LEXICAL TYPOLOGY AND POLYSEMY PATTERNS IN AFRICAN LANGUAGES

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Contextualizing historical lexicology – Helsinki, May 15-17, 2017
1. Introduction: lexical typology and research questions
2. Methodology with *RefLex* database
3. Patterns of colexification for some polysemies
   - (some) body parts
   - sensory modalities
   - temperature
   - child
   - want
   - work
INTRODUCTION
A definition of lexical typology:
“characteristic ways in which language [...] packages semantic material into words”
(Lehrer 1992: 249)

- what different meanings can be expressed by lexemes or by related lexemes synchronically and/or diachronically (semasiology)
- main focus on cross-linguistically recurrent patterns of relations between meanings and lexical items in the lexicon: e.g., semantic motivation (polysemy, semantic associations, semantic shifts); morphological motivation (derivation, composition)
Another definition of lexical typology “systematic study of cross-linguistic variation in words and vocabularies, i.e., the cross-linguistic and typological branch of lexicology” (Koptjevskaja-Tamm 2012: 373)
Help for reconstruction

- “to understand semantic change we must focus on polysemy. Insistence on synchronic attestation of polysemy places strong constraints on postulated semantic changes, providing an important antidote to the unbridled imagination in postulating etymologies.” (Evans & Wilkins 2000)
INTRODUCTION


- Definition: “A given language is said to colexify two functionally distinct senses if, and only if, it can associate them with the same lexical form.”
  - In synchrony
  - In diachrony (including lexical derivation & composition)

- Languages differ as to which senses they colexify, i.e. lexify identically
• Individual pairings of colexified senses can be compared across languages
• Together, they compose a single, universal network of potential semantic extensions
Figure 6. Isoelectric set for Sanskrit Ātman.
• Why do languages colexify same senses?
  - genetic relations?
  - language contact and areality?
  - universal factors?
  - environment?
  - socio-cultural factors?
  - other?
• How useful is the distinction between
  - mapping from one domain to another (metaphor)
  - mapping/association within one domain? (metonymy)
• How much does answer depend on whether we are looking at
  - result of shift
  - or at process?
• What kinds of concepts are “sources”, or “targets”?
• How does type of data frame our view of polysemy/colexification?
  - Dictionaries
  - Grammars
  - Intuition
  - Questionnaires
  - Large databases ...
INTRODUCTION: RESEARCH QUESTIONS AND ISSUES


• A challenge from areal studies
• How to identify what is
  ☑ Not universal
  ☑ Not borrowed
  ☑ Not inherited
METHODOLOGY
• A reference database for the lexicons of African languages
  - 1,122,000 lexical items
  - 780 languages (40% of 2,000 languages)
  - from 1,250 sources
  - from a few hundred to several thousands entries
  - Link to pdf of source
  - Tools (e.g. statistics) for reconstruction

http://www.reflex.cnrs.fr/database/
http://www.reflex.cnrs.fr/database/

• Search in whole database or “datasets”
  ❑ for potentially interesting new polysemies
• “Polysemy” and “homonymy” search tools
  ❑ to check known polysemies
  ❑ to find potential polysemies
• Map tool to visualize areal and genetic patterns
1. Dataset

http://www.reflex.cnrs.fr/database/
2. Polysemy and Homophony tools
2. Homophony tool

- ABURE (95. Hérault (Ed) 1983 (vol. II) : aboure)
  - évè : fruit
  - évè : graine

- ABRON (96. Hérault (Ed) 1983 (vol. II) : abron)
  - adia-ba : fruit
  - adia-ba : graine

- ADIOUKROU (97. Hérault (Ed) 1983 (vol. II) : adioukrou)
  - ly : fruit
  - ly : graine

- ALLADIAN (99. Hérault (Ed) 1983 (vol. II) : alladian)
  - ni : enfant
  - ni : fruit
  - ni : graine

