



Overview

- meronymy in Mesoamerica
- the MesoSpace project
- MesoSpace meronym tasks
- typological questions

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Meronymy in Mesoamerica

- **meronyms** - object-part designators
- artifacts
 - Indo-European languages: labeling by function
 - Mesoamerican (MA) languages: labeling by form (shape)

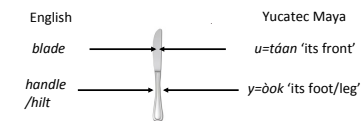


Figure 1. Categorizing parts by function vs. form

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Meronymy in Mesoamerica (cont.)

- Indo-European languages likewise have a general-purpose meronymic system
 - the 'front'/'back'/'left'/'right'/'top'/'bottom' (FBLRTB) system
 - but these terms are generally assigned by function and/or presuppose canonical vertical orientation
 - e.g., none of them is readily applicable to a knife

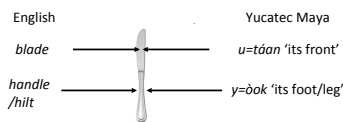


Figure 1. Categorizing parts by function vs. form

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Meronymy in Mesoamerica (cont.)

- meronyms in Mesoamerica: productivity
 - used across large heterogeneous classes of objects
 - labeling any arbitrary geometrically defined part of any arbitrary object
 - cf. MacLaury 1989 for Ayoquesco Zapotec and Levinson 1994 for Tenejapa Tzeltal (Mayan)

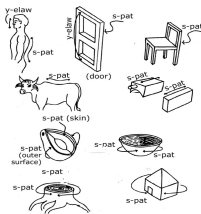


Figure 2. Productivity of MA meronyms: some uses of s=pat 'its back' in Tzeltal (Levinson 1994: 811)

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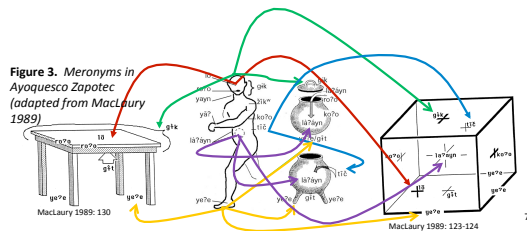
Meronymy in Mesoamerica (cont.)

- what makes this productivity possible?
 - two proposals
 - global analogies (MacLaury)
 - shape-analytical algorithms (Levinson)

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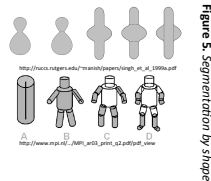
Meronymy in Mesoamerica (cont.)

- MacLaury: Ayoquesco Zapotec meronymy operates on global analogical mapping
 - a set of seven body part terms are freely extended to non-human animals and inanimates



Meronymy in Mesoamerica (cont.)

- Levinson's alternative
 - meronymy operates on shape-analytical algorithms
 - starting point: visual analysis of the object's outline
 - segmenting it into volumes based on curvature discontinuities
 - and assigning axes to these volumes
 - that generate them following Marr's (1982) theory of shape recognition



Meronymy in Mesoamerica (cont.)

- Levinson's algorithm and body part terms
 - the algorithm governs applications of body part terms to animate as much as to inanimate entities
 - hence, there is no semantic transfer involved
 - even the 'buttocks' of a person are just the less convex end of the generating axis of the torso

Meronymy in Mesoamerica (cont.)

- Levinson: the case against global analogy in Tzeltal
 - all parts may be named non-uniquely
 - so any object can have an arbitrary number
 - of 'legs', 'noses', 'heads', 'backs', etc.
 - parts are named on the basis of shape
 - regardless of place in the structure of the object
 - so 'arms' can be assigned growing out of 'heads'
 - 'noses' out of 'buttocks', etc.
 - the place of the labeled part in the structure of the object varies across classes of objects

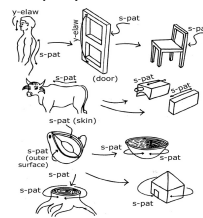


Figure 4. s=pat 'its back' realizations: Apparent local body part analogies in Tzeltal (Levinson 1994: 811)

Meronymy in Mesoamerica (cont.)

