Putnam on Natural Kind Terms

Locke on real versus nominal essences

(Essay Concerning Human Understanding, Book III, Ch. III, 1689):

- A (supposed) *real* essence of a kind is a (possibly unknown or even unknowable) underlying feature from which the more easily known surface features of things of the kind flow.
- A *nominal* essence of a kind is a complex abstract idea that delimits the kind by the easily known features of its members.
- “a definition is best made by enumerating those simple ideas that are combined in the signification of the term defined”
- “That then which general words signify is a sort of things; and each of them does that, by being a sign of an abstract idea in the mind; to which idea, as things existing are found to agree, so they come to be ranked under that name, or, which is all one, be of that sort.”

Locke on real versus nominal essences

- “the supposed real essences of substances, if different from our abstract ideas, cannot be the essences of the species we rank things into. For two species may be one, as rationally as two different essences be the essence of one species: and I demand what are the alterations [which] may, or may not be made in a horse or lead, without making either of them to be of another species? In determining the species of things by our abstract ideas, this is easy to resolve: but if any one will regulate himself herein by supposed real essences, he will, I suppose, be at a loss: and he will never be able to know when anything precisely ceases to be of the species of a horse or lead.”

Locke on real versus nominal essences

- “Supposition, that species are distinguished by their real essences, useless. Concerning the real essences of corporeal substances (to mention these only) there are, if I mistake not, two opinions. The one is of those who, using the word essence for they know not what, suppose a certain number of those essences, according to which all natural things are made, and wherein they do exactly every one of them partake, and so become of this or that species. The other and more rational opinion is of those who look on all natural things to have a real, but unknown, constitution of their insensible parts; from which flow those sensible qualities which serve us to distinguish them one from another, according as we have occasion to rank them into sorts, under common denominations.”

Extension and intension of general terms

- The *extension* of a general term (adjective or predicate, say) is the set of things of which it is in fact true. “Has a heart” and “has a kidney” have the same extension.
- Traditional View of Intensions: The *intension* of a general term is something the grasping of which is secured by the psychology of each language user, and which moreover determines the term’s extension, in the sense that it settles which property is the necessary and sufficient condition for belonging to the term’s extension.

Extension and intension of general terms

- More Cautious View: Let's introduce two technical terms:
  - The *Psychological Intension* of a term, as used by agent A, is that aspect of its import that supervenes on A's psychological states. (No one could be a psychological duplicate of A without using that term with the same psychological intension.)
  - The *Extension-Determining Intension* of a term, as used by agent A, is the property P such that the things that the term (as A uses it) applies to as describing any possible world are exactly those things that, in that world, have P.
- Putnam's thesis, to put it in our terminology, is that the psychological intension of a term underdetermines its extension-determining intension.

A descriptional theory of the meanings of kind terms

- With a kind term K a speaker S associates a cluster C of properties (and so C is determined by the term's psychological intension).
- K applies to a thing (in any possible world) just in case it has a weighted most of the properties in C.
- It is a priori for S that "X is a K iff X has a weighted most of C".
- And S expresses a necessary truth with "X is a K iff X has a weighted most of C" (and so C determines the term's extension-determining Intension).

Kripke-style arguments against this theory

- Modal argument: surely it is possible that there be a thing which is in fact a tiger but is not striped, etc. (i.e., that for reasons of development or Martian pranksters lacks the stereotypical characteristics of tigers). So it is not necessary that “X is a K iff X has a weighted most of C”.
- Extension-fixing: Anaximander’s central beliefs about stars might be that they are holes in a sphere through which we see a brighter sphere. His *term* applies to stars, but his cluster doesn’t even approximately apply to anything. So it is not true that K applies to a thing just in case that thing has a weighted most of the properties in C.
- Epistemic: We could turn out to be mistaken that lemons are yellow, sour, and so on---it might be a trick being played by the Martians. So it is not a priori that X is a K iff X has a weighted most of C.

Twin Earth argument against this theory

- In 1700 Oscar knows only about surface features of water: clear, colorless, odorless, present in rain and rivers, etc. .
- On Twin Earth, Twoscar uses language in all “internal” respects identically to Oscar (same psychological intension).
- On Twin Earth, the thing with the surface features that water has on Earth is a substance with the chemical structure “XYZ” (it’s not H2O).
- Claim: If somehow Oscar encounters a sample of XYZ, he wouldn’t be able to tell it from water, but surely (intuition!) *it is not water*, and he’d speak falsely if he said “this is water”. (Same for Twoscar and H20.)

Conclusion: *Sample Dependence*

- “Water” is not defined (even in 1700) by its easily-known surface features: they do not give its extension-determining intension.
- The extension-determining intension is not settled by anything internal to Oscar’s psychology. What gives “water” different extensions for Oscar and Twoscar is nothing about what is in their minds, but rather something about their actual environments.
- What *does* determine the extension of “water,” as we use it, at any possible world, is the property of *consisting of H20*. That is the “real essence” of *encountered samples* of water defines what it is for something to *be* a sample of water.
- In this way, the kind term “water” exhibits *sample dependence*.
- Water is, as it were, *stuff of that kind*.

