

On Dynamic Functional and Active Representation

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Abstract

Dynamical systems might be taken to represent in the form of complex processes and via interpretative action without only using “representation by symbols”. Representation and causal organization can be understood by producing and handling dynamical models, using the theoretical resources of dynamics, and including the models of self-organizing systems. (Cognitive agents and cognitive processes display in part phenomena of self-organization.) Complex dynamics would play an important role in cognitive science. Dynamical Systems Theory and dynamical modelling conceive of cognitive structures as laid out temporally and as ever changing, i.e. as “dynamic”. Cognition is the simultaneous, mutually influential unfolding of complex temporal structures, mostly operating in parallel dynamical processes. This dynamical interpretation of methodological scheme-interpretationism was already developed prior to 2001 as regards cognitive processes, but also action planning and the structuring of any behaviour and thought processes. This has the advantage of stressing the social interaction of agents (including “deep sociality”), thought processes, content and action towards world and environment. The approach leads epistemologically speaking to an action-oriented (“enactivist”) interpretative realism of indirect provenance.

Keywords: *Methodological Scheme-Interpretationism; Dynamical Systems Theory and Modelling; Functional and Action-Impregnated Representation; “Deep” Societal Meaning, Interactionism (Enactivism); Interventionism; Indirect Realism*

Schemata and scheme-interpretation(ism)

Our mind is structured and considered to represent contents and concepts somehow mirroring aspects of internal and external reality. Structures are patterns to be constituted, learned or developed and stored. With respect to cognition and also the structuring of actions we hypothesize and hypostatize schematic orderings in respective processes of parts of the brain including the prefrontal motor areas, the primary somato-sensoric cortex as well as the primary and secondary visual parts of the cortex. The making of structures is afforded by brain- and neuro-processes of extraordinary complex interactions of millions of firing neurons in different more or less specialized parts of the brain. This leads in cognition as well as in action to some overriding relatively identifiable and stable orderings of pattern-like provenance and constitution called schemata or schemes. Many of these schemes are empirical in the sense of having originated by experience and sensory input as well as behaviour and action; many others certainly are also inherited in the structure of the setup of genes and differential division of “labour” or processes in the brain. (Philosophers like Immanuel Kant believe(d) in a priori, so-called transcendental (i.e. of non-empirical origin) schemata of any basic cognition whatsoever called “categories” [3]).

¹The first part of the paper was presented to an annual meeting of the International Academy of the Philosophy of the Sciences at Louvain-La Neuve (2011) [1]. Some passages of the last part draw on Lenk 2015 [2].

More than two decades ago I developed an epistemological model of knowledge and cognition as well as action which I called “*methodological interpretationism*” or, rather and later on, *methodological scheme-interpretationism* to cover some basic hypotheses of this underlying model of the “structuring” of cognitions and actions at the same time [4,5]. I developed a structural model of different levels and types of what I called scheme-interpretations consisting of basically six levels starting from basic biologically fixed reaction and interpretation patterns to adaptive and assimilative pattern(ing)s and more or less learned schematizations and habitua(liza)tions of forming in terms of categorizations of the making of concepts, through social and culturally conventionalized schematizations of pre-linguistic and language-impregnated concept-making and scheme-interpretations by cultural norms as well as linguistically representing symbols and normed concepts in a narrower sense. (Level 4 would be consciously formed subsumptive interpretations of classifying and embedding like descriptions and categorization, generalization or speciation making possible a more or less focused concept-building process). This would lead towards the next level of explanatory or in a narrower sense “understanding” and justifying or theoretically “grounding” processes and strategies of interpretation, justificatory argumentation as well as schemata of justification and even meta-schemata. In the end, even the methodological meta-interpretation of this very epistemological model of scheme-interpretational constructivism is then the highest-level methodological model of this kind allowing a sort of self-application on this approach [6-11].

In general, we use mental representations of frames or data features or contents which are typified, generically distinguished and concentrated to refer to relevant features that are retrievable from memory. One may well ask whether or not the expressions and concepts of “structure”, “construct” and similar concepts like “strategy”, “script” [12], “frames” (after Minsky and Goffman), “configuration”, “conceptual scheme” etc. are essentially referring to the same concept, namely schema. Schemata are like theatre stagings: the instantiation or activation of a schema is like the staging of a drama, the internal structure of the schema referring to the script or plot. Similarly, schemata can be compared with theories, computer programs, parsing analyses in linguistics etc. In all these cases we have procedures and functional shaping of reconstructions which comprise variations, checks, ramifications and extensions as well as a judgement about fitting or falsification, substitution or modification of a construct by another one. It is characteristic that schemata are connected with other schemata and sub-schemes in a certain hierarchical architecture and also that schemes have variables connected with different aspects of the environment and the diverse instantiations of the schema.

Schemata may be applied to things, objects, shapes and events as well as any spatial, static or functional relationships and constellations. It is important to notice that schemata consist of sub-schemes. The activation of a subschema is usually immediately related with the activation of the schema itself and the other way around. The comparison of schemata with programs, networks etc. is certainly fruitful and can be visualized in flow charts and related structural means admitting of state and point identification of the constituents and the ramifications of such structures. The encompassing set of the schemata we use to interpret our world would represent and comprise in a sense our “private theory” [13] of the “nature of reality”. Schemata represent or mirror so to speak our internal models of the respective situations in the world: Methodologically speaking, (schema-)interpretation is but the (re)activation of schemata. It is true that according to modern cognitive psychology the interpretative structuring of sense perception, the comprehension of texts as well as memorising and the solution of problems is essentially dependent on the selection, (re)activation and instantiation of schemata. Not just the interpretation of a situation, but also active information seeking as well as the integration into contexts and the development of strategies for problem solving will follow the lead of partly concept-guided, partly data-guided application of schemes. The mutual activation of such schemata and their sub-schemes is essential. In general, the concept of scheme/schema or cognitive construct or even interpretational construct is a rather fruitful instrument for developing a cognitive psychological theory, but beyond that also for a new methodological epistemology. Cognitive constructs, schemata and interpretational constructs are really “the building blocks of cognition” [13] and of any mental representation or information manipulation - even on a subconscious level, too. As Kant had already recognized, the dynamical and structural as well as functional visualization of abstract constructs is schema-dependent. This is not only true for empirical procedures of grasping, i.e. cognition and action, but also for methodological constructs. One may develop a sort of non-foundational transcendental philosophy of the fundamental conditions of any development, application and stabilization of any procedures of structuring by any kind of representa-

tion, be it by frames, concepts, orders, unifications, configurations etc. Interpretation is indeed the development, stabilization and activation (application) of mentally representing constructs or schemata. Interpretation (in a wide sense) is basically scheme-interpretation and founded on as well as grounded in schema activation. Therefore, I talk of schema- or scheme-interpretation. We can even conceive of a basic axiom or principle of methodological (scheme-)interpretationism stating that all kinds of grasping, cognition and action are interpretation-laden, interpretation-impregnated, i.e. founded or dependent on the activation of schemata. This is true far beyond psychological theories and epistemological perspectives, but rather a totally general comprehensive methodological approach comprising the philosophy of knowledge (traditionally called epistemology) as well as philosophy of action and representation. We can call this approach a methodological and quasi transcendental construct- or scheme-interpretationism overarching even the modern split between natural and social sciences as well the humanities, since all these disciplines would structure their fields and objects according to the activation of schemata by using procedures of establishing, stabilizing and activating schemata as cognitive constructs in order to structure the respective world versions and sets of objects or events, structures, procedures as well as projections.