- BUSHOONG (1301. Vansina 1959 : Bushong)
  - ndoom : fruit
  - ndoom : run

  - ŋam : fruit
  - ŋam : heart (± liver)
  - ŋam : trap
2. Polysemy tool

![Image of a database interface with a search for "enfant" and "fruit" resulting in 2 entries]

<table>
<thead>
<tr>
<th>langue</th>
<th>forme</th>
<th>fra</th>
<th>tuf</th>
</tr>
</thead>
<tbody>
<tr>
<td>limba</td>
<td>kia</td>
<td>bring forth, calve, generate, kid, produce (as trees, fruit), pup</td>
<td>faire des enfants, des petits, produire (arbre et fruits)</td>
</tr>
<tr>
<td>palor</td>
<td>koy</td>
<td>Fruit; enfant.</td>
<td>fruit; enfant</td>
</tr>
</tbody>
</table>
BODY PARTS
(HOMONYMY TOOL)
• Among most productive source concepts for metaphors and semantic shifts
  - Emotions (e.g. ‘heart’, ‘liver’, ‘stomach’, ’throat’)
  - Spatial relations (e.g. ‘head’ vs. ‘trunk’ (49% each in Oceania, 38% vs. 60% in Africa)
  - Numbers
  - Possession
  - Reflexive-reciprocal-middle
  - Etc. (e.g. Australian Aboriginal languages: animals and plants named after most salient part, e.g. ‘tooth’ => ‘dog’ and ‘wild asparagus’)

BODY PARTS
Colexification of ‘eye’: (Urban, 2012: 396)

nature-related terms

adjacent body-parts and fluid

non-adjacent body parts

artifacts
### Colexification of ‘eye’:
(Urban, 2012: 398)

<table>
<thead>
<tr>
<th>Lexical Item</th>
<th>Gloss</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ojú ̀run</td>
<td>‘eye heaven’</td>
<td>‘cloud’</td>
</tr>
<tr>
<td>ojú-sanmà</td>
<td>‘eye-sky’</td>
<td>‘cloud’</td>
</tr>
<tr>
<td>ọkọ-ọju-omi</td>
<td>‘vehicle-eye-water’</td>
<td>‘boat’</td>
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<tr>
<td>ojúaféfé</td>
<td>‘eye-wind’</td>
<td>‘window’</td>
</tr>
</tbody>
</table>

**Table 11:** metaphor-driven complex lexical items in Yoruba involving oju ‘eye’

<table>
<thead>
<tr>
<th>Lexical Item</th>
<th>Gloss</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>king-úp, kung-úp⁷</td>
<td>‘head/top-eye’</td>
<td>‘mountain’</td>
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<tr>
<td>kat up</td>
<td>‘tree eye’</td>
<td>‘fruit, peanut’</td>
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<tr>
<td>kú up</td>
<td>‘bird’s wing eye’</td>
<td>‘thorn, prickle’</td>
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<tr>
<td>ngústí úp</td>
<td>‘pissing eye’</td>
<td>‘bladder’</td>
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<tr>
<td>isúl-uk up</td>
<td>‘??-skin eye’</td>
<td>‘finger’</td>
</tr>
<tr>
<td>‘píns-up ~ pínsḥ-uk’</td>
<td>‘?? eye’</td>
<td>‘navel’</td>
</tr>
</tbody>
</table>

