Building an amphichronic semantic map: Insights from Southeastern Mande

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Background

- Recent upsurge of interest in semantic maps as a means of modeling lexical polysemy patterns (Georgakopoulos & Polis 2018);
- outstanding issues:
  - the need to explore the potential of amphichronic maps (bringing together information on attested synchronic states and predictions of the system’s diachronic development),
  - the need to accommodate, within the same model, different types of meaning relationships (polysemy, metaphorical relations, and pragmatic inference).

Goals of this study

- address these issues at a micro-scale level,
- explore two meaning clusters in four closely related Southeastern Mande languages (Tura, Dan, Mwan, and Wan),
- focus on the categories of diminutivity and singulativity.
Plan of the talk

• present the **Radial Category model** as developed for the study of diminutives;

• use this model to compare the use of **diminutives** in four closely related languages;

• apply the same model to an unrelated domain: the use of **singulatives** (in the same four language);

• **contrast** the two semantic domains;

• assess the **advantages** of the model;

• discuss what is **still missing**.
The Radial Category Model  
(Lakoff 1987, Jurafsky 1996)

- a structured polysemy network,
- explicitly defined relations between individual senses (inference, metaphorical transfer, abstraction),
- the relations are universal and *amphichronic*:
  - describes and predicts patterns of polysemy,
  - describes and predicts patterns of semantic change, the marker’s origin (a model of “archeology of meaning”)
Figure 5. Proposed universal structure for the semantics of the diminutive.
Southeastern Mande, Côte d’Ivoire

• Tura
  Idiatov 2008;
• Eastern Dan
  Vydrine & Kességbeu 2008;
• Mwan
  Perekhvalskaya & Yegbé 2008;
• Wan
  Nikitina in progress
Diminutivity in SE Mande: overview

• Common origin: nouns for ‘child’ (Greenberg 1959; Matisoff 1991; Heine et al. 1991; Heine and Kuteva 2002; Heine and Leyew 2008);

• Tura, Eastern Dan, and Mwan:
  - similar or identical the use of diminutives;
  - differences in productivity/lexicalization patterns;
  - mapped onto the same radial network

• Wan
  - significant differences in the organization of the diminutive domain;
  - discontinuous categories, low frequency, low productivity;
  - synchronic picture makes sense in view of the comparative data.
In combination with count nouns

- Small size

1. Mwan:
   a. *wèè̩-nè* mortar + diminutive   ‘little mortar’
   b. *mlè̩-nè* horn + diminutive    ‘little horn’
   c. *pè̩-nè* thing + diminutive    ‘little thing’
   d. *gè̩̩-nè* mountain + diminutive ‘little mountain’

2. Dan:
   a. *kó dòôdòô nì* hut + round + diminutive  ‘small round huts’
   b. *blùù dòôdòô nì* bread + round + diminutive ‘small round bread’
In combination with count nouns

- Small type

(3) [Mwan]

\[ bòtò-nè \quad \text{bag + diminutive} \quad \text{‘small bag; wallet’} \]

(4) a. [Mwan]

\[ bìčélé-nè \quad \text{‘little mouse’} \]

b. [Tura]

\[ bààkìài-nè \quad \text{‘(smaller) pangolin’ (Phataginus tricuspis and Uromanis tetradactyla)} \]
In combination with count nouns

(5) [Tura]

• Small type

a. gûbêlê -né = gûbêlê(common) ‘sweet banana’ (a smaller and sweeter kind, up to 10 cm)

b. kpân -né = kpâin ‘centipede; millipede’

c. wëé -né = wëé (common) ‘fly’

d. zen -né = zen ‘sparrow’

e. bie -né = bie ‘grasshopper’

f. bôô -né = bôô ‘ground squirrel (esp.); marmot; jerboa’
(11) a. [Tura]

\textit{I\textcircled{v}i\textcircled{n}é = I\textcircled{v}i\textcircled{n}é = ï\textcircled{v}i\textcircled{n}é} \quad \text{‘hare (esp.)’}

b. [Dan]

\textit{z\textcircled{u}ná} \quad \text{‘hare’}

c. [Mwan]

\textit{l\textcircled{o}nè = l\textcircled{o}nè} \quad \text{‘hare’}

(12) a. [Tura]

\textit{y\textcircled{a}m\textcircled{a} = y\textcircled{a}m\textcircled{a} -nè} \quad \text{‘domestic cat’}

b. [Dan]

\textit{y\textcircled{u}m\textcircled{a}nà-ná} \quad \text{(arch.) ‘cat’}

\textit{gw\textcircled{a}ná} \quad \text{‘cat’}

c. [Mwan]

\textit{z\textcircled{e}nè} \quad \text{‘cat’}
In combination with count nouns

- Young age

(14) [Tura]

a. né -né  child + diminutive  ‘young child’

b. lôô -né = lôôé  woman + diminutive  ‘young girl’

c. mîq -né  man + diminutive  ‘boy; adolescent; young man’
In combination with count nouns

• Pejorative sense

(15) a. [Tura]

\[ mîq\ -\text{né} \quad \text{man + diminutive} \]

(pejor.) ‘boy’ (an adult man who is still not married)

b. [Dan]

\[ gōdā\ -\text{né} \quad \text{mister (term of address) + diminutive} \quad \text{(pejor.) ‘boy’} \]
In combination with count nouns

<table>
<thead>
<tr>
<th>Count Noun</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$gōdā$ -ná</td>
<td>mister (term of address) + diminutive</td>
</tr>
<tr>
<td>$dēbā$ -ná</td>
<td>woman + diminutive 'elderly woman' (of about 50 years of age)</td>
</tr>
<tr>
<td>$mī$ -ná</td>
<td>man + diminutive 'man' (from about 30 years up)</td>
</tr>
<tr>
<td>$nēē$ -ná</td>
<td>?? + diminutive 'old woman' (of very advanced age)</td>
</tr>
<tr>
<td>$kwēē$ -ná</td>
<td>?? + diminutive 'old man'</td>
</tr>
</tbody>
</table>
In combination with abstract nouns

