Imagining metaphors: cognitive representation in interpretation and understanding

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Citation for published version (APA):

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III Representation

Grounding concepts in experience, language and imagination.

"If I wasn't real," Alice said - half laughing through her tears, it all seemed so ridiculous - "I shouldn't be able to cry". "I hope you don't suppose those are real tears?" Tweedledum interrupted in a tone of great contempt.

Lewis Carroll\textsuperscript{161}

It is only the elasticity of our conventions that makes a link between disparate acts.

Tristan Tzara\textsuperscript{162}

1 Introduction

In this chapter I attempt to further develop the speculations I presented in the preceding chapter. There, I speculated on a general understanding of concept formation on the model of Kant's theory of productive imagination and reflective judgement. I argued that the notion of objectivity in concepts was superfluous, and suggested that it be replaced by an account in terms of imaginatively produced conceptualizations. I distinguished a gradual transition from conceptual judgements made on the basis of routine processing, those that are performed on the basis of immediate recognition of similarities in an intuitive presentation, to judgements in which comparisons are formed between imaginative representations that lead to entirely new conceptualizations.

As a result, aesthetic reflection was speculatively understood as an instance of a more general cognitive capacity. Where Kant analyses it as the non-\textsuperscript{161} Through the Looking Glass, chapter 4
\textsuperscript{162} 'Lecture on dada' in Tzara[1992]
determinant pondering over imaginative presentations, I suggested aesthetic reflection, and its ‘free play of the imagination’ is in fact the same process as conceptual determination. The processes of both aesthetic reflection and conceptual determination were thus speculatively identified as the combining of representations in imagination, and the difference between the two was considered to lie in the different interests that the interpreter takes in the process of interpretation itself.

With these speculations, many questions were left open as to how they should be incorporated in a model of cognition. Most importantly, the issue of representation remains undiscussed. As far as Kant informs us, representations are either derived from sensory impressions and reproduced in imagination, or they are part of an internal intuition, which manifests itself in the productive imagination. Imagination, however, is also consistently described as the 'blind force' hidden in the depth of our soul. Thus, the least we need to clarify is what a representation in imagination represents, and whether sensory impressions and representations derived from internal intuition are related. We also lack a specific account of the process how representations are combined in imagination, and how this should result in a concept. Further, the topic of how the understanding of linguistic utterances, and the interpretation of texts should fit into such a model, was hardly touched upon. So, I turn to these issues in the present chapter.

The model of cognition I speculated on should explain concept formation and application by the means of imaginative productivity. Concepts, in this model, would be produced through the combination of perceptual as well as imaginative representations. Not many contemporary views meet the demands that I have thus formulated. My view dismisses, for instance, the stance that concepts are part of a 'third realm' of objective entities. As I suggested that concepts are the product of subjective imagination, the notion of objective propositional meaning cannot take on the role of a concept in such a model. It also dismisses the assumption of an a priori or an innate system of concepts. Thus, the conceptual system is the result of experience and mere faculties of perception, representation and combination. Further, to presume a subjective, imaginative grounding of the conceptual system raises the problem that all mentalist theories have to face, namely the problem of intersubjectivity. The assumptions that Kant claims as a priori rational assumptions that allow for a notion of subjective universality, provide a guideline here. Hence the possibility of assuming common ground in the process of concept formation will have to be confirmed in the model we look for.

Part of the challenge is to find a theory of conceptual understanding that can incorporate an account of metaphorical interpretation as it resulted from the previous discussions. It should then be able to distinguish between creative
interpretations and routine understandings as a matter of degree, without presupposing a distinction between metaphorical and literal language. Below I first discuss two recent models of cognition and conceptual understanding, which meet the requirements set above in different ways. Both see the process of concept formation as based on recognition of similarity, either of structure or of appearance. Both theories, then, assume that conceptualization results from similarity recognition and conceptual combination, which we saw are the tools of productive imagination. Further in either theory, concepts both pertain to, and are developed on the basis of intuitive presentations, or rather, in a more contemporary terminology, perception.

The model developed by Bartsch, discussed in section 2 below, presents concepts as similarity relations between situations, and hence the notion of a situation under an aspect of similarity provides the basic element in cognitive representation. For Barsalou, in a theory discussed in section 3 below, concepts are structural relations between perceptual symbols, which are a 'functional selection' of perceptual states.

In the discussion of both models, I focus on two aspects. The first is the role of imagination, and how the notion of imaginative representations, as derived from something analogous to Kant's internal intuition, may be understood next to that of intuitive or perceptual presentations. The second is the assumption of common ground, whether explicitly presented or not, and the extent to which this allows for an explanation of intersubjective concepts, at least where linguistic meanings are concerned.

I conclude this chapter with a proposal. I present an outline of a model of concept formation and representation, which is based to some extent on the models discussed. I follow Bartsch's model in understanding language as playing an essential role in the process of concept formation, and I use Barsalou's model of cognitive representation as based on perceptual processing. However, unlike the theories discussed, the resulting proposal positions Kant's productive imagination as the central drive in concept formation, as well as in concept application.
2 Dynamic Conceptual Semantics

2.1 Dynamic Conceptual Semantics: outline

The first model I consider is presented by Renate Bartsch. She proposes a logico-philosophical theory of concepts that is based on a psychologically realistic understanding of the process of concept formation. The resulting theory is called Dynamic Conceptual Semantics. First I outline the model in a general manner, and then consider some of its specific properties, and its relevance for the elaboration of my suggestions above.

Concepts, according to Bartsch, are formed through the organization of experience in the individual. The drive for conceptual organization in this model, then, is the spontaneous recognition of similarity between experienced situations, and the further recognition of similarities and oppositions within such natural perspectives of similarity. Cognitive development thereby depends on the experience of the outer world in two ways. First, it depends on the perceptual information that is processed by the individual. With experience growing, the refinement of the conceptual system develops; thus, at any stage of development, the individual will have a different set of concepts. Second, the process of concept formation is dependent on the social environment of the individual. According to Bartsch a higher level of conceptual organisation is dependent on linguistic representation. The individual learns to express himself in language through a process of correction and approval within a speech community. Thus, Bartsch presents a dynamic and flexible model of conceptual organisation on the basis of its linguistic surfacing, but grounds it in the experience of an individual as a member of a social environment.

Concept formation as Bartsch sees it has different levels of sophistication and of explication. This is reflected in her classification of concepts in two kinds: experiential and theoretical concepts.

Experiential concepts

Primarily concept formation in experience takes place on a level of sensory impressions in a flow of time, which becomes divided and its parts become interrelated. The experienced situations are grouped by similarities, oppositions and contiguity relations. The resulting similarity sets (such as e.g. 'warm things') and individual histories (consisting of e.g. different experiences of the same cat) are used to classify new experiences. A concept is understood
as an equivalence class: a set of collections of situations gathered under an aspect of similarity. The formation of concepts thus consists of an evolving structure of collections of experienced situations. As experience grows, concepts grow. A concept stabilizes over time: when newly experienced situations can be recognized as being similar to a specific set of experienced situations without importing novel aspects of similarity, that is, when it can be subsumed under an already formed concept without destabilizing its internal similarity, then that concept is stable. The situations that helped establish the stable concept, that is, the learning instances for that concept, are satisfaction situations for the utterances in which the concept is expressed, without negation.\textsuperscript{163} Satisfaction situations are those situations that add to the growth of the concept. The concept, then, can be represented by every stable collection of its satisfaction situations.

The formation of concepts goes hand in hand with the mastering of language. Language is learned on the basis of encounters with similar utterances, along with similarities in the utterance situations. These utterance situations, as learning instances, are then the satisfaction situations for the concept expressed.\textsuperscript{164} In the learning of language compositionality plays an important role; after learning how similar words can recur in different utterances, concepts expressed by single words may be individuated. Language both depends on and furthers the structuring through similarity classes. Learning an expression through its different utterance situations is based on discerning relevant similarities and oppositions between these situations, whereas an utterance itself serves as an indication that there are such similarities between the present utterance situation and former ones. An expression comes to express a concept through the formation of an equivalence class of the utterance situations. However, since an expression is not used for a uniquely determined similarity relation, different sequences of satisfaction situations for the use of an expression are formed, namely it satisfies the expression used under a perspective, that is, in a type of context. Hence: '[A perspective] secures restriction of similarity to relevant identities between satisfaction situations and it creates a meaningful relationship of contrast and opposition'.\textsuperscript{165}

\textsuperscript{163} Satisfaction situations are defined with respect to utterances as those situations that make an utterance true or fulfilled.

\textsuperscript{164} Satisfaction situations for an utterance need not coincide with the utterance situation, since the utterance may for instance be about a situation somewhere else, or it may contain quantifiers, or negation. However, before being able to understand such utterances, the relation between satisfaction situations and utterance first has to be learned, in situations where the utterance situation either is, or is closely combined to the satisfaction situation for the utterance (Bartsch[1998], p 25).

\textsuperscript{165} Bartsch[1998] p 40
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Perspectives, then, are pre-given, and they are not concepts themselves. The process of concept formation described on the experiential level 'merely presupposes the availability of pre-cognitive perspectives which are capacities, dispositions and directions of attention in actions [...]. They are enough in order to cancel out irrelevant similarities and select relevant ones. But they cannot be concepts in themselves'.\textsuperscript{166} Examples given of such basic perspectives, then, include 'colour', 'form', 'touchable material quality' or 'behaviour'.\textsuperscript{167} A set of satisfaction situations is formed under such a perspective, the situations included in this set do exhibit internal similarity, and hence these are called similarity sets. A similarity set grows with experience. It becomes stable when newly added satisfaction situations for the uttered expression under the same perspective do not alter the degree of internal similarity within the set. A similarity set then converges to an ideal, namely a set with a stable internal similarity.\textsuperscript{168} This is then called a \textit{maximal} similarity set with respect to the expression (under a perspective). It is 'a complete cognitive reconstruction, i.e. the concept, of the situational property or situation type expressed by [the expression]'.\textsuperscript{169} Hence, a stable concept expressed by an expression under a perspective reconstructs a situational property.

In Bartsch's account of concept formation, most of the notions used are elaborated formally and are more or less mathematically defined. Since such precision is not required for this investigation, as I am interested in a philosophical inquiry into cognitive processes rather than in a formal description suitable for semantic modelling, I will not go into the formal

\textsuperscript{166} Bartsch[1998] p 42  
\textsuperscript{167} Bartsch[1998] p 41  
\textsuperscript{168} Technically, such a maximal similarity set is rendered as the equivalence class of the elements in a \textit{sequence} of growing similarity sets formed for an expression $e$, under a perspective $P$. That is, a similarity set grows monotonously with newly added satisfaction situations, the process of which is formally rendered by a growing sequence of similarity sets. Each of these similarity sets in the sequence has its own degree of internal similarity. When a concept for $e$ under $P$ stabilizes that means that the next similarity set in this sequence has the same 'degree of internal similarity, that is, the situations in a new similarity set do not alter the established minimal similarity relations between situations in the previously formed similarity set. The \textit{maximal similarity set} of all these similarity sets in the sequence then has the following property: any satisfaction situation (occurring in any previously formed similarity set in the sequence) may be added to the maximal similarity set without altering its degree of internal similarity. Hence, stability of the concept expressed by $e$ under $P$ is determined by a stable degree of internal similarity, and not by an unchanging collection of satisfaction situations. Thus, although I refer to Bartsch's extensional understanding of concepts elsewhere, this should not be understood as a for once and for all determined set of specific exemplary situations; rather, the constituents in the set may change, but if it is stable, the degree of internal similarity is supposed to remain the same.  
\textsuperscript{169} Bartsch[1998] p 43
definitions. However several descriptions of cognitive acts or phenomena do acquire a specific, technical understanding. A concept, or strictly speaking, a representative of a concept, as we saw, is described as the reconstruction of a property by the formation of a maximal similarity set of satisfaction situations, with a stable degree of internal similarity. A concept that is still growing, that is, a similarity set to which new satisfaction situations can be added in such a way that the degree of internal similarity changes, is called a quasi-concept. Bartsch takes it that after sufficient experience a quasi-concept becomes a stable concept. Further, the introduced notion of perspective allows for polysemy: an expression may express different concepts under different perspectives, i.e. in different types of contexts. In this way, an expression comes to express a polysemic complex. I will elaborate somewhat on the notion of perspectives, as well as that of polysemic complexes below.

Given the extensional representation of concepts and of meaning, understanding is defined as the integration of new data in the structure of already processed data, while preserving the stability of concepts. In other words, to understand an utterance means that the possible satisfaction situation expressed by the utterance in its context of use can be embedded in the conceptual structure of collections of satisfaction situations, without altering this structure. In a speech community, then, different speakers cognitively construe concepts (or strictly speaking, their representatives of a concept) for an expression; and as they have different experiences, the sets of satisfaction situations they encounter may be different. However, as the use of the expression is regulated within the speech community, there are social norms for when a situation may be understood as a satisfaction situation for an expression. Such social norms are experienced in the speech community, through the process of learning language. That is, one learns that some utterances are accepted by fellow speakers, while other utterances are corrected in its application to a situation, and thus one learns satisfaction situations for expressions on the basis of trial and error. The internal similarity of a set of satisfaction situations under a perspective, then, is formed conform to social regulations. Ideally, then, speakers in a speech community use language in conformity to one another, and hence, ideally, the concepts an individual speaker reconstructs on the basis of socially accepted utterances should be coordinated socially. In this sense speakers have common ground in the formation of concepts for expressions. First, they have the actual satisfaction situations, which are given in experience, and secondly, they have a socially regulated system of connecting expressions to reality. Hence, intersubjectivity of concepts becomes possible. From an epistemological point of view, an intersubjective concept of a situational property would be the concept that speakers share, that is, the ideal
limit of convergence of the internal similarity of the stable concepts of all
partakers in a speech community. And from a realistic point of view, Bartsch
writes, 'the property is in the world, distinguished from the concept that is its
socially coordinated reconstruction'.\(^{170}\) Thus, intersubjective concepts are the
social or intersubjective reconstruction of properties.

The above characterization of the process of concept formation on the
experiential level presents several notions as primitive. The first is the notion of
a perspective. Perspectives are pre-given 'similarity spaces', which allow an
individual to construe similarity sets of satisfaction situations. Both the notion
of similarity that is used here, and the notion of perspective are discussed in
section 2.3 below. Further, the notion of a situation is a realistic one, as
situations have properties that may conceptually be reconstructed. Thus, a
realist ontology seems to underlie the given model of concept formation. I take
a closer look at these issues in the same section.

**Theoretical concepts**

As we saw, concepts on the experiential level include concepts formed on the
basis of experience, and linguistically expressed concepts formed on the basis
of experienced satisfaction situations for an utterance. Bartsch distinguishes
these from concepts formed on a second, theoretical level, namely theoretical,
or linguistically explicated concepts.

Bartsch defines these in the following way: 'On the theoretical level,
linguistically expressed concepts are defined by the characteristic semantic
distribution of the expression, i.e. the sentential complements of the expression
used as a general term in universally quantified sentences'.\(^{171}\) A theoretical
concept consists of a conjunction of predications, which express *features*
characteristic for the term in a *theory*. The predications that explicate the
concept expressed by an expression A then have the form of sentences like 'An
x that is A is...' or 'All x's of the kind A are...'. Features are themselves concepts,
which function in the description of other concepts. A theory, to be sure, is here
not understood as a scientific theory, but more generally, as a set of general
sentences that may coherently be held true. It comprises, for instance, any bit of
coherent everyday knowledge thought to be true, such as a wolf being
voracious or fiercely cruel. Thus, a theory may include what Max Black calls
'an associated complex of commonplaces'. Theories, in Bartsch's model, seem to
represent another understanding of background knowledge in interpretation, a

\(^{170}\) Bartsch[1998] p 44

\(^{171}\) Bartsch[2002] p 50
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notion we discussed in the first chapter, namely in this case consisting of 'a coherent set of general sentences held true'. 172

Theoretical concepts may correspond to linguistically expressed concepts, processed in experience. But there are also theoretical concepts that are formed exclusively on the basis of relations between concepts in a theory, i.e. with no direct experience of their extensions but solely on the basis of coherence with other concepts. We sometimes assume theoretical entities because it helps to 'order and explain certain experiences'. 173 Thus: 'For those theoretical concepts that have no correspondent on the experiential level, entities are imagined as referents without directly being experienced'. 174

In a way, I will argue, all referents of theoretical concepts are imagined, rather than being directly experienced. I argue that the formation of theoretical concepts can only be grounded in experience indirectly, namely through the productive combination of the experientially formed meanings of the predicates that constitute a theoretical definition or explication. As we will see, in Bartsch's theory such productive work of cognition is left out of consideration. I address this issue in section 2.2. The problem with the assumption of two levels of concept formation, further, is that linguistically expressed concepts are defined on either level, thus presupposing the possibility of a reconstruction of experiential concepts as theoretical concepts. I address this issue in 2.3, and then present an alternative understanding of linguistically explicated meanings in 2.4. The argumentation for my position however will have to wait until I have outlined another important aspect of Bartsch's theory, namely how stability of concepts on the one hand, and change of perspective on the other play a role in creating new concepts.

Common ground

In the process of concept formation, the step from forming experiential concepts to forming theoretical concepts is taken when the individual starts formulating and ordering general knowledge. This can be done in various ways: 'by generalization based on induction, on hypotheses and confirmation, or just by accepting general sentences as true, when they are offered by authorities in certain fields of knowledge'. 175 In other words, theoretical concepts may be the result of reasoning on experiential data, and it may be the result of adopting general knowledge as true. A theoretical concept, defined by feature

172 Bartsch[2002] p 50. For the discussion of background knowledge in interpretation, see the conclusion in chapter 1.
173 Bartsch[1998] p 77
174 Bartsch[1998] p 77
175 Bartsch[1998] p 79
explication, is further always relative to a theoretical context, that is, to a set of general sentences held true. Therefore a theoretical concept is, in the words of Bartsch: 'merely partial compared to the concept the word expresses itself, the meaning of which is learned by acquaintance with the denoted things in language use'.\(^{176}\) A single experiential concept can be developed into different theoretical concepts within different theories, even when sometimes the same expression is used for these different concepts. In different everyday lives, for instance, the word 'water' may express different concepts, formed in such different environments as where you fetch it with a bucket from a well after an hour's walk, or where it is the stuff coming out of the hose to wash your car with.

In Bartsch's model higher levels of concept formation are thus inseparable from a socially guided process of language mastering. Nevertheless, the process of concept formation remains firmly rooted in experience. Hence: 'The role of the level of common experiential concepts, and the existence of commonly accepted background theories is essential for the development of socially co-ordinated concepts. They form the background into which different theoretical concepts can be anchored into a single experiential concept'.\(^{177}\)

In view of the experiential grounding of the concept 'water', the theoretical concepts formed in different environments can be anchored in a single 'point of convergence'.\(^{178}\) That is, even if the feature explications for the concept of water between two individuals are very different, their experiential concepts do converge at a certain limit, since they agree on the denotation of 'water'. However, the experiential concept of 'water' has far more information to it than merely a denotation, and this information is represented in the sequence of satisfaction situations by which it is formed. Thus, on the experiential level, concepts are richer (or at least less partial) than on the theoretical level. Moreover, experiential concepts represent the possibility for intersubjective agreement.\(^{179}\)

If someone living in the desert moves to a place where water runs from the tap and where it is not generally considered precious, his experience will give rise to new satisfaction situations for the concept of 'water'. In this way greater convergence of the concept as it is formed in the experience of different individuals may grow. It is in this way that the social coordination of concepts can be ensured. The prerequisite for this assumption is, naturally, that the

\(^{176}\) Bartsch[1998] pp 126-127

\(^{177}\) Bartsch[1998] pp 86-87

\(^{178}\) Bartsch[1998] p 88

\(^{179}\) It should be added that, according to Bartsch, the 'background theory', understood in a weaker sense, should allow for a certain 'detectable overlap' between different speakers from different cultures, and hence allows for communication. Cf. Bartsch[1998] p 87.
person from the desert recognizes the stuff coming out of the tap as 'water'. Hence, the assumption of common ground in the formation of experiential concepts precedes the possibility of social coordination of concepts, that is, it precedes intersubjectivity.

With the assumption of common ground, we may recall the discussion on subjective universality in the last chapter. For Bartsch, the experiential level of representation is organized into concepts, and these are, to some extent, expressible. Experiential concepts further provide a common ground between people who hold different theories to be true. Thus the notion of experiential concepts presupposes first a basic rational assumption that experience and its conceptualization at some point converge for all (that is, that we in the end all recognize water). Second, the assumption of an objective reality (containing, for instance, the denotation of 'water') underlies the model of experiential concepts. These same assumptions, we saw, formed the *a priori* ground for subjective universals in the *Critique of Judgement*. Subjective judgements were made in 'conformity' with the rules of understanding laid out in the Critical Philosophy. We may ask, now, whether experiential concepts in Bartsch's model similarly could qualify as 'subjective universals', and by which principles they are formed. For, so far, the formation of experiential concepts took place on the basis of recognition of similarity. How, then, is similarity processed, and in what sense can theoretical concepts be grounded in the same experienced similarities?

*Creative understanding*

The natural end of the process of forming of a concept, is when the concept stabilizes. That is, an expressed concept becomes stable when new satisfaction situations for the utterance can be understood 'smoothly', without changing the degree of internal similarity of the set of satisfaction situations. When encountering an utterance referring to a situation that cannot thus be integrated in our conceptual system, a number of responses to the utterance are possible. Under certain circumstances a stable concept may destabilize and get extended or narrowed down. These circumstances occur for instance when massive counterevidence is encountered, or under normative importance of a given situation that does not meet our conceptual judgements. But generally, Bartsch claims, understanding aims at keeping stable structures intact. When we encounter an utterance situation that cannot be processed coherently through similarity or contiguity within the set of satisfaction situations for that expression, we have three alternative strategies to follow, before we take the fourth option of 'undoing' or destabilizing a stable concept.
First, if we do not understand what is meant, we may discard the utterance as semantically unacceptable, that is, as not fitting into our conceptual system: the utterance is nonsensical. Secondly, we may discard the utterance as false, that is, as not fitting in our personal knowledge base. In this case, the utterance expresses something that contradicts something we know and believe to be true. The third strategy, finally, is to try to form a new quasi-concept for the expression on the basis of this particular utterance. To do this, we seek to combine the present situation with some satisfaction situations in the concept under a different perspective, and thus form a tentative similarity set of satisfaction situations.

An illustration of this third strategy is the first encounter with the metaphorical use of the word 'pig'. Consider the situation where a boy, let us call him John, comes home covered with dirt, and his mother cries out: 'You're such a pig!'. If we normally understand the word 'pig' to indicate a natural kind, this utterance does not fit in our collection of pig-situations. Rather than understand her as saying that John swapped between species, or that pigs are sometimes human, we take a new perspective on the utterance situation. A perspective can be seen as a 'similarity space', that allows us to consider similarities, either perceptually or in the theoretical feature-basis, under a specific aspect. In the example, the context introduces a new perspective, for instance the aspect of behaviour, since we know pigs to be filthy seeking, mud-covered animals. With this perspective, we form a new quasi-concept for 'pig', in which both the situations of dirty John and of typical pig behaviour are collected.

The new perspective itself is derived from context, and as such precedes the concept. In other words, given a context it may make sense to not reject the utterance as unacceptable or false, but to change perspective, and form a new concept for the terms in a given utterance. Understanding a metaphor, in Bartsch's theory, is a way of making new concepts, on the basis of new perspectives: 'Metaphor and metonymy are new ways of continuing series of satisfaction situations for an expression on the experiential level, and they are also new selections from available features and contiguity relations on the theoretical level, according to contextually introduced perspectives'.

Thus, according to Bartsch, metaphorical interpretation is concept formation under a new, contextually introduced perspective. Metaphorical interpretation of an utterance under a new perspective involves looking for similarity, either of appearance in situations, or of aspects and relationships explicated in theories. As such, metaphorical use of a term introduces a new quasi-concept for a term, and so requires its present utterance situation to be placed in a new

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180 Bartsch[2002] p 55 (my italics)
series of situations that are similar under the different or new perspective. Hence, in the example 'You're such a pig!', the perspective of 'natural kind' is replaced by the perspective of 'behaviour', and so a new quasi-concept for the term 'pig' is formed, including as a satisfaction situation the instance where the John was called 'pig'.

As metaphors bring about quasi-concepts, these may turn into concepts. In this way the metaphorically used expression may come to express a 'polysemic complex'. The expression can then be used in at least two ways: it may be used to express the previously formed stable concept, or to express the metaphorical concept. Metaphor making, in this account, is essentially the same process as concept formation; through a perspective change, a new concept is formed on the basis of old and new information.

