What is polycontextural logic and what's the critical contribution of it to interactive media?

This essay seeks to outline the basic premises of Gotthard Günther's concept of polycontexturality and why it contributes to a critical analysis of new media. Since new technologies already begin to challenge our pre-established concepts of ontology, it is necessary to examine how exactly traditional ontology works and if it still can be applied to the most recent forms of human-machine interfaces. Theorists like Baudrillard and McLuhan already joggle those traditional concepts by either saying that the *simulacrum* is the new condition for the Real or by stating that we reached the end of the Gutenberg-galaxy and therefore also the end of our traditional ways of thinking in terms of notational systems. This essay wants to outline this issue from another, mere structural perspective, in order to re-relate those ideas onto applicable approaches within the field of new media, particularly in terms of a 'Semantic Web' that should enable a progressive way of human-machine interaction, therefore taking into account the ideas of Lev Manovich of the database as a symbolic form and looking at the field of semiotics and how it is incorporated in markup languages such as XML or RDF.

One of the most fundamental ideas of Gotthard Günther is his idea of polycontexturality, meaning that a logical statement cannot only be examined in terms whether it is true or false, but also to which contexture is belongs. For this reason, it is first necessary to understand the difference between *context* and *contexture* from a strictly logical viewpoint on, taking the *tertium non datur* (which will be called TND in the further text) into account. The TND within the classical, two valued system of logic states that a thing or statement is either one or the other, there is no third way. If we start the observation from the viewpoint of ontology, we can say that, in classical logical systems, thing either 'are' or 'are not'. They cannot have a value outside of those two statements, corresponding either to affirmation or negation of the statement, between Being and Nothingness. The problem of the classical conception of Being is basically an isomorphism in its two-valued-ness, because the two values generate a mapping process. Since it is not only necessary to state that there 'is' something, it is also required to make a

statement under which circumstances it exists. For this reason, the one-valued system of Being is complemented by the second value of Nothing. In this system of reference, Being just signifies an auto-referential process whereas the negation of it, that is, Nothingness, signifies the distinction between the system of Being and its environment, which is not possible with a purely auto-referential signifier.

Thus, Nothingness is not a referential process of its own but merely the negation of a self-referential process and therefore borrows its ontological qualities from the concept of Being. From those observations, Günther draws two conclusions. Firstly, in a statement that includes 'or' as a logical operator, the TND contributes to its meaningfulness as a point of reference, meaning that something either is one thing *or* the other. Secondly, the TND may be used in two ways, either as a reference of a statable context or "that is in principle impossible to indicate the context in which the alternative of position and negation may refer." (Günther 1972:1)

Taking those observations into account, it is now possible to distinguish between *context* and *contexture*. The word context in its common usage does not assume a TND which is universally and generally valid and which cannot be transcended. Contexture, on the other hand, has exactly this implication. In other words, the latter two aforementioned functions of the TND include all positive contexts, that is, their Existence in the classical philosophical meaning, and relate them to something which itself is not positive, that is, Essence. But if the Essence of something does not have a positive value in terms of context, it does not necessarily mean that the same also applies for the contexture. Within this argumentation, Günther brings up the philosophical idea of the *coincidentia oppositorum*, a figure of thought which was used by Nicolaus Cusanus to indicate an opposition of qualities which cannot be resolved by the means of logic in order to prove the existence of God in relation to the universal and the particular. Günther points out (1972:3) that this figure of thought cannot be applied to a material context, by creating the problem that it refuses its negation and therefore its exchange to a different context.

"This leads us up to the conclusion that, if the TND is applied in such a way that no concept can be given as the range of its application, then the result will always be the coincidentia oppositorum. At this point Logic transcends into Metaphysics" (1972:3)

The metaphysical tendency of logic can be ascribed to almost all classical philosophical texts, be it the concept of the 'unmoved mover' of Aristotle or the idea of the 'proof of the existence of God' which was an obligatory exercise in every Western philosophical treatise from the Middle Ages to the Renaissance and only grew out of fashion by the beginning of the Age of Enlightenment, although Kant still ascribes the possibility of the Great Good to God in the 'Critique of Pure Reason'.[1] Bearing those ideas in mind, it not only becomes obvious that classical logic describes the universe as a mono-contextural entity, its perception also creates a gap between the material and the immaterial or the physical and the metaphysical for that it has no means to express. Günther calls this gap between the material and the spiritual discontexturality.

