



# Unit 9 - Linguistic Relativity

## What is the relation of language to thought?

- Do the languages we speak affect our perception of the world?
- Does our language influence the way we behave?
- **The Linguistic Relativity Hypothesis**
- Different languages may bring about different ways of thinking and different effects on speakers' behavior.

## The Linguistic Relativity Hypothesis

- The **Linguistic Relativity Hypothesis** is also known as the **Sapir-Whorf Hypothesis**.
- Edward Sapir (1884-1939)
  - Professor of Linguistics and Anthropology, Yale University
- Benjamin Lee Whorf (1897-1941)
  - An amateur linguist and student of Sapir.
  - Deep interest in Native American languages.
  - Professionally a fire prevention officer.

Humam beings do not live in the objective world alone... but are at the mercy of their language.

We see and hear and experience the world in the way we do because our language leads us to these interpretations.

| ...each language is a shaper of ideas...

| All observers are not led by the same physical evidence to the same picture of the universe unless their language is similar.

## **Language affects perception**

- Key idea: Language acts as a filter onto the world, highlighting and obscuring different physical and mental phenomena.
- Like a special lens on a camera.

## **Differences in words and grammar**

- WORDS: Many languages have highly specialized vocabularies in certain areas.
  - Sami (Finland): 10 words for 'reindeer'
  - Pintupi (Australia): 10 words for 'hole'
  - Inuit (Greenland): multiple words for 'snow'
  - Shona (Zimbabwe): dozens of words 'walking'
- Sapir / Whorf: Speakers pay more attention to differences in the world which are highlighted by the words in their languages

## **All languages have their own, very special words**

- All languages contain words that are difficult or impossible to translate into other languages.
- 侘び寂び (Japanese)
  - A word that refers to a way of living that emphasizes finding beauty in imperfection, and accepting the natural cycle of growth and decay.
- Mamihlapintapein (Yagan, Argentina)
  - A wordless yet meaningful look shared by two people who both desire to initiate something but are both reluctant to start
- Ilunga (Tshiluba, Democratic Republic of Congo)

- A person who is ready to forgive any abuse the first time it occurs, to tolerate it the second time, but to neither forgive nor tolerate a third offense.
- Tartle (Scottish English)
  - A verb meaning to hesitate while introducing someone due to having forgotten his/her name
- Tingo (Pascuense, Easter Island)
  - A word referring to taking objects one desire by borrowing all of them from other's houses
- Words name concepts in our minds.
- If a specialized word exists only in one language (e.g. Japanese) and not other languages, the concept named by this word may only be present in the minds of speakers of that language (Japanese)

## Words with no direct equivalents in other languages

- Sometimes there are also simple words that actually don't have equivalents in other languages.
- For example, the following English words do not have direct translational equivalents in French:
  - monkey brown chair jug
- Message: words name concepts, and if certain words are not shared across languages, then speakers of different languages have different sets of mental concepts.
- If the set of concepts available to us affects how we think, then maybe speakers of different languages think in different ways.
- Alternative Hypothesis: Speakers of all languages share the same set of core concepts
- '**Lexical decomposition**' - the analysis of complex words into subparts

## Variation in concepts across languages

- Some researchers have suggested that apparent variation in words/concepts across languages can actually be reduced by the way we analyze words.
- Hypothesis: Speakers of all languages share the same set of core concepts. And special, complex concepts may be built from combinations of these shared basic concepts.
- German has two words for 'to eat' (essen and fressen) where English only has one. Does German have two concepts where English has one?
  - essen and fressen can be broken down into 3 core concepts, that English also has:
  - essen = human + agent + eat
  - fressen = animal + agent + eat
- German may only differ in the way that these shared concepts are combined with each other.
- Breaking down/analyzing complex words into sub-parts of meaning like this is called "**lexical decomposition**".