In the theory of metaphor thus outlined, a metaphorical meaning essentially is part of a polysemic complex, or at least, it stands at the beginning of a newly formed additional meaning for the metaphorically used expressions. Metaphor therewith is only different from other utterances in that they require the interpreter to change perspective, since the metaphorical use of an expression is not understood with the help of its normal or standard meaning. Thus, the notion of 'semantic clash' takes a different form; it is not a semantic property of the utterance, rather it is a novel interpretation within a context, deviating from interpretation of the expression in a standard context, that makes an utterance a novel metaphor. Further, clearly, the theory provides an account of how metaphorical interpretation is related to conceptual understanding, since metaphor is considered an instance of concept formation, and is not based on any special semantic or syntactic properties. Thus, Bartsch's model presents a solution to some of the problems I signalled in the theories on metaphorical interpretation in the first chapter.

However, there are more issues at stake in a theory of metaphorical interpretation. The first is the role of context, or contextually introduced perspectives. For Bartsch, the meaning of a metaphor such as 'You're a pig' is grasped immediately from the context. That is, the child notices his mother's anger and knows it is directed at his behaviour. Thus, context presents a perspective for the interpretation of a given utterance such that it is understood by similarity to previous satisfaction situations. The notion of a perspective, is primitive in the theory of Bartsch and it presumes a 'natural' processing of similarities. In the first chapter I observed that the interpretation of poetic metaphor may involve the construction of a context for a given expression or text. That is, the context here is not 'naturally' given, but is produced in reflection. I consider the role of context in Bartsch's model somewhat more extensively below, in order to see whether it is possible to explain the reflective construction rather than the natural adoption of a contextual perspective.
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within this model. Crucial for the theoretical analysis of a basic or natural perspective, we saw, is that it allows for the recognition of a restrictive similarity between situations experienced. In the following sections, I first discuss the notion of similarity that is proposed on the level of experientially ordering satisfaction situations, and then turn to how similarity plays a role in the organisation of the concepts that are formed thus.

2.2 Context and creative interpretation

Consider, again, the example of the little boy who was called a pig. In understanding this utterance, the context gave rise to a new perspective, in which formerly processed situations could be integrated alongside the present utterance situation. The assumption that understanding aims at keeping stable structures intact is vital for this analysis of concept formation. If this were not the case, in a situation like this the hearer, if he accepted the mother's utterance as a satisfaction situation for the 'standard' concept of pig, could react by simply extending his concept of 'pig' to include John. If such were the case, the opposition between pigs and humans would no longer be accounted for in the concept 'pig' under the 'natural kind' perspective. That is, on the basis of this utterance situation, the expression 'pig' would no longer be suitable to indicate an opposition between pigs and humans. The aim for stability prevents this kind of conflations of concepts on the basis of a single utterance. Thus, stability of concepts is tied to regularity in the use of expressions, and hence, to the normative character of language.

As a consequence, a person has to possess a set of stable concepts, before he can understand and produce utterances as metaphorical, that is, as involving another than the 'standard' meaning of the expression: 'Only when conceptual stability is almost reached the difference between standard use and creative use of an expression comes about'.\(^{181}\) In particular the source concept (that is, 'pig' under the perspective of natural kind) must be stabilized to a high degree; otherwise the new use of the expression would indeed be integrated into the concept, and the concept would be destabilized (i.e. John would become part of the similarity set of pigs under the perspective of natural kind).

In the first stages of language acquisition, children form concepts where perspectives do not provide restrictions on a concept. Typically, they form heap concepts, or chain concepts, where concepts formed under different perspectives overlap or are not distinguished. Thus, here, the satisfaction situations for an expression are related by similarity or by contiguity

\(^{181}\) Bartsch[2002] p 56
established or seen under freely changing perspectives. Thus children sometimes involuntarily present what, coming from a full-fledged language user, would sound as a peculiar metaphor: for instance the word 'dog' used for a dog, for a toothbrush, or for buttons on a coat. Typically, such an utterance coming from a child will be corrected by his teacher. And typically, Bartsch notes, when the child is educated to a further degree, it learns to restrict the use of an expression for concepts under a perspective; thus it learns to not use a word such as 'dog' for hairy things.

According to Bartsch, a metaphorical concept can be generated on the experiential level: 'It is [...] possible to create new concepts directly on the experiential level, which appear metaphorical, seen on the background of already conventionalized language'. In this case, then, the interpreter should reconstruct a property shared by the utterance situation and the satisfaction situations of the metaphorically used expressions: 'The principle of conceptual reconstruction of a property is that such concept formation must be possible by means of information available at the time of interpretation'.

In the discussion of metaphor in the first chapter we saw several views on similarities involved in metaphor: Aristotle's description of proportional analogy, Indurkhya's projective analogy, and we could construe a type of analogy in Goodman's account of metaphorical expression as well. These accounts have in common that no specific aspect of similarity, that is: no specific property, whether a relational or a phenomenal one, has to be cognitively reconstructed as shared by all constituents in order to motivate the construed analogy. An indeterminate cluster of properties, we saw, could be compared as well as determinate properties based on relational or structural similarities. In other words: the analogy between cross-conceptual applications of a term in these models seemed to have a greater indeterminacy than the notion of perspective presented here seems to have. Hence, in view of the previously discussed theories, the assumption that reconstruction of a situational property on the basis of similarity between experienced satisfaction situations under a perspective always provides the meaning of the metaphorically used expression, is not self-evident.

Consider again the example of John, and let us suppose he only knows of terms being applied under a sense of 'natural kind', and that his concept of pigs is stable enough for him to know he definitely is not a pig (that is, he has a background of already conventionalized language). According to Bartsch's analysis of metaphor, he would change to the new perspective from the context.

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182 Examples derived by Bartsch from Vygotsky (Bartsch[1998] p 57).
183 Bartsch[1998] p 106
184 Bartsch[1998] p 106
of the utterance, that is because of his mother's angry voice, from his experience of his mother commenting his behaviour and so on. This would not imply that he actively compares the situation to his knowledge of pig-situations, for the comparison between the present situation and previous pig-situations would not have to stop at the recognition of a similarity in behaviour. There could be many other respects in which the utterance situation reminds him of pigs, such as the foul smell of his clothes or the fact that he is overweight; maybe he is wearing something pink, or made a typical sound when coming home. Thus, I find, a reflective comparison of the utterance situation and former pig situations would not necessarily be restricted to the perspective of behaviour.

Perhaps an example of an expression employed less commonly as a metaphor is more illuminating with regard to the role of context. Consider again the example of the child that calls a toothbrush 'dog'. Here, the teacher takes the child to use the word 'dog' wrongly, and corrects it. If, however, the child and the teacher had just previously been engaged in a conversation on the difference in quality of fur on dogs and cats, and now the child points to the toothbrush while saying: 'dog', the teacher's understanding of the child's utterance might have been quite different. Instead of taking the child to use the wrong word, the teacher would now appreciate the utterance as meaningful, stating that a dog's fur is less smooth than that of a cat, or that a dog's fur is comparable to a rough brush. In this latter situation a perspective of perhaps 'furriness' or 'feel' with regard to the use of the word 'dog' would have been established, and this would have given the local background for understanding the utterance.

In the case of John the pig, something similar must be the case. The context of the situation must provide a clue that his mother is not pleased that he has made himself all dirty, and the perspective of behaviour must, therefore, have been made clear to him in some way or other (for instance: his mother grabbing a towel and starting to clean him). If the context does not provide such a clue, it remains unclear why John would understand the utterance on the basis of a single aspect of similarity, namely 'behaviour', since others were to be found (such as from the perspectives of colour, sound, smell, and so on).

Metaphorical concepts, by Bartsch's analysis, are the result of contextual introduction, or of the availability in an explicited feature basis, of a given perspective. Hence, it seems, if a perspective is not available in this sense, the metaphorically expressed quasi-concept would not be formed, and the meaning of the metaphor would remain indeterminate. Bartsch is aware of such indeterminateness. She writes: 'the more we already know about the
satisfaction situation for the new use of [the expression], the more precise the interpretation can be.\(^{185}\)

I concluded in the first chapter that the metaphorical interpretation of poetic texts typically involves the construction of a context. As we saw, many such 'fabricated' contexts are possible: imagination might provide any number of associations suitable to construct a context of interpretation. The construction of a context, then, in Bartsch's model should be explained as finding a perspective under which the metaphor might be understood.

Bartsch indeed proposes that especially in literary texts the lack of a determinate context allows for the formation of several perspectives in understanding a metaphor: 'creativity [...] is nothing more than the generation of the concepts possibly expressed by [the metaphorically used term]'\(^{186}\). Thus in poetic interpretation a number of possible perspectives might be found, each yielding different concepts for the metaphorically used expression.

However, this account of indeterminateness is not entirely satisfactory. We saw that in all metaphors, and not only poetic ones, interpretation is not limited to a single perspective. For instance, even in the plain utterance 'You’re such a pig' different perspectives must play a role in a single interpretation. The 'moral' of the metaphor here is that a human is not a pig, and thus that behaving like one is not a good thing. In other words, for the utterance to achieve its impact, an understanding of the word 'pig' under the 'natural kind' perspective is required in addition to an understanding under the aspect of 'behaviour', and hence the former is not to be dismissed in the interpretation. Thus, the meaning of the metaphor cannot be identified as belonging to the (quasi)concept pig under the contextually introduced perspective of behaviour alone.

The characterization of metaphorical meaning as one concept in a polysemic complex of concepts expressed by an expression then does not seem to reflect the interpretation of a metaphorically used expression. Especially when considering poetic interpretation, but also in reflecting upon the meaning of 'pig' in the previously used example, the process of forming a concept under a natural, pre-given perspective seems to be too limited to render the possibility of understanding an expression under different perspectives. The description of the infantile process of concept formation, in which different perspectives run through a single over-generalizing concept for the expression, seems to come closer to how meaning is produced in reflective metaphorical interpretation.

For instance, when we, as adult speakers (or as theorists), consider a child that applies the word 'dog' to a toothbrush, we are able to reconstruct the way the

\(^{185}\) Bartsch[1998] p 110

\(^{186}\) Bartsch[1998] p 110
child uses this word. That is, in reflecting on its utterance, we are able to see that the child does not form the concept under the standard perspective of 'natural kind', and we can reconstruct a different perspective, namely something like 'furriness' or 'feel' under which the child uses the word. Using the thus reconstructed non-standard perspective we could imagine a context in which this perspective could be socially accepted. That means that we are able to reconsider an initial understanding of the utterance under given perspective, and are able to reconstruct other perspectives in reflection on an utterance. Thus, in reflection, perspectives may be adopted and changed in the process of interpreting, as a matter of reconstructing the speaker's use of an expression in context. So, the reflective construction of an understanding of the use of the expression here seems to run through different possible perspectives, just like the child does when it tries out the word 'dog' for a toothbrush or for buttons on a coat. The difference between the two, of course, is that we as adults are very much aware of which of these possible perspectives belongs to a socially acceptable use of the expression, as we in our dealings with the everyday world are very much dependent on our capacity to produce and understand conventional use of language.

If reflection on the use of an expression under a perspective is thus possible, and if such reflection may lead to the formation of a new understanding of the expression in context, then that seems to entail that the pre-given perspective is not always immediately effected in the context, but that it may also be taken on consciously, namely in reflection.

Since perspectives are defined by Bartsch as pre-given 'similarity spaces' in concept formation on the experiential level, they have to do with the ability to process similarity in experience, as a matter of physical or perceptual capacities. Thus, pre-conceptual recognition of similarity, whether of structure or of appearance, is the basis on which stability of concepts on the experiential level rests. This has to do with the assumption of common ground: if the satisfaction situations for an utterance, from a realistic point of view, have the situational properties reconstructed in a concept under a given perspective, then stability of the expressed concept would depend on, first, the perceptual processing of these existing properties, and, second, on the social coordination of the expression as being correctly applied to those situations that indeed are recognized to have those properties.

However, if perspectives may be adopted consciously in reflection, then the assumption of immediate effectuation of similarity under a perspective in perceptual processing must be paired with another aspect of interpretation that is intentional, and not a basic physical response to the situation. This latter aspect is the aim in interpretation to reconstruct the way an expression is used. For this we need to be able to actively adopt perspectives in interpretation,
such that in reflection we may judge the appropriateness for understanding a
given utterance under one or another perspective.
Bartsch does consider the possibility of cognitively reconstructing a perspective
as a concept itself, on the basis of experiential concepts formed under that
perspective. I consider how this is sometimes possible in her theory in the
section below. I first look at the role of similarity in the formation of
experiential concepts, and then discuss whether this understanding of
similarity could be useful for the characterization of how perspectives may be
cognitively reconstructed.

2.3 Context in interpretation and the interpretation of context

In the model outlined by the theory of Dynamic Conceptual Semantics,
experience, that is, the perception of different situations initially provides
conceptual distinctions. Nevertheless the issue how concepts are cognitively
represented has not yet been touched upon. The first problem concerning the
issue of representation, is that Bartsch explicitly refrains from discussing what
it is that is represented in the mind.
In the introduction to Bartsch[1998] she remarks that Kant’s notion of a schema
is appropriate. However, Bartsch prefers the definition of concept-
representations as collections of satisfaction situations, that is a formal
extensional definition, as opposed to a psychologically real conception: ‘The
notions of cognitive schema or conceptual network used in cognitive
approaches are equivalent to the notion of concept as it is used above. A
cognitive schema is an abstraction from a series of examples; it is a
representation of what they have in common. Because we are hardly able to
fully express what a schema is of, for example, a dog, I prefer the extensional
representation of a concept by a maximal similarity set of a stabilising sequence
of similarity sets of examples’.
Bartsch’s theory on concept formation is first described in logical or semantic
terms, in the way discussed so far. She also discusses how the conceptual
system developed thus might be modelled in a connectionist model of
cognition, and hence how the conceptual system could be grounded in a
neuronal model. Thus, some understanding of cognitive representation is
developed in the description of the functioning of the brain. Bartsch is then
very clear on the cognitive reality of concepts: ‘[...] there is in the brain a
stabilization going on of the activation patterns caused by the previous
examples provided in the learning process. The stabilized activation pattern is

an indication of the examples of the corresponding concepts. In the brain we thus have concept indicators. Concepts or conceptual networks are not in the brain, though there are networks of conceptual indicators. We are not conscious of concepts, though we are of their examples.\textsuperscript{188} Since concepts on the experiential level are represented as the cognitive reconstruction of situational properties under a perspective, the notion of representation seems then to apply to what is derived from acquaintance with objects and events in experienced situations. Representation, in this sense, would be limited to reproducing perceptual presentations, and hence, in the terminology of the previous chapter, involves merely a reproductive function of imagination.

Bartsch further gives an explicit clue with her understanding of what it means to recognize similarities. On the experiential level, similarity is narrowed down to a relation of similarity between the causal effects of these situations which the individual undergoes. It is based on the awareness and recognition of bodily reactions: 'Similarity can be stated by an individual on the basis of identity of causal effects of identical quasi-parts of situations on the individual. These causal effects are purely physiological, i.e. bodily reactions'.\textsuperscript{189} Similar bodily reactions are recognized under perspectives, and hence, perspectives on this experiential level are understood as physically distinguished types of experience. Within these perspectives, new concepts are created through oppositions. For instance, under the perspective of 'colour' different colours are distinguished. On this level of causally effected bodily reactions then, the 'acquaintance with denoted things' is represented.

This provides a form of ontological grounding, which is acknowledged also at other points. For instance, in a comment on Indurkhya, Bartsch writes: 'Strictly speaking, we have to admit that there is no creation of similarity. A similarity that is not there, cannot be created. Rather it comes into focus within the direction and selection which a context or a perspective provides'.\textsuperscript{190} This observation is again confirmed in the description of how new concepts come about: 'Ontologically, the property newly expressed by [the expression] exists, but epistemologically the corresponding concept is newly formed on the level of concept formation'.\textsuperscript{191} In other words, our conceptual system, insofar as it is founded on experience, is grounded in reality; it is built on similarities that 'are there', waiting to be perceived. The extensional definition of concepts as sets of experienced situations is in perfect accordance with this realist view on
experiential concepts. And along with it, the representations that fall under a concept are understood as selected bits of perception. The selection of such bits of perception as being relevant for understanding is then what a perspective effects, as a pre-given, non-conceptual 'similarity space'. Thus, an assumed natural capacity to focus on relevant similarities in a context allows, on the experiential level, for the formation of restrictive concepts.

According to Bartsch such basic, pre-conceptual perspectives may sometimes become second order concepts. That is, a perspective can sometimes be cognitively reconstructed as a second order similarity set over similarity sets that represent different concepts. The perspective under which a given concept is understood is thus formally characterized as a second order concept, that is, as a set of concepts: 'A perspective is a set of properties, namely the set of those that fall under it. It is a second order concept'. However such second order concepts are not available in the process of concept formation at all times: 'In the beginning of concept formation, perspectives cannot be presupposed as second order concepts, i.e. as concepts of concepts. As such they can rather be reconstructed after first order concepts have been acquired. Basic, physiologically pre-given perspectives or similarity spaces [...] can then be reconstructed as second order concepts, and thereby, so to speak, recovered'.

With the notion of a second order concept as the cognitive reconstruction of perspective, a somewhat complex organization of satisfaction situations results. For example, as we saw, according to Bartsch the term 'pig' has different satisfaction situations under the perspective of 'behaviour' (including dirty John) than under that of 'natural kind' (not including John). The perspective of 'natural kind' may then be reconstructed into a second order concept that contains many more concepts than that of pigs; for instance, it also contains that of humans of which John is an example.

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193 Bartsch calls her position one of 'internal realism' as described by Putnam (p 13, Bartsch[1998]). Putnam puts it thus: 'Just as the objective nature of the environment contributes to fixing the reference of terms, so it also contributes to fixing the objective truth conditions for sentences' (p 85, Putnam[1983]). In further descriptions of his 'internal' or 'pragmatic' realism, Putnam refers to many authors when explaining his view. Meaning and truth are dependent on the use of words, in the sense of Wittgenstein's Investigations; and reality is identified with 'the world' as Goodman describes it in Ways of Worldmaking, which for Goodman serves as both a foundation and a limit to the truth of all possible 'world views' (Cf. section 3.3 ch1). Further, Putnam appeals to Kant's distinction between metaphysical and empirical realism: 'metaphysical realism' is discarded, while an 'empirical realism' remains possible. In a later work the view is summarized thus: 'truth is idealized rational acceptibility', which, Putnam emphasizes, should be taken to mean that rational acceptability is just as dependent on truth as vice versa (Putnam[1983] p 115).

194 Bartsch[2002] p 51

195 Bartsch[1998] p 41
Formally, a perspective reconstructed thus has a logical structure similar to that of a polysemic complex, that is, it is a set of concepts. The polysemic complex is a set of concepts that are expressed by the same expression under different perspectives, while the reconstructed perspective is a set of concepts that were formed under a similar perspective. Other than a polysemic complex, Bartsch writes, sometimes a reconstructed perspective may be logically rendered as a first order concept: 'For example with the second order concept 'colour' there corresponds the first order concept 'to have colour'.'\textsuperscript{196} However: "Not all perspectives can be lowered this way [...] the second order concept 'set of health concepts' cannot be lowered in this way, since 'to have health' is not a genus proximum for all health concepts. If someone is ill, he does not have health, although 'to be ill' is a concept under the perspective health'.'\textsuperscript{197}

A second order concept reconstructed from a basic perspective however does not simply express a property which all concepts formed under that perspective must share, such as a hypernym would express in a taxonomic order. Bartsch writes: 'In order to reconstruct a basic perspective as a second order property later on, we need to consider similarity sets for different expressions used under the basic perspective, and can even extend this second order set by similarity sets for which there are no expressions used up to now [...]. An example is 'colour' as a second order concept. The basic perspective is the activity of the bodily apparatus for perceiving colours. Colours are not all similar to each other perceptually, rather they are similar functionally, namely as being perceived by us in the same manner. Under the relational perspective 'manner of perception' they form a similarity set of similarity sets.'\textsuperscript{198}

What the concepts in a reconstructed perspective share is a 'common presupposed manner in which the concepts are internally related to the individuals they characterize'.\textsuperscript{199} Thus, it seems, the reconstruction of a similarity between how different concepts were formed, such as expressed by 'boy' or by 'pig', is what underlies the formation of a second order concept such as 'natural kind'. Reconstructed perspectives can be rendered as the series of maximal similarity sets of different concepts formed under the same perspective. The reconstructed perspective formally is the equivalence class of all these concepts. Bartsch describes how second order concepts may sometimes be described logically as first order concepts. Hence in the first order-rendering of 'colour', the internal similarity of the set would consist of

\textsuperscript{196} Bartsch[1998] p 76
\textsuperscript{197} Bartsch[1998] p 76
\textsuperscript{198} Bartsch[1998] p 41
\textsuperscript{199} Bartsch[1998] p 76
the manner in which a concept, such as 'red' or 'green' is used to characterize individuals in the satisfaction situations in the concept.

The elements of a second order concept all are concepts. These, we saw, are described as cognitively reconstructed situational properties. But that means that second order concepts consist of the cognitive reconstruction of cognitive reconstructions of situational properties. Thus, to form a second order concept involves judging cognitive representations as being similar on the ground that they are formed under a given perspective. Hence, it is an act of forming concepts about cognizing itself, namely of ordering concepts by the type of similarity that is recognized between situations in a concept. This observation raises some questions, the most pressing being how the similarity between different concepts under a single perspective can be construed, if it is not, as in first order concepts, on the basis of similarity recognition in experience. I pursue this question, by considering how similarity was introduced as a primitive notion in Bartsch's theory, namely as something we recognize under a perspective in reality.

The recognition of similarity, we saw, was grounded in reality. On the basis of recognizing properties in the world, it was held possible to form concepts about the world. On the basis of how an expression is used in a situation, further, we form concepts on the first level. The realistic grounding of linguistically expressed concepts thus functioned as common ground: concepts formed by individuals could be held to converge ideally, namely as an (ideal) maximal similarity set of all satisfaction situations for an utterance accepted by all partakers in the speech community. Hence, intersubjectivity of concepts could be presupposed on the basis of, first, reality and the existence of properties in it, and, secondly, on the basis of conformity in the use of expressions in a speech community.

As we saw, a reconstructed perspective is based on the cognitive reconstructions of reality's properties in concepts, and not on directly perceiving reality itself. Its formation then requires something other than forming a collection of satisfaction situations of the different expressions that were processed under the same perspective, since this would be only a first order rendering of the second order concept.

A concept based on the similarity of 'manners to internally relate concepts to individuals', at least presupposes the possibility of an account of such manners, and this in Bartsch's model is precisely what is evaded. Internal similarity relations in a concept, which constitute the situational property reconstructed by a concept, are theoretically rendered in the form of an extensional definition, namely as the 'internal similarity degree' of an equivalence class of all the similarity sets of satisfaction situations. That is to say, the notion of similarity is itself never considered by Bartsch as a cognitively represented
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abstraction (i.e., a concept as an abstract representation), but is always given in terms of a set of examples, or representants of the concept. The actual cognitive extraction of similarity is left to the neural machinery underlying acts of concept formation: the 'stabilised activation pattern'. That is, in cognitive processing, similarity between situations emerges from perceptual faculties and from a functionality of the brain: similarity emerges as a 'bodily reaction'.

It might be possible that second order concepts are formed on the basis of emergent similarities in 'manners' of perceiving, as a matter of physiological correspondence between activation patterns that function as 'concept indicators' for different concepts under the same perspective. However, if that is the type of similarity that constitutes second order concepts, then clearly such concepts are not to be formed on the basis of common ground, unless we assume that all individuals have similar (in the sense of ideally converging) activation patterns for activation patterns. Thus, we would assume that there are basic perspectives for reconstructing basic perspectives, namely, brain-internal modes of grouping stabilized activation patterns as being of the same type.

Rather than engaging in a fantastic hierarchy of different bodily capacities of generating similarities on a physiological level, I think it might be useful at this point to consider what the function is of assuming, sometimes, the possibility of a cognitive reconstruction of a perspective.

Along with the different levels of theorizing in Bartsch's theory, the notion of perspective seems to have two functions. The first is when it is used to explain how we do have concepts that can be characterized by similarity on a physiological level, and here it serves to distinguish a concept under a perspective from the cluster of concepts for which an expression may be used. Thus, with the notion of a basic perspective, Bartsch achieves an understanding of linguistic meaning that on the one hand explains how meanings are stable and socially coordinated (that is, under a standard perspective), while on the other hand the notion of perspective can explain the formation of a creative or novel interpretation of the expression in a context (that is, under a new, contextually given perspective). In this way Bartsch can explain how language is interpreted both on the basis of linguistic convention and on the basis of individual interest.