It is interesting that scheme-interpretation admits of levels of categorisation as well as according to the variability of the respective schemata, i.e. whether or not they are hereditarily fixed or conventionalized or flexible, whether they are subconsciously developed and activated or consciously conceived and used. I developed a hierarchy of levels of interpretation consisting of six different levels or plains of interpretation [9,14].

The different levels of interpretation are the following ones: Level IS_1 comprises the practically unchangeable productive primary interpretations of primary constitution which might be represented by subconscious schema instantiation. They comprise the hereditarily fixed or genetically founded activation of selective schemata of sense perception (e. g. contrasts of dark and light etc.) as well as the interactive, selective activations of early ontogenetic developments like the stages of developmental psychology discussed by Piaget. Also comprised are the biologically hardwired primary theories which we cannot alter at will, but which we could (only) change in principle. For instance we have no magnetic sense or capacity to trace ultrasound like the bats - famous in philosophy after Nagel. But we can conceive of conditions in which we could have these senses or at least devise them, by technological means for substituting these. On the second level we have the habitual, quality forming frame interpretations and schema categorisations as well as "categori(al)isations" that are abstracted from pre-linguistic discriminatory activities, experiences of equality of shape, similarity of presentation and experience etc. Establishment and discriminatory capacity of pre-linguistic conceptualization and development of concepts about language is to be formed on this level. On level IS_3 we have conventional concept formation, namely socially and cultural traditional conventions and norms for representation and forms of discriminatory activities like the explicit conceptualization of framing our version of "the world" according to natural kinds etc. Insofar as this is not related already to language differentiation we can think of a sublevel (IS_{3a}) on which pre-linguistic convention (alisation)s are characteristic. On the other hand (on IS_{3b}) we have the explicitly linguistic conventions or the differentiation of concepts by means of language. - Level 4 would comprise the consciously formed interpretations of embedding and subsuming as well as classifying and describing according to generic terms, kinds etc. It is the level of ordered concept formation and classification as well as ordering and subsumtion. - Level IS_5 would go beyond that by rendering explanatory, or in the narrower sense comprehending ("*Verstehen*") interpretations as well as justifying a theoretically argumentative interpretations in a sense of looking for reasons and grounds of justification.

These activities are certainly not only advanced in science and intellectual disciplines but in any case also in every day life and common sense. Any kind of a systematic comprehension within the compounds of theories, systems and overarching perspectives of integration is important here.

Beyond that however, we have also a level (IS_6) of the epistemological and philosophical as well as methodological interpretations of a meta-character, overarching and integrating the procedures of theory building and theory interpretation, methodology and the models

of interpretation in the sense of methodological scheme-interpretationism itself. One could call this a meta-level of interpretation and explicitly speak of epistemological *meta*-interpretations. However, this level is cumulative and can be considered as being open towards further meta-levels. The model and approach of epistemological interpretationism is itself certainly an interpretative one and can be described and developed only on a certain respective meta-level which is to be seen within the level IS_g . Therefore, we have the possibility of a self-application of the interpretational method to interpretative procedures itself. The philosophy of schema-interpretation is a philosophy of interpretative constructs as an epistemological model which admits of a certain kind of meta-theoretical and meta-semantical self-application in the form of a sort of “meta-interpretations” of potentially cumulative character.

This is certainly an asset and epistemological advantage compared to a few other epistemological approaches including critical rationalism after Popper, a theory which does not admit and conceive of the precise conditions of being falsified itself. The human being is indeed the “meta-interpreting being” [8], capable of ascending to ever higher meta-levels of (scheme-)interpretation.

If we use these levels and such meta-levels of interpretational constructs we can reinterpret many of the traditional philosophical problems and reformulate them with respect to the relationship between different interpretational levels as mentioned.

Connectionism for dynamic cognitive schemes

Already in my book (2001) on Thinking and Content, I had used examples and analyzed the methodological implications and problems of psychological approaches taken by David E. Rumelhart and others deploying and understanding schemata as dynamized “constructive” procedures [13]. Also the more advanced and dynamized methodologies and theories of representations utilized by the so-called connectionism of Rumelhart, *et al.* [15] and the widely disseminated approach on “mental models” by Johnson-Laird (1983) were analyzed from this point of view of constructive scheme-interpretationism and the related epistemological perspective [4,5,17].

The approach was used to try to understand structures, hierarchies and interconnections including brain activations of parts leading to an understanding of contents of thought as well as to an analysis of the structures and descriptions and a theory of consciousness processes and different types of kinds of consciousness [4].

Already in these publications I tried to use the approaches of the so-called connectionists in psychology under the topic of the analysis of networks by the approach of the so-called “Parallel Distributed Processing” (PDP) in order to integrate in my approach a dynamism of the models of cognition and action as well as paying due attention to the process character and changing of the schemes and schemata of non-hereditary provenance [5].

Rumelhart, Paul Smolensky, James L. McClelland and Geoffrey EA Hinton [15] tried to analyze schemata as the conscious thought processes in PDP models by not only relating schemata to cover internal and external object structures, but to somehow dynamize the description and explanation of the structure of mind. The schemata “must be sufficiently malleable to fit around almost everything”, be “sufficiently pliable to adapt to new situations and new configurations of events” as well as to nevertheless avail of enough identifiability (at least in principle) to be used and referred to within the structure of time and even also in the conceptual and linguistic description from the scientific and methodological point of view. The authors state [18]: Schemata are not things. There is no representational object which is a schema. Rather, schemata emerge at the moment they are needed from the interaction of large numbers of much simpler elements all working in concert with one another. Schemata are not explicit entities, but rather are implicit in our knowledge and are created by the very environment that they are trying to interpret - as it is interpreting them. Roughly, the idea is this: Input comes into the system, activating a set of units. These units are interconnected with one another, forming a sort of constraint satisfaction network. The inputs determine the starting state of the system, and the exact shape of the goodness-of-fit-landscape. The system then moves toward one of the goodness maxima. When the system reaches one of the relatively stable states, there is little tendency for the system to migrate toward another state.”

