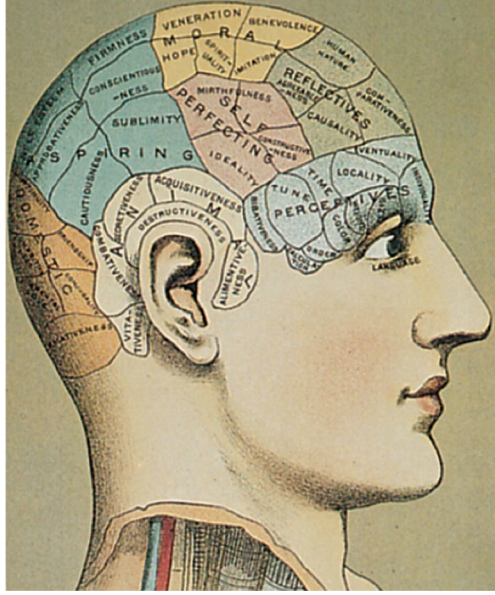
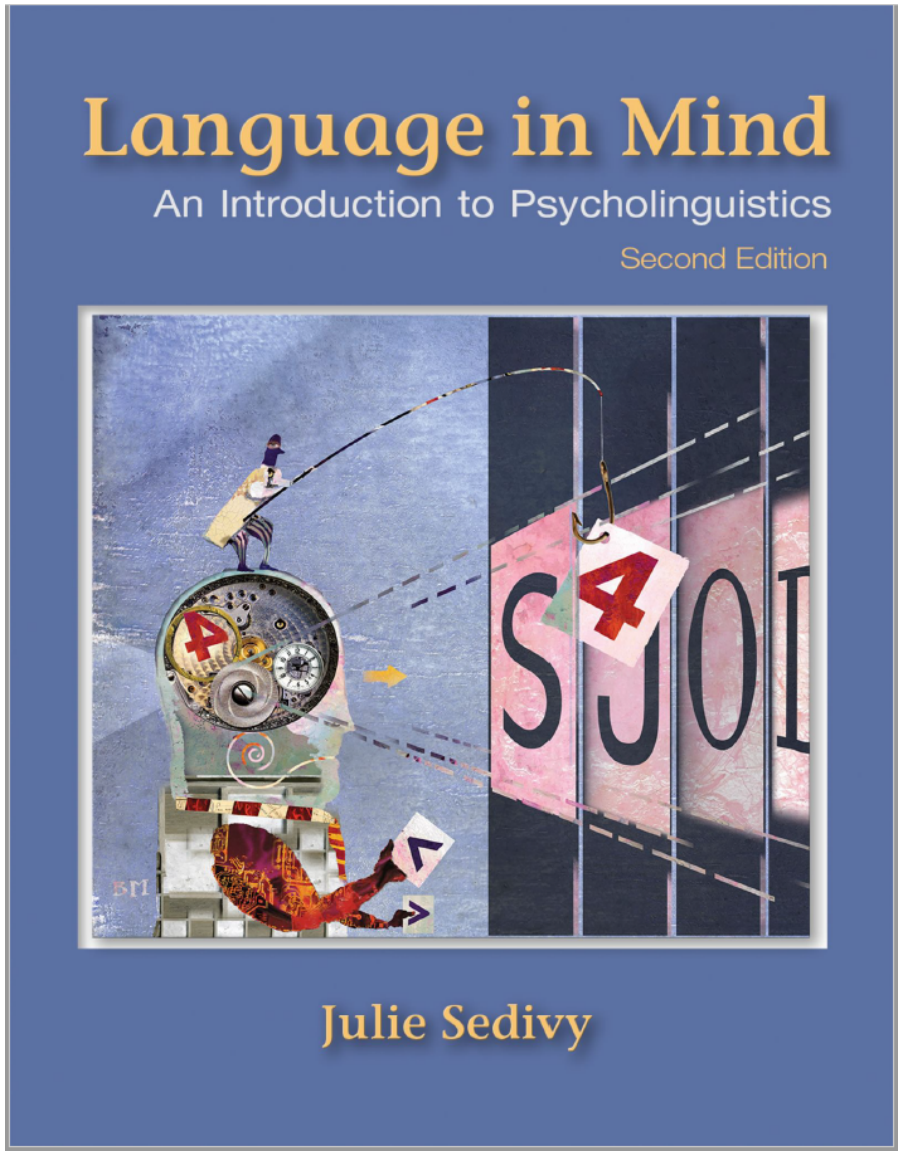


