual structures, they specify incompatible characteristics. The first, Vorstellung, indicates an autonomous internal construction, whereas the second, Darstellung, indicates a structure that is considered the picture or illustration of something else. An author who remains unaware of this difference is bound to get into a muddle about what the human mind can and what it cannot “represent” to itself.

That I can mentally re-present certain things to myself is, I believe, indisputable. Though I have not the vaguest idea how I do it, I can at this moment re-present to myself the way up a mountain I climbed on a winter’s day, 40 years ago in the Swiss Alps; I can hear that peculiar swishing, crunching sound at each step, as one pushes the ski forward into the untouched snow and then puts one’s weight on it; I can see the track I am making, in front of me as a project, behind me as a product, as it follows the contour of slopes and gullies, and I can feel that constant effort to keep the track at a steady gradient; and I can smell, with every breath, that incomparable combination of dry, cold air and brilliant sunlight. – Clearly, in this context, “to hear”, “to see”, “to feel”, and “to smell” do not refer to quite the same activities as in a context of immediate perception. When I perceive, I would say I am registering signals that seem to come from my eyes, ears, and nose. When I re-present something to myself, it seems to come from another source, a source that feels as though it were wholly “inside”. Perhaps this difference springs largely from the experiential fact that when I perceive, my percepts can be modified by my physical motion; the past I re-present to myself, in contrast, is not influenced by the way I move at present.

As I said, I do not know how re-presentation works. In fact, no one, today, knows how it works. We have not even the beginnings of a plausible functional model of human memory, let alone a model of human consciousness. Yet, something we want to call memory as well as something we want to call consciousness are involved in the kind of re-play of past experiences that I was describing. The point I want to make is this: If I re-present to myself something that was a familiar experience 40 years ago, it is, indeed, very much like re-playing or reconstructing something that was made at another time. It is, under all circumstances, a re-play of my own experiences, not a piece of some independent, objective world.

That is the reason why I insist on the hyphen. I want to stress the “re” because it brings out the repetition – repetition of something that was present in my experiential world at some other time. (Note that, like the German word Vorstellung, representation may refer to a new construction that has not yet been actually

experienced but is projected into the future as a possibility.) I shall leave it at that. I am not a neurophysiologist and I can live without a model of memory and of consciousness. I take these items as what they are to me, that is, I take them as phenomena, as part of my experience. I am not arguing with the traditional view that knowledge consists to a large extent, if not entirely, of representations. I am, however, refuting the notion that representations are or could be pictures, replicas, copies of an experiencer-independent ontic world; instead, I am suggesting, that they are (and cannot be anything but) re-presentations of experiential material that was present at some other time.

The moment this is said, a question arises: If one denies that “knowledge” and “representations” stand in an iconic relation to the “real” world and thus correspond to it, in what relation do they stand to it? This, again, is a serious question, because if we were to say that there is no such relation, we should find ourselves in the trap of solipsism, the doctrine according to which the mind, and the mind alone, creates the world – a doctrine that seems easily refuted by the simple consideration that our world is hardly ever quite what we would like it to be and, what is more, the “real” world has some rather nasty ways of treading on our toes.

Knowledge and Reality

The kind of constructivism I have been advocating has nothing to do with solipsism because it is intended as a theory of knowledge, not as a theory of being, i.e., an ontology. I have fully expounded the theory elsewhere (von Glasersfeld, 1983, 1984); here I shall confine myself to mentioning the two basic points without attempting to defend them:

1) Cognitive organisms do not acquire knowledge just for the fun of it. They develop attitudes towards their experience; they begin to like certain experiences and to dislike others. Consequently they become goal-directed in that they will tend to repeat the experiences they like and to avoid the ones they dislike. The way they attempt to achieve this is by assuming that there must be regularities or, to put it more ambitiously, that there will be some lawfulness in the world of our experience. As Maturana has said, biological organisms operate inductively; they assume that what has worked once, will work again (cf. Maturana, 1970). One kind of knowledge, then, is knowledge of what has worked in the past.

2) Knowledge, from this perspective, must not be characterized as a “picture of the world”. It does not reflect the world at all – it reflects what one can and what one cannot do.

