Class 25 - The New Intensionalism
Katz, "Introduction" and "Sense"

I. Katz's Project

The assigned readings for this class are the introduction and first chapter of Jerrold Katz's last book,
Sense, Reference, and Philosophy (SRP).
Katz was probably the most important defender of both rationalism and platonism in linguistics in the latter part of the twentieth century.
He also defended platonism in mathematics, the view that the abstract objects of mathematics exist.
Katz had been a young colleague of Noam Chomsky's, at MIT, before moving to CUNY, where he was my dissertation adviser.

Chomsky promoted what has come to be called nativism in linguistics.
We will discuss Chomsky's nativism in our next class and for the rest of the term.
Nativism is the view that we are born with an innate capacity, or propensity, to learn languages.
This innate capacity can be represented by the theorems of a universal grammar (UG) that is built into our brains or genes.
Katz, taking Chomsky's conclusions one step further, argued that languages are abstract objects, and that our abilities to learn them are not based in their innateness in our brains or genes, but in our ability to reason about languages.
Chomsky's project appeals to physical structures in the brain to account for the nativism, but no special faculty of intuition.
Katz's project requires a special faculty of intuition, but makes no commitments to the physical basis of that faculty.

SRP is the culmination of a career's work developing a rationalist response to Frege.
Like Frege, Katz accepts the third-realm view of propositions and other abstract objects.
He is an intensionalist and so can appeal to senses to solve Frege's puzzles.
Unlike Frege, Katz fully distinguishes an autonomous theory of meaning from any theory of reference.
Sense does not, for Katz, determine reference; sense mediates reference.
The last chapter of SRP, which I did not assign, contains many examples of how Frege's view of sense and reference runs into difficulties, where Katz's new intensionalism does not.
To see, briefly, the difference between Fregean intensionalism and Katz's new version, consider the Twin Earth water case.
Putnam presented the problem as the incompatibility of the following three propositions:

> A. Our thoughts determine the meanings (senses) of our sentences.
> B. Sense determines reference.
> C. Reference can vary without variation in thought.

The Twin Earth example supports C: whether we are drinking water or twater depends on facts that are unavailable to us.
B defines the Fregean view.

Putnam rejects A and concludes that meanings are, in part, external to our thoughts.
In contrast, Katz argues that we can hold on to A and give up B instead.

Katz thus retains the connection between thought and meaning by weakening the connection between meaning and language.

Abandoning the Fregean view that sense determines reference defines Katz's project.
Katz argues that sense merely mediates reference.
For another example, consider Putnam's aluminum/molybdenum case or Kripke's Feynman case.
The sense properties of each are not sufficient to distinguish an extension.
Our understanding of 'aluminum', Putnam assumes, is not sufficient to distinguish it from other elements like molybdenum.
Our understanding of 'Feynman' can't, by itself, pick out one prominent physicist from a group.
Still, what we grasp, as the sense of those terms, constrains, in some ways, our abilities to pick out the objects.
We can not from the senses themselves determine the references of those terms.
The theory of reference will have to accommodate other factors in determining how we refer.
Among those factors will be the role of the community, the division of linguistic labor, and pragmatic considerations of communication.
Such factors are independent of the meanings of the terms, but relevant to our references.

II. The Thin Notion of Sense

Frege defined the sense of a term contextually, as whatever it is that we grasp that determines our reference.
The theory of reference, remember, is how language hooks on to the world and is essentially connected to truth (for sentence-sized portions of language) and designation (for names and such).
Frege's definition is accepted by most intensionalists and by most extensionalists.
As Katz describes the situation, Frege's definition of sense is a widely-shared dogma in the philosophy of language.

> Semantics with no treatment of truth conditions is not semantics (Lewis 1972: 169; cited in Katz *SRP* 5).

Katz defines sense as that which determines intensional properties.

> D   Sense is that aspect of the grammatical structure of sentences that is responsible for their sense properties and relations (e.g. meaningfulness, meaninglessness, ambiguity, synonymy, redundancy, and antonymy).

Once we give up the Fregean requirement that sense determines reference, we are free to define sense autonomously in terms of sense properties themselves.
Senses are, for Katz, entirely defined by their intensional properties, rather than by their referential properties.

Defining senses according to intensional properties means that D violates a general anti-circularity condition on definition.
It is ordinarily considered fallacious, or at least empty, to define a term circularly, as in L.

L₁   Logic is the study of argument.
L₂   Arguments are subjects of logic.

