

Aalborg Universitet



Prolegomena of a Logic of Science

Zeller, Jörg

Publication date:
2007

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Zeller, J. (2007). *Prolegomena of a Logic of Science*. Institut for Uddannelse, Læring og Filosofi, Aalborg Universitet.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.



DANISH CENTRE
FOR PHILOSOPHY
AND SCIENCE STUDIES

Prolegomena of a logic of culture

Jörg Zeller

Philosophy and Science Studies

No. 1, 2007

Prolegomena for a Logic of Culture

© Jörg Zeller

Philosophy and Science Studies, no. 1, 2007

ISBN 87-91943-31-0

EAN 9788791943317

Published by
Danish Centre for Science Studies
Aalborg University
Fibigerstraede no. 10
9220 Aalborg OE
Denmark

www.think.aau.dk

Prolegomena for a Logic of Culture

Jörg Zeller

Content

Prolegomena of a logic of culture	1
Prolegomena for a Logic of Culture	3
Objectivization	5
Functionalization.....	6
Reflexivity.....	7
Probability.....	8
Meaning and action environment.....	8
References.....	9

My thesis in this paper is that the logic of cognition, lets call it *epistemic logic*, and the logic of action, lets call it – with Bourdieu 1977 – *logic of practice*, are different aspects of one and the same meaning-formation. I shall allege that this logic is – in Ricœur's 2001 words – a *hermeneutics* or *logic of meaning*. I also agree with Ricœur that it is a *reflexive* or *circular probability logic*. In this, it comes in my opinion close to Peirce's theory of abduction as a probabilistic logic of discovery. My own contribution to this sequence of ideas is to show that this logic of meaning by the same token is a *logic of communication*.

I will start my considerations with an idea from Ricœur 2002. The idea goes as follows: the formation of both textual and practical meaning is a *reflexive* or *circular* process of *objectivization*. In reference to Kant's 2000 Critique of the Power of Judgment Ricœur takes this hermeneutical process of meaning-generation as a *reflexive probability* logic.

Next I will look at Cassirer's 1953 [1910] theory of symbolization. I'll take as my point of departure his *functionalistic* theory of conceptualisation. I confess that I read this theory as a paraphrase of Frege's 1891 understanding of concepts as propositional functions. In other words, I presume that Cassirer 1953, in the same way as Frege 1891, sees the concept or predicate as a principle or rule of generating propositions, which are either intensional thoughts or extensional truth-values. A concept understood as propositional function is therefore according to Cassirer to be understood as an intellectual (Verstandes) *action*. Cassirer 2001 expresses this idea in the first volume of the *Philosophy of Symbolic Forms*, referring to Kant's *Critique of Pure Reason*. Kant 1998 says:

“Thus the knowledge of every, at least of the human, understanding is a cognition through concepts, not intuitive but discursive. All intuitions, as sensible, rest on affections, concepts therefore on functions. By a function, however, I understand the unity of the action of ordering different representations under one common one. Concepts are therefore grounded

on the spontaneity of thinking, as sensible intuitions are grounded on the receptivity of impressions.” (Kant 1998, 205)

The question is, however, how impressions and concepts are linked up to generate our knowledge of things. Cassirer 1953 says:

“The impression of the object and the object itself are separated from each other; instead of identity, the relation of representation appears. No matter how complete our knowledge may be in itself, it never offers us the objects themselves, but only signs of them and their reciprocal relations.” (Cassirer 1953, 303)