The second function of the notion of perspective is that it plays a role in the classification of concepts as belonging to a given second order concept. The notion of the cognitive reconstruction of a basic perspective, thus, seems to serve a different goal, namely one that allows for a systematic semantic classification of concepts as being of the same kind. In a sense, then, it seems to be intended to ground general concepts (such as human kind, or colour) in a manner of perceiving. However, insofar as a perspective can be reconstructed on the basis
of experiential concepts, we saw, it requires an account of recognizing similarity between the ways concepts are formed in perception. Such account lacks in Bartsch’s model, since the actual process of formation of concepts basically is deferred to a physiological level of brain activation patterns. Thus, if general concepts would experientially be grounded in a class of different concepts processed under the same perspective, they would lack common ground. As a consequence, as far as their experiential content would go, general concepts would not be intersubjective, as Bartsch notes: ‘agreement in judgements and objectivity of judgements are the public restrictions on concepts, which by themselves are subjective entities, explicated in cognitive theory’. Hence, the use of expressions for concepts formed on the basis of subjective judgements on how concepts are formed subjectively would not be guided by social agreement on satisfaction situations. Their satisfaction would consist of correctly applying this concept in a similar manner as having applied another concept; while actually ‘applying’ a concept is an activity somewhere in the brain, namely of an example being processed as a representant of a concept. Thus, insofar as the reconstruction of a perspective is supposed to ground second order concepts in experience, it yields an inherently subjective representation of a general concept.

Clearly, we do have some intersubjective evidence of a concept being applied to an individual, namely when an expression is used for the characterization of that individual. Thus, in reflection on an utterance, we can characterize the expression ‘pig’ as being used under a ‘natural kind’ perspective to characterize an individual, or we may claim it is used under a different perspective. However, to be able to do so in a manner that is open for correction or approval in a speech community, we have to be able to use the second order concept of ‘natural kind’ in a manner that is likewise open for social correction and approval. That is, we do need an intersubjective concept (or at least an ideal of it) for such second order concepts. As we saw, the ‘cognitive reconstruction’ of the perspective on the basis of experientially formed concepts fails in this sense, and hence, an experiential understanding of second order concepts would not yield an intersubjective meaning for an expression used to characterize the type of understanding. For example the use of the expression ‘natural kind’ does not have common ground insofar as it is based on a subjective representation of the similarity between cognitively represented similarity sets of experienced satisfaction situations containing boys, pigs or whales.

What then, should be the type of similarity that constitutes such second order concepts? The function of the theoretical notion of perspective, to recall it once

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Bartsch [1998] p 241
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more, was to narrow down the concept expressed by an expression to the way it is used in a context. The pre-given basic perspective allows for recognition of a context that makes a specific understanding of the expression used relevant. Hence, a second order reconstruction of a perspective would involve the characterization of how the context helps one to understand the meaning of the word. From a semantic point of view, as taken by Bartsch in her theory of concepts, an expression thus expresses a context-specific concept. To characterize perspectives formally as second order concepts allows for a semantic, systematic recognition of types of expressed meanings. In this way, it allows to some extent classification and prediction of what an expression means, even if only for the 'standard' uses of an expression. With the notion of a perspective, then, semantics, as the theoretical, general characterization of meanings of expressions in relation to satisfaction situations, is theoretically related to subjective concept formation, as a matter of individuals processing utterances in contexts.

However, perspectives are defined as cognitive, or physiological, capacities, and not as properties of a context. Hence, to classify concepts by perspectives in a systematic semantic way, either yields a subjective classificatory system of linguistic meanings for the individual that forms them, or it requires an account of how perspectives are related to the context in the sense of its real existence, thus grounding the notion of perspective intersubjectively. With the understanding of perspectives as a pre-given, non-conceptual similarity space, it seems that Bartsch aims at the latter. As we saw, the basic perspective is unconsciously effected by the context of the utterance, and is not a matter of subjectively reconstructing concepts as being formed in one way or another. However, that would imply that a reconstruction of perspectives as concepts involves the conceptual reconstruction of properties of the context, and not of the subjective manner of interpretation. Hence, perspectives would not be second order concepts containing the concepts that are subjectively formed, but they would be reconstructed properties in the context which prompt the interpreter to understand an expression in one way, and not another.

Now, if perspectives are not second order concepts, but situational properties of the context, then they are only contingently related to the situational properties that are reconstructed as concepts expressed by an expression. Consequently a characterization of concepts by perspectives would yield an account that relates one meaning of an expression to aspects of a context. Thus, a perspective would be a restriction presented to an interpreter in the utterance situation. The use of an expression would then yield a concept, based on both the utterance situation (that gives a perspective for understanding) and its former satisfaction situations (that are considered insofar as they are related to
the utterance situation (that is under my latter characterization of a perspective as a property of context).

However, if we understand the interpretation of an expression as being based on relations between utterance situations and former satisfaction situations, then the restrictive formal semantic definition of a concept as a maximal similarity set of satisfaction situations under a perspective seems to become impossible; for the notion of perspective can then not be characterized as a second order set that classifies concepts as being of the same type, but it is a property of context in relation to which an expression may be interpreted in one and not another way. Understanding perspectives in this way, an account of reflective interpretation can be envisaged, as being paired to a somewhat revised understanding of the process of concept formation as Bartsch presents it.

Understanding, we saw, is characterized as follows: in an utterance situation a perspective is adopted, as a matter of physiological response to the utterance situation. In my understanding, this would be due to the processing of a given aspect of the utterance situation. This perspective allows for the recognition of the utterance, in Bartsch's terms, as a representant of a concept. That is, it allows the interpreter to interpret the utterance in a cognitive representation based on a sequence of previously experienced satisfaction situations. This representation of previous satisfaction situations, then, would in my view be opened up by the recognition of a property of the utterance situation. To this extent, understanding an utterance may be regarded as a matter of physical, largely unconscious processing, and may possibly be modelled in terms of activation patterns, in some connectionist model.

However, this type of automatical understanding must be complemented with an account of reflective interpretation. That is, one may consciously turn to an aspect of the utterance situation, and consider how this influences the interpretation of the expression. By focusing on another aspect of the utterance situation, a different interpretation of the utterance can result. Thus, where we could not understand a child that calls a toothbrush 'dog' if we focus on how to name objects in the right manner, we may understand the child if we focus on another aspect of the utterance situation, namely, the property of having hairs. Hence, by consciously focusing on a different aspect of an utterance situation, we adopt a new perspective, which opens up a different representation of previous satisfaction situations for the utterance. Further, since the notion of a perspective now no longer restricts the possible cognitive representations of satisfactions situations that are activated, but rather enables such representations to be called up by focusing on an aspect of the context, the interpretation of an utterance is not restricted to a single perspective. Rather, if
we notice several aspects of an utterance situation, then several representations of satisfaction situations are called up at the same time.
For instance, some aspects of the situation of a mother shouting 'you're such a pig!' to her son will be the cause that John understands he is being scolded for his behaviour (since his mother starts to clean him, or generally shouts when he has done something bad), while other aspects (for instance recognition of the word 'pig', or the filth on his clothes) will be the cause of his understanding the word 'pig' in a more standard sense as indicating an animal. And if he would consider these different representations, that is, if he would reflect on the situation, then he would understand that the word 'pig' is used differently than he was accustomed to. From the example we can see that although the utterance may be understood immediately in its context, its recognition as a metaphor will be the result of reflection.
We may attempt to generalize this observation, with respect to the theoretical reflection on the use of expressions in semantics. The semantic characterization of a linguistic meaning as pertaining to some and not other uses of an expression is not what plays a role in cognitive understanding. Understanding is a matter of an individual being able to process an expression in relation to a context, in whichever way he may. Rather, semantic classification of an expression is an outcome of reflection on the use of an expression. Hence, the classification of a set of satisfaction situations of an expression as sharing a contextual perspective is a theoretical characterization of how properties in a context allow for a consistent, or similar use of expressions. To name such a set of similar uses as belonging to a perspective like 'colour', 'behaviour', or 'human kind' is to reflectively consider how contexts of different utterances may be characterized by a general term. And hence, when developing a semantic theory, such reflectively reconstructed and named properties of context may come to define the meaning of an expression in a context. But this is a reflective reconstruction of past use of expressions; its definatory or classificatory value for future uses, as well as for singular, irregular use of an expression, remains only an ideal. Thus, concepts or meanings indeed are not in the brain; rather, they are located in theory, as idealized descriptions of the practice of communication. What a theory that stipulates certain uses of an expression as correct or as conforming to former use of an expression does achieve, then, is the formulation of general, socially accepted criteria for the correct use of an expression in a given situation. And hence, although semantics cannot describe the actual, subjective process of cognitive interpretation, it can formulate general theoretical criteria of truth or appropriateness for the use of language.
In my above account of reflective interpretation, two questions remain unanswered. The first is raised by the observation that reflection is related to
aspects or properties of an utterance situation. It would seem, therefore, that such reflection is restricted to the perception of a situation. How, then, should the interpretation of poetic texts, which were considered to lack an immediate context, be explained in the above account of reflective interpretation? I consider this question in section 2.4 below, by relating my understanding of a perspective to linguistic or textual context. In this discussion, I will draw first on Bartsch’s definition of theoretical concepts, and second on Goodman’s theory of exemplification.

Second, in the above account I speak of representations of previously experienced satisfaction situations. This use of the term ‘representation’ is yet unfounded, for the notion of a sequence of satisfaction situations is derived from Bartsch’s semantic definition of concepts under a perspective, and as such does not entail an understanding of what it means to cognitively represent situations or to recognize similarities. In Bartsch’s theory, we saw, the discussion of cognitive representation of situations was limited to an understanding of brain activation patterns. In section 3 below I consider a different theory of concept formation developed by Lawrence Barsalou. Like that of Bartsch, this theory grounds concepts in perceptual processing on a neuronal level; however Barsalou attempts to model a psychological understanding of cognitive representation. In the discussion of his model I focus on this understanding of cognitive representation, insofar as it allows for a characterization of the process of both understanding under a perspective in the sense described above, and of reflection, including poetic interpretation.

2.4 Language and productive imagination

The notion of perspective, as opening up a specific understanding of an utterance, was newly understood above as a recognized aspect of the utterance situation, which enables a specific representation of a set of satisfaction situations for the present use of an expression. So far, then, a perspective was understood as a perceptually processed property of the utterance situation, which might seem to entail that understanding an utterance requires a perceptual processing of the situation in which an utterance occurs. However, as I argued in the first chapter, sometimes we interpret a text or utterance by ignoring the precise situation in which we encounter it. I will argue that a context of interpretation may be provided for by the textual or linguistic context, with or without considering other perceptually processed aspects of the utterance situation. For this, I first return to Bartsch’s theory, in which linguistic meaning is defined on two different levels.
Up to now, the discussion was mainly concerned with Bartsch's definition of linguistically expressed concepts on the experiential level, namely in terms of maximal similarity sets of satisfaction situations formed under a perspective. The second level on which linguistic meaning is defined, is that of theoretical concept formation.

In her definition of theoretical concepts Bartsch's previously noted preference for extensional definitions recurs. A theoretical concept, to recall the definition, is theoretically defined through feature explication. That is, a collection of other linguistically expressed concepts is used to define its meaning. In its formal make up, this definition seems to coincide with the formerly discussed notion of exemplification, developed by Nelson Goodman.\textsuperscript{201} In either, the content associated with a term is given by a collection of predicates that describe (aspects of) this content. For Goodman however, this set includes all descriptions of the term (even such contrived descriptions as 'uttered at half past six yesterday morning'). For Bartsch the definition includes only those predicates that are features characteristic of the concept given in a background theory held true, and which contain some kind of quantification over the expression that is explicated, such as 'all roses are ...'.\textsuperscript{202} The differences lie first of all in the respective preferences of Bartsch and Goodman for 'features' versus 'descriptions'. Bartsch further restricts the features in a theoretical definition to those features held true in a theory, whereas for Goodman any description is right 'for a world it fits'.\textsuperscript{203} Goodman's terminology is motivated by his pluralist and nominalist position. The former perspective seems to agree with Bartsch's suggestion that many alternative theories are possible and may all be grounded in a 'real' world, although, other than Bartsch, Goodman refutes the idea of reality bringing an ontological structure to the conceptual classification of experience. His nominalist perspective motivates Goodman's rejection of cognitivist talk. Unlike Bartsch, he presents a theory of 'labels' without allusion to any cognitive representation, either of labels, or of the meanings they have. As a result of his position the notion of similarity that sustains the model of concept formation Bartsch presents, would be meaningless for Goodman. Instead, he claims everything can be found similar to anything, and hence, similarity is meaningless.\textsuperscript{204}

For Bartsch, we noted, similarity is causally effected, and comes to the fore if we focus on the relevant aspect by adopting a perspective under which the

\textsuperscript{201} See section 3.3, ch 1.
\textsuperscript{202} Bartsch[2002] p 50
\textsuperscript{203} Goodman[1978a] p 132
\textsuperscript{204} Cf. Goodman[1972a and b]
aspect then can be seen. For Goodman, this is beside the point: if our goal is to find some similarity, such an aspect can always be found, since there are always ways of bringing two unsimilar events under a description, even if it is an uninformative one, such as 'it happened during my lifetime', or 'it was situated on earth'. In fact, any situation is related by contiguity of space and time to any other, and thus, similarity can be stated truthfully for any two situations or utterances. Thus, Goodman is quite right if his claim is understood as saying that a perspective yielding similarity can always be found. From this point of view, whether similarity is causally effected or not does not influence the fact that we can always state some similarity.

Thus, a crucial difference between Goodman's and Bartsch's points of view lies in the latter's qualification of features held characteristic of a concept; which entails that situations that are characterized by a given concept share a salient property, which we, as a matter of 'automatical' physical processing perceive and conceptualize under a perspective. In the use of theoretical concepts, salience depends on a theoretical perspective. That is, as Bartsch contends, a theoretical concept always depends on a background theory. For Goodman, we saw, a label is always used within a 'schema' of other labels. That is, its use depends on the oppositions and similarities with other labels that are relevant for the present use of a label. Hence, a complex of cohering predications is presupposed for the use of a predicate. For Goodman such schema is not a theory in the sense Bartsch defines it. For Bartsch, a theory is coherent, and, moreover, it consists of predications that can be taken as definitions, namely explicating descriptions quantifying over the expression used (hence if a theory contains a sentence 'a rose is a plant', then it does not contain a sentence like 'Rose is a rose', unless Rose is a plant). For Goodman, the label 'rose' is not thus tied to theoretically stated truth conditions, since he allows for more types of meaning than denotation, and hence for a different understanding of truth. The label 'rose' then may consistently be applied to all plants, as well as to Rose.

As one would expect, Bartsch explicitly distances herself from Goodman. She criticizes his nominalist position on the grounds that it can only deal with what is expressed in language, and misses aspects and relationships of the referents of the labels that are part of experience (general as well as individual), but are not expressed linguistically. Thus, Goodman's objection that anything can be made similar to anything can be countered 'by pointing out that similarity has to be recognised under a perspective, under which identities and differences can be discerned'. Thus, Goodman misses a cognitively relevant basic perception of similarity, which by Bartsch is explained as recognition under a perspective. Indeed, as I remarked in the discussion of Goodman's account of metaphor

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205 Bartsch[1998] p 9
above, his account in terms of labels runs into arbitrariness, because it lacks any motivation for the system of discrimination that different labels provide, other than that these labels are currently so used. However, the relations of exemplification and denotation that Goodman proposes do provide a useful characterization of cognitive representations of linguistic meaning.

As we saw, for Bartsch, meaning is defined on the experiential level, where expressions are related to satisfaction situations. It is defined on the theoretical level, by being related to descriptions in a background theory. Following Bartsch’s twofold semantic characterization of linguistic meaning, we may then similarly consider the cognitive representation of linguistic meaning as consisting of two types of representations: namely, on the one hand, as representations of perceptually processed satisfaction situations for an utterance, that is, as formed by a representation of what the used expression may denote, and on the other hand, as representations of previously processed descriptions of the expression uttered. The latter representation of the meaning of a word, then, may be characterized as a representation of predicates exemplified in the sense Goodman describes it. Namely, it would consist of a contextually relevant selection of those predications that we have learned to apply the expression at hand, or that we have learned to be applied in connection to it. The ‘theoretical’ or rather, the linguistically expressed component of our meaning representation would then not represent a theory that should be both coherent and held true, but a less determinate complex of previously related predications. Such a complex would contain a selection from descriptions from definitions and fairy-tales, commonplaces and poetic phrases, practical communications and uttered fantasies; in short, all descriptions that constitute our experience as a partaker in a speech community. If a history of linguistic experience is thus somehow represented cognitively in connection to an expression, we may begin to understand the role of the linguistic context in the interpretation of an expression in an utterance.

Since I understood a perspective above as an aspect of context, that enables certain, but not other representations of satisfaction situations for the uttered expression, I may now understand the presence of a linguistic or textual context as equally providing a perspective for interpretation. By the recognition of certain expressions in the context, thus, the representation of a sequence of their meanings may be opened up. Thus, an utterance situation may provide a perspective by its perceptually processed properties, as well as by the recognition of other linguistic expressions in the utterance situation. In this way, then, the interpretation of poetic texts may be explained, even if in such interpretation the specific conditions under which we read the text are ignored. That is, the ‘utterance situation’ as the specific situation in which we
encounter the text may be ignored, while we focus on the context that the text itself provides. With this understanding of textual meaning, we may also consider how terms for which we have never in fact identified a referent perceptually can be interpreted, namely by their explanations and definitions. In focusing on the linguistic context, we provide for some representation of referents of textually introduced terms, on the basis of what we may represent as meanings for the expressions with which the term is introduced.

To interpret an expression on the basis of its linguistic context thus involves representing a combination of different, previously experienced satisfaction situations. It may present a new use of the expression to the interpreter, and so, the expression used may be understood creatively on the basis of combining representations of formerly experienced satisfaction situations. In this way, the faculty of representation allows for the production of new interpretations; hence, its work here can be recognized as an instance of what in the former chapter was called productive imagination.

Thus, the interpretation of an utterance on the basis of its linguistic context is on a par with the understanding of an utterance in an utterance situation. In either, interpretation depends on how representations triggered within the context of the utterance allow for a selective activation of represented satisfaction situations of the utterance itself. Insofar as we consciously construct the meaning of the utterance in interpretation, this is a result of how we may reflectively construct and name the representation of the properties that are considered relevant in the interpretation. To characterize a meaning, we at once draw on subjective representations, in the sense of cognitively represented combinations of experienced satisfaction situations, and we draw on our representation of socially accepted use of language, as we have learned to recognize and to produce it in the ongoing process of being corrected or confirmed in our utterances by others. Reflective interpretation, then, consists of recognizing similarities between cognitively represented, experienced situations, and newly applying what we consider to be a socially acceptable use of words.

Clearly, this summarized account of interpretation is incomplete in many respects. In the first place, it does not consider compositionality of utterances, nor the recognition of objects, events, or individuals in perception. It does not explain how representations may be triggered by a context or by an utterance. Indeed, it does not state what such representations are. In the remainder of this study, I will not concern myself with the first mentioned aspects, that is, compositionality and perceptual processing. With respect to the first, the theory presented by Bartsch presents in many ways what I could envisage in this direction, but for my different understanding of a perspective as outlined above, and my intention to consider understanding and interpretation from the
point of view of cognitive representation, and not in terms of a semantic theory. With respect to the second, I do not envisage anything. I can only acknowledge that my understanding of interpretation and understanding sets up some requirements with respect to a theory of perception, namely that perceptual processing entails an activation of representations of previously processed situations under an aspect of similarity. Hence, I do not only set up requirements for perceptual processing, but also for the working of memory. A model for activation of cognitive representations through perceptually processed similarity should account for the recognition of objects, of individuals, of events, and, last but not least, for the recognition of expressions. These assumptions regarding perceptual processing are not founded in any knowledge of the factual physical processes they should presuppose; however, the same requirements are set up by other theories of cognition. As we saw, Bartsch similarly assumes a physical processing of situations under respects of similarity on a neuronal level, and, as will become clear shortly in the following discussion, so does Lawrence Barsalou in his theory of perception-based cognitive representation.

To develop an understanding of the cognitive representation of situations, I turn to the theory of Lawrence Barsalou, which presents a more psychologically oriented model of concept representation. In the following sections I consider Barsalou's notion of representation, and see to what extent I may use this notion to sustain my understanding of the cognitive process of interpretation.
3 The Perceptual Symbols System

3.1 Perceptual Symbol Systems: outline

An approach to conceptual representation is presented in the work of Lawrence Barsalou. He presents a theory of cognition and concept formation based on perception. In a 'target article' presented for discussion, he models the fundamental role of perception and of memory in a 'Perceptual Symbols System'. This model, he claims, accounts for most of the properties of cognition and thus can compete with any system of representation that uses non-perceptual symbols. In addition, Barsalou claims, it is in line with neurological and psychological findings on memory, imagery and perception in relation to conceptual processing.

In this model concepts and perceptual states alike are represented through perceptual symbols. Perceptual symbols arise from perception, and are used in conceptual tasks: 'Once a perceptual state arises, a subset of it is extracted via selective attention and stored permanently in long-term memory. On later retrievals, this perceptual memory can function symbolically, standing for referents in the world, and entering into symbol manipulation'.

A perceptual symbol, as a functional selection of a perceptual state, is defined on the neuronal level, i.e. as a local configuration of active neurons. What is stored in memory is roughly a schematization of the perceptual state. Related perceptual symbols become organized into simulators, which organize perceptions in a structured manner, involving a process of abstraction over a collection of similar perceptual symbols. The simulator contains an underlying structure, in which perceptual symbols are integrated; this structure is called a frame.

As an example, Barsalou considers the perception of a particular car. This involves inspecting the car from different perspectives, and focusing on such aspects as wheels, doors and windows, getting into it and looking under its hood. 'As selective attention focuses on these aspects, the resulting memories are integrated spatially, perhaps using an object-centred reference frame. [...] As a result of organizing perceptual records spatially, perceivers can later simulate the car in its absence. [...] [A]fter processing many cars, a tremendous amount of multimodal information becomes established that specifies what it
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is like to experience cars sensorially, proprioceptively, and introspectively. In other words, the frame for car contains extensive multimodal information what it is like to experience this type of thing'.

The development of a rich frame for the simulator of a car involves different perceptions of cars. Once a first car is perceived, the perception of a second car involves a 'reminding', in which the spatially integrated set of symbols for the first car is retrieved. In Barsalou's words: 'the retrieved set of symbols guides processing of the second car in a top-down manner, leading to the extraction of perceptual symbols in the same subregions. [...] this might lead to the extraction of content information for the second car's shape, doors and wheels, which become connected to the same subregions as the content extracted from the first car. In addition, other subregions of the second car may be processed, establishing new perceptual symbols (e.g. antenna and gas cap)'. The regions specified in the car frame can be filled in according to different paths leading to different 'content', derived from some specific car perceptions, or they may lead to another simulator for such things as doors, wheels or other parts that are schematized as objects or events in themselves. In these subregions other simulators may occur (e.g. for doorknobs, spokes etc.). Thus 'recursion arises'.

In this way a field of related simulators is developed, within which a frame structures a given simulator and its subregions into possible specializations and other simulators. In the example, the car-frame has a subregion of wheels, which has subregions for tires and spokes; each of these may be represented in a simulator itself.

In comparison to Bartsch's model, a simulator would seem to correspond with a concept determined through natural perspectives; that is, in perception the given object is determined through its perceptual qualities. The further structuring of simulators through spatio-temporally organized frames correlates with relations of contiguity, which in Bartsch's model allow for the formation of historical concepts. Thus, so far, Barsalou's model seems to appeal to natural, i.e. perceptually determined classifications on the basis of similarity and contiguity.

Barsalou claims that all representations that are used in a conceptual system are derived from perception in this same way. That means that if the perceptual symbols system is to function as a model of cognition, it has to be as powerful as abstract symbol systems are in describing and explaining conceptual processing. Barsalou sets himself to the task of proving that his

208 Barsalou[1999] p 577/578
209 Barsalou[1999] p 586
209 Barsalou[1999] p 590
210 Barsalou[1999] p 591
model has the same systemic properties. These properties include: the ability to represent types and tokens, to produce categorical inferences, to combine symbols productively, to represent propositions and to represent abstract concepts.\textsuperscript{211}

To start with, Barsalou explains productivity in thought as perceptual symbol manipulation. Simulators may be filled in with other perceptual symbols than the perceptual symbols on the basis of which they are constructed. For instance, the simulator for car described above, could be completed by filling in the doorknobs with a perceptual symbol of canary-beaks, which could lead to a representation of car with tweeting doorknobs. The car simulator could also be manipulated into such a way that it receives an entirely different form or function; one can, for instance, imagine a flying car. Productivity, thus, is the result of combining different simulators, or of filling in a simulator with perceptual symbols that are foreign to the original percepts underlying the formation of the simulator.

