

Language myths

LING 200: Introduction to the Study of Language

Hadas Kotek



April 2016

Outline

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 - The Sapir-Whorf Hypothesis
 - An example: Whorfian Economics

- 2 Language myths
 - How many words do Eskimos have for snow?
 - Color terms
 - Recursion and the Pirahã

Slides credit: Lauren Clemens, Sabine Iatridou

Language in popular culture

- It is not hard to find opinions and speculation on language
- Perhaps because the structure of language seems so readily accessible, many of us have intuitions about the way language and language acquisition works

But...

- We saw in this class that much of language involves rules you were **not** explicitly aware of.
- We are not as well-equipped as we think to make judgements about how language works.
- ➡ My aim today: Show you that you need to use your LING 200 knowledge to evaluate claims about language.

Language in popular culture

The question

- ▶▶ Does language shape our view of the world?
 - Not our experience with language ...
 - bilingualism
 - dyslexia
 - study abroad
 - ... but actual facts about our language
 - Many of you will say “yes”
 - I would like to challenge you on this belief.

The Sapir-Whorf Hypothesis

Sapir-Whorf Hypothesis:
Language determines thought.

- Edward Sapir (1884-1939)
- Benjamin Lee Whorf (1897-1941)

Edward Sapir (1884-1939)

- American anthropologist-linguist; a leader in American structural linguistics
- Author of *Language: An Introduction to the Study of Speech*
- Born in Lauenberg, Germany.
- Student of Franz Boas, teacher of Benjamin Whorf



Benjamin Lee Whorf (1897-1941)

- MIT Class of '18, student of Chemical Engineering.
- Shortly after graduating began work as a fire prevention engineer (inspector).
- Became interested in linguistics through the study of native American languages, but never worked as a linguist.
- Famous for his work on the Hopi language, Nahuatl dialects.
- Came up with the concept *allophone*.



Back to Sapir-Whorf

Edward Sapir

“Human beings [...] are very much at the mercy of the particular language which has become the medium of expression for their society. [...] We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation.”

1929. The status of linguistics as a science. *Language* 5: 209-210.

Back to Sapir-Whorf

Benjamin Whorf

“We dissect nature along lines laid down by our native languages. We cut nature up, [...] and ascribe significances as we do, because we are parties to an agreement to organize it in this way – an agreement that [...] is codified in the patterns of our language.”

1940. Science and linguistics. *The Technology Review*.

The Sapir-Whorf Hypothesis

Strong form (or linguistic determinism):

Language **determines** the way we perceive and think about the world.

Weak form (or linguistic relativity):

Language **influences** the way we perceive and think about the world.

An example: Whorfian Economics

- A recent TED talk by economist Keith Chen makes the claim that people who speak languages that do not obligatorily mark a future tense morpheme makes better decisions about the future
- In particular, they make better economic decisions (they save more and retire with more wealth)
- [Clickable link to TED talk](#)

An example: Whorfian Economics

Future tense

- English marks future obligatorily (pretty much):
 - (1) ✓ It will rain tomorrow.
 - (2) # It rains tomorrow.
- But in languages like Dutch and German, future tense isn't always necessary:
 - (3) ✓ Morgen regent het.
Tomorrow rains it
'Tomorrow, it will rain.' (Dutch)

An example: Whorfian Economics

Chen's finding

- Using the world values survey, Chen finds a significant correlation between not having to mark future tense and making “future-oriented” economic decisions (e.g. saving more).
- **The claim:** Having an obligatory future distinction makes you dissociate the future from the present. Hence, it is harder to think about your future self.

An example: Whorfian Economics

Probably a spurious correlation...

Other linguistic features that correlate about as well (James Winters, *Replicated Typo*). In order of effect size:

- Perfective/imperfective aspect
- FTR (The future tense variable used in Chen's analysis)
- The velar nasal
- Consonant-vowel ratio
- Plurality in independent personal pronouns
- Consonant inventories
- Inflectional synthesis of the verb
- Periphrastic causative constructions

For descriptions of these features: <http://wals.info/feature>

How many words do Eskimos have for snow?

*If Eskimos have dozens of words for snow,
Germans have as many for bureaucracy.*

(The Economist, 2003, October 11, Page 56.)

