

Conceptions of Concepts: Frege vs Lakoff/Johnson, are they reconcilable?*

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Abstract

This keynote abstract presents the definitions of Fregean concepts and the concept by Johnson and Lakoff and discusses their conceptual relationship.

1. Conceptions of Concepts

Although, in ordinary conversation, we talk about concepts without feeling any need to define what they are, many philosophers and scientists have tried to give precise explanations of their nature. But such explanations vary greatly in what they say or imply regarding what is referred to by the word ‘concept’. In other words, there are many different conceptions of concepts.

Conceptions may differ not just with respect to the qualities and relationships attributed to concepts, but even with regard to the kind of entity they are, their fundamental ontology or mode of existence. The following list characterises (not exhaustively) a range of distinct conceptions of the ontological status of concepts. According to various prominent viewpoints it has been suggested or implied that concepts are:

- abstract entities with eternal existence (*platonic* entities or ‘forms’, perhaps similar to numbers),
- abstract entities but dependent on a particular society and/or language,
- abstract entities but dependent on particular humans for existence,
- linguistic entities — a way of talking about a word in relation to its meaning rather than physical expression and with ambiguity removed,
- mental entities dependent upon but not directly identified with physical properties of the brain. (The philosophical position that mental entities such as concepts are *supervenient* upon brain states),

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- mental entities that correspond directly to physical material or structures or processes in the brain,
- mental entities that are formed from the interaction between an (embodied) agent and its environment.

Much analysis could be carried out clarifying, refining and contrasting the variety of conceptualisations of concepts. Although such meta-level considerations may seem abstruse to some, I believe that they are necessary if one wishes to integrate the insights of diverse modes of investigation.

2. Frege vs Lakoff/Johnson

Two of the most distinct notions of concepts are those associated with the logician Gottlob Frege [1, 2, 3, 4] and with the cognitive scientists George Lakoff and Mark Johnson [5, 6, 7].¹ In this talk, I shall consider how they differ and whether they could be reconciled.

Oppositions between fundamental characteristics attributed to concepts according to their views are summarised in the following table:

	Frege	Lakoff/Johnson
Ontological Status	Abstract/Platonic	Mental/Embodied
Mutability	Precise/Rigid	Loose/Flexible
Role in Reasoning	Logical	Metaphorical

2.1. Fregean Concepts

For Frege (see e.g. [8]), a concept is certainly not something that is manifest either within a brain or within a mind. It does not have any physical manifestation and is not dependent on any mind (or group of minds) for its existence. Frege believed that the same abstract concept can be 'grasped' by different intelligent agents on different occasions. And this sharing of concepts does not depend on communication; rather, it is the other way around: communication is only possible because agents can grasp the same concepts.

Frege also believed that every concept has precise criteria of membership. He argued that it would not be possible to share and make effective use of concepts unless they were precise. If concepts were vague or variable this would mean that proofs, which always involve multiple references to the same concept would be unreliable. This would be especially problematic in cases where concepts were applied to information coming from different sources, since consistent use of the concepts would require consistent criteria for the application.

¹It is a simplification to assume that Lakoff and Johnson always express a single view. But I believe this is reasonable given the course granularity of the current discussion.

A final aspect of Frege's conception of concepts, that is very important to note, is his view that concepts are only indirectly and imperfectly correlated with human words and ideas. Although we 'grasp' concepts that are precise and eternal, our means of grasping by means of words and ideas is far from perfect.

2.2. Concepts according to Lakoff and Johnson

Given the context of the talk (*Image Schema Day*), a detailed exposition of the views of Lakoff and Johnson would be out of place. Suffice it to say, they vigorously expound the idea that thought and the concepts it employ arise from the embodied interaction between an agent and its environment. They suggest that conceptual primitives ('image schemas') arise from significant regularities of embodied perception; and, from these basic constituents, concepts are developed and manipulated by means of principles they describe as based on *metaphor*. For example, a basic notion of 'container' can form a semantic ingredient of higher-level concepts such as 'jug' and 'jail'.

For Lakoff and Johnson, both basic image schemas and the higher-level concepts derived from them are considered to be malleable, open ended and applicable to many purposes. They are also subject to many influences and can have diverse connotations dependent on context or purpose. In this respect they differ significantly from Frege's precise platonic concepts.

2.3. Supposed implausibility of Fregean concepts

As emphasised in several works of Lakoff and Johnson, there are several respects in which the Fregean conception of concepts may be questioned and doubted:

1. The concepts that we humans use, seem to be far from precise.
2. The notion of abstract concepts that are grasped (imperfectly) by humans is not compatible with modern (materialist) science.
3. Certain ways of using and combining concepts in natural languages seem to be hard to explain in terms of Fregean concepts.