Productivity is vital for the system, as it plays a role in perception itself. It is a prerequisite for anticipation and filling in of perceptual information, and as such is related to making mistakes. An incomplete perception will be filled in with known simulations of similar objects. Barsalou refers to well-known examples of Gestalt perception tasks to illustrate this, for instance the task in which a figure with three orthogonal angles and one blotted angle is filled in such a way to construct a rectangular figure. Thus, anticipation in perception consists of a top-down conceptual guidance of perceptual processing. A specific perceptual state triggers a simulation (bottom-up), and the simulation guides subsequent perceptual focusing (top-down).

The recognition of a given perceptual state as being of a specific type allows one to make inferences about a situation. Generally, categorical inferences are due to connecting an individual to a given simulator. Even if the perception of the individual is only partial, its being bound to a simulator allows one to infer other properties, for instance when perceiving a car driving at a far distance, one infers the presence of a driver and of fuel. Such inferences are not necessarily made consciously, as they arise on the basis of the neural connections between different perceptual symbols: 'Although neural representations define perceptual symbols, they may produce conscious counterparts on some occasions. On other occasions, however, perceptual symbols function unconsciously, as during preconscious processing and automatized skills'.\textsuperscript{212}

\textsuperscript{211} Barsalou[1999] p 579
\textsuperscript{212} Barsalou[1999] p 583
Simulations thus include conscious visualization, but one need not be aware of the perceptual content of a simulation. This fact is used to explain why some people do experience little or no imagery. According to Barsalou such people have little conscious awareness of the perceptual processes underlying their cognition.

In relation to language, the properties of abstraction and productivity play a central role. In general, simulators for words are formed in association with other simulators for events or entities, or with subregions and specializations. On recognizing a word, the cognitive system activates associated stimulators to simulate a referent. Furthermore, words associated with a simulator are also associated with the words for subregions in the simulator. In this way, the semantic field of a word mirrors an underlying conceptual field: 'As people hear or read a text, they use productively formulated sentences to construct a productively formulated simulation that constitutes a semantic interpretation. Conversely, during language production, the construction of a simulation activates associated words and syntactic patterns, which become candidates for spoken sentences designed to produce a similar simulation in the listener'.

Thus, language is represented by a complex of simulators in itself, structured by an underlying, associated complex of simulators for events and entities. As a result, all language has an experiential or perceptual grounding.

One of the reasons to engage in the strict reduction of linguistic meaning to perceptual content is Barsalou's rejection of the assumption of a 'language of thought', i.e. a system of mental symbols as the medium of cognitive representation. To assume such symbolic mental language, according to Barsalou, is both redundant and arbitrary. The proposed perceptual symbol system, of course, is neither. The proposed model presents a mode of representation that Barsalou terms 'modal', that is, the cognitive system uses the same mode of representation as the perceptual system. Furthermore, the perceptual symbol system uses the same mechanisms of combination, focal attention, schematization and representation as the perceptual system does. Barsalou claims that the perceptual symbol system is as rich as any cognitive symbol system: it displays properties of recursion, productivity, compositionality, and abstraction. On top of that, it is in line with neurological evidence, and can predict many phenomena that abstract symbolic systems can only explain post-hoc. An example of such a phenomenon is the spatial and temporal organisation of events or objects, which, as imagery research has shown, remains intact in cognitive representation.

213 Barsalou[1999] p 592
214 The cited research builds its conclusions on the basis of longer response times for objects that were imagined to stand further apart. Kosslyn[1994]
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frame and of focal attention do not only account for these phenomena, but also ground them in the fundamental properties of the system. In an abstract symbolic representational system the same phenomena can only be accounted for by imposing an additional structuring. Barsalou emphasizes that in these models the resulting spatial/temporal structuring is not inherent to the representational system, but from a systemic point of view remains an arbitrary imposition, and thus illustrates the arbitrariness of such models of cognitive representation.

Before going into a more detailed critical discussion of Barsalou’s model, I briefly recall its main properties. The model attributes the faculty of cognitive representation to a system of perceptual symbols, which are selective representations of the state of the brain during perception. They are formed upon selective attention in perception, that is, they consist of those aspects of perception that the subject is focused upon. Simulators allow one to recall the focal aspects of a perceptual state in a simulation. The underlying frame organizes the different perceptual symbols in the simulator. As we have seen, simulators are the general, structuring representations of related perceptual symbols. Thus, Barsalou says, a simulator is equivalent to a concept.\(^{215}\) However, the notion of a simulator is specified more precisely than that of a concept usually is. A simulator is located in long term memory, causing simulations of (parts of) a perceptual state in working memory. Furthermore it has a spatial or temporal structure (a frame) in which perceptual symbols or other simulators are integrated. A simulator, then, is an abstract, structured representation of a type of experience, which allows for the production of novel simulations through filling in with different perceptual symbols and manipulations on the structure itself. Simulators are organized into a field of related simulators; this field is mirrored by the semantic field that consists of words associated to different perceptual symbols and simulators. Syntactic properties of language similarly reflect the relations that may be produced between different simulators and symbols in simulations.

Productivity, be it in language or in thought, has thus been explained as 'symbol manipulation' on the basis of symbolic perceptual representations. Barsalou then claims that in symbol manipulation, the symbols remain inherently perceptual. At this point, it is the question what that exactly means. If it means that all representational content has been derived at some point from perception, this does not seem to be a very controversial point of view. Taken in this way, the model could be understood as providing an alternative for the thesis that innate symbolic systems determine or precede conceptual thought. However, as Barsalou goes on, especially in his response to criticism

\(^{215}\) Barsalou[1999] p 587
published in the same journal, he seems to go further than that. He emphasizes
the causal origin of concepts, and also emphatically claims that abstract
concepts can be traced to their perceptual origin. With this argumentation the
compatibility with the model presented by Bartisch ends. Bartisch equally
expresses the intention of grounding concepts in experience and equally
contests the innate language hypothesis. However, in this model, as we saw,
the level of theoretical concepts is connected to experience through rational
construction. In this way it could not provide for a determinate perceptual
grounding of explicated concepts. The main reason for this was that the
organization of explicated concepts relies on linguistic classification, rather
than on perceptual classification. I argued that as a result a connection between
the two levels of conceptualization can be construed on the basis of subjective
reflection only. This did not, we saw, alter the general conception of the
cognitive system, although it did have consequences for the representation of
meaning on the experiential level. Barsalou, by contrast, claims that all abstract
concepts must be motivated through perceptual processing. Language plays no
role in the formation of concepts, other than that it mirrors the possible
productivity in thought through association.
Barsalou’s approach immediately calls up a host of questions. What does it
mean to say that productively formed simulations remain perceptual? Does it
mean one has to understand them on the model of possible experience? In that
sense we can imagine how the image of a flying car with tweeting doorknobs
could be deemed perceptual, namely that we can imagine ourselves perceiving
something like it. We can doubt however whether such images are indeed
perceptual from a physiological point of view. From a philosophical point of
view we can further ask what makes us imagine such things, and whether the
point of view that conscious representation is a counterpart of what goes on in
automated processing anyway can account for a motivation of such
productivity. And still further: could a perceptual content of abstract concepts,
such as numbers or a concept like ‘truth’, be construed in this same way, i.e.,
through our being capable of imagining them as if perceived? Or is a different
kind of perceptual content meant in these cases? Finally, Barsalou postulates
the physical determination of representations in terms of neuronal activation
patterns of perceptual symbols. If according to Barsalou representations are to
be identified with physical states of the brain, does that imply that symbolic
meaning is in principle physically determinable? And, since he additionally
claims that concepts are causally effected, does that entail that our conceptual
system is a natural result of our living in a certain environment?
It is not quite clear what Barsalou means by his claim that representation is
always perceptual. It can be understood in several ways, depending on what
he, on different occasions, counts as perceptual. The first sense of ‘perceptual’ is
relatively straightforward, namely that representations depend on those cognitive mechanisms that are used in perceptual processing. The second sense of 'perceptual' is that representations are derived from perceptual processing. That is that cognitive representation, from a material point of view, in general relies on perception. Barsalou however, seems to go still further than this, as he seems to imply that the symbolic meaning of all concepts is derived from perceptual processing, and hence is itself perceptual. I express myself carefully here, since this, clearly, is a controversial claim, especially with regard to abstract concepts expressed in language. As will become clear, Barsalou does state this view in a straightforward way; its implications, however, only come into full perspective when brought into relation with his remarks on the causal effectness of concepts, which appear in a somewhat different context.

In section 3.2 I will consider the meaning of the term perceptual as it applies to the processes that Barsalou describes. For this, I consider a neuropsychological understanding of perception, that is, a general characterization of the cognitive system that is concerned with perceptual processing, in opposition to other types of cognitive processing. I thereby mainly draw on a discussion of the difference between conscious visual representations that are maintained without the presence of external stimuli (in imagery) and with the presence of such stimuli (in perception). This discussion took place within the framework of the so-called imagery debate, which will briefly be introduced.

In section 3.3, I consider the sense in which Barsalou considers concepts in and of themselves perceptual, and especially how symbolic meaning is construed as perceptual. Here, my criticism draws on philosophical arguments, and as such addresses a more fundamental problem regarding the perceptual grounding of symbolic meaning.

3.2 What is perceptual?

Barsalou claims that all representations involve perceptual processing systems on a neurological level. That is, he claims that in representations we use cognitive processing systems that belong to perceptual processing. Barsalou draws the evidence for this from the fact that those parts of the brain active in processing sensory experience are also active when engaged in conceptual tasks involving no sensory stimuli. In other words, Barsalou claims that perceptual processing is activated in other cognitive processes, and takes this fact to sustain the thesis that perceptual symbols are the medium of cognitive representation, even in non-perceptual processing.
Barsalou however mentions that in perceiving, brain functions may be used in a different manner than in thinking.\textsuperscript{216} For instance in cognitive tasks the role of long-term memory is more prominent. Hence: 'Although perceptual symbols use perceptual mechanisms heavily, this does not mean that conceptual and perceptual processing are identical'.\textsuperscript{217} In a comment on Barsalou's article, Aydedee points out, that, although the areas associated with perception may be active during conceptual thought, we do not have sufficient knowledge of the brain to conclude that these areas can only perform perceptual tasks.\textsuperscript{218} On the basis of the same evidence, one could, reversely, conclude that these same areas take on a different functionality in non-perceptual tasks, for instance a functionality related to non-perceptual symbolic representation. Thus, mere activation of perception-related areas in itself presents no evidence on the perceptual nature of representation. The question is, then, how to establish whether perceptual processing in a physiological sense is involved in conceptual processing and cognitive representation.

Below, I discuss some neuropsychological investigations within the framework of imagery research, on the nature of representation. The choice of this framework is made on systematic and historical grounds. In imagery research the issue of representation has been addressed most directly, and the differences between representing and perceiving have been investigated thoroughly. Imagery is here defined as conscious visual representation, and in this sense differs from Barsalou's understanding of perceptual symbols and more complex representations, which are not necessarily consciously maintained. However, as we saw, Barsalou does explicitly relate perceptual symbols and imagery, since he regards phenomena of imagery as a 'conscious counterpart of perceptual symbols, produced by neural representations'.\textsuperscript{219} Further, Barsalou draws on the findings presented in this area of research, especially for the motivation of the structure of frames, and for the dismissal of models using abstract symbol systems to characterize representation. Historically, these issues were at stake in the so-called imagery debate, in which Barsalou's position can be identified as being on the side of the proponents of the 'depictive representation thesis'. I outline the positions at stake below.

\textsuperscript{216} Barsalou[1999] p 641
\textsuperscript{217} Barsalou[1999] p 641
\textsuperscript{218} Aydedee[1999] p 611
\textsuperscript{219} Barsalou[1999] p 583
The imagery debate

Barsalou situates his theory in a tradition of philosophers concerned with perception: ‘For more than 2,000 years, theorists viewed higher cognition as inherently perceptual’. He mentions many of the great philosophers of before the 20th century, as having recognized the essential role of ‘images’. Remarkably he also places the ‘nativist’ Kant in this tradition. Less surprisingly, Barsalou claims that he continues in the tradition of Berkeley and Hume, founders of empiricism.

He remarks that his position differs essentially from these modern empiricist philosophers regarding the nature of representations. Barsalou time and time again emphasizes that thoughts drawing on perceptual symbols do not imply that one actually sees something. Representations that are used in thought are a functional selection of brain activation patterns that occur in perception; therefore a perceptual symbol cannot be identified with a picture (or a sound or a smell etc.). Representation is not perceptual in the same sense that a sensory experience is, but it is perceptual on the ground that it is causally effected in perception, and deals with percepts functionally encoded on a neuronal level. ‘Whereas prior theories focused on consciously experienced images, perceptual symbol systems focus on neural states in sensory-motor systems. To my mind, this is the most exciting feature of this proposal, primarily because it leads one to think about the perceptual view in provocative new ways’. Barsalou thus emphatically warns against an interpretation of his theory that would claim that perceptual symbols are pictures or other sensory objects. Rather, they present coded information of sensorily processed information. The neuronal ‘code’ however, as we saw, may produce conscious imagery as well. Imagery, therefore, is considered as a surfacing of the otherwise hidden functioning of perceptual symbols, and thus may serve as one of the few cases where the functioning of these can be investigated.

The vast research on imagery seems to have influenced Barsalou’s account in many respects. One example is that the notion of ‘frame structure’ can be traced to the findings of Kosslyn and others on the spatial organisation of information that becomes apparent in memory tasks. Areas such as the primary visual cortex (V1) are associated with perceptual processing, because of their activation during exposure to perceptual stimuli. Its areas of activation have been found to be topographically related to the environment, that is, scaled differences in angles of vision, size of the perceived object and so on correlate

\[220\] Barsalou[1999] p 578
\[221\] Barsalou[1999] p 640
\[222\] Barsalou[1999] p 583
with different locations of activated parts of the V1 area. According to Kosslyn[1997] this correlation appears to remain intact during imagery-tasks, that is, during the visualization of objects without external stimuli being present. In these tasks, a subject is asked to visualize objects with similarly scaled differences. MRI and PET findings suggest that spatial organisation in visualisations are again correlated to areas of activation in V1. Thus, conscious visual representation seems to exhibit similar properties with respect to brain activation as does perceptual processing, including the internal representation of spatial relations.

From a general point of view, the issue in the imagery debate was the cognitive role of imagery, and the mode of representation of mental images. The main initial protagonists were Pylyshyn and Paivio. Paivio claimed that any basically creative cognitive act (such as problem solving) requires use of imagery. Hence, visual representation must be a crucial aspect of cognition. He concluded that imagery could not be modelled in terms of propositional symbol systems, as these cannot account for the essentially visual quality of such representations, but that this requires a depictive system of representation as well. Pylyshyn, on the other hand, claimed that imagery is merely epiphenomenal in cognitive processes, and that propositional symbolic representation suffices as an explanatory model for all cognitive acts. His main argument against the assumption of a depictive mode of representation was that it gives rise to regress in the conceptual interpretation of percepts. Then Kosslyn and Schwartz, proponents of the depictive representational system, presented an implementational model of representation in which a functional coding of images was used, thus showing that a depictive mode of representation does not imply actual sensory representations within an additional ‘internal’ perceptual processing system, and hence does not necessarily involve regress. Further, Anderson presented a study in which the systemic qualities of both models of representation were compared. He concluded that on a model-theoretical level systems of propositional symbolic representation and systems of depictive representation can be translated into one another, and can be used to explain the same results.

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223 Cf. Kosslyn[1994] pp 12 for a general overview of sustaining neurophysiological research, and pp 99 for Kosslyn’s own conclusions. It must be remarked, that Kosslyn is careful not to draw definite conclusions solely on the basis of this apparent relation between activation in the cortex and imagery, as several other factors may influence such activation.
224 Paivio[1971]
225 Pylyshyn[1973]
226 The model was presented in Kosslyn and Schwartz[1977].
227 Anderson[1978]
These combined findings represented the so-called 'historical resolution' of the imagery debate (insofar as participants agree on its presenting a resolution, and not just a draw between either position). The resolution consisted of a systematic approach to a model of depictive representation, which at once emphasised the explanatory power of a model of depictive representation models, and showed that depictive representations are not pictorial representations themselves, but can be functionally encoded descriptions of images.228

Research following upon this stage of the imagery debate, involved neurophysiological research, which became possible with the invention of diverse scanning techniques, such as MRI and PET. With the help of these devices, it became possible to investigate the localization of the processes occurring in the brain during imagery tasks. Furthermore, the relation between perceptual processing and imagery was investigated, and specifically the extent to which imagery draws on the perceptual system.

The optimistic expectation that the imagery debate will finally acquire a real resolution in this fashion was expressed by Kosslyn in 1997 as follows: 'In a sense, the theory and methods developed by cognitive psychologists [...] have been lying in wait of something to really make the field take off. The connection to the brain appears to have been that extra something, allowing us to learn more from what we do best: designing tasks that require specific types of information processing. When behavioral data alone are not sufficient to resolve an issue, the tasks designed by experimental psychologists can be used to selectively activate specific brain systems while neural activity is being monitored and to study the consequences of brain damage - and these additional data can settle many issues'.229

Barsalou builds his model with a similarly optimistic approach to depictive representation, as he stresses that perceptual representations are non-sensory, functional encodings on the neural level. Thus, Barsalou's emphasis on the perceptual nature of representations as well as on the neurophysiological aspects of representation generally seems based on the findings of researchers inspired by the imagery debate.

However, Barsalou's claims are far more radical with respect to the assumption of a depictive mode of representation, since he proposes that all cognitive representation uses perceptual symbols. Kosslyn does not go so far as to claim that the depictive mode is the single mode of representation. Rather, he is concerned with the phenomenon of imagery and imagery-based reasoning. He thus uses the model of depictive representation to explain certain phenomena,

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228 Cf, for instance, Kosslyn[1994] pp 20
229 Kosslyn[1994] p 407
Imagining metaphors

such as the difference in response times in problem-solving tasks in which the subjects did or did not make use of visualizations. His theory work aims at implementing processes underlying imagery in the whole of cognitive processing. Thereby he does not deny the use or the existence of propositional representations, but instead, proposes how depictive and propositional modes of representation coexist and may make use of one another. In the following section an excursus to the neuropsychological findings on the relation between imagery and perception is presented, and the discussion on Barsalou's model is resumed thereafter again.

Imagery and perception

In the research on imagery, the hypothesis that imagery draws on perception was a starting point for many studies on imagery. Consequently, the question whether perception and imagery are produced by a single perceptual faculty, that is whether either phenomenon is the result of the same cognitive mechanisms, has been investigated. Kosslyn states that imagery-phenomena draw heavily on perceptual mechanisms, but that imagery is not 'merely a parasite, piggybacking on perception'. Imagery-processes do use several mechanisms that also play a role in perception, and is, in that sense 'an integral part of how perception operates'. For instance some of the so-called 'low-level visual' mechanisms, i.e. those primarily related to perceptual processing of external stimuli, are used in consciously maintaining a visual image. Further, in perception 'high-level' mechanisms are used, which are related to previous conceptualized representations in memory. Thus, whether perception draws on imagery, or whether imagery draws on perception is sometimes not entirely clear; it is the question, then, whether the two represent different cognitive processing systems. The research discussed in the following discussion compares the systems that must be used to maintain both types of representations, and thereby attempts to chart the differences.

Probably the most evident difference between mental imagery and perceptual processing that Kosslyn reports is the difference in quality between the visualized image and the perceptually encoded image. Other than in perception, in imagery a cognitive system is required for the maintenance of a mental image; mental images tend to 'fade' quickly, and have a different

\[230\] Eg. in type-token associations, or in representing spatial relations both categorically and coordinatively. Cf. Kosslyn[1994], pp 289 resp. pp 192.

\[231\] Kosslyn[1994] p 21

\[232\] Kosslyn[1994] p 21, for elaboration cf. pp 401
'resolution' of detail in the image: textures and detail tend to be underspecified (such as the number of stripes, or the hairiness of the fur in a mental image of a tiger). Such details may be filled in upon closer inspection, but then require specific attention, or even a 'zooming in'. Nevertheless, in the inspection of a mental image the same subsystems are used as in the inspection of a perceptually coded stimulus (i.e. a percept). These subsystems involve for instance the focusing on an aspect such as texture or colour, or shifting attention between locations within the image.\footnote{Kosslyn defines processing subsystems as functionally different aspects of general information processing. Subsystems indicate such processing as exemplar pattern activation, categorical pattern encoding, attention shifting, motion relations encoding and so on. The operations such subsystems must perform are described determinately, and corresponding activity in the brain is tentatively localized. From a behaviourist point of view, this means the 'black box' of information processing described through input and output of the system is analysed into smaller constituent black boxes. Kosslyn calls the goal of his theory to 'pull the bird apart at its joints, not to describe the musculature, vasculature, and neural enervation of the limbs themselves' (Kosslyn[1994] p 25).} In imagery, like in perception, certain properties of the image remain invariant during inspection, such as the relative scanning-times of distances between objects set apart within an image.\footnote{An example of an imagery task here would be to first ask the subject to visualize a ship, with an anchor, a motor and a keel, and then ask them questions about the different elements, requiring them to pass (parts of) the trajectory along the boat. One can then measure whether relative response times correspond to reported relative distances that are thus scanned.} However, there are other differences. For instance in imagery the shifting of attention is not stimulus-based, that is, one's attention is never 'grabbed' by another part of the image, but is directed intentionally at some part of the image. Furthermore, in (waking) imagery the identity of the visualized objects is always known to the subjects.\footnote{The reverse feature, otherwise typical for percepts, occurs in dreaming (generally considered to be a form of imagery), that is unidentified objects may inhabit dreams.} This especially seems a crucial property of consciously maintained imagery, since it suggests that mental images are tied to their conceptual guise. In other words, the objects in a mental image are always seen as something. An example of how this relates to the difference between perception and imagery is presented in a paper on the roles of imagination by Peter Strawson. He describes how he looks out of his window, and sees some yellow chalk marks on the wall of his backyard. However, after some time, he notices that the yellow marks are in fact roses. In an imaginative pondering on the event- that is, in this case, using mental imagery- he can call up either image: that of chalk marks and that of roses. But in actual perception, after recognizing the roses, it is impossible to perceive them as chalk marks again.\footnote{Strawson[1971]} Thus, there is a difference between the acts of seeing an object as something in a mental image, and recognizing a perceived object to be of a certain kind. A mental image is fixed in the sense that a
different conceptual determination of what was perceived requires the formation of another mental image. In perception, the example suggests, such reformation is possible to the extent that what is perceived can be made to conform to a concept. That is, when perceiving more details, such as leaves on the flowers, or when noticing that the yellow spots are not on but in front of the wall, the less detailed 'chalk' percept becomes excluded as a possibility.

As observed, imagery plays a role in perception, specifically in the anticipation of perceptual stimuli. For instance, according to Kosslyn, and as, indeed, mentioned by Barsalou, those subsystems that are used when an image is formed are also used when one expects to see a specific stimulus. Subsystems used to mentally manipulate an image (such as rotating it, deleting parts of it, placing new elements in the image and so on) are also employed during perception, namely when one expects to see specific consequences after performing an action.

Kosslyn reports that for instance motion transformations in visualizations, such as rotation or change of position, take place incrementally, that is, the transformation is imposed on the image in stages, allowing the subject to visualize the process of transformation. Interestingly, sometimes the subject is not capable of transforming the image incrementally; instead, he lets the old image fade, and forms a new image in which the transformation is completed. Kosslyn calls this 'blink transformation'. These occur when an object is transformed "a large amount". As an example he mentions perspective changes (such as zooming in or out).237 238 239 240

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237 idem p 354
238 idem p 402
239 idem p 369
240 The report of a difference between blink transformations and incrementally performed transformations relative to the 'amount' of transformation, suggests that in perception such 'large' transformations are not anticipated since they will not be imaged as a continuous result of a present representation. Thus, one might be tempted to assign incremental transformation a more 'realistic' nature. Indeed Kant suggested the difference between hallucination and perception consisted of the fixedness of temporal order: hallucinations or dreams have no necessary sequentiality, and can be imaged reversedly. Nevertheless, it is clear that one can imagine highly 'unreal' events in the most vivid, incremental ways, such as faces deforming or flying objects smashing into each other irreversibly, as well as 'real' events being seen in an unrealistic manner (in slow motion for instance). In this light, it would be worthwhile to examine qualitative differences in imagery in relation to the effect of watching films, in which 'impossible' perspective changes and other transformations are perceptually realized through technical manipulation and recording equipment. In the early days of the filmmaking, the expectations of such effects were very high. For instance Walter Benjamin wrote: 'The film corresponds to profound alterations of the apperceptual apparatus' (Benjamin[1968]). Previously, in a similar vein, Germaine Dulac emphasized the 'optical experiment' as the goal of the avant-garde (Dulac[1932]). Cf. also: Charney and Schwartz[1995].
Other differences between perceptual and imagery processing are stated in research on patients with brain damage, who report impairments in either type of processing. In a paper published in 1984 Martha Farah considered the few reported impairments of imagery processing in the literature. In an overview of the available research she concludes that image-generation systems can specifically be impaired while visual memory and other recall processes may remain intact, thus resulting in loss of imagery along with an intact ability of object-recognition in perception. She concludes that these findings point to different possible ways of recalling and manipulating information about objects and their appearances.\footnote{Farah[1984] p 269} That is, such information may be recalled without generating visual images.