In semantic theory, D seems to commit the same error.
Recall Quine's argument in "Two Dogmas" against semantic circularity.
Quine noticed that we could define the analyticity of B_1 by invoking B_2.

B_1 All bachelors are unmarried.
B_2 Necessarily, bachelors are unmarried men.

But, he argued that such a definition was unacceptable because it explained one intensional idiom (synonymy/analyticity) in terms of another (modality).
Such circular definitions do not reduce the intensional to the extensional as Quine demanded.

> Our argument is not flatly circular, but something like it. It has the form, figuratively speaking, of a closed curve in space (Quine, "Two Dogmas of Empiricism", 160).

I mentioned earlier in the term that we would examine a distinction between virtuous and vicious circles.
Katz uses D as a central claim in a set of inter-theoretically linked intensional terms.
He believes that we can justify the whole group by appealing to their systematic virtues for the intensional idioms themselves.
L is viciously circular only because the circle is so small.
Katz believes that a larger circle, one which includes definitions of synonymy, antonymy, analyticity, syntheticity, necessity, and possibility would be virtuous in demonstrating the connections among myriad intensional concepts.
D thus characterizes is a thin notion of sense.
It works only on the intensional level, as opposed to a thick, Fregean notion of sense, which reaches all the way to the level of reference.

Katz argues that the circularity of D is not a problem, since it is a theoretic definition.
We accept theoretical definitions on the basis of the whole theory they yield, rather than on the basis of a reductive explication.
Consider the definition of logical consequence, as following (from axioms, or other premises) according to prescribed rules of inference.
We define the rules of inference in terms of the consequences they yield, and we define logical consequence in terms of the rules of inference.
Then, we look at the entire logical theory to see whether it is all acceptable.

> In grammars conceived of as hypothetico-deductive systems, there is nothing circular about axiomatically defining the members of a family of linguistic concepts with respect to one another, since the axiomatically expressed relations among the members reveal their interconnections. There is nothing arbitrary either, since the axioms can be judged in terms of whether their consequences are confirmed by the linguistic facts...D is a theoretical definition. In using concepts belonging to the same family as the definiendum, D specifies the part of grammatical structure which is sense structure. This general specification of sense is fleshed out in the process of mutually adjusting definitions of sense properties and relations to representations of sense structure in the process of accounting for instances of such properties and relations of expressions and sentences in the language ("The New Intensionalism" 698-9).

In our selection, Katz points out that if we rule out defining sense in terms of sense properties, then we would have to rule out defining logical consequence in terms of its logical properties.
Quine's arguments against the autonomy of sense would boomerang on his defense of logical truth.

> Such an argument would readily translate into an argument against autonomy in the cases of the mathematical, logical and linguistic concepts. Conversely, if autonomy is acceptable in these subjects, there is a prima facie case for the autonomy of the theory of sense. Autonomy rests on the same thing in the theory of sense as in theories in mathematics, logic and linguistics: axiomatization that explains concepts non-reductively in terms of a systematization of the structure of objects in the domain. This rationale carries over to the theory of meaning so long as it is reasonable to suppose that an explanation of sense concepts can take the form of an axiomatic systematization of the sense structure of sentences (*SRP* 18-19).

For Katz, senses, while thin, are both compositional and decompositional.
We start with the senses of morphemes, which, along with idioms, are the atomic particles of the language.
The senses of larger expressions are composed of the senses of their component parts.
We posit decompositional sense structure of the morphemes as an inference to the best explanation of the sense properties of larger expressions.
For example, we posit senses to explain the ambiguity of the main clauses of RG_1 and RG_2.

> RG_1 I never repeat gossip, so ask someone else.
> RG_2 I never repeat gossip, so listen carefully (*SRP* 33).

The evidence to which we appeal in ascribing senses is purely linguistic, rather than referential.

III. Rehabilitating Analyticity

Analyticity was a central concept in philosophy long before the language revolution.
Leibniz and Hume invoked, to different ends, the principle of non-contradiction and conceptual containment.
Leibniz calls the principle of contradiction one of the two great principles of his philosophical system.
Hume characterizes relations of ideas as those claims whose negations entail contradictions.
Contradictions are discovered by the analysis of their core concepts.
Kant's dissatisfaction with Hume's use of analyticity is the foundation of his work.
He motivated the *Critique of Pure Reason* by wondering about the possibility of synthetic *a priori* propositions, including most mathematical sentences.

