The grammar of parts, places, and paths in languages of Mexico

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Overview

• semantic typology and formal semantics
• the language sample
• a semantics for spatial descriptions
• path-neutral ground phrases
• meronyms
• interface variations
• summary and conclusions
• acknowledgments
• appendix: key to interlinear glosses

Semantic typology and formal semantics

• how much crosslinguistic variation is there in compositional semantics?
  – to what extent does meaning composition vary across languages?
  – what are the dimensions/parameters of variation?
  – what factors determine the types a language instantiates along these dimensions?
• candidate loci of variation (cf. von Fintel & Matthewson in press for discussion)
  – the functional category system
  – the operations of meaning composition operative in a language in addition to function application

Semantic typology and formal semantics (cont.)

• preview
  – in all four languages, spatial descriptions are canonically "verb-framed" (Talmy 2000)
  – yet, they exhibit a striking amount of variation in the mapping b/w syntactic and semantic types
  – what seems to be invariant across the four is the logical form of spatial descriptions
A semantics for spatial descriptions

- We focus on utterances that describe the location or motion of one entity – the figure
  - With respect to one or more reference entities or grounds
- Locative descriptions
  - The space occupied by the figure – a region – is included in a region defined wrt. the ground

A semantics for spatial descriptions (cont.)

- **Path functions** constrain the set of paths compatible with a given motion description
  - By fixing their beginning (source) or final region (goal), some region passed through in between (route), etc.
- Path functions are of type \(<s,p,t>\), mapping regions into characteristic functions over a path argument
  - \(p\) is the type of paths
  - Path functions correspond to Kracht's (2002) 'modalizers'
- Path functions may be expressed
  - Outside the verb root, in prepositions, adverbs, particles, and case markers
    \(\Rightarrow \{S\text{(satellite)}\}\text{-framing}\)
  - In the roots of 'path verbs' \(\Rightarrow \{V\text{(erb)}\}\text{-framing}\)
  - For telic descriptions (Aske 1989, Beavers 2008)
    - V-framing is dominant in most Romance languages
    - In Hebrew, Turkish, Japanese, ...
  - S-framing is dominant in most Germanic and Slavic languages (Talmy 2000)

A semantics for spatial descriptions (cont.)

- In S-framed descriptions, path expressions appear to be construed as secondary predicates

A semantics for spatial descriptions (cont.)

- The locative function \(loc\) maps entities into the regions they "occupy" at the time of evaluation
- The interpretation of place functions such as under' may be prototyped
  - And depend on force-dynamic notions (such as contact, attachment, and support/suspension) and frames of reference
  - Cf., e.g., Hengeveld 1985; Jackendoff 1983; ch.9; Levinson 1996; Zwarts & Winter 1986; Kracht 2002; and many others
- The term 'place function' is borrowed from Jackendoff and corresponds to Kracht's 'localizer'
  - Kracht (2002: 190) argues that the treatment of place functions in terms of mappings to regions is too simplistic; but it will do here

A semantics for spatial descriptions (cont.)

- Motion descriptions
  - Motion verbs have a semantic path argument
    - Which like the event argument is bound by existential closure by default; cf. Krifka 1998, Zwarts 2005
  - Paths can be modeled as continuous functions from the real unit interval [0,1] to regions (Zwarts 2005)

A semantics for spatial descriptions (cont.)

- In S-framed descriptions, path expressions appear to be construed as secondary predicates

A semantics for spatial descriptions (cont.)

- But languages with canonical V-framing disallow combinations of path expressions w/ 'manner' verbs
  - Strictly requiring path verbs such as Spanish meterse 'enter' in telic location change descriptions

A semantics for spatial descriptions (cont.)

- In S-framed descriptions, path expressions appear to be construed as secondary predicates
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Path-neutral ground phrases

- the form of the ground phrase reflects the path function encoded by the verb root
  - in many languages with canonical V-framing
    - including in Spanish, Turkish, and Japanese
      
      (3.4) La pelota entró en la caja
      'The ball entered (lit. in(to)) the box'

      (4.1) La pelota entró en la caja
      'The ball entered (lit. in(to)) the box'

      (4.2) La pelota salió de la caja
      'The ball exited (lit. from) the box'

- in contrast, in the languages of our sample, the ground phrase is strictly path-neutral
  - path-neutral ground phrases in fact appear to be typologically widespread
    - cf. Bohnemeyer et al. 2007

Path-neutral ground phrases (cont.)

