Word Meaning, Perceptual Roots: Grounding Philosophical Accounts of Common Nouns in Perception

Mai-Thi Ho

Department of Linguistics, McGill University

PHIL415: Philosophy of language

Professor Brendan Gillon

Abstract

What do common nouns like “cow” denote – a particular cow or a universal quality of cow-ness? This paper delves into the intricate theories of two ancient Indian philosophical schools - Nyaya and Mimamsa - by utilizing a conceptual metaphor approach. Inspired by Lakoff and Núñez's work, we bridge the gap between modern readers and ancient philosophers through the mapping of sensory experiences to abstract concepts. Through perceptual grounding, we explore the integration of Universal and Particular notions and the wholeness contributed by different schools of thought. Finally, this method sheds light on the potential of cognitive semantics.

1 Introduction

The puzzle of semantic understanding and linguistic ability has been tackled by philosophers and linguists alike, spanning thousands of years. Early exploration began in India around the 6th BCE with the Mimamsa Sutra and Gautama's *Nyaya Sutra* inaugurating the corresponding schools. From the Mimamsa school, further contributions were made by commentators Sabara and Kumarila; from the Nyaya school, by Uddyotakara. In recognition of the temporal and geographical gap between modern scholars and ancient Indian philosophers, I will use a conceptual metaphor as the method to bridge known and unknown concepts as well as to integrate seemingly incompatible claims. This conceptual metaphor method draws inspiration from Lakoff and Nunez's attempts to ground mathematics in the body in *Where Mathematics Comes From* (2000). This is achieved by setting up a source domain from which metaphorical expressions are drawn, and a target domain which represents the concepts we aim to understand. Following this, we construct mappings and relate the known and familiar (source domain) to the abstract and complex ideas of the target domain. In our case, we will establish mappings between perception as the source domain and the Mimamsa and Nyaya philosophy of language as the target domain. In addition, assuming the premise that human anatomy has not changed significantly in two-thousand-years, neuroscience will be used in support of this argument. For modern scholars, neuroscience provides the vocabulary to articulate parts of the human perceptual experience which might otherwise remain intuitions to astute minds of the past. I aim to ground both Mimamsa and Nyaya accounts of generic terms' meaning in perception, particularly vision. The discussion will begin with a presentation of the central metaphor story and modern neuroscience, serving as the source domain. Following this, I will ground *the universal* and *the particular*, two fundamental concepts, in perception, and proceed to mapping Mimamsa philosophy to *top-down processing* and Nyaya to *bottom-up processing*. Finally, I will evaluate the effectiveness of perceptual grounding by extending it to three aspects: explaining the differing notions of the individual, the various causes of recurrent cognition, and secondary meaning.

2 Background

Both Mimamsa and Nyaya schools distinguish the particular from the universal so, as a prerequisite, perceptual grounding must be able to capture this distinction. The particular and universal are grounded as perceiving the parts and cognizing the whole, respectively. The particular involves a unique individual localized in specific time and space, while the universal applies to different individuals across time and space. The first is obvious to our perception. We see objects and we act on specific, particular things. For the latter, universal requires going beyond the parts to grasp at the whole. The recognition of the parts as separate from the whole is further supported by the existence of disorders like visual agnosia.

In the central metaphor, one can see a dog and identify the key features but cannot name the animal, failing to recognize 'dogness.' Hence, it is the perception of the whole that connects, or gives rise to, a common cognition between different objects. In short, when looking at many mature green leaves from the same tree, we treat them as particulars if we pay attention to their individual differences, and as universals if we recognize their common qualities—being a leaf. With respect to terminology in the Indian traditions, *vyakti* means individual and belongs to the particular side. On the universal side, *jaati* means generic property or natural kind, and *aakrti* means shape, form, or generic property (Scharf 11).