In other words, knowledge does not depict the real world but pertains to ways and means the cognizing organism has evolved in order to fit into the world as he or she experiences it. It follows that what we ordinarily call “facts” cannot be elements of an observer-independent world but, at best, elements of an observer’s experience. But not every element of an observer’s experience would ordinarily be considered a fact. Vico, the true father of all modern constructivism, noticed that the Latin word for “fact” was directly derived from the Latin word for “to make”. This helped him to formulate the epistemological slogan that a human can know only what a human has made (Vico, 1710).

Although Vico offered some shrewd suggestions about the formation of certain key concepts such as “point”, “space”, and “time”, he did not say much about the construction of facts, except that they could be made of nothing but elements that were accessible to the maker. This question of accessibility, it seems to me, is of crucial importance if today we want to discuss what is empirical and what is not. If we go back to the beginnings of Empiricism, we find that Locke proposed two different sources for the generation of ideas: the senses on the one side, and reflection on the other. It is worth noting that Locke’s definition of reflection is precisely the same as the one Piaget used in order to differentiate “operative” knowledge from “figurative” knowledge, viz., “the perception of the operations of our own mind within us” (Locke, 1690; Book II, Ch.1, §4).

Where the senses are concerned, Locke did not trust them entirely. He perpetuated the distinction between primary and secondary qualities and agreed with Descartes that only the primary qualities should be considered as belonging to the real world. The secondary qualities (colors, sounds, tastes, etc.) “in truth are nothing in the objects themselves but powers to produce various sensations in us” (Book II, Ch. VIII, §10). Consequently, they could not be used as a basis for any kind of realism.

Then came Berkeley who showed that the very same arguments that had induced Locke to consider the secondary qualities mere appearances that were relative to the human experienter, could be turned with equal success against the primary qualities. The perceptual basis for realism was thus shattered. Hume continued the demolition by arguing that causal connections were a matter of an experienter’s association, and it is easy to show that what Hume said of causality can also be said of any relation that a cognizing organism establishes between two items of experience.

Finally, Kant pulled the rug from under whatever had remained of realism after the British Empiricists. By proposing that space and time should be considered characteristic forms of the human way of experiencing (*Anschauungsformen*) rather than properties of the “real” world, he eliminated any possibility of envisaging or visualizing a world before it has gone through our experiential procedure, simply because we are now assumed to be incapable of seeing, touching, hearing, and, indeed, knowing anything that is not framed in space or time or both. If we accept Kant’s proposal, there is no way out: everything that we might want to call “structure” depends on space and time; hence, if “reality” does not comprise space and time, it makes no sense to think of that reality as having anything that we would want to call “structure”.¹

At this point one might say, let’s forget about the British Empiricists and let’s forget about Kant and then we might be in a position to make a case for realism. After all, there have been quite a few philosophers since Kant who tended towards realism – if not explicitly, at least implicitly. The trouble is that none of them has found a satisfactory defense against the age-old attack of the sceptics. If we think of knowledge as a picture of reality, we would like to be reassured that it is a good picture, i.e., a “realistic” one that shows things as they really are. However, the comparison that might give us that assurance is precisely what we cannot make.

This problem has recently been formulated also in the context of “information processing”. In that school, too, knowledge is often considered in terms of “representations”. The cognitive organism, it is said, comes to have representations,

and these representations “encode” information that has been gleaned from reality. As Bickhard and Richie (1983) argued, a code is an arrangement of semantic links between items that signify and items that are signified by them. In order to create such an arrangement, one must have not only the signs or symbols that one intends to use but also the items one wants them to signify or symbolize. In the case of “reality”, the second condition cannot be fulfilled. Reality, as I said before, always remains on the other side of our experiential interface and on the other side of our sense organs; hence it is at best an unfortunate metaphor when people say that the signals we receive through our senses are a “code” and contain “information” about reality. We are in no position to know this, because we never gain access to what is supposed to have been encoded.

The Reality of Experience

The startling thing about this is that, although we cannot prove the truth of our knowledge, we seem to have a remarkably stable experiential reality in which we carry on our daily living. We formulate explanations, we make predictions, and we even manage to control certain events in the field of our experience. Much of this management involves what we call scientific knowledge, which seems to be the most solid. We rely on it, and it allows us to do many quite marvelous things.

For epistemologists, then, it may be useful to look at the method that supplies us with that kind of knowledge. From my point of view, Humberto Maturana has provided the most lucid analysis of the procedure that is usually called “the scientific method”.²

Maturana divides the procedure into four steps:

1) **OBSERVATION**. In order to count as “scientific”, an observation must be carried out under certain constraints, and the constraints must be made explicit (so that the observation can be repeated).