These “units” or subpatterns of units (including so-called “hidden units”) would “act in concert” and form “flexible coalitions of tightly interconnected units that correspond most closely to what have been called schemata.” Relatively stable pattern would be the output of a sort of a relatively “stable dynamic equilibrium of all these sub-patterns interacting with one another and with the inputs.” Best or maximally fitting sub-patterns interactions and schemes would “correspond to interpretations of the inputs or ... configurations of instantiated schemata” maximizing specific sets of “constraints”. Thus, the dilemma of the flexibility of structures and processes to be constructed and captured as well as modelled is combined with a certain kind of flexible stability of the coalition of units corresponding to schemes.

Therefore, such enlarged and dynamized schemata are more flexible, processual and variable than the conventional rather static schemata stored in memory. The assets and functions of object addressability, flexibility of structure and amenability to new configurations and the changing of the very schemata themselves are characterized by some processual characteristics. For example, “schemata have variables” requiring and availing of “variable subpatterns that tend to get filled-in - in the absence of any specific input”. Default values tend to be automatically filled-in by the process of settling into an interpretation or a relatively stable state ([18], p. 33). “Schemata can embed” substructures and maybe described by a hierarchy of subschemata and an interaction pattern with other cohering units ([18], p. 35). In short: “Schemata represent knowledge at all levels. They should represent encyclopaedic knowledge rather than definitional information” meaning that “all cohering sub-patterns should be considered schemata as well”. “Schemata are active processes”. “Schemata are recognition devices whose processing is aimed at the evaluation of their goodness-of-fit to the data being processed” ([18], p. 36).

In PDP models “all aspects are variable “units may cohere more or less strongly to their mates and in this sense be more than less a part of the schema”. In addition “one can have schemata of varying degrees of existence. The rigidity of the schema is determined by the tightness of bonding among the units that constitutes the schema” ([18], p. 37).

Rumelhart, *et al.* think that instead of having a fixed representation in linguistic or semantic terms in the form of a brain language or ‘language of thought’ [19]. Consciousness and its constancy would consist “of a sequence of interpretations - each represented by a stable state of the system” in varying and being embedded in some such sequences of a flexible provenance (*ibid.* 39, italics added). This model would also cover the mental simulations and structuring as well as the structures of actions.

Thus, in sum, “a schema is best viewed as a coalition of units which cohere in that configurations of such coalitions determine the interpretations that the system can attain”. These “stable states correspond to instantiated configurations of schemata that can be characterized in terms of goodness-of-fit maxima that the systems can move into” ([18], p. 53).

This dynamized concept of scheme-interpretation would combine fluidity and flexibility at the same time with some more stable characteristics of more rigid schemata approaching peaks in the “goodness landscape”. (“More fluid or variable schemata” would remain in “broad plateaus” allowing for more “movement”). “Cognitive phenomena” are considered “as emergent from the interaction of many units”, whereby we may “take the symbolic level of analysis to provide us with an approximation to the underlying system” ([18], p. 56).

This approach would comprise all the advantages of the PDP approach as, e.g., content and multi-addressability, the filling of lacunas and completion of patterns, variability and flexibility as well as programs of the so called “graceful degradation”.

The dynamics of this approach is rendered evident and above all addressed to processes of cognition and concept-building as well as consciousness.

The character of being itself activity- and interactivity-oriented has however to be extended above the mere neuronal level and interaction of units to also covering the formation and structuring of action in general and particularly within the prefrontal associative cortex as well as primary motoric cortex and the respective interactions with all the other parts of the sensorial association areas in the brain. Action also and not only cognition is to be structured or reconstructed from such a dynamic interaction of these kinds of flexible hypothetical schemata being only functionally constituted and relatively stabilized for a certain time span or moment.

The basic properties, processes and structures of instantiating and re-instantiating schemata are the same for cognition processes and action variables. Both cannot be abstracted from the functional and processual perspective. Actions, behavioural patternings as well as even imaginations, representations and internal locutions and their identification are much more dynamic and much more plastic and flexible, much more functionalistic and oriented to activity-orientation and the environment of the representing system than the symbolic constitutional approach would have had it - and even much more dynamic than the conventional scheme approach. Even automatic generalization and the selection of the rule that fits best in the current situation, the “constructive character” and “ability to generalize automatically to novel situations” and a considerable “tunability to changing environments” are advantages of this approach of “distributed representations” ([18a], p. 250). This approach would simplify the PDP model in a rather processual and functional way viewing memory as a process-constructing patterns of activities, using parallel hardwares to implement best-fit-searches and “partial descriptions” activating some of the hardware units and the respective interaction between the units interpreting and implicating “plausible micro-inferences between micro-features” of a processual system which has “no sharp distinction between genuine memory and plausible reconstruction” ([18a], p. 250).

In general, “people are good at generalizing newly acquired knowledge. If you learn a new fact about an object, your expectations about other similar objects tend to change... In a network that uses distributed representations, this kind of generalization is automatic” ([18a], p. 253), which would not be the case in additional somatic networks with only local representations.

Even if you want to go for new concepts, creating them by cognition and internal as well as externally oriented action, “all we need to do is modify the interactions between units so as to create a new stable pattern of activity. If this is done by modifying a large number of connections very slightly, the creation of a new pattern need not disrupt the existing representations”. By some sort of fine-tuning “the effects of the new representation on representations in other parts of the system will be determined by the units that are active, and so it is important to use a collection of active units that have roughly the correct effects” ([18a], 257).

“Ideally, the distributed representation that is chosen for a new concept should be the one that requires the least modification of weights to make the new pattern stable and to make it have the required effects on other representations” (Hinton., *et al.* 1919, 258). It is even possible to achieve useful properties like content-addressable memory and automatic generalization, and new items can be created without having to create new connections at the hardware level” ([18a], 278).

As said already this approach has to be extended much more towards the structuring of actions and thoughts.