Eskimos have fifty-two names for snow because it is important to them; there ought to be as many for love.

(Margaret Atwood. *Surfacing*, page 107.)

How many words do Eskimos have for snow?

First thing's first

There is no *one* Eskimo language.

- **Yupik:** A language family of at least five languages, spoken in Alaska and Siberia.
- **Inuit (Inuktitut):** A dialect continuum that spans the North American Arctic, from Alaska to Greenland.

How many words do Eskimos have for snow?

The basic idea:

- Inuit and Yupik peoples have a lot of words for snow
- As a result, there is some quantitative difference in the way that these peoples experience snow, such that what we view as one substance (snow) to them reflects a large spectrum of substances
- So: having a lot of words *affects* the perception of snow

How many words do Eskimos have for snow?

Whorf on the word *snow*:

“To an Eskimo, this all-inclusive word would be almost unthinkable; he would say that falling snow, slushy snow, and so on, are sensuously and operationally different, different things to contend with; he uses different words for them and for other kinds of snow.”

1940. Science and linguistics. *The Technology Review*.

How many words do Eskimos have for snow?

The genesis of this claim

- Franz Boas (1911) in *The Handbook of North American Indians* cites four specialized roots for forms of snow in Inuktitut:
- aput - ‘snow on the ground’
- gana - ‘falling snow’
- piqsirpoq - ‘drifting snow’
- qimuqsuq - ‘a snow drift’

How many words do Eskimos have for snow?

Whorf and Boas

- Whorf (1940) is based on Boas's discussion and links it to the idea that Whorf had that language influences thought
- At this point, this is innocent enough...
- But Whorf's discussion takes on a life of its own, with completely arbitrary numbers added to it.

Some examples:

- Fifty (in a 1978 play by Lanford Wilson)
- One hundred (in a 1984 NYT editorial)
- "About four dozen" (in a 1988 NYT piece)

The great Eskimo vocabulary hoax

- Martin (1986) and Pullum (1991) track this claim and correctly point out that it has no real basis in the original work by Boas and Whorf.
- ➔ But does that mean it's false?

A complicating factor

- Inuit and Yupik languages are *polysynthetic* in their word formation.
- A language is said to be polysynthetic if it has a high morphemes-per-word ratio, usually because it uses a lot of morphological processes.
- This means that words can get almost infinitely complex.

The great Eskimo vocabulary hoax

An example...

(4) South Baffin Inuktitut (from Richard Compton)

- a. puijjuraaqgunnaqngaaqlauqsimanngittuq
puijjuraaq-gunnaq-ngaaq-lauq-sima-nngit-tuq
swim-can-instead-DIST.PAST-PERF-NEG-DEC.3SG
'He/she was not able to swim instead.'
- b. Kumaqaqtuq qarisaujatuqaralaakulunnguangani.
kumak-qaq-tuq qarisaujaq-tuqaq-ralaaq-kuluk-nnguaq-nga-ni
insect-have-DEC.3SG
computer-old-small-adorable-pretend-3SG.POSS.SG-LOC
'There's an insect in his/her pretend, adorable, small, old computer.'

➡ How does this complicate things?

The great Eskimo vocabulary hoax

What to look for?

- All polysynthetic languages can in principle have an infinite number of words for snow! (And for shoe polish, for that matter)
- This is why we need to look at *roots*. How many roots do Inuit/Yupik languages have for snow?

Actually, perhaps quite a few

- There are at least 22 distinct roots for snow in Seiler's (2012) Inupiak (Inuit) dictionary, including:
 - **General words for snow:** *aniu* and *apun*
 - **More specialized terms:** *pukak* (granular snow crust under soft snow), *milik* (very soft snow), *sisit* (snow entering through a crack), *silliq* (hard snow good for house-building)

The great Eskimo vocabulary hoax

Krupnik and Muller-Wille (2010)

- These numbers are similar to what Krupnik and Muller-Wille (2010) describe.
- They report on 11 Inuit varieties and document anywhere from 12 to upwards of 50 words for snow.
- This is just roots. There are many more derivative terms.

➡➡ What does this mean? Was Whorf right?