"The ontological domain of Being – i.e. our first contexturality – had its range of objects generated by the TND (in the field of partial negations) and if there ever existed any agreement in the history of logic, then it was this: that such a logical principle could not generate the ontological conditions for the existence of a thinking subject. The relation of the cognizing subject to its objects is always one of discontexturality" (1973:4)

A monocontextural universe does not incorporate the conditions of life, because logically, it has no means to distinguish between objectiveness and subjective thought. In a two-valued logical system, the only contexture available is one of objectiveness, as the Greek tradition stipulates. But this on the other hand means that there is no logical way to distinguish between life and inanimate matter, because the logical conditions of the possibility for it are not given in the physical world. In the classical tradition, it is only in the field of metaphysics that the possibility of life is introduced and with it the concept of spirituality and theism. What therefore needs to be formulated is a theory of living systems that already incorporates the possibility of life, subjectivity and cognition in its logical conditions for the physical. Even traditional cybernetics in terms of the ideas of Norbert Wiener seek not the differences between machines and living systems, but strive

[1] „Eben dieses Gesetz muß auch zur Möglichkeit des zweiten Elements des höchsten Guts, nämlich der jener Sittlichkeit angemessenen **Glückseligkeit**, eben so uneigennützig, wie vorher, aus bloßer unparteiischer Vernunft, nämlich auf die Voraussetzung des Daseins einer dieser Wirkung adäquaten Ursache führen, d.i. die *Existenz Gottes*, als zur Möglichkeit des höchsten Guts (welches Objekt unseres Willens mit der moralischen Gesetzgebung der reinen Vernunft notwendig verbunden ist) notwendig gehörig, postulieren." (http://gutenberg.spiegel.de/kant/kritikpr/Druckversion_krt12251.htm)

to find their "essential unity" (Günther 1969:1) insofar as it tries to imitate living organisms as far as their behaviour is objectively observable by technical procedures whereas Günther's approach lies more in the attempt to repeat the organism itself on an ontological level and not so much under the conditions of observable phenomena and more under the conditions of the possibilities of cognition and subjectivity.

It might now become clear why the cybernetic and logical theory of Gotthard Günther can contribute to a new understanding of the new media. In all its approaches and schools of thought, the field of new media studies always sought to outline a new definition in the relationship between man and machine and its interfaces. The problem of the 'Cartesian Cut'[2], introducing a stark difference between the *res cogitans* and the *res extensa*, is well known throughout the history of modern Western thought from philosophy to cybernetics and neuroscience and also in the intellectual movements which try to reverse its effects in the history of thinking, such as post-structuralism and post-modernity. Many attempts have been made to relativise the impact and validity of the TND, be it the Lacanian trinity of the Real, the Symbolic and the Imaginary or the dialectic of the Frankfurt School. Günther's approach works insofar on a fundamental level, as that it starts with the very logical conditions of a second order observation. Whereas in the traditional logic, there is no ontological place for the observer of the world, since it would imply that the observer or the thinking subject belongs to the same contexture as the thing observed. In other words, if the entity of objective observation is denoted by *n*, then everything observed must be *n-1*, according to Gödel's incompleteness theorem[3].

Günther points out that the concept of a subject-less universe came into being due to a simplification during the emergence of classical logic by the ancient Greeks. By keeping in mind that the process of scientific progression could only be ensured if the object of scientific study could meet the basic conditions for scientific research. In order to formulate such as basic premise, it was necessary to ontologically reduce the concept

[2] http://www.library.utoronto.ca/see/pages/cartesian_cutdef.html
[3] http://kilby.stanford.edu/~rvg/154/handouts/incompleteness.html

of an animated, meaning life-inheriting, universe to a conception of it that was void of subjectivity and therefore held the criteria to engage in formal scientific observation.

