

Acategorial States in a Representational Theory of Mental Processes

Doris Feil and Harald Atmanspacher

Institute for Frontier Areas of Psychology, Freiburg

Abstract

We propose a distinction between precategoryal, acategoryal and categoryal states within a scientifically oriented understanding of mental processes. This distinction can be specified by approaches developed in cognitive neuroscience and the analytical philosophy of mind. On the basis of a representational theory of mental processes, acategoryality refers to a form of knowledge that presumes fully developed categoryal mental representations, yet refers to non-conceptual experiences in mental states beyond categoryal states. It relies on a simultaneous experience of potential individual representations and their actual “representational ground”, an undifferentiated precategoryal state. This simultaneity is possible if the mental state does not reside in a representation but in between representations. Acategoryality can be formally modeled as an unstable state of a dynamical mental system that is subject to particular stability criteria.

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1 Precategoryal and Acategoryal Experience: A Short Historical Survey

The distinction of precategoryal and acategoryal mental states, as opposed to ordinary categoryal mental states, does not feature prominently in present science and philosophy. In this article, we suggest a framework for a coherent discussion of all three classes of mental states, with particular emphasis on their usefulness to highlight crucial differences among them. We will argue that they find a natural place in two areas of current research: in the important contemporary debate of non-conceptual experiences (see, e.g., Gunther 2003) and in the treatment of mental dynamical systems in terms of their stability (see, e.g., van Gelder 1998). But there is some way to go until we reach these points in Sections 5 and 6. Let us first start with some historical remarks.

In recent years, pre- and acategorical states have been discussed in transpersonal psychology mostly with the terms pre- and transpersonal or pre- and transrational. The confusion of pre- and transpersonal states (pre/trans-fallacy) is carefully avoided by many representatives of transpersonal psychology (see Wilber 1980, 1981).¹ Nevertheless, outside of transpersonal psychology a differentiation of these two states is not so common. Since they both differ from categorial states, it is tempting to interpret them both as exceptional states with “mystical” qualities (see Ernst 2005). Similarly, current discussions in the philosophy of mind about “non-conceptual” experiences hardly focus on the special qualities of acategorical states. We will address pertinent examples below.

Another thread has tried to reconcile pre- and acategorical mental states with recent developments in consciousness studies, cognitive science and psychology. It is based on an account of mental systems in terms of the theory of dynamical systems. A first description of the general idea is due to Atmanspacher (1992). A more detailed illustration, alluding to early remarks by James (1890/1950, Chap. XI), with a number of phenomenological examples has been given by Atmanspacher and Fach (2005), see also Feil (2007).

The distinction of pre- and acategoriality indicates different experiences of a subject concerning moments of (pre-categorial) self-dissolution or (acategorial) self-transgression. More generally, one possibility leads to the destabilization and disintegration of mental categories (including the category of the ego or self), another possibility leads to the transgression of these categories without actually dissolving or annihilating them.²

The distinction of these two options can be found in both oriental and occidental spiritual and philosophical traditions. For an introductory outline of the different qualities of pre- and acategoriality we present two Western approaches of quite different origin and impact on the history of philosophy, which nevertheless show a number of similarities: (i) the approach of Gebser, proposing a cultural history of consciousness as represented in his *The Ever-Present Origin* (Gebser 1986),³ and (ii) the influential rationalist-definitorial approach by Spinoza (1994), as developed in his *Ethics*.

The very notion of acategoriality goes back to Gebser who introduced it as a key

¹For a comprehensive critical review of the paradigms of transpersonal theory Ferrer (2002) can be consulted.

²Throughout this article, the notion of a category is used in a distinctly psychological sense. Basically, it denotes the result of a (binary) classification which is crucial for the development of particular forms of consciousness and of knowledge. The philosophical notion of a category, introduced by Aristotle and often redefined and reinterpreted in the history of philosophy (e.g., by Kant) is explicitly not addressed here.

³Gebser is a Swiss author around the middle of the 20th century. The German original of *The Ever-Present Origin* has the title *Ursprung und Gegenwart* (Gebser 1949/1953) and offers a kind of cultural genealogy of consciousness based on a huge variety of anthropological material. The description of different structures of consciousness as “archaic”, “magic”, “mythical”, “mental”, and “integral”, popularized by Wilber, was originally coined by Gebser.

feature of what he called the integral structure of consciousness. It will be shown that this notion is epistemologically meaningful and coherent. Gebser uses the term acategoriality to describe experiences both leaving behind thinking in categories and at the same time preserving the differentiation and autonomy of categories. He speaks of “being aware” (German: “Gewahrsein”) and puts this mode of consciousness in a spiritual context. It is his intention to comprehend the multiplicity of particular aspects in their relatedness to a unique “absolute” origin (Gebser 1986, see, e.g., pp. 3, 19f, 267ff, 528ff).

Hence, acategoriality refers to a mode of consciousness different from both pre-categorial and categorial modes. Categorial modes, the main object of present-day cognitive science and philosophy of mind, are generally understood as conceptual mental representations and their processing by binary classification schemes. Binary, or Boolean, classifications are assignments of elements in such a way that they either belong to a particular category or they do not belong to it (*tertium non datur*). The rules of classical logic are based on this kind of categorization. Conclusions derived from these rules require sequential processing, and they are either true or false.

Precategoriality (sometimes referred to as non-categoriality) essentially refers to a mental state in a situation of not yet developed or dissolved categories. For instance, categories may lose their explicit conceptual structure and logical connectedness and become processed associatively, like in dreams or free imaginations. Some experiences playing a role in creativity and intuition are presumably attributable to the precategorial domain of associations. An even more drastic loss of categories can occur under conditions of intoxication or trance. Intense sensory perceptions without categorial classification can convey a feeling of unity and connectedness with the environment. Mental states in which associations and poorly differentiated sensory experiences are predominant belong to the precategorial domain.

Particular experiences of a comprehensive unity, not due to dissolved categories but due to transgressed limits of established and maintained categories, are what Gebser describes as acategorial. In this understanding, acategoriality is an epistemic act leaving established categories intact as potential objects of awareness. However, they are not object of sequential and conclusive processing. Categories remain the basis of such epistemic acts, but they are transcended.

A view into the history of philosophy shows that (the distinction of pre- and) acategorial experience was proposed several times through the centuries, though with different terminology: Plotin’s knowledge of the One, Spinoza’s *scientia intuitiva*, and *intellectuale Anschauung* introduced by Schelling and Hölderlin all characterize an acategorial mode of knowledge. Let us look at Spinoza to understand what an experience of unity at an acategorial level means to him.

Spinoza (1994, II, P40f, schol. 2) distinguishes three kinds of knowledge. First of all, he mentions “opinion” or “imagination”, referring to an experience which derives from perception but is not exhaustively categorized by logical rules; it is mainly precategorial. The rationalist Spinoza does not value this kind of knowledge particularly highly because, in his opinion, it does not allow us to discern clearly the

true from the false. Such a distinction is only possible when “reason”, the second kind of knowledge, is reached. The “universal” or “common” notions of reason enable us to have “adequate ideas of the properties of things”. These notions are categorical; they are built and analyzed by formal knowledge according to the rules of classical logic.