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- Another example
    - The word 'woman' can be broken down into: female + human + adult
  - Hypothesis: If all complex words can be broken down into combinations of shared core concepts, maybe languages actually **don't vary** in the set of concepts they contain? There is less variation than imagined?
  - However, psycholinguistic evidence tells us that speakers **do NOT** break down complex concepts into sets of basic concepts every time they hear/use such words.
    - We hear 'woman' as 'woman', not as 'female + human + adult'.
  - Conclusion: special, complex concepts DO exist in the minds of speakers, and vary across languages.
  - Specialized vocabularies contribute to the establishment of different conceptual systems across languages, and may have effects on the way their speakers think.

## The importance of grammatical variation

- Sapir was heavily focused on specialized vocabularies - 'lexical variation'
- Whorf more interested in 'grammatical variation' - argued that differences in grammar across languages may be more important than lexical variation.
- Why? Because speakers may not use special words
  - such as wabi-sabi, toska etc. very frequently.
  - Singular-plural: book-books
- But grammatical differences do occur very frequently in speakers' sentences.
- English-type languages add a plural marker to nouns when the noun refers to more than one entity: a book vs. three book-s
- This may focus our attention on singular vs. plural, because it is part of our high frequency grammar – every time we use a noun, we have to think about singular vs. plural marking.
- Other languages do not have this property, so their speakers may not think about such distinctions so much.

## Grammatical markings on verbs

- English-type languages (Spanish, German, French etc.) require that verbs be marked for tense – specifying when an event occurs, in the present, future, or past:
    - John walk-ed home. John read-s books.
  - Whorf: This regularly focuses our attention on the notion of time and being precise about when events take place.
  - Many Native American languages do not have any tense-markings on verbs.
  - ⇒ Whorf: This may result in a different way of thinking about time.
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- However, Native American languages very often have different markings on verbs, which don't occur in English-type languages.
    - These markers are called 'evidentials' – they indicate what kind of evidence the speaker has to support what s/he is saying.
  - For example

- Visual evidence - The speaker saw an event take place.
- Aural evidence - the speaker heard (but didn't see) that an event took place.
- Or the speaker knows that there is a general rumor that an event might have occurred.
- For each type of evidence, a different ending is added to verbs.
- Whorf suggested that speakers of Native American languages place more focus on being clear about the **evidence** they have for their words, and pay less attention to **time-specification** (when an event occurs) → they may have a different perception of time.
- Some additional support for this suggestion:
- English-type languages have words for portions of time, which can be counted:
- two days – four months – three hours
- Many Native American languages do not have similar words = time cannot be counted → a different view of time?

## Criticisms of early Linguistic Relativity

### [1] Language differences do not seem to cause differences in perception.

- Languages can be quite different without this corresponding to major differences in world views.
  - For example, English and German are different in many ways, but this might not seem to result in major different world views.
- **Counter-argument.** Not all linguistic differences are expected to cause differences in perception.
  - For example, word order and case-marking differences should not cause differences in thought:
  - Many of the linguistic differences between English and German are not patterns that should have effects on perception.

## [2] Not all our concepts come to us from language

- The LRH: We learn about the world through our language, which acts as a filter, highlighting and obscuring outside 'reality'.
  - → Our ways of thinking/our concepts come from language.
- But maybe we get concepts directly from our experience, not through language.
- So, which way is it?
  1. words/language → concepts
  2. experience → concepts → words/language
- Answer: Both ways.
- Sometimes we have experiences that cause mental concepts to be formed before any words for these concepts are developed.
  - There are many things we have mental concepts for, but no words.
  - Either no word exists, or we don't know the word for an object or idea – but we still have a mental concept corresponding to these objects.
- But other concepts DO come to us through language...
  - There are some phenomena that we cannot experience directly or easily, but we have words for these 'things'.
    - ghost atom peninsula politics wifi
  - We hear a word, and then form a concept as we learn more about the word.
- General consequences. It is NOT true that thought/concepts ONLY come to us through language.
- Therefore, a very strong version of the LRH cannot be correct (i.e. all thought comes from/through language).
- However, some concepts do develop this way → potential support for a weaker version of the LRH.

## [3] Linguistic Relativity vs. Linguistic Determinism

- Weak version of the Sapir-Whorf Hypothesis: **Linguistic Relativity**.