> "By performing their ontological reduction, focusing on holism, but discarding all motive of discontexturality in their metaphysics, the Greeks avoided the difficult confrontation between formal logic and mathematics on one side and the theory of dialectics on the other." (1969:9)

The problem of the relation between subjectivity and objectivity lies in the asymmetrical positioning of those processes towards each other. From one perspective, a living system must be regarded as an objective context, but with a subjectivity that allows it to be objectified in a progressive and gradual manner. From another perspective, this living system has also to be integrated into a context of subjectivity which in turn owes its existence to a gradual objectifying process of natural objects.

For this reason, Günther proposes a logical system that relies on the concept of many values, but at the same time is not prone to a binary retrogression. Günther refers to Hegel's 'Science of Logic' in where one can find the statement that Nothingness and Being cannot be distinguished in terms of their immediacy and for this reason introduces a category which cannot belong to the contexture of Being or Nothingness, that is, Becoming, which by itself incorporates characteristics of the category of Being as well as Nothingness. Seen under this aspect, a theory of polycontexturality can be formulated in which the categories overlap each other. Not in symmetrical sense, but rather as a system of compound contexturalities which overlap only in certain intersections of their trajectories. Once a third logical dimension is introduced, there is no reason why logical polycontextural distinctions have to stop at three dimensions, on the contrary, the possibility of incorporating the observer assumes an ever increasing number of contextures that could be added to the initial observation and thus would lead to a multi-levelled logical system of complexity. Therefore, each *datum* within the contexture of Being can be regarded as an intersection of an unlimited number of contextures. Although it may not be perceivable that those contexturalities form an order of some sort, it should be assumed that this order exists.

"In fact, we may say that Reality and Order are the synonymous terms. If something is, it must have order and if it appears as chaos it only means that we have not yet found the code which unravels the seeming chaos and shows us the hidden order in the imbroglio" (1973:5 Life as Polycontexturality)

This notion of order and chaos is not so much the traditional problem of the limits of the appliance of reason. Although the classical preliminary assumption that by following the laws of reason, the existence of all things in the universe can be discovered even before they have been observed has reached its boundaries in the field of quantum mechanics, for example, the distinction of Order and Chaos drawn by Günther should not be confused with the traditional concept of the irrationality of the subject for two reasons. Firstly, the notions Günther introduces are not part of a monocontextural universe anymore and secondly, all psychic spaces of living systems form a closed contexture by themselves and therefore, the matter of rationality or its absence is set relative to the question to which contextures the single contexture of the living organism relates under a given observation. In a distinction between a living system and its environment, the mode of logical operation still relates to a two-valued logical differentiation, but the environment in which the living organism finds itself has to be regarded as a compound-contexture of an innumerable amount of two-valued structural regions. In terms of the notion of a universe, the underlying assumption is that all those contextures form a unit which can be described as a unit of existence and co-existence, in other words, a compound-contexture in which the entities are situated at the intersections of the different contextures.

"If we consider such a point of intersection as belonging only to one contexture, the point can only be occupied (consecutively) by two values. If we consider it as belonging to two contextures, the point will still only be able to be occupied by two values but they may now belong to two different contextures. This means: only one value may belong to one and the other value to the other contexture…provided the contextures intersect at the place which is occupied by the value." (1973:7)

Although the single contextures still operate on a system of two-valued logic, it is the relation in which they are put that is based on a system of multi-valued logic. Under those circumstances, it forms an 'ontological grid' in which the relations of the single contextures to on another can be mapped. Günther starts with a two valued-system that has two different places as well as two values, with the variables $^{a}_{a}$ signifying both

sequences $^{t}_{t}$ for true and $^{f}_{f}$ for false and $^{a}_{b}$ for both $^{t}_{f}$ and $^{f}_{t}$, resulting in 2^2 possible combinations:

a a
a b

A three-valued system built according to the same requirements as above would result in a system of 3^3 possible combinations:

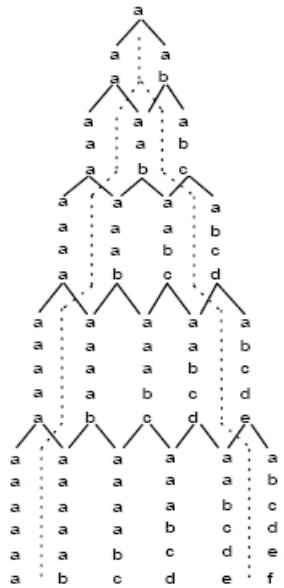
a a a b a
a a b a b
a b a a c

In order to reduce the redundancies in those logical arrays further, the stipulation of the irrelevance of the position of a place symbol in a given symbol should be irrelevant, concluding in the following for the array above:

a a a
a a b
a b c

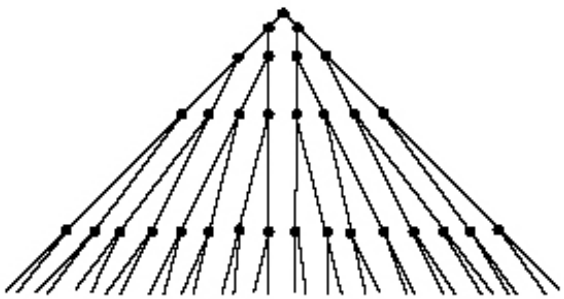
This procedure is carried out accordingly for four-valued as well as for five-valued arrays, yielding 256 and 3125 different value configurations. If those systems are put in relation towards each other in terms of a hierarchy, we receive a pyramid structure:

(many-valued logical pyramid)



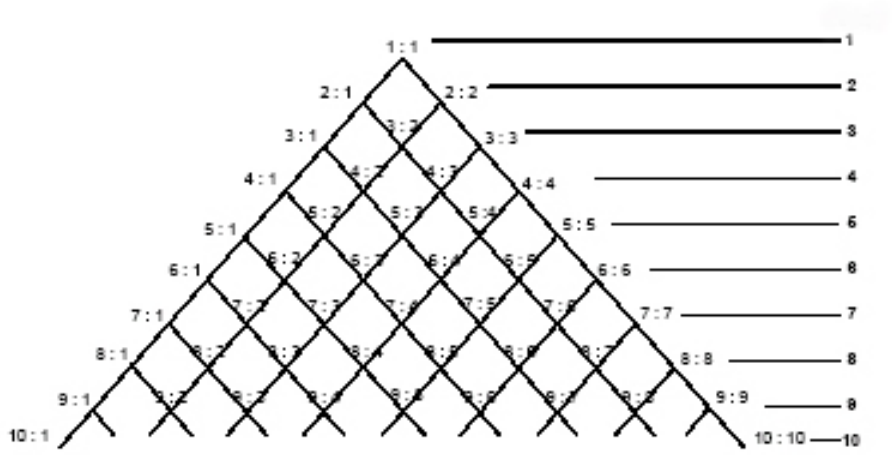
By adding a new value occupancy with every further increase of steps down the pyramid, it becomes obvious that on the left-hand side, the symbol is just repeated whereas on the right-hand side, a new symbol is added. Within this scheme, the process of repetition is called ‘iteration’ whereas the process of addition is called ‘accretion’. In order to make the difference to a classical logical system clear, the concept of the Platonic pyramid as a point of reference has to be introduced. This pyramid depicts the classical deductive (top-down) and inductive (bottom-up) ways of reasoning of Platonic logic. Either the logical argument goes from the general to the specific or the other way round, important here is the rule that there can only be one way up and one way down. This pyramid is the analogy of the dogma of classical logic in which everything can be determined within a strict hierarchy and that the universal is standing above the particular.

(Platonic pyramid)

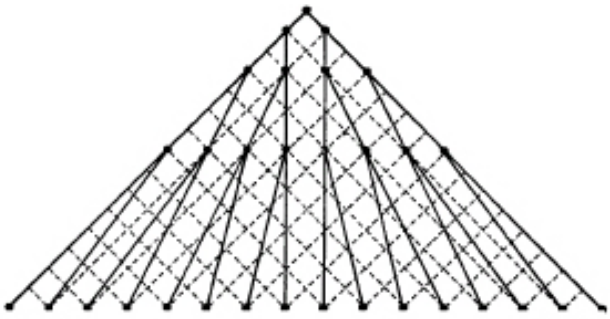


Compared to the many-valued logical pyramid, there is only an equivalence of values on the very left and the very right side of it, meaning that either on the pure iterative or accretive side the only way up and down is one, whereas inside the pyramid, there are various ways to ascend and descend. The possibility of choice within the many-valued pyramid is an indicator for the fact that the Platonic pyramid can be incorporated within the protostructural pyramid of a many-valued logical system, meaning that the classical, two-valued way is a part of the many-valued system. This means that the preliminary assumption that a universe of compound-contextures consists of intersections of single two-valued entities holds true and can be applied to the pyramid models described above.