The third kind of knowledge Spinoza addresses is “intuition”. This *scientia intuitiva* gives us the “adequate knowledge of the (...) essence of things”. It follows formal knowledge, but in contrast to it there are no sequential conclusions from A to B. According to Spinoza, *scientia intuitiva* perceives the connectedness of particular things “in one glance”. Such an intuitive view shows both the particular things and their position within the whole. It is neither pre-categorical-associative nor categorical-discursive but appears as one immediate and comprehensive experience.

For Spinoza *scientia intuitiva* ultimately means nothing less than the knowledge of God. Being aware of the connectedness of particulars within and with the whole the experiencing subject sees how particulars are founded in the whole and obtain their determination from it. The One, the absolute and divine principle, is seen in the differentiated and connected unity. The immersion into this absolute One as the final step of a Spinozist-type of intuitive view is later discussed by Schelling and Hölderlin (Feil 2005, 2007).

It remains to be clarified in more detail how acategorical mental states can be conceived from the perspective of cognitive science and the philosophy of mind. The present article tries to find a place for acategorical experience in contemporary consciousness studies. For this purpose, section 2 addresses the spectrum of forms of knowledge discussed in current philosophy of mind. Intersubjective knowledge is distinguished from subjective knowledge (2.1). Then subjective knowledge is considered in its propositional form (2.2) on the one hand and in its non-propositional form (2.3) on the other. Subsequently the notion of a category is characterized in some detail (2.4), and on this basis an analytical distinction of pre- and acategorical experience is proposed (2.5).

Section 3 highlights the fundament of forms of knowledge: the concept of a mental representation that is basic for cognitive science. The meaning of the term “representation” is elucidated (3.1) and the significance of mental representations is specified (3.2). It is reflected which attribute distinguishes a mental representation from other representations (3.2.1) and which versions of a mental representation are required to realize knowledge in all its forms (3.2.2).

Section 4 addresses pre- and acategorical experience, respectively, within a theory of mental representations. Metzinger’s interpretation of mystical experience as oceanic self-dissolution accompanied by a loss of phenomenal consciousness is proposed as a particular form of pre-categoriality. It serves as a starting point to demonstrate which kinds of phenomenally experientiable states of consciousness could form the basis of acategorical knowledge.

Section 5 addresses a formal approach examining the phenomenon of acategoriality in cognitive neuroscience. As this approach uses a qualitative stability analysis

of dynamical systems, some basic elements of the theory of nonlinear dynamics are briefly reviewed (5.1). A corresponding concept of stability is presented and used to specify the insights achieved so far(5.2). It is argued that an acategorical mode of knowledge can be stringently accounted for in dynamical systems approaches to cognitive neuroscience.

In Section 6 we relate the important contemporary debate about non-conceptual experiences and its associated terminology to the notions of categorial, precategorial, and acategorial states. While categorial states in our understanding are conceptual by definition, the situation is different for pre- and acategorial states. The way in which it is different has to do with different deviations from states with conceptual content.

2 Forms of Knowledge

2.1 Intersubjective Knowledge as Justified Proposition

Spinoza speaks of *scientia intuitiva* as a highest intuitive knowledge, beyond discursive knowledge. By contrast, the contemporary use of the term knowledge, understood as justified belief, covers only a small fraction of knowledge in general.⁴

A general criterion for knowledge as justified belief is that an element of knowledge be available in the form of a proposition.⁵ Propositions require semantic and syntactic components. This means that they are (i) composed of (meaningful) conceptual categories based on binary classification schemes and (ii) constructed according to (grammatical) rules based on classical logic. Then, intersubjective knowledge is on hand if the truth content of a proposition can be examined by others and it turns out to be intersubjectively true.

Intersubjective knowledge can be obtained in two different ways: *a priori* and *a posteriori*. A proposition is called *a priori* if it is independent of our perception and can be understood without recourse to concrete human experience. An example is the sentence: “bachelors are unmarried” which is correct simply from an analytical point of view.⁶ A proposition is called *a posteriori* if it derives from our sensory per-

⁴What makes a belief to be considered as justified is a central and sophisticated question in epistemology, which we cannot discuss in detail here. Compare Steup and Sosa (2005), part III, p. 251–343, for discussions of this issue.

⁵Compare Russell (1940, p. 12) who defines the notion of a proposition as follows: “A proposition is something which may be said in any language: ‘Socrates is mortal’ and ‘Socrate est mortel’ express the same proposition. In a given language it may be said in various ways: the difference between ‘Ceasar was killed in the Ides of march’ and ‘It was on the Ides of march that Ceasar was killed’ is merely rhetorical. It is thus possible for two forms of words to ‘have the same meaning’. We may, at least for the moment, define a ‘proposition’ as ‘all the sentence which have the same meaning as some given sentence’.”

⁶There are other positions subsuming more under *a priori* knowledge than only analytical sentences whose content is already fixed by the definition of notions. Compare Steup and Sosa

ception and our experiences. For acategoriality as an experienced state, *a posteriori* propositions are particularly relevant.

An experience can be construed as intersubjective knowledge, if it is logically well-formed and if personal subjective perceptions agree with the facts. This requires that subjects with the same cognitive abilities perceive the same under the same conditions.⁷ A simple example is the subsumption of a perception X under a notion, such as “X = star”. This proposition is considered as true if not only one’s own perception but also that of the others corresponds to the category “star”.

Intersubjective knowledge ranges from simple assignments of notions to complex discursive and abstract thinking. Propositionality stands at the basis of every intersubjective knowledge. If I believe, hope or doubt that “X = star” or “bachelor = unmarried man”, then this is a propositional attitude. If I can justify the content of this attitude intersubjectively, the result is intersubjective knowledge.

2.2 Subjective Knowledge as Unjustified Proposition

Subjective (rather than intersubjective) knowledge is related to all those propositional attitudes that cannot be intersubjectively justified. Although such propositional attitudes may be quantifiable and intersubjectively accessible, they cannot be scrutinized sufficiently to become justifiable. They are always *a posteriori* and refer to the perception or experience of individual subjects.

There are epistemological positions which close the spectrum of forms of knowledge at this point. For McDowell (1994, p. 64), e.g., there is no knowledge beyond concepts and propositions. He is geared to Kant’s concise statement that “thoughts without content are empty, intuitions without concepts are blind” (Kant 1998, A51/B75). From this McDowell concludes that the concept of “pure” perception without conceptual components should play no role at least for the philosophical theory of human cognition.⁸

Another approach, elaborated by Fodor (1987), is oriented toward the so-called “computer metaphor” of the brain.⁹ In the framework of this metaphor, the functioning of cognitive systems is considered as an interplay between hardware and software. The brain as a material substrate is assigned the function of the hard-

2005, part I.4, pp. 98–105, or Hanson and Hunter 1993.

