Great advances are being made in linguistics in our understanding of the basic syntax of language.

But semantics lags far behind.

The reason is that the pre-scientific concept of meaning is “in much worse shape” (216) than the pre-scientific concept of syntax.

The problem with the pre-scientific concept of meaning is not clarified by nominalism or skepticism about whether meanings exist.

It lies in fundamental misconceptions about what meaning is.

The investigation of the problem will take place at the level of word-meaning rather than sentence-meaning.

It has been customary in semantics since the Middle Ages to claim that there is an ambiguity in the ordinary concept of meaning.

Extension,

Intension

The extension of a term (e.g., ‘rabbit’) is supposed to be the set of all things to which ‘rabbit’ truly applies.

This notion of extension is actually too precise, due to ambiguity, vagueness, etc.

If extension is the same as meaning, then there must be another sense of meaning to distinguish the meanings of co-extensive terms, perhaps:

Creature with a heart,

Creature with a kidney.

The feature beyond the extension that distinguishes them is called the intension.
Two Traditional Assumptions About Meanings

- Extension is taken to be a kind of meaning because it can be made precise, while intension cannot.
- The problem with intension is that it is understood in terms of concepts, which was thought by traditional semanticists to imply that they are mental entities.
- Frege and Carnap reject this psychologism, holding that concepts are public and graspable by more than one person.
- The first assumption is that, since grasping a concept is a mental act, understanding a word comes down to being in a certain psychological state.
- A second assumption about meaning is that the same intension always carries with it the same extension.
- Putnam’s argument will be that no notion, let alone a notion of meaning, satisfies these two conditions.

Psychological States

- In science, a state is a property of a thing in terms of some branch of science.
  - Being five feet tall, from the standpoint of physics,
  - Being in pain, from the standpoint of mentalistic psychology,
  - Knowing the alphabet, (perhaps) from the standpoint of cognitive psychology.
- *Knowing the meaning of the word ‘water’* is a psychological state in this (wide) sense, but not in the traditional sense.
- The traditional (narrow) sense of “psychological state” is based on the assumption of methodological solipsism, under which the state requires nothing more than a mind in order to exist.
- The mentalistic program assuming methodological solipsism is a failure, which casts doubt on the usefulness of the narrow sense of a psychological state.

A Consequence of the Two Traditional Assumptions

- Given the first assumption, *knowing the meaning of A* and *knowing the meaning of B* are narrow psychological states.
- More specifically, the psychological states are of *knowing what the intension of A is* and of *knowing what the intension of B is* are narrow on the first assumption.
- Given the second assumption, the extensions of A and B follow from the intensions of A and B.
• So, if the extensions of \( A \) and \( B \) are different, then the intensions of \( A \) and \( B \) are different.

• So, the narrow psychological state of knowing what the intension of \( A \) is is different from the state of knowing what the intension of \( B \) is.

• So, the narrow psychological state of knowing the meaning of \( A \) is different from that of knowing the meaning of \( B \).

Putnam’s Thesis

• The consequence that meanings of terms with different extensions requires different narrow psychological states will be rejected by Putnam.

• Speakers in two possible worlds can be in the same psychological state with respect to a term \( A \) which has distinct extensions at those worlds.

• “Extension is not determined by psychological state” (222).

• This requires the rejection of one of the two assumptions.
  – The narrow psychological state determines intension,
  – Intension determines extension.

• These two alternatives will be considered later.

Twin Earth

• Putnam will give “science-fiction” examples involving Earth and a “twin” planet somewhere else in the Milky Way.

• Twin Earth is very much like Earth, including the fact that its speakers speak English.

• One difference between the two is that what is called ‘water’ is not \( \text{H}_2\text{O} \), but a different chemical whose composition will be abbreviated as ‘\( \text{XYZ} \).’

• \( \text{XYZ} \) is perceptually and behaviorally indistinguishable from water.

Same State, Different Meaning

• A traveler from Earth, upon investigation, would report that on Twin Earth ‘water’ means (i.e., has the extension) \( \text{XYZ} \).

• Conversely, a traveler from (to us) Twin Earth would report that on (to him) Twin Earth ‘water’ means \( \text{H}_2\text{O} \).

• In 1750, before the advent of modern chemistry (on both planets), the Earthian Oscar\(_1\) and his counterpart the Twin Earthian Oscar\(_2\) have exactly the same experiences of and beliefs about water.
Although they have the same narrow psychological state, the extension of ‘water’ is different, in a way that they were in no position to discover.

So, “the extension of the term ‘water’ . . . is not a function of the psychological state of the speaker by itself.”

A Division of Linguistic Labor

• The key point in the preceding case is that someone can know the meaning of a term without being able to fix the extension of the term.
• Putnam hypothesizes that the role of determining the extension in developed languages is left up to experts.
• This accounts for the fact that meaning of a term is not “in the head” (at least of the average user).
• Meaning is a function of social interaction between average persons and experts (such as chemists) who are able to determine extensions.
• Language has been thought of as if it were a tool that can be used by a single person (a hammer) rather than one that requires social cooperation (a steam engine).