2) Observations may then be related by an **HYPOTHESIS**, usually an inductive hypothesis that involves causal connections.

3) By deduction a **PREDICTION** is derived from the hypothesis, a prediction that concerns an event that has not yet been observed.

4) The scientist then sets out to observe the predicted event; again, the **OBSERVATION** must take place under certain explicit constraints.

Throughout the four steps, what matters is experience. Observing is a way of experiencing and, to be scientific, it must be regulated by certain constraints. The hypotheses by means of which one then relates one’s observations, connect experiences, not “things-in-themselves”. The predictions, again, regard experiences, not events in some “real” world that lies beyond one’s actual experience.

Seen in this way, the scientific method does not refer to, nor does it need, the notion of ontological reality – it concerns exclusively the experiential world of observers.

Scientific knowledge, then, does not and could not yield a picture of the “real” world; instead, it provides more or less reliable ways of dealing with experience – and dealing with experience means to be more or less successful in the pursuit of one’s goals. Hence knowledge may be viable, but even if it is, it makes no claim to “Truth”, if “Truth” is to be understood as a correspondence to the ontologically real world. The constructivist approach thus changes the relation between knowledge and the ontic

world philosophers have always placed around the cognizing subject. Unlike the notion of “truth” (of descriptions), which would require a match, i.e. shared points, between the picture and what it is intended to represent, the notion of “viability” (which refers to actions and ways of thinking) requires fit; and must be characterized precisely by the absence of shared points because they would be points of friction or collision. The concept of “viability”, however, does imply that there are or will be obstacles and constraints that interfere with and obstruct the organism’s way of attaining the chosen goals. It is not the case that “anything goes”, and it is precisely through its obstructions that ontological “reality” manifests itself: by impeding some of our actions and by thwarting some of our efforts. The salient point in all this is that, since this “reality” manifests itself only in failures of our acting and/or thinking, we have no way of describing it except in terms of actions and thoughts that turned out to be unsuccessful.

The Analysis of Empirical Construction

With this development, empiricism has come full circle and has returned to its original intent, namely to examine the world of experience. The examination started out with the hope that the world of experience would sooner or later reveal something of an ontic world, a world of objective reality. This hope was not fulfilled, and if we continue to investigate the world of experience, it must be in the spirit of Kant’s “transcendental enterprise”, which is to say, with the intent to find out how we come to have the apparently stable world in which at a certain point in our development, we find ourselves living.³

What we ordinarily call “reality” is the reality of the relatively durable perceptual and conceptual structures which we manage to establish, use, and maintain in the flow of our actual experience. This experiential reality, no matter what epistemology we want to adopt, does not come to us in one piece. We build it up bit by bit in a succession of steps that, in retrospect, seem to form a succession of levels.

Repetition is an indispensable factor in that development. Without repetition there would be no reason to claim that a given experiential item has some kind of permanence. Only if we consider an experience to be the second instance of the self-same item we have experienced before, does the notion of permanence arise. This creation of “individual identity” has momentous consequences (cf. von Glasersfeld, 1979). If the two experiences we want to consider experiences of one and the same item do not immediately succeed one another in the flow of experience, then we must accommodate for other experiences between the two instances. That is to say, we are obliged to think of that individual item as subsisting somewhere while we are attending to others in the flow of our experience. Thus we must construct “existence” as a state that can take place outside our field of experience, and in order to take place it needs the space in which to be and the time to perdure while our attention is elsewhere. In other words, by creating individual identities of which we can believe that they recur in our experience, we have created a “real” world that exists whether or not we experience its constituents.⁴

The Question of Objectivity

If we do accept this way of thinking as a working hypothesis, we shall have to account for a difference in conceptual constructs which, even as constructivists, we would not like to miss: the difference between knowledge that we want to trust as though it were “objective” and constructs that we consider to be questionable if not downright illusions. Needless to say, this constructivist “objectivity” should be called by another name because it does not lie in nor does it point to a world of things-in-themselves, but lies wholly within the confines of the phenomenal. I have elsewhere proposed a model that provides such a “highest level of experiential reality” and traces its construction within a subject’s field of experience (von Glasersfeld, 1986). This highest level arises through the corroboration of “Others” which the subjective observer can construct within his or her own experiential domain. This construction is, in fact, an extension of a suggestion Kant made in the 1st edition of his Critique of Pure Reason:

If one conceives of another thinking subject one necessarily imputes to that other the properties and capabilities by which one characterizes oneself as subject. (Kant, 1781; p.223)

The creation of Others in our likeness does not happen all at once. It begins quite harmlessly with the child imputing the capability of spontaneous movement to items in the experiential field that do not stay put. It is followed by the imputation of visual and auditory senses to animals, and it is crowned by the imputation of goal-directed behavior, deliberate planning, feelings, and experiential learning to Others whom one considers “like” oneself. Once this level of sophistication is reached, one spends a great deal of time explaining, predicting, and attempting to control these Others. That is to say, one now has populated one’s experiential field with models of moving, perceiving, planning, thinking, feeling, and even philosophizing Others to whom one imputes the kinds of concepts, schemes, and rules one might oneself abstract from one’s experience. These models incorporate some of the knowledge we ourselves have found useful and thus viable in our own dealings with experience. If, then, we are able to make a successful prediction about one of these Others, the particular piece of knowledge which, in making the prediction, we have imputed to the Other, acquires a second order of viability: we now feel justified in saying that this piece of knowledge was found to be viable not only in our own sphere of actions but also in that of the Other. This, I believe, is as close as a constructivist can come to “objectivity”.

It is obvious that the construction of a viability of which I can say with some justification that it seems to reach beyond my own field of experience into that of Others, must play an important part in the stabilization and solidification of my experiential reality. Indeed, it helps to create that highest level of which one can then believe that it is shared by Others and, therefore, “more real” than anything experienced only by oneself. It is the level on which one feels justified in speaking of “empirical facts”. But, as Ludwik Fleck so clearly saw, it is of the utmost importance to realize that they are not facts of an impersonal “absolute” reality but facts of one’s own making, facts that arose out of a particular way of experiencing and interacting with the products of one’s experience. The corroboration of Others, one might think, is much more easily and much more generally achieved by linguistic communication.

From the constructivist point of view, however, the notion of “sharing” as a result of a linguistic exchange turns out to be the result of the very same kind of imputation we have discussed above. It would lead too far here to expound the constructivist approach to language and communication but I do want to substantiate the claim that not even language enables a cognizing subject to get beyond the boundaries of subjectively constructed experiential reality.⁵

In spite of the fact that it often feels as though the meaning of words and sentences were conveyed to us by the sounds of speech or the signs on a printed page, it is easy to show that meanings do not travel through space and must under all circumstances be constructed in the heads of the language users. If we then ask, what these meanings could be made of, we find that the only raw material available is the stock of experiential records the individual language user has so far accumulated. There is no doubt that these subjective meanings get modified, honed, and adapted throughout the course of social interaction. But this adaptation does not and cannot change the fact that the material these meanings are composed of can be taken only from the individual language user’s subjective experience.⁶

It may be useful to repeat that constructivism does not deny reality, nor does it deny that the living organism interacts with an environment; but it does deny that the human knower can come to know reality in the ontological sense. The reason for this denial is simply that the human knower’s interactions with the ontic world may reveal to some extent what the human knower can do – the space in which the human knower can move –, but they cannot reveal the nature of the constraints within which the human knower’s movements are confined. Constructivism, thus, does not deny the “existence” of Others, it merely holds that insofar as we know these Others, they are models that we ourselves construct.

The Elusive Self

At frequent intervals in the above text I have used the first person pronoun and much of what I have said makes it clear that this first person is assumed to be a constructor of knowledge. Thus the question arises whether or not the subject that is supposed to reside in this first person can construct knowledge of him- or herself.

One way of coming to grips with that question was opened up by Descartes. Determined to doubt everything that could be doubted, he came to the conclusion that the one thing that remained indubitable was the fact that it was he who was doing the doubting. Thus he proved to himself that, as long as he was thinking, he, the thinker, “existed”.

I must confess that for a long time it was not at all clear to me what the word “to exist” was intended to mean in this context. If one believes – as Descartes seemed to – that space and time constitute an absolute, observer-independent frame of reference, it follows that “to exist” will mean no less and no more than having a locus with specifiable coordinates in that framework. After Kant, the situation gets a little more complicated. If space and time are no longer considered properties of the ontic world but “ways of experiencing”, we shall have to admit that there are some things to which, though they do have specifiable coordinates in the now subjective spatio-temporal frame of reference, we may not want to attribute “existence” (e.g., hallucinations, mirages, and, closer to home, mirror images and rainbows).

