

*Meanings, Concepts, and Natural Kinds:
What Were People Thinking?*

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*(another Big Ten** school)

** (Ten = Fourteen)

How do you start a talk billed as “Revolutionary Thinking”?

THE RUTGERS HISTORY LESSON (via F. Austin “Soup” Walter)

In seventeen and sixty-six
On the banks of the old Raritan,
A Dutchmen's college in the sticks
oh, then began.

The revolution came,
With a boom, boom, boom,
And a zoom, zoom, zoom,
With a boom, and a zoom, and a boom.

But all through the shot and shell,
The Dutchmen, they fought like . . .
Well, the old Queens flag on high shall fly forever more.



for a philosopher of language...

- history lessons provide reminders that humans can use words to refer to things that we can't point to
 - things that are too remote (spatially or temporally)
 - things that are too abstract
 - things that don't exist anymore
- the Rutgers History Lesson might lead one to wonder...
- what are we referring to when we use 'Rutgers'
to talk about Rutgers University
(as opposed to the long dead Colonel Henry,
or Rutgers College, or the football team)

THE RUTGERS HISTORY LESSON

In seventeen and sixty-six
On the banks of the old Raritan
A Dutchmen's college in the sticks
Oh, then began.

Rutgers began in 1766 on the banks of the old Raritan.

Rutgers began as a Dutchmen's college in the sticks.

Queens College was the only Dutchmen's college in the sticks
that began on the banks of the old Raritan in 1766.

Hence, Queens College was Rutgers. ☹️

THE RUTGERS HISTORY LESSON

In seventeen and sixty-six
On the banks of the old Raritan
A Dutchmen's college in the sticks
Oh, then began.

- what are we referring to when we use ‘Rutgers’
to talk about Rutgers University,
which is celebrating its 250th anniversary?
- and whatever we’re referring to—
i.e, whatever Rutgers University is—
how are we able to refer it by saying ‘Rutgers’?

Referring to Things is Easy, Understanding Reference is Hard

James Atlas on Global Warming (NY Times: Nov 25, 2012)

"a good chance that New York City will sink beneath the sea"

but...

"...the city could move to another island, the way Torcello was moved to Venice, stone by stone, after the lagoon turned into a swamp and its citizens succumbed to a plague of malaria. The city managed to survive, if not where it had begun."

Referring to Things is Easy, Understanding Reference is Hard

"...the city could move to another island,
the way Torcello was moved to Venice..."

Torcello was moved to Venice.

Venice is a nice place.

Torcello was moved to a nice place



Torcello was moved to Venice.

Venice is a nice place.

Venice will be moved.

Torcello was moved to a nice place that will be moved.



Referring to Things is Easy, Understanding Reference is Hard

When we use ‘Venice’ and thereby refer to the Venice in Italy—
as opposed to the one in California—what are we referring to?

- a chunk of terrain...a “place” that may get much wetter
- a collection of buildings that could be moved
- a “polis” constituted by people across many generations
- not obvious that there is any one thing that we always refer to when we use ‘Venice’ to refer to the Venice in Italy
- and whatever the various Venices are,
how can refer to any of them with the proper noun ‘Venice’?

Referring to Things is Easy, Understanding Reference is Hard

- is there any one thing that we always refer to when we use 'France' to refer to the country?
 - a chunk of terrain that is roughly hexagonal
 - a modern nation-state that used to be a monarchy

France is hexagonal, and France is a republic.

France is a hexagonal republic.



- whatever cities and countries are, how can we refer to them with proper nouns like 'Venice' and 'France', or common nouns like 'city' and 'country'?

Referring to Things (or Stuff) is Easy, Understanding Reference is Hard

Water is H₂O.

The water from my well has a high mineral content.

The H₂O from my well has a high mineral content.



Water is H₂O.

The water in the Charles River polluted.

The H₂O in the Charles River is polluted.



Referring to Things (or Stuff) is Easy, Understanding Reference is Hard

Water is H₂O.

The water from my well has a high mineral content.

The H₂O from my well has a high mineral content.



Water is H₂O.

The H₂O in the river contains no mercury.

The water in the river contains no mercury.