Signs are things representing other things for someone, a bearer of consciousness, a psychological subject. Knowledge through signs is not immediate knowledge of an object, but knowledge by means of something used as a medium to know something else. To use something as a medium to recognize something else is by Cassirer 2001 also called *objectivization* (o.c., 4). Thus ‘knowing’ means the same as ‘objectifying’, or ‘making something an object’ for someone. In epistemology ‘something’ represents here a psychological subjects experience (Husserl: *Erlebnis*) of some thing or other. If this subject succeeds in making his or her experience an object, that is to say objectifying it, then he or she understands his or her experience as representing a particular thing. The logical means of objectivization is what Cassirer 1953 calls a *concept*. Concepts objectify experiences to things or objects. The mental process of objectifying is called thinking or understanding and results in a *predication* or *proposition*. It is verbally expressed by a sentence, i.e. by a syntactical structure of signs that carry out different functions in this structure. In a similar way as Frege 1891 (“Function and Concept”) Cassirer 1953 understands concepts as logical, that is to say propositional, *functions*. There is more to say about this later on. For now we can resume that according to Cassirer to understand that something *is* or *does* something else is a process of objectivization by means of signs, and therefore, by the same token, it is a process of mediation. “*All objectivization is*”, says Cassirer (2001, 4), “*in fact mediation*”.

Actions, the practical functions producing artefacts and generating culture, can – according to Ricœur 2001 – be seen as the practical version of meaning-formation. They *presuppose* – according to Cassirer 1994 – the cognitive formation of meaning (sc. 26). Performing an action, one can say, is materially (not metaphorically) *realizing* the idea of a possible thing or an event. Actions thus can be understood as the *practical* counterpart of concepts or of *cognitive* meaning functions. Lets say, actions are *practical meaning functions* – practical rules or recipes of meaning production.

My third step is retrieved from Bourdieu’s (1977, 1993, 1996) theory of theoretical, aesthetical and practical production of meaningful artefacts and culture as a dynamic logic of practice-fields. I understand ‘practice-field’ as a dynamic, changeable and nondeterministic system of mediations. The carriers of mediating-processes that may take place in various forms of practice-fields are different forms of power – intellectual or aesthetical, i.e. cultural, social, and economic forms of power. All these forms of practical power are to be understood as an agent’s possibility to act – that is as potential acts or abilities to act. Actions, thus, are to be considered as performances of action-power. There exist according to Bourdieu three different manifestations of action-power, called *habitus*, *capital*, and (practice-) *field*. *Habitus* is action-power as incorporated in a human agent – lets call it the subjective appearance of action-power. *Capital* is objectively realized action-power – material products and at the same time media of action. There exist as many kinds of capital as there exist

kinds of action-power – cultural, social, and economic capital. I will call these kinds of materialized action-power *action-media*. A practice-field is so to say a “universe of social interaction possibilities” consisting of social agents with their habitus’ and different forms of capital that in synergy with each other make it possible for the field-agents to act in a meaningful way. From an epistemological point of view practice-fields should be understood as *action-environments*. These environments guarantee that intentions adapted to the material, cultural, and social conditions of the environment can become realized through action. Practice-fields are practical meaning-spaces or practical meaning-environments. These spaces make it possible for their agents to act meaningfully on account of a kind of practical communication – not only between different agents but also between the individual agent’s habitus and the different forms of capital being available to the agents in the field.

Let’s summarize: The formation or generation of meaning is – according to Ricœur 2002 and Cassirer 2001 – a process of objectivization. It is according to Ricœur also reflexive or circular, and it is probabilistic. This holds in the same way for cognitive and practical processes of meaning formation. Knowledge, as a result of cognitive formation of meaning, is – according to Cassirer 1953 and 2001 – a process of objectivization of a psychological subject’s experience through signs or symbols. Knowledge is symbolization or mediating a subject’s experience through a concept with an object. Concepts are object-makers on the basis of experiences. In accordance with Frege’s 1891 concept view, Cassirer 1953 understands concepts as propositional functions. There exists a close resemblance between Cassirer’s view of concepts understood as logical functions and Bourdieu’s view of habitus and capital understood as the subjective and objective side of practical functions. One could feel tempted to draw the pragmatist conclusion: thinking and acting are two sides of the same thing: thinking is virtual or symbolic action and acting is real or material thinking.

