
Introduction

1. The content

The thread in this exposition is about two closely related subjects. In first instance, the attention is drawn to a remarkable change in the cognitive perspective, a change which becomes apparent from considering the first tools produced by hominids. This perceptive-cognitive change will be referred to as “objectification”¹. The term “object” on the other hand will be reserved for the material artefact going with this cognitive intervention. In turn the object is the key element enabling sophisticated mediated manipulation.

The hypothesis suggested is that objectification is the result of an evolutionary development of which the mainstream publications seem to remain silent. It will therefore be coined “the forgotten transition”.

Secondly, it will be suggested that the core pattern underlying the practice which in a far later stadium will be called “language”, can be understood as an action, in particular as a mode of the aforementioned mediated manipulation.

The text offered can be divided in two main parts. The first part comprising chapters I. an II., will start with the observation triggering the main hypothesis about a transition. This idea will then be fleshed out further elaborating on the characteristics of the initial situation in contrast to the final stage. This is a subject in its own right but at the same time it offers a stepping stone to another subject. It will be made clear that there occurs a striking similarity between the system underlying mediated manipulation and that underlying the core of language in so far language can be considered to be a skill rather than a capacity. So the first part referred to is about elaboration of these ideas and about laying out a possible model.

In the second main part from chapter III up to and including chapter XVII, critical remarks, supporting and clarifying contributions will be offered. These chapters can be consulted as the reader chooses to do. There is no particular line apart of the fact that they all comment on or offer supplemental considerations on the subjects discussed in the first main part.

Overview by chapter

The meaning of a theory, a hypothesis or a model is to an important degree built on basic assumptions and perspectives, on particular ways of understanding. This will become apparent by the preview offered in the first chapter (I). It at the same time will open the field of view onto a path deviating from more mainstream approaches.

1. This term is not referring to an intentional act or to a capacity. The name is given to changes deducible from observable facts, changes conceptualised and provided with the label “objectification”.

Chapter II is in a way the main body as it points out the source of inspiration and elaborates on the ideas which followed from it. It in turn is divided in two parts.

II.1 deals with the prelinguistic or rather the alinguistic phase. The latter indication is preferred because in that period something like language did not exist yet. It could not even be thought of while “prelinguistic” raises all too easy the idea of an introductory phase preparing language.

The description starts with the transition for which the introduction of tools plays the role of motivating catalyst (II.1.1). This introduction is not only of importance for an action directed being in the world. Exaptively, it also sets the conditions for other skills such as becoming able to manipulate imagination, a topic which will get abundant attention.

The choice of the qualification “exaptive” is not without intention. It stresses that the specific setting is unintended and favours new abilities. Furthermore it emphasizes that the changes introduced often are a spin-off of conditions related to other ongoing changes². So the proposal that the new ability is a not intended effect is contrary to the prevailing conviction that at least some of the innovations almost intentionally were brought into being. It is often said that “they were effectuated in order to...”.

This transition is supposed to have been responsible for a number of changes. What was the impact of this new way of perceiving and being in the world? How will all these innovations influence perception and experience? This will be dealt with under II.1.2.

With these changes the hominid seems to have entered another dimension. Could he under these altered conditions still be understood as a primate in the same sense as in the previous period? In case the answer might be negative, would the difference then be absolute in kind or rather gradual so that in the latter case he indeed still can be understood as a primate, be it only to a certain degree. This comes down to the question of the nature and the degree of irreversibility of the changes which will be discussed under sub II.1.3.

The second section, II.2, discussing a subject in its own right however strongly related to the first part, will focus on language. Now that the term “language” has fallen, a clarification on the position of language as subject of discussion in this book is in order. This research is not to be situated within the strict boundaries of linguistics. The latter is aimed at elucidating the workings of language on all levels, in its most general appreciation as in the study of universal grammar, as a particular language and this again compared to other languages and also in all subdivisions as the study of semantics, syntax, phonology, morphology and pragmatics.

So, however the linguistic practice is indubitably one of the central issues in this dissertation, it has to be stressed that this is not a study in linguistics. The perspective taken here aims to understand the linguistic practice as a form of technique not that different of the basic structures of other technical applications.

Of course, it can not be avoided to cross borderlines in order to point out remarkable correspondences.

By way of introduction of this subdivision, we will present an overview of folk psychological and mainstream ideas on how language normally is getting perceived and what functions are attributed to it (II.2.1). This will allow sifting out the characteristics

2. Gould and Vbra introduce this term as alternative for preadaptation because the latter suggests all too easy intentional goal directedness, an “in order to...”.

which are considered to be of central importance. The next step will be to investigate if these characteristics might not already be present in the alinguistic phase. In the end, this line of thinking will allow understanding language in a very different way without however neglecting the commonly accepted functions (II.2.3). An approach like this offers an alternative for the depiction of language as a realisation emerging from an innate competence³, which as a matter of fact seems impossible to locate. Rounding up this explanation, attention will be given to what will be called the language trap as a mode of the irreversibility mentioned earlier (II.2.4).

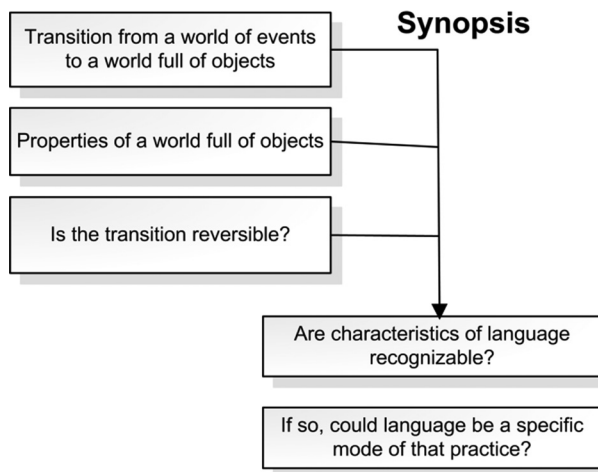


Figure 1

As mentioned the following sections are meant to provide additional support in most cases by taking a critical look at relevant contributions from other authors.