⁷In another context, it requires that scientific equipment or procedures, respectively, yield reproducible results.

⁸Compare a corresponding passage in Kant (1998, A90–91/B123): “For appearances could after all be so constituted that the understanding would not find them in accord with the conditions of its unity, and everything would then lie in such confusion that, e.g., in the succession of appearances nothing would offer itself that would furnish a rule of synthesis (...), so that this concept would therefore be entirely empty, nugatory, and without significance.”

⁹This refers to computers with classical von-Neumann architecture. Compare the impressive book *The Computer and the Brain* by von Neumann (1958), whose front page in the second edition of 2000 shows an apple and an orange to illustrate the author’s central thesis.

ware, while mental “programs” control the cognitive processes. Such an approach permits only propositional, conceptually composed contents, because it presumes syntax and semantics.

This functionalist approach is based on (i) logical rules (of language) governing cognitive processes and (ii) concepts with some symbolic function to which a particular stimulus input (mediated by brain processes) can be assigned. Fodor assumes that many cognitive processes are controlled by a universal mental language (*lingua mentis*) without ever becoming consciously accessible. He also believes that even those sensory experiences that we cannot conceptualize can be realized this way.¹⁰

But there is yet another position, referring to subjective knowledge in terms of propositional as well as non-propositional mental content (compare, among others, Dretske 1981, Peacocke 1992, Bermúdez and Macpherson 1998). According to this position there are forms or pre-forms of subjective knowledge which are to be distinguished in principle from conceptual subjective knowledge. The resulting notion of non-conceptual mental content (cf. Gunther 2003) addresses two aspects: (i) the way in which perceived or imagined objects appear to us internally, how they are phenomenally experienced, and (ii) model-like mental structures composed of such experiences.

2.3 Subjective Knowledge as Non-Conceptual Mental Content

Dretske (1981, pp. 135–153) proposes to address the difference between non-conceptual experiences and conceptual knowledge by the terms “analog” and “digital”. To be referred to as digital, information is composed in such a way that a particular content a and nothing else than a is communicated, for example the perception “X = star”. To be referred to as analog, additional pieces of information are transmitted together with a , leading to the perception X with many simultaneously experientiable and infinitely refined aspects of perception (degree of brightness, coloredness, etc.; compare Dretske 1981, p. 137).

Digital knowledge is acquired using simplified unique symbols with discrete spectra and a lawful operation with these symbols. By contrast, analog knowledge is transmitted continuously. The complexity of a perception, which is analogically given as a whole, can only be digitalized by successively refined discursive and sequential processing. The qualitative difference between these two kinds of information can be illustrated by the example of an image (analog transmission) versus a text (digital transmission).¹¹

From this point of view, Peacocke (1992, pp. 67f) advances the thesis that the information density of non-conceptual contents can never be exhaustively transformed

¹⁰For the state of the art of discussions of a “language of thought” compare Aydede (2004).

¹¹Of course, this comparison does not mean that a perceptual content is an “image”. It means that it reproduces rather than describes.

into conceptual contents. Metzinger (2003, p. 73) also considers the possibility of non-conceptual mental content which can be phenomenally experienced, yet not conceptualized.

An example is a perception with a content that we cannot classify, but which may contain information. In this case, the analog character of a continuous transmission and the particular subjective quality of perceptual experience persist. The smell of burning wood is always a perception “of something” and will always smell “somehow”, even if we do not know anything about wood or the smell of burning. The effect of such a perception is at least the information that there is something new or unknown. This can have a function for the perceptual system, cause a higher level of attention, feelings of comfort or discomfort.

Thus, perception can persist without conceptual knowledge, and it can have at least *some* informative function. For sense perceptions to provide more than their unique phenomenal quality, however, categorizing processes are necessary.

2.4 Perceptual and Conceptual Categories

The distinction of analog and digital knowledge is backed up by studies about early category formation (see Mandler 2003, pp. 453f). While the notion of a category is often restricted to a conceptual category, the notion of a perceptual category serves to describe structures of experiences which are not (yet) conceptualized. Perceptual categories derive from the perceived similarity of phenomena; they are formed involuntarily, and their formation requires no conscious attention. By contrast, conceptual categories derive from conscious perceptions and conclusions, from the application of rules.

Experiments with one-year-old children show how perceptual and conceptual category formation go hand in hand. The distinction of the categories “creature” and “furniture” is driven firstly by an unconscious primal comparison of perceptual differences. It is followed by the conscious conceptual conclusion that creatures do autonomously move while furniture does not. Perceptual refinement may occur as a third step.¹²

The notion of a model has been proposed to delineate the analog and implicit structure of a perceptual category from that of a concept with a digital and explicit structure.¹³ A perceptual-analog model already enables simulations (conceptions not bound to actual stimulus input) and an orientation of action toward future goals.

¹²It can be assumed that the finer-grained equivalence classes of so-called “basic level” categories are formed perceptually (Rosch 1978), while the coarser-grained equivalence classes (global categories) are formed inductively by conclusion (Mandler 2000).

¹³Compare Metzinger (1993, pp. 104–135), who refers to McGinn (1989) and Johnson-Laird (1983). The proposal by Johnson-Laird (1983, pp. 146–151), who defines a mental model as a hybrid form of digital and analog elements, is modified and understood purely analogically by Metzinger.

It is controversially discussed how in detail such analog models are structured. Either a prototype is formed from similar stimuli already at a perceptual level, or the model derives from an accumulation of perceived examples.¹⁴ The assignment of a percept to a perceptual category is then formed by comparison with this prototype or by comparison with the majority of examples. In both cases, a perceptual category consists of objects and structure-preserving mappings among those objects.¹⁵

If the implicit structure of a perceptual model is conceptually isolated and becomes explicit, the analog content of a category can be addressed digitally. The digitalized structure, i.e. the concept, can now be consciously applied to perceptual contents. (Successive) binary classifications enable a unique assignment of a percept to a category. Once there are rules that afford binary classifications, e.g. the rule that creatures move autonomously, they can serve a preparatory function for concept formation.¹⁶

Ultimately, perceptual and conceptual content are combined in a category. But this does not mean that one is inconceivable without the other. There are conceptual categories without analog content, for instance the philosophical category of a “thing-in-itself”, referring to things independent of any kind of perception. On the other hand, there may be analog models that are categorized perceptually but not digitalized. Examples are all kinds of operations that are not made explicit in sequences of conceptual categories. Moreover, there is the particular case of a singular phenomenal experience for which, by definition, no categories are formed yet.

