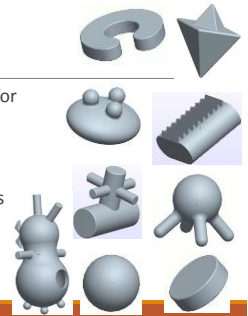# English meronymy:
Preliminary results from the Novel Objects

TIMOTHY TILBE – UNIVERSITY AT BUFFALO

The Novel Objects

- Set of 9 plastic objects developed for MesoSpace
- Designed to be unfamiliar
- Purpose: Test how speakers of different languages apply meronyms productively.

Part Identification task

- Referential communication task with pairs of speakers
- Director explains to Matcher where to place blobs of Play-Doh on each object.
- Visual barrier forces them to rely on language to pick out parts.

English pilot data

- Limitations:
  - Only 3.5 usable sessions of Part Identification task
    - (The MesoSpace manual calls for at least 5 pairs of speakers)
  - Used preliminary plaster versions of the objects
  - Little data from Placement task

Why English?

- Outside of Mesoamerican sprachbund
  - How similar to / different from the languages in MesoSpace?
- Trying to define the possibility space for meronymy across languages

---

Lexical vs. non-lexical meronyms

- Lexical meronyms, such as *edge, foot, bump,* inherently mean parts.
- Non-lexical meronyms, such as *triangle* and *ball,* can also be used for whole entities.

Proportion of lexical meronyms

- All together, the participants referred to 113 parts.
- Often, the same person would describe the same part in multiple ways:
  - e.g., "four sides, four surfaces; put it on the one that's on the right, that's not facing you"

[right column]

- Each session had 58 parts that might be referred to (apart from "other").
  - Total of 203 parts that could have been referred to in these sessions.
- 94 parts were referred to with at least one lexical meronym.
- 83% of the parts referred to were given lexical meronyms.
- 46% of all parts were given lexical meronyms.
  - Close to the figures for Nawat (45.5%) and Tseltal (47.5%) from the MesoSpace meronymy questionnaire.
  - English falls in the middle of the distribution, unlike Seri (12%) and Juchiteco (63.8%).

Without *part*

- The word *part* is the most general meronym possible, encoding nothing but partness.
- No equivalent in Mesoamerican languages
- Not counting *part,* 41% of all parts were given lexical meronyms in the pilot data
  - Close to the figure for Mayangna (42.86%)

Semantic classes of lexical meronyms

- Geometrical
- Body part
- Surface features
- Plant

Geometrical lexical meronyms

- Can be applied to most physical objects; their literal interpretations do not encode any specific domain.
- The most frequently occurring class of meronym in this data.

- Used by more than one speaker:
  - *Side, part, top, bottom, base, edge, center, surface*
    - *Part,* the most general possible meronym, was used frequently by one speaker, usually with modification.
- Used by only one:
  - *End, curve, half, section, underside, back, portion*

The most frequent geometrical lexical meronyms

Totals from all participants:

Meronym	Tokens
Part	32
Top	16
Side	15
Bottom	11
Edge	9

Body part meronyms

- Used by more than one speaker:
  - *Leg, foot, arms, head, body, throat, face*
    - *Face* could be considered a geometrical term
- Used by only one:
  - *Paw, lip, stomach, nose*
- Body part meronyms were concentrated in descriptions of the more organic-looking (curvilinear and complex) objects.

The most frequent body part meronyms

Totals from all participants:

Meronym	Tokens
Leg	21
Foot	13
Face	7
Arm	6
Head	5

Surface feature meronyms

- Protrusions, depressions / negative space
- Used by more than one speaker:
  - *Ridges, hole, humps, corner, tip*
- Used by only one:
  - *Bumps, groove, depression mark, knobs, nubs, gap, opening, point, peak*
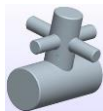
The most frequent surface feature meronyms

Totals from all participants:

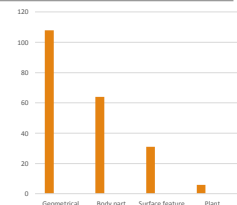| Meronym	Tokens
Corner	5
Ridges, hole, bump	4 each
Hump	3
Tip, knob	2 each
[All others]	1 each

Plant meronyms

- Occurred marginally
- Used by more than one speaker:
  - (None)
- Used by only one:
  - *Branches, trunk, log*
  - Only for Object 5
  - Each term only had two tokens

Tokens of lexical meronym classes

Class of meronyms	Tokens
Geometrical	108
Body part	64
Surface feature	31
Plant	6

Semantic classes of non-lexical meronyms

- Geometrical figure
- Artifact

- These are words that do not lexically encode parthood, but were applied to parts in the sessions.

Geometrical figure terms

- Used by more than one speaker:
  - *Triangle, circle*
    - Used interchangeably for surfaces and volumes
- Used by only one:
  - *Cross, cylinder, diamond, pyramid, sphere, X, C, U, lower case t, zigzag*

Artifact terms

- Used by more than one speaker:
  - *Ball*
- Used only once:
  - *Egg, mushroom, can, wheel, tube, faucet, windmill, block, grating/grates, sticks*

- Often there were explicit hedges: "The part that looks like a…."
- Comparisons only based on shape
  - The novel objects have no clear functions

Orientation of the object

- The vast majority of the time – 23 out of 27 objects – the director described the intended orientation of the object.
- Orientation is important.
  - In this respect, English resembles Zapotec more than it does Tseltal.

Overall interpretation of object

- Just 8 out of 27 objects were explicitly given an overall interpretation.
  - Interpretations included animal, plant, artifact. E.g.:
    - Object 6: "We'll say it's like an animal"
    - Object 2: "Looks like a little tree"
    - Object 2: "Turn it so it looks like a spinning top"

Evidence for non-unique mapping of body part terms

- One speaker identified four legs and two arms on Object 7
  - Does not correspond to biped or quadruped model
  - But clearly there is a global analogy: the whole object is seen as some kind of animal.
  - Analogy does not imply unique mapping

arms
legs
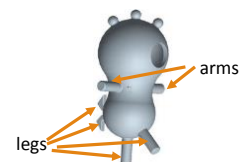
Future directions

- Would the results look the same with a larger sample of speakers?

Summary

- Frequency of lexical meronyms is neither high nor low.
- Abstract general-purpose meronyms are the most frequent.
- Body part, plant, geometrical, and surface feature meronyms occur.
  - As well as geometrical and artifact terms that are not lexical meronyms.
- Speakers generally establish and rely on an orientation.
- There is evidence for non-unique mapping of body part terms.

Thank you!