Another depiction of the protostructure might shed some more light on its relation towards the Platonic pyramid:

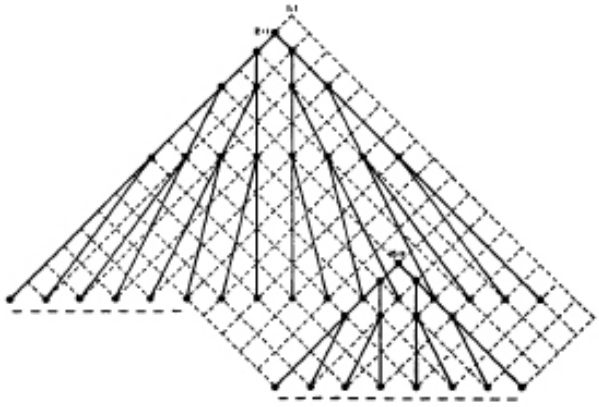


In here, the protostructure of a system of many-valued logic follows the same principles of accretion and iteration, but instead of algebraic variables, the numerical sequences on each intersection of the pyramid indicate the length of the sequence of logical values on the left and the degree of accretion on the right. 2:1, for example, would then indicate a sequence of two logical values with a single level of accretion, meaning $^{a}_{a}$, whereas 2:2 would indicate $^{a}_{b}$. Within this systematic grid, the number of choices between moving up and down the sequences becomes more obvious and the ratio in which they increase can be calculated by the table of binomial coefficients[4]. If we now apply the Platonic Pyramid onto the ontological grid of the protostructure, the analogy becomes more obvious:

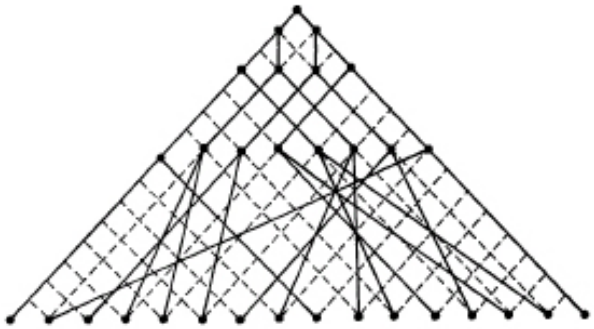


It should now become clear that although both pyramids have the same number of possible outcomes, the number of possible choices is by far larger in the many-valued protostructure than in the Platonic pyramid. To clarify the idea of polycontexturality, the following illustration may be of help:

[4] http://mathworld.wolfram.com/BinomialCoefficient.html



In this illustration, two Platonic pyramids are mapped onto the same ontological grid and therefore belong to the same compound contexture, but their single contextures are different, since there have no logical sequences or intersections in common.



The table above shows an asymmetrical Platonic pyramid in relation to the protostructure although the logical sequences of the pyramid itself still strictly apply to the formal rules of a two-valued logic, meaning that it complies to a hierarchy of things with the same ‘ontic measure’ which, in a polycontextural logic, would mean that the things have the same contexture.

Bearing all of the aforementioned things in mind, it should have become clear why and how the ontological grid of the proto-structure determines the positions of the individual contextures in a relative way to each other, with the overall structure of a universe that allows only one iteration of an ontological *datum*. In case this iteration is not sufficient, the grid can be expanded in terms of iterations of a second, third, fourth and finally any symbol, a gird emerges which Günther calls a deutero-structure. Up to this point, the placing of the symbols is still irrelevant, whereas the next step would be a

trito-structure, in which any symbol can be iterated but additionally, the placing of the symbols gains relevance (1969:15). All the structures and the systematic qualities in which they operate can be subsumed under the term 'Kenogrammatic', in which the word 'keno' denotes the concept of ultimate metaphysical emptiness, derived from the Gnostic tradtion of philosophy and opposed to the term 'pleroma' which means 'fullness' (1967:5). The value of polycontextural logic in terms of an application towards new media and the relation between human-machine interfaces may not be obvious, but an observation of the inner workings of the relationship of the Platonic Pyramid towards the kenogrammatical structure provides an insight towards a possible solution for a problem within this area.