The great Eskimo vocabulary hoax

Well...

- There's nothing special about the abundance of snow words in Inuit/Yupik languages.
- Other Arctic peoples, like the Saami, also have many words for snow (Magga 2006).
- You can even find this abundance in English!

The great Eskimo vocabulary hoax

English words for snow

- You can find lists of up to 120 English words for snow.
- Some examples: *powder, flurries, rime, hardpack, windpack, cornice, snizzle, pingo, slush, sastrugi, firn, neve*
- ➡ The number of words you know and use reflects how much you *care* to make the difference, not whether you are *able* to do so.

The great Eskimo vocabulary hoax

On all-inclusive words

- It does not seem to be true that “an all-inclusive word for snow” is “unthinkable” to Inuit or Yupik peoples.
- All Inuit and Yupik languages (as well as Saami) have a general term for snow.

The great Eskimo vocabulary hoax

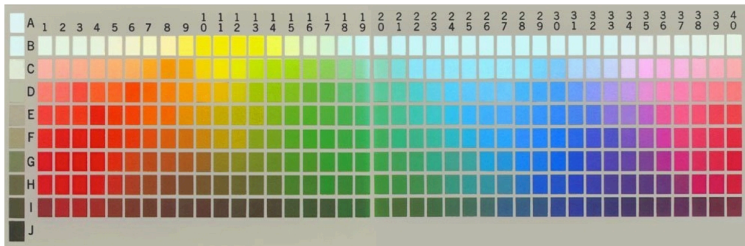
In conclusion

- Languages spoken by Arctic peoples indeed seem to have a lot of words for snow.
- But so does English, for some!
- Not clear that this tells us anything deep about language and culture.

Color terms

A question

- Does the number and type of color terms in a given language influence the way speakers categorize different colors?



Color terms

Two possible positions

- **Universalists:**
perceptual categories are “hardwired” into the visual system. Language categories reflect these discontinuities in perceptual color space.
- **Relativists:**
perceptual categories are constructed through language.

Color terms

Berlin-Kay (1969)

- Is color naming across languages largely a matter of arbitrary linguistic convention?
 - If YES: support relativist position
 - If NO: support universalist position



Color terms

Berlin-Kay (1969)

- Survey of 98 languages
- The number of basic color terms is between 2 and 12.
- Implicational universal
 - white and black (light and dark)
 - white, black, and red
 - white, black, red, green or yellow (but not both)
 - white, black, red, green and yellow
 - white, black, red, green, yellow, blue
 - white, black, red, green, yellow, blue, brown
 - white, black, red, green, yellow, blue, brown, pink/purple/orange/gray

Color terms

Results: Occurring types

#	wh	bk	rd	gn	yl	bu	br	pk	pr	or	gr
2	+	+	-	-	-	-	-	-	-	-	-
3	+	+	+	-	-	-	-	-	-	-	-
4	+	+	+	+	-	-	-	-	-	-	-
4	+	+	+	-	+	-	-	-	-	-	-
5	+	+	+	+	+	-	-	-	-	-	-
6	+	+	+	+	+	+	-	-	-	-	-
7	+	+	+	+	+	+	+	-	-	-	-
8	+	+	+	+	+	+	+	+	-	-	-
8	+	+	+	+	+	+	+	-	+	-	-
8	+	+	+	+	+	+	+	-	-	+	-
8	+	+	+	+	+	+	+	-	-	-	+
9	+	+	+	+	+	+	+	+	+	-	-
9	+	+	+	+	+	+	+	+	-	+	-
9	+	+	+	+	+	+	+	+	-	-	+
9	+	+	+	+	+	+	+	-	+	+	-
9	+	+	+	+	+	+	+	-	+	-	+
9	+	+	+	+	+	+	+	-	-	+	+
10	+	+	+	+	+	+	+	+	+	+	-
10	+	+	+	+	+	+	+	+	+	-	+
10	+	+	+	+	+	+	+	+	-	+	+
10	+	+	+	+	+	+	+	-	+	+	+
11	+	+	+	+	+	+	+	+	+	+	+

Color terms

Berlin-Kay (1969)

- For eleven colors, only 22 (1%) out of the $2^{11} = 2048$ possible sets are actually attested.