Frege distinguished two forms of analyticity, two ways of understanding conceptual containment.
He argued that his plant-in-the-seed notion of analyticity is better than Kant's beams-in-the-house concept because it is more fruitful.
Frege invoked his definition to characterize all of arithmetic as analytic.
We can not see the '7+5' in the '12' merely by analyzing concepts.
We have to use the tools of Frege's inferential calculus to reveal the underlying identity.
On Frege's theory, most mathematical propositions turn out to be analytic, since they (the plants) are derived from axioms (the seeds) using rules of inference which are obviously truth-preserving, and analyticity-preserving.

Katz's non-Fregean intensionalism vindicates the old Kantian notion of analyticity.
A sentence is analytic, according to Katz, just in case it has a referring term with a sense that contains the sense of the entire sentence.
Katz argues that the fruitfulness of Frege's characterization of analyticity, eliminating the class of synthetic *a priori* statements, does not make it useful.
Fregean logic can not explain all instances of what we might intuitively think of as analytic.
For instance, consider the color incompatibility problem.

CI   Nothing is simultaneously red and green (*SRP* 10).

Properly understood, CI has the air of a necessary truth because of its analyticity.
Frege's notion of analyticity can not capture that fact.
We could, with Carnap, introduce a meaning postulate from which the analyticity of CI follows.
But as Quine rightly argued, we need to explain why CI is analytic, not merely label it as such.

Katz argues that Frege's notion of analyticity, based on his rules of logic, not only misses some inferences, it also ascribes analyticity to too many statements.
According to Frege, Add is analytic.

Add $P \vdash P \lor Q$
             (From any proposition 'P', we can infer 'Either P or Q', for any proposition 'Q'.)

Add is a rule of inference valid in classical logic.
But, you can not analyze 'P' and find 'P $\lor$ Q'.
That plant isn't really in the seed!

Thus, according to Katz, Frege's notion is both too strong and too weak; it is just the wrong notion of analyticity.

> Frege writes as if fruitfulness were an absolute, a criterion that allows us to evaluate concepts once and for all on a single the-more-fruitful-the-better basis. But concepts are cognitive tools, and, as such, must be judged in relation to the demands of the tasks for which we intend to use them. A Swiss Army knife may be more "fruitful" than a scalpel, but the latter is better for performing surgery. Since the evaluation of concepts is task-relative, Frege has no business taking fruitfulness as a standard for making absolute judgments about the adequacy of semantic concepts (*SRP* 15).

Frege arrives at his notion of analyticity via a criticism of Kant's definition.
Similarly, Quine's objection to any definition of analyticity is that it relies on an unexplicated concept of containment, one which can not be justified in terms of logic.
Katz, rejecting Frege's logical basis of analyticity, explains analyticity in terms of the mereological structure of senses

> The account of when expressions have a sense, lack a sense, have more than one sense, have the same sense as another expression, etc. is given exclusively in terms of senses and their mereological structure. It is hard to exaggerate the importance of this second requirement. The choice of mereological structure over logical structure as sense structure is as important as (D) itself for our theory of sense and its philosophical consequences. The choice insures that a

theory of sense is just about intra-linguistic properties and relations of sentences. In delogicizing sense semantics, it reverses Frege's step of replacing Kant's "beams in the house" notion of analyticity with his own "plant in the seed" notion (*SRP* 17-8).

Since analyticity is a concept from the theory of meaning and 'truth' is a term of the theory of reference, we can not conclude that a proposition is true from the claim that it is analytic.
Analyticity is independent of truth.
PC can thus be analytic, and turn out to be false!

> PC   Cats are animals.

Like Donnellan's examples, our uses of 'cat' may be cases of reference under a false description.
Elsewhere, Katz calls PC "weakly necessary," which he takes to be a term in the theory of sense.
The truth of PC depends not only on its meaning but also on factors external to its decompositional sense structure.

IV. Definition

Katz spends a bit of time on Fodor's argument against the possibility of definitions.
Fodor claims that a definition of p is supposed to provide necessary and sufficient conditions for being p.
The definition of 'dog' should provide necessary and sufficient conditions for being a dog.
But, says Fodor, such conditions, if they are not circular, are impossible to find.
Putnam's robot cat example buttresses Fodor's argument.
Even if we were to find actual conditions on being a dog, there are always possibilities that we could discover conditions we had not anticipated.
Putnam's aluminum/molybdenum case similarly supports Fodor's claim.