What are we referring to when we use 'water' to refer to water?

And whatever the many samples of water turn out to be,
how can we use 'water' to refer to them?

Two Conceptions of Reference

Words refer to things, and speakers can go along for the ride.

- words are somehow tethered to things that the words are about
- we can easily refer to Venice (cities, water) by saying 'Venice' ('city', 'water') because we're deferring to the word
- the puzzles illustrate complications, not major objections

Words don't refer, people do. But words let us refer in new ways.

- a typical word is connected to a family of concepts that we can use to think about various things in various ways
- referring is something that thinkers do;
words don't help, but they do introduce new twists
- the puzzles reflect an important feature of words (polysemy) that tells against the first conception of reference

Two Conceptions of Reference

Words refer to things, and speakers can go along for the ride.

- words are somehow tethered to things that the words are about
 - ‘Venice’ is tethered to a certain city
 - ‘city’ is tethered to the set of cities (and so is ‘ciudad’)
 - ‘water’ is tethered to the set of water samples (and so is ‘agua’)

Two Conceptions of Reference

Words refer to things, and speakers can go along for the ride.

- words are somehow tethered to things that the words are about
- it's hard to *figure out* what words are tethered to; and we don't *know* how the tethering works
- but speakers are typically referential freeloaders

Words don't refer, people do. But words let us refer in new ways.

- a typical word is connected to a family of concepts that we can use to think about *various things in various ways*
 - many animals think about things without using words
 - many concepts are tethered to things the concepts are about
 - but *words* are *loosely* related to the things we think/talk about

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Words don't refer, people do. But words let us refer in new ways.

- a typical word is connected to a family of concepts that we can use to think about *various things in various ways*
- referring is something that thinkers do; words don't make it easier, but they do introduce new twists
- the 'Venice'/'France' puzzles are just the tip of an iceberg, reflecting an important feature of words (polysemy)

Outline for the Talk

✓ Introduction

- Say a little about meaning and homophony, in order to get at the familiar (but hard to characterize) phenomenon of polysemy, which often gets set aside (because it's hard to characterize)
- Get back to water, cities, and the Two Pictures
 - review a disco-era argument for **Picture One** (“Words refer”) that was, and still is, enormously influential
 - suggest that the argument is ~~terrible~~ far from decisive, and that it is better viewed as one part of a larger argument for **Picture Two** (“Words don't refer”)
 - as time permits, indicate other pieces of the larger argument, which emphasizes polysemy and a correct premise (about the importance of natural kinds) from the argument for **Picture One**

Some Terminology

Languages: connect signals of some kind
with interpretations of some kind

Slangs: languages of a special sort, spoken or signed

- (i) acquirable by children, given ordinary experience
- (ii) connect pronunciations with meanings

Meanings: the interpretations, whatever they are,
that Slangs connect with pronunciations

Some Terminology

Slangs: languages of a special sort, spoken or signed

- (i) acquirable by children, given ordinary experience
- (ii) connect pronunciations with meanings

Homophones: Slang expressions that have the same pronunciation but different meanings

bank (bæŋk)

¹bank: a word used to talk about certain financial institutions

²bank: a word used to talk about the edges of rivers

a boy saw a man with a telescope (ebɔjsæmænwiðetɛlɛskop)

¹: a sentence which implies that a man possessed a telescope

²: a sentence which implies that a boy used a telescope

Lexical Homophony vs. Lexical Polysemy

‘bank’ is homophonous

two or more English words, each with its own meaning,
share the pronunciation /bæŋk/

‘book’ is polysemous

a single English word, with the pronunciation /bʊk/,
has a meaning that supports more than one “use” or “subsense”

‘bear’ is homophonous, as is ‘bare’

several English words, each with its own meaning,
share the pronunciation /bɛr/

at least one of the verbs spelled ‘bear’ is polysemous

a single verb, with the pronunciation /bɛr/,
has a meaning that supports more than one “use” or “subsense”

Lexical Polysemy is Ubiquitous

- Someone defaced this book, and someone plagiarized that book.
- A visitor knocked on the door and broke the window.
A visitor walked through the door and opened the window.
- This country is hexagonal, and that country is a republic.
- The lines of this triangle are not straight.
The lines of a real triangle have no width.
The man with lines in his face was in the line to buy fishing line.
- He likes green ones. Green is his favorite color. Greens suit him.
The paint is green, and the bottle is green, and so are the apples.