I shall now look a little bit closer at the objectifying, functional, reflexive and probabilistic aspects of meaning formation:

Objectivization

Objectivization of verbal meaning means – according to Ricœur 2002 – to transcend and transform a utterer’s situated verbal utterance – also called discourse-event - of his/her internal experience into a written expression of meaning, which is independent of the uttering-situation – i.e. place, time, author, and addressee of utterance. This transcendence from situated to generic meaning is bound to objects that are able to carry the uttered meaning from the uttering situation to a spatio-temporal different receiving situation. Such objects are usually called signs or symbols. The process of meaning-formation is a process of signification or symbolization. The signs or symbols, if they shall be able to fulfil this objectivization function of a process of meaning formation, have to be durable over time and transportable from place to place. Speech, the spoken sounds of words, phrases, sentences or discourse, isn’t. Written text, ordered sequences of characters is. Locution, the transcendence from uttering verbal signs to linguistic, that is meaningful, expressions of a subject’s experience, is the transcendence from his or her saying (Sagen) something to his or her having something to say (Aussagen), that is stating, proposing or predicating something. In this way ‘objectivization’ means two things at the same time:

1. the transcendence from subjective, situated, and accidental meaning to subject-independent i.e. objective, situation-independent i.e. ubiquitous and essential meaning and

2. the translation or transformation of subjectively experiencing something to forming this experience or making it visible, audible or imaginable by signs or symbols.

Both steps together make the process of meaning formation a process of symbolization, i.e. *relating* experience to an object. Incidentally, meaning formation and symbolization may be performed in a mute or aloud, a visible or invisible manner. We can either just imagine or utter it, either just intend or perform it. According to Ricœur, what here has been said about linguistic meaning formation and objectivization is also true of practical meaning-formation and production of meaningful things or artefacts. What is true of speech acts is also true of actions in general.

In my opinion it is perfectly clear that Cassirer 1953 understands this objectifying process of meaning-formation as a process of conceptualising as well as a process of symbolizing in the same broad Ricœurian sense, which includes both mental imagination, verbal expression, and practical production of meaning. The process of conceptualising our experiences, i.e. of meaning-formation, is a process of signification or symbolization. Cassirer's "Philosophy of Symbolic Forms", with language, myth, religion, arts and science as different patterns and developmental stages of meaning-formation, is against this background to be understood both as a philosophy of culture and a philosophy of science. It tries to amalgamate the logic of mythical, artistic or scientific discovery with the logic of justification of these different meaning forms. In other words, Cassirer's answer to positivistic versions of a philosophy of science, which reserves logic to justification and leaves the discovery of meaning to illogical processes of imagination, is a philosophy of symbolic – or in a more general, Peircean, sense semiotic – meaning-formation. The philosophy of symbolic forms identifies logic with all kinds of meaning-formation: the linguistic, mythical, religious, artistic or scientific relating of experiences to objects, the formation of concepts, the asserting of propositions, and the inferring of conclusions from premisses. Logic is present in all these different structures and developmental stages of meaning-formation or cultural production. In accordance with Kant and, by the way, also with Peirce, Cassirer 2001 understands this logic as *constructive* or *synthetic* logic. Meaning is not just given but has to be formed or constructed in order to become visible, audible, tangible or imaginable. Only after an experience has been formed, i.e. synthesised with or related to other experiences, a meaning can be analysed, that is broken up in parts or elements, in order to discover its building blocks and to understand its making and working. In order to understand the construction of the world and the working of reality, we have to *reconstruct* it symbolically or reproduce it technically. To understand the world means, thus, to rebuild it from the only stuff we have to our disposal in order to accomplish this job – signs and symbols.

Functionalization

Signs and symbols, that is to say things that can be synthesized with or related to other things to form meaning, are a necessary condition of solving the problem of meaning formation but not yet sufficient. Signs or symbols are only the *media*, the instruments of the very *activity* of meaning formation. To mean something is taking something as related to or representing something else. In the end this taking is a *making*, a real action that makes something related to something else. That something, which is made to be or represent something else, is a sign, an objective carrier of meaning. A carrier of meaning, a meaningful thing has a *function* – it can be used as a medium or instrument to synthesize or connect things with each other. Assuming that something has such a function presupposes that something other has given it this function and that someone is able to detect it, that is to say to detect the relation between the first and the other thing.