Our apprehension of the characteristics of aluminum does not allow us to discern it from molybdenum.
Everything I can perceive in aluminum is also a property of molybdenum.
The sense that I grasp of aluminum is insufficient to determine its referent.
But, on the new intensionalism, sense need not determine reference.

> If the sense of 'aluminum' does not have to determine its referent, Putnam can not go from the fact that a cluster of properties gets the referent of 'aluminum' wrong tot he conclusion that it gets its sense wrong... Fodor's argument is nothing but Putnam's with a different example. Just as Putnam argued that no definition of the term 'aluminum' gets its extension right because the best we can do in the case of 'aluminum' is to cite a cluster of properties that does not provide necessary and sufficient conditions for being aluminum, so Fodor argues that no0 definition of the term 'dog' gets its extension right because the best we can do to fill in the blank is to cite a cluster of properties like being an animal, being a mammal and being a carnivore, but such a cluster does not provide necessary and sufficient conditions for the application of 'dog'. Hence, Fodor begs the same question as Putnam (*SRP* 23).

Senses, for Katz, provide some guidance for reference; they mediate without determining reference.
There may be other relevant conditions on truth and designation.
In contrast, the sense of a term will provide necessary and sufficient conditions for the full analysis of its autonomous meaning properties.

V. Frege's Puzzles, Redux

Frege motivated the introduction of senses by considering three puzzles: identity, presupposition, and opaque contexts.
The first two can be handled by D.
The reason that 'Hesperus is Hesperus' has different cognitive content from 'Hesperus is Phosphorus' is that 'Hesperus' and 'Phosphorus' have different senses, despite their different references.
Note that using D to solve the problem of cognitive content entails that Katz rejects direct-reference semantics for proper names.

The problems of empty reference and the failure of presupposition are similarly solved by D.
'Santa Claus' and 'Pegasus' have sense, even if they lack reference.
So, when people use those names in sentences, they can express propositions which contain the senses of those names, independently of their empty references.

Katz claims that the last of Frege's puzzles, the problem of opaque contexts, is really a problem for the theory of reference.
D can serve just as well as Frege's definition of sense.
We did not read Katz's treatment of the problem but you can find it at *SRP* 198 et seq.
Katz's central point is that the problem of reference in opaque contexts is not a problem that the theory of sense must solve.

VI. Quinean Indeterminacy

Katz's commitment to senses allows him to deny Quine's claim of indeterminacy of translation.
The sense properties of a term ground proper translations.
Fully bilingual speakers can ameliorate problems of indeterminacy.
Katz denies the problems of inscrutability, including Quine's claim that inscrutability begins at home.
If Quine is right, then the presence of bilinguals will not solve the problems of inscrutability.
The referents of the bilingual's terms are themselves inscrutable.
Even if the bilingual translates 'gavagai' as 'rabbit', if there is no fact of the matter among 'rabbit', 'undetached rabbit part', and 'temporal slice of a four-dimensional rabbit', the translation will remain indeterminate.

> Is it, as Quine believes, that there is no "objective matter to be right or wrong about" in translation, or is it, as intensionalists believe, that there is? That is the question... If we want to know whether there is evidence that can decide among co-extensional properties that figure in an alleged symmetry, we have no choice but to query bilingual informants about the ambiguity, antonymy, synonymy, redundancy, and other sense properties and relations of relevant examples. If Quine is right, then sufficient consistent evidence will not be forthcoming no matter how much investigating we do. If I am right, such evidence will be forthcoming (*SRP* 29)

In other words, Katz believes that the question of whether there is indeterminacy is empirical, and can be answered experimentally.
Katz writes voluminously on Quine's work.
If you are interested in the topic, you could look at a shorter article, "The Refutation of Indeterminacy"
or Katz's longer treatment of Quine's work in *The Metaphysics of Meaning*.

VII. Summary

Katz's new intensionalism posits a universe of decompositional sense structure which lies beneath the logical relations among propositions and beneath the coarse analysis of propositions into subjects and predicates, even relational predicates.

Meanings, for Katz, are found by taking what looks like simple concepts, like 'cat' or 'stroll' and analyzing them into component concepts.

The technical work of formulating a complex, mereological semantic theory is done elsewhere, in large part by invoking what Katz calls semantic markers.

We will look a bit more closely at semantic markers and the relation of Katz's work to his early mentor Chomsky next week.