Language and Mind

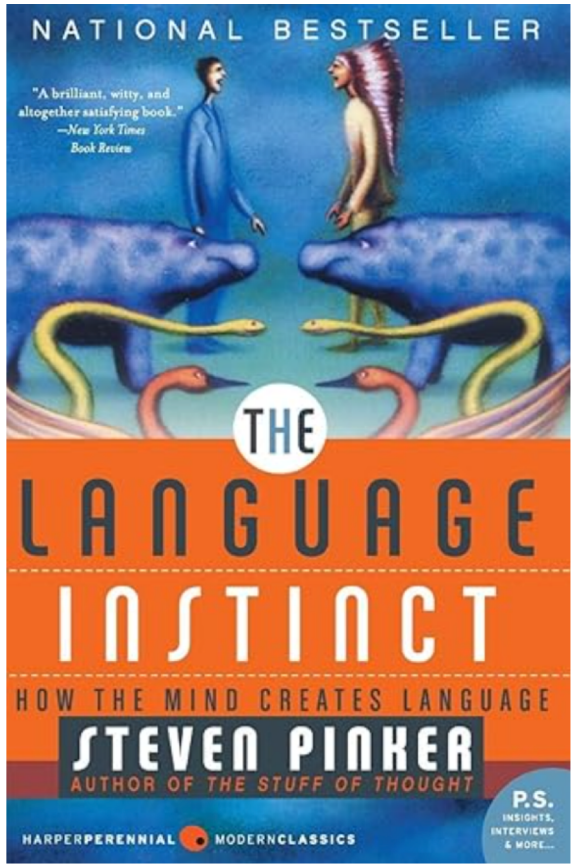
Agenda

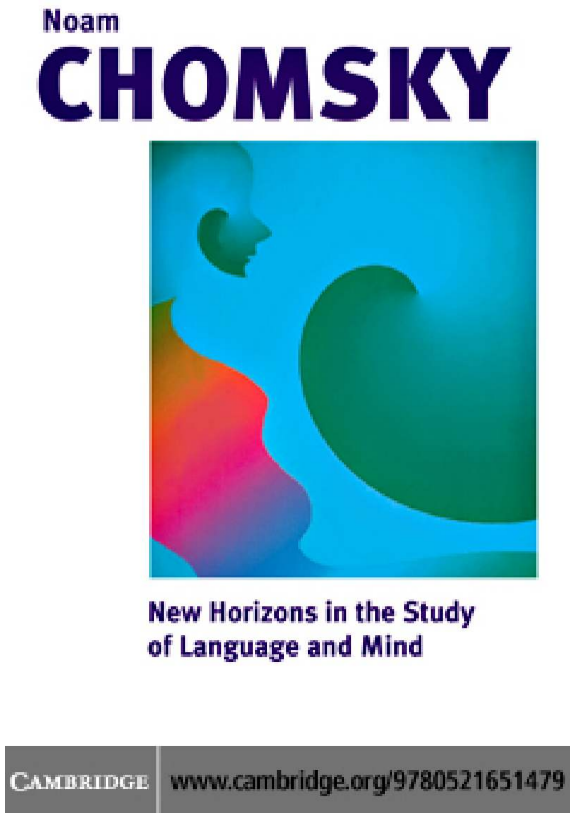
- Introduction to the course
- Course requirements