School	Scholars (chronological)	Associated Terms
Mimamsa	Sabara, Kumarila	*vyakti*: individual *aakrti*: shape, generic property (=natural kind)
Nyaya	Gautama, Uddyotakara	*vyakti*: individual *aakrti*: shape *jaati*: generic property (=natural kind)

Table 1: Terms

3 Mimamsa Account

The Mimamsa account corresponds to top-down processing, claiming that a generic term denotes only the generic property (*aakrti*), which qualifies a particular individual directly or qualifies an individual by shape. As an example of applying the rule, the generic term "altar" in the phrase "one builds an altar" denotes only the generic property (*aakrti*) of "altar." From this notion, we qualify a particular object in the world to act on. The generic property of an altar comes before knowing an individual (*vyakti*), similarly to how top-down processing makes use of context and prior knowledge before "qualifying" an actual object in the world according to existing understanding. In the central metaphor, people walking dogs at the park predisposes us to interpret objects through preconceptions. When scanning the environment, we locate and "qualify" a potential candidate, a being of fluffy orange-brown fur and many other qualities matching our hunch of it being a dog. This initial cognition is evident by the desire to pet the animal. Continuing the metaphor, once we approach and observe the strange ears, a contradiction arises and it no longer qualifies as a dog. Then, by "impossibility," we only associate the being with a dog's shape, but not an individual dog (Scharf 261). The second part of the metaphor mirrors

Mimamsa's exceptional case—how to make sense of "falcon" in the phrase "one builds a falcon altar" where there is no individual falcon present. Thus, top-down processing may start with preconceptions from the mind, parallel to generic property, but still receive input from the environment in case of inconsistencies—similar to how impossibility would make a word denote a shape and not an individual. In the metaphor, the shapes and some features of a dog are registered in the mind, but one is well aware that there is no individual dog. While we compare Mimamsa reasoning to top-down processing, with respect to the bidirectionality of pathways, the Mimamsa account also uses bottom-up processing implicitly, for example, when picking out features of an object in the process of qualifying and realize what one assumed is a "dog" have abnormally sharp ears. However, explicitly and predominantly, the Mimamsa account most resembles top-down processing.

4 Nyaya Account

The Nyaya account corresponds to bottom-up processing: it is from the individual that one cognizes the form or generic property. While there are cases where words give knowledge of three components (*vyakti, aakrti, jaati*), often, a word denotes two elements, with one serving as the primary denotation and the other as secondary (Scharf 166). Consider the word "cow" in three distinct contexts: (1) "tie the cow" where all three components are present but *vyakti* is primary (2) "one should honor cows" with *jaati* as primary and *vyakti* as secondary and (3) "make cows consisting of flour" consists of form as primary and individual as secondary. Notably, the generic property is absent (Scharf 166-167). In the first two cases, all three components are present; in the last case, the *jaati* of cowness is absent. Invariably, an individual *vyakti* is involved, either as primary or secondary denotation. This agrees with bottom-up visual processing, as sensory input is received from the external world, enabling comprehension of the observed phenomenon. Curiously, in the second case, where the particular individual is secondary and the universal – in this case, the generic property – is primary, we arrive at a situation similar to top-down processing. The statement "one should honor cows" may apply to some individuals in that immediate environment, but as we continue our lives and encounter other cows, both the word "cows" and the sentence apply to cows in this new context as well. This parallels the bidirectionality of pathways. With regards to the final case, which contains the central metaphor, we initially notice (physical) features of this object. At first, the features correspond to the shape of a dog—the cognition registers the generic property of a dog. When one receives more information at a closer distance, it becomes clear that the animal is not a dog, and thus this information "blocks the inference" (Scharf 168) of dogness. Thus, it remains that there is an individual, which possesses the form of a dog, but there is no generic property of a dog. The perceptual reasoning closely parallels the analysis given by

Nyaya scholars. I shall note that while this perceptual grounding makes prominent the direction of knowledge from *vyakti* to *jaati* or *aakrti*, this directionality is interpreted from Gautama's definition. An individual is "the physical body" that houses "specific qualities" and a form "makes known the generic property and its indicatory marks" (Scharf 153)—which should be drawn from among the many specific qualities residing in the individual. Overall, the fact that an individual is always present makes the Nyaya account resemble bottom-up processing, but does not negate the possibility of a resemblance to top-down processing.