Two ways that a pronunciation can be
conceptually equivocal

Homophony

(e.g., bank)

Distinct words connect the same pronunciation with with different meanings, each of which can be used to access a concept.

--typically arbitrary

--linguistically accidental

Polysemy

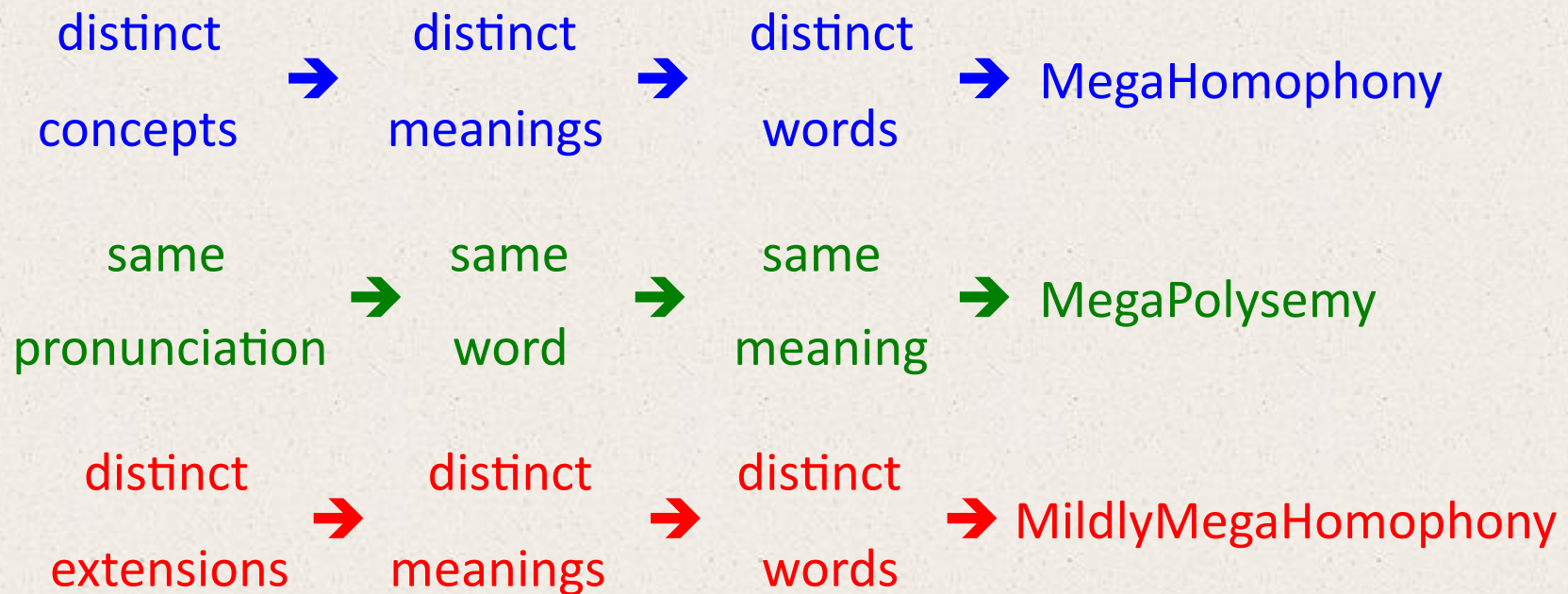
(e.g., book)

A single word connects its pronunciation with a meaning that can be used used to access any member of a certain concept-family.

