Anvendt filosofi

Semantics and Reality

Kandidatspeciale

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Abstract

Aiming for a relational approach to questions of semantic meaning as it relates to other parts of reality, Karen Barad's Agential Realism and late Wittgenstein's philosophy of language are held up Benjamin Whorf's theory complex of linguistics. Reading these through each other, the conceptual constellation drawn from Whorf is one of multi-ordered relationality, rather than a theory operating with a classical conception of causality when considering matters of language and culture. It is proposed on the basis of by working through all three theorists in connection with examples of measurement and description both in the field of linguistics and quantum mechanics that in order to radically oppose taken-for-granted categorisations, semantic meaning should be thought of as something which is not determinate by itself, nor determinately seperable from other parts of reality. The thesis is that semantic meaning is something defined by and produced in complex practices involving language and physical reality in different ways, and that language is to be conceived more broadly than is ordinary, to include a larger range of factors working to make determinate semantic meanings. In this way, we can extend the concept of language to make sense of many kinds of differences in ways of drawing significance, such as the different life-forms between lions, humans and computers. Furthermore, the relational theory of meaning, knowing and being that is formulated strips these notions and the activity of achieving them of their innocence in ethical and political matters, as it is not without fundamental consequence which languages are used and which meanings are made, from the perspective of systemic compounding of different probabilities over others.

Contents

1 INTRODUCTION

A large part of what makes different cultures different is their different languages. At least on a surface level, this is not controversial. Controversy comes when the agreement is to be refined in precision as to the sense of such a statement. For instance, one can propose that the way that different languages make cultures different is in a deeper sense than simply being a large part of the aesthetic differences felt to be between different cultures, or in the way of being reflective of cultural differences beyond language. *Making* different cultures different can be suggested to mean that languages play a causal role in some way. To elicit further disagreement, one can also try to resolve the precise meanings of 'cultures' and 'languages', and maybe even 'different'. Disagreements radiating from these and other loci on the stage of communicable disagreements form a constellation of different approaches to questions about the relationship between language and other parts of culture. Then can be added a further layer of differentiation, with questions about how reality outside of culture figures into the relationship. These could be questions like; insofar as different cultures correlate with differences in world view, which role, if any, does the difference in languages play? And, if different languages are used to speak differently about the world beyond a superficial level, is this because they are used by different cultures or because the languages themselves are different in what they can say?

For this project, I will focus in on the latter question, about the things said in language, leaving the doors open to reform the structure of presupposed in the question itself, as I am interested in the relationalities, whatever those may look like, between semantic meanings and reality.

2 PROBLEM STATEMENT

What are the connections between semantic meaning and reality?

3 THESIS

What is understood by 'semantic meaning' in the problem statement can also be called the 'intellectual content' of a communication. It is that which a piece of language means in said language. This definition leaves flexibility as to what constitutes a piece of language as well

as what being ‘in a language’ might entail. I venture that it is not controversial to propose that a meaningful piece of language is not just a sentence, but also includes, in some way, the situation that the sentence is made in. ‘Come!’ as an instruction to another person is a piece of language, and the meaning of this utterance is partly determined by the situation in which it is made.

I argue through the treatment of the problem statement that there is no unambiguous way to fundamentally separate ‘being in a language’ from ‘being in a situation’, and that the meaning of a piece of language, the language, and the reality in and around a piece of language are mutually intertwined, co-determined and not in any essential sense separate things. Grasping a semantic meaning of a statement is something done and judged as such using a complex apparatus of conventions for engaging in reality which must be in motion before there can be anything that can be called knowing what a statement says. To even know what it means to point to a chair, and to recognize a case of pointing to a chair, requires a competency of linguistic activity in a very broad sense. Only working on the basis of such competency and within the framework of language in the broadest sense possible can there be a case of knowing or not knowing something, and conversely, something to know or understand, as I will argue.

Language and the employment of one language over another is part of creating semantic meanings to grasp, both in the immediate sense of embodiment of meanings in the world, and in the sense that it is part of and a factor in the continued unfolding of reality.

To reach practical agreement about a semantic meaning of an English sentence, it is not enough simply to understand English. The practices that go into the determination of semantic meaning go much deeper than this, and there are many things that must be convened on, calibrated, before a statement in English works on the semantic level to an agreed effect. Practices of drawing boundaries to resolve semantic meaning run deep and, I argue, can be said to cross boundaries of language, materiality and immediate situations.

4 USE OF LITERATURE

The philosophical material worked with is Meeting the Universe Halfway by Karen Barad and the Philosophical Investigations by Ludwig Wittgenstein, with supplementation from the

Routledge Guidebook to Wittgenstein's Philosophical Investigations, written by Marie McGinn.

Barad's philosophy is radically questioning and overstepping of categorisations of all kinds, and provides theory and vocabulary for thinking about how the borders of such categories are made and how they can be thought of as factors for further makings. The relationality of categories and the relation of categories to determinacy of semantic meaning are features which resonate with the parts drawn on from Wittgenstein.

While the productive role of exclusions, the *how* of classifications and the *in-between* of things are not codified in language as thoroughly as the *being-there of things themselves*, Wittgenstein's concept of *Language-games* is a construction which goes a long way in providing suitable building blocks – the deconstruction of structures standing in the way largely completed. This is an example of a system of ideas which can be used to facilitate communicable theorizing about relational systems in meaning-making.

Essays by Benjamin Lee Whorf, supplemented by Penny Lee's Whorf Theory Complex, provide an entry point from the side of linguistics to consider the relationality of semantic meaning and reality. Whorf is sometimes used in debates about whether the main referent of language is culture or physical reality, and whether reality shapes language, or if to a more or less significant extent, language is what shapes reality as we experience it. However, it is claimed by Lee that this is a misguided line of questioning to draw Whorf's work into, and that a study of his wider theoretical work suggests a relational framework which cannot endorse questions about causal connections between distinct entities such as they are framed in any 'language vs reality' debate. Therefore, I use Lee in uncovering the relational theory complex as Whorf wanted to apply it to linguistics. The theoretical groundwork laid out using Wittgenstein and Barad gives us tools to understand the Whorf theory complex which transverses the essential classes presumed in a cartesian-type starting point.

Beyond this, various contemporary work within the field of linguistics is used to build an empirical basis for engagement with the Whorf Theory Complex, and especially linguist Guy Deutscher is drawn upon in interpreting such findings with a critical perspective towards some routes one could take within the language vs world debate.

5 PRELIMINARIES ON 'LANGUAGE'

Language is here conceived as various systems of engagement within which sense is made and understood, or more broadly, within which or by which one part of the world makes itself articulate to another. Systems of intelligibility, reacting, collaborating. This does not mean that all things which fall within this umbrella are the same sort of things in all respects. This classification is one which illuminates this aspect among many different things which by other classifications are viewed differently.

Language is also a term used when distinguishing one language from another, so the term 'a language' used in this sense is different from the general concept of 'language'.

We also sometimes speak about such things as the 'language of calculus', 'speaking in technical terms', and proficiency in legal jargon. This is another categorization of different systems of speaking, which we use alongside the grouping into Italian, Kurdish and so on, and we understand it to be a different kind of delineation than this, while also analogous to it. When we say that each methodology is also its own language, we are using this term with some, but not all, of the features of the kind of systems that Italian and Kurdish are. For instance, the language of philosophy compared to the language of hydraulics stand in an analogous relation to each other as Italian and Kurdish do by having different lexical inventories and rules for operating with elements of the vocabulary. The relations are different in other ways; Kurdish and Italian have been shaped as categories by other means and for different purposes than the languages of philosophy and of hydraulics, and the latter two languages cut across the categorizations into languages such as Kurdish and Italian. A big difference is also that the subject matters of Kurdish and Italian are, compared to the difference between hydraulics and philosophy, largely identical, both being languages for communicating daily activities, and being mutually translatable in a way that is not the case between hydraulics and philosophy.

There is no one thing common to all we call language, writes Wittgenstein (PI, §65). There are, however, many different types of affinity between them, a complicated network of criss-crossing similarities of different magnitudes and levels (PI, §§65-66). Wittgenstein argues for this by comparing it to the system of similarities between all the things that we would call 'games'.

Thinking in extension of the Philosophical Investigations by Wittgenstein and the philosophy of Karen Barad, there are different affinities between different things called language by analogy with word-language. This is not to say that these different things are alike in all aspects, but at the same time, as regards the activity and functions of language in meaning and matter, the borders of language bleed out in some ways into these different types of things also called language and languages. Therefore, instead of starting from a schematization of what is and is not language as is talked about in dealing with the problem statement, the borders are left open to movement for particular features and relevance. A mother tongue and hydraulics are not the same thing, and are different in many different respects, but there is not an absolute difference separating them as different areas of the world once and for all.

6 TRANSVERSALITY AND AGENTIAL REALISM, MOBILISING BORDERS

6.1 AGENTIAL REALISM

Agential realism is a methodology and philosophy formulated by Karen Barad, drawing large inspiration from the philosophy-physics of Niels Bohr.

Broadly speaking, agential realism interrogates the taken-for granted borders entailed in how we ordinarily attribute agency to parts of the world, and proposes a broad conception of agency in a performative philosophy, where various iterations of an inherent cartesian cut is replaced with contingent 'agential cuts', to be explained further in a moment. Barad expresses an interest in thinking things delineated categories such as culture and nature without granting either category a privileged status of being the frame of reference through which the other category is conceived. They wish for a way for so-called cultural studies to take the agencies of nature seriously, and for so-called physics not to cut itself off at the outset from considering a range of so-called social factors of potential causal-material significance.

Barad states that their aim is to "provide a transdisciplinary approach that remains rigorously attentive to important details of specialized arguments within a given field, in an effort to foster constructive engagements across (and a reworking of) disciplinary boundaries." (25)

Beyond the methodological, Barad's agential realism is an (ethico)-onto-epistemology of relational differences.

No cuts are to be taken for granted, for they are what make all the difference. Furthermore, there is an interest in the process by which cuts are made and which differences are made by this. Beyond ontology, there is an interest in onto-genesis, on the dynamism of reality.

Overarchingly, the constitution of all kinds of borders - cuts of the world - in all possible dimensions are of potential interest as agential, that is, difference-making, differences.

"To write matter and meaning into separate categories, to analyze them relative to separate disciplinary technologies, and to divide complex phenomena into one balkanized enclave or the other is to elide certain crucial aspects by design. On the other hand, considering them together does not mean forcing them together, collapsing important differences between them, or treating them in the same way, but means allowing any integral aspects to emerge (by not writing them out before we get started)." (Barad 2007, p. 25)

6.2 COMMON SENSE CUTS

Let us now confront some cuts of the world which would be part of guiding us to ask certain questions rather than others about such things as how meaning and reality interact.

6.2.1 The cartesian cut

The cartesian cut refers here to a distinction between the inner, private world of the individual thinking being, and the outer, public world inhabited by material things. On a cartesian view, thoughts and feelings reside in the inner realm and are of an ideational nature, as opposed to the materiality of the outer world. The inner phenomena may be directly accessed by introspection only by the individual in which they reside, while the psychological processes occurring in other's minds can only be speculated on based on indirect evidence. Language then is what enables us to relay indirect access to our inner worlds, and to have influence on the inner worlds of other individuals. On this view, one acquires with language labels for communicating ones' inner experiences to others, but the latter exist independently and prior to input from language. This lends itself to the view of meaning as that which is present within the inner world of either the speaker or receiver of communications, and miscommunications and misunderstandings as occurring when the

meaning is adulterated in transmission, as well as the view that meaning cannot fully be transmitted in language.

According to Karen Barad, beyond cutting the world up along the knowing subject and constituting the inner and outer, Cartesian doubt also places faith in the internal over the external (Barad, 2007, p. 48)

To summarize, the cartesian-type of view which is here contested includes the following statements:

- My inner thoughts and representations are of another ontological nature than the things inhabiting the material realm
- I have a direct access to and true knowledge only of my inner representations, while my knowledge of that which is represented is only indirect; in other words, I have a certain knowledge about the words I use to speak about a thing, and less certain knowledge about the thing.
- I know only how I experience the world, and have only indirect knowledge of the outer world in itself
- I ascertain another's psychological states from evidence, but I do not truly know that someone else is in pain, nor the inner phenomenology of that person's pain
- Meaning is something which belongs to the inner realm, and while I can relay a meaning to someone through language, I can never give them access to the full meaning which exists in my mind.
- Language gives me labels for communicating about inner states with others, but it does not modify or inform my inner states in any significant way

6.2.2 Newtonianism

Classical mechanics relies for the possibility of objectivity on certain inherent separations of reality, and the foundational assumptions in opposition to Bohr's philosophy-physics can be outlined as follows.