2.4. The Power of Fregean Concepts

Despite the concerns raised in the previous section, it must be admitted that Frege created an extremely powerful and robust apparatus for carrying out logical inference [1]. Moreover, in writing about the principles and methodology by which he created his logical system, Frege vociferously insists that his analysis of the nature of concepts plays an essential and foundational role.

Although Frege thought that predicates must correspond to precise concepts in order for his system to work, this is a somewhat over-strict requirement. The actual requirement is that the applicability of each predicate (that is whether it applies or does not apply to any given object) is consistent across all occurrences of the predicate within a given reasoning context (e.g. in all the assumptions and derived formulae that constitute a particular proof). We would certainly expect a completely precise concept to have consistent criteria of applicability. But

the robustness of logical reasoning arises because we consider an argument correct if it would hold under *any* precise specification of predicate meanings. We do not actually have to fix a particular precise meaning of the predicates or even assume that there is a single precise meaning. It is enough to convince us if we can see that under any precise interpretation the inference would follow.²

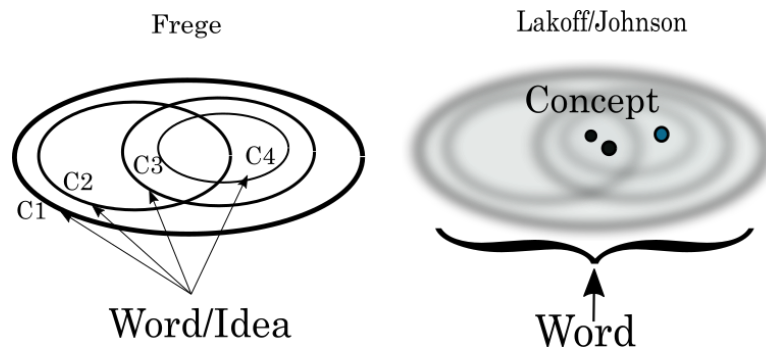
3. Ambiguity and Conflict Resolution

Given the stark differences and outright contradictions between Frege's and Lakoff/Johnson's views of concepts, it may seem unlikely that they could be reconciled and assimilated within a more general understanding. Yet we have already considered a phenomenon that can often explain different viewpoints: the indeterminacy of a word in relation to its meaning.

(In my keynote talk I presented various approaches that have been taken to explaining semantic indeterminacy ranging from Wittgenstein's notion of *family resemblance* [9] to Fine's *supervaluation semantics* [10] and my *standpoint semantics* [11, 12]. I also gave illustrations taken from my work analysing common words describing spatial relationships, that in different contexts can correspond to many different precise definitions [13]. I have omitted this more general material from this abstract.)

3.1. Ambiguity of the word 'concept' and the location of semantic indeterminacy

How can we resolve Frege's claim that concepts are precise with Lakoff and Johnson's view that concepts are vague and flexible? Could it be explained by some form of ambiguity or indeterminism in the meaning of the word 'concept' itself? I think so.



Whereas Frege considers concepts to be possible precise referents of words or ideas, Lakoff and Johnson consider concepts to be 'mental' correlates of words (with the 'mental' for them being associated with perceptual patterns arising in embodied experience).

The figure on the left illustrates the Fregean view of indeterminacy of the meanings of words and the content of ideas. Here, C1, C2, C3 and C4 correspond to different precise concepts that could correspond to some word or idea. Since linguistic and mental entities can be imprecise

²This is closely related to the more widely recognised insight that the validity of an argument does not require that its assumptions are true. Validity just requires that *if* the assumptions are true then the conclusion must be true.

and indeterminate they may correspond to many different precise concepts. On the right we have the picture of the relation between words and concepts that seems to be assumed by Lakoff and Johnson. On this view it is the concept that is vague and indeterminate

The two explanations of the evident indeterminacy in the correspondence between words and ideas can be summarised by the following contrasting statements:

Frege: Words indeterminately denote precise concepts.

Lak/John: Words refer to indefinite concepts.

Yet another way of explaining the difference is to say that what Lakoff and Johnson call a 'concept', would be regarded by Frege as an 'idea' that is associated with cluster of precise concepts. Lakoff and Johnson do not really have a term for what Frege is calling a 'concept', but they might describe it as 'an artificially precise interpretation of a concept'.