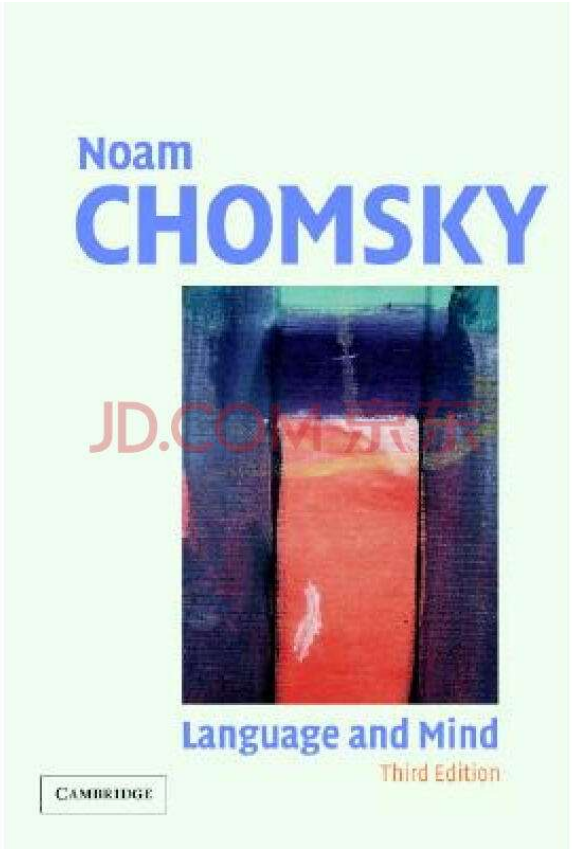
- Chapter 1



Language and mind, and thought



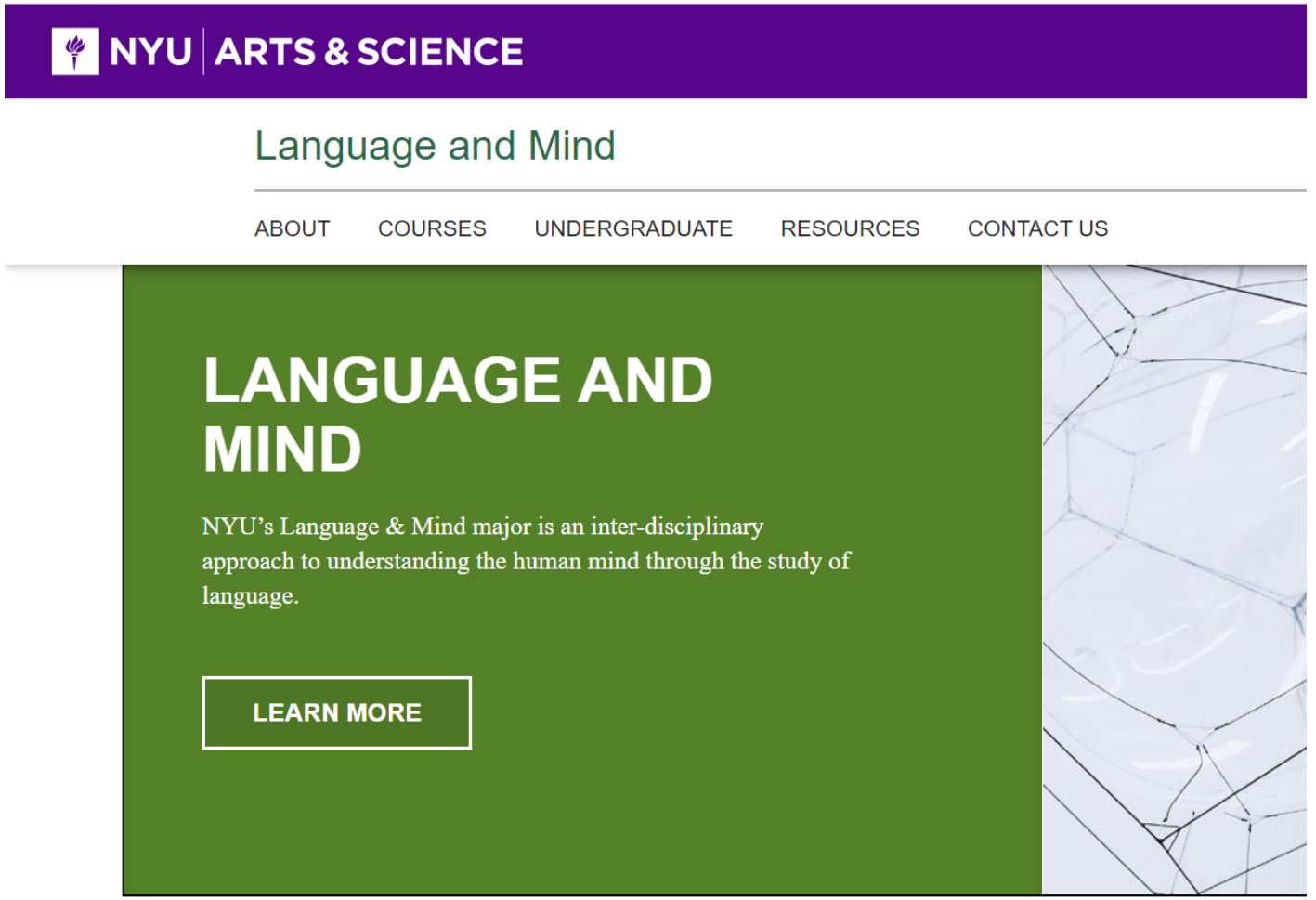




《语言与心智》

Language & Mind major at NYU

(https://as.nyu.edu/lamd.html)



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Language and Mind

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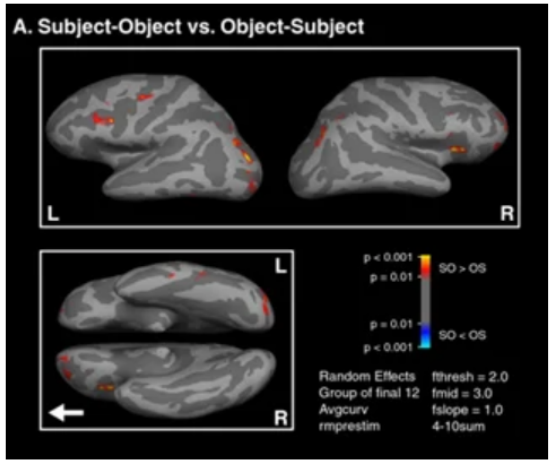


BOLD signal activations for center-embedded structures (e.g., "The juice that the child spilled stained the rug.") compared to right-branching structures (e.g., "The child spilled the juice that stained the rug."). (Image by Prof. Edward Gibson.)

Instructor(s)
Prof. Ted Gibson

MIT Course Number
9.98

As Taught In
January IAP 2003

Level
Undergraduate

Translated Versions
繁體字

CITE THIS COURSE

Course Features

Questions to contemplate:

- What’ s the relation of language and mind, and thought?

- What are the possible approaches to study this relation? What are the major subjects/disciplines that they fall into?

The course focus

- How language is represented in our minds?
- How language is acquired?
- Does knowing a language constraint/enrich the way in which one perceives the world? (language and thought)
- How is the relationship between language and mind reflected in the economic field? (foreign language and decision making)

Representation

An example of language representation: Jumbled text

- **Aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.**

Jumbled text

But try these sentences now …

- **A vheclie epxledod at a plocie cehckipont near the UN haduqertares in Bagahdd on Mnoday kilinlg the bmober and an Irqai polcie offceir**
- **Big ccunoil tax ineesacrs tihs yaer hvae seezueqd the inmcoes of mnay pneosenirs**
- **A dootcr has aimttded the magltheuansr of a tageene ceacnr pintaet who deid aetfr a hatospil durg blendur**

(http://www.mrc-cbu.cam.ac.uk/people/matt-davis/cmabridge)

Stroop task (Stroop, 1935)

- State color of ink used for following words:

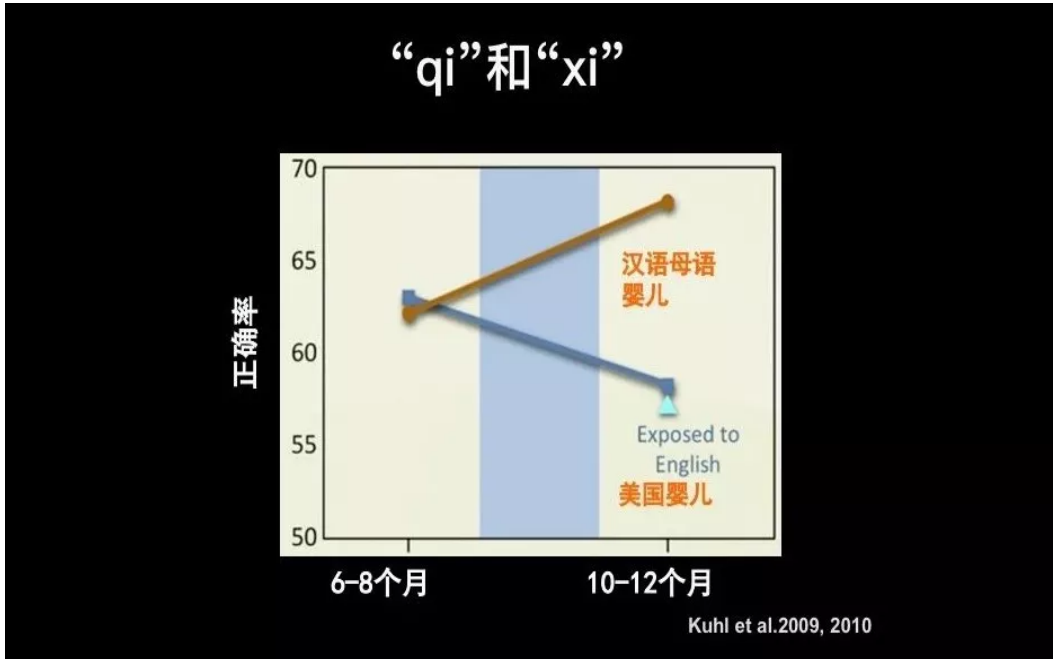
Language acquisition

Language acquisition

newborn infants recognize their mother's voice (DeCasper & Spence, 1986)

French babies tested within 4 days of birth could tell the difference between French and Russian (Mehler *et al.*, 1988)

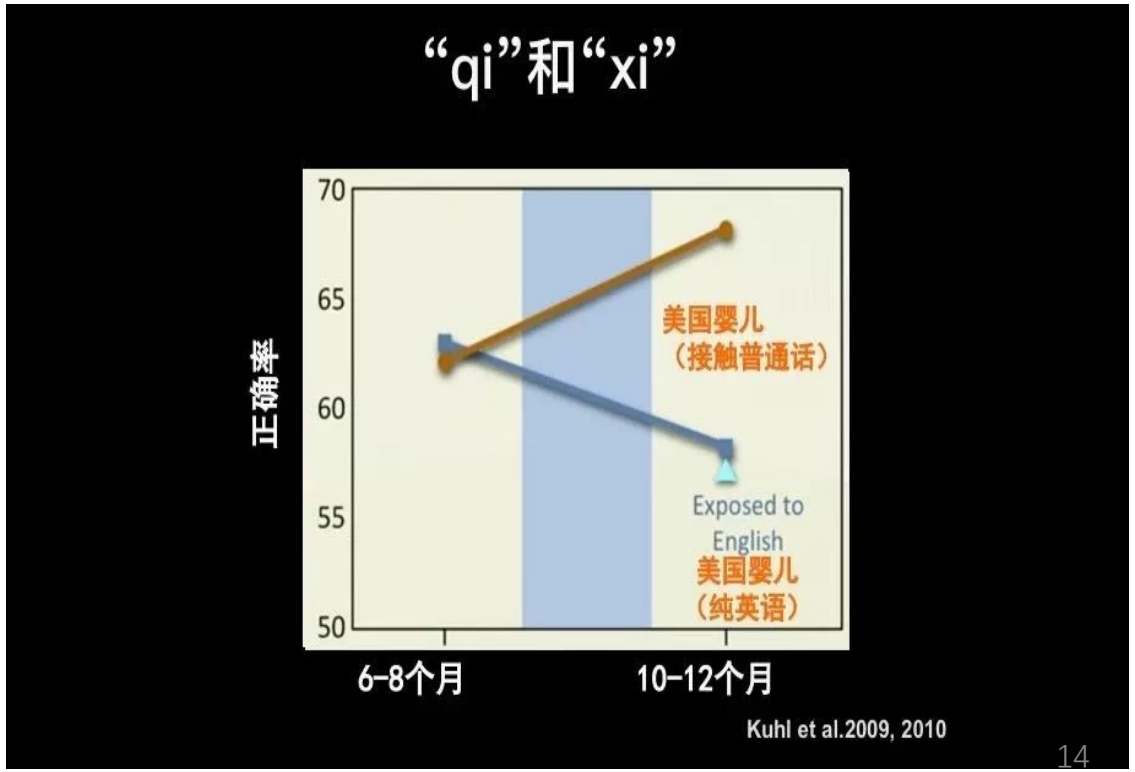
Children are good at statistical learning.