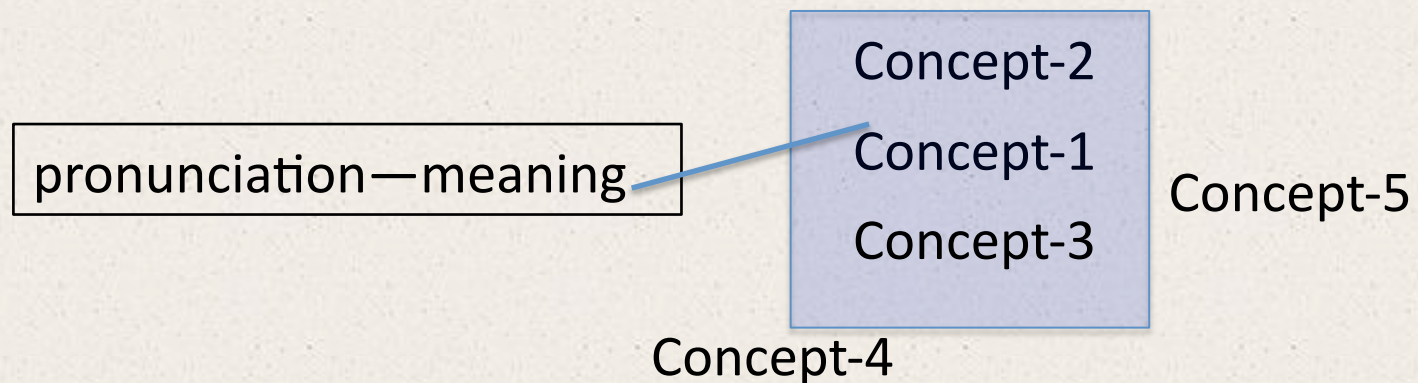
--related subsenses

--common across Slangs

- polysemy seems to be a symptom of how Slang words end up being related to human concepts
- even if a child initially connects the pronunciation of ‘book’ with a single concept, and ditto for ‘bank’, she will soon get evidence that many pronunciations are conceptually equivocal
- but evidently, kids don’t adopt any of the following strategies



- spatiotemporally located books are related to many *things* that we can think and talk about: covers, pages, authors, publishers, contents, Library of Congress numbers, etc.
- but the vehicle/content duality seems special *conceptually*: connecting the pronunciation of 'book' to a vehicle-concept seems to create word that attracts a corresponding content-concept; cp. body/mind, terrain/polis, ...
- polysemy seems to reflect some complex interaction between (i) Slang words, which connect pronunciations with meanings, and (ii) natural affinities among concepts



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- ➔ Get back to water, cities, and the Two Pictures
 - review a disco-era argument for **Picture One (“Words refer”)** that was, and still is, enormously influential

Think about “simple” cases of introducing words for things (people, stuff) we can already refer to



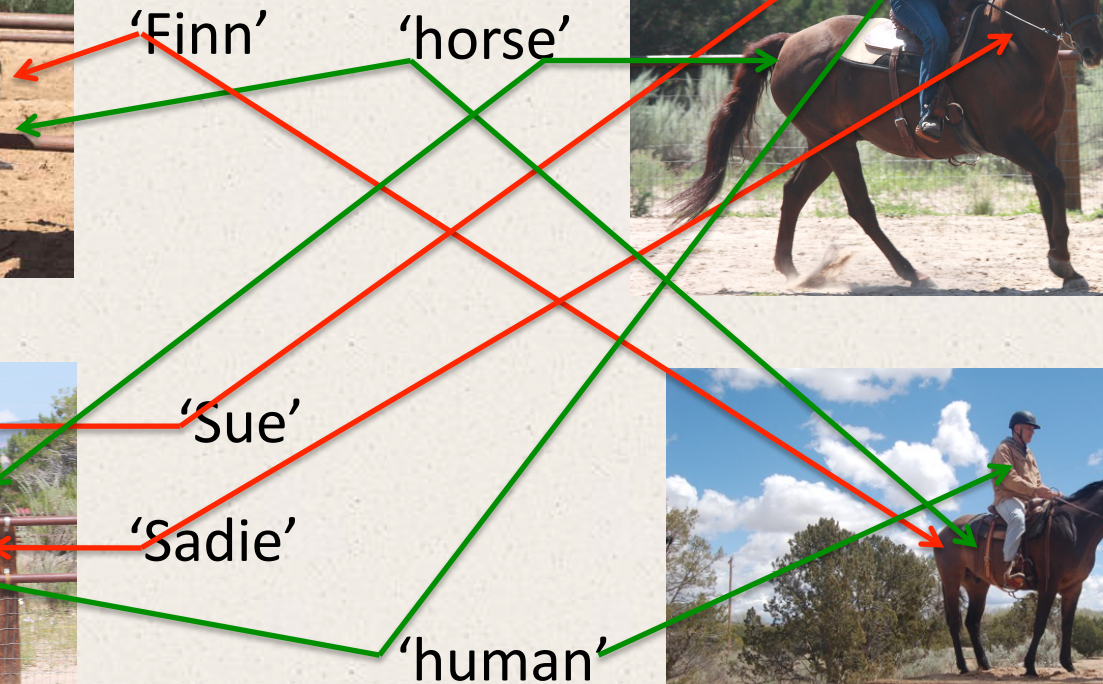
‘Finn’