- Language has a tendency to influence thought.
- Strong version of the Sapir-Whorf Hypothesis: **Linguistic Determinism**.
  - Language fully determines thought and forces speakers to think in pre-set ways.
- Critics of the Sapir-Whorf Hypothesis: Linguistic Determinism cannot be correct.
- Now, all 'neo-Whorfian' researchers agree with this – the strong form can't be right.
- But the weaker form is still supported.

#### **[4] Need for better evidence for the LRH**

- Critics suggested that early research into the LRH did not provide good, convincing evidence, just speculations.
- In order to provide good support for the LRH, **non-verbal** evidence is needed, showing that people behave differently when there are differences in their languages.
- This has been accepted as a valid criticism.
- Whorf had assumed/hypothesized that if there were linguistic differences (of certain kinds) between languages, this would correspond with differences in ways of thinking (e.g. lack of tense marking = different perspective of time).
- But this is not a necessary conclusion.
- Since the 1990s, this has now been achieved, in well-constructed experiments, which show how people's non-linguistic behavior may be impacted by differences in the languages they speak.

### **A broad assessment of the LRH from another researcher: George Lakoff**

- George Lakoff: 'Women, fire, and dangerous things.' 1987, University of Chicago Press.
- Lakoff comments on the relation of language to thought, the LRH, and Whorf's contribution to science.
- Two important terms:



- ‘**Conceptual capacity**’ = the ability all humans have (in the same way) to form new concepts.
- ‘**Conceptual system**’ = the actual set of concepts present in the minds of individual speakers – varies from speaker to speaker.

## **The formation of concepts**

- Lakoff describes several linguistic/conceptual outcomes which arise in different language groups, as the result of their experiences.

### **[1] Different experiences produce different concepts/conceptual systems.**

- The Cora people live in a mountainous area of Mexico.
- Their daily interaction with this environment heightens their awareness of the summits, slopes, and bottom parts of hills.
- This spatial sense is then transferred to 2-dimensional horizontal planes when talking about the location of objects.
  - We: The cup is on the far end/middle of the table
  - They: The cup is on the summit/slope/foot of the table

### **[2] Parallel experience occurs, but different concepts evolve from this experience.**

- Example: the concept ‘back’ in English and Hausa (West Africa).
  - English: back - the surface facing away from us which we cannot see
  - Hausa: back - the surface in the direction that aligns with the speaker’s back

### **[3] Similar experiences occur, but certain concepts fail to be formed in some languages.**

- *Tahitians* have no word for ‘sadness’.
  - Sadness is classed as sickness, tiredness, or the attack of an evil spirit
- And they don’t seem to have any distinct concept of it.
- Similar patterns in the naming of mental states and emotions in other languages
  - S.A.D (Seasonal Affective Disorder)

# Neo-Whorfian experiments probing the LRH

1. The perception of objects in English and Navajo
2. Plural marking in English and Yucatec Maya
3. The memory of events in English and Japanese
4. Color terms and perception
5. Shape vs. material distinctions
6. Spatial terms and orientation

## Experiment 1: The perception of objects in English and Navajo

- Navajo has special grammatical markers for [shape](#).
- Does this make speakers of Navajo more aware of shape than speakers of other languages?
- In children, the perception of [color](#) and [size](#) distinctions typically develops before the perception of [shape](#).
- Do Navajo-speaking children behave differently and show more sensitivity to shape?
- A potentially significant language difference:
  - In Navajo, verbs of 'handling' (e.g. give, take, put, throw etc) have special endings which provide information about the shape of the object of the verb.
  - For example, whether the object is long and thin, spherical, cube-like, flat and rectangular.
- LRH research question: If Navajo has special grammatical markers for shape, does this make speakers of Navajo more aware of shape than speakers of other languages?
- The best population to investigate: younger children.

## The perception of objects

- Children typically follow a common pattern of cognitive development:
- The perception of **color and size** distinctions develops before the perception of shape.
- If language plays an important role in shaping perception, Navajo-speaking children might be expected to behave differently, and show an increased sensitivity to shape at an early age.