**Table 12:** metaphor-driven complex lexical items in Rama involving up ‘eye’
• Caution: numerous CV nouns → homonymy?
• If only one occurrence and unknown (to my knowledge) outside of Africa → discarded
  • Eye – milk
  • Eye – female dog, bitch
  • Eye – name
  • Eye – side, next to
  • Eye – living, alive
  • Eye – vein
• Eye – vein: not a polysemy (G. Segerer p.c.)
  • Bayot (Bak, Central Atlantic, NC): *sio ‘eye; vein’
  • Loss of +/− ATR
  • ‘eye’ *kl > *cl > *sl > *sil > sio
  • ‘vein’ *kl > *cil > *sil > sio
• Already known polysemy with roundish referents: genetic and areal patterns
  • Eye – fruit: mostly Omotic (AA) & Cushitic (AA), 1 Surmic (NS)
  • Eye – seed: mostly Benue Congo (Bantu, Bantoïde (‘maize’) & Imoïde, NC), Ubangian (NC), Omotic (with fruit) (AA), 1 Mande (NC), 1 Kiliak (NS)
Polysemies with roundish referents (sporadic)

- Eye – bud: 1 Cushitic (AA)
- Eye – sun: 1 Bantu (NC)
- Eye – furuncle, callus: 1 Bantu, 1 Dogon (NC)
- Eye – loop, noose, mesh: 1 Cushitic (AA), Atlantic (NC), Bantu (NC)
- Eye – hole: 1 Mande (NC)
- Eye – spring (of water): 1 Cushitic (AA)
- Eye – headlight: 1 Adamawa (NC), 1 Bantu (NC), 1 Kuliak (NS)
MAP 1. WORLDWIDE DISTRIBUTION OF ‘EYE OF DAY’ BASED ON A GENEALOGICALLY BALANCED SAMPLE OF 214 LANGUAGES
• Offspring (genetic pattern)
  • Eye – child of: only Ubangian (NC)
• Before (sporadic)
  • 1 Omotic (AA), 2 Mande (NC)
• Known polysemies with other body parts (genetic pattern and ‘Macro-Sudan Belt’ area)
  • Eye – face: mostly Ubangian (NC), Benue-Congo (NC), Defoïde (NC) & Mande (NC), 1 Gur (NC), Chadic (AA)

• Known polysemies with other body parts (sporadic)
  • Eye – eyebrow: 1 Benue Congo (NC)
  • Eye – ankle: 1 Atlantic (NC)
  • Eye – dimple: 1 Ubangian (NC)
• Unknown polysemyies (to my knowledge)
  • Eye – colour: 4 languages (not in contact; 2 same branch; not cognates)
    • 3 NC: Obolo (Cross River, Benue-Congo)
      Dan (East-Mande)
      Samo-Maya (East-Mande)
    • 1 NS: Songhai
• Eye – jealousy, envy: genetic pattern
  • 3 Bantu (B & E) (NC)
• Unknown polysemies (to my knowledge)
  • Eye – choice, preference
    • *yísìri*, Turka, Gur (NC)
  • Cultural explanation: choice is done with the eye; volition = ‘eye’ + ‘with’ phrases
• Eye – manner, type
  • Obolo, Benue-Congo, Cross River (NC), Mandinka & Malinke, West-Mande (NC)
Colexifications of arm/hand, Brown (2005)
Colexifications of arm/hand
A strange colexification: arm/hand + hole

- Homonymy or polysemy?

<table>
<thead>
<tr>
<th></th>
<th>arm/hand; hole</th>
<th>Ḗbọ́</th>
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<tbody>
<tr>
<td>Avikam (N-C, Kwa)</td>
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<tr>
<td>12 Gbaya-Manza-Ngbaka languages (N-C, Ubangi)</td>
<td>hand; hole</td>
<td>kọ́, kọ́, kó</td>
</tr>
</tbody>
</table>

- Homonymy in Ubangi
- Avikam?
Colexifications of leaf + arm, wing or ear

11 languages
• A recent search in RefLex by G. Segerer: very common in two language groups:
  - Central Sudanic (Nilo-Sharan): Proto-SBB, Modo, Bongo, Mangbetu, Avokaya, Kaliko, Logo, Lugbara, Ma’di
  - Omotic (controversially Afroasiatic): Sheko, Wolaytta, Gofa, Dorze, Dawro, Haro, Basketo, Dime
• Also sporadically in
  - Western Chadic (Karekare, Kanakuru)
  - In Niger-Congo, only in Day (Adamawa, not far from SBB) and Ijoid (a very tiny group quite remote from the core NC)
• Interestingly almost absent from Niger-Congo
Colexifications of shoulder
Colexification body + skin