- The physical world is made up of individually existing entities with inherent properties.
- Measurement serves a mediating role allowing the observer to gain knowledge about that which is observed.

- The action of measurement is external to the object of observation. For measurement to have any sense, it must be so, for if the measurement cannot be assumed to reveal facts about the world existing outside of and prior to the measurement, there is no objective referent, and the measurement does not tell us anything.
- Objectivity is about accurate and non-distorted descriptions of the world, meaning that what is described must be essentially distinct from the description itself. In other words, while a description may be necessary for mediating knowledge, the knowledge gained is something other.
- In improving our knowledge of the world, we look for more and more accurate descriptions of the world. The activity of knowledge making is thus connected with questions about how well representations of the world fit with the facts of the world.

6.3 AGENTIAL CUTS

Agency is within agential realism not an attribute of pre-existing entities but 'a doing'. As there are not presumed to be individually determinate entities in the world to have this attribute, what is left is *happenings,* or *intra-actions* of the world*,* which contingently enact seperability between different entities, causes and effects by and within particular intra-actions. Such instances of seperability are in Barad's terminology called phenomena.

Phenomena replace much of the role that 'things' have in ordinary parlance, and are defined as the 'ontological inseperability/entanglement of intra-acting "agencies"" (139). Replacing the ontological role of the atom in Democritus' philosophy, phenomena are the inseparable ontological entities, but not because they cannot be broken down, but rather, they are not what they are if any part is taken out – so in a sense, they cannot *be* broken down. Conversely, the 'parts' of a phenomenon are something else as part of the phenomenon than they would be outside of it, and the relational effects between the 'parts' are not existent at all outside of their constitution within a phenomenon. Phenomena, therefore, are particular instances of wholeness, and are ontologically primary, not in an atomistic-type sense but a relational one. A crucial difference compared to atomistic (or individualistic) ontologies is that we as observers are ourselves part of phenomena in our

engagement of measurement, in contrast to the structure of observer-measurement-observed which places the observer in absolute externality to the object of observation.

Agential realism is opposed to what is termed representationalist theories of knowledge and meaning.

"…representationalism - the idea that representations and the objects (subjects, objects, or states of affairs) they purport to represent are independent of one another." (Barad, p. 28)

Within a representationalist model of the world, objective truth becomes about accurate correspondence between theories and objective states of affairs, while the meaning of a linguistic utterance is in its reference to some part of the world, existing outside of the utterance itself. The common-sense triadic structure of words, knowers and things fitting various elaborations upon cartesian epistemology is an example of a representationalist model, holding such three realms as essentially separate. (Barad, p. 138)

6.4 THE PROBLEM OF REPRESENTATION

According to Barad, an inherent cartesian cut, with its fundamental cutting-off of the inner from the outer world leaves one with a problem in accounting for how representations can be said to represent anything in the outer world in such a way that we would call it a basis for the possibility of knowledge. "If words are untethered from the material world, how do representations gain a foothold?" (Barad, 2007, p. 137)

This presents a paradox for a view that would hold that our words, images and theories represent the world in some way, while this world is also not directly accessible. When we are then caught up in our web of language and images, it would seem that the outer world which one would postulate as part of the separation into an outer and inner is held forever out of reach by this very structure.

6.4.1 Asymmetry of certainty

Why are we so sure that the locus of certainty should be placed on the inner side of a cartesian cut and not the other way around? Elaboration with Wittgenstein: when we know what we mean, this does not consist in seeing the meaning clearly in our minds, but in knowing how to apply it.

Beyond what representations are supposed to show is also the question of how representations themselves are accessed directly while that which they purport to represent is not. Cartesian epistemology takes for granted that we have certain knowledge of that which exists in our minds.

"… If there is no magic language through which we can unerringly reach out directly to its referents, why should we think there is nevertheless a language that magically enables us to reach out directly to its sense or representational content? The presumption that we can know what we mean, or what our verbal performances say, more readily than we can know the objects those sayings are about is a Cartesian legacy, a linguistic variation on Descartes' insistence that we have a direct and privileged access to the content of our thoughts which we lack towards the "external" world." (Rouse 1996, 209, quoted in Barad, 2007, p. 49)

However, if we are then tempted to put forth the question "how can we be so sure that we know what we mean?" in extension of the critical interrogation of cartesianism, Wittgenstein would perhaps argue that this is misguided and sets us back up into an essentialist trap**,** and Barad argues too that the answer cannot be to simply shift the placement of uncertainty onto representations rather than represented**.**

Reading Wittgenstein, as will be treated in more depth to come, we can say that there is not usually any place in our use of language for the question 'how do we know what we mean?". It is not clear in most cases why or how I would doubt whether I understand what I am thinking. If I were to doubt it, what would this look like, and how would I find out what I actually meant? However, and this is the reason to pre-empt the discussion with Wittgenstein in this connection, this is not to say that Wittgenstein subscribes to the cartesian-type view that the content of meaning is an inner affair of full clarity and ownership, or that we do in fact know what we mean – it is just that we do not and *cannot* doubt it either. What is meant by the statement that we cannot doubt it is that there are no routes laid out in the use of the concept of 'meaning something' by which we can sensibly doubt that we do in fact mean what we think we mean. (x)

The claim is then that the issue with the question consists in the grammatical construction which treats meaning as representation in the way of an image.

Wittgenstein argues that there is no one thing that meaning something looks like, and contrary to what the question would suggest, meaning something is not a process which can be pointed to in the same way that saying something can.

Through grammatical analysis, Wittgenstein shows that one can be said to mean something without possessing any specific inner picture of the thing, and all the content of the thing that is meant is not necessarily present in the mind of the person who means it. We also use words without precise meanings, but are still able to say 'that was not what I meant', which Wittgenstein suggests is to say 'had I been asked, I would have answered so-and-so'. **Ex**

The meaning sometimes develops in the situation of its employment. Meaning something does then not consist in the presence of any particular inner process or picture, but by the use of concepts and engagement in the world in ways made salient by a commonly intelligible system of rules or practices of significance of which an activity is a part and by which it exists (is actualized). One cannot play chess in a world in which chess does not exist.

The meaning, according to Wittgenstein, is not the representation, but neither is it something corresponding to it. Any meaning in a representation is actualised in relation between the representation and its application, and outside of such relationality, the representation does not represent anything at all.

More fundamentally, Wittgenstein argues that it is a mistake to assume that there is a single way that language and meaning **functions.** In fact it is not just that there are many different types of words and utterances, but that there are many different features according to which one could classify them (PI §17). There are many instances of language use, it is argued, which do not call for this particular dissection of the world into the inner and outer, and the conception of meaning as that which is explained in an utterance, corresponding to an inner picture. It is not a given that meaning is fully formed in the mind of the speaker, nor that the content of subjectivity is contained within the human skull.

6.5 AGAINST METAPHYSICAL INDIVIDUALISM ON A MATERIAL BASIS – MATERIAL EMBODIMENT OF CONTRADICTIONS

More than just asking why and how words can refer to things in the world, the following argues that the fundamental notion of individually determinate entities as well as an absolute externality between knower and known does not work in the realm of quantum

physics, which forces us to confront the merits of these notions as being at the basis of elaborations to different levels of reality. Further, it is argued that there is a connection between ontolocigal and semantic determinacy, concepts being embodied for them to have determinate meaning.

Barad argues in extension from Bohr that an underlying ontological postulate of inherent seperateness cannot hold, because results from quantum mechanics cannot be explained on this account without sacrificing logical consistency, finding that "… the notion of position cannot be presumed to be a well-defined abstract concept; nor can it be presumed to be an individually determinate attribute of independently existing objects. Rather, position has meaning only when an apparatus with an appropriate set of fixed parts is used." (139)

Wave behavior and particle behavior are mutually exclusive, as particles are localized in space, occupying one and not another position at a given point in time, while a wave is a type of disruption in a medium, by its defining nature sprawled out across space, time, or whatever else. Waves are extended, occupying more than one position at once, and they can overlap, so that a single position can be occupied by multiple waves at a given point in time, which is what would be called a superposition of waves. Particles, however, are not waves and by definition occupy one unique position at any given time. (76) Looking at the smallest possible package of light - a photon - it is then rather puzzling that each of these behaviors can be demonstrated by different experimental setups. It is puzzling because one is sure that the photon must either be a particle or not; either localized or not.

The law of excluded middle tells us that the photon cannot be neither localized nor not localized, (as the only difference between these is a negation), while the law of contradiction tells us that it cannot be both.

How do we find out what the photon is actually like? What is the real nature of the photon? What explains the contradictory results we have found in trying to get at an answer to this?

Bohr's solution to this is that for logical consistency to hold, we must do away with the supposition that the states expressed by these laws obtain determinate value with reference to individually pre-existent entities, such as a photon which is either a particle or a wave, lying in wait to be looked at. Instead, for the 'location' of a photon to have meaning, this must be in a way that precludes any unambiguous determination of a wave function of

that same photon. In this way, p only has precise meaning in cases where ~p does not. These two types of feature then stand in a relation of complimentarity to each other. This principle Bohr used to correctly predict experimental results which only came about after his life-time.

Let us take a look at an example of complementarity at work in physical experimentation, showing in a material sense what it means when we say that contradictory concepts obtain only by complementary apparatuses of measurement.

6.5.1 To the lab

To explain why i) there can be no such thing as position as a concept in absolute terms, and ii) that some concepts/cuts entail an exclusion of complementary ones and iii) therefore, meaning entails particular exclusions and does not exist determinately outside of particular intra-actions which determine some things by the exclusion of others

When measuring the position of a particle - an electron, in the example given by Barad, we may send out a photon, which will scatter upon collision with the electron. The scattered photon is received by a photographic plate, leaving a mark. We have now taken a picture of the electron, with the highest resolution possible. However, what we have in our raw data is strictly just the indication of the position of the scattered *photon* (not the electron) as it left a mark on the photographic plate. This is the mark of the photon acting as a cause in co-constitution with the mark as an effect. In this situation, the *photon* acts as an agent of observation, enacting an effect for measurement as part of a particular interaction with the *electron* as an object of observation. We have not strictly measured the position of the particle itself. Within classical Newtonian physics, the next step is then to deduce the position of the particle itself as it was before and independently of the measurement interaction, which is thought of as a transparent instrument letting us peek in at the electron itself. This is done by calculating the deviation in the value by the measurement interaction itself (the photon disturbs the position of the electron when it hits), and then subtracting this to obtain the value representing the position of the particle itself prior to the measurement interaction. The problem, Barad explains, is that in order to do this, one would have to measure the size of the disturbance in position caused by the photon interacting with the electron. Because of the law of conservation of momentum, we may do this by measuring the momentum of the photon after impact, as it hits the photographic

plate, and comparing this with a known value of momentum prior to the interaction. By itself this not an issue, but as explained by Barad, an issue now arises in keeping a grasp on the position, which becomes more blurry as we are trying to resolve the border between object and the observation.

Momentum is a vector quality, meaning that it has a direction and a magnitude. The momentum of an object describes the speed and sum direction of its movement. To measure the momentum of the *photon*, we may set up an apparatus with a movable plate, connected to a detector which can tell us how the plate moves upon the impact by the photon. In the relationship between the plate and the photon, the photon itself is now an object of investigation, while the plate is an agent, carrying information from the effects done by the photon, just as the photon, in its changed trajectory, carried the effects of meeting with the electron in the previous measurement-interaction. If the plate were not movable, the momentum would be absorbed without a measurable effect to indicate it.

The problem is now that if the plate is movable so as to measure momentum, it cannot at the same time measure the position with optimal accuracy. The more condusive the setup is for measuring momentum precisely, the blurrier our picture becomes when the photon hits across the moving photographic plate.

This is an example of two complimentary attributes requiring complimentary apparatuses of measurement, and there is therefore a lower limit to the resolution of the seperation between the doings of the photon and the electron. One cannot determinately separate the agency of measurement from the object measured, but this does not mean that one cannot make accurate measurements. It just means that the results of measurement cannot be attributed to individually determinate entities in the world. What is measured is a particular intra-action of apparatuses, constituting a phenomenon.