2.5 Epistemological Characterization of Precategoriality and Acategoriality

With the background of Secs. 2.1–2.4, we are now in the position to characterize the distinction of precategorial and acategorial knowledge in terms of contemporary analytic epistemology and consciousness research. The notion of precategoriality, as introduced above, can have a twofold interpretation:

1. It can indicate a state which is non-conceptual and completely non-categorial in the sense that it exhibits neither perceptual models nor conceptual categories. This might be a form of information preceding any category formation (e.g., a com-

¹⁴The prototype thesis goes back to Rosch and Mervis (1975). The authors are concerned with natural categories which can be understood as an aggregation of phenomena, in the sense of perceptual category formation. Currently, the prototype thesis is also discussed for conceptual category formation, see Hampton (2003).

¹⁵A mapping $f : A \rightarrow B$ is structure-preserving if neighboring points in a vector space A remain neighbors in a vector space B into which they are mapped by f . Particular mappings, so-called intertwiners, guarantee such a preservation of structure (“topological equivalence”) even if objects “look” differently. See MacLane (1998).

¹⁶A concept in this sense is not yet a denotation by language. Although the development of conceptual thinking and of language influence each other, the development of consciousness requires conceptual elements prior to language (Mandler 2002, pp. 316f).

pletely novel phenomenal experience) or a situation in which any categorial stabilization is lost (e.g., states of intoxication or trance). Such cases present extreme forms of precategoriality, which could be interesting for a discussion of particular exceptional (“mystical”) experiences.

2. Precategoriality can also indicate forms of knowledge relying on analog-perceptual models prior to digital-conceptual category formation. This could refer to perceptions classified due to similarity relations and simulations with models, independent of actual stimulus input. In this case, mental processes do not operate according to logical rules but are consistent with needs and expectations internal to the system.¹⁷

These two variants of precategoriality belong to the domain of subjective knowledge, but they are neither (fully) conceptual nor (fully) propositional. They are, therefore, not subject to a valuation by truth criteria. Their assessment has to follow from the benefit for the system and, accordingly, from the adequacy of the received information for it. By contrast, conceptual knowledge makes experiences addressable by propositions. Only this entails that an evaluation of information in terms of true or false becomes relevant, and intersubjective knowledge emerges.

The precategorial is, thus, a non-propositional form of subjective knowledge, based on experiences with non-conceptual content, that differs fundamentally from the propositional domain. This difference provides the key to distinguish the precategorial from the acategorial. We will argue that conceptual-propositional knowledge (of subjective or intersubjective kind) is a necessary (but clearly not sufficient) condition for acategoriality (Sec. 4). Acategorial states, other than precategorial states, require existing, fully developed categories to become possible (Sec. 5.2).

Nevertheless we will classify acategorial experience as a non-conceptual state, presuming that the existing concepts are not actualized by the experiencing subject (Sec. 6). In this sense acategorial states differ from categorial-conceptual states (where a particular concept is represented) as well as from purely perceptual states. Spinoza’s “intuition” does not process an isolated concept or percept, but apprehends all given concepts directly as a whole – like an “in-between state” that vanishes as soon as concepts (or isolated percepts) are “grasped”.

Although this is an appealing framework, acategoriality is hardly discussed in present-day analytic philosophy of mind. Before we will present approaches enabling such a discussion, a basic notion must still be clarified that is inevitable for most models of knowledge in cognitive science: the notion of a mental representation. It contains the notion of a category, but also comprises novel experiences that are not yet categorized. It is generally considered as a mandatory element of any form of knowledge.

¹⁷The notion of precategoriality as used by Gebser (1986) refers mostly to this second type of precategoriality: a mental state prior to conceptual categorization.

3 Mental Representation

A mental system receives information about external and internal domains by mental representations which are actualized by corresponding states of the system. A representation has to fulfill different conditions in order to be suitable for mental processes: It must have causal, functional and, in some cases, also structural aspects capable of carrying information. It must be potentially accessible to phenomenal consciousness so as to satisfy specific criteria of the mental. Phenomenally experiential representations come in a multiplicity of variants to be discussed in Section 3.2.2.

3.1 Representation in Information-Processing Systems: Causality, Functionality, Structurality

A representation can be considered as either a process of information transmission or an information content. A representation B can represent an actual situation A if (i) there is a process establishing this reference relation and (II) if there is a process backtracking this reference relation to its referent. The notion of a representation can be described as a three-place relation between that which represents, that which is represented, and the representing relation.

Different possibilities are conceivable for a reference relation. One of them is a relation in terms of signs, where a sign (e.g., a letter) represents an actual situation (e.g., a sound). But representation in general refers to more than a pure denotation. The notion of a representation is used if the represented and the representing have something in common that is immanent in the reference relation. An example would be a causal relation: Smoke refers to fire as its cause, a perception or a conception refer to a stimulus causing them.

In this sense, a causal relation can be a representing relation if there is a natural or artificial system that retraces causally effected representational states to their cause.¹⁸ However, not each effect carries information about its cause. Therefore, causation and action must refer to each other *typically* so that a representation can be functionally exploited by the information processing system (Dretske 1988).

The criteria of causality and functionality do not yet guarantee that the system succeeds to develop environment-adapted behavior by using representational processes. This is only possible if the represented and the representing coincide insofar that the system obtains adequate meaningful information. This is the case if the representation itself contains structural characteristics of what it represents.¹⁹

¹⁸Compare for instance Bechtel (2001). If there is no such actual “feedback” (e.g., if a photograph is never looked at) the representation is still subject to potential feedback; it is designed for the purpose of a “user”.

¹⁹A purely external criterion, evaluating the distinction between correct and incorrect information merely based on successful behavior in an environment, leads unavoidably to the question which internal criterion has to be fulfilled so that behavior becomes successful. This is precisely

For this reason, we will assume structural representation as an additional ingredient of information processing systems (Bartels 2005). This way, a representation can encode, e.g., the heat extent of an external temperature by converting external relations to internal relations.²⁰

Such a kind of structural adequacy must not be confused with a similarity relation, as exhibited between an object and its photograph. The relation between the representing and the represented can be considered as a mapping f . Presumably, the assumption of an isomorphic mapping $f : A \rightarrow B$, relating each point in A to one and only one point in B and *vice versa*, is too strong. Relaxing the requirement of bijectivity (the *vice versa*), we have a homomorphic mapping, e.g., many points in A may be mapped to the same point in B . This is possible in a structure-preserving manner.²¹

3.2 Representation in Mental Systems

3.2.1 Intentionality and Phenomenal Consciousness

In addition to the conditions mentioned so far, a mental representation must satisfy the special criteria of the mental. Decisive characteristics in this sense are intentional and phenomenal content. Intentional content is here to be understood in the broadest sense, namely that a mental representation refers to or is directed toward something.²²

the criterion of structural adequacy.

²⁰Compare Dretske (1995), p. 2: “The fundamental idea is, that a system S represents a property F , if and only if S has the function of indicating (of providing information about) the F of a certain domain of objects. The way S performs its function (when it performs it) is by occupying different states s_1, s_2, \dots, s_n corresponding to the different determinate values f_1, f_2, \dots, f_n of F ”.