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SENSORY MODALITIES
(POLYSEMY TOOL)
• 53 languages from 14 genetic stocks

sight > hearing >

- smell
- touch
- taste
SENSORY MODALITIES

Viberg (1984)

Australian languages
(Evans & Wilkins 2000)
Australian languages and cultures have overwhelmingly favoured the semantic extension between hearing and cognition

<table>
<thead>
<tr>
<th>LANGUAGES</th>
<th>HEAR/LISTEN</th>
<th>UNDERSTAND</th>
<th>THINK</th>
<th>KNOW</th>
<th>REMEMBER/RECALL</th>
<th>OBEY/HEED</th>
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**Table 12.** Patterns of polysemy: Direct extensions of ‘hear/listen’ to cognition senses.
• Connection between vision and knowledge may “be fairly common crossculturally, if not universal” (Sweetser 1990)

• Sweetser 1990; Evans & Wilkins (2000) suggested that there are universal and language-cultural specific associations
• Six genetic stocks, 25 languages (5 IE; 2 AA; 2 NS; 7 NC; 5 AN; 2 ES; 1 ST; 1 creole): possible semantic universal grouping, mental perceptions at large with hearing sense.
• Sight and cognition is rather marginal.
<table>
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<tr>
<th>Language</th>
<th>heed</th>
<th>obey</th>
<th>understand</th>
<th>know</th>
<th>learn</th>
<th>think</th>
<th>remember</th>
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### see/look + cognition

<table>
<thead>
<tr>
<th>Language</th>
<th>heed</th>
<th>understand</th>
<th>know</th>
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<td>Palenquero</td>
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Colexification with sensory modalities (smell, taste)
Colecification with sensory modalities (smell, taste)

- Attested in over 100 languages of whole database
- A very good result!
- Hearing prevails on lower part of Viberg’s hierarchy (smell, taste)
Colexification with ‘smell’, ‘taste’, cognition

34 languages
Colexification with cognition only (understand)

11 languages
Colexification with (‘smell’, ‘taste’,) cognition

- Attested in 45 languages, not bad!
  - 10 groups, 3 phyla: Atlantic, Benue-Congo, Gur, Kwa, Kru, Mande, Mel, Ubangi (NC); Central Sudanic (NS); Chadic (AA)
- In fact more, because of lack of information in lexicons and wordlists
  - e.g. hear/understand (a language): cf. Treis (2009) Amharic (Semitic, AA), Kambaata (Cushitic, AA), Vanhove (2008) Beja (Cushitic, AA)
- No areal pattern, no genetic pattern
Coleanification with cognition (think)
Colexification with cognition (remember)

komo, Bantu D
Conclusion on ‘remember’ and ‘think’

- Not a widespread pattern in Africa
- Not uncommon in Australian languages (5/12 and 4/12)
- Also found in at least one Oceanian language, Italian and Sar (NS)
'taste' + cognition + find
• Cognition (8/25)
  - Limited polysemy mostly with ‘know’ and ‘think’
    - 6 NC groups (Atlantic (x2), Benue-Congo, Kwa, Mande, Mel, Ubangi (x2))
  - Exists also with ‘understand’ in Gur and NS (not in database)
  - Areal pattern for ‘think’ (West Africa)?
• See + find
  - quite widespread (18/25)
  - Also elsewhere (San Roque et al. subm.)
• In spontaneous conversations, vision dominates
• Including for the extension to cognition
'smell' + cognition ('know')
• African languages in *RefLex* confirm the supremacy of the hearing sense over vision for transfield associations with cognition
• Viberg’s intrafield hierarchy between vision and hearing is confirmed
### Sensory Modalities in Kambataa and the Ethiopian Language Area