### **Shape investigation test populations:**

- Ethnically-Navajo children living on the same Navajo reservation, with the same lifestyle.
- Some were raised speaking Navajo, others grew up speaking just English.
- Navajo- and English-speaking children were given two objects which varied in shape and color. Then a third object was presented and a question:
  - Which of the first two objects does the third object most resemble? Which is it most like?
- Result (Good support for the LRH):
  - The **English**-speaking children grouped objects that were similar in **color** (as expected).
  - The **Navajo**-speaking children grouped objects that were similar in **shape**.
- The special verbal endings in Navajo seem to affect young children's non-linguistic behavior.

### **A follow-up test was carried out to further verify the results** 🖐️

- Two sets of non-Navajo English-speaking children were tested in the same way.
  - **Group A:** Middle-class children from **Boston**
  - **Group B:** working-class children from **New York**
- Result:
  - **Group B** behaved as expected – sorted objects according to the similarity in **color**, like the English-speaking Navajo children.

- But **Group A** sorted according to **shape**, like the Navajo-speaking children...
- The researchers suggested that the difference related to the different socio-economic backgrounds of Groups A and B.
- Children in Group A had toys to play with which stimulated the early development of shape.
- Children from the poorer Group B did not have such toys, and so the cognitive development of shape was not given any special stimulation.

## Conclusions

1. Grammatical differences can influence perception and behavior (the Navajo-speaking children behaved differently from their English-speaking peers).
2. There are also other things that can influence our perception – the availability of toys with Group A to stimulate the perception of shape.
3. The most extreme form of the Sapir-Whorf Hypothesis, Linguistic Determinism, cannot be correct. Other factors influence our perception.
4. The LRH in its weaker form IS supported – language CAN influence the development of perception.

## Experiment 2: plural-marking

- Languages compared: English and Yucatec Maya (Mexico)
- In **English**, the plural marker –s has to be added to nouns every time there is a reference to more than one person, animal, or thing.
  - one student - three students
  - one dog- three dogs
  - one book - three books
- In **YM**, a bare noun can be interpreted as either singular or plural:
  - One student - Ten student
- YM does have a plural marker –o'ob, but it is:
  - Optional + mostly occurs with humans and animals, and not with things.

- Similar to Chinese - 们, Japanese - たち
- Difference 1. English forces its speaker to pay attention to the distinction between 'one' and 'more than one'. YM does not.
- Difference 2. YM uses its optional plural-marker much more often with humans and animals than things.
- Use of plural markers in English and YM:

	Humans	Animals	Things
English	Yes	Yes	Yes
YM	%	%	No

## The experiment

- Participants were shown pictures of scenes with humans, animals, and things.
- Task 1. Describe what you see in the picture.
- Task 2. Turn the picture face down. Now describe from memory what was in the picture.

## The results

1. English speakers indicated much more often than YM speakers whether humans, animals, and things in the pictures were singular/on their own, or in groups.
2. When YM speakers did mention such distinctions, they only did this for humans and animals, not things (such as farmyard tools, vehicles, and buildings).

## Conclusions

- The linguistic differences in English and YM have effects on the perception of visual scenes.
- The obligatory marking of plural vs. singular distinctions in English makes its speakers pay more attention to whether humans, animals, and things occur singularly or in groups.
- The YM optional plural marker only seems to make speakers pay some attention to whether humans and animals occur singularly or in groups, and not things.

## Experiment 3: Remembering witnessed events

- A difference between English and Japanese.
- In English, some verbs can be interpreted as deliberate actions or accidental actions:
  - John coughed (deliberately/by accident).
  - Sue broke the vase (deliberately/by accident).
- In English, the cause(r) of action occurs as the subject of the sentence whether the action is deliberate or accidental.
- In Japanese, the cause of an accidental action is much less frequently mentioned/the subject.
  - The vase broke (because of John).
- Might this linguistic difference affect how speakers create mental pictures of events they witness?

### The experimental task

- Participants were shown short video sequences depicting events of people either accidentally or deliberately causing certain changes to other objects:
  - bursting balloons
  - spilling drinks
  - breaking eggs
- After viewing the videos, participants were asked to remember and describe what happened and who caused the events to occur.
- An interesting difference was found between the English and Japanese descriptions.