6.6 The agential cut and Bohr-Baradian objectivity

Barad introduces the Bohrian cut, which shall ensure us the possibility of objective knowledge and resolution of indeterminacy, but not in the inherent sense we are used to as part of what 'objectivity' is ordinarily taken to mean. Rather than undisturbed and accurately reflecting the truth, Bohrian objectivity is about accounting for all the differentiating factors in order to enable the reproducibility of a phenomenon. For

something to be objective on this account does not mean that it is non-contingent, but simply that it is unambiguously communicable, which will entail an account of relevant contingencies, the specification of which is precisely what allows for objectivity.

6.6.1 The agential cut and the bohrian cut

The enactment of an agential cut is what makes both a semantic *and* an ontological distinction between 'subject' and 'object' within a phenomenon. It is by particular apparatuses of intra-action that there is something that is a subject and something which is an object within a phenomenon. As the absolute exteriority between observer and observed is done away with, agential seperability, that is, "exteriority-within-phenomena" (140), is what provides the possibility for objectivity on an agential realist account. (120)

""wave and "particle" are classical concepts (that are given meanings by different, indeed mutually exclusive, apparatuses and) that refer to different, mutually exclusive phenomena, not to independent physical objects."(120-121)

If we use something as an instrument for observation, it serves to define the objective referent, and is precluded from being observed in itself. What is viewed is a contingent phenomena of which the apparatus is constitutive.

The Bohr-Baradian standard of objectivity is in a fundamental sense related to a standard of a concept's 'having meaning'. On this account, for something to have determinate sense, it must be assessable (which is a constituent of unambiguous communicability) and therefore include in its specification or at least entail for its actualization the interpretive apparatus insofar as it makes a distinct difference. This point will be further elaborated upon through an exploration into the semantic and communicative side of the question.

6.6.2 Objective referents

"According to agential realism, knowing, thinking, measuring, theorizing, and observing are material practices of intra-acting within and as part of the world. What do we learn by engaging in such practices? We do not uncover preexisting facts about independently existing things as they exist frozen in time like little statues positioned in the world. Rather, we learn about phenomena – about specific material configurations of the world's becoming." (Barad, pp. 90-91)

In Barad's philosophy, what we would ordinarily call the measurement apparatus is part of creating the phenomenon observed, but not exclusively and not out of nothing. What is 'seen' when using a microscope is thus in a very fundamental sense entangled with the action of measurement itself, and does not exist independently. The thing seen in a microscope emerges in complex relationality. We commonly feel that what we see is just a smaller, enlarged image of what is already there, and the microscope itself is external to the thing itself, beyond its role as a transparent mediator of the thing seen close up. However, what actually reaches the retina and is then processed by the brain is the result of the diffraction of light by the material object. The 'result' of diffraction is not the primary waves, but the interference pattern emerging from the visual part of the sum of wave functions. In the case of looking at an object through a microscope, the scattered light is diffracted by the lenses, and a different interference pattern is created as a result of this material interference in the world. With very precise maneuvering, adjusting the scattering angles and time of flight between lenses to line up the change with the quantum wave numbers, a diffraction pattern with distances effectively multiplied emerges. With this material engagement, a phenomenon has been created by light diffraction which, broadly speaking, can be said to be an enlargement of the pattern which hit our retinas without the use of the microscope. Fundamentally, based on quantum mechanical principles, there is no way to determinately separate the thing, as far as we experience it, from the action of observation. What we 'see' is the pattern emerging from particular material engagements in the world.

6.7 RESOLVING ONTOLOGICAL AND SEMANTIC INDETERMINACY

So an answer to the question 'what is the photon actually like?' on this background is that the question does not have determinate semantic content reflecting a determinate ontological state of affairs. Instead of asking what kind of things there are, what we should ask is instead what kind of phenomena are produced in different kinds of intra-actions in the world. The specification of boundary-making apparatuses is a part of giving words a foothold in the material world.

An important point for considering the problem statement is that the traditional notion of causality is reworked on an agential realist account, as there is no unambiguous way to speak of 'causes' and 'effects' in an absolute sense, which is to say, outside of the

phenomena in which indeterminacy is resolved by agential cuts, providing agential seperability. (140)

6.8 SECTION SUMMARY

Barad contests the existence of pre-ordained classes of existence, as well as the supposition that meanings are that which an utterance or image represents or corresponds to.

Membership to certain classes are mutually exclusive, but still, the 'thing' can be made to fit within each. There is thus not talk of a thing at all, but of different phenomena made with the involvement of light. Also, if things are absolutely separate, how is representation conceived of?

So, Barad will not accept the proposition that grammatical categories reflect the underlying structure of the world, nor, on the opposite end, that grammatical categories and the world have nothing to do with each other or are of two essentially different realms. In stead, grammatical categories and the world interact performatively.

Now comes first relationality and cuts at the level of language, whereafter the world comes in as it is applied in order to build concrete examples of semantic meaning.

7 THE SAPIR-WHORF HYPOTHESIS

The 'Sapir-Whorf hypothesis' represents one end of a 'language or world' discussion which basically asks to which extent language plays a role in shaping experiential reality and assumes some type of mediating function to language. The question is then what and how it mediates, and on this there are divergent positions ranging from so-called linguistic relativism to the view that language is not much more than conventions of labelling. (x)

What is called 'linguistic relativity' as a hypothesis attributed to Whorf is formulated by John B. Carroll in the Introduction to Whorf's *Language, Thought and Reality*[1] as follows:

"… the structure of a human being's language influences the manner in which he understands reality and behaves with respect to it." (Carroll, p. 23)

[1] A post-humous publication of selected essays.

Though much discussion in the literature around Whorf's work has been about how to plausibly conceive of a causal influence in the direction from language to thought, or perhaps influences between a trichotomy of thought, language and culture, Whorf himself in one instance explicitly objects to such framing.[2] Whorf, rather than influence between distinct entities, seems sometimes to prefer to speak of interpenetrations between phenomena existing at different levels whose boundaries are like overlapping wave forms.

He adds that a naïve segmentation of the world into distinct domains such as psychology, culture, nature etc., without any assessment of how these function in relation to each other can be a reason for finding it implausible that categories of language should be prior to thought. But this is not exactly what he wants to claim, he asserts. His claims are based in a relational view of the world in which language works variously at different levels of phenomena,[3] with a field of causes working in its co-constitution with other types of phenomena. (Whorf, 1939)

Beyond the level of the single individual, considerations of other types of effects of language on what we do with reality can be read from Whorf. Systemic effects in the realm of common thought patterns in speakers and the differences in probabilistic clustering of ways of engaging with the world are at least as important as, and more easily substantiated than, the above formulation of linguistic relativity. The suggested formulation by Stuart Chase in the foreword to the same work as cited above better encompasses these nuances of systemic effects as well as Whorf's explicit focus on difference in levels of effects:

"Whorf as I read him makes two cardinal hypotheses:
First, that all higher levels of thinking are dependent on language.
Second, that the structure of the language one habitually uses influences the manner in which one understands his environment. The picture of the universe shifts from tongue to tongue." (Chase, vi, original emphasis)

On the flip side, these types of effects are also obviously complex and difficult to trace. It is here that small differences, which may be individually insignificant, compound, and causal

[2] Though he also elsewhere speaks about all abstract thought being *dependent* on language. This is just one instance of seeming conflict between different parts of Whorf's writing, and I do not wish to claim that there is not good-faith engagement with Whorf which find diverging sentiments from my analysis.
[3] Not the agential realist sense of the term

connections become so many that it is easier for us to see what may be understood by a 'field of causes', which in Whorf's view is what surrounds the actualization of a meaning. (Whorf, 1941) Such claims are by their nature difficult to argue empirically, and so the approach must be a framework of conceptual arguments interweaving at various levels with empirical evidence, building steadily towards higher levels of complexity and abstraction.

First, here is a conceptual image to build with, and in the next section, we look back at meaning in action at various levels. Whorf likens the hierarchical ordering of language, and 'the cosmos', to a lace of different patterns at different levels, but if you prefer, it can also be compared to the topography of the DNA-molecule, which has different orders of connection building iteratively upon the structures on lower orders.

Let us begin at the base layer of this multi-ordered pattern of interpenetrating layers of Whorf's relational linguistics, based on a segmentation formulated by Penny Lee in her critical reconstruction of *The Whorf Theory Complex*.

7.1 ISOLATES OF EXPERIENCE

Isolates of experience are parts of the world which we by our sensory interface with the world code as coherent entities or connections distinguishable from the rest of the world and backgrounded material. (x) In the flux of everything, there are patches of red against black, and a bird in flight stands out as a distinct entity against the sky. For a blind mole-rat, there are not red things, but there are presumably different smells which are not part of the isolates of experience in the human interface with the world. At this level of perceptual processing, there is a universal foundation of isolates of experience available and present to humans regardless of what we ordinarily call language. This level of isolates of human experience may for present purposes be said to exist in a common 'human language', to emphasise the fact that these isolates of experience are universally available specifically in the human perceptual interface. Contrasted with the way that a mole-rat draws significance from and engages with its surroundings, reality speaks differently with humans.

7.2 ISOLATES OF MEANING

In Lee's interpretation of Whorf, social reality, or lived experience, is a function of *isolates of meaning,* segregated out from experiential isolates available. (Lee, p. 28)

From the base of available perceptual isolates, different things can be made to stand out in different ways, abstracted by perceptual activity as isolates of meaning (Lee, p. 28). Which parts or features of reality as perceived are in use will vary between situations, and different languages contain differences in which features are likely to be in play and which connections are highlighted, as will be seen in the next section. Different languages segregate different essentials out of the same situation, extracting some bits as important while backgrounding others, writes Whorf, and linguistic enculturation in a particular language is part of fostering distinctive ways of selecting isolates of experience and seeing connections. (Whorf 1939, p. 162)

"We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language." (Whorf 1940, p. 213)

A difference between speakers of different languages which is commonly known is the different attunement to noticing very slight differences in sounds which correspond to points of difference in the language, while some objective differences between sounds are not codified and thus not noticed, such as when in some languages, the sounds of p and b are not distinguished as part of speaking the language. This is not in itself an interesting difference to the wider question of what different systems of speaking do with the world, but it illustrates the general point about differences in isolates of meaning.

7.3 Relational organisations

The higher levels of pattern are the most significant part of language, according to Whorf. (x) Whorf sees the more important aspect of language not as the segmentations into words, but the backgrounded pattern of relations between these segmented elements. The pattern of language is what gives sense to and guides the composition of linguistic constructions. (x)

It is by the habitual ways of pattern-seeing acquired in enculturation that linguistic paths have the most covert and far-reaching influence on tendencies in thought and behavior, he claims. (x)

Above the layer of isolates of meaning, which itself is a pattern made upon the level of isolates of experience, meanings are patterned with certain relations codified and operated with in the common thought-world of a language. A thought-world goes beyond the ordinarily conceived bounds of what constitutes a language, and includes strings of association by common metaphors, such as the use of spatial metaphors to talk about time. On this level, language guides the drawing of similarities by nudging certain lines of analogy. The primary mechanism for this is that certain analogies will have a higher rate of success for being understood by other members in the speech community. However, this also then makes a difference for which analogies are likely to be made in thought. To be understood and to understand others, one must not sway too far from the common stock of conceptual connections.

“talking itself means using a complex cultural organization…” (W67)

To speak a language entails using a complex of practices agreed upon as a necessity for being able to say anything. This means that in speaking a language, one is compelled to be aware of and think certain distinctions.

By this mechanism, the common thought-world also makes a difference for which connections are operated with, and what is conversely backgrounded, in collaborative actions, especially so at larger scales, such as film production and city-planning.

“There is no evident reason why such a complex should not enter into various functional relations with other material of thought without necessarily requiring the activation of any of the individual words or class marks with which it is connected. We can be thinking of, say, the division of labor between the sexes in a certain culture without having to think of the rather bookish words 'female' and 'male' and to refer continually to them in our meditations upon such a subject. What we more probably do as we run over such a question in our minds is sift the facts in terms of a sort of habitual consciousness of two sex classes as a standing classificatory fact in our thought-world, something which is quite different from sex as a concept or sex as a feeling-value. The basis of this shadowy, abstract, and wordless adumbration of a sex classification is not a word like 'sex' or 'female' or 'women'; it is a linguistic RAPPORT as distinguished from a linguistic utterance. “(W69)

Taken together, isolates operationalized as shareable meanings within a particular speech community constitute an overall picture of the universe, differing from community to community, relative to a fundamentally invariant world of perceptually processed data from which they have been abstracted.