‘horse’

‘Sue’

‘Sadie’

‘human’



Even the “Simple Cases” are Not Trivial

- to focus on Finn, and introduce a name that you can use (later) as a device for referring to the same horse...

as opposed to Sadie, or Finn's tail, or any of his temporary properties (e.g., his weight), or any fleeting “temporal part” a horse that was there when you introduced the name, or ...

Even the “Simple Cases” are Not Trivial

- to focus on Finn, and introduce a name that you can use (later) as a device for referring to *the same horse*, you need
 - a bunch of cognitive capacities
 - and a cooperative world
- and to introduce ‘horse’ as a noun that you can use (later) to talk about horses in general ...

as opposed to cows, donkeys, mules, horses you’ve already met, animals that you can saddle and ride, or all animals...

Even the “Simple Cases” are Not Trivial

- to focus on Finn, and introduce a name that you can use (later) as a device for referring to *the same horse*, you need
 - a bunch of cognitive capacities
 - and a cooperative world
- and to introduce ‘horse’ as a noun that you can use (later) to talk about horses in general, you need
 - a bunch of cognitive capacities
 - and a cooperative world

cp. ‘dog’, ‘wolf’, ‘coyote’

Even the “Simple Cases” are Not Trivial

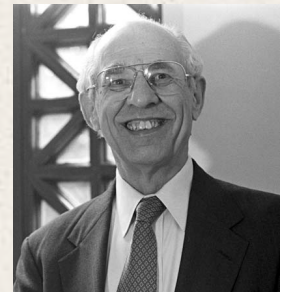
- to focus on Finn, and introduce a name that you can use (later) as a device for referring to *the same horse*, you need
 - a bunch of cognitive capacities, and a cooperative world
 - i.e., a “singular” concept of Finn (as opposed to other things)
- and to introduce ‘horse’ as a noun that you can use (later) to talk about horses in general, you need
 - a bunch of cognitive capacities, and a cooperative world
 - i.e., a “general” concept of horses (as opposed to other things)

An Important (Kripke-Putnam) Point

People can disagree about the things they are talking about, and scientists are people. Even philosophers are people.

Consider some views about “what stars are”

- points of light on the celestial sphere
- holes in the canopy
- ideas in the Mind of God
- things different in kind from the sun, which is a planet
- things like the sun, which is not a planet
- giant spheres of gas that undergo processes of nuclear fusion for billions of years



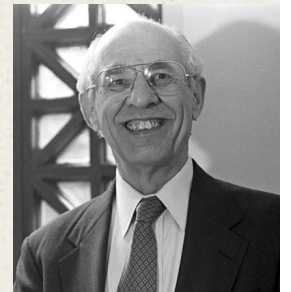
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Consider some views about “what nebulae are”

- dense clusters of stars
- giant clouds of gas
- remnants of stars
- things like The Great Nebula in Andromeda
- things like many of things traditionally called ‘nebulae’ (the Crab, the Veil, the Ring, ...)

but not the obvious nebulosity in Andromeda

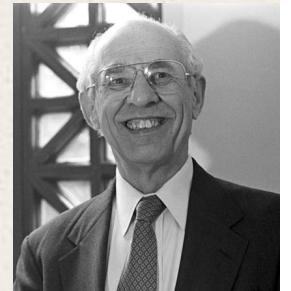


An Important (Kripke-Putnam) Point

People can disagree about the things they are talking about, and scientists are people. Even philosophers are people.