As we saw, in connectionism and particularly in the PDP models we have some advantages of fast grasping and spotting, object- and multi-addressability of the configurational adaption of pattern recognition of filling up of lacunas and the compensation of some other setbacks like by aging, i.e. the so called “graceful degradation”, and the action-orientation or activity-impregnation of all the processes. Also, as I noticed [4,5], the shortcomings of the consecutive symbol combining approach of traditional representational Turing-machine approach in AI seems to be an implicit constraint characterized just by successive adding of elementary symbols or elements. All that seems to be an important set-back of serialized representations on the form of well-shaped formulae, a main disadvantage of the symbol constitution approach with its precondition for the digitalizing of representation and description of cognition processes but not very well suited for modelling analogue processes and dynamic time series in complex parallel cognition networks and the respective action-structures, particularly in the human brain. Even the connectionist parallel distributive processing and distributed representations involved are not so easily accorded to the functioning and overall dynamic complex interaction system and network of the human brain and its tapping of the neuronal correlates of cognition and action processes within the human brain. Indeed, one has to use both, the overriding combination of symbol constitutions and successive operations on symbols and elementary constituents as well as a complex process modelling of a sort of complicated networks, e.g., used in pattern recognition by the visual system. Thus, one has to combine or recombine

both approaches in some sort of an overriding generalized architectural hierarchy even if basic structures of both are somehow entrusting each others if not incompatible with each other.

It was Tim Van Gelder who in a rather provocative and I think bold and fruitful paper ([20], 249 ff.) tried to develop a criticism of the “good old-fashioned connectionism” models with all their limitations as regards the number of “hidden units”, the explicit concentration on a comparison of input and output vectors as well as the shortcomings of the dynamics grasping the respective internal states in time-dependent interaction with the respective environment. The same is true certainly for the limitation of the number of levels and the picturing of activations of the knots and mutual feedbacks. The mentioned disadvantages would multiply if you try to use a model as a representation of the processes within the human brain a very complex network not dependant on just given inputs alone, but a self-developing high complexity assortment and structure of this certain kind of history of its own deciding about future chances, developments and reactions as well as interactions with the respective environment in a rather nonlinear fashion, like complex dynamic systems of an in a sense chaotic provenance (according to deterministic chaos theory). For instance, there are strange attractors of the recognition dynamics of smelling receptors in canine brains [21]. According to Van Gelder connectionists’ networks may be of higher dimensions and have many knots, dimensions etc., but functionally speaking they are rather homogeneous in the sense that they are constituted rather monotonously like neuronal knots - if technically materialized we surely have and can have a dispose of very many units including the so-called “hidden units”, they are naturally speaking too homogenous among the activation and interconnection of the knots and respective “mapping” of a presentation works essentially by adapting the weight coefficients of the respective relationship. In short, the system itself and the respective input and output vectors are indeed conceived as rather “static” ([20], 251f). There is also a limitation of systematic kind in the sense that is only possible to make so much steps as there are levels of the system available ([20], 249) focusing in the attention to but few steps of sequences of the respective subsistence of the states or the subspaces of the phase space. According to Van Gelder one did not take notice enough of the fact that the brain system has no take-off or starting input systems and output systems to be mapped on one another. Complex dynamic systems do not have just one original take-off state nor have they just one final state, and both of them cannot be just connected by a certain deterministic linear causal connection or relationship. Rather, we have too many variables and “degrees of freedom” in order to allow linear propagations of knot activations and the proceeding to future states of the system. Even in connectionist networks or the special learn-models like Delphi-Rule, Hebb-Learning and the “back-propagation of error” we find too static models to be fruitfully and comprehensively adapted to the human brain dynamics. In the aggregation of connectionists parallel distributed processing and the representation one the one hand and the superimposed higher level symbolist constituted token(ing)s used for depicting of logical and language as well as other sign successions do not convey any “unified subject matter” so that connectionism as a sort of “the cybernetics of the 1980s” seems not to be very apt to develop a unified model of the different levels and complexities of the self-evolving systems like the human brain and cognition as well as action systems. Computationalism and dynamicism of that are two different approaches seemingly somehow incompatible with each other - at least from a perspective of methodological unity and the search for an overarching theory.

Although most “dynamicists” in cognitive science are still connectionists using connectionist networks, like Grossberg [22] there are some who according to Van Gelder [20] would use other sorts of dynamical models [23]. Indeed, according to Van Gelder “connectionism as such has no interesting theoretical implications for the philosophy of mind: Nothing follows from the choice of connectionist networks as models alone”. That leads Van Gelder to the conclusion “that connectionism is not a theoretically interesting category”, or perspective. Neither “computational connectionism” nor “dynamical connectionism” would produce insights for philosophy of mind and brain, but they would “amount to a series of challenges to central components of the traditional picture of the nature of mind” in the same direction [20].

Dynamical systems (theory) in/for cognitions and actions

Nowadays, after the heydays of connectionism, it seems more appropriate to follow up with a model hypostatizing that “cognitive systems are dynamical systems more than rather computers” (nevertheless allowing for some computable modelling of processes like

“differential analyzers” which are “presumably, both (Montague) computational and (Grzegorzcyk) computable”. The dynamic systems approach would rather emphasize that cognitive systems “may turn out to be more like differential analyzers than like Turing machines” although with some computable and even digitalized dynamic models [20]. Again, also Van Gelder has to take into account that “cognitive systems” can only by constraint be dealt with without the interconnection to action systems and environmental impacts.

This certainly feeds over to the so-called mind-body-problem which according to Van Gelder seems to be somehow outdated, since under the perspective of overriding dynamics of a complex dynamical system there is no meaningful distinction between just psychic and only physical phenomena and agents. But the central characteristic is that these complex systems are modelled by the mathematics of dynamical analysis and “the equation-governed evolution over time of some set of interdependently changing, and numerically measurable quantities” which is indeed the potentially “rigorous dynamical description” offered by dynamical cognitive science” [20].

Van Gelder stresses by contrast - and I think rightly so, although I would change the terminology of sticking to the wording of “ontological”: “A better view, however, is that, to the extent that mind proves amenable the dynamical description and explanation, the very notion of the physical, whose sense depended to some extent on a contrast with the mental, has been diluted beyond any real utility. The mind-body problem as the problem of locating the mental with respect to the physical is, to that same extent, transcended rather than solved ... showing that the mental/physical dichotomy itself no longer does theoretical work”. “From this point of view this issue of the relationship of mind to other parts of the natural world is not a question of how things of one ontologically dubious kind relate to those of another respectable kind. Rather, it is simply a matter of how one set of respectable dynamical phenomena relates to other sets of other respectable phenomena” [20].

For Van Gelder “many of the most interesting dynamical entities ... only exist *in* time; they are temporal events rather than things or static patterns ...”. They are rather flexible “patterns of activations” changing in time under the domain of the mentioned equations of dynamical systems theory allowing of chaos theoretical attractors, net trajectories or even the changing and landscapes of attractors in bifurcational systems [24,25].