The higher we move in the level of pattern in language, the larger the gulf of implicit connections between languages, and the more work is needed to achieve agreement in precise sense, which on higher levels of abstraction can only be made within systems complex enough to be called languages (29). Relativistic views, for instance, are 'handicapped' in appealing to Western common sense, says Whorf, because they must be talked about in a new language, going against the grain of many of the underlying suppositions of our speech habits. Common sense, it is pointed out, is to a large extent about ways of talking which are most readily understood, and not something which reflects an independently given state of affairs. (Whorf, 1939, pp. 141, 147, 152)

7.4 MEANINGS EMBEDDED AND EMERGENT IN PATTERNED RELATIONS

What regards particular instances of semantic meaning, here the important part is also in the patterns that words are embedded in, without which there is no determinate meaning. The meaning is not in entities but emergent from relationships between apparent entities.

"that part of meaning which is in word, and which we may call 'reference', is only partly fixed. Reference of words is at the mercy of the sentences and grammatical patterns in which they occur. (Whorf, 1941, p. 259)

"sense or meaning does not result from words or morphemes but from patterned relations between words or morphemes." (Whorf, 1936, p. 67)

Contrasted with *exact measurement* as the objects of study in the mathematical sciences, Whorf sees the object of linguistics as *exact patternment*. Whorf likens it to the description of states of affairs within an atom, where there are alternations between configurations, but not movement in terms of measurable positions, as opposed to the case in classical macro-mechanics (Lee, p. 48). There exist different points of resonance in patterns of fields, but not entities moving between the states of resonance.

"*As alternants, quantum phenomena must be treated by a method of analysis that substitutes a point in a pattern under a set of conditions for a point in a pattern under another set of conditions – a method similar to that used in analysis of linguistic phenomena*." (Whorf 1940[LTR]:231, quoted in Lee, p. 48)

When looking at linguistic phenomena, then, it is proposed that we are looking at different configurations within which quasi-entities are actualized, whereas there is no resolved, or determinate, order of things to describe objectively outside of particular configurations. Quasi-entities do not exist by themselves as such, but as possibilities in virtue of linguistic patterns, or systems of organization.

Whorf suggests that the physical world may similarly be viewed as an aggregate of quasi-distinct entities "not fully understandable as such, but rather emergent from a field of causes that is itself a manifold of pattern and order." As the electron appears in one structural position, then another, existing nowhere inbetween positions, so a patterned linguistic entity such as a phoneme (a bit of sound coded as a linguistic entity) may be said to exist in the same way. Whereas on first thought, we analyze the electron or the phoneme as a continuous variable, on scrutiny, there is only alternation; "*… situations "actualize" it, structure beyond the probe of the measuring rod governs it*", *it* being the emergent existence of the distinct entity. (56)

The semantic word does not have a particular position outside of operationalization, just as the electron only has a determinate position within a measurement situation, enacting an exclusion of the smeared existence that a word also has as part of its being. A particular instance of a word is in a sense more actual than the abstract sum of its existence for various uses, but it is also only one instance, just as the position of the electron nailed down by measurement collapses the electron cloud.

'the possibilities open to thinking are the possibilities of recognizing relationships and the discovery of techniques of operating with relationships on the mental or intellectual plane […] these possibilities are inescapably bound up with systems of linguistic expression. --- thousands of very different systems of discerning, selecting, organizing and operating with relationships.' (W83-84)

“We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language.” (W213)

The fact of a universal way of linking experiences independently of language (at the level of human-language) would seem in opposition to linguistic experiments, says Whorf, if not for the hierarchical order of pattern. One notices the coldness of the sound of a word designating coldness only if it is there, and otherwise, the sound of the word itself is abstracted over, unnoticed. Thus, lexation makes speakers differentially sensitive and conscious of different sensational elements, producing awareness on lower planes than its own – words can thus interpenetrate sensation in an affirmative manner, but not in a way that would make any difference to the denoted series on its own level. “if the sounds fit, the psychic quality of the sounds is increased, and this can be noticed by the layman. If the sounds do not fit, the psychic quality changes to accord with the linguistic meaning, no matter how incongruous with the sounds, and is not noticed by the layman.” (Whorf, 1941, p. 267) Conversely, a situation which is described with the term ‘hygge’ could also not be described so, and the objective physical features of the situation would not change. However, the commonality with other situations through the concept of ‘hygge’ as a descriptor is an element of it on the relational level of coding in language. In this way, the situation is something different in different languages because it exists in different relations, as points in different patterns. Also in contemporary research, the studies seem to suggest that linguistic labels do in fact work transiently to penetrate the levels of perception which are tentatively non-linguistic (Lupyan, 2012).

Let us now go to some empirical examples which can be considered in connection with the model of Whorf’s hierarchy of patterns.

7.5 CAN SOMEONE WHO CALLS THE MIDDAY SKY BLACK BE SEEING WHAT I SEE?

A factoid that one may have encountered is that the people of ancient times could not see the colour blue as we see it today. It is of course assumed that the colour of the sky itself has not changed in the time since Homer’s writing, and with modern knowledge about evolution, we assume that a few millennia are not enough to account for any significant difference in the anatomy of the eyes between us and the ancients.

Yet, in ancient writing from all over the world, ancient Egypt being an exception, there is a striking lack of reference to the colour blue. Etymologically, terms for the colour blue appear much more recent than other colour terms, and seem to grow out of terms for either black or green. Another colour-weirdness of ancient times, seen in Homer's writings and in the old testament, is the sublimation of yellow, gold and green, the same term used to refer to the colours of honey, fresh twigs, pale faces and gold. (Deutscher, 2007, pp. 43-44)

Odysseus' hair is compared to the colour of hyacinths. But clearly the violet of hyacinths is not among the colours of human hair. The sky is at one point described as copper. When has the sky ever been copper?

In general, there was not much reference to colour at all in Homer's writings, even though there were lively descriptions of the play of light and darkness. When colour is referenced, it is often quite odd. The only word which would be taken to mean green is used mostly to refer to non-green things, such as pale faces, honey and fresh twigs. (Deutscher, p. 36)

Deutscher explains that the Greek word for green, 'chlôros' derives from a word for 'young herbage', and "if the hue distinction between green, yellow, and light brown was of little consequence in Homer's time, then the prime association of chlôros would have been not the greenness of the young herbage but rather its paleness and freshness." (Deutscher, p. 38) It thus becomes imaginable that one can see the brown of the twigs and the greenness of the leaf without finding it necessary to distinguish their colour by this difference in hue, and in fact perfectly natural to liken their colours by their paleness.

Deutscher explains further that there are languages even today that do not have a separate word for the colour blue, and some languages that make do with black, white and red as the only abstract colour terms consistently coded commonly between speakers. Colours are then lexically categorized according to paleness, darkness, and whether there is any redness in them. Thus, what in English is called light green is called white, and a blue is called black When subjecting speakers of such languages to colour discrimination tests, they are in fact able to distinguish colours along the entire spectrum, and so it is not the case that they cannot perceptually distinguish between black and blue. Still, Deutscher relays a story of an anthropologist who, despite all evidence to the contrary, simply could not conceive of the possibility that someone who is perfectly content with comparing the colour of the sky with

that of a mud puddle could be seeing the same thing as he did. (Deutscher, 2010, pp. 67-68) Let us try to put ourselves in the place of a native opposite a researcher who wants to insist on the importance of a distinction between colours that we are perfectly content with grouping together.

In Russian, there are two basic color terms within the range which in English is referred to by the basic term blue, and reportedly, there is no single word which adequately refers to all of what we call blue. Голубой, (goluboy) is used to refer to lighter blues and mint (on the border to green), and синий (siniy) to darker blues. (Boroditsky, 2007; Ferreira, 2021) Asked to group shades according to dark and light blue, English speakers tend to place the boundary almost exactly at the same place that Russians place the boundary between goluboy and siniy. There is an objective difference in response time to discriminating colors across the boundary for Russian speakers which does not appear for English speakers. The perception is thus processed differently somehow, and the difference in some sense appears larger for Russians. This difference disappears almost entirely by verbal interference or by closing the eye connected with the part of the brain responsible for linguistic processes, which indicates a linguistic labelling mechanism responsible. (Boroditsky, 2007)

With this in mind, we can better accept that the blue of the sky and the dark brown of a mud puddle can be said to be the same colour in the same sense that an aquamarine and a deep navy are both just different types of blue.

7.6 SECTION SUMMARY

It is possible to hold that the midday sky is the color that would translate to black while still being able to distinguish black from blue in a color matching test, just as it is possible to hold that the colour of the midday sky can be likened to that of the ocean while still being able to visually distinguish siniy from goluboy.

Habits of speech entailing certain ways of categorizing the world can have effects on perceptual processing in speakers. However, the causal relation demonstrated here between ways of speaking and perception is limited, and people are flexible in applying different schemes of comparison when presented with colour samples which define a mode of grouping different from that encoded in the native language.

What *is said* when describing the sky as black depends on the language, as a system of grouping colours along certain lines, that the statement is in.

Different languages place importance differently on various lines of comparison when it comes to colour. The habituality of this can lead linguistic researchers and readers of the Odyssey baffled, as it is felt that the linguistic categories must reflect an inherent classification of the world, or, conversely, it is never considered that the same physical aggregate could be radically differently classified.

8 MEANING AND PARTICULAR LINES OF ABSTRACTIONS

Lupyan (2012) argues that when we perceive a stimulus as meaningful, this entails representing it in terms of a larger class. To illustrate this, Lupyan directs our attention to the fact that perceiving two identical objects in different locations *as the same* requires us to abstract from the fact that they are unlike by virtue of their locations or surroundings.

In two different pictures taken of a dog from the side and from the front, we see two images of the same dog, even though we see, that is, perceptually encounter, two very different distributions of ink on paper. Lupyan refers to a story of an individual unable to categorise, perplexed by the insistence that the two dogs in the images be one and the same dog – assuming that this individual even agrees to a connection between the images and real life dogs, which again assumes that this individual agrees on the existence of the class of things called dogs.

On this account, categorization is the process by which non-identical stimuli are represented as identical in some respect. What is happening in categorization is thus essentially the drawing of particular analogies in the way that Melanie Mitchell defines them: "… analogy-making is the ability to perceive abstract similarity between two things in the face of superficial differences." (Mitchell, p. 187) The ability to perceive an image of a dog as such, and to view different images of dogs and real-life dogs as different instances of the concept of a dog, entails the type of abstraction Lupyan asserts as fundamental (or a prerequisite?) to linguistic labelling. Mitchell describes the operation as one of fluid conceptual 'slippage' between situations (Mitchell, p. 188). What interests Mitchell in particular is that different analogies can be made from the same situation, which is not always very clear when

humans use analogies, because the account of contextual cues is processed so automatically, and the content-slip is so fluid. In contrast, it is very difficult to teach a computer to identify *the* abstract similarity between photographs showing examples of bridges, for instance. Even if the computer gets very good at recognising what a bridge looks like, the issue is how it is to decide among any number of possibilities that this is the relevant abstract similarity between the pictures. This may be more clearly stated using an example from Mitchell about analogies; "*if abc changes to abd, what is the analogous change to ijk*?" Now, for us, what we notice in the first change is probably the c → d transformation, which is equivalent to changing the rightmost letter out with the next in line in alphabetical order, and so, the analogous case would be ijk → ijl. However, this is not the only concept that can be taken out from the first change and *slipped ov*er to the second case. The first transformation could also be said to be equivalent to changing the rightmost letter to d, giving ijd, or changing any occurrence of c to d, giving ijk, for instance. To a computer, it is not very clear what the relevant concept is, and so what to slip over, while for us, it is quite automatically decided that the relevant operations are 'rightmost letter is changed' (and we view it as a letter, which also situates it in a particular conceptual space), and 'the letter is swapped out for the next in line alphabetically'. This whole operation entails drawing analogy, using the concept of letters and the ordering of the alphabet, as well as 'rightmost' as naturally relevant. The application of these specific rules is not something given by the question itself. A computer uses a lot of processing power on deciding between different analogies with such a question, while we are very effective in narrowing in on the relevant similarities in different circumstances (Mitchell, p. 191).

It seems that we have some kind of short-cut mechanism compared to a computer in the way we process and discriminate the relevancy of different types of information, and clearly what we would call the meaning here is neither fully explained by the question nor ideationally divorced from the practices that the question is connected with.

