What is the role of semantic maps in linguistics?

Laura A. Janda
UNC-Chapel Hill/University of Tromsø
janda@unc.edu/laura.janda@hum.uit.no
www.unc.edu/~lajanda

Main idea

- We don't know whether all languages are based on the "same" parameters
  - We can't build up a theory based on such an assumption
- Semantic maps are an example of a discrete type of model, and it is possible that they conflate data that is not compatible

Overview

1. Polyfunctional grams. How can they be compared across various languages?
2. What is a semantic map? – Examples
3. DISCRETE vs. CONTINUOUS (Langacker 2006) and what this distinction means for semantic maps
4. Linguistic differences that cannot be accommodated in semantic maps
5. Conclusions: What does it mean to make linguistic comparisons?

Polyfunctional grams

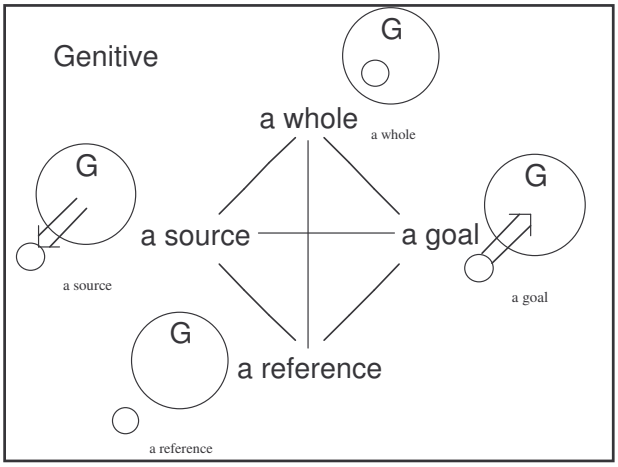
- All languages have such units
  - Adpositions, inflectional and derivational morphemes, etc.
- These units represent linguistic categories
  - Tense, aspect, case,
- The categories reflect the way that people understand experiences such as physical location, time, and relationships between things

Polyfunctional grams

- How can such units be described?
  - Cognitive linguists use
    - Schemas
    - Prototypes
    - Radial categories

Polyfunctional grams

- An example:
  - The genitive case in Slavic
    - Schema: Something (trajectory) that moves or is located near something else (landmark)
    - Prototypes: 'source', 'goal', 'reference', 'whole'
    - Radial category (with metaphorical extensions)



Polyfunctional grams

- They are more complicated than one might think
  - There is no one-to-one correspondence between such units and the concepts that they represent
  - These units often overlap with each other
  - These units can be used in various combinations
- See Polish examples 1 and 2

Polyfunctional grams

- It just gest worse when one tries to compare such units across several languages
  - See examples 3 and 4
    - Polish, Czech, and Russian inherited the “same” preposition and case systems
- What happens when we have dissimilar, unrelated languages? Semantic maps are designed to compare large numbers of languages

What is a semantic map?

- The most prominent theorists are
  - Croft
    - (2001, 2003, Croft and Poole forthcoming)
  - Haspelmath
    - (1997a, 1997b, 2003)
- Others who have made significant contributions
  - Anderson (1982), Clancy (2006), Kemmer (1993), van der Auwera & Plungjan (1998), van der Auwera, Dobrushina & Goussev (2004), van der Auwera & Malchukov (in press), van der Auwera & Temurcu (in press)

What is a semantic map?

- Terminology
  - Conceptual space
    - All possible distinctions that a human being can perceive
    - The backdrop (grid) for a semantic map
  - Semantic map
    - The distribution of actual distinctions made by one or a number of languages across the parameters of conceptual space

What is a semantic map?

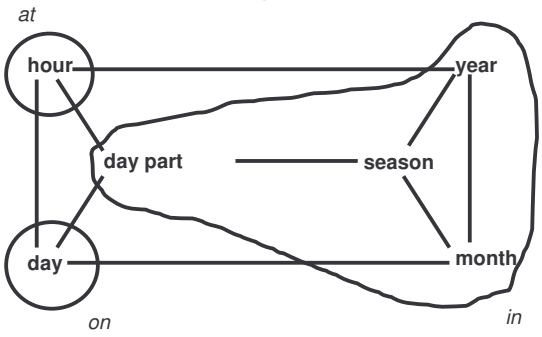
- Research proceeds from individual languageas to semantic maps to conceptual space
- Semantic maps claim that it is possible to find
  - Parameters of a universal conceptual space (what kinds of distinctions human beings can both perceive and code in language)
  - Implicational universals (which functions can co-occur in grams)
  - Grammaticalization paths (diachronic directions for grammaticalization)

Are there limitations to semantic maps as a linguistic model?