²¹Compare Bartels (2005), pp. 30-45. Structure-preserving homomorphisms are also candidates for the mapping of neuronal states to mental representations, compare Amit (1989), p. 85: “Not all stimuli ... will be cognitively perceived, but only those that can make it ... within a biologically prescribed time interval.” See also Fell (2004), or Atmanspacher and beim Graben (2007).

²²This wide notion of intentionality means that every state of an information processing system is intentional. Due to its function this system entertains both a permanent “monitoring” (i.e., analog transmission) of internal and external domains (partially and globally) and a processing of this analog information. It is possible to imagine a mental state with no particular content. Even such a state would be intentional insofar as it maps a lack of registered content and can be utilized, at least *a posteriori*, as information about the system state.

One can also consider concepts which cannot be analog transmissions and do not map internal or external subdomains, e.g., the “thing-in-itself”. They include intentionality as well because they arise from a complex processing of analog and digital information and simulate some entity. In this sense they represent “something”.

Such a broad notion of intentionality remains open for *all* analog and digital forms of information transmission. There are alternative positions conceiving intentionality as a propositional attitude, thus presupposing conceptual consciousness for intentionality. An overview of definitions and viewpoints is due to Jacob (2003).

A mental representation is actualized if it is occupied by the state of a mental system. But intentionality can be attributed to a mental representation even if it is not actualized by a particular mental state. The phenomenal content of a representation, however, is bound to its actualization by a mental state: it “is somehow”, or “feels somehow” to experience that particular mental state.²³ The concept of phenomenality as used here includes subjective qualities of perceptions and feelings (perceptual qualia, bodily senses, feeling aspects of emotions).²⁴

In the philosophy of mind it is much discussed whether both intentionality and phenomenality are necessary for the definition of mental representations or whether intentionality alone is necessary. An important point, which can contribute more clarity in this regard, is the distinction between mental representations that are *potentially* accessible to a mental system and mental representations which are occupied and thus *actualized* by the state of the system.²⁵

Insofar as a reference relation between the represented and the representing assures intentional content, non-mental information processing systems possess all kinds of intentionality. Thus, intentionality seems not to be characteristic of the mental unless one can define a typically mental intentionality by introducing an additional criterion. Phenomenal content is a most appealing candidate, but this is hotly debated and not resolved yet.

3.2.2 Varieties of Mental Representations

Mental representations are basic elements of consciousness. In order to form the spectrum of mental contents that can be consciously accessed, they are present in different varieties. They cannot only be classified as analog models or digital concepts but exhibit different sensory modalities, different section sizes, different degrees of input linkage, of transparency and of reflexivity.

Mental representations can arise through different sensory channels. They can come in pure modalities, e.g. as purely visual or purely auditory percepts, or in integrated modalities. For this to be possible, they must be capable of combining data from different sensory modalities to a coherent representing state.

²³Compare Nagel (1974) whose phrase “what it is like to be” has become an almost canonical term for this qualitative aspect of mental processes.

²⁴Another perspective on phenomenality, advocated by Kant, is that each content of consciousness mediated by the senses is an “appearance”, i.e., a phenomenon, even if (like in some abstract concepts) it is not connected with any quality of experience. For the rich tradition of concepts of phenomenology, including Hegel’s and Husserl’s approaches, see Smith (2003).

²⁵This distinction suggests some similarity with Searle’s (1992) connection principle insofar as we assume that unconscious (potential) mental representations are possible conscious (actualized) mental representations. Unlike Searle, we do, however, not refer to some “original” or “intrinsic” intentionality of the former. Rather, a potential representation is understood as a representation that was established previously but is not actualized at some later time. In neural terms, a potential representation is actualized if a stimulus activates a particular neural assembly that was established as its neural correlate.

Mental representations represent differently sized sections of domains external or internal to the system, where each section is a coherent unit. In order to enable this, mental representations must be able to become parts of new representations and to connect with one another in a homogeneous way. They must be completely embeddable and able to “smoothly” generate higher-order or global representations (as the “world” or the “self”; cf. Metzinger 1993, p. 60ff).

This clarifies why the unity of all possible conscious representations differs from a collection of individual parts. All mental processes of representations that are consciously accessible are homogeneously embedded in a fundamental meta-representation, a “representational ground” as it were. This embedding happens permanently, while the ever-changing entire flow of mental information is represented. The global meta-representation co-exists – mostly in the background – along with partial representations.

Mental representations depend on actual information input in different ways.²⁶ Experienced percepts (so-called “presentations”) are, as an analog processing of actual situations, causally bound to a stimulus input. By contrast, stored percepts or created analog models (simulations) are detached from stimulus inputs and can represent independent of the actual present. They are retrievable at any instance, without being bound to a corresponding factual situation. They offer the possibility to simulate goal states and to orient our behavior toward them (Grush 2001).

Mental representations exhibit different degrees of insight into their nature as representations. While it is clear to us that each simulation is a representation to which we, as cognitive agents, contribute creatively, analog processing of actual situations often appears to us as direct and immediate. Perceiving a star, we do not have the impression of an internal representation of the star, but rather of the real object itself. It seems to be simply given, not conceived or mentally constructed. A “naive realist” in this sense assumes that external objects – mediated by causal physical chains – are plainly perceived as such (le Morvan 2004).

An “indirect realist”, by contrast, presumes that the brain generates a representing state, a mental representation, which is related to a stimulus and to interpretational components. Thus, acts of perception not only depend on the integrity of physiological functions but also on imprints of experience and specific cultural contexts upon the perceiving subject. An instructive example for the fact that acts of sensory perception are not just “photographs” of objects is the perception of multistable stimuli. Two or more modes of perception alternate with each other although the stimulus as such remains the same.²⁷

²⁶Basically, mental representations are distinguished by some independence of details of the stimulus input. The reaction to a stimulus depends on many factors and typically cannot be predicted with certainty. A reflex describing a rigid coupling between stimulus and reaction is not understood as a mental representation. See Fodor (1986) and Bermúdez (1995, p. 195–201).

²⁷The positions of direct and indirect realism are often not distinguishable as clearly as described here. We use the notion “naive” to characterize an extreme position of direct realism. For instance Gibson (1982), who understands himself as a direct realist, can hardly be called naive. His so-

In general, perceiving subjects are aware simply of a perceived object and not of their activity of representing it. In this case, representations are called “transparent” or “semantically or phenomenally transparent”.²⁸ Transparency (as opposed to opacity) means that a subject is not aware of its own representational processes so that it does not adopt an exterior position toward its representations.