- the parts on the ends of the axes of each volume are then labeled on the basis of their shape
 - e.g., s=pat 'its back' really designates
 - the flatter and less featured end on an axis orthogonal to the one that generates the main volume



Figure 6. Generating the uses of s=pat 'its back' in Tzeltal (Levinson 1994: 811)

Meronymy in Mesoamerica (cont.)

- meronymy in spatial reference
 - in many Mesoamerican languages, meronyms are one of two major resources for reference to spatial regions
 - the other being geocentric terms such as 'uphill' and 'south'
 - the following examples from Juchiteco Zapotec and Yucatec Maya illustrate the first possibility

(1.1) Dxil'ba za ike yoo
 raised.over cloud head house
 'The cloud is over the house' (Pérez-Báez 2012: 128)


(1.2) ...h-tàal u=balak' y=òok'ol le=pak' =o'
 PRV-come(B3SG) A3=roll A3=top DET=brickwork=D2
 '...it came rolling on the wall'

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The MesoSpace project

- NSF award #BCS-0723694 
- MesoSpace aims to contribute to the debate on reference frames in language and cognition
 - cf. Pederson et al 1998; Levinson (1996, 2003); Li & Gleitman et al 2002; Li et al 2011; Majid et al 2004; Haun et al 2011, *inter alia*.
 - we are working on a series of studies that pit linguistic against non-linguistic predictors
 - of reference frame use across language
 - we are also investigating a possible lexico-syntactic factor that may influence frame use
 - namely the productive use of shape-based meronyms in the representation of space

The MesoSpace project (cont.)



• 13 Mesoamerican (MA) languages

- Mayan
 - Chol (J.-J. Vázquez)
 - K'anjob'al (E. Mateo)
 - Tzeltal (several variants; G. Polian)
 - Yucatec (J. Bohnemeyer)
- Mixe-Zoquean
 - Ayutla Mixe (R. Romero)
 - Soteapanec (S. Gutierrez)
 - Tecpatán Zoque (R. Zavala)
- Oto-Manguean
 - Isthmus (Luchitán) Zapotec (G. Pérez)
 - Otomí (N. Hernández, S. Hernández, E. Palancar)
- Huave (S. Herrera)
- Purépecha (A. Capistrán)
- Totonac-Tepehuan
 - Huehuetla Tepehua (S. Smythe)
- Uto-Aztecan
 - Pajapan Nawat (V. Peralta)



Figure 7. MesoSpace: Field sites

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The MesoSpace project (cont.)

• 6 non-MA “controls”

- Seri (C. O’Meara)
- Cora (Uto-Aztec; V. Vázquez)
- Mayangna (E. Benedicto, A. Eggleston in collaboration with the Mayangna Yulbarangyang Balna)
- Mexican, Nicaraguan, and Barcelonan Spanish (R. Romero; E. Benedicto, A. Eggleston)



Figure 8. The MesoSpace team (Iminus V. Perilla and R. Tucker)

• 2 (interrelated) domains

- meronyms and spatial frames of reference

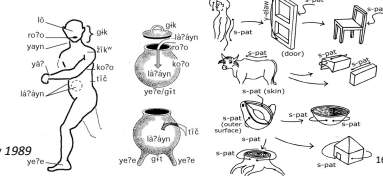


Figure 9. Meronyms in Ayoquesco Zapotec (left) and Tenejapa Tzeltal (adapted from MacLaury 1989 and Levinson 1994)

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The MesoSpace project (cont.)

- spatial frames of reference
 - cognitive coordinate systems used for reference to regions and directions in space

- Intrinsic** → The ball is in front of the chair.
- Relative** → The ball is to the right of the chair.
- Absolute** → The ball is east of the chair.