Kuhl *et al.* (2009, 2010)

1. At 6-8 months, no difference between infants who are exposed to Mandarin or English;
2. From 10-12 months, infants who are exposed to English can no longer distinguish /qi/ and /xi/

But for infants who were born in US, but had exposure to Mandarin, they can distinguish /qi/ and /xi/ as well as Mandarin infants.



Why machines cannot learn language as successful as human?

Is there “critical period” in language learning?

- We don’t know!

- Turing Test --- *Computing Machinery and Intelligence*

Language and thought

Sapir-Whorf Hypothesis

Sapir-Whorf Hypothesis

Language shapes cognitive processes, especially thought processes

Linguistic determinism

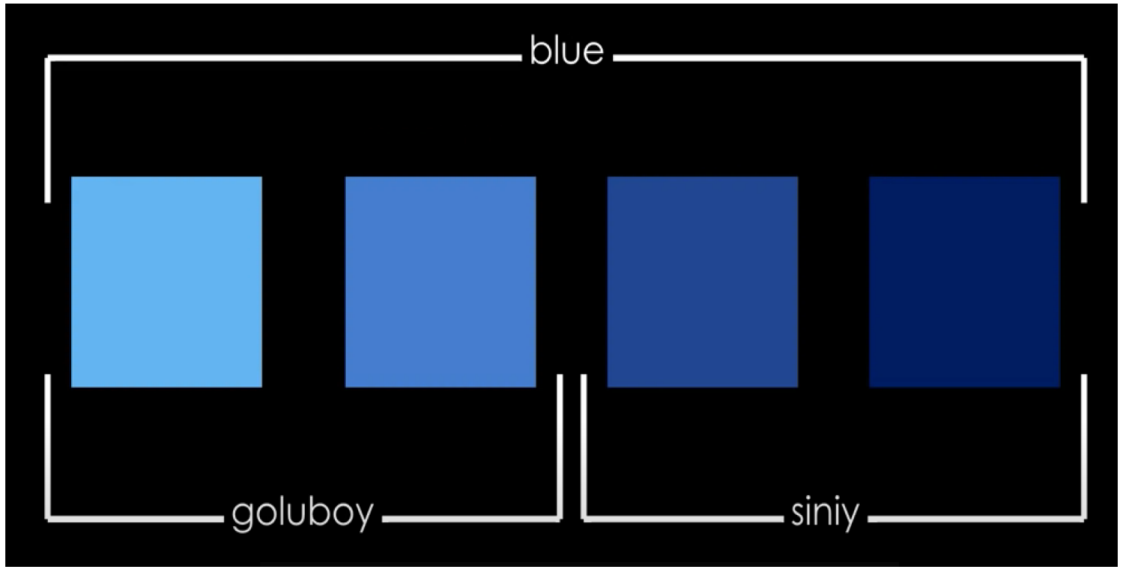
Language constrains thought.
→ if a language does not express a certain concept then the speakers of this language does not have a mental representation of that concept.

Linguistic relativism

Thought processes are different for different languages
→ certain patterns of language may highlight certain patterns of reasoning/thinking more than others.