One can argue that what goes on here is that the computer is missing the dimension of semantic meaning of the content which it is processing. Understanding which aspects are of relevance can thus be said to come down to understanding the meaning, or the intellectual content, of the activity. It is as if the computer is standing from the outside, applying rules almost blindly, unable to see the semantic content in the bits of information. Mitchell

suggests that if computers ever come to master semantic meaning as we understand it in this contrast, it is probable that mastering analogies will be an important part of acquiring this ability.

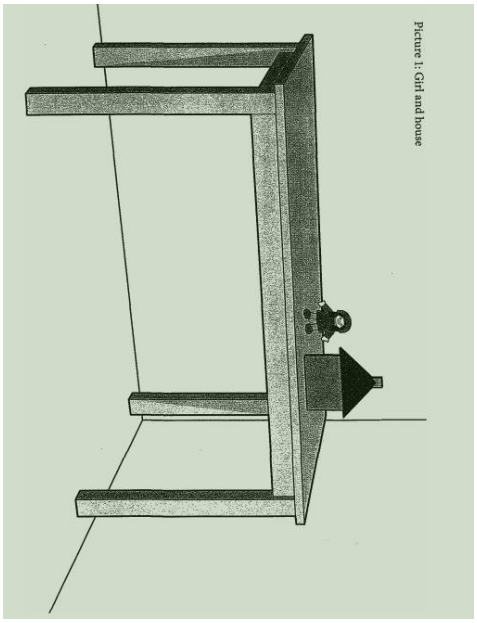
However, it may be objected that regardless of how perfectly it may come to apply the correct operations as seen from outside it is not a given that this would be enough for us to say that the computer would actually have the phenomenological experience which we might want to say is a part of understanding the content on a semantic level**.** This idea is returned to in the section working with Wittgenstein, where the nature and placement of meaning is discussed. Until then, we are now working with the mechanisms of making different meanings.

The question then becomes: what is this mechanism by which we know which analogies to make, and how to apply them?

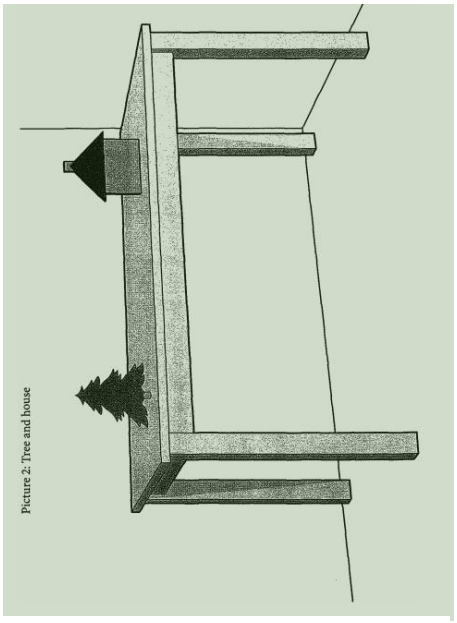
In the following section is presented an example of diverging routes of complimentary analogical slips correlated with linguistic differences.

9 DIFFERENT DESCRIPTIONS, DIFFERENT ANSWERS

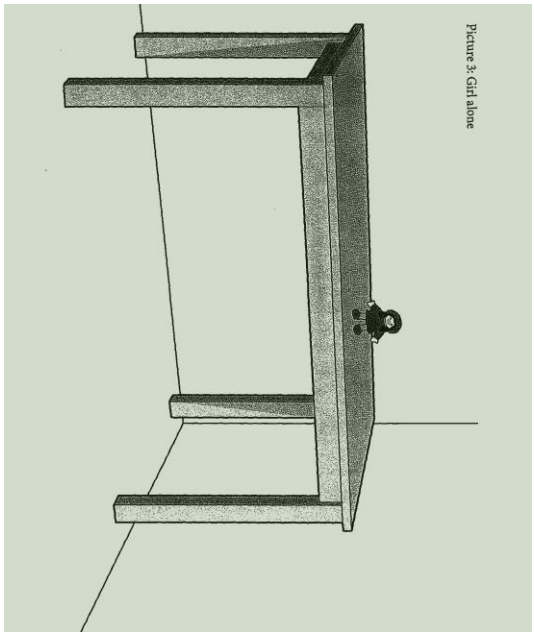
The following is an illustration by Deutscher of a spatial reasoning task in an experiment conducted by Majid and colleagues (2007).



Picture 1 Girl and house, Deutscher 2010, p. 177



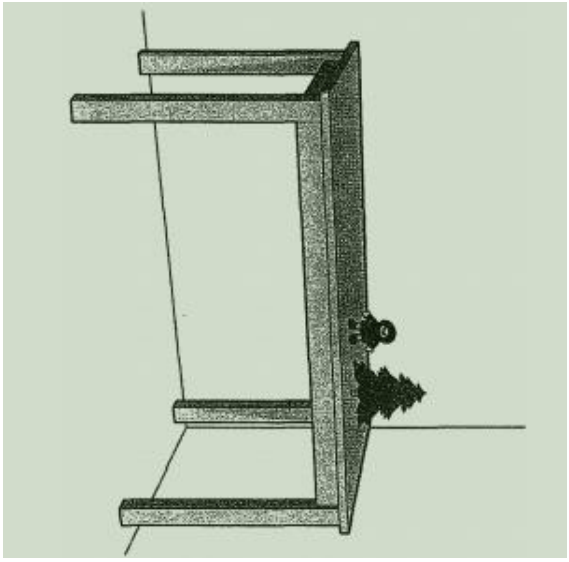
Picture 2 Tree and house, Deutscher 2010, p. 178



Picture 3 Girl alone, Deutscher 2010, p. 181

In this task, you are first presented with the set-up in picture 1, of a girl next to a house on a table in the corner of the room. Then, you are led to another room in which the girl on the table is missing, and a tree is placed on the other end of the table, as shown in picture 2.

Coming back to the first room, the house is now absent from the table, so that the girl stands alone, as seen in picture 3. The task is now to answer this: where does the tree go?



Picture 4, Deutscher 2010, p. 183

To the left of the girl, obviously. Or not. In experiments conducted by Majid and colleagues (Majid et al., 2004), it is shown that this is not necessarily so obvious, and Tzeltal and Guugu Yimithirr speakers would overwhelmingly place the tree on the right side of the doll, as shown in picture 4. More correctly, they would place the tree to the south of the girl. The two rooms are mirrored, and so what is south of the girl flips between being on her left and her right. The rotation of 180 degrees between the rooms is of no consequence to the right/left coordinates, so it is abstracted over in completing the task. However, if one is answering in terms of absolute coordinates, this rotation must be entered into the computation. To a native speaker of Tzeltal or Guugu Yimithirr, this happens quite automatically. (Deutscher, 2010; Majid et al., 2004)

9.1 LIVING IN ABSOLUTE COORDINATE SYSTEMS

Old Guugu Yimithirr (as it was prior to systematic dispersion by Europeans in Australia) does not have any terms for ‘left’, ‘right’, ‘in front’ or ‘behind’. Instead, cardinal directions are used to specifiy spatial relations in each instance where these terms would have been used in English (Deutscher, p. 165). There are, however, a term for ‘left hand’ and ‘right hand’, but only when referring to the hands themselves, without referral to the spatial locations of these. For instance, I may say that I have nerve damage in my left hand. In such an expression, the so-called ‘egocentric’ coordinate system can serve to differentiate between the hands in a more abstract sense, irrespective of their changing positions relative to the cardinal directions at different times. In turn, the cardinal directions offer another type of constancy. For instance, the milk may be described as being found at the southern-most wall of a particular store, irrespective of which direction you are facing - the coordinate system does not rotate relative to the body. One interesting phenomenon that arises when interlocutors assume or are accustomed to these different coordinate systems, is that gestural instructions of where the milk is to be found in the store, pointing with the hand in a certain direction, is understood to mean two decisively different things. The frameworks

within which the gesture is placed are in a sense complimentary, as either the cardinal or bodily coordinates are taken as constants for referral, to which everything else is held in relation. (Deutscher, 2010, pp. 167-168)

Speakers of Guugu Yimithirr are perfectly able to understand and use the concept of 'left' and 'right' for spatial coordinates when speaking English. It is not about the constraints of a language, but the positive demands, Deutscher stresses (Deutscher, 2010, p. 171). In order to speak Guugu Yimithirr, it is necessary that you know where the cardinal directions are at all times. It is a part of speaking the language that you are constantly attentive to them. Speakers feel the cardinal directions in much the same way that we do 'left' and 'right', without being conscious of any calculation of the type most of us would need to do in order to figure out in which cardinal direction our hand were facing. (Deutscher, 2010, p. 173) We are able to understand the concept of cardinal directions, but the way of life which involves constantly and unconsciously keeping oneself oriented in relation to them seems baffling, and in this respect fundamentally different, executively, from ours. For us, cardinal directions are simply not something that we thought possible to know unconsciously.

9.2 UNDERSTANDING THE ANSWER, UNDERSTANDING THE QUESTION

Prior to the explanation for the rationale behind the alternative answer to the question, it is not obvious that we make particular comparisons as opposed to others, and it is surprising that there are other answers that may be found natural to the simple exercise of placing the tree down relative to the girl. How does it in this case happen that we assume one or the other type of answer as natural and obvious? To a large extent, it is because we assume and are used to the use of left/right coordinates, and this is how we code the set-up we are presented with. When we are asked, as Majid et al describe it, to *place the tree in a location consistent with what was seen before*, we (speakers of English or other egocentric systems of spatial coding) work without second thought within a left/right system of coordinates to define relative positions, and this is the meaning most likely in our language. We have then an instruction which in hindsight is not determinate in how it is to be followed – but before we were made aware that there is in fact a complimentary apparatus possible, it was perfectly clear what the instruction meant. The meaning can be resolved to give two distinctly different results using two complimentary apparatuses of analogy-making.

9.3 SECTION SUMMARY

- Habits and demands of speech can lead to differences in orienting in the world.
- To ascertain the meaning of a question, particular systems of interpretation are used, either in how things are grouped or in systems of reference.

9.4 MEANINGFULNESS AND CONCEPTUAL IMPAIRMENT

The Amazonian language of Pirahä has only numerals corresponding to 'one', 'two' and 'many'. Researchers have been interested in whether such a limited repertoire of number terms would correlate with an impairment in arithmetics in Pirahä natives. To test this, speakers were asked to participate in an imitation game, in which the researcher laid out a random number of familiar objects in a row. Up to three objects in the row, the subjects laid out the correct number of objects to match the original. For four objects and above, the replications deviated increasingly with higher numbers of elements in the original row. Here we can say, in line with what we saw before, that perhaps for the speaker of Pirahä, there would be no clear reason that they would expect that the researcher wanted to make a precise distinction between different levels of 'many'. Having not learned Russian, for instance, how would we know that when a Russian researcher presents us with a sample of blue, that the meaning of this sample includes a distinction from a range of blues beyond a particular border between light and dark blues? However, in this next example, there should not be any issue of misunderstanding the explicit significance of precise relative amounts. (Gomila, 2012, p. 51)

Pirahä speakers were shown several boxes on which were illustrated different amounts of fish. An object was placed in one of the boxes, and seconds later, the difference in the number of fish illustrated on the boxes was not taken into account when attempting to recall which box contained the object. (Gomila, 2012, p. 51)

What does this show? Does it show that, not having learned distinct terms for 'five' and 'six', participants were unable to see or understand the difference between five and six fish? It shows that in solving this task, this distinction was not coded for among the different types of differences noticed between the boxes, and was thus not perceived as meaningful. This does seem to suggest that the visual distinction between five and six fish is more easily or automatically done for English speakers, and stands out to us as a difference. It also shows

that it is not a matter of course that we in our engagement with reality systematise and regard differences in multiplicity in large numbers.

Living in a language thus goes beyond just strictly understanding what is asked. The differences and aspects coded with meaning in a language makes a difference for what is likely to be imbued with significance in tentatively non-linguistic processes.

Compared to speakers of Guugu Yimithirr, we are severely impaired in active awareness of cardinal directions. This does of course not mean that we do not understand the concept, but that we do not operationalise it to the degree that would make it impossible not to notice which cardinal direction one were faced. That is, we understand and can use cardinal directions as a system of coordination, but we do not live in a language which includes in its nature the degree of operationalisation and orientation to them that Tzeltal and Guugu Yimithirr do. This operationalisation stems from the linguistic compulsion, and this particular processing and evaluation of significance is thus shared in the speech community. A point here is that language reaches deeper into the world than mere (arbitrary) labelling, and in a sense, nothing much more can be said than the fact that speakers of Piraha speak another language, insofar as language is viewed functionally in relation to the tests.