- AM (fairly free constituent order; mixed OV/VO)
  - see appendix for key to the interlinear glosses

  (4.3) Luis te y-têk y-têk-ojt-py 3POSS-house-inside-PLACE
  Luis PAST 3S-enter(DEP)
  'Louis entered (lit. in his) house' (constructed)

  (4.4) Luis te y-pêtêm-y y-têk-ojt-py 3POSS-house-inside-PLACE
  Luis PAST 3S-exit-DEP
  'Louis exited (lit. in his) house' (elicited)

- JZ (VSO)

  (4.5) Byuu Ana
  CMP-MP:enter Ana
  'Ana entered (lit. in) the house'

  (4.6) Zaa kwee=ka=be* ba*7du ka* nda*ani=be* allow PROG:extract=PL=3 child DEM stomach=3
  'Let them extract the child out of (lit. in) her (by c-section)'

Path-neutral ground phrases (cont.)

- SI (SOV)

  (4.7) Zix c-oqueht quj,...
  thing SBJ.NMLZ-bounce DEF.SG.sit

  (4.8) He xexpe com i-ti mahta...
  REAL.DEP-arrive
  'The ball (lit. thing that bounces)... arrived on top of the dune (lit. the thick land),'
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Meronyms

- **meronyms** are object-part designators, denoting functions of type \( <e, e> \)
  - in our simplified type system
- in spatial descriptions, these serve to select a part of the ground
  - to which a place function then may assign a region defined with respect to it
  - in Indo-European languages, meronyms often surface as relational nouns or parts of complex adpositions
    - as in **on** top of, **at** the edge of, **on** one side of, etc.
- meronyms play a pervasive role in spatial descriptions in all four languages

 Meronyms (cont.)

- in JZ, SI, and YM, meronyms surface as relational nouns
  - in SI, meronyms never head the ground phrase

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Meronyms (cont.)

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Meronyms (cont.)

- in AM, meronyms form a special class of bound morphemes
  - they surface either suffixed to the ground nominal (5.7a) or incorporated into the verb (5.7b)
    (5.7a) Tê Pedro y-mä'ay-y mes-pat-hkipy
        PAST Pedro 3S-sleep-DEP table-under-PLACE ‘Pedro slept under the table.’
    b. Pedro tê t-pat-mä'ay-y ye'ë mesa
        Pedro PAST 3A-under-sleep-DEP.DEM.M table ‘Pedro slept under the table.’
  - when the meronym is incorporated (5.7b), the ground nominal appears as the object of the verb
    - when the ground nominal is oblique (5.7a), it must carry a member of a set of suffixes
      - including -hkipy in (5.7a) and -py in (4.3)-(4.4) above
    - we analyze these as expressing place functions (<e,r>)

Interface variations

- what is invariant across spatial descriptions in the four languages
  - all four languages are V-framed and have path-neutral ground phrases
  - the general logical form of spatial descriptions
    - which can be represented as in (6.1)
      (6.1) verb(event argument)(path argument)(figure)
      & path function(figure)(meronym(ground))(path argument)
    (6.1') verb(event argument)(path argument)(figure)
      & path function(figure)(place function(ground))(path argument)

Interface variations (cont.)

- type I: the ground phrase is an object of the verb
  - example: base-transitive path verbs in SI
    - cf. O'Meara 2009
      (6.3) a. Carolina quhi [hast cop] Carolina DEF.SG stone DEF.SG.stand
          hast lexic 
        3POSS-front DEF.SG.ABSTR 33-DPAST-pass.by
        ‘Carolina passed the front of the mountain.’
    b. -aao'pass': lexiklikli(3-v('e')h)(i)(h) & via 'at'(y)'i'(h)'(h)
      hast cop lex-aao'pass the front of the mountain':
      lexiklikli(3-v('e')h)(i)(h) & via 'at'(y)'i'(h)'(h)'(h)'(h)'
      = lexiklikli(3-v('e')h)(i)(h) & via 'at'(y)'i'(h)'(h)'(h)'(h)'
  - in AM, these must be licensed by an incorporated meronym (cf. 5.7b above) or a special applicative
    - cf. Romero Méndez 2009

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Interface variations (cont.)