This will be initiated with some of the ideas formulated by the anthropologist Ralph Holloway (III). He develops a particular point of view sounding quite familiar to the suggested introduction of a new cognitive scheme.

This will be followed by a report of Orban et al. on alleged neural correlates of the act of cognitive objectification. Stout and Chaminade also formulated interesting points of view (IV). Then a contribution of Tim Ingold allows clarification on different interpretations of "objectivation" (V). The next section lists misconceptions in relation to language and communication (VI). The formerly mentioned anthropologist Holloway proposes to reserve the denomination "culture" exclusively for human activities. A similar line of thinking is getting developed in relation to language and communication (VII). Without doubt tools take a central position in this book. But what should be considered to be a tool? This will be dealt with under the title "Need for a definition" (VIII).

3. Pinker and Jackendoff (2005:225) observe that the suggestion of language being native has to do with the capacity of learning language. This is a variation on the Cartesian belief and for that matter a belief also held by Chomsky.

Different chapters already have referred to the perspective of the observer being characterized by a experienced position of distance. What is dealt with is always taking a stand *over there*, in front of us. This is subject of discussion under sub IX.

A quite extensive contribution on what is called “the linguistic turn” is then offered. This is of importance because the actual held beliefs about language are better understood against the historical background they originated from. According to Rorty, this could be dated at the beginning of the twentieth century. However it will be shown that this already had taken place in the seventeenth century. Most important is that during that period an approach of language as an operational skill also had been developed, an approach akin to the ideas presented in this book. But the problem of truth based on correspondence akin to the Cartesian representationalism has driven this into a background position where it has stayed until today (X).

Where language is in play it is difficult to avoid the influence of Chomsky. Surprisingly, some of the ideas put forward in the minimalist program as his most recent proposal, show correspondence with ideas defended here. Falling back on a contribution by Pinker and Jackendoff, the mentioned ideas will be reviewed (XI).

“Virtual” is a qualification generally used in the context of digital information processing. But it can just as easily be applied to the world conceived by the medium of language. (XII)

The following section fits under the label “cognitive archaeology”. The phrase “dark Middle Ages” seems to suggest a period of inertia. The period of approximately two million years spanning the introduction of the first stone tools and the explosive development of technology can be considered likewise. However it will be suggested that this period probably is characterized by a considerable cognitive turbulence (XIII).

The cognitive as theme attracts further attention with the question about the difference making the difference between man and other non-human primates. Using “long term planning” as criterion, it will be compared and evaluated against the act of objectification as an alternative (XIV).

One of the last chapters will elaborate on an article by Osvath and Gärdenfors on the exaptive conditions preparing the path to anticipatory cognition. Their ideas might also be of interest for a speculative proposal on the genesis of objectification as cognitive perspective (XV).

Conclusions are offered in chapter XVI.

Discussions led to the addition of an epilogue in which two persistent issues will be dealt with. However the difference between the two worlds has been discussed repeatedly, it appears appropriate to offer a more systematic elaboration. The second issue is about a harsh subject, the demand for proof.

One more remark of a more practical nature has to be mentioned. In order to avoid an overload of references to relevant research, authors and comments in the text itself, we have chosen for an elaborate set of footnotes. These are intended for the more inquisitive reader but not really necessary to grasp the line of explanation.

2. Preview

The points of view to be outlined in chapter II are not exactly main stream. In the following paragraphs a preview will be offered as a kind of preparation at the same time introducing some perspectives taken.

The transition from direct acting to a sophisticated form of mediated manipulation might be a good starting point. It can be seen as quite remarkable if only because it seems to have escaped the general attention. What is this transition about?

The modification of silex realized by repeatedly striking off flakes can not be thought of in the context of an event in which an organism is fully engaged. In the latter the organism is completely absorbed in the dynamics of the Umwelt. The repetition of striking off flakes on the other hand suggests that the event however being primordially dynamic, is getting reified to a static form, and so becoming an object which can be reflected upon⁴. This is an indication for the occurrence of a cognitive scheme differing profoundly from that of an event-approach⁵. Furthermore an event is the expression of a dynamical fluctuating nature. “An object” on the other hand introduces a static three dimensional frame of reference in which the object is situated, hence another new cognitive scheme. And again, the object as a new entity creates a semantic tension⁶ evoking a meaningful counterpart. For the object as the “thing” onto which the flaking activity is done, introduces – better still installs – the labour providing instance as an identifiable entity, the subject directed onto the object.

Schemes such as the latter became implicit in the culturally determined experience. They are taken for “natural”, a conviction with the character of Urglaube. But in spite of their appearance of being evident, for the actual discussion they are considered to be cognitive constructs which have put aside older event based cognitive forms.

The sophisticated manipulation of tools did more than bring new cognitive schemes to light. It has created the exaptive conditions for the coming into being of for instance the experience characterized by a displacement in space and time, an experience apart of being intrusive in the psychological condition of the moment also having an informational dimension. Isn't that a component playing a central role in language?

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4. This is an attitude to a certain degree already noticed by Sakatayana (Indian grammarian 8th century BC) suggesting that most of the nouns are derivations of verbs. Here too verbs referring to action solidify into nouns in turn referring to an object character. For a more recent approach which conversely considers nouns as the first lingual units, see Heine & Kuteva, 2009.
 5. The following quote illustrates the intrusive character of this change “Although such Olduvai artifactual forms are technologically simple, some important principles of flaking stone had been mastered by two million years ago. These include (a) the ability to recognize acute angles on cores to serve as striking platforms from which to detach flakes and fragments, and (b) good hand-eye coordination when flaking stone, including the dexterity to strike the core with a hammer stone with a sharp, glancing blow. It would appear that a strong power grip, as well as a strong precision grip, was characteristic of early hominid tool-making populations at this time.” Toth & Schick, *Early Stone Industries*, in Gibson and Ingold (eds). 1993:349.
 6. Meaning is contextual embedded, not isolated nor standing on its own. A term can in relation to a particular context have a different meaning. Sheppard and flock are understood differently in a religious and in an ecological context.