5 A Comparison of the Two Accounts

As top-down and bottom-up processing forms a seamless feedback loop, which permits visual perception, Nyaya and Mimamsa schools emphasize different aspects of semantic meaning. Their complementary approaches become even more evident in the difference in their notions of the individual (*vyakti*). Scharf notes one key difference between these philosophical doctrines is that where "Gautama calls a finite manifest substance an individual, Sabara only calls such a substance qualified by the denoted class property an individual" (259). Moreover, an individual is always involved in the Nyaya account, as Sabara allows for cognition of a word without "a real individual" (Scharf 257). While these definition choices appear to be contrasting, they become complementary when understood with the visual pathways. In our central metaphor, a Naiyayika could use the word "dog" for the unfamiliar being and asserts that an individual (*vyakti*) and form (aakrti) are present. Given that the unfamiliar being first evokes the impression of a dog, the term "dog" indicates that individual being. The form of a dog is present in that particular individual, but the generic property is absent, given that we later discover that it is not a dog. On the other hand, a Mimamsa scholar would use the word "dog" for the unfamiliar being and deny the presence of the individual, claiming that "dog" is used as a shape, indicating the properties of a dog. In short, we observe that to a Nyaya scholar, "the individual qualifies the form" (*aakrti*) (Scharf 188), while to Mimamsa scholar, the shape (*aakrti*) qualifies the individual. This difference in conceptualizing the individual (*vyakti*) aligns with each school's distinct role as mapped onto in visual processing. Thus the central metaphor grounds and unifies the notions of individual (*vyakti*) in both schools.

With regards to explaining different causes of recurrent cognition, perceptual grounding can distinguish between *aakrti* and *jaati*, but may struggle with words lacking a generic property (*jaati*) in the Nyaya conceptualization. In the Mimamsa tradition, distinguishing between generic property and shape is not a problem as the original text uses the word *aakrti* to mean both generic property and shape, and these two elements always occur together. For the Nyaya school, which is associated with bottom-up

processing, one would think that there is an individual (bottom) causing a certain cognition at the top – this cognition may be due to the presence of *jaati*, *aakrti* or neither. In perceptual terms, the form (*aakrti*) is solely visual, whereas *jaati* can draw from other perceptions like smell, taste, or the overall experience. A cow is not only a cow because of how it appears; it must perceptually *feel* like a cow when one touches it, hears the sound it makes, or interacts with it. When an object such as a clay cow only possesses the rough visual of a cow but lacks other perceptual qualities, we conclude that form is present but *jaati* is not. Hence, perceptual grounding succeeds at distinguishing *aakrti* and *jaati*, identifying how different elements in the target domain come from different elements in the source domain. However, *aakrti* and *jaati* are not the only cause of recurrent cognition. In Uddyotakara's example of 'the cook', there is no *jaati* ("cook") but the recurrent cognition arises out of "the action of cooking and relation of agency" (Scharf 155-161). It is worth noting that the cook example is different from the word 'cow' in the example "clay cow". There is a *jaati* connected with the word cow, however, in the case of this sentence, the *jaati* is absent as the inference has been blocked. However, in the word 'cook,' there is no *jaati* to begin with. The question remains: how does perceptual grounding distinguish between these two cases. On the one hand, we can say that in the 'cook' example, *jaati* is absent but the form is present, allowing us to proceed with the same analysis as "clay cow". The form involves a person in a particular setting – namely, the kitchen. On the other hand, if we posit that both *aakrti* and *jaati* are absent, it is unclear how this recurrent cognition can be explained with the processing pathway in a different way from recurrent cognition due to *jaati* or *aakrti*. In short, perceptual grounding can account for the recurrent cognition with jaati and *aakrti*, but may need more refinement when it comes to words without generic property (*jaati*) like 'the cook.'