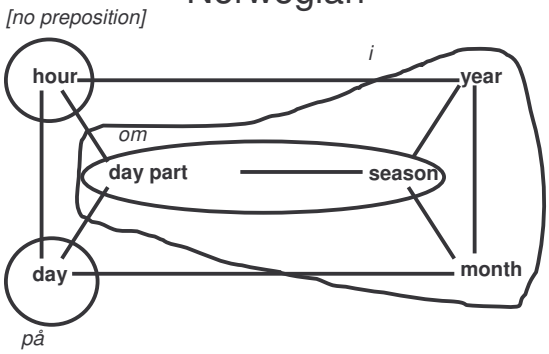
- When semantic maps compare several languages, the model is making an important assumption:
  - All languages are based on same parameters, merely choosing various subsets of those parameters for grammaticalization
- Is it really possible to discover the parameters of human conceptualization by using semantic maps?
- First we need to work through an example…

Temporal locations (Haspelmath 1997b)

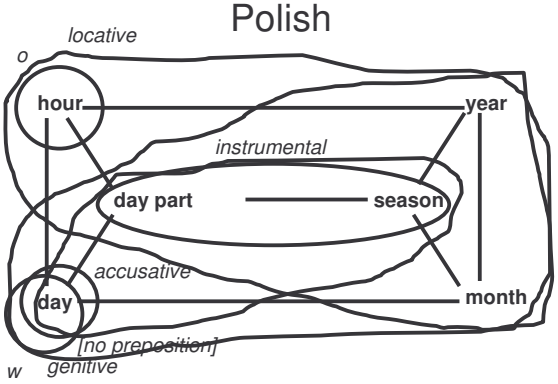
English



Norwegian



Polish



The semantic map for temporal location

- It works – We do find a typological pattern here
  - All languages use only contiguous portions of the map
  - In contiguous portions of the map we find
    - longer time periods vs. shorter time periods
    - day part connected to day vs. season connected to year
- But these are not “deep” conclusions

DISCRETE vs. CONTINUOUS

- Langacker (2006)
  - All models are metaphorical, and all metaphors are potentially misleading
  - All metaphors emphasize some factors and suppress others
  - When a model is too discrete or too continuous, it suppresses information
  - Linguistic models tend to be too discrete
  - Even a misleading model can lead to good results if the person using it takes into consideration its limitations

The advantages of discrete models

- One can find "things" og "groups" in a continuous reality (galaxies, archipelagoes, villages, cf. Langacker 2006)
- One can see how how individual grams overlap in their functions in a given domain
- One can find typological patterns across languages
- One can visualize messy empirical data as coherent wholes (more organization than a list and more details than an abstract general meaning, cf. Haspelmath 2003)

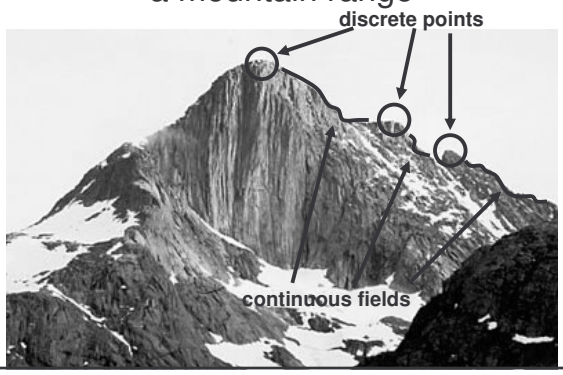
Limitations of discrete models

- Semantic maps see only discrete points and ignore the continuous zones between them
- This effect is amplified when one makes comparisons across languages
- A cross-linguistic semantic map is two orders of magnitude more discrete than a radial category, for it ignores the continuous zones both at the level of individual languages and across languages

Other limitations of discrete models

- When we say *in November* (Eng), *i november* (Norw) og *w listopadzie* (Pol), do *in*, *i* and *w* have "the same meaning"?
- Even when *in*, *i* and *w* are used in "the same meaning", they have different things in their semantic baggage (different prototypes and metaphorical extensions)
- A semantic map shows only the "distances" between units – it doesn't tell us anything about their meanings (Langacker, pc 2006)