Another point worth stressing is that mainstream research into the favourable circumstances for language to emerge, generally assumes an urge to communicate. The idea that the human *wants* to inform his conspecifics is taken for evident⁷. And for that purpose, language is the most suitable instrument. Observe the relation, the urge comes first, language as the proper instrument is in a sense subordinate⁸. But this type of ordering generates its own particular problems asking to be answered. What was language or rather protolanguage as the instrument to satisfy the urge, where did it all the sudden come from but precisely in time to answer that need, what were the firsts linguistic means (gestures, vocal...)?

In this book, another point of entry will be chosen thereby putting another problem in focus.

Information as understood in a human communicative setting consists to an important degree of references towards items not present in the perceptible surroundings. So the informative quality seems to rest on imaginative displacements in time and space, a subject which thoroughly will be discussed later. But this begs the question: how could an informative quality, in particular referring to items not actually present, come forth from an initially “animal” condition characterized by an organism fully engaged in a primary motivated relation into events constituting its Umwelt?⁹

So here no question about the provenance of an instrument able to answer an already imposing urge but a bottom-up exploration into the conditions enabling an informative quality as an emerging by-product, a serendipity so to say.

The explicit appreciation of the motor character will also be stressed.

Assigning central value to the motor capacity when it comes to understanding language provenance is not all that rare¹⁰. But the ideas developed here go further. The focus of attention will not be drawn to motor ability as part of a global act. The concern here will focus on the actions of the organism as a whole, to the global acting itself¹¹, with particular consideration of actions mediated by tools.

Also, the understanding of language and communication presented falls outside the usual scope.

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7. This is even the case for gestural theoretical approaches such as put forward by Corballis. The problem he deals with is how the transition could have taken place from the gestural to the vocal modus. That presupposes the urge to communicate as a *fait accompli*. (1989, 1991)
 8. This particular relation will be discussed in chapter VI.
 9. Cfr. where Tomasello (2003) observes that animal communication does not contain noncommittal messages such as “what a nice day”, neither does it make reference to displacements in time and space. “Displacement” can be discussed in the case of bees for instances. But this kind of indication in space is restricted to a very specific case (where the nectar is to be gathered). The character of content of these messages is neither arbitrary nor contingent at all.
 10. The approach of Robin Allot being exemplar.
 11. Cfr. with Gallese stating that “...the neuroscientific investigation of what language is and how it works should begin from the domain of action.” (2008:323).

The general accepted view¹² is rather anthropomorphic¹³. This stance is then taken as criterion to evaluate the development of other communicative forms. But the idea man in the Western culture holds about language and communication is not as neutral or natural as it pretends to be. The Westerner considers the function of language to come down to coding semantic content, more exactly to put in a particular form (informare) in order to share it in the community (communicare). This particular way of understanding, better still of experiencing goes back to a historical interpretation raised by “Port Royal” in contrast to an understanding of language as a natural capacity just like breathing is. And so the circle takes form, the interpretation underpins experience leading to the conclusion that “informare” in order to “communicare” is the real – in the sense of natural – character of language. But this understanding could well deviate from the underlying operations.

The deceptive path introduced by this historical fed interpretation reaches even further. The anthropomorphic conceptualisation, gets projected onto a communicative interaction of another kind such as sign language for instance and also onto the apparently communicative interactions of other organisms¹⁴. It then is taken as a criterion to evaluate the degree of correspondence in relation to typical human language use¹⁵. The question *if* the so-called communication within species of the animal kingdom rightfully can be compared to human language¹⁶ is overlooked.

As an alternative to this anthropomorphic approach, it can be argued that the so called animal “signals”¹⁷ are nothing else but the perceptible dimension of the dynamical circumstances the animal finds himself in under the pressure of stimuli. In human terminology one would call this the psychic condition. The perceptible aspects all too promptly labelled as signals, then get perceived by other creatures. Their interactive behaviour gets rewarded or punished. That is all there is to that whole communicative context¹⁸, a perceivable external dimension followed by a rewarded or punished interaction. This particular interpretation may not provoke the conclusion that the organism in question is no more than a purely mechanistic operating entity. Such conclusion would also be all too hastily made¹⁹ as Shettleworth (2010) points out discussing the rich scope

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12. General accepted refers to participants of the Western oriented culture and still more restricted to the period starting with the second half of the 17th century, in particular with the influence of Descartes and views related to ‘Port Royal’.
 13. Darwin suggests a gradual transition. (Braeckman, 2001:123) This silently strengthens the idea that also (certain) animals have language.
 14. Such as the properties summed up by Hockett. Owings & Morton, 1998, and Owren & Rendell, 2001, warn against the use of human language as a framework in order to evaluate nonhuman communication.
 15. Already in a previous note has been referred to Darwin’s gradualism. This could have fed the research into language of nonhuman primates during the previous and the actual century. If the transition between (sub)species would have been gradual, then this would also have been the case for the language faculty. So, communicative modes of humans and other primates would not be of a radical different order, but be different developmental stages of a common faculty. (Braeckman J. 2001: 123)
 16. Referring to information transmission of which the content implies displacement in time and space, as previously mentioned.
 17. Observe that the term “signal” is already embedded in a communicative discourse.
 18. Not to understand as “no more than that” but as “nothing else than”.
 19. A nice illustration for such a problematic reduction is expressed by the following text. “What is the precise property that distinguishes man from other animals? The question has ancient philosophical provenience (the featherless biped), but several sciences as well as scientific misunderstandings depend to this day on

of animal heuristics. The organism is and remains under all circumstances a primarily motivated and entirely dynamic living entity, a basic condition which also goes for the hominid eventually becoming modern man.

It will be clear that a radical discrepancy between communicative *intention* as is the case with humans and a communicative *effect* as the behaviour of animals has to be drawn. It is highly questionable if communicative intention characterizing human communication even takes place in animal interaction. However one might be tempted to believe it does as in the case of threatening or breeding behaviour, but even then it remains to be questionable.

Apart of the criticism on anthropomorphism, another obstructive idea with respect to language will be introduced. Descartes proposes that the language faculty not only is innate but on top of that is the feature that characterizes the human species. This tacitly implies a necessary condition, without language there is no human. From this would follow that then there is a human biological species but not in the sense of a cultural peculiarity which making this species different in respect to all other species.

