Jens Mammen
Department of Psychology, University of Aarhus

What is a Concept?

(Commentary to Osman Kingo: The Concept of Concepts)

The issue of sensation and perception versus conception and thought is as old as the discipline of psychology and even the discipline of philosophy. It has been raised in many different contexts of discourse of which I shall emphasise three, or three and a half. The *philosophical* question: How can we explain that our knowledge and understanding of the world is empirical and based on sensations and yet is "deep" and goes far beyond the simple sensual and superficial physical-chemical contact with the world? What is this "extra", and what is its origin? This is the classical philosophical debate between empiricism and rationalism. The *ontogenetic* question: How can we understand the seemingly dramatic changes in our mental capacities from new-born infant to educated adult? Are the changes only quantitative or are there qualitative leaps in this individual development? And, finally, the *phylogenetic* question, or question from *comparative* psychology: What explains that humans seemingly equipped with basically the same sensory and motor organs as a lot of other species as the only ones are capable of creating and living in a world of artefacts and cultural institutions and as the only ones are able to use a genuine referential language as a vehicle for both communication and thinking? Depending of what kind of explanations you are looking for the last question may also be formulated as the *sociogenetic* question of which conditions of social or societal life were crucial for the rise of the specific human mind?

All these contexts of discourse refer in some degree to the dichotomy of sensation and perception versus concepts and thought. But it is also evident that *they are not talking about the same dichotomy*, which explains much of the confusion when the dichotomy is discussed across contexts or without explicit reference to context. Osman Kingo's article is no exception, although it makes a lot of very good points in relation to empirical study of ontogenetic development in infancy.

The above mentioned *philosophical* dichotomy of perception vs. conception is closely related to the question of *categories* i.e. classes of objects or events characterised by there content (extension) and (soft or sharp) criteria of inclusion (intension). From the *empiricist* perspective it is a question of moving from categories in terms of simple perceptual dimensions to categories in terms of criteria with more sophisticated dimensions. Although dramatic quantitative difference between the poles of this continuum there is no place for a qualitative difference between perception and conception and thus no qualitative leap in development from perception to conception. It is only a matter of degrees of sophistication. The *rationalist* perspective on the other hand is operating with a sharp and qualitative distinction between perception and conception. Here the concepts are at hand before and independent of the perceptions and can be considered as a priori rules for how to include perceived objects and events in categories and how to relate categories to each other in a nested system. Here all categorisation is fundamentally conceptual and a qualitative leap in development is thus also ruled out. Much cognitive and developmental psychology is moving within these frames of reference, often in terms of environmentalism versus nativism. So it is no wonder they have hard times finding empirical solutions to the question of psychological transition from perception to conception. This is a dead end.

Kingo and some of the researchers he is discussing try what seems to be an emergency exit from the dead alley. If membership of some categories are decided from perceptual criteria and membership of other ones from functional criteria, the first categories could be considered perceptual and the latter ones conceptual. The ontogenetic question could then be reformulated to when infants move from purely perceptual categories to functional ones, i.e. conceptual categories. Functional categories are defined from what the objects in the categories do or can be used for. There is explicit reference to J. J. Gibson's concept of affordances. There are several problems with this approach, however.

First, we may question if we have escaped the empiricism-rationalism trap. Maybe the criteria for membership of a functional category are functional. But how does the infant in practice decide the membership of a functional category when only equipped with his or her senses? Although the explicit rules can be hard to trace, is the decision not after all perceptual, and thus also the category as the empiricists would claim? If not, then the child must in some way be equipped with an a priory concept of function, just looking after perceptual cues for confirming or rejecting his or her hypothesis as the rationalists would claim, and we are back to zero. On the other hand, the rationalists could have a point, if this a priory capacity for functional categorization is not present from birth but demands some maturation, and what we are looking for is its onset. The question is, however, what we achieve by defining concepts as functional, or affordances, outside the narrow frame of one line of discussion in developmental psychology, as we shall see just below. Can we use such a concept of concepts outside this exclusive discourse?