Langacker's alternative: a mountain range



Differences that cannot be accommodated in semantic maps

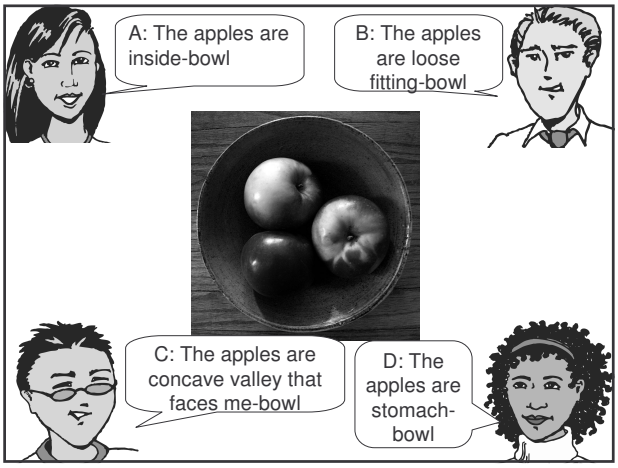
- Up until this point we have only talked about quantitative differences between models (discrete vs. continuous)
- We just *assumed* that the things that were being compared were indeed comparable…

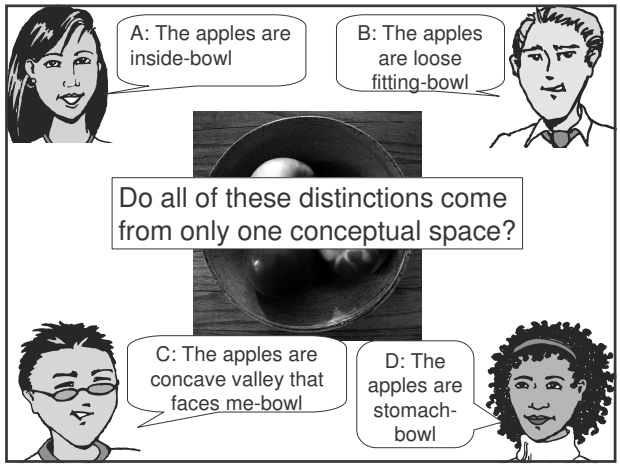
Qualitative differences

- Different parameters
  - one language uses one set of parameters and another language uses an entirely different set of parameters for the "same" domain
- Different means
  - one language has grammaticalised a distinction that another language represents only optionally in the lexicon
- Different metaphors
  - In different languages the "same" grammatical distinction is motivated by different metaphors

Different parameters

- Finnish has no grammatical gender distinctions, but gender is obligatorily marked on nounds, adjectives, pronouns, and verbs in Slavic languages like Polish
- Location can be expressed in a variety of different ways
- Tzeltal uses cardinal directions even for locating small items, whereas other languages use deictic terms such as *right* vs. *left*, *in front of* vs. *behind*





Semantic maps of expressions for spatial location

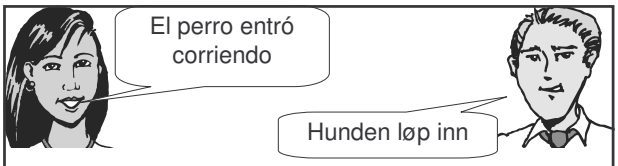
- Levinson et al. (2003): 71 expressions for spatial location from 9 languages
  - Goal: to find out which expressions cluster together (rejecting the notion that these clusters represent innate universal categories)
- Croft & Poole (forthcoming): used Levinson's data and applied more sophisticated mathematical analysis (Multi Dimensional Scaling)
  - Goal: to find universal categories

Other problems

- Levinson et al. (2003) uesd data from 9 languages, but there are perhaps as many as 7000 languages in the world
  - Do we want to base a theory on only 0.13% of the relevant data?
- Levinson et al. (2003) researched 71 expressions for spatial location
  - Do we know that these 71 spatial locations are precisely the ones that represent all the differences that a human being can perceive and encode in language?