Consider some views about “what water is”

- the basic substance (all is water)
- one of the basic substances (along with earth, air, and fire)
- various clear, odorless liquids
- a compound of Hydrogen and Oxygen



Observations:

we can use ‘star’ to talk about stars in ways that leave room for major disagreements about the nature of stars;

we can use ‘water’ to talk about water in ways that leave room for major disagreements about the nature of water; ...

Plausible Diagnosis:

- we can use ‘star’ and ‘water’ to express concepts that let us think about stars and water in theory-neutral ways
- we can use a noun like ‘star’ or ‘water’ to express a general concept that is also a “kind-concept”
 - it can be acquired via exposure to paradigm cases
 - it applies to, and only to, instances “of the same sort” as the paradigmatic cases

Observation:

we can use 'star' to talk about stars in ways that leave room for major disagreements about the nature of stars;

Plausible Diagnosis:

we can use 'star' to express a theory-neutral kind-concept

Rash Conclusion:

this is the only concept that we express with 'star'

- gold stars that kids get on homework assignments
- stars that critics award to movies, and movie stars

Plausible Claim:

we can use 'water' to express a theory-neutral kind-concept that applies to, and only to, samples of H₂O

Rash Conclusions:

this is the only concept that we express with 'water'; and so 'water' applies to, and only to, samples of H₂O (perhaps allowing for trace impurities)

- she watered the horses, and then watered the plants
- at the bar, she watered the drinks
- his eyes watered
- at the lake, he got a room with hot water, walked along the water's edge, jumped in, and ducked under the water

Plausible Claim:

we can use 'water' to express a theory-neutral kind-concept that applies to, and only to, samples of H₂O

Rash Conclusions:

this is the only concept that we express with 'water';
and so 'water' applies to, and only to, samples of H₂O
(perhaps allowing for trace impurities)

But set this kind of polysemy (watering plants/drinks/etc.) aside.
The conclusions are still very implausible.

'water' applies only to samples of H₂O (modulo trace impurities)

Club Soda:	99.9	ndb.nal.usda.gov/ndb/foods/show/4240
Diet soda, not cola:	99.8	ndb.nal.usda.gov/ndb/foods/show/4253
Tea:	99.7	ndb.nal.usda.gov/ndb/foods/show/4337
Diet Cola:	99.54	ndb.nal.usda.gov/ndb/foods/show/4361
stuff from my well:	< 99.4	<i>“Quality Water Analysis” from National Testing Laboratories, Ltd. deferring to experts: no arsenic, no fluoride</i>
Coffee:	99.39	ndb.nal.usda.gov/ndb/foods/show/4287
Espresso:	97.8	ndb.nal.usda.gov/ndb/foods/show/4288
Ocean Water:	96.5	<i>average salinity</i>
Michelob Ultra:	95.4	ndb.nal.usda.gov/ndb/foods/show/4159
Bud Light:	95.0	ndb.nal.usda.gov/ndb/foods/show/4156
Distilled vinegar:	94.78	ndb.nal.usda.gov/ndb/foods/show/283

Putnam's Thought Experiment

Imagine a planet like Earth, except that in place of H₂O, there is another substance—XYZ—that is superficially and functionally similar, in ways that make H₂O and XYZ indistinguishable for nonspecialists.

Some Putnamian Claims:

- samples of XYZ are not samples of water
- if you saw some XYZ and believed that it was water, you would be wrong; and if you pointed at the XYZ and said 'That is water', your claim would be false.
- but if you saw some H₂O and believed that it was water, you would be right; and if you pointed at the H₂O and said 'That is water', your claim would be true.
- our word 'water' is tethered to (and true of) H₂O *but not* XYZ

Some Related Reasoning

(1) The meaning of 'water' somehow connects that word to samples of water.

(2) Water is H₂O.

- so the meaning of 'water' somehow connects that word to samples of H₂O
- so a word that isn't connected to H₂O doesn't have the meaning of 'water'
- so in a world with no H₂O, nobody has a word with the meaning of 'water', not even a molecular duplicate of me (or you)
- so the meaning of 'water' not only includes something like a pointer that *points at* the set of H₂O samples, the meaning of 'water' somehow *includes* those samples.