The central metaphor with the two pathways, top-down and bottom-up, extends to explain secondary meaning as being perceptually close, particularly in time and space. To avoid confusion, I will distinguish between secondary meaning, and secondary denotation which is part of the primary meaning in Nyaya discussions. Primary meaning refers to what a word directly makes known, while secondary meaning encompasses what a word does not literally denote but we still comprehend—such as metaphoric or metonymic expressions. In ordinary life, we frequently use a word "for that which it does not denote" (Scharf 178) and yet maintain mutual understanding. Among the examples Gautama provides, many use cases which evoke proximity in space: accompaniment as in "the platforms are shouting" where platform denote the people on it, proximity as in "the cows roam on the Ganges" where Ganges denote the riverbank, and presence, measure, or connection (Scharf 178-179). Other cases evoke proximity in progression of time, Gautama gives examples of being for that purpose as in "he makes mat" where the word "mat" refers to the reeds which are used to make a mat, or causation as in "life-breaths" instead of

food as one sees food as bringing out breaths of life. With respect to perception, a word's primary meaning directs our cognition to a specific object or feature in a certain situation, characterizing a scene. When another word is used for secondary meaning, what this word denotes is part of the scene – like the platform in the scene of people crowding on top of a platform. We arrive at a common understanding because the scene is maintained. This current discussion relies on visual perception, but one could easily incorporate other senses that evoke comparable experience to create secondary meaning. For example, one can use "strong winds" or "storm" to refer to "challenging times" since strong winds elicit external instability and hard times elicit internal instability.

6 Conclusion

In short, perceptual grounding highlights the complementary dynamic of the Mimamsa and Nyaya accounts of denotations of generic terms. The Mimamsa approach, corresponding to top down processing, emphasizes how *aakrti,* a universal, qualifies an individual, while the Nyaya perspective, aligning with bottom-up processing, traces universal understanding from individuals. Perceptual grounding demonstrates its explanatory power in unifying Mimamsa and Nyaya's notions of the particular individual – which may appear incompatible at first, but under the metaphorical lens are shown to contribute to their role within a broader system, similar to how top-down and bottom-up processing serve the function of vision. Still, further work is needed to fully ground the universal and the different causes of recurrent cognition. While *aakrti* and *jaati* are adequately distinguished, words not associated with a natural kind (*jaati*) are minimally explained. Finally, extending perceptual grounding to secondary meaning invites readers to imagine further possibilities of perceptual grounding, both within and beyond vision. Overall, the central metaphor takes advantage of perception being more fundamental than language—the most direct mode of knowledge through which we understand the world, even prior to words acquiring meaning. Given what Gödel's incompleteness theorem suggests about inherent limitations of formal systems (Raatikainen 2022) and the burgeoning field of cognitive semantics, fundamental sensory experiences, along with the conceptual metaphor method, may provide us with a more robust approach for discussing natural language than natural language alone – a potential we have only but glimpsed.

References

Britt, J. 2024. *Vision (part 1)*. *Introduction to Behavioral Neuroscience*.McGill University.

Lakoff, G., & Núñez, R. E. 2000. *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics Into Being*. Basic Books.

Raatikainen, P. 2022, Spring. *Gödel's Incompleteness Theorems*. In E. N. Zalta (Ed.),*The Stanford Encyclopedia of Philosophy*. Retrieved from https://plato.stanford.edu/archives/spr2022/entries/goedel-incompleteness

Scharf, P. 1996. *The Denotation of Generic Terms in Ancient Indian Philosophy: Grammar, Nyaya, and Mimamsa*. American Philosophical Society.