Stereotypes

• There are two obvious ways of telling what someone using a natural kind term like ‘water’ means:
  – “Ostensive definition,” pointing at an instance and saying, “This is water;”
  – Giving a description.
• A description consists of two elements:
  – A marker, which says what type of thing it is (liquid),
  – A cluster of stereotypical features in addition to the marker.
• The stereotypical features sometimes are not sufficient for distinguishing one kind from another.
  – An elm is a common deciduous tree, as is a beech.
• The connection is that the ostensive definition is the basis for determining the stereotype.
Indexicality

- Natural kind terms like ‘water’ function as what Kripke called “rigid designators.”
- The extension of the term ‘water’ as used by inhabitants of Earth is determined by their relation to a liquid to which they can point on their planet.
- If that liquid turns out to be H$_2$O, then nothing that is not H$_2$O can be in the extension of ‘water.’
- Thus the extension of natural kind terms is determined in the same way as the extension of “indexical” terms such as ‘I.’
- Once ‘I’ is used to indicate myself, then nothing else that might be called ‘I’ by another is in the extension of ‘I.’
- Given the assumption that intensions determine extensions, natural kind terms, like indexicals, do not have intensions independently of the context in which their references are fixed.

Realism and Anti-Realism in Semantics

- In “operationalist” semantics, the meaning of a term is given by an “operational definition” or set of conditions for determining whether something is in its extension.
- Suppose that we understand the nature of gold in terms of a molecular structure of a kind that could not have been known by Archimedes in ancient Greece.
- If Archimedes applied an operational definition of ‘chrusos’ to a metal that does not have that property, that metal is not gold because it lacks the nature of gold.
- The operationalist might object to this claim on the grounds that nobody has the right to say that Archimedes was wrong.
- But such anti-realism undermines the notion of truth and along with it the notion of extension (that of which a term is true).

Hidden Structure

- Natural kind terms, like ‘water,’ typically have a number of senses.
  - Chemically pure water, vs. impure water,
  - Being H$_2$O, vs. being used in a certain way,
  - Being liquid, vs. being a single molecule of H$_2$O.
- Which sense we use in a given context depends on what is important to our interests.
• Normally, the hidden structure of a thing (its elemental materials and their arrangement) are the most important, but there can be variations.

• In cases like that of ‘jade,’ the superficial characteristics are indispensable, since it applies to two different minerals (jadeite and nephrite) with the same appearance.

• With ‘water,’ there is only one structure, and it determines what is the extension of the term in all possible worlds.

Fixing the Extension

• The extension of a term is not fixed by a concept that someone has in his head.

• Rather, it is fixed by the actual nature of particular things which serve as paradigms.
  – The nature of water determines the extension of ‘water.’

• Generally, the nature is a hidden structure that ordinarily is not fully known to the speaker (and therefore not ‘in his head’ when he uses the term).

• If an individual speaker’s concept (which is based on stereotypes) is the meaning of a given term, then meaning does not determine extension.

Why Meaning Determines Extension

• In the case of absolutely indexical words like ‘I,’ it reasonable to give up the thesis that meaning determines extension.
  – We know what ‘I’ means, but its extension varies depending on who uses it.

• The extensions of natural kind terms do not vary in this way.

• What determines the meaning of the terms is the ostensive relation of speakers to objects in its extension.
  – The meaning of ‘elm’ (on Earth), including its stereotype, comes to be in a social context of pointing out specific trees.

• So meaning determines extension, “by construction, so to speak” (270).

The Components of Meaning

• Putnam’s theory of meaning contains four components, illustrated by the example of ‘water.’
  – Syntactic markers, having to do with the role the word plays in language (mass noun, concrete),
Semantic markers, central to stereotypes, very hard to give up (natural kind, liquid).

Stereotypes, typical features (colorless, transparent, tasteless, thirst-quenching).

Extension, the set of things to which the term refers (the scattered object composed of H₂O).

Linguistic competence is based only on the first three components, due to the fact that determining the extension often requires expertise beyond the recognition of stereotypes.

**Meaning and Analyticity**

- Quine’s arguments against the view that some sentences are analytic, true by virtue of meaning, do not threaten Putnam’s account of meaning.

- In fact, Quine has done a good thing in exploding claims to analyticity, because they merely cover up philosophers’ failures to show why the ‘analytic’ sentences are true.

- On Putnam’s view, it is possible for some feature of a stereotype to be part of the meaning of a natural kind term without that term’s being analytic.
  
  - Being striped is part of the meaning of ‘tiger,’ as it is one of the stereotypical features of tigers.
  
  - But this feature could be dropped, say if through mutation all tigers were to become albinos.
  
  - Even ‘All tigers are animals’ could be rejected if, say, it were discovered that tigers have always been robots.

- “Analyticity” is a confused way of describing “centrality.”

**“California Semantics”**

- Carnap, who at the time was a professor at UCLA, had a formal approach to semantical theory, which will be called more generally “California semantics.”

- The meaning of a term is identified with the intension.

- The intension is then identified with a formal object, such as a function from possible worlds to sets of objects at those worlds.

- Then the extension of a term at a world is determined by the intension.

- A term has meaning for a speaker just in case the speaker associates it with an intension.
Criticism of “California Semantics”

- It is not realistic to suppose that in understanding the meaning of a term, a speaker associates it with a formal object such as a function.
- This doctrine may be a vestige of verificationism: to “grasp” an intension is to be able to verify whether an entity in a possible world belongs to the value of the function in that world.
- But this claim implies that meaning is “in the head,” a thesis that has already been discredited.
- Further, the account of intensions disregards the indexical and social character of meaning.

The Utility of “California Semantics”

- It might still be held that “California semantics” correctly describes meaning in an ideal language.
- There would be no need for a division of linguistic labor, in that everyone would be an expert who could determine the extension from the intension.
- Putnam questions what relevance such an ideal language has to human language, when it lacks one of its defining features.
- There is some hope, though, since indexical and social features might be built into the definition of an intension.
- David Lewis does this in a way that intension does not determine extension.
- Such formal models may be of value, but the criticism above is directed at “the philosophy of language underlying the earlier versions of the view” (266).