In contrast to the idea of language being the water-shedding difference, the idea will be unfolded that the introduction of a language as a skill, is phylogenetic contingent. It earned its existence to a sophisticated handling of tools. There was no genetic predestination. It became possible within the exaptive framework in which bipedalism, the freeing of the upper limbs etc. already have been taking place²⁰. These created the convenient exaptive niche for the skill – which later would be called language – to come into being. But all of the mentioned conditions are in themselves contingent. The absence of one could have been the reason for “language” never to emerge. This then would have led to a hominid form amongst all other biological species, not to a special cultural form setting itself apart.²¹

Comments of this nature want to make clear that concepts like language and communication in the general accepted appreciation are quite naively taken to be natural and evident. In that sense they belong to the same kind of terms such as “consciousness”

the choice of answer to this simple question. Is it the ability to speak which makes us differ from other species — like Noam Chomsky claims — or is it the ability to form cultural institutions? Is it a decisive jump in intelligence conceived of as information processing, is it consciousness — which would imply that other animals are consciousnessless automata, or is it self-consciousness and the possibility of reflection? A widespread and easy way to tackle these questions is to see all these differences as interdependent, so that language, society, consciousness and so on constitute one decisive difference defining humanity. *The problem in such a solution is that animals then, in contradistinction, become rather simple creatures, even more limited than Cartesian automata.* (Stjernfelt, F. 2000. Italics added)

20. Ideas already mentioned by Lactantius in 325AC (Hewes in Gibson & Ingold 1993:22); see also Darwin in ‘Descent of man’ (1871:52); Washburn (1960). Also chapter XV of the present book is relevant in that respect.
21. The following quote is of relevance here “...and yet the (Turkana-) boy could not talk and he could not think as we do. For all of his human physique and physiology, the boy was still an animal – a clever one, a large one, a successful one – but an animal nonetheless.” (Walker and Shipman, 1997:235) So the Turkana boy dated at 1,700,000 years would have indeed been an animal species amongst other animal species.

and “mind” The existence of the concept seems to be a sufficient condition to accept the very existence an underlying instance. One experiences something mind-like provoking in one and the same flow the undoubted existence of an underlying mind instance. There is something like language in the conceptual formed experience, so there must be something like a language-instance or rather a language-organ as Chomsky would have called it in his early days²².

The present exposition will also offer an alternative for two related, general accepted assumptions which however are susceptible to criticism.

In the first instance, as mentioned before, language is often considered to be an answer to a need rising under the pressure of groups growing in number and thus becoming ever more complex in structure and government. This is a teleological point of view picturing man motivated by a drive to communicate, i.e. he *had* to transfer declarative information²³. This view stands in opposition to a more relaxed bottom up ordering in which complex group structures become possible *as the consequence* of a skill allowing better intergroup regulation and internal group communication. This skill consists of the ability to provoke imaginative displacements in space and time, i.e. the aforementioned transference of declarative information. This option obeys Occam’s razor, not to presuppose more than strictly necessary.

The following citation from the critical review of “The symbolic species” of Deacon by Stjernfelt (2000) illustrates a second tacit assumption. “Indices constitute the presupposition for any sign to connect to actual phenomena in the surrounding world (smoke as a sign for fire, e.g.)”

At first glance this sentence might seem evident and as such quite innocent but it expresses a particular point of view. It depicts the structure of a sign, whatever the form or character of it, in relation to a phenomenon in the world. This, as a matter of fact is nothing else than the template for what can be taken as a representation. This however is a quite recent development dating from the “Grammaire Generale” of the school of “Port Royal” in the 17th century. In this view an object a) gets appreciated and recognized as a sign, b) referring to something in the world. This point of view can clearly be distinguished from the medieval sign which was a thing amongst other natural things, a manifestation of the unfolding of god’s intention into nature. The former interpretation can also be distinguished from “smoke” next to flames as different aspects of a monistic experience of a full blown fire event.

A sign understood and taken as something²⁴ standing for something else, at least referring to that something else and so representing it, can at the very moment in the cultural evolution discussed in this paper, not be thought of yet.

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22. Scholars such as Seuren (2009) en Ingold (2000) will make quite strong reservations on this point. This will be dealt with in chapter V and XI.
 23. The work of Bickerton (1990) illustrates this point of view. Language is a secondary form of representation offering considerable more possibilities than the older primary form. This suggests in a smooth evidential way the idea that the urge to represent is already present from the very beginning – prelinguistic that is. All what is needed then to answer the needs of a more complex way of living, is the perfection of the already existing representational drive by the introduction of a new system.
 24. According to Walter Ong (1982) the fact that linguistic sign became considered being a manipulatable

In semiotic theories however such as these of Peirce and Deacon, and this is the presumption focussed here, the representative function of a sign is appreciated as an ahistorical fact. This, in our opinion is an anachronistically back folding, taking a particular temporal interpretation as a universal and as a timeless property.²⁵

The model which will be presented does not only offer a draft about the possible way language as a skill could have been coming into being, the history so to speak. From a diachronic perspective the approach of language as a skill, points to the different practical operations needed to be performed again and again in order to bring language as a practise into existence.

So however the original idea was to explore the conditions making language as a skill possible, in the end the procedures in order to perform a linguistic act in a non mysterious way were as well described.

From these views a picture of an acting organism as unit of investigation is taking form replacing the mainstream idea that typical capacities such as language and the particular form of human cognition almost exclusively emerge from the workings of the brain. Of course, the brain is of cardinal importance but its value lies in being a functional subpart of the acting organism in an environment. Think for instance of the importance of mutation in the framework of the theory of natural evolution. Mutation translates into a phenotypical form. But it is exactly this form in its dynamic appearance which has to prove survival success in harsh environmental conditions. So the theatre of importance is no so much the inner life or the workings of the brain but that of the organism acting in its niche.

Concluding, the points of interest can be summarized as follows.