### The results

- English speakers remembered who caused the events to occur for both deliberate and accidental actions.
- Japanese speakers only remembered well for their deliberate actions.

- The Japanese speakers seemed to have 'seen' the events through the filter of their language, which often doesn't mention the causers of accidental events, unlike English.
- Further support for the language-perception connection and the LRH.

## Experiment 4: Color distinctions

- Different languages have different sets of basic color terms/BCTs, between 2-12.
  - English has 11 BCTs
    - White, black, red, green, yellow, blue, brown, purple, pink, orange, grey
  - Russian has 12 with BCTs equivalent to light blue and dark blue

(Experiment will not be tested)

### Color experiment

- English has both blue and green as BCTs.
- Research question: Does this affect the way speakers of English perceive distinctions in shades of color?

### Experiment design

- 12 colored squares are positioned participants' field of vision.
- 11 of the squares are the same shade of blue.
- The 12th square is either green, or a different shade of blue.
- Task: How quickly and well can participants locate the odd-colored 12th square?
- Is it easier if this square is green vs. another shade of blue?
- Participants are asked to fixate their vision on a cross in the middle of the squares, not to look around the squares.
- This causes the left 6 squares to occur in the left portion of participants field of vision, viewed with the left eye, and the right 6 squares are viewed with the right eye.

### Results

1. If square 12 is on right and green = spotted quickly.
  2. If square 12 is on left and green = not spotted quickly.
  3. If square 12 is on right and a different blue = not spotted quickly.
  4. If square 12 is on left and a different blue = not spotted quickly.
- The different square is ONLY spotted well if it is GREEN and on the RIGHT side.
  - This visual information feeds into the part of our brain where language is stored, and language seems to help us perceive distinctions encoded in our language – green vs. blue.
  - We see language distinctions that correspond to different words for color that we have in our language.
  - Using a language distraction task (such as repeat a sequence of numbers through the task), the participants cannot pick the 12th square from the right quickly.

## Experiment 5: Shape vs. material

- When nouns are combined with numbers (e.g. two cats), some languages require the use of a 'classifier' (or 'unitizer').
- Chinese, Korean, Japanese, Vietnamese, Thai, Indonesian, Burmese...
- **'numeral classifier languages'**
  - 'two dogs' = 2 Classifier dog
  - Chinese: liang zhi gou
- In English, nouns which refer to substances – 'mass nouns' - require an additional word, like a classifier to measure out the noun.
  - mud water sand rice
  - two bottles of water
  - ten pounds of rice
- Idea: numeral classifier languages have nouns which are mass/substance-like, so all nouns in Chinese etc require classifiers.



- In **English-type languages**, most nouns (exception: 'mass nouns') are conceived of as individuated occurrences of a type of entity: car, book, house, cat etc
- No classifier is necessary to individuate such nouns – they are inherently individuated and have their own shape.
- In **Chinese-type languages**, nouns are all conceived of as mass terms and need a classifier to be individuated in counting.
- **Hypothesis**: such differences may lead to a different focus of attention with nouns:
- English-type languages: the **SHAPE** of nouns
- Chinese-type languages: the **MATERIAL** of nouns – what they are made up of as masses.

## The experiment

- One early experiment of this type contrasted Yucatec Maya/YM (a classifier language) with English (a non-classifier language).
- Experiment design. Speakers of YM and English were first shown an object and then shown two more objects that either shared the same shape as the original, or its material, but not both.
- Question: Which of the secondary objects is most like the original/first object?

## Do speakers of English and YN perceive similarity in terms of shape or material?

- English speakers regularly selected shape alternatives → pay more attention to shape.
- YM speakers regularly selected the material alternatives → pay more attention to the material.
- The predictions of the LRH are supported.
- Differences in language may affect non-linguistic behavior such as the perception of objects.