Perception of color words

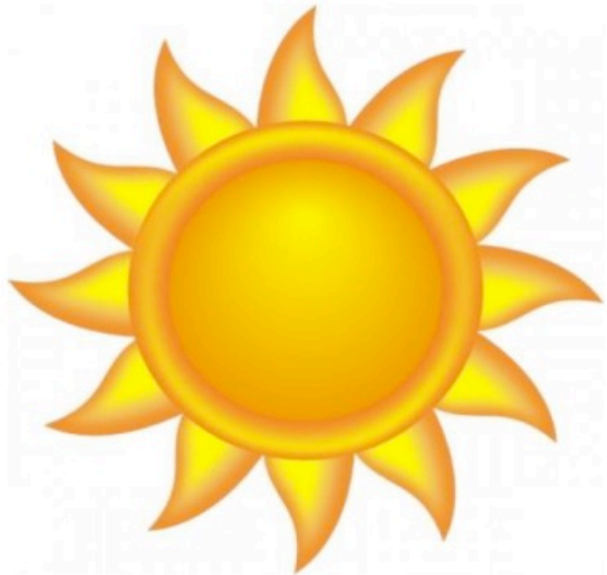
Winawer *et al*. (2007)



- Tasks: To perceptually discriminate light blue and dark blue
- Participants: English speakers and Russian speakers
- Results:
  1) Russian speakers are faster to recognize these categorical boundaries;
  2) The brains of Russian gave a surprise reaction when the colors shift slowly from light to dark

My questions to you.

1. What is this in English?



2. Give me 3 adjectives in English that describes this.
3. Anyone who speaks Spanish? Which adjectives did you say?
4. Anyone who speaks German? Which adjectives did you say?

→ This in German is *feminine,* this in Spanish is *masculine.* Depending on what language you speak, were your adjectives more feminine or masculine?

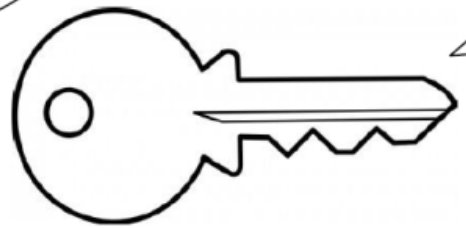
- Tasks: to describe nouns
- Participants: German and Spanish speakers

Language affecting perception? (in bilinguals)

Boroditsky et al. (2003) -- *Gender*

German speakers:
Hard, heavy, jagged, metal, serrated, useful

Spanish speakers:
Golden, intricate, little, lovely, shiny, tiny



Masculine

Feminine

Spanish speakers:
Big, dangerous, long, strong, sturdy, towering

German speakers:
Beautiful, elegant, fragile, peaceful, pretty, slender

Language affecting learning?

regular counting system
vs. irregular counting system

Dowker et al. (2008)

Transparency in the counting system.

1-10

11-20 Is 11, 10+1?

21-30 Is 21, 2 10s + 1?

→ English is not.

Welsh-English bilinguals and Tamil-English bilinguals → Their basic arithmetic skills were better in their transparent language system than their non-transparent language system.

→ Also, Miura and associates studies with Chinese, Japanese and Korean, Miller & Stigler with Chinese children.

Language and economic studies

Tense and savings

- Different mother tongues lead to different ways of thinking, which lead to different savings habits.

- Languages distinguish the present and the future (e.g., English):
  - See the present and the future as two different points in time
  - Feel that the future is far away
  - No need to save money

- Chinese: the opposite

Language affecting morals?

thephoenixmind.wordpress.com

The train is speeding towards the five people. If you push the lever, the train tracks will be switched, and the train will run towards the one person instead.

→ *What would you do?*

(SWITCH dilemma → less emotional reaction)

Course requirements

Weekly-assignment (due every Sat. 11:59pm, Canvas) (10%)

- Research article reading and summary writing (2 in total --- Week 3, 6)

- Research project and presentations
  - Topic (Week 7/8)
  - Research Design (Week 10)
  - Data Collection (Week 12/13)
  - Results & Discussion (Week 15)

Summary writing

- Our requirements (for psycholinguistic research paper, see "1_2_sample summary" , or "Researchers at work 2.1" (p.36-37))

- APA style

  https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_overview_and_workshop.html

Grading

- attendance + engagement: 5% +15%
- weekly assignment: 10%
- quiz: 10%
- final paper: 60%

Project

- Conducting primary research

https://owl.purdue.edu/owl/research_and_citation/conducting_research/conducting_primary_research/index.html

--- any kind of research that you collect yourself

--- surveys

--- interviews

--- observations

--- ethnographic research

--- **experiments**