A further criterion for the distinction of mental representations is their degree of reflexivity, literally understood as a reference of a conscious state back to itself. Mental states can be accompanied by other, higher-order states referring to them. If the perception of a star is the simple phenomenal representation of a star, then the perception that I just perceive the star would be a second-order representation. “Higher-order thoughts” (Rosenthal 1986, Carruthers 2000) or “higher-order perceptions” (Armstrong 1981, Lycan 1996) of this kind are linked to self-consciousness. They presume the global representation of an ego or self.

The manifold of philosophical attempts to define self-consciousness and to determine its role for phenomenal consciousness cannot be discussed here. In the following, the approach by Metzinger, who conceives the notion of a subject, at least partially, as an analog self-model of an information processing system, will be discussed in some detail. Metzinger’s position is of particular interest because it can be tied to an interpretation of precategory and acategory experiences based on a naturalistic theory of mental representations.

4 Acategorical Experience in a Representationalist Account

Due to Metzinger, “world” and “self” are two global analog representations of a special kind with which we inform ourselves continuously about the state of our environment and of ourselves. He refers to them as world-model and self-model. The world-model is a global representational state in which all information about actual states and goal states is embedded. The conscious world-model contains sections of this comprehensive representation. Naturally, it can also be formulated digitally and conceptually. As a rule, the analog world-model always runs in the background of partial representations that are in the focus of our attention.

The same holds for the self-model. It constitutes that part of the world-model

called ecological perspective overrides the duality of stimulus and response, object and subject, by a comprehensive system of conditional information. He speaks, thus, of an underlying unity that can be split into two temporary units rather than of a primacy of an object – which would be the viewpoint of a naive realist. Therefore, many an indirect realist can possibly integrate Gibson’s approach in their own understanding.

²⁸Moore (1903) addressed this situation with the notion “diaphanous”. Van Gulick (1997, p. 437f) called it the “semantic transparency” of perception. While van Gulick’s term indicates a propositional understanding of knowledge, Metzinger (2003, p. 166f) speaks explicitly of “phenomenal transparency”.

representing the information processing system itself. It portrays the system as a centered cognitive agent referencing information to itself and its state in order to secure survival and optimize behavior. The self-model represents this activity of the system as an ego or self, placed in the center of the world.²⁹

It is Metzinger's thesis that the self-model can be lost in altered or pathological states of consciousness. As an example he refers to the phenomenon of "oceanic" self-dissolution, which he relates to "mystical" states. The associated loss of the self does not presume a change of perspective but rather a "liquidation", as it were, of the self: "the complete deactivation of the centering function that generates perspectivity" (translated from Metzinger 1993, p. 184). Metzinger asks whether or not such a non-perspectival state of consciousness qualifies at all as an experience with epistemic content.

In his more comprehensive monograph *Being No One*, Metzinger (2003) indicates a possibility how phenomenal experience can occur despite a lost ego-perspective. He describes the pure (transparent) analog representation of the world-model, which is activated in a "window of presence", as a limiting case of state consciousness, a minimal kind of mental content capable of becoming conscious. Because no partial representations evolve in addition to this limiting case, the world appearing to the organism is unstructured. The organism experiences a uniform eternal now.

This does not happen from the perspective of the first person. The experience is subjective only in the weak sense that it is based on an internal model of reality (Metzinger 2003, p. 559). For the experiencing subject nothing particular is present. There is just a ground of reality – the fundament of the manifold of structured aspects of reality. Since this scenario abstains from any categories, it refers to a precategoryal state.

The actualization of such a minimal kind of phenomenal consciousness is to be distinguished from representation in the usual sense (as a representation of something particular). To avoid confusion we denote the global analog representation of reality as "representational ground", or ground of consciousness. It contains no further categorial differentiations which would be necessary for more specific states of consciousness. Mystical experience is often understood this way.

²⁹The self-model consists of analog representations of first and second order. Its basis is the sensory self-model of bodily senses and of the body schema. The body schema is our image of the body in its environment. It shows the spatial relation of the system to the exterior. The bodily senses represent the totality of the interior body state, the phenomenal body-self. The self-model of second order is meta-cognitive: The system represents itself as a thinking being. Unlike the sensory self-model, the meta-cognitive self-model is not structured spatially but temporally. From a naturalist point of view it is a higher-level representation of brain states. Moreover, there is the emotional self-model, mapping the totality of interior states, both bodily and mentally, in relation to a goal state. Emotions are sensed bodily, so the emotional self-model is closely related to the bodily senses. Summarizing, our self-model consists of various partial models which appear usually in combination with one another as a unique self in our awake consciousness (Metzinger 1993, pp. 151–176; see also Metzinger 2003, pp. 265–427).

However, another kind of mystical experience can be construed beyond Metzinger's framework. The ground of consciousness cannot only be experienced in the non-categorical minimal kind of representing activity, but also in an acategorical mode. This is possible if the representational ground is present simultaneously with the presence of partial representations – however, not as an unconscious background but rather as a conscious foreground. Partial representations remain intact as such and coexist with an awareness of the representational ground. In this case, the self would not be experienced as dissolved but could be preserved as one representation among others.

An experiencable simultaneity of representational ground and particular representations is possible if a mental state is not located within a representation, or category, but outside of representations, for instance between them. A decisive condition for this thesis is the consistent conceptual distinction of a mental state and the representation that this state can actualize. This has been proposed as early as at the end of the 19th century, when William James (1890/1950, p. 243) argued that the dynamics of mental states (“the stream of consciousness”) requires them to be sometimes in and sometimes in between particular representations. In such “in-between states” different representations can be experienced without being individually actualized. For instance, they can be experienced as connected by the representational ground apprehended between or beyond individual particular contents. In other words, the continuous representational ground of a mental system can flash up between individual actualized representations and become consciously and phenomenally accessible to the system.

It is, then, a particular quality of an acategorical experience that individual representations lose their transparency and become opaque. In this case, they are not simply experienced as objects, but rather as objects conditioned by a representational ground. They become real for us only within this ground. Once more, acategoriality can be clearly distinguished from precategory: In precategory experiences, categorial representations are dissolved, in acategorical experiences they become opaque, so that their dependence on the generating system becomes “aware”.

Acategorical experiences do not imply that the representing system completely loses contact to objects “as such” and switches from a naive realism into a subjectivist solipsism where reality exists exclusively “for me”. Rather, representations can be understood, in their relatedness to system and environment, as mutually and jointly created and real “per se”.

The representational ground on which individual representations evolve can, moreover, be construed as a unity reaching beyond the system and comprising being and consciousness. For this ground, as a minimal case of a representation, is always already related in two respects: to the extra-subjective origin of stimuli and to the intra-subjective processing of these stimuli. This way it can be understood why in some spiritual and philosophical traditions the representational ground is addressed as an absolute “ground”, “unity”, or “being” (cf. Varela *et al.* (1993) for further discussion).

Insofar as this conceptualization of acategoriality does not build on actualized categories, it permits an alternative to understanding the reflexivity of representations as a conceptual reflexion with “higher-order thoughts”. An acategorial state allows us to be aware of established categories although it is not itself categorial: no second-order categories are needed for this kind of “perceptual” reflexion. Instead, the concept of acategoriality introduces a fundamental relationship between the awareness of (established but not actualized) categories and the coexisting awareness of the representational ground upon which those categories have been established.