There exists a remarkable relational-operational and subjective-objective ambivalence of the concept of function. It is known that Frege 1891 took the concept from mathematics and adapted it to logical, i.e. conceptual, propositional, and inferential, conditions. In mathematics, ‘function’ means either a *relation* between elements of different sets or it means the *operation* that generates, as a result of applying an operation rule, the elements of a set from the elements of another set. A set can thus be seen as a coagulated or objectified operation and an operation as a liquefied or “operationalized” set. In this respect sets or classes are like concepts and the subjective and objective forms of action-power. In other regions (of thought) where the concept of function is in use it shows a similar ambiguity. The different organs in an organic system have functions, it is said, if they work as means to obtain an end favourable for this system. The function of the organ, say the heart, is to reach this end, say to make the blood circulate through the whole organism. On the one hand the organ *is* an organic function because of its *operating* manner. On the other hand it *has* a function in *relation* to the other organs and the whole organic system. An organ can in this way either be seen as an operating system or as the objective result of the operating of other operating systems that the organ is related to. Finally, a human agent or action-subject is said to carry out a function in an institution or organization, i.e. a system of social interactions, if he or she performs actions that have a favourable or desirable end for the institution and directly or indirectly for the agent him/herself. The agent’s function defines both his/her objective meaning for the organisation and his/her subjective meaning or position in the organisation. Bourdieu 1993 summarizes the ambiguity of the concept of function by saying:

...king, priest, banker are humanized hereditary monarchy, church, financial capital. The property acquires the proprietor by its embodiment as a structure for the generation of practices that perfectly correspond to its logic and requirements. (o.c., 107)

Reflexivity

The relational-operational ambiguity of the concept of function implies another feature of functional processes: their circularity or reflexivity. A concept, understood as a predicative or propositional function, can namely both be seen as a *presupposition* and as a *result* of the symbolically mediated process of meaning formation. Concepts represent on the one hand those objective properties that relate different things to each other in order to be recognized as instances of the same type of things or as instances of the same type of pairs, triples and so on of things. This objective or relational meaning is the result aspect of the concept or predicative function. On the other hand it can be seen as the accomplishment of the function of predicating something, that is to say that something *is* an instance of a type or *has* a certain property or relation to one or several other things. This is the operational or subjective meaning aspect of the concept understood as predicative function. To predicate a concept of an object means therefore at the same time to conceptualise the object and to objectify the concept. The object is made understandable by relating it to other things with similar properties or relations and the concept is made understandable by exemplifying it by some or other object with similar properties or relations as other objects that fall under the same concept. Thus the operational and the relational aspect of the concept or predicative function mutually presuppose each other. In other words, the predicative function is apparently *circular* or *reflexive*. Actually, to come to know something presupposes knowing something (other) in advance.

Probability

The reflexivity or circularity of meaning formation is notorious of the hermeneutic view of understanding and interpretation processes. Ricoeur 2001 regards the transcendence from saying (uttering) to proposing (meaning) something as a reflexive process. In the syntactical structure of a sentence it moves from naming a thing functioning as grammatical subject to predicating a concept functioning as grammatical predicate or propositional function. The direction of the way of meaning formation that goes from naming the subject to predicating the concept, is to be understood as a kind of guessing or assuming. It is a provisional relating a thing to a type of things, a property characterizing such a type, or to other things that possibly could in one way or other be related to our first thing. To know if this relation between subject and predicate holds the process of meaning formation shall turn around and move back from the predicate to the subject. The first move was to look if subject and predicate match. We assumed or guessed that they do. Moving back from the predicate to the subject means to check if the predicate understood as propositional function generates the subject. Don't forget the relation-operation ambivalence of functions! A propositional function is both a relation between subject and predicate, and a logical or symbolical operation that generates the subject by applying an operation rule. I hope you can see the crazy circularity of the whole enterprise of meaning-formation. To know what a thing is, we have to relate it to other things. We move from – and thereby relate – our thing (subject) to a wholeness of things (predicate). To know if this relation holds we have to move back and look if this wholeness of things in fact is able to produce our thing. The first direction, the relational one, relates the thing to a class or type of thing. It conceptualises our object and presupposes the existence of an operation that is able to produce the assumed relation. The second direction, the operational one, produces an object that is related in one or other way to all the other objects that are related to each other through the concept. This procedure of object-generating presupposes at least one other object that is able to function as raw material for producing our original object. A circular meaning formation is vicious if it just circles in itself without getting beyond its inbreeding circularity. In logic, i.e. in the formation processes of meaning, such an inbreeding circularity is called *tautology*. In order to get out of a tautological meaning circularity an environment is necessary.