I am not suggesting that the spatio-temporal connection of “existence” could not be unraveled; I think it can, even in the context of a theory that considers space and time to be relative. I do want to suggest, however, that “having coordinates in space and time” is not a satisfactory explanation of what I would intend if I uttered the phrase “I think, therefore I am.” I would want it to be interpreted as “I am aware of thinking, therefore I am.” The Cartesian statement tacitly takes for granted that one knows what one is doing and, similarly, the word “think” implies that the thinking subject knows what he or she is thinking. To my mind, it is precisely this awareness of what one is doing or experiencing that is the foundation of what we ordinarily call our “self”. Given that, as I said above, we have not even the beginnings of a model of consciousness or awareness, it may seem odd to insist that awareness lies at the very root of the concept of self as an entity. Yet, I have come to the conclusion that, in the search for a sound epistemology, it is indispensable that one acknowledge this fundamental mystery.

Isolating the Experiential Self

There is, of course, another way to look at the concept of self, and that is to consider its experiential component. This does not concern the self as experiencer, but the self as it is experienced. Such an investigation takes for granted the fact that a self-conscious entity can arise, and it proceeds to examine how that entity could come to isolate itself from the rest of the experiential field.

If we assume that our picture of the world, the knowledge that constitutes our experiential reality, is constructed by us piece by piece on the basis of experience, then we must also assume that the picture/knowledge we have of ourselves must be constructed in a similar way. In other words, just as we construct a model of a world, externalize it, and then treat it as though its existence were independent of our doing, so we construct a model of the entity that we call our “self” and externalize it so that it ends up as “a thing among other things” (Piaget, 1937/1973; p.7 & 82).

This construction, obviously, has many steps and takes time to accomplish. It probably begins with the infant’s discovery that, having isolated moving shapes in its visual field, there is a way to distinguish some of them. When, for example, the mother’s hand moves across the infant’s visual field, what the infant experiences is at most the visual experience of a moving shape. However, when the infant’s own hand moves across its visual field, the visual experience has the necessary corollary of a kinesthetic experience, namely the sensory signals the infant gets from the muscles that happen to be involved in generating the hand’s movement. A little later, the difference is significantly increased by the realization that the hand’s movement can be reliably initiated at will – whereas the movement of the mother’s hand cannot.⁷

From there it is only a relatively small step to the realization that certain places in a mirror image may be taken to correspond to certain places on a surface which, thanks to the correlation of tactual impressions from different sources, one has isolated as “one’s own” (e.g., one’s finger exploring the surface of one’s foot). Thus a boundary of the sensory-motor self is created, it can be reified, and the object that results from this reification will be considered the home of that other, more mysterious entity that does the experiencing. The mirror image, thus, confirms the sensory-motor self, but it says nothing about the self as agent of experience. As we

stand in front of the mirror, the self that looks and does the seeing is never in the image.

Much more complex than these very basic considerations would be the analysis of the social component in the construction and evolution of an individual's concept of self. As Paul Secord explained: Perhaps most important to his developing idea of a person as a somewhat stable entity in his world is his realization that other persons behave in predictable ways. ... Only with time and much experience does the individual eventually identify at least some properties of a relatively stable nature associated with himself. Both self as object and self as agent are relevant here. (Secord & Peevers, 1974; p.121)

From the constructivist perspective, there is another, more fundamental complication. If it is Others from whose reactions I derive some indication as to the properties I can ascribe to myself, and if my knowledge of these Others is the result of my own construction, then there will be a lot of re-interpreting and re-constructing to be done in order to arrive at anything like a non-contradictory notion of a person that I would call "myself". Fortunately, I think, the criteria of viability that we apply to the construct of our selves are a good deal less stringent than those we use in other areas of experience.

Summary

Empirical facts, from the constructivist perspective, are constructs based on regularities in a subject's experience. They are "viable" if they maintain their usefulness and serve their purposes in the pursuit of goals.

In the course of organizing and systematizing experience, the subject creates not only objects to which independent existence is attributed but also Others to whom the subject imputes such status and capabilities as are conceivable, given the subject's experience. As in the case of concepts, theories, beliefs, and other more abstract structures, the facts a subject has found to be viable gain a higher degree of viability when successful predictions can be made by imputing the use of these facts to Others. This additional viability is the constructivist's counterpart to "objectivity".