"It follows that terms like indivisible unit or ultimate object on the one hand, or contexture or compound contexture on the other hand are entirely relative. What may be considered an indivisible unit on one level of the pyramid may be a contexture on the next provided apex and bottom of the pyramid are shifted. But since we interpret a contexture as a closed system with infinite range of two-valued properties we may as well interpret the data which are supposed to fill the contexture as irreducible properties of a universe based on the principle of duality or as predicates of two-valued logic. In both cases we have abandoned the structural viewpoint and entered the semantic sphere." (1972:8)

One of the problems within the theoretical field of human-machine interfaces is the monocontexturality of databases which are used to store semantic data, in other words, the World Wide Web. As Lev Manovich in his essay 'Database as Symbolic Form'[5] points out, one of the basic forms of human cultural expression is the narrative and its manifestation can be found in the media-forms of the novel or the cinema. Computers, on the other hand, favour a mode of expression that is yet diametrically opposed to a narrative style of expression. A database as the in which all sorts of information is gathered doesn't make any difference between the single items of its collection. Since the WWW is, in terms of its HTML code, organized in a purely one-valued fashion, at least in terms of positive values, it doesn't seem surprising that

"The user experience of such computerized collections is therefore quite distinct from reading a narrative or watching a film or navigating an architectural site. (…) Indeed, if after the death of God (Nietzsche), the end of grand Narratives of Enlightenment (Lyotard) and the arrival of the Web (Tim Berners-Lee) the world appears to us as an

endless and unstructured collection of images, texts, and other data records, it is only appropriate that we will be moved to model it as a database. But it is also appropriate that we would want to develop poetics, aesthetics and ethics of this database." (Manovich 1998:1)

The established assumption about the new media is that it introduces the ontology of a computer into the culture and therefore has the potential to alter the ontology of the culture itself. Manovich draws a distinction between algorithms, defined as executable tasks, be it by a computer system or by a living organism, and data-structures as a lexicon of any object in the world. In this sense, data structures and algorithms relate to each other by a complementary degree of simplicity and complexity. The more complex a database is, the simpler the algorithm needs to be and accordingly, the inverse is true for the complexity of an algorithm. But when the concept of the narrative is put into a relation towards the database, the function of the ontic projection of the computer is reversed in the sense that a narrative has to take semantic procedures into account in order to form narrative criteria that can be understood by the user. Exactly those criteria are not present in the database and therefore, it is in the responsibility of the user to form a semantic 'grid' of control which turns a collection of trajectories of media fragments into a narrative.

What Günther said about the relation of a monocontextural universe and its lack of the formal conditions of life can be applied in this relationship between the database and the narrative. In other words, the monocontexturality of a database may be used to support a narrative, but there are no formal criteria that might contribute to its generation. Manovich further points out that in the field of semiotics, the paradigmatic axis of a spoken or written sentence is invisible but nevertheless present, manifested as a specific use of grammar, for example. The linear sequence of utterance, on the other hand, is quite clearly present in the actual usage of the language. But in the field of computer languages and new media, the relationship is quite the opposite. Here, the database is present in material form, representing the paradigmatic dimension, whereas the semantics of the database, what Manovich calls the narrative, remain hidden and with it the linear quality of utterance within the syntagmatic dimension.