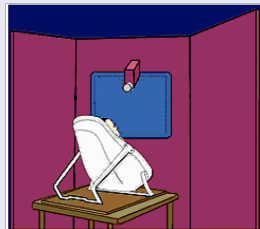
- **Resulting hierarchy:**

white > red > green > blue > brown > pink
black > yellow > purple
orange
gray

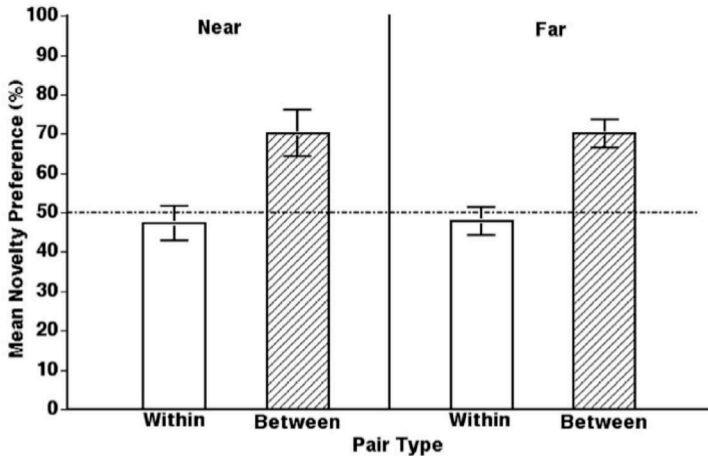
Color terms

Categorical perception in infants

- Bornstein, Kessen, & Weisskopf (1976)
 - Habituate 4-month-infants to a color then test infants either within- or between-category color.
- Franklin & Davies (2004)
 - Color categories:
 - blue-green
 - blue-purple
 - pink-red
 - Design:
between/within color × near/far display



Color terms



Color terms

Categorical perception in infants

- Summary of colors tested:
 - Blue vs. Green
 - Green vs. Yellow
 - Yellow vs. Red
 - Red vs. Pink
 - Blue vs. Purple

➡ Infants show Categorical Perception



Color terms

Rosch (1975)

- Speakers of Dani (Papua New-Guinea)
- Two color terms “dark” and “light”
- Dani are able to categorize colors for which they have no specific words
- ▶▶ Color has a basic psychological import that transcends vocabulary

Color terms

But language clearly does have *some* effect. . .

- In a brain-damaged patient suffering from a naming disorder, the loss of labels radically impaired the patient's ability to categorize colors (Roberson, Davidoff & Braisby, 1999)
- A new color category can be induced through laboratory training (Özgen & Davies 2002)
- Categorical perception seems to be language dependent (Roberson, Davies & Davidoff 2000)

Color terms

In conclusion

- The extreme version of linguistic relativity, that all thought is constrained by language, has been disproved.
- The opposite extreme – that language does not influence thought at all – is widely considered to be false as well.

The Pirahã

- A hunter-gatherer tribe of about 750 people in six villages
- Living off the Maici River in the Amazon Rainforest in Brazil



The Pirahã

Missionaries

- Since 1959, a number of missionary linguists from SIL have gone to live with the Pirahã.
- Daniel Everett was one of those. He lived with them on and off from 1977 to 2007 and studied their language in detail.

(From Wikipedia: SIL International (formerly known as the Summer Institute of Linguistics) is a U.S.-based, worldwide, Christian non-profit organization, whose main purpose is to study, develop and document languages, especially those that are lesser-known.)

The Pirahã

The Pirahã language

- A language isolate
- Has one of the smallest phoneme inventories in the world:
3 vowels and 8 consonants
- Very complex morphological system, with over 16 slots on the verb
- But some interesting restrictions, especially in the syntax

“Has a remote Amazonian tribe upended our understanding of language?”

(The New Yorker, April 16, 2007)

*“Researcher’s Findings in the Amazon Pit Him
Against Noam Chomsky”*
(Chronicle of Higher Education)

The Pirahã

Unusual features of Pirahã

- No number marking (singular vs. plural)
- No numerals
- No (simple) color terms
- Simplest pronoun inventory known
- **No embedding**

The Pirahã

No embedding?