5 Acategoriality in Cognitive Neuroscience

There are plausible indications that acategorial states as experientiable states of mental systems do indeed occur concretely. A promising approach to their detailed description is the nonlinear dynamics of networks of attractors, with which dynamical properties of complex systems can be investigated. Formal mathematical tools can be used to describe both mental and neural processes and their correlation.³⁰ Without further discussion about possible relations between mental and neural systems, we will next demonstrate a number of key properties of nonlinear mental systems and then use them to further our understanding of acategoriality in mental processes.

5.1 Properties of Nonlinear Mental Systems

One approach to study mental activity consists of modeling mental processes as a complex network of interrelated categorial representations and mental states. Such models can then be investigated with a basic structure that is as simple as possible, yet not too unrealistic.³¹

A mental state actualizes a categorial mental representation if and only if the content of this representation is subjectively experienced. This leaves the possibility of unactualized categories that have been formed in the past and may be actualized at some point in the future. It is essential in this framework that mental states and categorial representations are independent to begin with. Modeling them requires two different concepts and two different types of dynamics.

The dynamics of mental states can be represented in a so-called state space containing the set of all possible states. Two points are important in this context:

³⁰The existence of neural correlates of mental states is a fundamental assumption in cognitive neuroscience (cf. Metzinger 2000). It is an important object of research which neural correlates in a certain situation correspond with which mental states. Although this does not provide an answer to the question why consciousness arises at all (cf. Chalmers 1995 for this “hard problem of consciousness”), insights about brain processes may suggest interesting ideas about the understanding of mental processes.

³¹See Amit (1989) for corresponding conceptions of models that are inspired by neurobiological facts.

1. The behavior of dissipative nonlinear systems can be characterized using the concept of attractors. An attractor is a subspace of the state space which has an “attracting” effect on states outside of it. An attractor stabilizes the dynamics of the system intermittently (as long as the state of the system stays within it).

2. Phases of the dynamics that are stabilized by attractors alternate with unstable phases, where states are outside attractors, during the course of time. Instabilities or phase transitions may occur at typical critical parameters.

With respect to a mental system this means that complex behavior may emerge from simple basic structures. The corresponding patterns exhibit significant types of stability (according to the corresponding attractors) and can be described as (multi-) causal responses of the system to perceived or conceived stimuli.

A representation of this process including all possible unstable and stable states cannot only be achieved in a state space. An alternative option is a so-called potential representation where valleys (local minima) refer to attractors and peaks (local maxima) refer to unstable points. Other possibilities are saddle points (minima in one direction and maxima in another) or plateaus (no potential difference).

Initiated by some stimulus, the dynamics of the state of the system is represented by its trajectory through the potential landscape, like the trajectory of a moving ball. If it reaches the ground of a valley it stays there for a while. The state of the system is then stabilized by the corresponding attractor. Another stimulus or an internal renewal mechanism is required to change the state so that it moves into another local minimum.

Each local minimum stands for a mental representation that may or may not be actualized by the mental state at a given moment in time. An attractor in the mental state space, which stabilizes the system intermittently, corresponds with a stable categorial representation. Subsequent stable periods of a mental state are separated from one another by mental instabilities.

5.2 Acategory as Mental Instability

A detailed quantitative description of the nonlinear dynamics of mental processes is currently unavailable. However, for a conceptual study such as the present one the qualitative mathematical properties of such processes are more important. It can be plausibly argued in the framework of a qualitative stability analysis of nonlinear systems that mental states can realize the key features connected with acategory (for more details see Atmanspacher 1992, Atmanspacher and Fach 2005).

As mentioned before, a crucial point in this framework is the distinction between mental representations and mental states. Formally, this distinction is reflected by the distinction between the potential landscape of a system and its actual mental state. Describing the motion of mental states Φ in a potential V , different scenarios are possible, depending on the complexity of the potential landscape. A particularly simple discussion, sufficient for illustrative purposes, leads to the following three kinds of states:

1. The gradient of the potential V vanishes, providing a flat plateau, so that no categorial representations are present. In this case, every mental state Φ is marginally, but not asymptotically stable. Each small perturbation by a stimulus input entails a change of Φ . A corresponding experience could be a precategorial experience characterized by the non-existence or dissolution of perceptual models or conceptual categories.

2. The state Φ is stabilized at a local minimum V_o of V , and stays there. In such an asymptotically stable position perturbations are damped out, if they do not reach or exceed the depth of the potential valley around V_o . The corresponding experience is a stable representation, a perceptual or conceptual category.

Shallow minima stabilize the state Φ less than deep minima, so that it is easier for stimulus inputs or other renewal mechanisms to change Φ . It can be presumed that purely perceptual models, not yet classified conceptually, are destabilized more easily. Thus, preconceptual experiences can be related to such shallow minima. Fast switches between different representations in states of intoxication or passing associations in states of dreaming or daydreaming are examples.

3. Local minima in V are established but the state Φ does not stay in them and, therefore, does not actualize the corresponding representation. Rather, Φ stays at a local maximum (or a saddle point) V_1 between adjacent minima. Such a state is intrinsically unstable and tends to relax into one of the neighboring asymptotically stable states. From such an acategorial state, representations next to V_1 can be apprehended – not because they are actualized by Φ but as potentially accessible representations connected by V_1 .

Spinoza's *scientia intuitiva* resembles this scenario by apprehending the ground-essence of particulars. It contains both differentiated structure and a unifying ground at the same time. Spinoza calls the latter *natura naturans* or God (Spinoza 1994, I, P29, Schol.). In German idealism, it is already understood as “ground in consciousness” (Henrich 1992), which is closer to our concept of a representational ground (Feil 2007).

In acategorial states, this representational ground is not obstructed by actualized categories (perceptual or conceptual), but can be shifted from an unnoticed background to the foreground without losing the structure of the represented world. In the same sense, the represented structure of the self remains intact as such but, as all other representations, is present to awareness in a subtle potential fashion.

In contrast to precategorial experiences of undifferentiated oneness, acategorial experiences can be very complex. The homogeneous unity of the representational ground and the differentiation of partial representations can be conceived as a merged unity – a unity of oneness and difference. This way, the most global of all representations, the world-model, would be present to awareness in two kinds: distinctly structured and differentiated on the one hand, and uniformly homogeneous on the other. Both aspects together are consolidated in a most comprehensive experience of reality.

Epistemologically considered, acategorial experience refers to knowledge expe-

rienced with a high degree of mental presence, based on an analog experience of the representational ground. This is also the case for the accompanying awareness of potential representations that are not actualized because no mental state resides in them. Nevertheless, they may be apprehended as explicit digital categories in coarsened and conceptually delineated form. In an acategorical state these categories are not “thought” in the sense of discursive, sequential processing but they are immediately and directly apprehended at once and as a whole.