In a later article Farah suggests, like Kosslyn, that image generation processes may be used in interaction with the matching of visual memory images with stimuli in perception. For instance, when stimuli are degraded, a subject may generate images to match the stimuli. Recognition of such stimuli is then accounted for by activating retinotopic representations (i.e. low-level visual representations) through high-level memory representations. Furthermore, imagery processes share several properties with attention-mechanisms in perception. Imagery may thus well be related to attention, helping to establish recognition of a viewed object. In this way, imagery processes may play a leading role in perception.\footnote{Farah[1995] p 124}

Kosslyn considers two cases of impairments of perceptual processing while imagery remains intact. In the discussed cases the patients report loss of perception, while they can still perform imagery tasks. The mechanisms of vision and low-level visual processing seem intact, while higher visual memory processes functioned only in imagery but not in perception. Kosslyn analyses these as cases of deficiency in object recognition. Where perception requires an active matching of 'raw stimuli' with visual memory in order to recognize an object, viewing and manipulating mental images requires only the ability to recall former recognitions. Imagery may thus continue to independently recall existing representations in memory, even when new percepts cannot be processed in high-level visual processing systems.\footnote{Kosslyn[1994] pp 329-334}

Combining these findings, it seems that imagery draws on high-level perceptual mechanisms. It may be used in the process of connecting high level visual memories retinotopically to bottom-up processed stimuli; however it is not the same as perceptual top-down processing, since it does not in itself entail recognition of stimuli. Instead imagery uses perceptual mechanisms to

\begin{flushright}
\textit{Farah[1984] p 269}
\textit{Farah[1995] p 124}
\textit{Kosslyn[1994] pp 329-334}
\end{flushright}
view representations of identified objects, that is, conceptualized representations.

Imagery processes, according to Kosslyn, can be seen as a complex of cognitive subsystems, which include some but not all perceptual processing mechanisms, and may activate these independently from active perceptual processing (that is apart from 'bottom-up' processing).

In summary, following Barsalou's own lead that thinking is not perceiving, we might say that the manipulation of perceptual symbols in imagery does not have much in common with being in a perceptual state. First of all, the relative passivity of the latter state (i.e. the predominance of bottom-up processing and not of top-down organization) is distinct from the more active 'bringing something before the eyes', which requires different subsystems to maintain the image mentally.

Secondly, the elements that function in a visualized image need not be detailed, not in the sense of being out of focus, but in the sense that parts of it lack visualization. Parts can be added in the process of imaging, but the so-called 'image-resolution' is much less than in percepts.244

Third, the role of productivity in perception and in imagery is different. Anticipation in perception, 'filling in', and readjusting mistakes are something other than consciously altering a visualized image. In perception, visual transformations only take place in momentary anticipation of the results of a certain act. In imagery, the image is revised at will: it can be rotated, change colour or spatial structure and it can be filled in with foreign elements. Thus, visualizing, focusing, and transforming result from intentional manipulation, whereas percepts cannot be determined on the basis of intention alone, but require object recognition based on low-level retinotopical processing.

Reversely, in perception the stimuli can be recognized as being of a specific kind during the perception, and during perception mistakes in the identification of the stimuli can be corrected. In imagery, the visualized object and its parts are always conceptually identified, and conceptual identity cannot be revised while maintaining the same mental image.

Concepts and percepts

As we saw, Barsalou claims that imagery processes are the surfacing of an otherwise underlying unconscious processing of perceptual symbols that originate in perception. Although apparently the conclusion of the formerly discussed research is that perception and imagery use many of some of the same cognitive mechanisms, one cannot conclude from this that imagery

244 Kosslyn[1994] p 104
II Representation: grounding concepts in experience, language and imagination

processes exclusively use representations as effected in perception. Properties of visualized representations in imagery range from the possibility of voluntary manipulation to the predetermination of a conceptual guise of the representation, and these do not pertain to percepts as they occur in a perceptual state. Barsalou refers briefly to some of the above cited research under the heading 'implications for neuroscience', emphasizing how research suggests that common neural mechanisms underlie imagery and perception. He does, however, acknowledge that 'perception, imagery and cognition are not identical behaviorally', and might then not have an identical neuroanatomical basis.\(^\text{245}\) Hence: 'The argument is not that perception and cognition are identical. It is only that they share representational mechanisms to a considerable extent'.\(^\text{246}\) It leaves us wondering why representations should then themselves be called 'perceptual', if this merely alludes to 'representational mechanisms'.

Even if we assume that all cognitive representations are derived from perception, we must still conclude that representational content in imagery has passed several higher levels of cognitive processing, such as recognition, association, memory-storage, retrieval, and manipulation. The effects of any of these processes on the nature of what is represented have not as such been addressed in the former discussion, and with it the question whether the presumed perceptual character of representation is left intact has not been answered. And, with good reason, since to put it this way hardly makes sense.

What is defined as perceptual processing, is the process of external stimuli influencing the brain. What happens inside the brain, as a matter of selection, transformation, schematization, storage, combination or production, is a process we generally refer to as 'conceptualization', in order to distinguish it from the other process of external stimulation. To then call every neuronal configuration within the brain 'perceptual' if it somehow involves a connection to a state of the brain that was once triggered by external stimuli simply deflates the meaning of the word.

In view of the history of the imagery debate, one may sympathize with Barsalou's position that representations originated in perception somehow serve as 'symbols' in conceptual representation. Thus, it would seem a matter of theoretical economy to presuppose that a functional representation of percepts can fill in the role of symbols. Understood in this way, the model maybe adds further plausibility to the 'depictive representation thesis' in the imagery debate. However, as we will see in the next section, it seems that Barsalou has something different in mind when he attributes a perceptual core

\(^{246}\) Barsalou[1999] p 607

\(^{245}\) Barsalou[1999] p 607
Imagining metaphors

to all representations. The sense in which perceptual symbols are meant to be perceptual in his theory is not explained by the suggestion that on a neurophysiological level cognitive representations may use perceptual representation mechanisms. The perceptual nature of perceptual symbols, in Barsalou’s account, turns the meaning of conceptualized representations into a perception-based content, which, in the end, is traceable to its cause in reality. Thus, the in itself plausible assumption of a depictive mode of representation turns out to be a presumption about the perceptual nature of concepts, accompanied by assumptions about the causally effected relation between reality and symbolic meaning. And to sustain this assumption, of course, evidence of a neurophysiological correspondence between perceptual and representational systems is not quite sufficient.

3.3 What is symbolic?

The claim regarding the perceptual nature of representations in Barsalou’s theory can be read as the claim that all neuronal configurations in the brain are formed through perceptual acts. That is, through perception the brain is taught to represent; it uses the connections and inhibitions thus formed throughout the brain in other tasks. This means that perception would be a material condition for subsequent cognitive representation. This conception of perception structuring possible brain activity also appears in connectionist theories of cognition, and indeed in some developmental psychological models of cognition. In fact, any epistemological model that denies the possibility of innate representational systems or transcendental knowledge is bound to perception as the material condition for attaining knowledge. We met with the same claim in Bartsch’s account discussed in section[2]. Bartsch claims that concept formation rests on representing and structuring experienced situations, and as such these form a necessary condition for the process of concept formation. As we saw, this does not entail that all concepts are determined through perceptual means of classification. Attribution of experiential content to abstract, explicated concepts depends, I argued, first on the recognition of the expression in its utterance situations and, second, on the reflective reconstruction of possible similarities between the latter. Barsalou takes a different view on this point. In his model each concept (i.e. each simulator) is grounded in perception, to the extent that all concepts can be decomposed into structured combinations and manipulations of perceptual symbols, that is, of selective functional representations of perceptual states. In other words, Barsalou postulates a determinate and complete perceptual grounding for all concepts. Linguistic explication of these concepts follows
from the association of utterances and events within perceptual states; language, unlike in Bartsch's approach, has no constitutive role in the formation of concepts.

In the following section, I discuss the possibilities of grounding the symbolic meaning of abstract terms in experience. I start out with analysing which knowledge about perceptual states Barsalou presupposes, and which he needs, in order to be able to bring it into relation to an abstract concept. Thus, the relation between the perceptual and the abstract is reconstructed in a 'bottom-up' fashion. Then I attempt to do the reverse, that is, I start out with an abstract concept, and analyse what we need in order to ground it in perception. Further I should once more remark that, although Barsalou certainly states the quoted opinions on causality, automated processing, and perceptual grounding, these remarks occur in different sections of his article. Hence, it could well be that the position on symbolic meaning, that results from combining his different statements, is one that Barsalou himself did not think through, and if he did, he would maybe not like it.

'Bottom-up': relating perceptual states to a concept

In the response to his critics, Barsalou defends a causal theory of categorization. That is, perception is basically seen as a transparent encoding of objects or events into brain states. Whatever the subject is aware of during perception, that is, whatever the subject focuses on in acts in perception, gives rise to neuronal configurations (perceptual symbols), which further mediate the content of the perceptual state. Barsalou writes: 'The critical claim of perceptual symbol systems is that these causally produced perceptual states, whatever they happen to be, constitute the representational elements of knowledge. Most critically, if the environment is causally related to perceptual states, it is also causally related to symbolic states. Thus, perceptual symbol systems constitute a causal theory of concepts'.

Thus, 'symbolic states' are causally related to the environment. Given that Barsalou previously stated that the symbolic function of a perceptual symbol was that it stands for referents in the world, and further that utterances are associated with perceptual symbols within perceptual states, causally effected perceptual states therewith acquire a semantic function. But then, given the

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247 Barsalou[1999] p 638
248 These features are described, and in part quoted above in section 3.1. Further: on the symbolic function of perceptual symbols, cf. pp 577, and on the association between utterances and perceptual symbols, cf. pp 592 in Barsalou[1999]
249 This point is also made in Aydede's criticism of the Barsalou's account, cf. Aydede[1999].
definition of a perceptual symbol as a neuronal configuration derived from a perceptual state, we can also conclude that brain states mediate the reference of words. In other words, brain states, or rather, particular neuronal activation patterns, acquire symbolic meaning.

In an experiment by Tootell e.a. this notion of the brain as symbolic representational device was explored quite literally.\(^{290}\) In the experiment a monkey was trained to focus on a picture of a schematically rendered globe (i.e. a circle with latitudes and longitudes). Next its brain was injected with radioactive sugar, which was to be absorbed by active neurons only. Thus, it became possible to make a photograph of the activated patterns in the monkey's brain. As the monkey was watching the figure, his brain was sliced, and in the V1 part a pattern of activation was recorded which literally (i.e. visually) resembled the pattern that the monkey had been watching the moment its brain was removed. The form of the globe represented by the activated patterns had a slight deformation, but otherwise perfectly represented the picture shown to the monkey.

However convincingly the experiment shows that the visual stimuli recur in a similar form on the primary visual cortex, it does not tell us much about the 'symbolic state' of the monkey. The symbolic meaning of the picture (representing a globe) is not to be found in its reproduction in the activated brain patterns in a monkey, as I shall argue shortly. Although the brain state corresponding to the perceptual state of watching a picture of a globe could be photographed and correlated to the stimuli, there is no way of telling whether the monkey saw a globe. Indeed it does not make sense to say that a monkey looking at a globe actually sees a 'globe', since it is not capable of expressing an interpretation of the presented picture as a globe. Of course, had the monkey been able to express such interpretation, he would also have been likely to express his ethical concern with experiments of this kind, and may well have left us in the dark on his primary visual cortex activity.

If this experiment and others involving research on human perceptual processing (such as are now conducted with the help of PET and MRI) provide substantial evidence that retinotopical images correspond topologically to activated parts of the brain, that brings a wealth of information on the neurobiological mechanisms of vision. In that sense it gives information on the mode of representation, that is, on the plausibility of the thesis that perceptual stimuli are represented in a functionally depictive manner. It does not, however, give us more information on what the corresponding representations 'stand for'. The given correspondence between forms we perceive in reality and forms we perceive within a prepared brain tells us that we find this visual

\(^{290}\) Tootell e.a. [1982]
form meaningful enough to recognize its occurrence, either in a picture, or in a photograph of a brain. Thus, while monitoring brain-activity we have found a new way to reproduce the external stimuli mediated in the brain, but not, I argue below, to reproduce their symbolic meaning.

Barsalou, we saw, stresses that his theory presents a causal theory of meaning. That is, perceptual states, rooted in experience of the external world, are the cause of any representation we may have. He therewith goes so far as to claim that categories themselves are causally effected: 'Simulators arise in memory through the causal process of perceiving physical categories.'\footnote{Barsalou[1999] p 638} This process is elsewhere described as the automated processing of perceptual states in a system of perceptual symbols. Thus, 'physical categories' can come about unconsciously in one's mind. But, as we saw, Barsalou also holds that the neural representations can produce a conscious counterpart of this automated processing.\footnote{Barsalou[1999] p 583} That is, to consciously interpret a given perceptual state as the perception of a specific kind of object or event must then be seen as a surfacing of an unconscious processing. Finally, Barsalou claims that utterances acquire symbolic meaning through their being associated with perceptual states.\footnote{Barsalou[1999] p 592} So, putting all of these claims together, it follows that neuronal configurations mediate the possibility of a descriptive report, such as 'I saw a globe'.

Now, imagine how such configurations could be determined as mediating symbolic meaning in the first place. The salience of what might be found to be represented in the brain of some subject, I argue, will always depend crucially on additional information, itself not neutral on the topic of what is perceived. Hence, the idea that symbolic states could be revealed by inspection of activated neural configurations can be shown to be simply mistaken.

To begin with, the researcher who intends to monitor the 'symbolic state' of a given subject has to be predisposed as to what would count as a representation or encoding of external stimuli within the brain. That is, he looks for a sensible means of mediation. For instance, if apart from having a given brain state, the awareness of globes in this subject would also be accompanied by the production of a specific enzym in the intestines, this would probably not be measured by the neurologist, although it might make an essential difference for the representations involved. The hypothesis that the representation of the globe takes place elsewhere, along with having a particular topologically corresponding activation pattern in the primary visual cortex would then not seem not very plausible. A researcher would be thrilled to find a representation in terms of neural activation that matches his own image of the drawing so
well, so that he would naturally assume it to be the representation on some level of processing. For the argument's sake, we put aside the possibility of such biased monitoring and simply assume a thorough researcher, who brilliantly achieves a complete monitoring of all physical effects within a symbolic state.

However, even for such an unbiased researcher it remains impossible to achieve a purely physical determination of some symbolic meaning ('globe') as the result of monitoring the impact of a perceptual state (looking at the drawing). To find the neural counterpart of the perceived external stimuli, the researcher has to determine which external stimuli are represented in the brain. That is, he has to first be aware of these stimuli himself, and second he has to establish what the subject is seeing. As in the case of the monkey, we assume the external stimuli here are formed by a drawing of a globe, and the researcher attempts to register the activation patterns representing the stimuli; that is, he measures the brain's representation of the globe. Now if the researched subject always associates globes with, say, the smell of tobacco in a classroom, that association would be equally represented on the neural level, and thus would be measured neurophysiologically. It would however not appear in the subsequent symbolic interpretation of the neurological data on the basis of the researchers interpretation of the same visual stimuli (i.e. the globe). Thus, the correspondence between the frame of reference on the part of the researcher reading the brain, and the one on the part of the subject whom the brain belongs to could be only partial, i.e. respectively without and with the association of tobacco smell. Further, it could be the case that the subject focuses on an entirely different aspect of the external stimuli, for instance not on the drawing of the globe, but on the black spots between the lines, or on the resolution of the screen showing the picture. The neural monitoring device would then register an entirely different perceptual representation than the researcher thinks it measures. How is the researcher to find out about monitored associations or misdirected selective attention on the part of the subject? Since the focus of the eyes might be not determined physiologically to the extent that we know a person is focusing on the drawing and not on, say, the resolution of the lines in the drawing displayed on a monitor, the researcher would somehow need to acquire confirmation from the subject that he is indeed seeing a globe while focusing on the drawing. Regarding the possible associations triggered by the concept of a globe, such confirmation would be hard to obtain in an indirect manner. Certainly the researcher cannot investigate the entire array of experiences of the subject that formed his associations. Presumably the best way to find out is to ask the subject to focus on a given aspect, or to let him explain what he thinks while having specific
brain states, and maybe even to recount the memories connected to his learning to interpret a given form as a globe.

But then the interpretation of the neuronal correlate would essentially depend on the reports of the subject they belong to. So, in that case, the interpretation of the brain state depends twice on other acts of interpretation. Not only does it depend on what the researcher takes to be salient stimuli that the subject should represent, but it also depends on the researcher's interpretation of the reports the subject gives. In other words, if researcher and subject agree that the drawing represents a globe, henceforth the neuronal activation pattern is defined as symbolically representing a globe. Hence the attribution of symbolic meaning to neuronal states is dependent on the symbolic meaning of the concept that applies to the perceived stimuli. In other words, the symbolic meaning of brain states, insofar as we can establish it, depends on a system of symbolic interpretation as much as any symbolic representation does.

The causal effectedness of the perceptual states does not make a difference here, since we can only establish cause and effect insofar as we conceptualize them ourselves. Thus, if we place an object in front of a subject and register his perceptual state, we can only interpret his representation as caused by this object in the way we ourselves conceive the object as a cause. The step of interpreting the data then has already been taken when determining which stimuli will be represented in the subject's brain. The possible suggestion that causally effected perceptual states should allow us to establish a determinate symbolic meaning is therewith dismissed.

What the thesis that neuronal representations produce symbolic meanings tells us, is that if we were to determine such specific neuronal configurations as representing a perceptual symbol, the brain is a medium of perception, reflecting in some important way salient features we can also observe in reality. However, what the meaning of such represented perceptual features is, and whether other than previously established salient features are represented, cannot follow from neurological research in itself, since it depends on agreement of interpretation between the subject and the researcher.

The point made here can be taken more general than as a specific criticism on Barsalou's model. It addresses the explanatory power of formal systems that model reasoning and knowledge representation. It is not that such models do not convincingly show how reasoning can be represented in, for instance, a connectionist model, nor does it deny that neural processes might be modelled in a way that mirrors human reasoning. Rather, the argument is that we can only interpret them as such by virtue of our attribution of symbolic meaning. Maybe the point can be illuminated in the following way. If for instance a connectionist model systematically produces atypical inferences, it would be considered an invalid model, since it ought to model what we consider valid
reasoning. That is, our intuitions on valid inferences would not be considered a neutral theoretical premise that could be rejected on the basis of how a model designed to symbolize our reasoning behaves. Rather, our intuitions provide the ground for evaluating whether the model can be used to accurately symbolize the process of reasoning. Similarly, the determination of symbolic meaning of perceptual symbols, depends crucially on the premises of what they are supposed to represent. That is, only the concepts by which we determine symbolic content, could be recognized as meaningful representations, and hence, the possible symbols in cognition that we would allow for, are those to which our system of symbolic interpretation could be applied.

Brain research, then, does not bring us outside the scope of symbolic representation, even if representations are causally effected in perception. The interpretation of the physically represented content will itself always use precisely the conceptual categories we want to lay bare in the physical mediation. The point may be irrelevant for the determination of the neurobiological processes that underlie cognition and perceptual processing; however, where it comes to giving semantic interpretations, it is crucial. If one wants to recognize a symbolic meaning in representations achieved in perceptual states, then one must in advance assume a concept with such meaning. Interpretation as the recognition of meaning, it follows, cannot be reduced to an act of automated, physical processing, since it involves recognizing the concepts that are supposed to apply in the automated process.

'Top-down': relating abstract concepts to a symbolic state

Thus, starting with raw perceptual data, one does not arrive at an explicated conceptualized representation of these data without explicating the concepts that are used. Reversely, when starting with an abstract explicated concept, one cannot arrive at its mere perceptual content without using a frame of explicated concepts, as the discussion of Barsalou's theory of abstract concepts below shows. In determining the perceptual content of abstract concepts, the description of such content is always relative to a theory that provides for the descriptive terms, thus allowing only for determination relative to a

254 Keith Holyoak states that the Physical Symbol System (PSS) hypothesis (namely that human cognition is the product of such a system) is a 'foundational principle of modern cognition theory'. His research agenda is then formulated as follows: 'the PSS that we seek to understand is that which is the product of biological evolution' (Holyoak[1998] p 9). In view of the argumentation laid out here, modern cognition theory would then be all about cognitive symbols and symbol-manipulation, and not about the determination of cognitively represented symbolic meanings, i.e. not with conceptual content.
III Representation: grounding concepts in experience, language and imagination

background theory and not simply by drawing on what is presented in perception itself.

Barsalou’s analysis of abstract concepts does not appeal to mere neurological configurations, but to the content of simulators (concepts), which are, we saw, supposedly formed through a functional selection of what we are aware of in different perceptual states. Thus, the semantic function that Barsalou attributes to neuronal configurations plays a crucial role in his theory of abstract concepts.

An example Barsalou presents of how an abstract concept has perceptual content is his analysis of the concept of truth ‘in a core sense’.\(^{255}\) He analyses truth as the matching of a simulation and a perceptual state. For instance when a sentence ‘There is a balloon over the cloud’ is processed, that leads to a simulation in the processing agent. Then the agent looks outside and perceives a physical situation, and attempts ‘to map the perceptual simulation into it [...]’. Analogous to the simulation, the situation contains a balloon and a cloud, and the balloon is above the cloud. On establishing this successful mapping, the agent might say: ‘It’s true that a balloon is above a cloud’ with ‘true’ being grounded in the mapping’.\(^{256}\) Thus the simulation of the concept of truth in the subject involves first his establishing a simulation of the proposition, second, his being in a perceptual state representing the situation outside, but, third, it also involves an introspective task of judging whether the mapping between the two is successful.

Barsalou concludes: ‘abstract concepts are perceptual, being grounded in temporally extended simulations of external and internal events. What makes these concepts seem nonperceptual is their heavy reliance on complex configurations of multimodal information distributed over time’.\(^{257}\)

The example does indeed show how perception and simulation may play a role in the verification of a proposition. However as such it does not tell us much about the concept of truth itself. A simulator of the introspective experience of successful matching and mapping does not fully exemplify the content of an abstract sense of ‘truth’. How, for instance, could such a simulator be of help in establishing mathematical truths about 20-dimensional objects? Or how should one understand Nietzsche’s famous line ‘If truth were a woman...’? Are such understandings of truth a simulation of successful mapping between simulations? Furthermore, the use of the word ‘analogous’ in Barsalou’s analysis above is crucial; before establishing the perceptual nature of the abstract concept, the sense of perceptual analogy should be explained.

\(^{255}\) Barsalou[1999] p 601
\(^{256}\) Barsalou[1999] p 601
\(^{257}\) Barsalou[1999] p 603
Analogous, presumably, here means 'just like' or 'same as'. In other words, the perception and the proposition show some similarity, both structural (i.e. spatial) and in content (i.e. the same type of entities). In introspection, according to Barsalou, this similarity is perceived, namely through the possibility of mapping, and results in the assessment of the truth of the proposition. Thus, constitutive for the concept of 'truth' is an act of internal reflection, which Barsalou deems perceptual. This, as we saw in section 3.2, in itself involves a conflated sense of what is perceptual and what not, but let us grant him here that introspection is, indeed, perceptual. The question now is, would the concept of truth therewith be perceptual as well?

Let us consider the symbolic function of this concept, that is, its reference to a similarity observed in introspection. The observed similarity itself is a relation between a perceptual state and a simulation. The perceptual state is caused by a state in the world, and is represented on the neural level, while the simulation is an activation of certain neuronal configurations. The observed similarity should then be a matter of correspondence (in the form of co-activating the same perceptual symbols for instance) between these neuronal configurations.

This correspondence, however, is not open to introspection. And, indeed, at this state in the science of neurobiology, it is not open to any inspection at all: it is theoretical conjecture. Thus the notion of truth that Barsalou explains as mapping in introspection depends on another, theoretically postulated notion of correspondence, namely between brain states.