Given the constructivist belief that facts are created in the context of instrumental hypotheses and tentative models, there is no room for the assumption that there is and always can be only one solution to a problem. Instead, solutions and explanations are seen to depend on the specific concepts to which experience is being assimilated within the framework of a particular goal structure.

As to the concept of self, constructivism – as an empirical epistemology – can provide a more or less viable model for the construction of the experiential self; but the self as the operative agent of construction, the self as the center of subjective awareness, seems to be a metaphysical assumption and lies, at least for this constructivist, outside the domain of empirical construction.

Footnotes

- 1 This is one root of the difficulty we encounter in the mystics' "metaphorical" use of words such as oneness; the word refers to separation and constitution of a bounded unit, whereas the mystic's notion intends to be infinite and all-comprehensive.
- 2 To be published in *The tree of knowledge*, a forthcoming book by H.Maturana & F.Varela.
- 3 The expression "the world in which we find ourselves living" is not intended to echo Heidegger's notion of being "thrown into the world", but springs from the Piagetian idea that some of the concepts that determine the structure of our experiential world are constructed during the sensorimotor period, prior to the age of two years, when we are anything but aware of what we are building. As adults, therefore, as Spencer Brown so elegantly said: "Our understanding of such a universe comes not from discovering its present appearance, but in remembering what we originally did to bring it about." (1969/1973; p.104)
- 4 The difference between the construction of equivalence as the basis of classification and the construction of permanence as the basis of individual identity springs from assigning "subsistence" to different items. In the first case, subsistence is given to the set of characteristics that differentiate a particular experiential item from all other constructs. If this set of characteristics is maintained (given subsistence) for future use, it constitutes the template or prototype to which future experiences can be assimilated as "members of the same class". If, on the other hand, subsistence is given to the experiential item irrespective of its being actually experienced or not, then the item will be said to "exist".
- 5 A fuller exposition of our approach to language and communication can be found in von Glasersfeld, 1983.
- 6 In this respect, social adaptation is analogous to biological adaptation: it can do no more than bring out, recombine, or thwart what is already in the organism – it cannot instill new elements.
- 7 A similar distinction is no doubt made by every kitten that plays with her litter mates and discovers that biting its own tail is different from biting someone else's.

References

- Bickhard, M.H. & Richie, D.M. (1983). *On the nature of representation*. New York: Praeger.
- Fleck, Ludwik (1929). Zur Krise der "Wirklichkeit", *Die Naturwissenschaften*, 17(23), 425–430.
- Kant, Immanuel (1781). *Kritik der reinen Vernunft* (1. Auflage). Berlin: Akademieausgabe, Bd. IV.
- Locke, John (1690). *An essay concerning human understanding*. Garden City, New York: Doubleday, 1961.
- Maturana, Humberto (1970). *Biology of cognition, (Report #9.0)*, Urbana, IL: BCL, University of Illinois.
- Piaget, Jean (1937). *La construction du reel chez l'enfant*. Neuchatel: Delachaux et Niestle, 5th edition, 1973.

- Secord, Paul F., & Peevers, B.H. (1974). The development and attribution of person concepts. In T.Mischel (Ed.), *Understanding other persons*. Oxford, U.K.: Blackwell.
- Spencer Brown, George (1969). *Laws of form*. New York: Bantam Books, 1973.
- Vico, Giambattista (1710). *De antiquissima Italorum sapientia*. Naples: Stamperia de' Classici, 1858.
- von Glasersfeld, Ernst (1986). Steps in the construction of "Others" and "Reality". In R.Trapp (Ed.), *Power, autonomy, utopia* (107–116). London/New York: Plenum Press.
- von Glasersfeld, Ernst (1985). Reconstructing the concept of knowledge. *Archives de Psychologie*, 53, 91–101.
- von Glasersfeld, Ernst (1984). An introduction to radical constructivism. In P.Watzlawick (Ed.), *The invented reality*, (17–40). New York: Norton.
- von Glasersfeld, Ernst (1983). On the concept of interpretation. *Poetics*, 12, 207–218.
- von Glasersfeld, Ernst (1979). Cybernetics, experience, and the concept of self. In M.N.Ozer (Ed.), *A cybernetic approach to the assessment of children: Toward a more humane use of human beings* (67–113). Boulder, CO: Westview Press.

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