Yet another quality of the experience of acategorical states is conceivable. If the adjacent representations move out of the focus of attention and the representational ground dominates the experience, this may produce some “indeterminate” presence of reality (or being). This kind of acategorical “view” would also be subject to relaxation into a neighboring potential minimum, requiring that adjacent categories are intact and accessible. This is a distinct difference from pre- or non-categorical states.

It is an essential condition for acategorical experiences that the unstable mental state at a local potential maximum can be maintained temporarily, i.e. stabilized. As of today, it is an open question how this can be accomplished. One proposal is that acategorical states might be realizable by the stabilizing impact of the interaction of different unstable domains of a potential. For corresponding analytical studies of specific types of networks see Atmanspacher and Scheingraber (2005). The key result of this and related work is that locally unstable behavior is stabilized by global interactions, thus leading to massive alterations of the potential landscape.

Alternatively, one might imagine acts of mental balance whose performance improves with progressive training. Contemplative practices of numerous mystical traditions suggest that acategoricity could be a matter of intense mental exercise indeed. In principle, acategorical states may also occur spontaneously, but they are unlikely to be accessible as subjective experiences as long as they remain intrinsically unstable. Studies with meditation practitioners have shown (Carter *et al.* 2005) that such unstable perceptual states, as in binocular rivalry, can be maintained much longer than for ordinary subjects in such studies.

6 Acategoricity as Non-Conceptual Experience

The experience of states with non-conceptual content, briefly non-conceptual experience, has become a significant topic in the philosophy of mind and cognitive science since more than a decade. Besides the review by Bermudéz and Cahen (2008), a splendid overview of the field is the introduction to the anthology edited by Gunther (2003). It starts with a number of historical examples pointing out that non-conceptual experience has been a subject of attention for a long time: it can be found in Taoism and Buddhism, and in occidental philosophy. Gunther gives an impressive selection of quotes due to Ockham, Bonaventura, Berkeley, Kierkegaard, Schopenhauer, Hoffmann, Russell, Dewey, Wittgenstein, Sartre, and others.

The pertinent literature distinguishes three kinds of non-conceptual contents of experiences: (i) the content *cannot* be represented conceptually, (ii) a subject *does not grasp* the concepts involved in its articulation, and (iii) it *does not or cannot exercise* those concepts. Here, content is usually assumed to refer to the intentional content (or intentionality) of a representation. Intentional content explicates the reference relation of a representation to what it represents. If the represented is a state of affairs to which the truth conditions of classical logic are applicable, then intentional contents are propositional contents.³²

Using the notion of a concept basically equivalently with that of a mental representation implies that non-conceptual means non-representational. In this case, content is restricted to intentional or propositional content, as the property of a *representation*, and non-conceptual content becomes a contradiction in terms. The solution to this problem is that one may still speak of the content of an *experience* instantiated by a mental *state* even if that state does not actualize a representation. Tye (2005, p. 223) describes such a situation by saying that “experiences be contentful *non-conceptual states*, where a contentful non-conceptual state is a contentful state, the tokening of which does not involve the exercise of concepts”.

The distinction of mental states Φ and mental representations V indeed provides us with a formal vocabulary to delineate conceptual from non-conceptual experiences precisely in the same way as categorial states are delineated from pre- and acategorial states. While conceptual content is clearly the content of a categorial mental state actualizing a mental representation, non-conceptual content can refer to three options:

- (A) precategorial mental states in the absence of representations of any kind, i.e. dissolution of self and world as discussed in Section 4;
- (B) precategorial mental states which are purely analog representations, e.g. phenomenal experiences or analog models prior to the construction of concepts;
- (C) acategorial mental states in the presence of fully conceptual established representations none of which is actualized.

Experiences of type (A) and (B) fall into class (i) of non-conceptual experiences: Content cannot be represented conceptually. Type (C) is more subtle, and in our opinion many mystical, aesthetic, and existentialist examples given by Gunther (2003) belong to them. Depending on the detailed interpretations of classes (ii) and (iii) of non-conceptual experiences, they can be assigned in the following way: If “to grasp a concept” means “to actualize a representation”, then type (C) is clearly of class (ii). But, although “grasping” in (ii) is often considered as a presupposition for “exercizing” in (iii), acategorial states may permit a kind of exercising of *potential* representations without *actualizing*, i.e. grasping them.

³²Some such positions are mentioned in Sec. 2.2. From our point of view, it makes sense to extend the meaning of content to unconceptualized “primordial” percepts.

Is it possible to address these and related questions in terms of research in cognitive neuroscience? Although most spectacular anecdotal descriptions of acategorical states are those of mysticism and aesthetics, we think that for a start into systematic research it is more promising to investigate typical examples in the psychology of perception. Crane's (1988) example of Escher's waterfall illusion is a pertinent example for a visual paradoxical stimulus, and likewise one might look into other kinds of paradoxes.

An even milder, simpler, and more ordinary form of potential acategoriality is to be expected in ambiguous (rather than paradoxical) stimuli, where the mental representation of the stimulus keeps switching spontaneously on a typical time scale of some seconds. Such oscillatory behavior can be modeled by the motion of the mental state from one representation to the other and back, and so forth. The state in between the representations is acategorical. Kornmeier et al. (2009 a,b) have collected a number of interesting psychophysical and psychophysiological results that address this situation.

7 Summary

Acategoriality is a theme with a philosophical tradition that is largely ignored in contemporary analytic philosophy of mind. It can be demonstrated, however, that acategorical mental states are consistently conceivable on the basis of a scientifically oriented approach to consciousness by adding more structure to the classical representationalist stance. We argue that, in an acategorical mode of knowledge, a representational ground (a minimal representation of reality) can be consciously phenomenally experienced together with fully developed particular categorial representations. By contrast, precategorial experiences occur in the absence of categorial representations, where a mental state can still be capable of the experience of phenomenal content.

This thesis can be supported by the idea of a qualitative stability analysis of mental processes, implemented in the framework of the nonlinear dynamics of attractor networks. Acategorical states are here conceived as mental states in an unstable phase, outside of stable categorial representations (attractors). Such a view is based on a distinction of mental states and mental representations. This distinction is a mandatory ingredient for the coherent discussion of intrinsically unstable states outside of categorial representations without implying the dissolution or annihilation of those representations.

This move allows us to ascribe non-conceptual content to states rather than representations, thus avoiding an inherent contradiction that arises if representations, conceived as concepts, are attributed non-conceptual content. Precategorial states then entail experiences with non-conceptual content that cannot be represented trivially (due to the absence of representations) or refer to phenomenal experiences prior to the construction of concepts. Acategorical states entail experiences with non-

conceptual content which need more sophisticated discussion. Examples of possible research areas are the perception of ambiguous or even paradoxical stimuli.

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