Van Gelder resumes: “In short, the dynamical approach to cognition has expanded beyond what was previously imaginable the range of forms that mental representations might take, and in particular has opened up the temporal domain as a field of representational possibilities. Consequently, we are no longer restricted to asking whether mental representations must be symbols or images; they could be any of a wide range of dynamical entities which are not easily classifiable in terms of that traditional dichotomy” [20].

Van Gelder goes on to criticize “the idea that there are particular identifiable aspects of our cognitive systems playing the role of representations - i.e., which can be systematically interpreted as having semantic content, and whose causal role in the cognitive system is in accord with their interpretation - is just a very general structuring assumption of a wide class of frameworks. There is no reason a priori why the best explanations of cognitive processes must be drawn from this class. In fact, dynamical cognitive science is a very general powerful explanatory framework which (a) is not automatically committed to positing representational states, though it can allow them; and (b) is currently being used by a broad spectrum of cognitive scientists in developing non-representational explanations of particular forms of cognition”.

Therefore the so-called “anti-representationalism” would according to a growing number of theorists of dynamical cognitive science be “not just idle speculation”, but “it is based on powerful new ways of describing systems that exhibit cognitive performances. Dynamical cognitive science holds out the possibility of positive elimination of internal representations”. It would not be “sub-representational (too simple to merit representational description), nor representational (systems for which representational descriptions provide the best explanatory leverage)” [20].

According to Van Gelder dynamical cognitive science would rather offer “at least a glimpse of how it might be true that cognitive systems are *supra*-representational (possessing a kind of complexity and subtlety of behavior such that the representational explanatory frameworks are in general inadequate to the explanatory task)”.

Henceforth, “dynamical cognitive scientists focus on a variety of dynamical systems associated with one cognitive agent. Dynamical cognitive scientists interested in phenomena as diverse as speech production, temporal pattern recognition, categorization, decision making, syntax and (even, H.L.) juggling produce very different dynamical models with different sets of variables and equations and are thereby focusing on different sets of features of the cognitive agent” [26]. Indeed, “it would be wrong and misleading to assert that a cognitive agent is *a* (i.e. the only one, H.L.) dynamical system. There is no *one* dynamical system that any interesting cognitive agent is identical with, and there is no more a fundamental unity to cognition (and hence mind) than there is a unity to all the phenomena of nature. At many different levels, I am many different kinds of dynamical systems, belonging loosely together by virtue of their association with the one object (my body)” [26].

We might certainly go along with the differentiations by dynamical cognitive systems theory and cognitive science of a temporal provenance in parts of organizing systems of complex constitution, but need not borrow all this “anti-representational” leaning if we extend the connotation of the terminology “representationalism” and “representational” beyond the traditional elementary symbolic and combinatorial representationalism. Reducing our scientific interest to just mental representations and their symbolic components and the respective combination for the pictorialism or computational constitutionalism of elements is just a sort of perspectival constraining the complexity of perspectives and interactions to be dealt with. Rather, it is better to talk about dynamical models of complex dynamical systems and the respective so-called “entities” (in some metaphorical tinge) or processes and their interconnections. The contrast of so-called pictorialists or picto-realists (pattern or picture recognitionists) and the traditional elementary symbol constitutive approach seems to disappear under the overriding perspective of respectable dynamical cognitive science. In like fashion, the traditional mind-body problems would be overridden, too. Indeed, we have also to bring in activity-orientation and actionism into proper “representation” of cognition and repetition of cognition - even more than Van Gelder would underline in his impressive approach. A dynamized version of flexible scheme interpretations approach would take account of that and leave open the space for activating and realizing (in the double sense!) as well as instantiating the now flexible interpretative, activity and action-shaping schemata. That would amount to an up-to-date dynamized schema-interpretationism (particularly amenable to models of complex dynamical systems “representations”).

Already in 1991, at the quasi founding conference Dynamic Representation in Cognition at Indiana University, Van Gelder and Port stressed the rather broad interpretation that the dynamical approach to complex systems is not only an application of the respective mathematical tools of dynamics to the study of cognition, but much more than that: it would be rather “a world view”, a “deeply different perspective on the overall nature of cognitive systems” [25], 3): Relating to an embedding in much more comprehensive systems of the world, the natural and social environment as well as the body and physical make-up of the cognizer they emphasize that “the cognitive system does not (only, H.L.) interact with other aspects of the world by passing messages or commands”, but “rather, it continuously co-evolves with them”. They stress the dynamicists’ idea that “the dynamical hypothesis” would amount to the insight that “natural cognitive systems are dynamical systems, and are best understood from the perspective of the dynamics”. They “take dynamical systems to be systems with numerical states that evolve over time according to some rule” governing the change over time in the systems’ states (overall state(s)) in a phase space, the “state space” [25]. “The rule of evolution” would describe “the behavior” of the system as a function of its current state” as studied by dynamic modelling or the mathematics of “dynamical systems theory”. The respective differential equations (or sometimes difference equations) govern the sequence of over-all states of the system and may be geometrically represented by trajectories within the landscape of the phase space.

The Dynamical Hypothesis (see below) is contrasted to the conventional and traditional computer hypothesis due to which an input representation in the form of symbols is related to output symbolic representations - so to speak in a self-contained manner.

The dynamical approach deals with an interaction and ever-continuing change of the overall state of the system whereby the “nervous-system, body, and environment are all continuously evolving and simultaneously influencing one another” amounting to “a single unified system embracing all three” factors: “the cognitive system does not interact with the body and the external world by means of periodic symbolic inputs and outputs; rather, inner and outer processes are *coupled*, so that both sets of processes are continually influencing each other [25]. Instead of just delineating inputs and outputs and their relationship, dynamicists conceptualize cognitive processes in *geometric* terms” depicting how “the distinctive character of some cognitive process ... is a matter of how the total states (that) the system passes through are spatially located with respect to one another and the dynamical landscape of the system” within the phase space [25]. It even sounds rather Hegelian: “Everything is simultaneously affecting everything else” [25] - reaching beyond, and dynamize at the same time, connectionist approaches (see above) in a dynamical interpretation and embeddedness at the same time [25]. Whereas some connectionist systems may also be static, the “Dynamical Hypothesis (DH)” would essentially maintain that “cognitive agents are “dynamical systems” [27]. The DH would by differential (or difference) equations render the mutual inter-changeability of the quantitative states quantified in terms of a metric over the time systematically relating to distances according to that metric within the phase space.