This present study will reflect the results of an exploration into the conditions opening the path in the direction of a transition from a species among other species to a species setting himself apart against all other species. Important moments are the transition into another perceptive cognitive organization, exploring the particular characteristics of objects in contrast to these of events and the suggestion how language as a skill could have emerged as a particular mode of mediated manipulation.

This being said will already make clear that there are affiliations with an action theoretical approach.

object, was facilitated by the introduction of printing whereby a sign became a letter object to be ranged on a page (also literally an object).

25. It could be argued that the model, in which an object provokes reminiscence therewith referring to something in the world, has the same structure. But there is an important difference. Port Royal in agreement with Descartes offers a representational scheme while the idea proposed in this exposition comes down to nothing but a technical intervention underlying all possible narratives or explanatory versions, and thus meaningful representations. In that sense it underpins language taken as the unfolding of God's intention too. Exactly this type of technical intervention allows composing all the different versions.

3. Tuning the violins

However personal circumstances will flavour the meaning of an event experienced in a particular way, the chance that author and reader find themselves within a common cultural frame of reference and consequently share a basic meaning is real.

But the exposition to come will be opened by a sketching out of a world full of events, a frame of reference very different from what is commonly accepted. As this sketch provides the substrate for a world of objects it is of utmost importance that it will be understood as it is meant.

Hence the desirability to say a few words on that particular perspective.

“Meaning” is the core concept and in respect to grasp exactly what is meant, three steps should be discerned. The first implies no more than the presentation in the sense of making known of the label of what will be referred to. The second step is about the interpretation of the name from the generally accepted frame of reference. “Manipulation” for instance will normally be understood as guiding behaviour with concealed intention. But this interpretation is not the only one possible. From a technical point of view, it will be understood as ‘making use of the hands’ like in wrapping a present. The condition in which more than one meaning can be applied is called ‘ambivalence of the term’.

But the difference which is of importance for our approach is situated on still another level and that is exactly this stage setting we want to introduce. An effort to clarify the subtle difference will be undertaken in the following paragraph in which the meaning of “a world full of events” will be discussed by way of illustration.

The reader unfamiliar with what has to come will understand “a world full of events” from out the frame of reference he is familiar with.

Reduced to its bare bone “a world” would come down to a three-dimensional space in which objects can be localised and in which situations and events are finding development. That could refer to a public space with garden benches, litter boxes and vending machines. All these objects can be situated in relation to each other and placed into the three-dimensional space as a bordered container. Also people are present. Some will be indifferent to an observer, a single one will stand out by some peculiar behaviour. So, in this setting we have a spatial framework, passage of time, some objects and some events in short “a world full of events”.

In the world full of events as we would like to suggest language is not present²⁶. Thus no language based reorganisation is occurring. The way the “world” in that particular

26. Observe that in the endeavour to depict a particular setting or stage, this cannot be realized without the use of language. This is a delicate issue because in the writing down a scene in which language itself is not present yet, all characteristics of language such as reification for instance automatically are implied. Wanting to refer to an event for instance, the “an” or “the” event is already a reification. Event as a pure dynamic happening is by this getting thingified, the understanding of a dynamic character only being based on convention. However impossible we have to try to imagine a stage in which no things or conditions thingified are part of.

condition is perceived²⁷ can therefore not fundamentally be very different from the way other close related organisms – devoid of language – undergo their world²⁸.

As will be explained later, in this condition three dimensionality as an imaginary spatial projected framework, is out of the question. This does of course not mean that multidimensionality as a parameter of action would be absent. Multidimensionality then is part of the direct engagement²⁹ into the event at hand. But this is not a projected frame definable by some pinpointed coordinates. Neither can “the event” be taken for something – substantively – in its own right to be understood completely in isolation from any external fact. The named event is a function of on the one hand primary motives and the perceptive as well as motor skills of the organism having part in the event, on the other hand the occasional presence of the actual ecological surroundings³⁰.

Formulated somewhat differently there will not occur an event in the experience if there is no perception or something important evoking perception.³¹

Perception as meant here is not reflective in kind neither restricted to localising elements in space. Both terms fit an analytic frame of reference which is out of the question here. Perception is part of the interest motivated engagement. Anything not being picked up by that engagement vanishes as obscure into the background. What is on the front of the stage can be understood in the sense Gestalt psychology calls “the figure”^{32/33}

Knowledge³⁴ is a function of genetic predisposition, learning processes during the juvenile period and of specific experiences. In particular the view on experience as defining

27. Not to be mistaken with specific sensory channels. Not all organisms are able to see stereoscopic or to discriminate the same set of colours man does. What is of importance is that language at this point did not reorganise the “world” yet.
28. In the conclusion of an article dealing with the functional discontinuity between man and (other) animal, Penn, Holyoak and Povinelli formulate the following lamentation: “In our view, the entire field of cognitive science (...) would benefit if more effort were focussed on constructing biologically plausible, behaviourally accurate, computationally feasible models of the cognitive abilities of honeybees, corvids and chimpanzees, in addition to the cognitive abilities of the enculturated, language wielding humans” (2008:129). What will be presented in the discourse at hand is not a complete model as meant by the authors, but is certainly not an unfounded step in that direction.
29. Compare with what Toulmin (1982) calls “an unreflected upon flow of energy”
30. A mixture of van Uexküll’s ‘Umwelt’ and Gibson’s ‘affordances’.
31. This is familiar to “enaction” of Varela and “autopoiesis” of Maturana. In the latter case, an organism reorganises itself constantly in relation to the environment. In the former, cognition bears the character of embodied action, in which case organism and environment define each and one another. Concerning enaction, Varela (1987) clarifies this in a very picturesque manner: the path the wanderer goes is laid down by the walking itself (in contrast to the more common idea that the wanderer uses the path which is already available in front of him). An accessible approach is offered by Thompson (2007:15). He refers to autonomous agents developing cognitive domains as the product of recurrent sensorial and motor patterns. In this sense experience is not merely an epiphenomenon and cognition is not a representation exclusively existing in the brain.
32. Cfr. with the discussion on object individuation by Mendes et al. (2008). Children younger than one year fall back on spatio-temporal features. Little by little older children pay more attention to features of the objects themselves and the category of objects the item is a member of. This explanation is compatible with the mentioned forming of figure, characterising an event rather than an object.
33. Another relevant remark about the difference between object and figure is that this distinction seems to bear a natural relation to the difference between bivalent logic where a statement is either true or false and fuzzy logic recognizing many gradations between the mentioned poles.
34. Here too the isolation and reduction to something as “knowledge” in the sense of object of study, is

factor, suggests that knowledge also can be situated³⁵. Meaning that the character of the environment and the situation at hand are cueing neural programs rather than that the brain would be the initiator, the latter being an idea largely taken for granted³⁶.