Chomsky, “Language and Nature” (*Mind* 1995)



Suppose cup-1 is filled from the tap. It is a cup of water, but if a tea bag is dipped into it, that is no longer the case. It is now a cup of tea, something different. Suppose cup-2 is filled from a tap connected to a reservoir in which tea has been dumped (say, as a new kind of purifier). What is in cup-2 is water, not tea, even if a chemist could not distinguish it from the present contents of cup-1....

In cup-2, the tea is an “impurity” in Putnam’s sense, in cup-1, it is not, and we do not have water at all (except in the sense that milk is mostly water, or a person for that matter). If cup-3 contains pure H₂O into which a tea bag has been dipped, it is tea, not water, though it could have a higher concentration of H₂O molecules than what comes from the tap or is drawn from a river.

A Tale of Two Tales

- Putnam's Thought Experiment (XYZ, Twin Earth)
 - a story in which chemistry matters
 - if you keep drawing our attention to science, in part by repeatedly mentioning Hydrogen and Oxygen, you can create a context in which saying 'water' will lead us to access kind-concepts of water
- Chomsky's Thought Experiment (Tea, Boston Harbor)
 - a story that emphasizes things of human interest: taps, cups, tea bags, reservoirs, purification, rivers
 - if you draw our attention to such things, you can create a context in which saying 'water' will lead us to access "functional" concepts of water

Ways of Overgeneralizing

- Start by telling the story that emphasizes things of human interest (tea bags, reservoirs, diet coke, etc.)
- Observe that competent speakers of English can indeed use ‘water’ in the way that Chomsky highlights
- Then conclude that the word ‘water’
 - has an extension that excludes samples of H₂O
 - has an extension that includes tea, Diet Coke, and XYZ
 - can’t be used to access a kind-concept of water

Chomsky doesn’t draw any such conclusion, and neither do I.
But...

Ways of Overgeneralizing

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- Observe that competent speakers of English can indeed use ‘water’ in the way that Chomsky highlights
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 - can’t be used to access a kind-concept of water

...if anyone is tempted to draw these conclusions after hearing Chomsky’s story, then Putnam’s story can be a useful reminder that (i) we use words in many ways, and (ii) ‘water’ can be used to access a functional-concept without being such a concept

Ways of Overgeneralizing

- Start by telling the story that emphasizes actual and counterfactual chemistry interest (H₂O, Twin Earth, and XYZ)
- Observe that competent speakers of English can indeed use ‘water’ in the way that Putnam highlights
- Then conclude that the word ‘water’
 - has an extension that excludes samples of XYZ
 - has an extension that excludes tea, Diet Coke, and XYZ
 - can’t be used to access a functional concept of water

if anyone is tempted to draw these conclusions after hearing Putnam’s story, then Chomsky’s story can be a useful reminder that (i) we use words in many ways, and (ii) ‘water’ can be used to access a kind-concept without being a kind-concept

A Tale of Two Tales

- Putnam's Thought Experiment (XYZ, Twin Earth)
 - highlights an important fact: we can use 'water' to access and express access a kind-concept
 - shows that in some contexts, it is appropriate to use 'water' as a tool for accessing and expressing access a kind-concept that applies to samples of H₂O *but not* XYZ
- Chomsky's Thought Experiment (Tea, Boston Harbor)
 - highlights an important fact: we can use 'water' to access and express access a functional-concept
 - shows that in many contexts, it is appropriate to use 'water' as a tool for accessing and expressing a functional-concept that applies to samples of stuff from my well (and maybe to XYZ)

Muddied Thought Experiment

On earth, mud is diverse. But imagine a planet that is similar, except that all the muddy stuff is chemically uniform. It came as a big surprise to people on “Fraternal Earth” that the apparently diverse stuff they talk about with their word ‘mud’ is really of the same kind. But now, their specialists often use their word ‘mud’ to express a kind-concept.

We can likewise use ‘wetdurt’ to express a kind-concept, WETDURT, that applies to, and only to, samples of that chemically uniform mud they have on Frat-Earth.