10 How do we know which slips to make?

10.1 The ambiguity of the elements of language – components and relations

Let us now look within the bounds of a single language, as opposed to studying effects of crosslinguistic differences.

Think of the English word ‘is’, which can mean both ‘has the attribute’, ‘equals’, ‘is composed of’, even though we ordinarily do not notice this ambiguity. How does it occur that we know, in fact do not even possess doubt, of which ‘is’ is in play at a particular time?

Beyond the surface grammar of syntax and so forth, there is some other more backgrounded and penetrative system, a deep grammar in Wittgenstein’s terms, which makes it so that we are not confused when the word ‘is’ is employed, and which also makes us see the connection to other concepts of ‘is’. Deep grammar makes the rules for what type of utterances can be made and how different elements of language can be sensibly used. Beyond the grammatical rules of tense and word order, deep grammar is the more

hidden and penetrative system of using concepts and seeing connections which makes meaning possible, and which works to draw forth what the relevant aspects are.

Wittgenstein argues in the Philosophical Investigations that because we so unconsciously calibrate to the language situation which imbues a determinate sense to utterances, we are liable to be under the illusion that there are essential meanings to words and utterances themselves outside of and abstracted from particular use. (McGinn, 2013, p. 35)

Analysing deep grammar, we can see that many very different things go on in what we call 'language', and Wittgenstein explores this using the analogy of games, as systems of rules and doings determining what anything means and making meaning possible. Before outlining what language-games are, let us look at an illustrative example.

10.1.1.1 How does 'slab!' mean 'bring me a slab'?

According to Wittgenstein, the command 'slab!' can be said to be a shortening of 'bring me a slab', not because the utterance of the first command is accompanied by the longer phrase in the mind of the speaker at the time of the utterance, but because the utterance is made within a language-game where both forms exist. Upon being asked, the speaker can say 'I meant 'bring me a slab'', but this is not an assertion that the longer phrase mentally accompanied the shortened form at the time of the utterance. It is rather a statement that within our language, these two phrases have the same sense within the particular context of the utterance. Wittgenstein writes: "The sentence is 'elliptical, not because it leaves out something that we mean when we utter it, but because it is shortened - in comparison with a particular paradigm of our grammar" (PI, §20) What is happening here is thus that we perform an analysis using grammatical paradigms when asked 'what is the sense of this utterance?'. The utterance is bound up in a system of language and related sentences, rather than containing multitudes of sentences. What is explained is thus not what the speaker necessarily had in mind while uttering the sentence, but something prompted by the question itself, whose precise sense is also bound up in a particular activity, and not inherent to the words themselves or particular mental images accompanying it. The sense of the question lies in a sense in what would be admissible and non-admissible answers.

10.2 LANGUAGE-GAMES AND FORMS OF LIFE

A fundamental concept operated with in Wittgenstein's Philosophical Investigations is that of language-games. This refers to the idea that in different practices and circumstances, we operate differently with language, and the idea that speaking a language is part of an activity and a form of life. (PI §§7, 19, 23) Just as there are differences in which moves are possible in chess compared to checkers, there are differences in the space of sensible moves between different language-games.

Wittgenstein distinguishes his mode of analysis - surveying language by mapping what is clear to view by grammatical analysis - from a type of inquiry into the *essence* of language which aims for final answers to questions such as 'what is language?'. This question does not work within Wittgenstein's grammatical survey, which finds a great variety of structure and function within language. Such an abstracted question on its own lacks information about its aim, about which distinction it is working with or towards, for it to have any particular sense, and for it to be possible to distinguish between admissible and non-admissible types of answers. If, however, one assumes that I) hidden beneath our blurry and confused way of speaking is a single essence of the thing itself and that II) this can be unearthed unambiguously by analysis, then there is sense in speaking about *the* answer to 'what language *is'.* (§24,§92; McGinn, 2013)

By detailed analysis of various examples of language use, Wittgenstein argues against assumption I), declaring it an illusion which disappears when we attend to the way language actually functions. When we try to study language from a distance, looking for instance at a word outside of its use, apparent paradoxes can emerge which are simply the result of grammatical confusion (PI §§182, 191). When we view words outside of use, it is not clear to us that a single word can be many, completely different things within different settings, just as the chess-piece used for checkers cannot at the same time be a King. These two functions do not exist within the same game, although the same material piece is being used for both.

"If we say, "Every word in the language signifies something", we have so far said nothing whatever; unless we explain exactly what distinction we wish to make. (PI §13)

Wittgenstein opens his line of arguments for this by a critique of an Augustinian view which he explains as follows:

"… the words in language name objects - sentences are combinations of such names. - In this picture of language we find the roots of the following idea: Every word has a meaning. This meaning is correlated with the word. It is the object for which the word stands." (PI §1)

So, the word 'chair' has a meaning which is the chair as an object, and the sentence 'I saw that red chair' is a combination of words which each name objects. This seems quite an unsatisfactory description, as Wittgenstein points out. Which object does each of the words in the sentence apart from 'chair' stand for? What is the meaning of 'that' and 'saw'? Taken in isolation, these words are applied in many, very different ways; 'I saw that he looked sad'.

One could be tempted to ask how many different types of sentences exist, and thus aim at a systematization of the different types of meaning in language more fully encompassing than the one offered by Augustus. This Wittgenstein rejects, as language is not something which stands still, and new ways of speaking and new activities using language are continually coming to be while others are forgotten. Instead of making a systematized classificatory scheme of the structure of language, we ought to take account of the particular language-game played, and look at language as it is actually used. We do not learn much about how meaning works if we do not consider it from particular instances of meaning in the contexts which are co-constitutive of them, and instead want to look directly at a word itself, expecting a determinate essence to reside somewhere inside or behind it. Wittgenstein proposes that there is nothing to find which is not clear to see if one looks carefully at language in use. Meaning is something which exists in relations, not in the mind nor in the word, but in use made salient within language-games. (§23)

"When a sentence is called senseless, it is not, as it were, its sense that it senseless. Rather, a combination of words is being excluded from the language, withdrawn from circulation." (PI §500)

Wittgenstein argues that we should look at the word in the particular use, and rather than drawing from our repertoire of abstract categorisations, we should look at different instances of the word itself. "… don't think, but look!" (§66). The word will in some sense show us what it is and what to do with it, and it will show us that it is many different things.

Now an excursion into a consideration of where the meaning is in relation to the cartesian cut and how one is to say what it is, with Wittgenstein arguing that the meaning is not present in a picture itself, but emerges in relation with a mode of representation.

10.3 SEEING AND SEEING-AS

Wittgenstein writes that one may in a certain sense see something differently by applying different rules to it, and in another sense, there is no change in what is seen. A schematic of a cube may be seen as a two-dimensional figure of intersecting lines, or as a schema of a three-dimensional figure, and this difference in experience may lead one to act differently in using the figure (employ it differently), even though the exact same lines are seen on the page, irrespective of how or according to which system the perceived object is interpreted (PI, §74). In Fragments of a Philosophy of Psychology, Wittgenstein speaks of seeing the aspect, which in the Routledge companion is taken to be an expansion on this second meaning of 'seeing', termed 'seeing-as'. (McGinn, 2013, p. 237)

The distinction is illustrated well by reference to visual illusions, such as the duck-rabbit used by Wittgenstein in §118 of *Philosophy of Psychology – a Fragment*. This simple outline can be seen as a drawing of a duck at one moment, a rabbit at the next. The outline has not changed, and so in this sense, what is seen has not changed. Nevertheless, these are two different visual experiences, the same thing *seen* (the drawing is the same), but *seen-as* two different things. *Seeing-as* is different from seeing by the essential role of comparison in the first. Rather than being associated with an objective change in the drawing itself, the change between the distinct visual experiences of seeing-as a duck or a rabbit is a type of change associated with a way of responding to or describing what is seen. (McGinn, 2013, p. 245)

To explain the difference between the duck and the rabbit, the duck-rabbit is set *in relation* in some way to examples or features of ducks, and then to rabbits. As an object of raw perception, the duck of the duck-rabbit cannot be pointed to in itself to differentiate it from the duck.

"what I perceive in the lighting up of an aspect is not a property of the object, but an internal relation between it and other objects" (PPF §247)

The visual experience of seeing-as is not isolated to the object of perception, nor can the issue be resolved by moving it over to an inner image, argues Wittgenstein. The drawing as it presents in the mind beyond communicability is not a criterion of a certain seeing-as. If someone only sees the duck of the duck-rabbit, this is not changed by my drawing the lines that I see as a rabbit. I must point at what to me are ears, for instance, and invoke images of rabbits in some way. Whatever my exact inner image, this can only enter into the description by way of using representations in language, that is to say, a system of conventions.

McGinn writes in the Routledge Guidebook to Wittgenstein's Philosophical investigations: "The suggestion is that attending to this complication in our use of the word 'see' provides a corrective to our temptation to think of visual experience as some sort of projection of colours and shapes onto our sensory surfaces. We recognize that there is something which we call a visual experience which cannot be understood in terms of this picture of a projection, and which is internally linked with a certain way of describing, or responding to, what is seen, one which essentially involves the idea of a comparison between what is seen and something else." (McGinn, 2013, p. 243)

There is something which can sensibly be described as a visible experience and which we use the term 'seeing' for which is different from the sense of seeing an object of raw perception. This type of seeing, or seeing-as, entails some type of comparison or line of connection beyond the perceived object itself. This can be termed seeing-as, to distinguish it from raw perception. We can use this concept sensibly because it has a use in our language, and thus do not need to speculate about the inner phenomenological workings as a criteria for an instance of seeing-as.

10.3.1 Beetle in the box; what/where is the Thing of the semantic content?

On a cartesian account, I only truly know what 'pain' is from my own experience of pain. I do not have access to other people's pain, and when they express their pain, I imagine it, if I do, on the model of my own experience of pain. Wittgenstein lays out a thought experiment to consider the role of pain or any other inner psychological phenomena as referent in language. If everyone had their own box containing what is by everyone called a beetle, and

no one could look into another's box to see their beetle, what role does the beetle have in this language-game? Wittgenstein argues that whatever use the term 'beetle' has here, it is not as a name for a thing. A box may even be empty, whereby the thing would not even be a Something. It might not be a Nothing either, but in this language-game, Something comes to the same function as Nothing as far as the private content of the box goes. (PI §§293, 304, 398)

"…. That is to say, if we construe the grammar of the expression of sensation on the model of 'object and name', the object drops out of consideration as irrelevant" (PI §293)

Still, Wittgenstein recognizes, we may want to say that the Something, such as my private pain, is what is actually important and is something different from the assertion that I feel pain. Wittgenstein answers to this that yes, the pain is not the same as the utterance, but how is it Something in the language game? The issue is in the grammatical construction, argues Wittgenstein, of treating the Something which no one else has access to as the object named in utterance. It is not in play in the language game as an object in the same way that manifestation of pain is. (PI, §§293, 304)

This is not a claim as to whether there are actually beetles in the boxes, or against the existence of a mental process of imagining the sensation of pain. It is rather that it is not everything and every idea that we know what to do with, or which has a use in a particular language-game. "The conclusion was only that a Nothing would render the same service as a Something about which nothing could be said. We've only rejected the grammar which tends to force itself on us here." (PI §304)

In this case, though we may want to say that what is actually talked about when expressing pain is the pain itself, there is still a sense in which the pain is not actually what constitutes the shared referent, because it is only the manifestation of pain and its role in our social practices that works through language. Simultaneously, there is not usually doubt that someone is actually feeling pain. We do not say 'I assume that he is actually in pain' except in special circumstances. We take instead groans of pain as manifestations of that pain, and so there is in many circumstances not a differentiation employed between pain-behavior and the actual inner experience of pain. The concept of pain as something which is felt in

the other exists as a shared concept used in language because pain-behavior is part of our life with others. (PI §244; McGinn, 2013 p. 151)

In the case of the colour of the sky and the placement of the tree relative to the girl, the objective referent shared is not so much the inner experience of seeing this or that as it is the outer criteria or manifestations in particular language-games. Though one can certainly speak about the *concept* of a phenomenological aspect of seeing the sky in this or that way, this is not necessarily what is coded in language when it leads us to classify the sky according to its similarity in colour with the ocean and other blue-coded things.