<table>
<thead>
<tr>
<th>Sense Modalities</th>
<th>Activity</th>
<th>Experience</th>
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<tbody>
<tr>
<td>Vision</td>
<td>SEE</td>
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<td>Hearing</td>
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<tr>
<td>Feeling</td>
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<td>HEAR-Pass</td>
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<tr>
<td>Smell</td>
<td>SMELL</td>
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</table>
+ Rich TASTE lexicon => Importance of TASTE in West Kalahari Khoe

<table>
<thead>
<tr>
<th>Hierarchy</th>
<th>AC/EX</th>
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<tbody>
<tr>
<td>SIGHT</td>
<td>mó̀̀</td>
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<td>HEARING</td>
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(a) ≠ Haba

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<tr>
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<td>SIGHT</td>
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(b) ≠ Haba, Glui and Gllana

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(c) ≠ Haba, Glui and Gllana

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</table>
• (i) The highest rank of SIGHT is maintained
• (ii) The hierarchy of the four non-SIGHT modalities is questionable as universal because one of the lowest modalities, TASTE, is extended to two higher modalities (TOUCH) and HEARING
• Elaborate set of smell verbs in Quechua as proof of smell’s “practical or popular” importance in that speech community (Howes and Classen 1991: 263)
• Smell as a “social frontier” amongst the Kapsiki of Cameroon and Nigeria (van Beek’s 1992)
• Hearing is ranked second for all languages except Semai, where smell comes second
Semai’s ‘olfactory dominance’ in accordance with what is known about the importance of olfaction in Aslian languages and cultures

=> Non-visual senses are more variable cross-linguistically, and their rank order may reflect specific cultural beliefs or practices
TEMPERATURE
(POLYSEMY TOOL)
• One of the research questions:
  What are the possible semantic extensions of the temperature meanings to other domains?
Colexification fever / hot - cold
Colexification hot+dry/fire/light – cold+wet
Colexification hot – spicy / cold – sweet
Colexification hot – red/ cold – green
Colexification hot+shrill – cold+wind/winter/weather
Colexification hot – difficult / cold – useless
CHILD – FRUIT
(POLYSEMY TOOL)
A supposedly widespread polysemy in Africa
A disappointing map!
A disappointing map!

- A polysemy rarely mentioned in the lexicons of the database, even if known by researchers.
- But more to come in Koptjevskaja-Tamm & Liljegren’s forthcoming paper on areal and lexical typology (thanks to colleagues at Llacan), e.g.
  - 9 Mande languages, among them Bambara in RefLex
  - Hausa *daa* ‘son’, ‘fruit’ (Hausa in RefLex)
WANT

(POLYSEMY TOOL)
A widespread polysemy but not universal
Colexification want+love
Colexification want+search+(love)
WORK
(POLYSEMY TOOL)
Colexification with send/message or cast a spell

Unexpected polysemy (for me!)
Colexification with send/message or cast a spell
• Genetic patterns
  • eye – fruit: Omotic, Cushitic
  • eye – seed: Benue-Congo
  • eye – child of: Ubangian
  • ear – leaf: Central Sudanic, Omotic
  • smell – know: Atlantic

• Areal patterns
  • eye – fruit: Ethiopian area
  • eye – face: Macro-Sudan Belt
• Unexpected colexifications
  • eye – colour: Cross-River, East-Mande, Songhay
  • eye – manner/type: Cross-River, West-Mande
  • eye – jealousy: Bantu
  • eye – choice: Gur, culturally specific
  • work – send / message, cast a spell

• Will they all resist to deeper investigation?
• Widespread colexifications
  • hear – taste/smell
  • hear – taste/smell – cognition
  • want - love
MANY THANKS TO:

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San Roque et al. subm. Universal semantic associations are grounded in conversation: Evidence from perception verbs in 13 languages.