In this sense knowledge has to do more with the experience of distance to a prey or to a threat and the impression of its magnitude. Not with localisation in a frame of reference characterized by a standard geometry into which objects can be pinpointed and related to other objects but rather in terms of body schemas. This evokes a quite different world than the one actually mentioned: characterised by immersion, devoid of reflection and a measuring of distance making use of standardized units. Here directness and an all absorbing engagement in an iconic scene are the central features.³⁷

This depiction hopefully helps to grasp what will be meant later in the text.

In order to facilitate agreement between what is meant in the text and what is getting understood by the reader, there is yet another concept deserving clarification, the concept of... "concept" itself.

Generally a concept will be understood in the sense stipulated in a dictionary, referring to something like a project, a draft or a tentative circumscription.³⁸ But the constructive importance for perception and cognition of the act of conceptualisation is at the same time intrusive and considerable.

When speaking about consciousness, mind, animal and even man, what is meant is the referent in its full – however vague – extent. The term 'animal' for instance does not only indicate head or feet, but everything characterizing an animal without going into summing up exhaustively all details insofar one would even be able to do so.

But what cognitively really is being executed, is very different of what is thought to be happening in the act of recognizing and naming something. Psychology of perception has shown that a visual imprint is only for a small degree triggered by external fed stimuli, while the largest share is provided by other regions of the brain. It comes down to

the product of posterior analysis and synthesis. Preference is given to consider "knowledge" rather in a dynamic context as a dimension or an aspect of the general engagement as mentioned earlier.

35. For that subject see Barwise and Perry (1983), Suchman (1987), Greeno (1989), Brooks (1991).
36. Brain centrism and brain essentialism are standing for the persistent paradigm in which the brain is seen as a causal instance from which all intellect and mental qualities are emerging as from an Aladdin's lamp. A clear example for this is shown in Bouchard (2013), in turn referring to Hurley (2008). He points to the function of "offline brain systems", therewith suggesting a capacity generating ideal (Plato's sense) representations purely out of the workings of the brain.
37. However not the subject of this particular part, the question of the position of the contemporary human in relation to both sketched world's imposes itself. It is difficult to doubt that the actual man in first instance is an engaged being into a world full of events. The acquired language competence, which can be considered to be a modus of mediated operation, has become the unavoidable interface in engaging oneself into the world. Precisely this transforms everything into entities which can be discriminated and isolated. For a more profound discussion on this subject, see the part II.1.3. where irreversibility will be discussed.
38. On the other hand, in Paul Edwards' Encyclopaedia of Philosophy more than 3000 words are used on this subject and the Stanford online encyclopaedia counts no less than fifty pages, illustrating that this is not an unproblematic term.

the fact that as soon as a minimal number of cues can be recognized in order to activate other brain centres, this seems to be sufficient in order to generate³⁹ a global picture⁴⁰.

What has to be highlighted?

First of all, there seems to be a continuous going back and forth between the cognitive schematisation and the external source of input. Secondly the availability of a cognitive scheme seems to be decisive in the process of producing a visual imprint. Thirdly, the generated imprint is getting projected onto the environment rather than that the environment provides a “picture”. And fourth, scheme is yet another word for concept.

So a concept has a constitutive impact in the construction of the image as seen, contrary to the belief that an image of this kind expresses a one to one correspondence to some item in the world⁴¹.

But this is not the end of the constructive contribution. Proximity, closeness, similarity, continuity and synchronous movement are some of the principles in Gestalt psychology. These are some of the basic conditions responsible for the fact that very different elements constitute one single image. Three open angles ranged in a particular way, suggest a closed triangle. But this phenomenon is not restricted to visual illusions. A relation is swiftly supposed when several events occur simultaneously and/or in proximity.

The tendency to constructively fill in the gaps is stronger with phenomena which are ill understood. The magical-mythical historical era provides some spectacular examples of supposed relations between ritual behaviour and natural phenomenon⁴².

However it might seem improbable, the same tendency to make up a sensible explanation is still very present. How to understand the remarkable fact that man being himself, is able to reflect on himself, being one and at the same time twofold, a state of affairs strikingly called “cette distance nulle” (a distance which isn’t really a distance) by Sartre. And because in a folk psychological understanding each and every effect is the consequence of an action in turn presupposing an actor, in the same way the mental or consciousness is thought of performing the act of reflection. Similarly other concepts such as mind and psyche are getting formulated under the pressure of so far not explained experiences.⁴³

Conceptualising seems to be effective in two directions. As a scheme it provides a minimal number of hooks necessary for identifying the environment present at a

39. This is not to be understood as a process in isolation. The impression is part of a broader movement in order to launch motor action- and responding programs.

40. This results rather in an impression, not an actual fully detailed and rich picture.

41. The latter know as naïve realism.

42. Take rain dances or the shedding of blood in order to satisfy the sun.

43. Cfr. with Ingold stating that there is no such thing as technology, language or intelligence at least in the premodern and not Western community. (2000:406) Does the author not envisage the concepts of language and technology as contemporary understood? He also suggests that “language” is an invention of the modern linguistic. A similar approach is demonstrated in Noble & Davidson “Language users can gloss the behaviours as ‘aimed throwing’ and ‘pointing’, but we should be careful not to assume that hominids too were aware of such meanings of their actions. The meaning is a product of our use of language, not of the acts we describe as ‘aimed throwing and pointing’” (1996:222) What they intend to make clear is that giving a particular act the meaning of aimed throwing is a specific historical and contextual fact. We have to be aware that the actual interpretation is an attribution posterior in relation to a very different historical and contextual setting.

given moment. In the opposite sense it is projected onto the environment in order to render comprehensible what at first glance is completely obscure. Whatever the direction it organises experience actively and can therefore rightfully be called reality constructive.