This is a case which makes plausible the attribution of the referent or content of meaning to something else than the inner realm of speakers and hearers, without placing it somewhere else unseen by anyone but God. The locus of public meaning can be placed in a relational space between sharers of such a meaning as a tool in language-games.

10.4 Does grammar describe or determine?

"*Essence* is expressed in grammar. […] Grammar tells what kind of object anything is." (PI §§371, 373)

The grammar tells us that the tree is to the right of the girl, but this does not mean that this is a feature of the setup itself. Rather, the tree is to the right of the girl in a relation articulated in language. The tree is only a 'type of object' within its application in a language game, which includes a system of deep grammar.

A question of whether the connection in grammar describes or establishes a connection is a non-sensible question, because one cannot go behind the apparatus of relation with reality in which a connection exists. (§684) The law of excluded middle is also a picture which does not do anything for us when there are not yet any criteria for how a proposition is judged, and thereby, what it is supposed to mean. (§352)

"One ought to ask, not what images are or what goes on when someone imagines something, but how the word "imagination" is used. But that does not mean that I want to talk only about words. […] The first question also asks for the clarification of a word; but it makes us expect a wrong kind of answer." (PI §370)

What does it mean that it makes us expect a wrong kind of answer?

In the case of the bafflement facing classical physics in trying to find out what the photon really is, the structure of the question itself stands in the way of the answer that Bohr came up with, which rejects the supposition that the photon must by itself be either a particle or a wave. Bohr ended up with asking not what it is, but what can reliably be observed in different circumstances.

The picture does not say anything itself about its meaning, which lies instead in its application.

The thing that is understanding, or even experiencing something cannot be fundamentally cut off from the manifestation of understanding as codified in one or another system of measurement-description, as argued also by Wittgenstein for the case of sense impressions.

10.4.1 The language of sense impressions

The presence of rain is something we experience through sense impressions, but the concept of rain unifying these experiences rests on a definition. Sense impressions can deceive us in a number of ways, but they can only deceive us *about* rain because we have a framework of understanding sense impressions in connection with the concept of rain. We understand the language of sense impressions, and this language, like any other, writes Wittgenstein, rests on convention. In other words, a picture by itself says nothing without some system of application. Sense impressions can lie to us *because* we understand their language in the first place. (PI §§354-355) Language works on convention and can do so because there is a certain degree of consistency in the world making it viable. (PI §142) This consistency can be imagined to be of many origins however, and need not be as given or universal to human experience as rain is. In different human practices and cultures, convention can vary according to the particular consistencies underpinning different language use, such as the expectation that the other speakers in the community use the word ‘blue’ in a certain way.

Let us now increase the level of abstraction in applying this idea of a language of sense impressions, on the level of common stock of ideas in a speech community.

A Danish person can imagine and experience *hygge*, but is this because there is something amounting to a sensory experience which we point to as the feeling of hygge? Do people without the term for it experience hygge? One can argue that when we experience hygge, we are categorizing a variety of impressions in terms of this shared and cultural concept,

and so draw a similarity between in other aspects different situations along the grouping of the concept of hygge. If this line of grouping different experiences is not in play, then one does not experience hygge insofar as it is an instrument of interpreting and grouping experience. Furthermore, the employment of this grouping may be said to be a factor in guiding behavior, in the same way that concepts such as 'grief', 'celebration', 'homeliness', 'adventure', 'solemnity' can be said to be instruments used in grouping different actions, feelings and situations.

10.5 LANGUAGE AS INSTRUMENT

"Language is an instrument. Its concepts are instruments. Now perhaps one thinks that it can make no great difference which concepts we employ. As, after all, it is possible to do physics in feet and inches as well as in metres and centimetres; the difference is merely one of convenience. But even this is not true if, for instance, calculations in some system of measurement demand more time and trouble than we can afford." (PI, §569)

The 1 metre in Paris is neither 1 metre long, nor *not* 1 metre long, because it has the role of defining 1 metre. Wittgenstein writes that if we also had colour samples preserved in Paris, the slip defining 'sepia' could not be said to be or not be sepia-coloured. It is an instrument for making statements, and has a role in the language-game as a means of representation, a yardstick by which comparisons are made. Such an instrument must exclude itself from interrogation within this language-game if it is to serve its function. Within a particular mode of representation, then, certain cuts are operated with, to the exclusion of others, which would be part of a different language-game, or mode of representation. (PI, §50)

Another matter is then the effects on individual perception which may be resultant, and which would have influence on a probabilistic level through language-use. One can argue that these are two levels or spheres of conventional reality working through language;

1) The reality as dictated by the deep grammar of language-use in different contexts
2) The results of training on indivduals by particular grammars, resulting in different probabilistic clustering of ways of dissecting nature, language being one correlational dimension. This clustering of probabilities will lead to better alignment in some dimensions of grouping the world between speakers of the same language.

11 DISCURSIVE PRACTICES AND RELATIONAL DIFFERENCES

With this base of language-games, we are in a position to engage with Barad's concept of material-discursive practices and philosophy of difference. Barad's material-discursive practices adds materialist and dynamic elements onto the considerations of how language works and does. Utterances are part of the historicity, of shaping, the material world. Utterances are made within and in connection with discursive practices, and discursive practices are thought of more widely than mere activities of speaking; discursivity and materiality are not neatly separable.

Discursive practices are similar to language-games, but include added dimensions, with more focus on material performativity compared to the framework-role of language-games. The notion of discursive practices transverses the borders of language and physicality, and effects of a material nature opposed to symbolic or semantic happenings/difference-makings.

Barad writes that a performative understanding of discursive practices challenges the common-sense supposition that words represent pre-existing things. (Barad, 2007 p. 133) However, the suggestion is not that reality consists in generative word-play without resistance by the physical world. On the contrary, Barad insists that performativity properly understood is "a contestation of the unexamined habits of mind that grant language and other forms of representation more power in determining our ontologies than they deserve" (Barad, 2007, p. 133). The facts we make of the world are not like representative descriptions of the world more or less accurately corresponding to a reality as it exists by itself. Our descriptions of the world do not stand in a relation of absolute exteriority to it, and so cannot be held up as images against a world in itself. The structures found in our grammar are not a matter of course, and they work to the exclusion of other structurings of reality. Furthermore, descriptions of the world are part of making a difference in the world's continuous changing.

"The move toward performative alternatives to representationalism shifts the focus from questions of corresponcence between descriptions and reality (e.g., do they mirror nature or culture?) to matters of practices, doings, and actions." (Barad, 2007, p. 135)

11.1 Reflexivity

Barad describes reflexivity as a critical practice "that aims to reflect on, and systematically take account of, the investigator's role as an instrument in the constitution of evidence." (Barad, 2007, p. 86) It would seem that such a practice is just what we need at this point. However, Barad would disagree. If we work with the notion that it is possible to turn the mirror back on ourselves to 'take account' of our role, we neglect to take account of the production of the apparatus used to take account of our role. For instance, taking account of my gender as a social variable treats such a social variable as a preformed category, rather than attending to "gender-in-the-making" as constituted through technoscientific practices, thus underestimating the mutual constitution of social and scientific categories (Barad, 2007, p. 87). If the practice is one centered around reflection, the ideas get mirrored back and forth within the same structure of classification, without actually attending to the constitution of the structure itself (Barad, 2007, p. 88). Reflexivity, according to Barad, relies on the representationalist idea that representations reflect reality, be it social or natural, whereby one can 'take account' of which representations one is using to know what slice of reality one is reflecting.

"Representation raised to the nth power does not disrupt the geometry that holds objects and subjects at a distance as the very condition for knowledge's possibility. Mirrors upon mirrors, reflexivity entails the same old geometrical optics of reflections. By contrast, diffraction is not reflection raised to some higher power. It is not a self-referential glance back at oneself." (Barad, 2007, p. 88)

So, for Barad, it is not enough to merely get the observer back into the picture, as this will not challenge nor provide new knowledge about the picture itself.

"… questioning the constitution of the nature-culture dichotomy and the work it does: not only that it matters, but how it matters and for whom." (Barad, 2007, p. 87) Linguistic categories make differences differently between languages, and therefore, taking account of the differences made by which languages are used and which are not is a part of taking accountability in our meaning-making activities.

11.2 DIFFRACTION

"Moving away from the representationalist trap of geometrical optics, I shift the focus to physical optics, to question of diffraction rather than reflection" (Barad, 2007, p. 135)

Diffraction, as a physical phenomenon, has to do with the way waves combine when they overlap and the apparent bending and spreading of waves that occurs when waves encounter an obstruction. Diffraction can occur with any kind of wave under the right conditions, such as water waves, sound waves and light waves. (Barad, 2007, p. 74) From relative differences in amplitude and phase between overlapping wave components, waves are said to interfere with each other, creating an interference or diffraction pattern. (Barad, 2007, p. 77)

Diffraction is a result of the superposition/interference of waves. Waves are additive, so that the resulting wave is a sum function of waves in superposition (Herbert, 1985, p. 74). When two waves overlap exactly out of phase, they cancel each other out – this is what is known as 'destructive interference'. At the other extreme, in-phase overlaps between two waves of equal amplitudes will result in a wave whose amplitude double that of each of the two component waves. A pattern emerges from the interaction of waves, where the result of superpositions is a function of the phase-differences between the waves where they meet. The resulting pattern is thus not merely a picture of difference, but of results of difference – differences that make a difference. (Barad, 2007, pp. 78-80)

"Diffraction attends to the relational nature of difference; it does not figure difference as either a matter of essence or as inconsequential: "a diffraction pattern does not map where differences appear, but rather maps where the effects of differences appear"" (Barad, 2007, p. 72 citing Donna Haraway in quotations)

Only waves, as opposed to particles, produce diffraction patterns. While mirrors produce reflected images of objects, diffraction gratings produce patterns that mark differences in the relative characters of individual waves as they combine. (Barad, 2007, p. 81)

Barad suggests that while the optical metaphor of reflection "reflects the themes of mirroring and sameness, diffraction is marked with patterns of difference." (Barad, 2007, p. 71) The word choice of diffraction being *marked*, rather than reflected, is not without significance. In the diffractive methodology, causes and effects emerge by marks made by

the intra-action of differences and are not mere cases of reflecting or displacing things already there. Barad writes that in contrast to objectivity as being about accurate and undistorted reflections of things in the world, within a diffractive approach, objectivity is about taking account of marks made on bodies. This is a reference to the materialisation of differences, which is how, in Barad's account, differences come to matter. Instead of meaning as referential or representational, Barad moves towards a performative account of meaning. Within this, meaning (understood here both as signification and significance) is about difference-making. Difference is conceived as difference-within phenomena, and not absolute differences outside of particular entangled phenomena. (Barad, 2007, p. 49)

The notion of diffraction is conceived by Barad as "a tool of analysis for attending to and responding to the effects of difference" (Barad, 2007, p. 72). In the context of this project, this is interesting for considering languages as different apparatuses which work differently with different differences[4], and the differences made by using particular languages rather than others.

This conception of difference is non-essentialist, in that there are not things which are inherently more or less alike, but instead different ways of drawing differences in the world, thus constituting different things.

"Difference cannot be taken for granted; it matters – indeed, it is what matters. The world is not populated with things that are more or less the same or different from one another. Relations do not follow relata, but the other way around. Matter is neither fixed and given nor the mere end result of different processes. Matter is produced and productive, generated and generative. Matter is agentive, not a fixed essence or property of things. Mattering is differentiating, and which differences come to matter, matter in the iterative production of different differences. Changing patterns of difference are neither pure cause nor pure effect; indeed, they are that which effects, or rather enacts, a causal structure, differentiating cause and effect. Difference patterns do not merely change in time and space; spacetime is an enactment of differentness, a way of making/marking here and now." (Barad, 2007, pp. 136-137)

[4] Sorry, I wish that the conventions of codification in English were more nuanced in differentiating between different kinds of differences – such would be a language of speakers attuned to operating with the notion of relational differences. On the other hand, if we did have different words for different orders of difference, there would not be the same use in establishing a terminology for relational difference.

Something is only other in comparison with something else along some line, and it is only something because a cut is made between it and something else. This cut enacts a particular arrangement of difference in the world, among many possible ones.