3.2. Ambiguity of Ontological Status and Existence

In the previous section, I argued that an ambiguity in the meaning of 'concept' may explain opposing views as to whether concepts are indefinite or precise. However, one who accepts that argument may still consider that the Frege and Lakoff/Johnson views of concepts are irreconcilable, since they ascribe incompatible *ontological status* to the entities referred to as concepts. How can the word 'concept' be ambiguous in such a dramatic way as to refer to things that are as completely different as, on the one hand, platonic forms, and, on the other hand, patterns arising in the perceptions of embodied agents. Surely, if 'concept' has such distinct meanings, we would be aware of this ambiguity.

Surprising as it may seem, it is actually quite common for count noun words to exhibit quite radical polysemy with respect to the category of entity that they denote. This phenomenon is studied in relation to the phenomenon of *copredication* (see for example [14, 15, 16]), where a referent object appears to change its ontological type between different references within a sentence. Canonical examples are sentences such as: "The philosophy textbook is heavy but very interesting", where the book is first referred to in terms of its being a physical object and then in terms of its being an informational object. If such a transformation can take place for a seemingly straightforward noun like 'book', without drawing our attention, it is perhaps not so surprising that a referent object identified by the term 'concept' could in one context be interpreted as an abstract platonic form, and in another be interpreted as arising from patterns in embodied perception.

4. Conclusion

Frege regarded any psychological ideas about concepts as irrelevant to his study. Lakoff considered Frege's platonic view of concepts to be archaic and deeply misguided. But were they even talking about the same thing? For Frege's powerful logic to work at all, he must assume that each occurrence of the same predicate symbol denotes something that is associated with a precise, consistent membership function. He calls this abstract referent of the predicate symbol

a ‘concept’. Lakoff and Johnson, referring to the complex imprecise assemblage of associations and influences associated with words and ideas, also use the word ‘concept’. The word ‘concept’ is ambiguous in many ways.

References

- [1] G. Frege, *Begriffsschrift: eine der arithmetischen nachgebildete Formelsprache des reinen Denkens*, Halle, 1879.
- [2] P. Geach, M. Black, *Translations from the Philosophical Writings of Gottlob Frege*, Blackwell, Oxford, 1952.
- [3] P. Long, R. White, *Gottlob Frege: posthumous writings*, Blackwell, 1979.
- [4] M. Dummett, *Frege: philosophy of language*, Duckworth, London, 1973.
- [5] G. Lakoff, *Women, fire, and dangerous things: What categories reveal about the mind*, University of Chicago press, 2008.
- [6] G. Lakoff, M. Johnson, *Metaphors We Live By*, University of Chicago Press, Chicago, IL, 1980.
- [7] M. Johnson, *Embodied mind, meaning, and reason: How our bodies give rise to understanding*, University of Chicago Press, 2017.
- [8] G. Frege, *Über Begriff und Gegenstand*, *Vierteljahrsschrift für wissenschaftliche Philosophie* 16 (1892) 192–205. Reprinted in [2] as “Concept and Object”.
- [9] L. Wittgenstein, *Philosophical Investigations*, Blackwell, Oxford, 1953. Edited by G.E.M. Anscombe and R. Rhees.
- [10] K. Fine, *Vagueness, truth and logic*, *Synthese* 30 (1975) 263–300.
- [11] B. Bennett, *Standpoint semantics: a framework for formalising the variable meaning of vague terms*, in: P. Cintula, C. Fermüller, L. Godo, P. Hájek (Eds.), *Understanding Vagueness – Logical, Philosophical and Linguistic Perspectives*, *Studies in Logic*, College Publications, 2011, pp. 261–278.
- [12] L. Gómez Álvarez, B. Bennett, *Dealing with conceptual indeterminacy: A framework based on supervaluation semantics*, in: *Proceedings of the 3rd International Workshop on Ontology Modularity, Contextuality, and Evolution (WOMoCoE 2018) co-located with KR-2018*, CEUR-WS.org, 2018.
- [13] B. Bennett, C. Cialone, *Corpus guided sense cluster analysis: a methodology for ontology development (with examples from the spatial domain)*, in: P. Garbacz, O. Kutz (Eds.), *Formal Ontology in Information Systems, Proceedings of the Eighth International Conference (FOIS-2014)*, IOS Press, 2014.
- [14] A. Arapinis, L. Vieu, *A plea for complex categories in ontologies*, *Applied Ontology* 10 (2015) 285–296.
- [15] M. Gotham, *Composing criteria of individuation in copredication*, *Journal of Semantics* 34 (2017) 333–371.
- [16] B. Bennett, *Copredication and ontological mutability*, in: *Proceedings of the 2nd International Workshop on Knowledge Diversity (KoDis)*, collocated with KR-2023, 2023.