Second, if we want to have a concept of concepts which could also be used in answering what I called the phylogenetic or comparative psychological question, then to link concepts as sophisticated and late phenomena to function and affordance in contrast to pure sensation or perception as more primitive and early is to turn the whole matter upside-down. As far as I know there is no evidence of what may be called pure perception in animals in their natural habitat. Even the

most primitive animals are so to say buried in affordances and functional categories, i.e. meaningful perception related to the animal's repertoire of actions and its goals and needs, which shape its categories. Only as a late phenomenon in the development of mankind, perhaps not older than about 50.000 years, do we find traces of what with a little ingenuity may be called pure perception in the onset of aesthetics as manifested in decorations and paintings. You could, again with some compliance, call animals' curiosity and orienting reflexes pure perception. But these activities are always embedded in meaningful frames of action and are in any case phylogenetic late.

Third, in the artificial setup of psychological experiments it is always possible to present infants and animals, and even adults, to situations without meaning, thus concluding that affordances and functions are secondary, and that pure perception comes first. What can be concluded from this is only, that under some conditions pure perception is possible, which of course is interesting as a sign of flexibility and readiness for new categories which might be meaningful. But in the infant's normal ecology its categories are functional from the start directed towards meaningful objects in the environment, the mother, other humans, food, etc. The infant does not develop its cognition from pure perception to functional and meaningful categorization, i.e. not from perception to conception if the latter is defined as functional and meaningful in contrast to not functional and not meaningful. What happens is, in contrast to this view, that what is meaningful and functional for the child expands dramatically in the first years of life, as the child directs its attention towards what can be learned about objects and events in the world only from adults or older children and under no circumstances without this co-operation. Only this deserves the label of concepts if we want a distinction or dichotomy which can be used consistently across the different contexts of discourse, which I lined up in the beginning. Whether the counterpart to conception in the dichotomy should be called perception or something else can be discussed. Non-conceptual cognition in this frame of reference is more than perception, e.g. also memory and emotions. But there is no place for this discussion here.

Fortunately Kingo, after his tour de force through all the confusions, also reaches a conclusion very close to this perspective on the concept of concepts when referring to Katherine Nelson and to Vygotskian theory (p. 12) and most explicitly when writing:

> "Contrary to other species most of the objects experienced by human children are man-made artifacts. This means that most of these objects have an intended function in addition to any Gibsonian sensorymotor affordance […]. These 'intended affordances' can only be learned by infants in interaction with adults. In this way even simple objects in human infants' surroundings have normative object-functions that can only be discovered with other conspecifics [!]. This should have implications for most developmental studies on object-function and object-concepts […] but even more for comparative studies" (p. 13).

I fully agree. I shall elaborate a little on that. As all young mammals the infant is of course capable of making his or her own experiences about objects' function, value and affordances. This is possible because the infant through action and perception interacts with the objects and even with their relation with other objects. That some objects can serve as tools in the interaction with other objects is not harder to learn for a human infant than for a young chimpanzee. The whole world of possible functions and affordances is open for the individual child, in principle. Still there are lots of things the infant, and any child, can't learn without help from adults or older children, and which the chimpanzee can never learn. It concerns relations in the world that are objective, "out there", although invisible for the individual on his own, and invisible if you are not equipped with a readiness, attention and sensitivity towards these relations and their only source of information, i.e. adults and older children.

What are these relations that go beyond possible function and affordance? One crucial example is what could be called objects' normative or standard function, what they are intended to be used for within the whole spectre of possible functions. When we speak of artefacts, which is typical, the question is closely related to the individual object's history, i.e. why it was made, why our family has this object at all. There must be a reason that it was made, and that we have it. The object has "a secret", and the adult or older child has the key. The infant not only directs his or her attention towards the object's affordances, e.g. that the cup can serve as a toy, which could be called its *subjective meaning*, but also towards its *objective meaning*, its "reason". In fact the word "cup" is linked to the objective meaning and not the subjective. Thus a society with objective meanings is a precondition for language, and on the other hand language is a vehicle for communicating and securing objective meanings in the individual mind and in society. This is why "labelling" is so strong a facilitator for learning through shared attention, as shown in Kingo's article (p. 12). Only objective meanings with a linguistic label deserves the nomination as concepts. This solves the problems of the concept of concept across the different contexts of discourse.