- Pirahã apparently lacks possessor recursion:
 - (5) a. [Xipoogi hoaii] hi xaaga.
Xipoogi shotgun 3 be
'That is Xipoogi's shotgun.'
 - b. * [[Ko'oi hoagi] kai] gaihii 'iga.
Ko'oi son daughter that true
'That is Ko'oi's son's daughter.'

The Pirahã

No embedding?

- Pirahã lacks clausal recursion (you can't say *John said Mary thought that Bob liked her*).
- And, according to Everett (2005 et seq.) clausal embedding altogether.

(6) hi ob-aaxai kahai kai-sai.
3 know-intns arrow make-sai
'He knows arrow making.'

- According to Everett, cases of apparent embedding involve **parataxis**: juxtaposition of clauses or phrases without linking them syntactically.
- (7) It was cold. The snows came.
- So (6) is really something like "He knows it well; arrow-making."

The Pirahã

Why these restrictions?

- Everett (2005) claims that the absence of these complex features in Pirahã follow from the simplicity of Pirahã culture:
 - No creation myths
 - No art
 - No “collective memory”
 - Little interest in outsiders

Immediacy of Experience Principle (IEP) (Everett 2005):

Pirahã culture constrains communication to non-abstract subjects which fall within the immediate experience of interlocutors.

The Pirahã

On the absence of number

- Everett's claim is that number and numerals involve “abstract generalizations that range in principle beyond immediate experience.” (2005:627)
- Because Pirahã culture constrains communication to immediate experience, such devices are not available to Pirahã speakers.

Lack of possessor recursion

- “A cultural observation here is, I believe, important for understanding this restriction. Every Pirahã knows every other Pirahã. [...] Therefore one level of possessor is all that is ever needed.” (Everett 2005:630)

➡ Does this work?

The Pirahã

Lack of embedding

- The lack of embedding is supposed to also follow from Everett's IEP.
- Think about the meaning of embedded sentences:
 - (8) She said that he intends to leave.
 - (9) He believes that the earth is flat.
- Can you see what the idea would be?

The Pirahã

Taking stock

- We have a language, Pirahã, which has some rare typological features
- And an explanation couched in terms of culture, the Immediacy of Experience Principle
- How does this relate to what we have talked about in this class?

*“With respect to Chomsky’s proposal [Universal Grammar],
the conclusion is severe.”*

(Everett 2005:622)

Why would this be so?

The Pirahã

Universal Grammar (UG)

- **Universal Grammar:** Human beings have a species-specific genetic endowment for language.
- Doesn't say anything about the role of culture, and isn't incompatible with claims about the influence of culture.
- So what is at issue? *Recursion*.

The Pirahã

Merge

- When we learned morphology and syntax, we talked about the operation **Merge**.
- Merge combines two lexical items with one another, or a lexical item with an item constructed by Merge (this gives us the recursive property of language).
- It has been suggested that Merge is the extent of UG (Hauser, Chomsky, and Fitch 2002, *Science*).

The Pirahã

The issue

- Everett's contention is that the lack of embedding suggests that Merge is not at work in Pirahã.
- If true, and if we accepted Hauser, Chomsky, and Fitch's view of UG, this would cast doubt on the validity of UG.
- ▶ Is there an Everett-compatible view we might have of UG?

The Pirahã

The role of Merge in Pirahã

- Merge is not the same as embedding in Everett's sense.
 - More specifically, Everett claims that Pirahã lacks *self*-embedding.
 - Possessor recursion and clausal embedding involve embedding an element of type X in another element of type X.
 - ➔ Self-embedding is distinct from Merge.
-
- Whether Pirahã has self-embedding has little to do with the validity of UG (though, if true, it should constrain it).
 - Even if the description for Pirahã is right, it not an argument against using Merge to capture facts about Pirahã morphosyntax.

The moral of the story

**Remember your LING 200 knowledge
and *use* it to dissect claims about language.**

Plan for Wednesday

- Final exam: **April 19, 9am.**
- Review for final:
structure, type of questions, rough distribution of points.
- Time for you to ask questions.
- ➡ Friday's conference will also be a time for review and you to ask questions.