If we then would want to establish the truth of this theory, we would have to verify the postulated notion of correspondence between brain states. So, following the given definition of truth, for this we would have to consider first what the proposition 'truth results from corresponding brain states' means, and then whether the simulation of its meaning can be mapped onto a perceptual state that neurobiology is supposed to make possible in the future (namely the observation of similarity between brain states). In other words: truth as an introspectively perceived relation would have to be considered itself a brain state, corresponding to the observed correspondence between brain states, in order for the concept 'truth' to mean something. However, then the regress in required brain states that the concept of truth supposedly refers to (i.e. the perceived relation between the simulation and the perception), and that which the proposition in which it appears stands for (i.e. the simulation of the relation between simulation and perception) is infinite. In other words, the definition of truth given here does not serve to verify the theory that abstract concepts are
perceptual. Hence, we would need a theoretical, more seriously abstract definition of truth to establish a perceptual meaning of the concept of truth.\textsuperscript{258} Concerning the problem of abstract concepts, Gibbs and Berg suggest in a comment on Barsalou’s paper that abstract concepts need not be perceptually grounded themselves, but can be filled in metaphorically.\textsuperscript{259} Hence, for instance, the concept of 'anger' would result from a mapping of diverse metaphorical domains, such as 'liquid exploding in a container' onto the domain of anger.\textsuperscript{260} Barsalou rejects the proposal as a sum-total solution. First, because metaphors need a domain to be mapped onto which has to be represented concretely, and second because such metaphors as proposed 'hardly constitute an adequate concept'.\textsuperscript{261} Yet he writes: 'My intention was never to underestimate the importance of metaphor in abstract concepts, especially those for which people have no direct experience'.\textsuperscript{262} It seems then that a reductionist alliance is close by between the cognitive linguistic idea of a basic metaphor, and the perceptual 'neurologism' that confuses symbolic meaning with a functional representation of perceptual states. What is reduced in either account is the possibility of theoretical concepts: concepts that are grounded in theory, i.e., in explicit definitions and social conventions that govern the use of words regardless of the perceptual content these may be associated with in the individual mind.

It remains unclear how Barsalou otherwise would be able to account for abstract concepts 'for which people have no direct experience', unless indeed by means of associating perceptual data belonging to different concepts with abstract concepts. For certainly the causal effectness of categories in perception is by itself not sufficient to explain how terms expressing abstract concepts could be associated with perceptual content. At the beginning of his article, Barsalou quotes Russell on the preoccupation of theorists with theory and words; he himself, however, seems to show signs of the reverse: reading Russell could well have reminded him of the difference between knowledge by description and knowledge by acquaintance.

\textsuperscript{258} This argument is not the same as Pylyshyn’s argument against depictive representation, which essentially claims that if depictive representations would be used, they would require 'a little man in the head' to determine their meaning. (An argument, by the way, related to that presented in Wittgenstein’s \textit{Philosophische Untersuchungen} (138-142) against any mentalist conception of meaning). Rather, the argumentation here given is akin to Frege’s objection against a correspondence theory of truth, where the representation of truthful correspondence itself also must correspond with something, and again a representation of this, ad infinitum (Frege[1977a])

\textsuperscript{259} Gibbs and Berg[1999]

\textsuperscript{260} Barsalou[1999] p 618

\textsuperscript{261} Barsalou[1999] p 600

\textsuperscript{262} Barsalou[1999] p 647
3.4 Subjective productive representation

As we saw, the neuronal basis of concepts does not allow one to interpret concepts in another mind, unless we assume these to be the same as our own. In general, shared symbolic meanings, such as linguistically expressed concepts, in this theory must be based on a presupposed agreement in interpretation. Barsalou's proposal that all representational content of concepts is perceptual thus faces yet another problem, namely, to explain intersubjectivity of concepts such that our different individual conceptual systems enable communication. The assumption that all my concepts must be based on my processing of a limited number of situations, carries no guarantee that the meaning of my utterances are shared by any other person, especially where the expressed meanings do not correlate with physically processed external similarities, such as in introspection.

In the light of this observation, we can better understand what role the assumption of causal effectuation plays in a theory that grounds concepts in perception. For, if concepts are formed as a result of a mere physical capacity of processing, then surely people who have the same physical make-up also form the same concepts. And then, sure enough, concepts have the same epistemological status as reality itself has. Intersubjectivity, or even objectivity, of the conceptual system would thus follow.

To assume a causal origin of concepts, then, is to assume an account of cognitive processing that oddly resembles the discussed account of the transcendental determination of concepts: we cannot but experience a situation as the instance of a given concept. However, for Barsalou there is no innate language or transcendental law from which a concept is to be derived. Instead we derive it causally, from existing 'physical categories'. Hence, the combined assumptions of unconscious processing and of a causal connection to reality, gives Barsalou's theory of concepts an objective ring.

In the Critical philosophy, we saw, Kant introduced subjectivity in the conceptual system with the faculty of reflective imagination. Subjective judgements were analysed to be formed through analogical reasoning and productive imagination. The assumption of transcendental determination of sensory impressions then resembles the position of automated causality, in that it does not leave any space for subjective judgement, or more specifically, for productive imagination. That is, it does not allow the subject to invent concepts that do not result from a priori rules of determination. Similarly, in the causalist view, no subjective concepts would result that do not conform to physical categories. It seems then, that this view on the perceptual grounding of all concepts, in addition to the assumption of automated perceptual processing, renders all subjective freedom of conceptualization impossible. Thus, in
Barsalou's model, insofar as it yields concepts that are causally effected in perception, we cannot process perceptual states other than we do, since we are not subjectively involved in decisions of conceptual determination. If linguistic meaning would also be grounded perceptually, in the way the causalist view prescribes, then words would have objective meanings. For Barsalou utterances become meaningful through their ties with accompanying perceptual processing. That means that reflection upon the use of a word will consist in following the track of the symbols used, through accompanying simulators, to some activated perceptual symbols. Now if conceptual determination is indeed a matter of causal effect in perceptual processing of reality, meanings in the model would be objectively grounded in reality. In other words, the track from a word to the associated perceptual symbols, would be a straight highway, where causal relation-signs indicate which concepts pertain to which perceptual symbols, without leaving any room for subjective reflection or creative concept formation.

However, there is an account of subjective productivity in Barsalou's model, which is described as symbol manipulation. The only possible way then, to subjectively achieve new concepts in Barsalou's model, would be through productive manipulation, namely by combining different perceptual symbols in new manners.

A conceptualized representation, in Barsalou's theory, consists of a simulation of combined perceptual symbols. The simulation may be created productively, that is, perceptual symbols or even frame structures derived from other simulators may be used within a simulator's frame to achieve a new simulation. In this way Barsalou explains how we can for instance think of a flying car, or of one with tweeting doorknobs. Thus, Barsalou can account for creative simulations.

The thus produced representation cannot be thought of as itself causally effected in perception of reality. So, we have to assume a different reason for the subject to engage in productive simulations than in the case of conceptualizations formed on the basis of automated processing of visual stimuli. One reason could be that in a conversation someone mentions flying cars, another could be a situation in which we wished we had one, such as when being stuck in traffic. In both cases, to combine the concepts of flying and of cars amounts to the intentional construction of a simulation. Recall how a concept such as 'truth' according to Barsalou can be formed on the basis of mere introspection. By analogy, the formation of a simulator (concept) for 'flying cars' on the basis of, for example, different visualizations of one's own car flying over a traffic jam should be possible. On the basis of intention-guided simulations we would thus form a simulator for flying cars. Hence, we have formed a subjective concept.
The next question then concerns the meaning of an expression like 'a flying car'. That is, what sort of symbolic content would a subjectively produced concept provide for the expression? Recall that symbolic meaning for Barsalou is equal to being in the 'symbolic state' of perceiving a referent. When visualizing something like a flying car, then, we have some sort of perceptual experience of it. Thereby we are in a 'symbolic state' of knowing what the concept 'stands for', namely an imaginative representation. However if this is so, then, again, the claim of perceptual grounding has lost much of its bite. The symbolic meaning of an expression would simply consist of anything we can think of, that is of anything we might produce in imagination. To conceive of such representations as 'perceptual' does not seem to correspond to the way we normally define perception as the processing of external stimuli. Accordingly, the notion of 'causal effectness' of meaning by perceptual states would have to be understood differently, since the conceptual system would be capable of 'causing' its own concepts.

Alternatively, the claim of perceptual grounding could be taken to mean that all symbolic meaning can be decomposed into perceptually processed elements of reality. That is, subjectively produced concepts only have a derived symbolic content. To be sure, as we saw in previous discussion, subjective concepts do not merely comprise conceptualizations of 'flying cars' and other fantastic entities but also more general concepts. These comprise, we concluded in the discussion of Bartsch's theory, second order concepts such as 'behaviour', insofar as these are based on subjective reflection on personally experienced situations. Likewise, in the discussion on Kant we saw that teleological judgements, such as a scientific explanation of biological diversity, fall under these subjectively produced concepts. Last but not least, subjective concepts include Barsalou's own introspection-based understanding of abstract terms, such as 'truth'. Thus, to claim that the meaning of these concepts would be derived from imaginative combination of what is encountered perceptually would mean that, first, each individual would have to produce these concepts by himself on the basis of personal experience, and, second, that such personal synthetic concepts are the same for all individuals, as they function as the symbolic meaning of expressions in communication.

Which of these would be Barsalou's final position on the nature of symbolic meaning remains unclear. If he indeed holds that all symbolic content is causally effected in the experience of reality, his account runs into problems of explaining a shared meaning of abstract terms and fictional descriptions. If he allows for subjectively produced symbolic meaning on the basis of productive imagination, then the claim that the symbolic content of all concepts is derived from perception in a usual sense does not hold, and thereby rules out an objective grounding for all concepts. So, either way, Barsalou's model is not fit
to explain intersubjectivity of linguistic meaning. Hence, with it, the possibility of communication remains either a mystery or a great coincidence.
4 Symbol representation: a proposal

4.1 Representing symbols: language as experience

The assumption of causal effectedness of concepts alone, we saw, cannot account for shared meanings in the socially coordinated use of language, since it cannot account for intersubjectivity of subjectively produced concepts. In this sense, then, the thesis of a purely perceptual basis of conceptual representation, stating that all concepts should acquire symbolic content on the basis of perceptually processed similarity, is untenable. It leads to a conceptual system that cannot surpass subjective concepts, unless all subjects produce concepts in the same way. To explain the uniformity in use of language, we would thus have to postulate a shared system of concepts by which people produce symbolic meanings. Hence, we would have to postulate a system of rules of understanding that pertains to cognition generally. And precisely with this postulate the empirical foundation of the conceptual system is cast away. We would return to an account of determinant judgement based on transcendental concepts, similar to that in the first Critique. The disadvantage of such a system lies in the rigidity of laws of conceptual determination, which cannot account for creativity or productivity in subjective judgements.

A way out of this impasse was already suggested in my discussion of Bartsch's semantic model of concept formation, namely, to consider how the learning of conventional use of language allows us to use words for subjectively construed concepts, in a way that is subjected to social approval or rejection. In the sections to follow, I outline an approach to model the conceptual system that retains the basic idea of experiential grounding, without, however, presupposing a direct perceptual grounding of meaning. The central assumption in this proposal is that language provides a regulated symbol system, the symbols of which become related to experiential content as well as to background knowledge in experience. Since expressions are associated to either perceptual or linguistic representations on the basis of experience, their cognitive representation embodies the learned social regulations in a speech community, as well as other regularities in experience. Thus, cognitively represented relations are based on intersubjectively accessible events, in that the experience that gives rise to forming such cognitive representations is in principle open to all subjects, even if, in reality, all individuals do have a specific and probably unique personal history of experience. Another part of experience is only subjectively accessible, such as for instance are feeling and
dreaming. Thus, the conceptual system encompasses cognitive representations and relations that are sometimes not based on common ground. Further, cognitive faculties depend on individual training and capacity. Hence, the individual's conceptual system embodies socially regulated use of language and phenomenal regularities in a way that depends not only on his perceptual faculties and experience, but also on his subjective skill of association.

This conception of language, as embodying social norms, is based on Bartsch's description of the process of learning language, as a continuous process of meeting correction or approval of new utterances with respect to their conformity with linguistic conventions. Language thus provides a rule-governed system of symbols, that is itself empirically given. That means that in experience we do encounter 'abstract concepts', insofar as they are expressed in language. Hence in a sense abstract concepts are intersubjectively cognizable, namely through their linguistic expression.

Like Barsalou, Bartsch adopts an empirical, experiential foundation in her theory of concept formation: experiential concepts arise from similarities between experienced situations. She thereby also takes an ontological stance on what experientially grounded concepts stand for, namely, a property in reality. However, I argued that similarity between satisfaction situations for an utterance could only be formed on the basis of conceptual combination of the past satisfaction situations activated by the perception of the context of the utterance. Thus, I argued, for concepts of any generality, the reconstruction of an experience-based meaning on the basis of similarity between satisfaction situations is an act of productive imagination.

However, sometimes an expression may be associated more directly with a salient, perceptually given aspect of the situations it is used in, yielding an experience-based representation of its denotation. For instance, the recognition of a face will be salient on a level of perceptual processing. If the perception of this face is accompanied by the utterance of a name, the two perceptually processed representations, of both face and name, become associated representations. Hence, upon hearing the name, representation of the face may be retrieved from memory by association, and reversely.

As we saw in the discussion of the metaphorical utterance in which 'pig' applied to a little boy, such associated perceptual representation is not always present. The experiential content of the use of the expression 'pig', then, is formed on the basis of personal experience. I argued that any resulting attributed experiential content of the expressed concept is inherently subjective, and cannot in and of itself be understood as coinciding with an intersubjective meaning of the expression. That is, as far as an experiential meaning can be found, the representations that are retrieved in understanding
the metaphorical utterance do not share perceptual salience in the same way as
when a name is associated to the representation of an object, or an individual.
I argued that an understanding of a shared linguistic meaning can be found in
linguistic explications, which are in principle available to all members of the
speech community. I characterized these as the predications, descriptions or
definitions that are exemplified by the word, that is, those expressions which
apply to, or are used in the context of a given expression. Thus, the knowledge
exemplified by the expressions in the metaphorical utterance, consists of
descriptions and expressions commonly used in utterances that include the
expressions in the metaphor. Hence, in the example, such exemplified
knowledge would be derived from for instance fairy tales or common
stereotypical predications pertaining to pigs. With reference to such common
knowledge, the meaning of a metaphor may explicitly be reconstructed. In the
example, the utterance addresses an aspect of behaviour that has explicitly
been predicated of pigs if not in the utterance situation, then in the cluster of
previously processed utterances related to the word 'pig'. Thus, the mother's
utterance could make sense even to those children, of whom John might be
one, who have no perceptual experience of pigs whatsoever, but know all
about pigs eating garbage, fleeing from wolves, being stupid and playing in the
mud.
Generally, when learning language, we copy behaviour, by tentatively
applying the expression to new situations, all the while meeting approval or
objection. For abstract terms, such as mathematical terms, or for general
expressions such as 'behaviour', we learn that the conditions of successful
application are presented by their relation to a linguistic environment, and thus
to 'theoretical' explication, rather than that they must be accompanied by
salient perceptual similarities. In this way, language plays a role by being part
of the utterance situation that is perceptually processed. What Bartsch
describes as a higher level of concept formation, namely feature explications
and background theories (as bits of everyday knowledge held true) are part
and parcel of what is experienced. In other words, I understand linguistic data
as being processed on the experiential level. In this way the thesis that concepts
originate in experience may be held, without attributing a perceptual, objective
ground to all symbolic meaning. That is, not the meaning but the symbol itself
is perceptually processed.
With this conception of the perceptual ground of symbolic systems, namely
that the symbols and not their meanings are perceptually processed, we have
some ground for the elaboration of a representational model of concept
formation and understanding that in some respects departs from the two
models discussed above, and relies on them in others.
In this account I presuppose two basic notions, namely of representation and of association. Representations are cognitive representations formed on the basis of perception. They are what perceptual processing may present as salient, while recurring percepts allow for recognition of what is perceived under an aspect of similarity. Hence, we may form representations of objects, of a person, or of an aspect shared by these, such as colours, smells, or movements. Associations, for all the negative connotations that the term gives rise to, are relations between representations, as processed in perception. Thus, they include recurrent event structures as well as accidental co-occurrence of objects, or events. Again, recurring processing allows for recognition of such relations as being similar.

Language, then, is perceptually processed on the basis of parts that are recognized as similar (sounds, words, sentences); of associations between these (recognizable sequences of sounds, words, sentences); and on the basis of associations with other representations processed in relation to an utterance (that is, other utterances, events, individuals, objects).

Barsalou's perceptual symbols system is useful for the approach envisioned, in that it can model the formation of both representations and the associations between them. We can construe a model using his terminology in the following way. Simulators, to recall, are structured concepts formed on the basis of perception, and perceptual symbols are the representations derived from perception that are stored in memory. Thus, the notion of a perceptual symbol, as the cognitive representation of selected aspects in perceptual processing, coincides with what I call a representation. Next, Barsalou's notion of a simulator presupposes the possibility of forming structural relations between representations, which is what I intend to capture with the above notion of association. It is however not the same, for Barsalou understands a simulator as a concept, with which I disagree. As I claimed above in section 2.3, concepts are theoretical reconstructions of meanings, and as such are only an idealized, reflective reconstruction of what is cognitively represented. In this I agree with Bartsch, who claims that concepts do not exist in the brain, while examples can be pointed out as their representatives.

The central assumption of my proposal would then be, in Barsalou's terms, that first language itself is represented by means of perceptual symbols, and, secondly, that some simulators do not acquire a frame on the basis of information derived from the utterance situation minus the utterance itself, but rather on the basis of the linguistic context. That is, a simulator for an expression may have a frame purely built on the place the expression occupies in a linguistic environment. The structure of the frame would be formed by a growing number of processed utterances as well as utterance situations, and would allow for the association of the expression with a complex of possible
predications in relation to the expression. To put it differently: an expression in an utterance may be processed perceptually as being structurally related to the occurrence of other expressions in the context, throughout different utterances. Clearly, this should not be considered the only way of representing expressions, for expressions may also be embedded in simulators that involve other perceptual information from utterance situations. In this way, we can conceive of a representational structure of simulators for different aspects of utterance situations: for some expressions, for instance for abstract terms, simulators are formed on the basis of linguistic context, rather than non-linguistic situations. Such expressions, then, are cognitively represented as belonging to several linguistic contexts. Hearing the expression, then, essentially activates other linguistic 'perceptual symbols'. For other expressions the conceptual embedding involves non-linguistic data as well. For instance for a name that is ostensively introduced, the simulator might include representations of the ostensively indicated object. In this way, interrelations between linguistic representations and non-linguistic representations could be modelled on the basis of the representation of expressions in different conceptual embeddings. The connection between simulators formed through language learning and simulators formed through other experienced situations would thus be represented. Thus, a model in terms of simulators and perceptual symbols could be envisioned that generally conforms to the dynamics of concept formation on the basis of both language and perception, as I argued for in the discussion of Bartsch's theory. As I said, the notion of a simulator does not conform with my position, since it presents a cognitive reality to concepts. A concept is a reconstructed meaning, which is only to be stated in language. And language, I propose, consists of recurrent sounds and signs that are processed perceptually. With this observation, I depart from the assumption of transparency of linguistic symbols, that states that a symbol refers to, or carries with it its meaning, such as that a word expresses a concept. In a way, to consider symbols as perceptually encoded objects themselves is congruent with semiotic approaches, since here too, meaning is never seen apart from the physical symbol or sign that is its carrier. Instead, in the semiotic approach, meaning emerges as a property of a sign only in view of its structural relations to other signs. And this, I argue, is how a cognitive representation may allow for the production of meaning: by its relations to other representations. In the following section, I consider how a conceptual model, making use of the notions of representation and association or relation and refraining from the assumption of concepts or meanings as entities or representations in cognition. My terminology, then, is psychologistic, in that I do make assumptions about cognitive processes. My understanding is largely based on the model of
cognitive representation presented by Barsalou. Like he does, I assume that functional selections of perceptual states are stored in memory, and can be retrieved by activation in perceptual processing. Representations, as such, are not stored in memory; they are only formed upon activation. Thus, representations are not static brain-states that may or may not become conscious. Rather, as a reaction to perceptual processing, representations are activated, and may trigger the activation of further representations. Whether a representation enters consciousness is then a different matter than either storing them in memory or activating them by retrieval. These processes, I assume with Barsalou, are guided by attention, which need not entail consciousness. What a representation exactly is, is then hard to say. In a physical sense it is, as Barsalou assumes for 'perceptual symbols', a configuration of neuronal activity. However, I find it somewhat simplistic, and on philosophical grounds untenable in view of my argumentation in section 3.3, to assume that something like 'red' is an isolatable brain activity. Rather, then, I refrain from any conclusions of what a representation should be on a neuronal level. I prefer to think of a representation as an aspect of the situation perceived that is shared by whatever it activates in the brain. Hence, the perception of a red flag and that of red meat must be somehow similar in that they share a form of processing, and thus are stored in memory as similar on a neuronal level. Perceiving the one may then activate the representation of the other. Still each of these representations is related to different representations, such as, apart from the most obvious perceptual differences, representations of the words 'meat' and 'flag'. Perhaps the only thing such representations share is their being associated to the word 'red'. Thus, similarity is understood as the result of different acts of processing that make use of (partially) the same activation patterns, and thus allows one representation to be associated with another. Hence, in a sense a representation is a similarity set in the sense Bartsch defines it; however, I do not consider such sets as sets converging to a concept, that is as stabilizing, nor do I relate them to properties in reality, since they emerge from a mechanism of perceptual processing only. Rather, some relations between elements in a similarity set are so strongly associated, that they allow for a generalization over what is perceived in different situations under the name 'representation'. Hence, the recurring perception of a face forms a representation of a face, or the repeated recognition of a word forms the representation of that word. Therewith, the use of the term 'representation' is a generalization over recurrent parts in perception that share a largely similar activation pattern. In the following discussion, I then assume a basic terminology of representations and associations; it should however be kept in mind that representations are a heuristic generalization over similarly processed parts of singular perceptual
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states, and thus could also be rephrased in terms of associations between aspects of perceptual states. In this way, then, I further make assumptions about human memory, and consider it a latent reservoir of what may be retrieved, under attention, and therewith allows for the production or construction of representations. Thus, the process of retrieval is assumed to be a form of structured association, by paths that are formed on the basis of previously processed relations. Although I do assume that such relations are initially cognized in perceptual processing, I consider retrieval as not only being based on perceptual processing, but also as presenting or forming a relation between retrieved representations. Thus, by coincidental activation of retrieved representations, associations between them are formed imaginatively, and not perceptually. In this way, an explanation of conceptual productivity may be envisaged.

In section 4.3 I reconsider the reflective process of reconstructing meanings for an expression, that is, the process of interpretation. Continuing on the discussion of Bartsch's notion of perspectives above, in section 4.4, I especially discuss the role of context in interpretation. In section 4.5 thereafter, I discuss the relation between the approach proposed here and another previously discussed model of cognition, presented by Indurkhya. Finally, in section 4.6, I reconsider in what sense the outlined approach may be thought of as a generalization of Kant's understanding of aesthetic reflection.

4.2 Conceptual networks

As a consequence of my above understanding of concepts, namely as structures by which representations are associated, the notion of 'conceptual content' or 'symbolic meaning' acquires a different understanding. A concept here would not 'stand for' something in an ideal sense of being a transparent symbol, such as a name that refers directly to an object. Rather, concepts emerge as cognitive representations in relation to other cognitive representations. That is, a name becomes meaningful if it is connected to the representation of a face, or to a description of someone's acts. For instance, when perceiving a face, it is processed as being the same (or similar to) previously perceived face. The perceptual processing thus activates the representation of the face, and this representation allows for the activation of the representation of a name. The representation thus activated may then become conscious. Similarly, hearing a name allows for retrieval of representations of linguistic context ('the writer of Waverly') or of a face.

Relations between representations are based on experience, such as perceptual processing of structured utterances, or of phenomenal conditions, such as
temporal and spatial relations. Thus, contiguity provides for structural relations between cognitive representations. Further, recognition under aspects of similarity allows for generalization in two ways. First, there is perceptual similarity, that is, of appearance, which allows one to recognize objects as being the same, and hence, to form a representation of similarly perceptually processed objects throughout different situations. Individuation, then, is initially assumed to be the result of perceptual processing. Secondly, there is structural similarity, based on recognizing a given (object of) experience as having the same structural relations to other representations as another. So far, then, we use the basic types of similarity that Bartsch describes in the formation of concepts on the experiential level.