Van Gelder forwards two sub-theses of the Dynamical Hypothesis, namely the “nature hypothesis” and the so called “knowledge hypothesis”. Whereas the former claims that “the nature of cognitive agents themselves” is the dynamical system or, rather, cognitive agents are dynamical systems themselves, the knowledge hypothesis just epistemologically depicts “that we can and should understand cognition dynamically”, whereby “knowledge is now only one indicator of cognitive status; others include intelligence, adaptability and coordination...” [27].

The “knowledge hypothesis” would easily go together with the above-mentioned methodological scheme-interpretationism, whereas the nature hypothesis focuses on the ontological perspective that cognitive agents *are* themselves dynamical systems and, if it is true, “as many systems as are needed to produce all the different kinds of cognitive performances exhibited by the agent” (ibid).

There is no absolute gulf or barrier between these two interpretations of the DH, but I think that even the “taking” of the agent as “being” a set of dynamical systems implicitly relies on a certain epistemological or at least procedural interpretation of indeed “taking” or “understanding” the agent as a dynamical system or as various respective and relevant dynamical systems.

Indeed, at the very end of the article Van Gelder somehow mitigates the ontological interpretation by stating that the DH “has not attempted to demonstrate that cognitive agents are in fact dynamical systems. There is mounting evidence that certain aspects of cognition are best thought of dynamically, but many others remain completely unaddressed” [27]. Thus, Van Gelder admits - at least implicitly - that any ontological interpretation would by its very nature also amount to an interpretative construct or an hypothesis (and insofar interpretational as any hypothesis whatever).

Indeed, the interpretation by the “nature hypothesis” is epistemologically speaking - as any ontological hypothesis - also dependent on theoretical and interpretational constructs whereby the gulf between the nature hypothesis and the knowledge hypothesis is in a sense at least epistemologically speaking, somehow levelled out.

The main idea indeed - and that is the important progress - is that we have to dynamize the understanding and processual description of cognition processes rendering them mutually interdependent and interchangeable within the system and regarding the outside factors and the interchanging between the systems and the environment(s).

Already in 2001 I took over this dynamical interpretation to dynamize the methodological scheme interpretationism as regards cognition and cognitive processes, but also as regards action planning and the formation and structuring of any behaviour and conscious thinking processes [4,17] see also already the giving up of the divide between cognition and action [28]: even thought processes and their results are “handlungsförmig” (formed according to action patterns so to speak). I think that the dynamical approach in cognitive science

has the real advantage of stressing not only the interchangeability of any parts of the agent and the environment, but indeed the in(ter)volving of thought processes, content and action or behaviour in and towards the world and environment.

By contradistinction to the symbolic representation of cognitive processes in the computer model of CH, the dynamical hypothesis DH is not only psychologically speaking much more down to earth and, in a sense, to brain processes, but also much bolder and fruitful for philosophical analysis beyond the traditional Cartesian divide of mind and matter. It is interesting that it is now possible scientifically to cover and study the temporal change of possible states of cognitive provenance and their respective flows in the entire landscape and the possible trajectories and paths in the respective geometricized phase space. Thus, Van Gelder is right [27]: "Dynamics play much the same role in dynamical cognitive science as computer science (the theory of computational systems, particularly digital computers) plays in traditional cognitive science". Whereas "computationalists tend to think of it" namely, structural complexity in the cognitive system as laid out statically - as all present at one time - and of cognition as simple transformations of static structures. Dynamical Systems Theory and dynamical modelling conceive "of cognitive structure as laid out temporally, much like speech as a pose to the written word. Cognition is then seen as a simultaneous, mutually influencing unfolding of complex temporal structures", mostly "operating in parallel" - and not, as computationalists would do, "to think of systems as serial" or rather static configurations of symbol tokens.

Nevertheless, dynamical systems, although they are strictly speaking "not inherently representational", might be also taken to represent in the form of complex processes and the respective models without necessarily using representation by symbols. Representation and, "in addition, causal organization can and should be understood by producing dynamical models, using the theoretical resources of dynamics, and adopting a broadly dynamical perspective" [27] including the development in the form of self-organizing systems. Indeed, cognitive agents and cognitive processes are at least in part displaying phenomena of self-organization. Thus, Van Gelder finishes with a stark perspective with regard to understanding cognitive agents and processes as well as cognition in general: "The Humean dream of a dynamics of a cognition can now be seriously pursued" [27].

Conclusion

Any social phenomenon and regulation whatsoever is itself interpretative. Indeed and again, this does not lead to a circular foundation because the respective model of constructive and reconstructive philosophizing bound to levels of interpretations may be pragmatically interpreted - again and again - from a higher level respectively. This is true for a pragmatic shaping of actions as well as for the understanding of any cognition and recognition in science, philosophy and everyday circumstances. Indeed, philosophy should not operate on a remote plane separate from a common-sense understanding in everyday acting, even if it would critically reflect the extant hypostatization of everyday conceptions, the respective objectifying, at times illusionary and skewed as well as manipulative ideological distortions or misrepresentations. Philosophy devotes itself to critically further developing constructive thought in a pragmatical context and feed-back. It should in this colloquial sense also remain "realistic". This is true for thinking, recognizing as well as for acting. We have to pragmatically and inevitably hypostatize a real world in which we act as against potential resisting events, "things" or processes. To reject such a world of objects "in themselves" would render a performative paradox analogous to the *petitio tollendi* in the foundation of logics².

²As I called it more than 30 years ago independently of P. Strawson: You cannot reasonably - i.e. by arguments - reject certain strategies or principles in logics (like the Principle of Non-contradiction) without using it or functional equivalents of it on a higher level. Without rules of criticism it is not possible to reject a strategy of criticism or a rule (so, you have to have meta(level)-rules). Cf. Lenk 1970, reprinted 1973. - K.-O. Apel has later on (1973) used this argument for what he calls a "transcendental-pragmatic ultimate foundation" of rules of argumentation etc. It is however problematic whether or not such a circular structure of this *petitio tollendi* must or need be used to as sort of ultimate foundation: It is only a methodical-reflective interpretation of a methodological inevitability in order to render or illustrate the indispensability of specific rules like the Principle of Excluded Contradictions or a respective functional equivalent in logics. It is much more a normative postulate for the purity of construction and methodical progressing in developing and regulating the strategies of structuring arguments and constructions as well as interpretations than an ultimate rational foundation in the traditional absolute sense.