The former clarification of the world of events and the stress on the constructive character of the conceptual scheme can be taken as an effort to tune the violins of understanding between what will be meant in the text and what is getting understood by the reader.

4. Embodiment and operationalism

“... practices recruit the structures of the brain rather than being determined by them.”

Noble & Davidson (1996:226)

The path favoured in this book does exactly that: turning away from brain centrism and focus on an embodied and active organism.

In pages to come, the content of perception will persistently be presented as an embodied construct. This constructivism is related to the abilities at the same time restrictions, of the anatomical architecture and of the physiology. In short, what is getting perceived is largely a product of the bodily condition. This is not without consequences as perception in its function as interface of the organism to the world, is the cornerstone of knowledge. Why this approach of embodiment is favoured will be made clear in the following paragraphs.

Two motives are in play.

On the one hand a theoretical consideration and on the other a motive which gradually took form through a failing natural philosophical practice.

The first motive has to do with the statute of knowledge. Does it depict the world as it really is supposed to be? For instance, the claim based on the perception that “x” is blue, allows rightfully the question if the perceived “x” really is blue⁴⁴.

In respect to this problem two opposing extremes be put forward, realism and constructivism. The realist in the most pure sense will explain that nature shows itself accordingly to the way it really occurs and that for man it is possible to obtain true knowledge of it. This was also the conviction of Descartes, considered one of the most influential philosophers of the modern era. But ultimately Descartes neither could avoid the question if the mind as central processing unit renders a correct depiction of the world⁴⁵. He referred

44. This is not a very original problem. It has been dealt with at least since the 17th century. Think of Locke's difference between a primary and a secondary quality for instance. It will only be used here as an instrument in order to clarify the position of embodied constructivism.

45. Depiction is in most cases understood as picture or even photo like. There are several reasons for this. The dominance in the numbers of the visual neural receptors is not the least important. Further Descartes proposed a theory of correspondence, in that line of thinking a pictorial representation is not that far of. Moreover for him true knowledge was based on contemplation with the “inner eye”. Factors as these divert the attention away from the fact that an organism, any organism for that matter, is in first

to God as the provenance of the mind and concluded that it would be very improbable that God would deceive the mind as the instance in man he created himself. Ergo, the depiction of the world in the mind could not be false.

A century later, Kant establishes the fundament of knowledge in a very different way. By his specific constitution man has a very particular perception of the world. Precisely that inhibits a depiction of the world as it really would exist out there. But this may not lead to the conclusion of a total arbitrariness. According to Kant, knowledge is a product of the mind and the structures of it are evidently the same for every human.

So the specific character of the body, in all aspects of form and function⁴⁶, determines the image “of the world”. As it shows itself to the human, it is a product of embodiment⁴⁷.

This is a very powerful argument concerning the problem how knowledge might be possible and from this follows an unavoidable conclusion concerning the quality of correspondence to “reality”, in short the quality of knowledge.

So far for the first motive expressing a radical constructivist position.

It however may not evoke the idea that differences between individuals might lead to an unlimited diversity of perceptions and interpretations about the world.

This would be a misunderstanding for the following reason.

The constructivism as meant here is characterized by cognitive embodiment and – closure. As already made clear the first refers to the specific way form and physiology of the organism determines perception and knowledge. Cognitive closure in turn refers to the fact that the experience of the individual is authentic and that the integrity of it can not be violated by a third party. One can not absorb the experience of the other in such a manner that he becomes identical to it⁴⁸. But Kant observes that the structures of the mind are similar for all humans. This perforce urges the conclusion of an inter-subjective correspondence on the level of the perceptual and motor approach of the environment⁴⁹. But it stretches further over sublevels such as group culture and lower still to the social-economical stratification and even further down to the way to family habits, all being determinants giving form and content to perceptions and knowledge. This accordance is indeed far more important than the interindividual difference. It is

instance a locus of action rather than a (brain)centre of knowledge. (for ‘action’, see Trivers, 2002; Krebs and Dawkins, 1984:385)

46. This is not only about perception, but includes the motor dimension. Form, size and the motor modalities of the hand determine what can be grasped.
47. The approach of Kant could be divided in two parts. On the one hand, he makes clear the incapability of knowing the world as it would be in itself based on the unavoidable embodiment and on the other hand he elaborates on the problem of how, under the mentioned circumstances, knowledge might at all be possible. In the context of the actual text, only the first part is of relevance. Further, observe that Kant is not an exception in expressing the idea that the world cannot be known. Think of the inhabitants of Plato’s cave who only perceived ghostly shadows on the walls. However for Plato the faculty of reason brought real knowledge within reach. Think further of Popper describing the scholar as a black man in a black room searching for a black hat which might probably not even be present.
48. Cognitive closure is also used in another be it akin sense. In that case it refers to the species bound determination of what can be thought of. Spiders for instance can not think about birds and birds not about democracy. On cognitive closure in that sense, see Chomsky, 1975; Fodor, 1983; McGinn, 1991.
49. Correspondence refers for instance to similarity of structures. All will be familiar with three- dimensionality.

only by isolating and focussing that differences are getting magnified and gaining importance in the estimation⁵⁰.

It will have become clear that two different categories are in play here. On the one hand there is the qualitative dimension having to do with the integrity of the experience of the individual – each and every individual his own particular experience of the world, a fact or rather an experience which can not be denied. This appreciation stresses the difference.

On the other hand there is a quantitative dimension pointing out possible correspondences of structure and contents of meaning given focussing on what is in agreement across all individuals and on lower levels across groups.

The misunderstanding of an absolute relativism – everyone its own world, rests on the projection of the qualitative unique character of the individual onto the quantitative set of structures shared, confusing the one with the other. This has by Ryle (1949) been identified as category mistake.