To achieve the latter type of generalization of contiguity relations, basic conceptual relations should then in themselves be capable of being generalized, resulting in structures such as event structures, or syntax. These general structures can then be thought of as frames, in the terms of Barsalou. In his model, simulators, can be filled in with representations; either productively, as in the example of representing a flying car, or in conceptual processing of experience, such as in understanding one event as the cause of another. In this way, then, the distinction between simulators and simulations that Barsalou proposes comes in. To recall, a simulation was defined as a given instance of a concept, namely by filling in a simulator. The perception of an object for instance, would trigger the activation of a simulator, and this would trigger structurally related representations. Simulators, then, may alternatively be understood as a trained cognitive capacity of associating specific representations to one another, rather than as 'empty' structural concepts that are represented in themselves.

Conceptualization or simulation in Barsalou's terms, amounts to 'filling in' a simulator. In perception, according to Barsalou, this was based on recognition of objects in agreement with a given simulator, such as recognizing that something is a car on the basis of perceiving its four wheels, a hood and a driver's seat. On the basis of the simulator, inferences were possible, such as that in a distant moving car, a driver is present. Recognition of an object was

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265 The process described, of recognizing structures merely on the basis of experience and not by learning explicit rules, is recognized in psychology as 'implicit learning'. This notion is described in Kubovy[1998], after experiments reported in Reber[1993], Schellenberg[1996]. In the experiments in question subjects learn rules through memorizing sequences of letters with an implicit grammar. The subjects have no knowledge of the rule-governed nature of the memorized subject, nor do they know that in fact they are trained to learn rules. The subjects presented with implicit grammatical structures did much better in reproducing the letter-strings than the subjects who were given random strings. The explanation given was that through the memorizing of the data, the subjects formed an expectation towards the structure of the next string, on the basis of an implicit process of learning rules.
based on focal selection during perception, that is, attention. Hence, when recognizing an object, this activates a simulator, and therewith other perceptual symbols are activated. In other words, the inferred representations ('it's a car!') are triggered through attention (focusing on the perceptually given wheels and so on). Thus, retrieval of representations stored in memory is described as a process guided by attention. Describing this process, without mention of a specific simulator or concept, we can then rephrase simulation, or conceptualization, as a specific path of association and retrieval. That such a path may be followed does not require any fixed general structure pertaining to the conceptualizations of an activated representation. Perception is not limited to activating a single representation, for we focus on more than one recognized aspect of any given situation (that is, our perception is not limited to seeing the colour of something, but we also see whether it has wheels, a hood and so on). Thus, considering conceptualization as a path of retrieval, many different representations may be retrieved in perception that form a complex, ad hoc network. Representations in such a network have different relations between them; some are perceived, and some retrieved, but all are triggered through focusing in perception, that is through attention.\textsuperscript{244}

As we saw in the discussion on imagery research, the production of a consciously maintained visual image is tied to its conceptual identity. We may tentatively understand this on the model of attention based retrieval, that is, on the basis of a specific path of association being triggered, resulting in a complex of representations that are related by previously processed contiguity. Thus, in forming a conscious image, we follow such a path of retrieved associations. If our focus of attention shifts, we take another path, and hence the visualized image breaks down. In perception, this is not the case: while changing focus of attention we remain in the same perceptual state, as the perceptual input on a physical level remains the same. Hence, conceptual identity changes as the retrieved network of representations changes; but the perceptual stimulation remains constant.

When hearing an utterance, the recognition of an expression (as a perceptual datum) triggers several representations. These include representations of related expressions, as well as specific perceptual representations derived from utterance situations. The thus co-activated representations may have been

\textsuperscript{244} Previously (in section 3.4), when considering the imaginative production of representations, such as forming the image of a flying car, I called retrieval an intention-guided process. If I was right in calling it so, that would presuppose a relation between intention and attention. It is way beyond this discussion to discuss possible conceptions of intentionality, or indeed of attention; however, if intentions are to be understood as 'horizons of understanding'(Husserl) then the two somehow seem to coincide. Indeed, Barsalou's use of notion of 'focus' in perception in itself presupposes intentionality.
processed at some time in relation to each other. Thus, for instance when somebody says: 'Cars have doorknobs', the retrieved representations, both linguistic and perceptual will be connected in obvious ways, on the basis of both semantic structures, and perceptual representations of cars. Now when someone says: 'Instead of doorknobs, this car has canary beaks', the representations involved will become associated by a familiar path of association, but with new representations. That is, on the model of the relation between 'doorknobs' and 'car', 'canary beaks' will be brought into relation with cars.

The proposed model, then, is based on conceptual associations that are derived from perceptually processed relations of contiguity, and hold between representations of aspects of situations that are processed as being similar in the sense explained in the previous section. Conceptual associations structurally relate representations to one another in a conceptual network. In this way, the envisioned approach does not presuppose a hierarchy of concepts in which the one concept stands for, or, in set theoretic terms, contains another, right down to a bottom line of basic represented perceptual content. Rather, representations of events, feelings, symbols or objects, are interrelated in many different ways. The same utterance can be processed in different situations, and can be associated in memory to different aspects of these situations. If some aspect recurs more often than not in connection to the utterance, the association between the cognitive representation of the utterance (the sounds or words) and this particular aspect (for instance a person) is reinforced, and henceforth if the one representation is triggered, the other might be so, too. Similarly, words are processed as being related to others, within a specific order (based on the syntactical structure in the utterances), and can thus be brought into relation to again other words.

Consider an example of how we could achieve to use an expression for something. When we are in a garden, and look at a flower, the perceptual representations of a colour, of a specific form of the leaves, of a scent, of the expression 'flower', and so on may be activated. Some of these will be represented in association to the expression 'rose'. If the latter associations are strong enough, we recognize this flower as a 'rose', and may call it such. Related expressions, for instance the expression 'lily of the valley' may also be activated, but appear not as prominent in the network of associations as 'rose'. Thus expressions, associated to a complex of perceptual representations that are similar in some respects but not in others, may be triggered but are either not found to be as strongly associated as the word we then utter, or are cancelled out by other representations in their associated network, for instance
when the flower in the given situation does not have bell-formed flowers, such as lilies of the valley do.\footnote{As such, Quine's understanding of 'stimulus-meaning' could be interpreted in this proposal as a representation that is associated with an utterance on the grounds of such overlap in connected representations, including both representations connected through similarity and through opposition within the conceptual network (cf. Quine[1960] pp 32-33).}

The strength of conceptual structures between representations then also depends on experience, for instance on frequency, on emotional impact, or on normative importance of the occasions in which representations are processed in relation to one another. Thus, like the theory Bartsch presents, the model proposed here can be understood on a probabilistic model, since experience provides for representations, and for relations between them that are enforced on the basis of frequent co-activations of representations, or on the basis of the weight of a formed association on the basis an important experience.

So far, the formation of associative relations between representations was considered insofar as these were formed on the basis of perception. However, since the formation of such association depends on the simultaneous activation of different representations in both perception and retrieval, it is not restricted to the relation between representations that are directly activated in perception. Associations between representations can be formed imaginatively, as well as on the basis of perception. When two representations are under attention at more or less the same time, both trigger a network of conceptually related representations. Somewhere in these networks, an overlap in the associated representations may be recognized. Hence, on any degree of strength of associative relation to the representations under attention, an aspect of similarity might be found somewhere in the associated networks of representations. Hence, an associative bond between representations may be formed on the basis of their being retrieved in relation to one another.

Different representations under attention (for instance the representations of a toothbrush and of the word 'dog') are related through a common part in their associated networks of representations (that is, some representations associated to 'dog' are evoked by the perception of the toothbrush). Depending on the personal experience of a speaker, such a common association within these networks may be very remote or distant (for instance, when the network of representations associated to 'dog' includes the expression 'fur', which is related to 'hair', which overlaps with a representation in the network triggered by the toothbrush), or it may be very prominent (such as when the word 'dog' is associated foremost with previous experience of a dog, and the recognition of the hairs of a tooth brush triggers the previous perception of a dog's hairs, and hence triggers the word).
Understanding then amounts to the recognition of those representations that are conceptually related to both of the co-activated representations (in the example, to representations of the toothbrush and 'dog'). Understanding in the sense of recognizing an association between two representations, also reinforces or even establishes such connection. Thus, representations that are not processed as connected on the basis of experience but that are related in understanding may become associated to one another. That is, co-activation of representations, whether coincidental or not, and whether based on perceptual processing or on retrieval, may result in an associative bond between them. Hence, understanding is based on the use of productive imagination, namely the subjective association of different representations as belonging to a given expression.

In the case of the child that associates 'dog' to a toothbrush, the child will learn how to use the word 'dog' properly. The connection between the two representations will become weaker, or more remote. That the child is corrected in its use of the word, then, implies that it learns to not express the word in relation to a toothbrush; it does not entail that the association between the two is undone. Thus, it learns an additional aspect of the word 'dog', namely, in which situation its utterance leads to an utterance of the form 'not a dog'. Hence, the association between the word 'dog' and the toothbrush may be supplemented with the stronger association of 'not a dog'.

4.3 Contextual restraints

The notion of a perspective, in this account, could be understood as given through attention, that is, the focal selection in perception, and the guided path of associations. Like perspectives, which Bartsch in the terminology of Husserl called 'horizons of understanding', this implies an aspect of intentionality. However, in Bartsch's model, to take one perspective cancels others out, since according to this model a situation is processed under one perspective, or, in the case of an indeterminate context such as in literary interpretation, several perspectives may be developed next to one another.

In my approach, the horizon of understanding is not to be identified with either a single property or a single feature processed in the context. Rather, recognition of perceptually salient appearances, or of linguistic expressions enables the retrieval of different networks of representations, and may enforce an overlap between such different associated networks of representation. It does not, then, lead to a conceptual categorization of associated representations in a given situation, rather, some representations emerge as more prominent.
The restrictive character of the notion of perspective defined by Bartsch can thus be understood as a normative impact of context on association, that is, on having learned what type of utterances are appropriate or meaningful in a given situation. For instance, when discussing the role of Italy in international politics, it would be very inappropriate to utter 'I love espresso', on the basis of a prominent association between 'Italy' and 'espresso'.

Discourse, then, should have an impact on whether associated expressions can be uttered. This can be explained as a result of representing expressions on the basis of processed contiguity relations in utterances, which can be understood as semantic relations between representations. Thus, the expression 'espresso' would not be represented in close relation to expressions such as 'conservative', 'post-communist', or 'lucrative weapon trade'. And further, if a speaker does produce an inappropriate utterance on the basis of such prominent associations, his utterance will be disregarded, or rejected in the context, in a similar way to how a child is encouraged to not normally use the word 'dog' for toothbrushes, even if it finds them closely associated.

Another difference between this approach and Bartsch's Dynamic Conceptual Semantics, already mentioned above, is that an associated network of representations cannot be conceived of as a determinate similarity set of satisfaction situations in which new situations are embedded. In my view, conceptual processing consists of ad hoc, situation-guided construction of a flexible network of associated representations that is formed in relation to the processed situation, including any utterances. Conceptualization of a situation would then depend on the possibility of retrieving other representations, and not of including it in a set, or of subsuming it under an abstract concept within a hierarchic organization of concepts.

Abstract concepts, such as the higher-order concepts that Bartsch describes, in my approach are taken to be represented as linguistic expressions that especially enable the formation of an associated network of other linguistic representations. Thus, 'behaviour' is an explicaded feature, which is predicated of, for instance, 'lion' and 'pigs'. The representations evoked by these terms would then include different explications (such as derived from fairy tales, or

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26 The example is, gratefully, derived from a discussion with Remko Scha who found the notion of 'association' somewhat misleading. The emphasis on contextual normativity, in the sense that it provides a lead for retrieved associated representations, hopefully prevents the reader from understanding the word 'association' in a more common sense of connotations, namely as evoked peripheral thoughts, images and feelings. Although my use of the word covers these instances, it emphatically includes associated feature explications, definitions and other representations, which in other theories are supposed to be what concepts or meanings consist of. In the here proposed approach, then, the use of expressions in accordance with such general definitions is based on having learned to utter some and not other expressions in specific contexts, on the basis of reinforcement of some utterances through social correction and approval.
the ones learned when learning to recognize the picture of a pig), and of percepts (such as the picture learned in association to the word). Abstract concepts, in my view, are representations of linguistic expressions, and call up a network of mainly linguistic representations. The representation of an abstract term (such as ‘behaviour’) can figure in many networks of associations called up both by expressions (such as ‘pig’), and by percepts (such as a dirty boy), since these are associated with expressions that in turn are associated with the abstract term (when John comes home, his mother notices he is filthy, that brings for instance ‘mud’ to her mind, and this brings ‘pig’ to her mind which she then utters. To someone focused on the explication of the metaphor, the utterance might then trigger the representation of the expression ‘behaviour’, as a feature that is associated to both the situation (or its description) and the utterance of ‘pig’).

To describe the meaning of the expression ‘pig’ in the utterance in this way, then, is to follow one path of association. That does not mean that these associations are the only ones possible, and that they should make up the concept expressed by a term. What comes to mind depends on a subjectively formed network of representations. If in a given situation an explication of the meaning of an utterance on the basis of a network of retrieved representations can be predictable, this is so to the extent that the relations between represented expressions like ‘behaviour’, or ‘pig’ have been reinforced by an individual’s experience of the common practice of using these words. Hence, the commonness of some and not other explications of an expression in a speech community roughly allows us to predict what a person will bring to mind when hearing an utterance.

Since I consider language processing to be an integral part of experiential concept formation, I find we cannot postulate a difference between two levels of concept formation as Bartsch does. However, we can appreciate that to learn how to form associations between expressions will take more time if it is based on the encounter of conventional use of expressions throughout different forms of discourse, and thus that a child will only at a later stage in life use words in accordance with a socially regulated practice of using ‘abstract’ terms.267

There is another use of the term ‘abstract’ that sometimes seems to be confounded with the ‘abstract’ character of certain terms; it is the process of

267 Parallel to learning to partake in the socially regulated practice use of abstract terms in a later stage, earlier on the child learns to partake in the socially regulated practice of using concrete terms. For instance, when a child learns to speak, at first it tries to reproduce sounds, and when it achieves this to some extent, it learns to use utterances in connection to a person or an object. Thus, that utterances are associated as signs to other representations, i.e., the referential function of utterances, is learned in practice, whether in connection to other expressions (exemplification) or to people, objects and so on (denotation).
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abstraction on the basis of similarity in perception. Since we form perceptual representations that to some extent contain generalizations of what we perceive (for instance, to recognize two different utterances as the utterance of the same expression), abstract linguistic terms are sometimes considered to be expressions that refer to the general or abstract representations of similarity thus formed.

To explain the difference, I draw on a distinction between iconic and symbolic functions of signs that Charles Peirce proposes. He distinguishes icons and symbols in the following way: iconic signs are those signs that relate to what is signified by way of similarity; that is, the representation of an abstracted similarity, which is the icon, allows us to recognize a given object as being similar to another. Symbolic signs, by contrast, are signs that relate to a given object on the ground of convention, namely on the basis of our being taught to associate between the two.

In the model proposed, cognitive representations are a type of icons, that is, an abstraction over different percepts based on similarity in perceptual processing. Linguistic representations, that is, icons for linguistic expressions, may be associated to other icons on the ground of experienced contiguity relations. For instance, processing a name and a face in relation to one another, allows us to associate the icon for the face and the icon for the name. Hence the meaning of the name is provided through its association with the icon. In other words, the meaning of an expression is formed by a learned, symbolic association between the icon for the expression (that is, of the sign) to other icons, and not through its being an icon. Insofar as an expression is an icon, it is a only a general representation of the (perception of) the linguistic token itself.

My account of abstract terms, then, can be stated thus: abstract terms acquire meaning through associations with other linguistic icons, and are not related to one, perception-based icon.

Linguistic meaning in a general, conventional sense, may be conceived of symbolic relations between expressions. That is, a general meaning of a word can be rendered in a description of what it applies to or how it should be used. Thus, conventional linguistic meaning would be based on descriptions or definitions that are agreed upon by convention, in a speech community. Subjectively, such a conventional understanding of meaning may be incorporated on the basis of learning how to correctly use language within a speech community, but that is not all there is to the subjective representation of expressions. Some representations may subjectively be associated to an expression on the basis of conventional linguistic explication, while other

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representations associated to it are based on the processing of specific, personally experienced utterance situations. Thus, for an individual, expressions may be associated to a subjectively construed perception-based icon that is a representation of perceptual processing in a number of personally experienced situations.

However, conventional linguistic meaning depends on the explicable conventional relation between expressions. That is, the conventional meaning of expressions is stated in terms of symbolic relations between expressions, and not by reference to icons that are subjectively formed. With this distinction, we can understand how words can be used in conformity to an explicated conventional meaning, and hence are grounded in linguistic conventions within a speech community; but also how they may be used in relation to subjectively associated representations, based on personal experience.

The conceptual network of representations outlined here has a structure akin to the network between 'labels' that Goodman describes in terms of relations of exemplification and denotation. In a sense, the intended understanding of cognitive representations is as nominalist as Goodman would like, since no notion of 'meaning' is invoked that cannot be stated in terms of exemplification or denotation. However, the extensional, exemplification-based understanding of conventional meaning is paired to an understanding of the cognitive representation of such an extensional definition. Subjective understanding of an uttered expression involves representing it in a network of structurally related representations, whether these are formed in perception, or on the basis of utterance situations. Further, cognitive representations are similar to the extent that they share (part of) a conceptual network, which means that they are similar to the extent that they can be brought into relation to one another, first on the level of perceptual processing (such as recognizing a face, or an expression), and second on the level of cognitive representation, with regard to the structured network of associated representations they evoke. Thus, unlike 'schema's' in Goodman's account, representations as well as structural relations between them, are neither purely conventional, nor arbitrary. They are based on similarity in perceptual processing, and on the recognition of an overlap between different activated conceptual networks in imagination.

In the model outlined above, much depends on the actual working of the cognitive mechanisms underlying memory storage and retrieval, association, similarity recognition and representation. I am well aware that my use of the terms referring to these processes is, in a empirical sense, largely unfounded.

260 The latter, subjective representation of words in relation to experience-based representations would then maybe be recognizable as the 'iconic function' that Ricoeur attributes to words. I return to Ricoeur's understanding of the iconic function of words below, in the epilogue.
The proposal is then not intended to give any answers on the nature of these processes; rather, it is an attempt to philosophically model the role that such processes could have in cognition, and how these could be useful for a theory of interpretation. Thus, regarding the nature of cognition in an empirical sense, the account of a dynamics of representation and understanding proposed here at best provides a ground for posing questions that may further empirical investigation.

In the remainder of this chapter, I discuss further theoretical consequences of this proposal, as well as its relation to other theories discussed earlier. In the following section, I consider the dynamics of metaphorical interpretation as it emerges from the outline presented here.

4.4 Stability and creative interpretation

So far, I have adopted a notion of conceptual networks of representations that are triggered in a given situation. I have further assumed that such associated conceptual networks are flexible to a great extent, since they are formed on the basis of attention in a given situation. Contextual information, in the situation, thus plays an important role in triggering a conceptual network of representations.

Stability of associations that a given expression triggers, then, can be explained along two lines. First, we saw, it depends on the regularity or normality of context; secondly, it depends on the strength of associations within a conceptual network. These ways of understanding stability are interrelated, since enforcement of associations will be the result of regularity in experience. Clearly, the capacity of our memories is not such that every single experience we have is stored and may be retrieved. For all we know of consciously retrieved memories, we remember some experiences and never others, and presumably for a variety of reasons: normative importance, traumatic impact, or continuous reinforcement. What I have assumed so far concerning memory, is that memory allows for the retrieval of related representations under attention. Thus, in memory, latent representations are stored, as well as structured relations between them. Further, storage in memory is not merely the result of perceptual processing, but also of imaginative representation. That is, if different representations come under attention, we may focus on an overlap between their associated networks of representations; hence an associative relation between formerly unrelated representations is formed in imagination, and may then be stored in memory. In this sense, then, we may not only forget or recall past experience, but also renew it, if it is retrieved in connection to a different network of representations.
In a sense language functions as an 'external memory'. Inasmuch as linguistic explications, definitions and social interaction in utterance situations provide the structure and content of the conceptual system, language also provides the means of reinforcing it. Thus, if the network of representations that is associated with an expression is experientially reinforced, this then allows for stable associations in interpretation, and hence for a predictable understanding of a given utterance.

There are situations where an utterance cannot be processed such that the construal of a relation between the words immediately follows from such reinforcement of associative relations on the basis of conventional use. In some cases, there might not be a normal, i.e. reinforced, associated conceptual network available at all, because of the novelty of an expression in a given context, or because of the lack of experience on the part of the interpreting subject. In this case, processing the utterance does not reinforce, but gives rise to the formation of an associative network. As I observed earlier, it is also possible that an interpreter dissociates from a normal context of interpretation. As an example of such dissociation, I discussed a metaphorical interpretation of the sentence 'Wolves live in herds' on a sign in a museum of natural history. In this case, interpretation is less predictable, since it does not follow a more conventional interpretation of the given sign in its context. Thus, within the proposed model, we can recognize a difference of degree between creative and conventional interpretation.

For further illustration, I return to the example used in the first chapter, the phrase 'Rose is a rose'. If for instance for someone the word 'rose' would be associated with 'presents', and happy occasions of receiving these, the term 'rose' being applied to something or someone that he is glad to see would be conceivable, especially if the name of that person herself is 'Rose', in terms of the model proposed, since it would allow an overlap between the representations that are triggered. Similarly, it would be conceivable that the word 'rose' would be interpreted in much the same line by virtue of different associated features, such as 'the most beautiful flower', or 'the flower that needs greatest care' or 'a very expensive flower' and so on. Thus, interpretations of the phrase could evoke by and large similar representations of the object of predication as one that is appreciated. However, to capture such associations under a general expression, such as 'object that is appreciated' or, as I did in the first chapter, as 'a thing of joy and beauty', is not to analyse the process of conceptual representation in an individual mind. Rather it is to interpret the phrase by explicating conventions and supposedly common knowledge of the social role or the values generally pertaining to 'roses'.

270 In section 5.1 in chapter 1.
Further, there are different conventional background theories that may serve as a context to provide an explication of this particular use of 'rose' in the line 'Rose is a rose'. As we saw in the discussion in the first chapter, someone might be focused on determining a poetic stance on the part of its author, Gertrude Stein, and thereby appeal to an entirely different context of interpretation than that of roses generally being the object of appreciation. He could interpret this particular line in relation to the other line by the same author: 'a rose is a rose is a rose'. The latter can be interpreted as a statement against the poetic use of metaphor. Consequently, for Gertrude Stein to call a little girl a rose could then be considered a contradiction of that stance, or maybe a pun on it. In this case, the context of interpretation is not a conceptual network pertaining to general knowledge about roses, or to specific perceptual experience of these, but rather, is derived from textual information about the phrase. Such information could comprise knowledge about its author, her other work, or the contextual presentation (a child's book), as well as still further knowledge about poetry and general conventions therein. Whichever background theories it is based on, any linguistic explication of the metaphorical use of the predicate 'is a rose' would appeal to available descriptions, and would involve the explication of some background knowledge. Such a background could range from knowledge about the occasions for which one is supposed to buy roses to that about classical arrangements of rose gardens; from knowing the colour pertaining to 'rosy cheeks' to recognizing poetical platitudes. Furthermore in interpretation the associated conceptual network is not restricted to using shared, explicated concepts derived from conventional background knowledge in a speech community. Such explication, I argued above, does not necessarily conform to the associated representations in subjective interpretation. If the interpreter only just attempted to fight his way through a flowering rose bush in order to rescue a sleeping princess, he might at the instant think quite differently about who is a rose and who is not. Thus, associated conceptual networks may just as well be derived from the state of mind or the personal experience of the interpreter, as in the case of the person fighting his way through the prickly rosebush. In other words: the context of interpretation is in the interpreter's mind. To the extent that an interpretation is to be explicated in language, it appeals to socially accepted descriptions, whether these do express innovative interpretations or not. Metaphorical interpretation is not unique in this respect. In all understanding activated representations may guide a conceptualization at a given moment. In other words, as I said above, the way in which a given percept or an imaginatively produced representation becomes related to other
Representations is thoroughly dependent on the networks of representations that are triggered in a given context. Thus, interpretation amounts to attending to a given representation (such as a predicative phrase) in relation to a range of activated representations (such as may be triggered by a context, both linguistic and perceptual). The thus formed associative structuring is not necessarily stable, nor does it have to become so, since it may result from coincidentally activated representations, yielding associations that could be merely momentary, and might never be reinforced. Stability, then, depends on the incorporation of regularities, conventions and norms that govern the world we experience. However, I remarked above, memory is not a storage place of fixedly identified representations. The representation of past experience may be renewed, if it is retrieved within a new context, and hence acquires a place in a new associated conceptual network. As a result stability is not the natural destiny of complexes of associated representations. Insofar, then, as conceptual networks are stable, they are so because they depend on reinforced experiences of a largely constant world, including the experience of, hopefully, a largely coherent use of language.