There is a methodological entanglement and mutual interconnectedness between real actions and the necessary interpretation-dependence: Insofar as action is interpretation-shaped, even consisting of or only being conceivable by the mediation of interpretative constructs (actions can only be interpretatively “grasped” - actions are themselves dependent on a real world or the respective higher-level hypostatization of reality in itself). One cannot by interpretation - acting, interpreting on a specific level - reject the hypostatization of a “real” within the world without implicitly hypostatizing it already. Action is always concretized at and in something plus by someone, the agent. This is also a similar methodological necessity as presented by the mentioned *petitio tollendi* in logics - here only in the interdependence of performances and necessary requirements of action *per se*. We can only act within, not outside of the world. By our very acting - insofar as we necessarily act in an interpretative manner, guided by interpretative constructs of maybe a normative provenance - we would automatically and necessarily presuppose the model of a real world: We may however draw this in doubt along the lines of a traditional radical skepticism (of Pyrrhonian or Agrippian provenance) but we cannot pragmatically, performatively carry through this rejection in a radical manner. Presupposing and hypostatizing “reality” is insofar pragmatically “necessary”. This does not mean that it would not be also interpretative in make-up or shaping. The distinction between “reality” and “interpretation” or “the activity” in interpreting is itself already interpretation-dependent: reality itself is to be “grasped” only by interpretative constructs, can only be “grasped” within the horizon of interpretations; the modes of “grasping” are always interpretation-shaped or -laden as we have seen. Reality cannot be conceived of without such modes. Insofar as something is to be “grasped” as something it is necessarily interpretation-shaped only to be “grasped” as such by interpretational means. That does not mean that it must be interpretation-dependent also in any other sense of being existent or so. We can and have to think external reality as being independent of us (at least in part) even if we know that any “grasping” or cognition and recognition of it whatsoever is certainly indispensably and irrevocably interpretation-laden. We can think “reality” as being independent of us and being independent of interpretation, but any thinking or representation of reality - even the mental distancing of a real external world as opposed to the epistemological subject - is indeed interpretative. Any concept of reality is epistemologically and methodologically speaking interpretation-constituted, interpretation-shaped, necessarily connected with interpretativity, even in some sense “produced” or “engendered” by interpretation, i. e. scheme-activation. This certainly does only refer to the mode of “grasping” or reflecting, not necessarily to reality as such and in itself. Even the model of referring to real referents (by expressions of designation or so) is, to be sure on another level of meta-interpretations, interpretation-dependent. The distinction between different levels, types and planes of schematizations and interpretations allows us to work with relative differentiations: We may and can mean something as interpretation-independent, but the very meaning itself is interpretative and any concept whatsoever in which the “grasped” “something” is being presented or represented is always interpretation-bound. Thus, the very intricate interconnection between representation and interpretations on the one hand and the represented or interpreted something on the other does not amount to an absolute methodological interpretative idealism or interpretation-absolutism. We may and could stay with realizing interpretations, we may remain indirect and moderate or rudimentary realists of sorts, even if only for practical, pragmatic reasons.

One might ask, where in the last analysis is “the real anchoring” of this interplay in the turbulence of interpretations? Do we need a fixed ground, so to speak an Archimedean point of philosophizing, from which to start off? Indeed, we don’t - except the feedback to everyday language and our respective instruments of our theoretical, symbolic, socio-cultural constructions and media residing in a quasi Wittgensteinian manner in social practices and institutions. It is not necessary to have a fixed Archimedean point of action and interpretation as a *fundamentum inconcussum* of philosophizing. (This would indeed amount to a rationalist foundational philosophizing in a nowadays outdated absolute-rationalistic sense.) Instead, we know that we can successfully act and recognize as well as even, at least in part, anticipate “reality” in a relatively reliable manner. We know that without scheme-interpretation we can neither (re)cognize nor act. We may thus design a non-Archimedean philosophy of pragmatic relative foundational procedures without recurring to an epistemologically speaking ultimate and absolute, non-interpretative ground or a last fundamental security. Nevertheless, we can and must in “real life” connections pragmatically treat the “external world” as “real” (in a sense) constituting the context for our actions and as a counterpart to goal-oriented behavior even though we sometimes cannot absolutely and without doubt sever objective and interpretation-free “objects” independently of our interpretative constructs - which are in turn related to activities and potential actions. We cannot as we saw do without scheme-interpreting. We cannot not interpret; we cannot not schematize.

In a sense, we move in interpretation circles and even spirals, we usually do not consciously conceive of the respective levels and meta-levels: In acting and grasping we cannot get out of the “horizon” or our “universe of interpretation”. But again, this does not mean that only interpretations would exist or be conceived of as the only real processes. On the contrary, we could not think of a viable procedure and successful applying interpretative constructs without locating our actions and the very processes of interpreting in “real world” connections. As we saw, even cognizing and recognizing as a sort of action is always embedded in and bound to “the world”, even a “world in itself”. To repeat, interpretation is not everything, but without interpreting and world embedding nothing could be possibly grasped and/or understood. (Even formal procedures of thinking and representations are in the last analysis dependent on the development of action capabilities of a living being, i. e. on the embedding in a real world constellation and in social connections, e.g. in society, culture, language, institutions etc.)

Action, interaction, and deep socio-genic impact

Of course we have always to start from everyday experience and everyday acting. We know that even this is deeply interpretation-laden. We might modify Wittgenstein: Thus we interpret as we are used to (or accustomed to) interpret: we are in a deep sense the designing, interpreting, meta-interpreting and acting as well as valuating beings [29,30] - even if we know that this self-interpretation is again interpretative in an anthropological [31,32] “deeply social” and epistemological context. To be true, the later Wittgenstein would say: Thus we interpret in and how we act (we are accustomed to act). This does not exclude an insight about the interpretation-dependence of this very model and of all activities including everyday (re)cognitions and theoretical constructions in science (and also philosophy).

Such conditions and restrictions would be valid for any conceptual and linguistic foundations in Wittgenstein’s “deeply” socially entrenched sense [32]. Also language as a quasi “transcendental”-epistemological basis is interwoven with conceptual and factual potentials of “grasping” and acting. Thus, we have to go beyond Wittgenstein’s transcendental “lingualism” not only in digging deeper to the very forms and requirements of acting, but also more basically to the forms and requirements of schematizing and non-linguistic interpreting in the first place.

In my book on Schemaspiele (“Schema-Games”, 1995) I extended the Wittgensteinian model of “language games” to the schematic forms of “grasping” or shaping any representations and actions whatsoever (in English 2019). We have to go beyond Wittgensteinian restrictions to just ordinary language formations. Transcendental lingualism (as E. Stenius interpreted Wittgenstein’s philosophy) has to be superseded. Language is not the last and only basis for everything. Even the usage of language is necessarily dependent on the forms of actions and schematizations as well as non-linguistic interpretations in the elementary sense of IS_1 and IS_2 as well as IS_{3a} . Language only comes in later, though as a very important means of additional interpretative differentiation. Language is itself however actualized, it does only exist in acting and interpreting and resides, as the later Wittgenstein indeed saw, in socially conventionalized institutions, societal structures and customs, in rules, norms, symbols (as conventional signs or gestures etc.). “World” cannot be dissolved in or reduced just to language and signs and also not, as Nietzsche had it, to an ontologically hypostatized interpretative “happening”. As we saw, we cannot just produce from our interpretativity anything existing at all. Not everything is a total result of interpretation, although anything whatsoever can only be “grasped” in an interpretation-dependent manner - or even indeed be conceived that way.