- what is variable is the syntax and semantics of the ground phrase
  - four combinations of syntactic category, grammatical relation, and semantic type occur

<table>
<thead>
<tr>
<th>Ground phrase</th>
<th>type-(e) (place-denoting)</th>
<th>type-(e) (entity-denoting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>argument NP/DP</td>
<td>-</td>
<td>AM, SI</td>
</tr>
<tr>
<td>oblique NP/DP</td>
<td>AM, YM</td>
<td>JZ</td>
</tr>
<tr>
<td>PP</td>
<td>SL, YM</td>
<td></td>
</tr>
</tbody>
</table>

- these give rise to three different types of semantic composition

Spatial descriptions in Yucatec (cont.)

- type II: the ground phrase is a place-denoting oblique
  - either a PP, as in SI ((4.7)-(4.8) above) and YM (see below), or an NP, as in AM ((5.7a) above)
      (6.4) a. Le=kiàaro'o' h-òok ich le=kiàaho'o'
           DET=cat=D2 PRV-ENTER(835G) in DET=box=D2
           ‘The cart, it entered (in the box)’
      b. òok'enter': lexiklikli(3-v('e')h)(i)(h) & goal 'at'(y)'i'(h)'(h) & \(x \subseteq p\)
         ich le=kiàaho'o' in 'box'(i)'h)’
         = lexiklikli(3-v('e')h)(i)(h) & goal 'at'(y)'i'(h)'(h)'(h)'
         ‘icha entered the box’
         = lexiklikli(3-v('e')h)(i)(h) & goal 'at'(y)'i'(h)'(h)'(h)'(h)'
         ‘icha进入了box’

Figure 6. Semantic composition in (6.4)

In (6.4), a type mismatch analogous to the one in (3.4) above is avoided by a place argument
- the verb entails inclusion of the goal in this region

Evidence: ichh'm' can be replaced w/ the generic b'in (6.4)
• type III: the ground phrase is an oblique NP/DP of type e - as in JZ

(6.5) a. Byuu Ana ndaani yoo
   CMP:MDP:enter Ana stomach house
   ‘Ana went inside the house’
b. -u‘enter’; ɣɪx ɣkəle{move’(e’)(h(k)) & goal’(in’)(y)(h)}
   ndaani yoo ‘inside of the house’; inside’(house’)
   -u ndaani yoo.

Figure 7. Semantic composition in (6.5)

Summary and conclusions
• the four languages investigated here agree on the logical form of locative descriptions
  - and thus on the role of parts, places, and paths in it
• but they differ in the syntactic category and semantic type of the ground phrase
  - and in the alignment between the two
  - AM and YM having NP/DPs of type r and JZ having obliques of type e
• the driving force behind this variation
  - appears to be the expression of place and path functions
  - and thus differences in the lexicon and the functional category system

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  • cf. http://www.acsu.buffalo.edu/~jb77/Mesospace.htm
• the data presented here were collected in the field
  - partly with the help of stimuli developed at the Max Planck Institute for Psycholinguistics
  • especially Levinson (2001); Bowerman & Pederson (ms.)
Appendix: Key to interlinear glosses

- affixation; = - clisis; 1 – 1st person; 3 – 3rd person; 3>3 – 3rd person subject/actor acting on 3rd person object/undergoer; A – transitive subject/actor agreement/cross-reference; ABSTR – abstract (Seri articles); APPL – applicative; B – agreement/cross-reference ‘set B’ (transitive object/undergoer, stative subject, intransitive subject in complete and subjunctive status); CMP – completive; D2 – distal/anaphoric clause-final particle; DEF – definite; DEM – demonstrative; DEP – dependent (mood/status); DET – determiner; DIS – dispositional; DAST – distant past; EXIST – locative/existential predicate; INDEF – indefinite; MDP – mediopassive; NMLZ – nominalizer; PAST – past tense; PLACE – place function; POSS – possessor agreement/cross-reference; PREP – generic preposition; PROG – progressive; PRV – perfective; REL – relational derivation; S – intransitive subject agreement/cross-reference; SBJ – Subject; SG – singular

References