4.5 Semantic and conceptual structures

In a way, with this proposal, I return to a model discussed in the first chapter, namely that of Bipin Indurkhya. Recall that his model assumes that we cognitively represent a 'set of senso-motoric data', which we associate with conceptual structures, that are expressed by words. Such conceptual structures, according to Indurkhya, can be used to organize 'foreign' domains of senso-motoric data, namely those that are associated with other concepts. The main cognitive mechanism used for the cross-conceptual transference of structuring is described as projective analogy, which then is mathematically analysed as a homomorphism. This mechanism is then analysed as pertaining to the interpretation and the production of similarity-creating metaphors. In the model proposed above, I likewise assume that there are structural relations, which are used to retrieve representations that, again as Indurkhya proposes, originate at some point in perceptual processing. However, the picture drawn here is different in several respects. First, we do not assume the existence of a set of data associated to a concept in the sense of a fixed collection of senso-motoric data. Associations between representations are dependent on more factors than mere past conceptualization; memory capacity, frequency of retrieval, and contexts of retrieval may play a role. Thus, a representation that appeared in a conceptual network in a given situation,
may be absent in a future conceptualization that triggers (parts of) that network. 
It is a tendency in Cognitive Linguistics to break with more traditional rhetorical definitions of metaphor, and to attribute a 'metaphorical' nature to any transference of a linguistic expression from one context of use to another. It is, however, a choice of terminology. If one chooses to call the productive combination of symbols pertaining to different conceptual networks metaphorical, then there is indeed hardly any utterance that, upon the view defended here, is not the result of such transference, since any new conceptualization brings constituents from different conceptual networks together. However, as a terminological choice, I prefer to stick to the more traditional use of the word 'metaphor', indicating a rhetorical, stylistic device, in the way indicated in section 5.2 in chapter 1, since it is useful as such, at least more so than taken as a synonym for cognitive processing. For example, I would not consider the transfer of the word 'the' from one represented context to another (such as learning that one cannot only say: 'the car', but also 'the driving') to be metaphorical in this sense, even if it involves the transference of a represented symbol from one 'conceptual domain' to another.

The claim that the cognitive mechanism behind metaphor is the same as that behind any conceptualized representation is one that is of course sustained in the model outlined here. It is precisely on this point that I find Indurkhya’s analysis of 'projective analogy' as pertaining to creative metaphors, misleading, since it suggests that there is a discrete domain of representations that belongs to a given conceptual network, and thus involves a hierarchy of concepts versus representations. My position entails that both notions, that is, that of a 'conceptual structure' and that of a 'domain of representations' should be understood to be more flexible, and more dependent on ad hoc-retrieval than Indurkhya seems to want.

As a result, the network of associations between representations in the model here proposed is far more complex than Indurkhya's analysis in terms of the structure and the structured suggests. Representations without conceptual guise are not accessible; rather, when retrieved, they occupy a position in a structured conceptual network; that is, they can only be activated in relation to other simulated representations. Hence, re-presentation may shift the conceptual structuring of the original perceptual data that are represented, and thereby allows for 'reconceptualization'. Thus the enormous potential of 'projection' of different conceptual networks onto perceptually processed representations turns any assumption of a determinate relation between conceptual structures and retrieved imaginative representations into an idealization.
Secondly, in Indurkhya's model structuring networks seem to be expressed by words, whereas the senso-motoric data are derived from 'raw' or basic perceptual representations, which can be recalled as instances of these verbally expressed concepts. In my understanding, conceptual structures are not to be identified with the meanings of expressions, in the sense that an expression stands for a conceptual structure. Words, I suggested above, are representations that are represented in a structure of other activated representations, both linguistic and perceptual.

In language normally the composition of utterances is regulated, by both semantic and syntactical rules. If we then would fully identify conceptual networks with the regulated use of expressions in a speech community, as Indurkhya seems to suggest, our conceptual system would as a result be just about as normative as theoretically designed syntactic and semantic rules are. However it is notoriously difficult to explicate such rules, as they vary with different contexts, both presented in discourse, and in perception. Further, pervasive non-conventional use of language, such as poetic or creative metaphor as well as Davidson's malapropisms in 'real' language, shows that such rules can be violated, while a meaningful interpretation remains possible.

An alternative to this view was presented by Barsalou, who assumes that 'senso-motoric' representations yield concepts, which then in and of themselves yield a 'perceptual' grounding of all concepts. The problem that arises under this assumption is the question how concepts based on subjective representations should come to represent conventional linguistic meanings, especially in the case of general terms, or theoretical ones that do not denote anything specific in the objective world.

Thus, any account that assumes that linguistic and non-linguistic representations are of a different conceptual type has to face up to these problems. If I am right, then, to not assume that the conceptual system is identical with the system of linguistic categorization, but that we merely go by linguistic classifications since they form an integral part of our experience (and are pretty useful as such), then there are no necessary conceptual restrictions on the use of any expression. That is, if semantic and syntactic rules of composition are learned and adopted by people who learn to speak but are not inherent to cognition in any a priori sense, then it makes no sense to identify conceptual determination with linguistic categorization. Rather, the learning of rules, insofar as they are followed within a speech community, provides an important grounding of our conceptual system. Through it we become capable of producing correctly composed new utterances; and thereby we, by making utterances that are approved of by other speakers, enforce the social norms that regulate the application of linguistic categories. But the inherently subjective conceptual system, constituted by mechanisms of representation and retrieval,
that underlies such embodied social norms, allows for the production of many other utterances than those that conform with a socially adapted, and generally accepted use of language.

4.6 Aesthetic interpretation

In the above discussion, I have suggested a cognitive model in which subjective representations are related to intersubjective meanings through conventionality in the use of language, as well as through the phenomenal regularities of the world we live in. The notion of common ground, as it was here first discussed in the chapter on Kant's theory of imagination, is thus transformed into the assumption of regularities in experience of the world, including language. The conceptual system is thereby assumed to be in part the same for all individuals, namely insofar as it develops on the general capacity of recognizing and representing such regularities. The conceptual system is however inherently subjective, as each individual experiences the world differently, and is educated differently. Thus, to conceptualize a given percept by relating it to one and not another associated complex of representations, is to some extent a matter of what types of associative relations the subject has learned to recognize, as well as which representations are available on the basis of experience.

Imagination, then, is understood as the faculty that brings representations to mind, in a manner analogous to how attention in perception yields representations. This faculty of imagination is productive, since it brings about the combination of representations in a network of related representations. Combination in imagination, in other words, gives rise to a new associative bond between the representations combined. Productive imagination in this sense is proposed as the general mechanism underlying all conceptualization: the associations between different representations are in the first place derived from contiguity relations in experience, and in the second place from conceptual combination of representations formed on the basis of simultaneous representation in imagination.

Previously, in the discussion on Kant's understanding of subjective judgement, I speculated on the possibility of understanding all acts of understanding as involving a capacity of productive imagination. Conceptualizing, I argued, either produces creative interpretation or yields routine understanding on the basis of previous productive conceptual combination.

In the approach I propose above, then, the notion of subjective judgement is indeed generalized as pertaining to all acts of conceptualization. Each act of conceptualization is understood as the productive combination of both
imaginative (i.e. retrieved) and perceptual (i.e. newly processed) representations, and this productivity is considered the central drive behind concept formation. Furthermore, interpreting an utterance involves the active formation of a conceptual network, on the basis of a complex of associated representations triggered by an utterance and its context. If the use of an expression in context is familiar, then that means that an already largely structured complex of representations is evoked, that requires little further structuring. Such more or less automated retrieval can be considered routine understanding, or using Bartsch's term, understanding under a restricting perspective. On the basis of the discussion in the second chapter, then, I would classify Kant's understanding of determinantal judgements that result from the application of empirical laws, as belonging to such routine conceptualization. If the (use of an) expression is entirely unfamiliar, then the representations that are triggered in the utterance situation have to be newly structured; overlaps in these networks make some representations more prominent than others, and we may focus on different aspects of context and utterance, in order to find such overlaps. A creative interpretation emerges, which we may call reflective understanding. Thus, the Kantian reflective judgements, and especially aesthetic reflection in which 'imagination runs free' would belong to reflective conceptualizations. Hence, routine understanding and reflective, creative interpretation can be thought of as being situated on different ends of a spectrum of possible acts of conceptual combination.

Creative interpretation, then, involves searching for aspects in context under which a given expression may be interpreted. As such, it is more likely to involve an awareness of the process itself. Kant's understanding of aesthetic reflection as imagination running free, or as judging an object with respect to its subjective finality, that is with respect to how our cognitive faculties may cope with a given representation, may now, in terms of my proposed approach, be rendered as an on-going process of conceptualizing, in which one focuses on the process itself during which one keeps reconsidering even remote triggered associations, in order to produce new angles for interpretation. Below, I elaborate this suggestion, and for this, I use some of the terms that Kant introduces when characterizing aesthetic reflection, albeit under a more clarified interpretation. My interpretation of such notions as 'genius', 'aesthetic ideas' and the 'internal intuition', show the extent to which I have abandoned Kant's understanding of these notions, as well as how the here presented proposal is still related to the understanding of aesthetic reflection in the Critique of Judgement.

In his explanation of what genius is Kant mentions how in aesthetic reflection aesthetic ideas are produced. These 'ideas', I recall, function as symbols for, not
as demonstrations of concepts: 'In a word, the aesthetic idea is a representation of the imagination, annexed to a concept'. Aesthetic ideas are imaginative attributes of concepts, related to a concept only through the cognitive power of association: 'Those forms which do not constitute the presentation of a given concept in itself, but which, as secondary representations of the imagination, express the derivatives connected with it, and its kinship with other concepts, are called (aesthetic) attributes of an object, the concept of which, as an idea of reason, cannot be adequately presented'. For Kant this power of evoking associated thoughts is not the exclusive property of pictures, since words, music and other arts can do the same. An example of such evoked concepts is given in the same paragraph: 'In this way Jupiter's eagle, with the lightning in its claws, is an attribute of the mighty king of heaven, and the peacock of its stately queen'.

For Kant, then, a symbol may function as the perceptual presentation of a concept; not by illustrating or demonstrating that concept as a schematized instance, but rather by indicating or evoking it by a symbolic presentation. Aesthetic ideas thus exceed conceptual determination, in that the evoked concept does not apply to the representations themselves. Hence, the notion of internal intuition is brought in:

'[...] understanding, in the case of an aesthetic idea, fails with its concepts ever to attain to the completeness of the internal intuition which imagination conjoins with a given representation'. In other words: imagination allows us to create new symbols for thoughts, which are not derived from schematized presentations in intuition. Neither conceptual determination (as schematization) nor schema (as the representation schematized) is what captures the idea as it is produced before the mind.

The mode of symbolic representation through attributes that Kant thus finds in aesthetic ideas, is in a sense just what is generalized in the proposed model as pertaining to all representations. Representations can be described in the way Kant describes the function of aesthetic ideas, that is, as symbols evoking more thoughts and feelings than can be explicated in the judgements we have at our disposal. Indeed, Kant defines the aesthetic idea as 'that representation of the imagination which induces much thought, yet without the possibility of any definite thought whatever, i.e. a concept, being adequate to it'. He continues in the same passage: 'The imagination is a powerful agent for creating, as it were, a second nature out of the material supplied to it by actual nature. [...] we
even use it to remodel experience, always following, no doubt, laws that are based on analogy, but still also following principles which have a higher seat in reason [...]. By this means we get a sense of our freedom of the laws of association (which attaches to the empirical employment of the imagination), with the result that the material can be borrowed by us from nature in accordance with that law, but be worked up in something else - namely what surpasses nature. Such representations may be termed ideas'.

In my understanding of conceptualization, such 'empirical employment of imagination' provides familiar structures of association, within a specific context. The representations that participate in such structures, as well as these structures themselves become infused in several conceptual networks. In Kantian terms: the realm of productive imagination as rendering possible 'ideas' as representations in imagination annexed to concepts, and the realm of reproductive imagination as rendering determinate concepts are not separated. We may thus feel that whichever representations we associate to expressions such as 'colour' could present an objective meaning for the term, even if the association is produced in imagination, and as such consists of accidental perceptual representations that are brought together by the experienced use of language alone.

The normative use of language, I argued, depends on available explications of expressions, and more generally, on learning to associate a given expression to others in a manner conform to syntactic and semantic rules within a context. That is, to understand an utterance in a conventional manner aims at embedding a representation within a conceptual network that is built on the socially accepted situations in which it may be uttered. Thus, conventional understanding is based on processing a given representation within a normal context of interpretation.

A representation, such as a recognized expression, in itself then presents greater potential for conceptualization, since, in different contexts, it can be embedded in different networks of associated representations. Kant's notion of 'internal intuition', then, can be understood as the potential of representations that can be retrieved throughout different contexts.

What can be analysed as specifically aesthetic in understanding then, is that in aesthetic interpretation we aim at calling up this potential of associated representations. That is, interpretation here is not directed at embedding a given representation in a normal contextually triggered network of representations, but it aims at bringing other possible networks of associated representations to the mind.

Thus, an aesthetic idea can be interpreted as a representation that serves to bring representations to attention by focusing on other paths of association than those brought about by a normal contextually guided understanding. For
instance when in poetic use of language typography and rhythm play an important role, this may be recognized as a means to evoke other associations with a given phrase, than the focus on semantically correct contexts would allow for. To train an 'aesthetic sensitivity' may then amount to learning to focus on different associative relations between symbols, which in themselves can be just as conventional as are semantic rules.276

The quality of genius, that Kant attributes to those who can express new concepts construed on the basis of imaginative content, can now also be interpreted along these lines. Genius can be understood as the capacity to express aesthetic ideas in such a form that it leads others to produce un-normal imaginative representations in internal intuition. In other words, genius is the way in which someone succeeds to convey aesthetic ideas. In poetry, then, the genius uses existing, conventional expressions, in such a way that they evoke a creative, imaginative interpretation. The poetic genius, in other words, provides a bridge between subjective imagination and the conventional symbol system, which is otherwise used to evoke normal representations. And hence, it is this sense that I could speak of poetry as the home-coming of language in the first chapter: it allows the interpreter to recognize a text as expressing her own thoughts, feelings and experiences, instead of following normal paths of association.

To understand genius as the capacity to produce objects or texts newly express imaginatively produced combinations of representations does the effect of such objects or texts to the evocation of feelings of harmony or awe, which are what aesthetic judgements in the third Critique are about. Genius equally applies to a novel combination of expressions and observations that belong to what Kant understands as the empirical realm. Hence, the quality of genius applies to the newly formulated scientific insight as much as it applies to the presentation of an intriguing poetic metaphor, since both may give cause to the production of novel conceptual combinations in imagination. The products of genius, then, allow us to combine representations in imagination in a new way, whether they consist of symbols for personal feeling or of unthought, new explications.

Understood in this way, aesthetic interpretation involves no specific mechanisms of cognitive processing that would uniquely be applied in the interpretation of specific objects, such as sculptures, songs or metaphors. Thus, as I observed earlier, the proposed model presents a unified account of interpretation with respect to the cognitive processing of both creative and conventional use of language, between which a difference in degree can be

276 The notion of 'aesthetic sensitivity' appears throughout aesthetics, for instance in Levinson's writings on aesthetic pleasure. Aesthetic pleasure, in his opinion, can be derived from art by the viewer who is well equipped with a proper background (cf. Levinson[1996]).
recognized and explained. Thus, the objects of what we usually call aesthetic interpretation, such as art, poetry and music, share no exclusive features regarding the type of interpretation they may receive, since the free imagination is not exclusively employed in the realm of art. However, there is something that sculptures, songs and metaphors have in common, namely that they are objects that are designed for aesthetic interpretation, without other practical end. In other words, they represent objects that are intentionally produced to appeal to subjective imagination, and that, moreover, can be recognized as such.

In the Critique of Judgement Kant distinguishes between the interest that may be aroused by a well-organized pepper garden on the one hand and the wilderness of Sumatra on the other. These remarks can be read as an expression of the possible norms that we could use for what counts as an object worthwhile of aesthetic reflection and what not. That is, perceiving the wilderness of Sumatra would present a model for the perception of art, while the pepper garden would not. If so, then art is here defined as what presents a worthwhile occasion for an open-ended reflection on imagination's wealth of possible representations, rather than that such reflection was made possible by art.

The definition of the realm of art, over time and with the developments in art history has changed to some extent. Art, today, is no longer considered as consisting of those objects that imitate nature in that they are worthwhile occasions for imaginative pondering that allow one to achieve a feeling of harmony or awe. For instance relations to politics, art history, and the conditions under which an artwork is exposed to its viewers, have all become part of a general background theory that pertains to the interpretation of art, and thereby presents a new, normal context for the interpretation of art, which is another than enjoying views of nature.

In the 'afterthoughts' presented hereafter, I will turn to the question whether an understanding of art in terms of a normal aesthetic context can be given, since the realm of the aesthetic, as what involves aesthetic reflection or what allows for the free use of imagination is no longer specific for either nature or art under my generalized understanding of aesthetic reflection. This discussion, as it involves the characterization of a specifically aesthetic context, addresses a different topic than the investigation conducted so far, and thus is thematically set apart as an afterthought to the conclusion of the above discussions.
In the above discussion the starting point was Kant's theory of aesthetic reflection that I discussed in the previous chapter. There I speculated on the possibility of generalizing this theory, such that it would yield a general model of understanding. In order to develop these speculations in a more systematic, and well-founded manner, I considered two contemporary theories on concept formation.

The model of Bartsch presented an understanding of concept formation as dependent on learning language, and thereby introduced a socially or culturally normative aspect with regard to the subjective process of concept formation. In this theory, concept formation was divided in an experiential level and a theoretical level, and, while theoretical concepts were grounded in the experiential level, experiential concepts were taken to reflect properties of objects given in perception. Thus, a common ground in concept formation was, to some extent, explicitly assumed in the form of both the shared perceptual faculties of all people, and the objective reality underlying all concepts formed on the basis of its experience. Thus, experiential concepts could be characterized as subjective universals, in the sense that they depend on subjective minds doing the same thing on the basis of the same world. However, I argued, such an experiential grounding of linguistically expressed concepts would, certainly in the case of more abstract expressions, not be based on common ground, but rather, on a purely subjective representation of properties, or manners of perceiving these. And so, if linguistic meaning were to depend on the experiential content attributed to an expression through the processing of its satisfaction situations, it could not be reconstructed as an intersubjective concept. Since language is a social phenomenon, an intersubjective notion of linguistic meaning could be conceived of in a different way, namely through the experience of utterances containing common explications of an expression, similar to how Bartsch defines concepts on a theoretical level. I proposed that a shared linguistic meaning of an expression could be stated as a collection of exemplified descriptions or definitions. The implication of this understanding of linguistic meaning however, is that it is not intersubjective in any universal sense, but shared only in a speech community. Thus common ground for the formation of linguistically expressed concepts, although in a different sense than Kant understands it, may to some extent be found in the regulated use of language within a speech community.

The problems found in the assumption of a grounding of linguistically expressed concepts in experiential concepts, is possibly due to the lack of discussion on issues of representation in Bartsch's theory, as she focuses on stating a semantic, anti-psychologistic model. Quite the reverse, then, was the
case with the model Barsalou presents. He develops a model of cognitive representation on the basis of perceptual processing. As such, this model provided a fruitful basis for an account of concept formation on the basis of perceptual processing, which I outlined in section 4. However, insofar as Barsalou considers symbolic representation, his theory was found to be philosophically naive. A notion of causally effected, perceptual content was presented as symbolic meaning, on the basis of the assumption that language acquires meaning on the basis of perceptual states accompanying the processing of an utterance. His account was found to be unacceptable insofar as it postulates a perceptual content for abstract concepts, and thereby assumed the automated processing of percepts into general, objective concepts.

On the basis of these two models, I proposed an approach to model conceptual representation on the basis of representations of perceptually processed representations, including the representation of expressions as perceptually processed symbols. In my proposal, I draw on Bartsch's understanding of language as a rule-governed social phenomenon, the learning of which also entails the representation of exemplified explications of expressions. I further use her analysis of the dynamics of concept formation as involving perceptual processing of both similarity and of contiguity. Next, I use Barsalou's theory of cognitive processing, which models the processing of percepts into cognitive representations, latently stored in memory. Starting from this model, I consider how associations between representations may develop on the basis of processing percepts in a given relation to one another. Cognitive processing, I suggest, is based on a faculty of representation, and on the capacities to recognize similarity and to represent contiguity relations between different representations. Conceptualization is understood as forming a network of structurally related representations. Such representations, then, acquire a certain degree of generalization, in that they represent a cluster of similarly processed percepts. Perceptual processing is considered, after Barsalou, as focal attention in perception, resulting in storage of a functional selection of the percept in long term memory. In perception, different representations are processed as being connected by contiguity, and are stored in memory as associated to one another. During perceptual processing, representations in memory that are similar to the percept are activated, and thereby trigger the activation of associated representations retrieved from memory. Thus, a given percept may evoke representations, and associated representations, and thereby is embedded in a structure of different activated representations.

Such structures, as well as representations are what make up the representation of language. That is, syntactic as well as semantic rules, insofar as these are embodied in use of language, provide a contiguous structure in the
processing of an utterance containing different, recognizable expressions. Thus, expressions (that is, primarily sounds) are associated by contiguity to one another in perceptual processing, as well as to other, non-linguistic representations that are processed in association to the utterances of expressions. On the basis of the processing of structurally connected representations, networks of representations are formed, in which each representation itself may trigger different associated representations.

In processing an utterance, representations that are triggered by attending to the context of the utterance, both in a linguistic and in a non-linguistic sense, provide parts of the network of representations in which the utterance is processed. Hence, the role of context becomes normative with respect to the understanding of a given utterance, since it will enforce some associations with the uttered expressions, but not others. An understanding of conventional linguistic meaning may then be formed on the basis of common use of language, in a normal context. Recognizing the use of an expression in a normal context as one encountered before, may simply trigger a familiar network of representations, including the representations of expressions that we have learned to be appropriate in the context. A subjective understanding of words is grounded in subjectively associated representations, including linguistic expressions. These may comprise expressions that are not normally used or considered appropriate in a given context of an utterance. We are trained to ignore these, or at least to not utter them, insofar as we have learned they are not considered appropriate with the recognized normal context.

Creative interpretation, then, is understood as focusing on possible networks of representations that are activated by the utterance and its context. Conceptualizing an utterance in context creatively means to form a new network of representations, on the basis of an overlap between activated conceptual networks of representations. Thus, aesthetical reflection could be considered as an on-going reflective process of creative interpretation.

Imagination, then, is considered the faculty of producing a structured network between representations. The representations involved are either retrieved from memory, or they are activated in perceptual processing. Since the former are cognitively represented, and not derived from a direct intuitive presentation, we may call them imaginative representations. The proposed approach to conceptual understanding, then, identifies the faculty of productive imagination as the drive in conceptual understanding, and in reflective interpretation. Thus, it meets my earlier speculations on a generalization of the faculty of aesthetic reflection.

Of course, my proposed understanding of cognitive processes remains speculative, since my assumptions about perceptual processing, and about storage in and retrieval from memory are not founded empirically, even if they
are shared by other authors. The notion of representation I use is, as I remarked in section 4.1, a theoretical construct based on such assumptions about perceptual processing and about the functionality of memory, and the same holds for the notion of association or conceptual relation. However, from my point of view, the description of interpretation and understanding in terms of these notions has one great advantage, and that is that it does not presume the cognitive representation of either universal concepts or of real properties. All that is in the mind, I suggest, is produced in imagination.

As an afterthought to this conclusion on the all-pervasiveness of the productive work of imagination, I consider how the thus generalized understanding of aesthetic reflection is related to the interpretation of poetry. In the previous chapter, I considered poetic interpretation, following Kant's characterization of aesthetic reflection, as a process with a specific orientation, namely with an interest in the process of reflective interpretation alone.

Since context, in the suggested understanding of interpretation, provides a normative background for interpretation, I will discuss the possibility of a normal context for poetic interpretation. Clearly, if the interpretation of poetry should involve a free use of productive imagination, and should thus lead to the production of unconventional combinations of representations in imagination, the postulate of a 'normal' or conventional context of interpretation for art must be problematic. On the other hand, if aesthetic reflection would be the only possible characterization of what is poetry, then poetry would not be distinguished from other texts or utterances that involve reflective interpretation. Thus, in the epilogue to this investigation, which after all started out with questions raised by the interpretation of poetic text, I consider the entanglement of the poetic genre that seems to impel the free use of imagination by convention, with the actual use of productive imagination in the interpretation of art and poetry.