## Experiment 6: Spatial orientation

- Languages of the world reference spatial orientation in three common ways, with different frames of reference/FORs to describe where objects are located.
1. **Egocentric languages** prioritize using terms relating to the body – left and right. English, Korean, Russian..
    - ‘The book is on the right-side of the table.’
    - ‘Look out, there’s a big spider on your left shoulder!’
  2. **Geocentric languages** use an absolute FOR – points of the compass – north, south, east, and west. Balinese, Tzeltal (Mexico), Warwa (Australia)... 1/3 of the world’s languages are geocentric.
    - ‘The book is on the west-side of the table.’
    - ‘Look out, there’s a big spider on your northeast shoulder!’
  3. **‘Intrinsic frame of reference languages’**
    - Locate objects relative to other objects in the speaker’s field of vision.
      - ‘The cup is next to the book.’
    - An intrinsic FOR may be combined with a geocentric or egocentric FOR, but some languages only use an intrinsic FOR – Mopan (Belize), Totonac (Mexico).
    - Research question: Does the dominant FOR strategy in a language affect speakers’ non-verbal behavior?
    - Experiment 1: Maze-path completion
    - Experiment 2: Animals in a row
      - Participants are shown a sequence of toy animals on a table, and asked to memorize what they see.
      - Participants are then rotated 90 degrees to face another table and asked to reproduce the sequencing/relative positioning of the animals.
      - Speakers of ego-centric languages reproduce the left-to-right order they saw when they are rotated.
      - Speakers of geocentric languages position the animals according to their original N/S/E/W position.

## Conclusion: the importance of language use

- Speakers of **egocentric languages** have words for north, south, west, and east, but tend to use **left and right** more often to describe the location of objects.
- Speakers of **geocentric languages** have words for left and right but tend to use **north, south, west, and east** more often to describe the location of objects.
- The dominant pattern of language use affects speakers' non-verbal behavior – how they perceive and memorize the spatial location of objects.
- Support for the LRH + what is important is speakers' common use of their words – these words influence other aspects of their behavior.

## Summing up

- A range of experiments carried out in recent decades has provided good empirical support for the LRH (weaker version), showing the influence of language differences on non-verbal behavior.
- Speaking different languages does seem to affect our perception of certain aspects of the world and our interactions with others.
- This leads to a final interesting question.
- What happens if you are bilingual?
- How might your two languages influence your perception?

## Bilinguals and the LRH

- What **mode(s) of perception/MOPs** do bilinguals have?
- Three possibilities:
  1. Consecutive bilinguals: MOP of L1 remains dominant, even when an L2 is acquired.
  2. MOPs of both L1 and L2 are used – MOP of L1 when L1 is spoken, MOP of L2 when L2 is being used.
  3. A hybrid MOP from L1/L2 develops which is not like the MOP of monolingual L1 or L2 speakers.

- Many bilinguals seem to develop mixed, hybrid MOPs, somewhere between L1 and L2
- MOPs are not like those present with monolingual L1 or L2 speakers.
- Other research found that two different MOPs can be 'primed' and used.
- Manipulation of the language of instruction of experiments can cause either an L1 or an L2 MOP to be activated and used.
- If instructions are given in English to English-Chinese bilinguals, they seem to use an English MOP.
- If instructions are given in Chinese to English-Chinese bilinguals, they seem to use a Chinese MOP.
- For example, in sorting objects by shape vs. material.
- There is much more interesting work to be done on this!

## **Autobiographical Memory**

- How we remember things that have happened to us in the past.
- Studies show that our memory of past events is 'coded' for the language spoken during the event.
- Memory retrieval with the language used during events results in richer descriptions.
- Language is a powerful mechanism for accessing memory.
- Psychiatrists interviewing bilinguals about repressed memories of events can select which language to communicate in.
- The language used during the original event will allow for easier access to its memory/recall.
- But this may also be very traumatic for patients, if the event was painful, e.g. an incident of personal abuse or domestic violence.
- Use of the other language may allow for more psychological distance from the event.
- Less psychological pain for the patient.

### Important point for Linguistic Relativity

- The language used to access a past event imposes a filter on memory.
- Different languages produce different descriptions of the 'same' event.
- Languages affect the way we can retrieve and describe parts of our memory.
- Not all languages allow the same access to past memories.