By having a closer look at the scientific field of semiotics and its attempts to apply it to the World Wide Web, it is possible to outline suggestions for the appliance of polycontexturality to facilitate the implementation of ontologies in a database structure. Semiotics, according to Charles Sanders Peirce, can be subdivided into three categories. The category of *syntax* brings the sings into relation to one another, whereas the *semantic* category relates sings to the entities present in the world and also puts patterns of sings into relation towards corresponding patterns which might be present within the range of things the sings denote. Finally, the *pragmatic* category puts the sings in relation to its agents, namely, the individuals who use them. One possibility to apply those categories into a database structure is by applying metadata into the binary code which contains information about the cognitive living systems who use those signs. Successively, metametalevel information can be added which sooner or later should accumulate in detailed semantic information about the contexts in which those signs should appear. To put this relationship in the formality of polycontextural logic, the kenogrammatic protostructure is located here in the world of the users of natural language. With the first level of metainformation, a two-valued contexture in form of a Platonic pyramid can be generated and mapped onto the ontological grid of the protostructure. By adding a level of metametainformation, those single two-valued sign-entities become part of a compound-contextural universe which is provided by the kenogrammatic ontological structure.

Whereas the Rich Text Format (RTF) is only concerned with the format of sings and has no means to encode any semantic qualities, the XML markup language is able to incorporate the level of first-order logic that is present in every natural language (Sowa 2000)[6] by using tags in the text which are able to represent the semantic primitives by Charles Sanders Peirce. These primitives are the most basic logical operators, such as *existence* (*x* is), *co-reference* (*x* is *y*), *relation* (*x* is related to *z*), *conjunction* (*a* and *b*) and *negation* (not *a*), and can be used to determine semantic observations. The problem

with the formatting of XML semantic tags is that they themselves are dependent on a univocally defined semantics.

The Resource Description Format (RDF) which is a further development from XML, goes further in determining the semantics of Web content. By allowing so-called PropertyTypes, RDF is able to create elaborate sets of property types that can be subsumed in packages which are called 'vocabularies'. Again, the factor of the level of standardization plays a role in the implementation and distribution of those vocabularies, since minor variation can yield very different results if computer systems are not able to find things that slightly differ from the parameters they were given. Nevertheless, RDF provides tags which can not only comply with the semantic primitives of a first-level logic, but also logical operators such as an *universal* quantifier (for every *x*), an *implication* (if *x* then *y*) and a *disjunction* (for *x* or for *y*), by allowing combinations in the tags of the semantic primitives in order to arrive at the logical operators described above. In the structural arrangement of formats, Unicode and URI constitute the lowest level of semantic relevance and coding-ability. Above them is XML with the ability to integrate the semantic primitives but still struggling with a cohesive design for semantic reference. One level further up is RDF, having the ability to encode the semantic primitives as well as logical operators of a second order by combining semantic tags into one ontological statement. Above RDF, there are five levels which still have to be developed and implemented into the format itself. Apart from a general ontology and a set of rules which should guarantee the same universality as the hypertext itself, a logical framework is required to put all the different ontological references into relation towards each other. In here, it is possible to imagine a polycontextural system that serves as a compound-contexture to map the individual two-valued contextures that are present within the lower level of ontology.

The last two levels are a level of proof, meaning a recursive function that enables ontological statements to be considered valid by the option of reassuring the validity of every single ontological case. Finally, a category of trust is needed to complete the requirements for a semantic Web.

> “In cases in which a high level of trust is needed for metadata, digitally signed metadata will allow the Web to include a “Web of trust”. (…) Like the Web itself, the Web of trust will not need to have a specific structure, such as a tree or matrix. Statements of trust can be added in such a way as to reflect actual trust exactly. People learn to trust through experience and through recommendation. We change our minds about who we trust and for what purposes. The Web of trust must allow us to express this.” (Berners-Lee 2000:XVIII)

Within the last level of the semantic Web, human interaction as an identifier and generator of reference is still required. For this reason, the initial problem of converting semantic ontologies into computable language still remains and sheds light on a more fundamental level of logical observation.

The aspect of discontexturality introduced by Günther still remains valid within this system of code-based ontologies. The observation of the data concerned with the semantic quality of the signs still lies outside the universal grid that is projected into the markup-language. The signs or the code that represents them have no formal possibility to ontologically determine themselves as signs yet, they just form an image of the compound-contexture that cognitive, living, organic systems like humans perceive as reality. The code itself, although it is enabled to semantically distinguish between signs that denote things in our world, cannot categorize ontologically its own denotation. This level of distinction would yield a true, many-valued, ontological tool to manifest semantic qualities within a database structure. In terms of interactivity and computer systems, the aspect of discontexturality has a complementary effect, sacrificing psychological interaction in exchange for physical interaction.