Indexicality and Sample Dependence

- David Kaplan (“On Demonstratives,” 1977/1989):
  - Words like *I, here, now, today,* and *this* (“indexicals”) are *context-sensitive*: they have stable *meanings* (“characters,” in his terminology) from utterance to utterance, but what they stand for (their “contents”) shifts from utterance to utterance.
  - Indeed what is constant (the character) is precisely the *rule* according to which the content is fixed by aspects of the utterance’s *context*: *I* stands for the speaker of the utterance, *here* for its location, *now* for its time, and *this* for what’s being “demonstrated.”

Indexicality and Sample Dependence

- See *these* samples? I shall use the term “water” to apply to whatever (in any world) has the deep explanatory nature (as Locke would have put it, the “real essence”) that they actually share.
- Oscar and Twoscar, then, mean the same thing by ‘water’ *in one sense* (same *character*, because same *psychological intension*) but not in another (different *content*, because different *extension-determining intention*), just as two people who use the word “here” in different contexts mean the same thing in one sense (*character*) and don’t mean the same thing in another (*content*). Their words share an indexical character but differ in semantic content.

Indexicality and Sample Dependence

- Worry: is it defensible that “water” is used with *the same* indexical-like meaning by different speakers who are not as psychologically similar as Oscar and Twoscar? If not, isn’t that a big difference between “water” and “today”?

Division of Linguistic Labor

- Putnam uses “elm” and “beech” with different intensions/extensions even though he knows nothing (besides the names) that distinguishes the kinds. His use defers to others more knowledgeable than he.
- This deferential phenomenon doesn’t apply only to natural kind terms (and proper names). Tyler Burge’s example (“Individualism and the Mental,” 1979): Ralph tells the doctor (falsely) that he has arthritis in his thigh. His use of “arthritis” is deferential, and it picks up *as he uses the term* the socially-determined, ‘ambient’ meaning of *inflammation of the joints* despite his semantic ignorance.

Semantic Externalism and Narrow Content

- Both sample dependence and deference are ways in which the import/meaning/content of a kind term might be determined partly by factors *external* to a given user of the term. “Meaning ain’t in the head” -- content does not supervene on what goes on in the brain.
- “Narrow Content” theorists agree with this, but hold that there is another important aspect of meaning (what we’ve been calling *psychological intension*) that *is* fully determined by factors *internal* to a language user.
    - Putnam’s suggestion about indexicality is a version of this idea.
    - Analogous to Frege’s sense/reference distinction, with the difference that for Putnam *extension-determining intensions*, rather than extensions themselves, serve as the “nominata.”

Scientific realism and scientific progress

Scientific Realism (Putnam, Boyd, etc.):

- Because their significance “defers to nature” in this way, terms in science typically pick out real kinds (despite our theories often being significantly false). *Securing a subject matter* to talk about can precede having a true theory about it.
- Science often progresses by our developing better theories of a constant subject matter (contra Kuhn, who takes theory change to change the subject matter itself, so there is no “progress” in understanding any particular, constant subject matter).

Putnam vs. Locke

- Distinguish two Putnamian theses:
  - It is coherent for there to be kind terms which, due to semantic externalism, stand for real, unknown essences. And so Locke’s arguments are mistaken.
  - Many actual kind terms semantically work that way, in particular, Putnam’s favorite examples of “gold,” “elephant,” “lightning.”

Problems, issues

- Is Putnam right about the crucial intuitions (e.g., for Oscar, XYZ does not count as “water”)? Are the facts about what literally counts, in 1750 as “water”, as clear as Putnam assumes?
- To what terms is the theory supposed to apply? What *makes* it apply, when it does? Is it settled by our intentions/conventions for using the term, our dispositions to apply it in various ways given various discoveries, or what?
- Putnam: even “pencil” could turn out to name a natural kind---perhaps, a strange species of snake! Others: maybe moral terms like “right” are natural kind terms; maybe “cause” is; maybe “free will” is; maybe “red” is; maybe “pain,” “knowledge,” “beautiful.” What about terms for races, genders, and sexual-orientation categories? (When a philosopher has a hammer . . .)

Problems, issues

- How do deference and sample-dependence interact? How is it settled *whose* selection of samples is authoritative? Are “experts” completely non-deferential, or are even they fallible in their expertise about samples (and if so, what fixes what counts as correct sample-identification)?
- Suppose that there are no actual samples (it’s a myth or an illusion or whatever, that there are samples); e.g., “unicorn”. Does the account predict that no intension is determined (or perhaps just a necessarily empty one)? So says Kripke. Is this plausible? (Dummett, in “Could there be Unicorns?”, argues not. Good topic for a paper, by the way.)

Problems, issues

- Suppose there's no single natural kind that unites the samples (perhaps there are two, as in the case of "jade" and "fish", or perhaps a greater heterogeneity). Does the account predict that we'll say "there's no such thing as" that kind, or what? What do we in fact say in such cases? Is there only one correct thing to say? How can we tell a reasonable *new* convention settling such an issue in the light of new knowledge from facts about what the existing conventions prepared us for? (Consider, e.g., "fish," "jade," "dust.")
- Putnam writes (710): It should be clear, however, that Kripke's doctrine that natural-kind words are rigid designators and our doctrine that they are indexical are but two ways of making the same point." Is he right about this? What, precisely, would it mean to say that a kind term is a rigid designator, given that it doesn't refer to a thing in the first place?

Problems, issues

- Is it true that scientific progress demands, or is importantly helped by, having terms with constant import across improvements in theory?