It should be noted, however, that the concept of objective meaning is broader than the examples given here. In a societal frame of reference also natural kinds as trees, cats and stones, and even properties as colours and forms, become embedded in the web of objective meanings and are labelled linguistically. Some natural kinds as e.g. the chemical elements can only be conceptualised as objective meaning in an advanced societal and scientific context. And of course language also serves functions which are not conceptual in the present sense, e.g. syntactical functions and proper names denoting particular persons, places etc.

But common to all concepts and objective meanings is that they can't be innate. This is ruled out by definition. Categories can be innate, on the other hand, and in all species, including humans, a lot of them are without doubt innate.

Another crucial example of objective meaning is objects' "belonging", i.e. who owns them. Very early the young child has to learn that some toys are his or her own ("mine!!") and other toys are the older siblings'. As any parent will know it is

not always easy to learn the distinction between subjective and objective meaning in cases where the last restricts the first. It is easier the other way round. There are severe restrictions on what you can do with other people's belongings, and we all have to learn it. Ownership are lasting and objective relations, but in most cases invisible. The key to ownership lies in the history of the individual objects. Can it be traced back to some act of transfer or acquisition? As with normative function also ownership is an objective meaning rooted in a common history which is not immediately visible, but has to be acknowledged. Thus the child's attention towards objective meaning is in a sense an attention towards the world's historical "deep structure", and again only its fellow human beings have the key.

Both normative function and ownership as examples of objective meaning relate to objects' origin, their history of production and acquisition. An as the case of ownership demonstrates convincingly it is a question of the individual object's history or "trajectory" in space and time. The perceptual and functional properties of the object can change with time, that does not in itself change its objective meaning. Another object can have the same perceptual properties as the gift I got from my wife years ago. That does not change the relations of ownership. Both ownership and normative function are linked to the concrete, individual, numerical identical object, not to its perceptual or functional properties. So objective meaning cannot just be linked to objects' perceptual properties if it shall be appropriated by the child. The child must have some sense for objects' numerical identity separate from its properties or qualitative identity, in philosophical terms. This sense must be a necessary cognitive condition for appropriation of objective meaning, not the only one, and of course neither a sufficient condition (Mammen, 1993; 2002). The sense for numerical identity is also a sense for the object being the same although you may re-classify it in terms of conceptual context. This gives human cognition a flexibility far beyond any other species'. The sense for numerical identity enables you to identify the same object although it has changed its properties, thus giving insight in dynamic properties of nature, a prerequisite for all science.

My guess is that this sense for numerical identity is species-specific for humans. There may be some corner of it in other species in narrow domains with strong subjective meaning, but as a general capacity in relation to all kinds of objects it seems to be specific human. However this is an interesting field of future research.

In fact Kingo also focuses on numerical identity of objects when investigating object individuation experimentally. However object individuation is not in itself the crucial concept in the article. Object individuation is rather a vehicle for investigating the percept-concept controversy. And it is claimed that object individuation studies broaden the experimental context for this controversy. This is true. It would also broaden the experimental context to include studies of perceptual discrimination and generalisation in a classical conditioning context revealing the dominating dimensions and the structure of neighbourhood relations in the infant's category space at different ages. This would also be suitable for species comparative studies.

Perhaps this and other expansions of the experimental field will find signs of qualitative leaps in childrens' cognitive development, e.g. in relation to language acquisition. Kingo's article and the proposed experiments are very fruitful and inventive for this purpose and without doubt a step forward in this line of research. But whether these and other experiments will clarify the perception-conception controversy depends on the prior analysis of what role a concept of concept should play theoretically in relation to the philosophical, ontogenetic, phylogenetic, comparative and sociogenetic questions. If you cannot put a clear question it is not easy to get a clear answer.

References

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