“The relationship between continuity and discontinuity is not one of radical exteriority but rather of agential separability, each being threaded through with the other. “Otherness” is an entangled relation of difference.” (Barad, 2007 p. 236)

12 DISCUSSION

Let us sum up the major points seen

- Arguments against an essential segmentation of the world into different realms, and the stop it causes against investigating how these realms interact and how the borders between them are constituted
- Arguments against individually determinate attributes of individually pre-existing things
- Propositions for contingent resolution of indeterminacy as the condition of possibility for objective reference
- Objectivity as unambiguous communicability and reproducibility
- Connection between semantic meaning and ontological determinacy. A concept has determinate meaning only if embodied, and is so to the exclusion of complimentary concepts. Language is part of the apparatus of embodiment.
- The semantic meaning is not something that can be pointed to in an image. It is not the image, but an application of the image. It is in a relational space between the image and others. It is a drawing out of particular similarities between different things. A system of rationales for making particular analogies, or abstract slips, is a language, and a language is thus what makes things like and unlike, as this is a matter of which lines are drawn, which aspects of likeness and difference are considered and matter, are what make sense. In this sense a language is a form of life, and is how one thinks and does. Outside of language, as broadly conceived, there is no determinate existence, attributes or meaning to objects, events and images. Images are not of anything by themselves.

- Particular lines of difference is what makes things. Determinate reality is constituted by particular exclusions and inclusions and the results of resulting differences.
- It is not by logical necessity that we attribute upon the world a segmentation into individually determinate entities.
- Language makes a difference to which aspects come into focus, which is part of making a difference to which intra-actions come to be.
- We can look at things as coming to be by particular constitution of apparatuses, or at meanings as particular resonances in a system. Not the word not the image itself actualises meaning. It is by and in relations that a phrase gains determinate sense.
- Semantic content depends on and includes the application of a system of particular cuts of consequence to the aims as articulated by the activity and its embeddedness in a language in the broadest sense of the term.
- Concepts are not ideational, in the sense that they have no meaning by themselves, but only as applied and embodied in various ways in the world. Particularly this is the case when there are questions of complimentary attributes
- There are different values of probability afforded to different abstract slips, such as are made in metaphorical thinking, in different languages and in different situations and practices.

There is no absolute measure of perfect determinacy or precision of sense. The concept of indeterminacy in fact only appears in contrast to an idea or aim for determinacy of some aspect. We only call the position of the electron indeterminate because we have an idea of something determinate which is its position, which is in complementarity to the engagement with its momentum. So, those things that are out of view to our language only get called indeterminate once light is directed upon them by the contrast of an alternative system of organisation, i.e. another language, in the broadest sense. In the situation of measuring momentum, it only makes sense to call the position indeterminate because we situate the measurement in a broader conceptual understanding which includes both position and momentum – but beyond this elaboration, position does not exist in its precise sense in this set up. Analogously, when I say that I am going to see someone, indeterminacy of the sense of 'seeing' emerges only when it is prodded from the standpoint of determinacy to the sense of this word. But in the world of this utterance, there are not such

precise boundaries. It is not part of the activity of this sentence that the borders of the sense of this word be interrogated, and in fact its indeterminacy is essential to its usefulness, allowing for the existence of many more things in it – like the wave, which by its indeterminacy of position allows for the existence of many different possibilities at once. This existence is of the realm of possibilities and pattern, and so less actual than any determinate slice made, but conversely, the view is also limited from the determinate, which exists only as one iteration on all that is possible

With the idea of complementarity, we get bifurcations of reality in a fundamental and principal sense. We do not need, if we do not want to, to imagine that the world is actually reshaped every time we make a methodological decision, like in a science-fiction movie. It is enough to say that in some fundamental way, the contents of the universe as it is for us are something akin to multiple puzzles on one canvas, where the borders of pieces can be differently constituted, and so the same point on the canvas can be part of different, mutually excluded constellations, even though the canvas can also be abstracted as a single thing.

However, this is not to say that the constellations are static. Methodological decisions do change the space of possibilities of arrangement in the world, so that the puzzles on the canvas change, which changes the space of possibilities for future constellations on the canvas. With increased mobility of borders on the canvas , a larger number of productive exclusions and complementary inclusions are available to us, and so the space of *possible possibilities* is changed with increased knowledge of different languages.

Observing meaning entails particular engagement along particular lines, and so what one observes is not what was and is outside of the measurement, but what emerges in the action of observation. We can thus speak of semantic meaning as something which is not determinate outside of particular practices which entail enacting certain boundaries of difference.

What are the limits imposed by language, and the limits imposed on language? With Barad, and to some degree Wittgenstein as well, we can say that there are not outer limits, just productive and contingent inner borders. We can, by their nature, not see limits. The only things are instances, or phenomena, emerging by particular differences. We know nothing

else. *Language vs not-language* and *this language vs other languages* are not the only possible cuts, and other cuts of the world are in operation when we say that languages differ within constraints, and that these differences are not absolute, static or unbridgeable. These categorical delineations between languages are not essential borders in the world, and when looking at dynamics of difference, many other points of differentiation may be attended to as materially significant, and the points of significant differentiation vary between phenomena of very different constitutions - even though they may all, in an abstracted categorisation be lumped under 'language', and by such a grouping be taken to be essentially, substantially and operationally undifferentiated. The point here is that categories are not essential in the way that they exist prior to the particular context of analysis. Different frameworks produce differently in a particular application, and, when we are able to compare different frameworks, some appear more appropriate than others, because they are attentive to different parts of the phenomena that may be judged to be more or less relevant and to have wider consequences.

12.1 Phenomena of empirical research into the effects of language

What studies such as the one testing the ability of Pirahä speakers to use the concept of different multiplicities show is that language has an influence on the outcome of the types of tests which we take as indicating the ability to grasp a concept or system. However, the inferences that one draws from this rely on certain apparatuses for interpretation, and it can make important differences what one attributes the result of the measurement-description situation to, analogously to the question of attributing inherent properties to photons.

A question such as 'where is the tree to be placed?', or 'is XY or XX most similar to YY?' (used in a study purporting to show a causal connection between learning to use symbolic language and the ability to reason analogically, by the fact that a chimpanzee was able to use such symbols to answer questions correctly after having learned the meaning of the symbols – of course the chimpanzee was not able to be tested in its own chimpanzee-language, and could only be assessed within the framework of the particular human-language used in the test) (Gomila, 2012), can be taken by the participant as meaning to elicit quite different types of response. These questions may be interpreted to simply mean 'I am interested to know what you find most natural', or they can mean 'I want to see if you

give the *correct* answer *according to a certain systematisation*'. In interpreting the results of such experiments, it makes a big difference which of the latter meanings is assumed to be taken by the participant, as well as which meaning the interpreter of the results themselves assumes. It can make the difference between 'Germans are most likely to, from this particular question asked in the experimental context, understand what is being asked of them in a way as to elicit this certain type of response rather than another' and 'Germans have a bias towards viewing the world in this way rather than another', or even 'it seems that German speakers have a more difficult time grasping this type of concept'. The last one may in a sense be a reasonable conclusion, given the concession that the parameters for observing difficulty in grasping concepts are bounded by the observations made by experimenters of the engagement by participants in situations which are often very artificial compared to other practices which will involve more cues to the meaning in a sentence uttered in connection with the practice (such as brick-laying, or answering questions about navigating a particular IT-system).

How well one understands the language (in the broadest sense of the term) that the test is set in is what decides how well one does in figuring out which features are relevant, and which are to be abstracted from - what the rules of the game are. It plays a role in how far one is from the concept of the game being the first natural inclination. It makes a difference in how many trial-and-error type runs are required to decode the language of the game, and thus understand what is asked. It is hard to disentangle the factor of how one expects that the question is meant from the factor of habitual training with the use of a concept, thus carving a short-cut for the use of it. It is difficult to even say exactly how these two conceptually separate mechanisms may be regarded as related or overlapping in practice.

The systemic effects of such differences in decoding the language of the game and in which languages such games are coded in, and which languages the results are interpreted in, are consequences entangled with methodological choices and the over-representation of some languages over others.

Differences between languages are proportional to the difference in forms of life.

This is why we would not understand a lion if it spoke English. Because the language needed to understand the semantic content of a phrase is more than just what we call 'English'.

Knowing all the words and the grammar of English is not enough to know what to do with them, and to understand which abstract slips to make, which concepts are in play, and so it is not enough to gather a determinate sense from a piece of language. Semantic content for humans is accessed within and by use of human language, which is to say human forms of life. Semantic content for lions is not accessible to us[5] because we are not working within the system of value, logic, aims and associations that a lion is in its form of life with other lions and phenomena of their world.

12.2 Apparatuses

Apparatuses, including language, which work to make the cuts that resolve a meaning, are the ending and starting point for explanation, both because one cannot step out from using any apparatuses at all, and because different apparatuses can resolve complementary meanings.

There is no way to say whether a photon as a photon has wave-behavior or particle behavior, because these two are not meaningful at the same time, and must instead be thought of as different types of phenomena with different types of effects in the world, and different causal structures. In the same way, one cannot say whether something means this-or-that, or which things are similar, without final recourse to a particular system of making meaning and making difference. When investigating language, this is done within language, and so we must take account of language as an agent of observation, or an instrument, and the fact that we cannot step out of this relation to poke at language without any instrument.

One can compare language-practices and look, using particular apparatuses, at which kinds of results and meanings they can make, but one has no standing to say, outside of comparisons, what things are actually like. One can only say what different languages do in different circumstances. Some interpretive frameworks will lead to more wide reaching results when applied to a situation than others, and will be differently condusive to various practices. Languages are systems and part of boundary-drawing practices. There is no determination of truth outside or prior to these, but there are differences in what is produced.

[5] At least not fully, and as of yet not decidedly.

This suggests that rather than truthful correspondence to reality, issues of language and knowledge are about considering which differences are made available and the differences made by such differences. From there, one must then consider what is to matter, so as to evaluate which practices of inclusions and exclusions to include. Knowledge-making practices are thus political practices and can never be ethically neutral activities.

Things of the ideational realm have tentacles into the material, and are abstractions of particular embodiments. Furthermore, meaning is not representational. The meaning of 'dog' is not the dog in a way of fitting together or corresponding. The word itself does not have a determinate meaning.

Following Whorf, words and phrases are on the lexical level, things are isolates of experience which can be lexated, while actualised meaning is on the level of patterned relations. Therefore, a word or a phrase does not correspond to a thing in the world or to an idea, but a connection exists in the pattern of potentialities and is actualised/emphasized within a phenomenon.

Whorf's theory of relativity by which every observer does not draw same conclusions from the same physical situation does not mean that one is forever locked into one's position, diverging from others. Instead, each language and situation does different things with reality, and so different things are actualised. So truly, different things exist differently in different languages, as things exist as they do in relations.

Language is a system working in meaning-making and responding to stimuli. To participate in a semantic meaning entails a certain way of engaging with a part of the world. Meaning only exists in and by language and situations. Language in a broad and fundamental sense is a form of life, and that which enables understanding. Understanding entails registering and responding a certain way to an influence. There are different probabilities of certain interpretations within different languages, and differences on the level of associations.

Meaning/intellectual content is organization of the world, and cannot be seen in a picture by itself. It is by entailment of particular practices of applying concepts and slipping over, excluding and including, relating and connecting. It is not the picture itself, and cannot be ascertained by the picture itself, but is in a particular relation of engagement with the

picture. It is not representational but performative. In this way, how we make meaning of the world is entangled with reality in more ways than one.

13 CONCLUSION

There is an important sense in which it may be said that semantic meaning and reality, be it physical, ideational or social, are not sensibly existent outside of the particularities of their mutual co-constitution. Furthermore, with this view, a commitment to truth as ordinarily understood is replaced by more varied questions of accountability. There is no one true picture of the world, and the world does not sit still, wherefore considerations emerge about which parts of the world, in Barads words 'are made to matter and what is excluded from mattering', as well as how and for whom they matter. So, there is no one set of connections given once and for all between a part of the world called semantic meaning and another part of the world existing separately. On the flip side, however, there are ways that we can speak about such connections and take account of the fact that such activity is part of establishing new connections.

Doing away with any common-sense notion of truth does not lead to the disappearance of objectivity. It does not mean that one cannot speak about non-subjective reality. Reality is something in which we are intertwined, and various effects can present themselves by different resonances.

When we say that the observer must be kept in the picture, this is not just saying that the description is limited to the perspective of the observer. It is also the point that without the drawing of particular boundaries and making some or another mark in the world, no things, meanings or connections exist. It is difference that makes anything, and the being of something is to the exclusion of something else. The fact that inclusions entail exclusions, and that this can be said to make a difference leads to questions of accountability to which differences are made.

14 LITTERATURE

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