> “New media takes “interaction” literally, equating it with a strictly physical interaction between a user and a screen (by pressing a button), at the sake of psychological interaction. They psychological processes of filling-in, hypothesis forming, recall and identification – which are required for us to comprehend any text or image at all – are erroneously equated with an objectively existing structure of interactive links.” (Manovich 1998:10)

As long as there are no sufficient means to formally express and incorporate discontexturality between the living organic systems and universal discreet mechanical systems, the possibilities for psychological interaction are limited. Berners-Lee proposes another approach of interactivity by taking the notion of creativity into account.

“I want the Web to be much more creative than it is at the moment. I have even had to coin a new word to describe this level of creativity: “intercreativity,” which means building things together on the Web. I have found that people think that the Web is already “interactive,” because users get to click with a mouse and fill in forms! I have mentioned that more intuitive interfaces will be needed to support this intercreativity, but I don’t think they will be sufficient without better security.” (Berners-Lee 2000:XXI)

Leaving the implications of security, cryptography and power aside and relating it back to Gotthard Günther’s observations about the two different approaches of cybernetics, the problems with the Norbert Wiener’s approach becomes obvious in the attempts of the implementation of a semantic Web structure, since it just aims at repeating ‘observable behavioural traits of organisms’ (Günther 1969:4). Günther in turn proposes an approach that regards cybernetics as a hermeneutic science, in the sense that hermeneutic denotes the function of a logico-mathematical structure which may be capable of two different but nevertheless valid interpretations in terms of the role it plays in a given system. Such a science would aim to understand the phenomenon o life itself and then try to imitate organic functions by the means of cybernetics. What is present right now in the field of computer science is an approach of a workaround, at least from the viewpoint of Günther, which creates an increase in complexity but not necessarily an according increase in feasibility.

“A dialectic theory of organisms, based on the principle of conceptual complementarity, has not yet been developed. We have pointed out that cybernetics, up to now, has favored an entirely one-sided nondialectical concept of organism, obtaining remarkable but equally one-sided results. These results have already had a considerable impact on present society. But since their one-sidedness and concomitant social ambivalence has not yet been clearly recognized, computer theory has, sociologically speaking, proved a limited boom, but to a much greater degree a calamity.” (1969:5)

Although the end of this statement may sound like an exaggeration nearly twenty-five years after its utterance, the problems at which it aims are still prevalent in the most recent developments of computer science. It seems that we as a culture have to continue to strive for a mutual understanding in the intercreative way Bernes-Lee described it, using the monocontextural, objective ontology of the computer as a mere medium consisting of ‘dead matter’ and letting this dead matter continue to alter the established concepts of ontology even further before the conditions seem plausible enough to re-relate the concept of ontology into the machines themselves.

References:

Berners-Lee, T. 2000 'Foreword' in : Fensel, D. [et al.] (ed.) *Spinning the semantic web: bringing the World Wide Web to its full potential* London: MIT Press

Günther, G. 1967 *Time, Timeless Logic and Self-Referential Systems* [online]
Available from:
http://www.vordenker.de/ggphilosophy/gg_time_less_logic.pdf
[Accessed 13/05/05]

Günther, G. 1969 *Natural Numbers in Trans-Classical Systems* [online]
Available from:
http://www.vordenker.de/ggphilosophy/gg_natural-numbers.pdf
[Accessed 13/05/05]

Günther, G. 1972 *Negation and Contexture* [online]
Available from:
http://www.vordenker.de/ggphilosophy/gg_negation_and_contexture.pdf
[Accessed 13/05/05]

Günther, G. 1973 *Life as Poly-Contexturality* [online]
Available from:
http://www.vordenker.de/ggphilosophy/gg_life_as_polycontexturality.pdf
[Accessed 13/05/05]

Manovich, L. 1998 *Database as a Symbolic Form* [online]
Available from:
http://www.manovich.net/DOCS/database.rtf
[Accessed 13/05/05]

Sowa, J. 2000 *Ontology, Metadata, and Semiotics* [online]
Available from:
http://users.bestweb.net/~sowa/peirce/ontometa.htm
[Accessed 13/05/05]