But do Frat-Earth *children* connect the pronunciation of ‘mud’ with a kind-concept like WETDURT?

Muddied Thought Experiment

Even if Frat-Earth children connect the pronunciation of 'mud' with a kind-concept like WETDURT, should we conclude that...

(1) they don't connect the pronunciation of 'mud' with any concept that applies to Earth-mud that *isn't* wetdurt?

(2) the Frat-Earth word 'mud' is true of, and only true of, wetdurt?

if your judgments are not clearly affirmative...

- why think the uniformity of (pure) water tells us anything about the meaning of 'water', much less that this meaning makes the word true of H₂O samples but not samples of XYZ or Diet Coke?
- prima facie, the meaning of their word 'mud' does not determine an extension, and neither does the meaning of our word 'water'

Meanings as instructions for how to access and assemble concepts

Meaning[*hexagonal*] = **fetch@address:hexagonal**
→ HEXAGONAL(_)

Meaning[*France*] = **fetch@address:France**
→ FRANCE-LAND
→ FRANCE-INSTITUTION

Meaning[*France is hexagonal*] →
Combine(Meaning[*hexagonal*], Meaning[*France*])
→ HEXAGONAL(FRANCE-LAND)
→ HEXAGONAL(FRANCE-INSTITUTION)

Meaning[*dog*] = **fetch**@address:*horse*

→ HORSE(_)

a fetchable concept
must be combinable
with others, but...

Meaning[*book*] = **fetch**@address:*book*

→ SPATIAL-BOOK(_)

→ CONTENT-BOOK(_)

a “lexical address”
need not be the
address of exactly
one concept

Meaning[*water*] = **fetch**@address:*water*

→ FUNCTIONAL-WATER(_)

→ SCIENCE-WATER(_)

an **instruction** may
be executable in
two or more ways

- If we want to know why we can use 'water' to talk about water, rather than gold (or horses or horse meat), then part of the answer is that we use 'water' to access and express various concepts that include a kind-concept of water.
- But if we want to find out what meanings are (cp. finding out what stars are, and finding out what water is), then we shouldn't focus on what stars and what water is. And we shouldn't focus on the meaning of 'meaning'.
- We should be asking what a kind-concept of meaning would be a concept of.

- I think we do have a kind-concept of meaning.
It's a concept of the interpretations, whatever they turn out to be, that *Slangs* connect with pronunciations.
- We shouldn't assume that meanings are kind-concepts, or that they determine extensions. Slangs may connect pronunciations with polysemous instructions for how to access/assemble concepts.

We have to *discover*...

- what meanings are, and how they are related to reference.
- how meanings do and don't combine;
- what kinds of word meanings Slangs do and don't allow.

But that's a much longer and story (i.e., a forthcoming book).

For today...



Chomsky, “Language and Nature” (*Mind* 1995)

Quite typically, words offer conflicting perspectives....

We have no problem understanding a report in the daily press about the unfortunate town of Chelsea, which is “preparing to move” ... with some residents opposed because “by moving the town, it will take the spirit out of it”, while others counter that “unless Chelsea moves, floods will eventually kill it”. There is a city called both “Jerusalem” and “al-Quds”, much as London is called “London” and “Londres” ...The government that claims it as its capital city has been considering plans to move al-Quds, while leaving Jerusalem in place...The discussion would pose puzzles...if, failing to observe some of Wittgenstein's good advice, we were to suppose that words like “London” or “Jerusalem” refer to things in the world in some public language, and were to try to sharpen meanings and ideas for conditions under which the presuppositions of normal use do not hold.

Referring to Things is Easy, Understanding Reference is Hard

James Atlas on Global Warming (NY Times: Nov 25, 2012)

"a good chance that New York City will sink beneath the sea"

but...

"...the city could move to another island, the way Torcello was moved to Venice, stone by stone, after the lagoon turned into a swamp and its citizens succumbed to a plague of malaria. The city managed to survive, if not where it had begun."

In seventeen and sixty-six
On the banks of the old Raritan
A Dutchmen's college in the sticks
Oh, then began.

- Happy 250th to Rutgers
- We know what we mean
- But not because 'Rutgers' determines what we're referring to

Thanks!