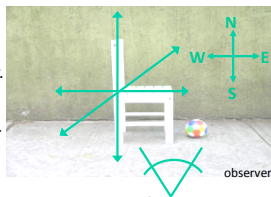


Figure 10. The three types of spatial FoRs distinguished in Levinson 1996

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MesoSpace (cont.)

• the new project: MesoSpace Ib

- *Spatial language and cognition beyond Mesoamerica*
 - NSF award #BCS 1053123, 2011 – 2014
- new languages
 - Jahai (Mon-Khmer; N. Burenhult)
 - Japanese (isolate; J. Olstad)
 - Mandarin (Sino-Tibetan; H. Hsiao)
 - Mungbam (Benue-Congo; J. Lovegren)
 - Taiwanese (Sino-Tibetan; H. Hsiao)
 - Vietnamese (Mon-Khmer; J. Lovegren)
 - Wan (Mande; T. Nikitina)
 - Yurakaré (isolate, Bolivia; R. van Gijn and V. Hirtzel)
- continuing languages
 - additional data is being collected from speakers of several of the languages of the original MesoSpace sample
 - analysis of data from most MesoSpace I languages continues

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- MesoSpace (cont.)
- objectives
 - collect further data on linguistic vs. environmental determinants of reference frame use
 - additional stimuli/tasks
 - *Talking Animals*
 - » for the study of reference frames in discourse
 - » using 3D objects instead of photographs and simpler configurations
 - *Extended Ball & Chair (B&C)*
 - » additional sets of B&C pictures designed to probe the principle of canonical orientation
 - collect further data on meronymies and compare them at an international symposium



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MesoSpace meronym tasks

- picture book
 - pictures of humans, animals, and plants
 - a set of artifacts
 - some customary in MA culture
 - some Western, with parts commonly identified functionally in Spanish
 - especially where the Spanish labels for these deviate from the labels predicted by geometry
 - elicitation of part segmentation, part descriptors, and locative descriptions

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- MesoSpace meronym tasks (cont.)
- the Novel Objects aka "Chunches"



Figure 11. Some Novel Objects

- referential communication tasks targeting reference to parts and placement descriptions with respect to parts
 - in each trial, one participant has an object with bits of play dough attached to various parts in front of them
 - » and the other an identical copy of the object w/o the play dough
 - the first speaker instructs the second speaker to put the play dough on the correct parts, identifying the parts in the process

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Typological questions

- lexicalization and productivity
 - what is the distribution of domain-specific and domain-general meronymies in the languages of the world?
 - by hypothesis, domain-generality correlates with productivity
 - to what extent is it really possible to label arbitrary parts generatively
 - across Mesoamerican and other languages
 - and what strategies do speakers rely on when confronting the problem of how to refer to the parts of unfamiliar objects?

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Typological questions (cont.)

- semantics and conceptualization
 - what is the distribution of global-analogy-based systems and shape-analytical algorithmic meronymies?
 - do these really exclude one another, as Levinson claims, or can they co-exist in one meronymy?
 - are there other mapping strategies beyond those proposed by Levinson and MacLaury?
 - are the shape-based algorithms really non-metaphorical?
 - to what extent do meronyms have polysemous vs. general meanings?

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Typological questions (cont.)

- parts vs. regions
 - to what extent are meronyms used across languages for reference to spatial regions?
 - how is this use reflected in their structural properties?
 - does reference to regions instead of parts require
 - a separate, possibly grammaticalized form of the meronym
 - or combination with a semantically general spatial relator or neither?

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Typological questions (cont.)

- reference frames
 - to what extent are meronyms assigned relatively (i.e., based on the axes of the observer's body)?
 - how does this interact with reference to parts vs. spatial regions?
 - MesoSpace has been informed by the hypothesis
 - that the pervasive use of domain-general meronyms as a resource for expressing spatial relations disfavors the use of relative frames

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Typological questions (cont.)

- morphosyntactic properties
 - which form class(es) do meronyms belong to?
 - relevant options include
 - relational nouns as in Mayan and Otomanguean languages
 - bound morphemes as in Totonacan, Tarascan, and Mixe
 - there may be other options that have not yet been attested

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