The second issue is about the importance of the focus on operations. This has been brought to light by difficulties of practical nature.

Until the 19th century the circumscription “philosophy of nature” was common⁵¹. This did not only include contemplations about the world but also all what had to do with reckoning and experiment, items which today would be taken as “science” But in that period one did neither speak of scientists nor of philosophers in the strict sense as presently applied. Instead “philosophers of nature” and the term “savant” were in use. Their aim was quite ambitious, nothing less than explaining phenomena such that the given clarification was fully corresponding to the way the world really existed out there.

Take for instance the 18th century intellectual atmosphere in which problems existed like the ongoing disagreement on defining heat. Some considered it a quality inherent to matter. Lavoisier related it to calories. Thomson on the other hand seemed to be convinced it got generated by friction. Results of crucial experiments were subject of profound controversy. The problem of definition, corresponding to reality, remained unanswerable for many years.

This did not prevent Fourier to formulate in 1822 a mathematical theory on the behaviour of heat in solids. So however the nature of the phenomenon could not be truthfully defined, his approach made it possible to describe and predict the behaviour called heat, in accurate way. This type of approach was not even pioneering. In the previous century Newton succeeded in calculating a force, which would become known as gravity, without being able to define the content of it.

50. For that matter, the bourgeoisie in the 17th century taking the stage might be of cardinal importance in stressing individuality and thus accentuating being different to the other.

51. In this case, nature does not refer to the whole of the world outside, the whole of the plant and animal-world. It refers to the character of something, the essence as in the question about the character of a person meaning what is his essential characteristic.

Approaches of this type severed quite radically the ambition of philosophy of nature to describe the world in a truthful way from the prediction of the behaviour of a given phenomenon under the influence of varied forces.⁵²

William Whewell⁵³ in 1833 eventually reserved the already existing label “scientist” for the scholar bringing in practice this particular type of research without being hindered by the difficulties in providing an exhaustive definition of the phenomenon at hand. This restriction pushed all other considerations as not scientific into the realm of philosophy whereby philosophy is getting understood in a more obscure sense⁵⁴.

Of importance is that the restriction to description of procedures, effects and predictions fits seamlessly with the Kantian vision on knowledge. That “the thing in itself” in principle can not be known can without difficulty go with the mentioned restricted approach. If one is not able to define what it “is”, he can none the less point out the effects of operations carried out on a particular setting or condition.

These paragraphs have made clear that the option for a constructivist position follows from a merging of a Kantian basic idea concerning the quality of knowledge and the historical turn into the direction of a scientific practice carried and guided by its effects.

This implies that every description unavoidably is embodied and in that sense is a particular perspective. From this follows the superfluity to endeavour depicting the world as it really would be out there⁵⁵. What is getting called the world can only be understood as the product of a contribution of construing character. Therefore action, in other words the operations performed, deserves all attention⁵⁶.

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52. This implicitly expresses the primordial character of negotiating the world as an act, rather than the ideal of pure knowledge. In this respect following quotes seem to be of particular relevance. Trivers observes that natural and sexual selection is not aimed at realizing a brain capable of true (corresponding) knowledge. It's only biological function is to sustain the fitness of the organism in order to be able to successfully transfer its genes (2002). “These conceptual descriptions depend less on what objects look like than on what they do” Mandler writes in relation to conceptualisation in babies younger than nine months. (Mandler in Rakison and Oaks (eds). 2003:106) About a hundred years earlier, Vaihinger in his “Philosophy of as if” already commented that “Logical processes are a part of the cosmic process and have as their more immediate object the preservation and enrichment of the life of organisms; they should serve as instruments for enabling them to attain to a more complete life; they serve as intermediaries between living beings. The world of ideas is an edifice well calculated to fulfil this purpose but to regard it for that reason as a copy is to indulge in a hasty and unjustifiable comparison.” (1935:16). And Rorty has repeatedly stressed that the Western culture is obsessed with the ideal of knowledge (1980).
53. One of the founding members and an early president of the British Association for the Advancement of Science, a fellow of the Royal Society, and long-time Master of Trinity College at Cambridge (1794-1866).
54. The reference to the “scientific method” as such, will only become common in the last quarter of the 19th century i.e. about fifty years after its introduction. From then on, the qualification philosophy covers all kinds of critical ideas concerning knowledge, speculative considerations and Kantian inspired transcendental research. Attention for knowledge is not the only branch. There is also philosophy of justice, politics and ethics as different subdivisions.
55. Observe that the circumscription “the world as it is in itself” too is a depiction of some sort. In the same sense, the “noumenon” which Kant is referring to can only be thought of. This originates from the Greek meaning “to think” and “to mean”.
56. Research into the possible origins of language in general and the relation of language and tool in particular, into the reality constructive potency of language and projective methods (such as metaphor), can provide valuable insights. In that context, the work of Lakoff deserves special attention. “Explaining Embodied Cognition” offers a brief but interesting overview (Lakoff, 2012).

This position might be judged to be an example of cognitive relativism. This qualification is however not relevant for the following reason. Two frames of reference can be thought of, a first one with knowledge as central theme and a second in which effect generating manipulation plays the pivotal role. In the first frame the problem of the statute of knowledge can not be ignored leading to the most important question: is the gathered knowledge depicting the world in a truthful way? In this case, qualifications as objective and subjective can rightfully be applied. The second frame is aimed at describing positions and procedures for manipulation. Here the result of the manipulation is of cardinal importance. The centre of gravity of this exercise is situated in this second frame. From out the perspective of knowledge one might recognize relativism, but this qualification is indeed of no relevance here.⁵⁷

57. In so far one might prefer to value the cognitive component highly and judges the constructivist approach as testifying of an all too rich fantasy, reference can be made for instance to Niels Bohr stating that science does not depict reality. In a same atmosphere Fleck stresses the importance of paradigms and shifts amongst them as do Kuhn and Feyerabend. Poincaré explains that definitions fall back on conventions and Comte refers to the shift of historical phases. More recently Hawking has pointed out that science does not depict reality but offers different models. Einstein on the other hand maintained the position that science indeed depicts reality in a truthful way.