Meaning and action environment

I can only outline this last step of my considerations. Probability conclusions are meaningful only in a space or environment of possibilities. In a very broad sense, communication means the exchange of physical energy or information that is able to get a meaning through psycho-physical so-called “transduction” and sign-based intersubjective interaction between animals or humans. The critical point of the practice and theory of meaning formation is not the informational side. The world is full of energy, of all kinds of dynamics that synthesize and relate things to each other. Things happen as they are causally connected to other things. The effects they cause in other things are potential information for these things. The critical point of meaning-formation is not the information, the “meaning-stuff”, but its interpretation. That the sun is shining is information for all beings the sun actually is shining on. But what this means for the different natural classes, species, and individual beings under the sun, is another thing. It can mean innumerable different, good and bad things. That depends on the individual's situation in and relations to its environment – its physical, psychical, and social environment. In an abstract sense, environment is a finite space of other things around and related to an individual. The physical network of things and relations around an individual is at the same time a possible semantic and pragmatic network for this individual – a space of possible interpretations and actions. A singular thing, a singular effect, a singular experience, a singular

thought means nothing unless in relation to other things, effects, experiences and thoughts. An individual's environment and its communication with it is the keystone of understanding the meaning of the world. This, if any, is a very Cassirerean idea.

I will therefore conclude my considerations with a quote from Cassirer's 1994 "On the logic of cultural sciences" plea for the communicative function of logic. He says:

What we grasp as the "meaning" of the world confronts us in any instance where we, instead of enclosing us into our own world of perceptions, focus on something more-than-individual, general, valid for all.... The spoken word never just vanishes in sound or call. It wants to mean something; it assembles itself to the whole of a „speech“, and that „speech“ exists only by going from one subject to another and binding both in dialogue...Logos ties the link between the individual and the whole; it assures the individual person that she, instead of being encapsulated in the mere sense of her own self, can reach a general being. (sc. 13)

References

- Bourdieu P. 1977, *Outline of a Logic of Practice*, Cambridge: Cambridge University Press.
- Bourdieu P. 1993, *Sozialer Sinn*, Frankfurt a. M.: Suhrkamp Verlag.
- Bourdieu P. & Loïc D. Wacquant 1996, *Refleksiv sociologi*, København: Hans Reitzel Forlag.
- Cassirer E. 1953 [1910], *Substance and Function, and Einstein's Theory of Relativity*, New York: Dover Publications
- Cassirer E. 1994 (1942), *Zur Logik der Kulturwissenschaften*, Darmstadt: Wissenschaftliche Buchgesellschaft.
- Cassirer E. 2001, *Philosophie der symbolischen Formen*, Erster Teil: die Sprache, Hamburg: Felix Meiner Verlag.
- Frege G. 1891, Funktion und Begriff, in: Frege G. 1967, *Kleine Schriften*, Darmstadt: Wissenschaftliche Buchgesellschaft.
- Kant I. 1998, *Critique of pure reason*, Cambridge: Cambridge University Press.
- Kant I. 2000, *Critique of the power of judgement*, Cambridge: Cambridge University Press.
- Ricœur P. 2002, *En hermeneutisk brobygger*, Tekster af Paul Ricœur, Århus: Forlaget Klim.