Would all this only be valid for world representations or the processes of “grasping” [10] world versions? Indeed projections of meanings and hypostatization are themselves interpretative, in some sense they are “world-producing” insofar as the manipulation of linguistic and symbolic signs as well as the respective social systems of applications and embedding in socio-cultural contexts are dependent on such interpretations. But this is only a projective, “secondary” relationship of constituting not a really extremely radical one as Goodman for instance would postulate: To be sure, we “have” only world versions, i. e., we can only refer to “the world” in the light of our interpretational perspectives and interpretative constructs. Any world concept whatsoever is an interpretative construct. However, the world does not totally consist of or in such constructs; it is not disjunctively separated into incompatible “worlds” (or the “world versions” the late

Goodman [33] had in mind, misleadingly calling them “worlds”), i.e. special restricted world perspectives or related interpretative constructs are to be taken seriously instead of a global talk about “incompatible” and “disjunctive”, if not “many worlds”. Any “grasping” of “the world” or “worlds” (or, for that, “world versions”) is/are certainly interpretation-dependent; therefore, any world version in Goodman’s sense is interpretatively constituted. This does not exclude that we do, for pragmatic and practical reasons, hypostatize a common social world of actions and interpretations: We act, to be sure, in one and the same world like our neighbor or partner - even at times including an interaction partner from another culture. However, any world versions we would avail ourselves of are indeed to be embedded - at least in practice and practical interacting - in a common world (to be represented in a comprehensive model of suchlike). Even the Indians of the recently discovered tribes in Bolivia and Brazil which have never to date been confronted with the so-called (Western) “civilization” would necessarily act (thus we are obliged to hypostatize) in one and the same world - “our” common world as we have to stipulate - when (and even before) the first encounter took place. This is true even regarding the fact that no common language or symbolic or representational world version does thus far exist. Or so we have to hypostatize - by/via our interpretations. In spite of distinct and different world versions we necessarily have to suppose one common and “real” world. We yet know that “grasping” world versions of it would always be interpretative - and that would a fortiori also apply to the hypostatized basic common world. We really - in terms of actions and interactions as well as interventions - do not live in totally different worlds: There are overlapping zones of confrontation, action and interactive contacts in a situation which has to be located in one and the same world despite all differing perspectives with regard to differing projections, languages, cultures and different modes of interpretations - maybe from several sides. Even if inhabitants of different world regions, cultures or even remote planets never would encounter each other or get into contact living in or under totally distinct world versions à la Goodman, nevertheless they are as acting and interacting beings to be located as existing in the same world. (At least thus we have to understand it, and similarly the other side has correspondingly *mutatis mutandis* to conceive of it also). (The many-worlds interpretation as of Goodman’s is practically equally absurd as the many-worlds interpretation developed in interpreting quantum mechanics).

To note in closing: In a way, my interpretative analysis of the concept of action and any conscious actions (1978, 2001a, 2001) and of scheme-interpretation(s) as action-laden or -impregnated seems to have been an early forerunner of the newest fashionable so-called “enactivist” or “enactive approach” [34-36]: Since any interpretations or scheme-activations are action-bound and dependent on (“deeply” social) interaction or often even intervention, scheme-interpretation is methodological and epistemologically speaking “enactivist”: interpretation basically implies/presupposes (the capacity of) interaction, that is, interpretationism is an interactionism, to wit, enactivism in the modern sense [35,37].

Resistances in ropes and nets but without a rigid fix-point

The surveying of the epistemological and methodological as well as anthropological areas of recognition, cognition in general and acting as well as deciding, valuing etc. from the vantage point of an interpretative pragmatic realism and methodological schema-interpretationism leads to a rather multi-leveled and manifold picture: We have no last, ultimate foundation which cannot be doubted at all, which would render a conceptual or linguistic formative basis to build a safe intellectual construction on it. We however do not operate like a rope artist without net, but we ourselves - on the basis of biological fixed genetic dispositions and formal-operational necessities (for example involved in the fundamental rules of logics as methodologically engendered ones, say in intuitionism after Brouwer, Heyting, Lorenzen etc.) - we ourselves would knit or construct our nets in which we try to catch or capture elements and parts of the world. Thus, we elaborate our own net including the rope on which we try to balance ourselves. These nets and ropes may be extended and modified. We work to a large extent with self-constructed or culturally “given” classifications, shapes, symbols, representational instruments and in most (not all!) cases rather flexible possibilities of “grasping” external phenomena and objects we are confronted with - and also reflecting ourselves as subjects, bodies and persons. We know that the nets are means and instruments of schematizing and ordering as well as of structuring and reshaping; they are interpretation-engendered as representative media and instruments, constituted on different interpretational levels, in a last analysis “deeply” socially conventionalized and linguistically or symbolically differentiated. Any form of “grasping” the world is unavoidably and indispensably deeply per se interwoven with interpretations - including not only elementary and

refined schematizations, but also theories, everyday theoretical - and practical! - pre-suppositions as well as conceptual and linguistic “colouring”, if not even soaking. Nevertheless, from any necessarily interpretation-laden perspective it is practically inevitable (in order to avoid pragmatic performative paradoxes and contradictions) to hypostatize “the world” independent of us as “real” - even if we may not be able to objectify and identify elements in it independently of any pre-schematization or interpretation. Any identification of objects is per se already interpretative. To repeat the obvious again: Any “Grasping” and “graspability” whatsoever is interpretation-laden. The world is (to be conceived as) real, but (any description and action of) “grasping” the world is always interpretative, i.e. only conceived of and formed by scheme-interpretation. Furthermore, it is essentially action-bound, dynamic and in most important parts deeply societal [2,8,10,11,17,38-80].

We have to reject all full-scale interpretational idealisms, absolutisms or even imperialisms as well as the so-called ‘direct’, allegedly interpretation-free realistic objectivism of, say, naive naturalistic or other provenance. We have good practical, pragmatic and theoretical reasons for this rejection. The argumentation in this respect can - as any possibility of “grasping” and representing - of course only be performed within the “universe of interpretations” and meta-interpretations (interpretations over interpretations) in turn.

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