Different means

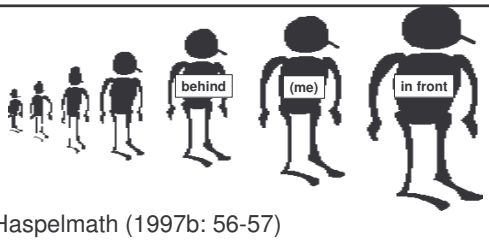
- A concept can be expressed by a grammatical category in one language, but be expressed only lexically in another language
  - Evidential verb paradigms i Macedonian and Albanian vs. *angivelig* (Norw), *allegedly* (Eng), *rzekomo* (Pol)
- Two (or more) concepts can have different status in different languages
  - verb-framed vs. satellite-framed



On a semantic map these differences disappear

Different metaphors

- Human beings cannot perceive time directly, and it seems that all languages use the TIME IS SPACE metaphor
  - But different languages use different versions of this metaphor
    - Expressions for *before* vs. *after*
    - Aspect in Russian



- Haspelmath (1997b: 56-57)
  - Many languages use IN FRONT to express 'before'
    - German *vor*, Latin *ante*, Polish *przed*, Albanian *para*
  - Fewer languages use BEHIND to express 'after'
    - Latin *post*, Albanian *pas*

Aspect in Russian: three (pairs of) metaphors

- Discrete solid object vs. Fluid substance => Perfective vs. Imperfective
- Travel vs. Motion => Completable vs. Non-completable
- Granular vs. Continuous => Singularizable vs. Non-singularizable

Discrete solid object vs. Fluid substance => Perfective vs. Imperfective

Discrete solid object => Perfective

vs.

Fluid substance => Imperfective

Ja napisal roman
'I have written a novel'

The event has a shape, clear boundaries, etc.

Ona gotovilas' k èksamenam
'She studied for the exams'

The event has no shape, clear boundaries, etc.

Travel vs. Motion => Completable vs. Non-completable

Pisatel' pišet knigu
'The author is writing a book'

The verb can have a Natural Perfective: *napisat'* 'write (until a result is achieved)'

Professor rabotaet v universitete
'The professor is working at the university'

The verb can have a Complex Act Perfective: *porabotat'* 'work for a while (without a result)'

Granular vs. Continuous => Singularizable vs. Non-singularizable

Mal'čik čixal
'The boy sneezed/was sneezing'

The verb can have a Single Act Perfective: *čixnut'* 'sneeze (once)'

Mal'čik igral vo dvore
'The boy played outside'

Metaphorical differences can't be accommodated in semantic maps

- The metaphorical system for aspect in Russian is very complex
  - Other languages probably use other metaphors for aspect
  - A semantic map has to ignore metaphorical differences
  - How can one make comparisons across a number of different metaphorical systems?

Semantic maps of aspectual expressions

- Dahl (1985): expressions for 250 types of events from 64 languages
  - Goal: to find out which expressions cluster together (rejecting the notion that these groups represent universal categories)
- Croft & Poole (forthcoming): used Dahl's data and applied more sophisticated mathematical analysis (Multi Dimensional Scaling)
  - Goal: to find universal categories

Other problems

- Dahl (1985) used data from 64 languages, but there are perhaps as many as 7000 languages in the world
  - Do we want to base a theory on only 0.9% of the relevant data?
- Dahl (1985) researched expressions for 250 types of events
  - Do we know that these 250 types of events are precisely the ones that represent all the differences that a human being can perceive and encode in language?

Conclusions

- Some theorists (Croft, Poole, Haspelmath) claim that
  - a) A single universal conceptual space exists
  - b) The grammar of each language is the sum of the "lines" drawn by that language across this single shared space

What does it mean to make linguistic comparisons?

- We don't know whether a single universal conceptual space exists
- It is possible that different languages "inhabit" different conceptual spaces
- A semantic map necessarily ignores the meanings that motivate points of usage and the continuous fields between them
- We don't know whether the things that are compared on a semantic map can be compared at all

Summary

- Semantic maps can
  - Help us to visualize complex data
  - Help us to find a pattern across a number of languages
- But we must be cautious and remember that
  - We still know very little about conceptual space and whether it is universal or not
  - A semantic map is a relatively discrete model and it may conflate data that is incommensurate

Many thanks to:

- Steven Clancy, William Croft, Östen Dahl, Martin Haspelmath, Ronald Langacker, Johan van der Auwera, who shared their ideas with me