1 ◻ Language, culture and cognition

Whorf Hypothesis
Lexical influences on cognition
Grammatical influences on cognition

2 ◻ The Whorf Hypothesis

- Linguistic determinism
--Strong: language determines cognition
--Weak: the presence of linguistic categories influences the ease with which various cognitive operations are performed.
- Linguistic relativity
  Cognitive processes that are determined are different for different languages

3 ◻

- Languages carve up reality in different ways.
- Language differences are covert or unconscious.
- Language differences influence our world view.

4 ◻ Some Whorfian examples

- Hopi just has one word covers everything that flies except birds.
- Eskimos have more words for snow than English speakers.
- Martin criticized that Whorf did not take morphology into account.
- When only root words are counted, Eskimos have a dozen words for snow. English has quite a few, too, including slush, avalanche, blizzard, and powder.

5 ◻ Grammatical examples

- Nouns—long lasting and stable events
- Verbs—short-lived actions
- Verbs for validity
- In Wintu, on inflection would be attached to the verb if there were direct visual evidence of this fact, another if it were gossip, and still another if it were a regular event.
- Count nouns vs. mass nouns
- No mass nouns in Hopi
- No count nouns in Chinese

6 ◻ Testing the Whorf hypothesis

- Differences in language
- Presence or absence of the explicit linguistic
- Two languages that mark the same distinction in different ways
- Differences in thinking
- Habitual thought
- Specialized thought

7 ◻ Color terms

- Codability: length of a verbal expression
- Zipf's law: the length of a word is negatively correlated with its frequency of usage
- Brown and Lenneberg (1954): colors that evoked long names were named with hesitation, with disagreement from one person to another, and with inconsistency from one time to another.

8 ▢ Crosslinguistic studies

- Berlin and Kay (1969) found the universal structure in color terms.
- black → red → yellow → blue → brown
  white   green
- Rosch (1973): Dani consists of only two color terms
- Dani learn and remember colors much as much as we do despite the extreme differences in color vocabulary.

9 ▢

- Kay and Kempton (1984)
- Tarahumara has a single term for blue-green
- English speakers sharply distinguished between chips on one side of the blue-green border and those on the other side, whereas speakers of Tarahumara did not do so.
- Both linguistic and perceptual salience influence color cognition.

10 ▢ Number terms

- The greater regularity of Asian languages suggests that children might have an easier time acquiring number names than their English speaking counterparts.
- Japanese, Korean and Chinese children were more likely than American children to use canonical approach.
- Chinese speakers pronounce numbers more quickly than English speakers.
- The way that language represent numbers influences mathematical thinking.

11 ▢ Form perception

- Carroll and Casagrande (1958) compared Navaho and English.
- In Navaho, the form of the verb varies with the shape of the object.
- Navaho children grouped the objects on the basis of form at an earlier age than the English-speaking children living in the same reservation.
- English-speaking children in a Boston suburb performed similarly to Navaho children.

12 ▢ Counterfactual reasoning

- Bloom (1981): Since Chinese does not explicitly mark the counterfactual, Chinese speakers would experience greater difficulties with counterfactual reasoning.
- When the story can be interpreted in either a counterfactual or a noncounterfactual way, 98 % of the US students interpreted the story counterfacually, and only 6 % of Chinese students did so.
- When the story required a counterfactual interpretation, 59% of the Chinese and 96% of the Americans interpreted the story counterfactually.

13 ▢ Counterfactual reasoning

- Au (1983, 1984): Bloom's stories are not idiomatic in Chinese.
  Chinese students had better performance on a revised version.
- Bloom (1984): Au's participants had taken ESL for 12 years.

- Liu (1985) used Chinese who had little exposure to or proficiency in English, and found a strong developmental trend.

14 ◻ Limitation
- Difficulty in securing materials that are appropriate and comparable
- Counterfactual reasoning is more specialized than habitual since it is probably more accessible to those with higher levels of education.

15 ◻ Cognitive representation of number

16 ◻
- Yucatec lexicon has words that refer to a numbers of objects of various shapes. For example, che' is used to refer to a number of objects of various shapes, all of which are made out of wood (tree, stick, board, and so on).

17 ◻ Lucy (1992) hypotheses
- H1: English speakers should habitually attend to number more.
- H2: English speakers would be more sensitive to shape than to substance, while Yucatec speakers would be just the opposite.

18 ◻ Lucy (1992) results
- English speakers specified the number of inanimate objects more frequently than the Yucatec speakers.
- No differences in animate beings or nondiscrete substances.
- Yucatec speakers attend to substance more than shape.

19 ◻ Importance of Lucy's work
- He has contrasted two grammatical treatments of number and how they may lead to different ways of thinking about objects.
- He used a number of different cognitive tasks.

20 ◻ Conclusion
- Whereas earlier studies did not provide any evidence for the Whorf hypothesis, recent work suggests otherwise.
- Certain linguistic variables may influence the speed of performance but not necessary the number of errors.