• Category membership, activity participation

(19) a. [Tura]

wóó-né
goodness + child/diminutive ‘person of good’

b. [Dan]

gwā -nā
gwā (name of a dance) + child/diminutive

(arch.) ‘member of “gwa” (one who can participate in the dance)’
In combination with abstract nouns

• Recently acquired membership

\((20)\) [Tura]

\begin{align*}
a. & \quad \text{bà -né circumcision + diminutive} \quad \text{‘newly initiated; newly circumcised’} \\
 b. & \quad a \quad wôô \quad tó \quad bà-né \quad á \quad \\
 & \quad \text{s/he:PRF RETR become newly initiated PPS} \\
 & \quad \text{‘S/he has already been initiated.’ (lit., ‘s/he had been newly initiated’)\textsuperscript{13}}
\end{align*}

\((21)\) [Dan]

dê -ná ‘younger wife’ (one who became married later than her co-wife)
Quantification senses

• Small amount:

(22) [Dan]

\[ y^{\tilde{\iota}} - n\acute{\iota} \quad \text{liquid} + \text{diminutive} \quad \text{‘small quantity of a liquid’} \]

(23) [Tura]

\[ e \quad \text{mini} - n\acute{\acute{\iota}} \quad k\grave{\epsilon} \quad l\acute{\acute{o}}’ \]

s/he \quad \text{rice - DIM} \quad \text{some} \quad \text{bought}

‘He bought a little bit of rice.’
Quantification senses

• Conventional unit:

\[(24) [\text{Dan}]\]

\[\text{yī-ná} \quad \text{liquid + diminutive} \quad \text{‘stream’}\]
(25) a. [Tura]
   \[\text{ba}h\acute{\text{l}}\acute{\text{a}} - n\acute{\text{e}}\] \text{potash + diminutive} \quad \text{‘potash used for the crafting of soap’}

b. [Mwan]
   \[\text{pi}\breve{\text{b}}\breve{\text{e}} - n\breve{\text{e}}\] \text{metal + diminutive} \quad \text{‘ring’}

c. [Mwan]
   \[\text{vl}\breve{\text{e}} - n\breve{\text{e}} \, \text{t}e\] \text{stone + diminutive + red} \quad \text{‘flint’}

d. [Dan]
   \[\text{di}\ddot{\text{u}} - n\acute{\text{i}}\] \text{tree/wood + diminutive} \quad \text{‘small tree; stick’}
Scales

• Low intensity:

(26) [Tura]

dőő -né (redupl. dőődőő -né, dőődőő -né) long + diminutive ‘a little elongated’
Scales

• Short duration, little progress:

(27) [Tura]

a. ́ë ló-né kë wô’ liélé dọ̀ọ̀-á … (Bearth 1986: 222)

s/he go-DIM some did in.front far-PPS

‘when he walked a little further…’

b. ́ë tøjỳ-né kë wô’

s/he ascend-DIM some did

‘he ascended a little bit’
Diminutivity in Wan

• not productive in any of the senses, highly lexicalized;
• alternative means used to express the same meanings:

(35) a. $bā\ nî$  field + small  ‘small field’
     b. $mī\ nînî$  man + small  ‘a small person’

(42) a. $gâŋ\ kplêŋ$  yams + piece  ‘tuber of yams’
     b. $kālê\ kplêŋ$  forest + piece  ‘patch of forest’

(43) $lē\ tôlē$  wife + new  ‘newly married wife’
"people involved in social events are families"

participant

young

child

inference

inference

inference

lambda abstraction

lexicalization

lexicalization

lexicalization

small type

old age

conventional unit
Interim summary

• a wide range of diminutive uses centers around the core meaning of ‘child’ in Tura, Dan, and Mwan;
• a strikingly different picture in Wan: disintegrated clusters of synchronically unrelated meanings;
• the semantic map model helps to make sense of this difference;
• and sheds light on the way diminutivity developed in the closely related Mande languages
Singulativity
Singulativity

Dan Bloo (Erman 2005):

• ‘seed’, ‘grain’ (of plant)  
• ‘bone’
• ‘core’ (of fruit)

\[ s_y^\wedge \text{‘palm’} - s_y^\wedge g\ddot{a} \text{‘palm grain’} \]

\[ g\ddot{c}^\wedge \text{‘head’} - g\ddot{c}^\wedge g\ddot{a} \text{‘skull’} \]
<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
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<th>Meaning</th>
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<tbody>
<tr>
<td>mlûtû</td>
<td>‘riz’</td>
<td>mlûtû</td>
<td>‘grain du riz’</td>
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<tr>
<td>këé</td>
<td>‘arachide’</td>
<td>këé</td>
<td>‘graine d’arachide’</td>
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<td>kwëë</td>
<td>‘sel’</td>
<td>kwëë</td>
<td>‘grain du sel’</td>
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<td>yëiherence</td>
<td>‘sable’</td>
<td>yëiherence</td>
<td>‘grain de sable’</td>
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<tr>
<td>yëë</td>
<td>‘coton’</td>
<td>yëë</td>
<td>‘balle de coton’</td>
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<tr>
<td>wûh</td>
<td>‘cheveux’</td>
<td>wûh</td>
<td>‘un cheveu’</td>
</tr>
<tr>
<td>kââ</td>
<td>‘poils’, ‘plumes’</td>
<td>kââ</td>
<td>‘un poil’, ‘une plume’</td>
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<tr>
<td>Word</td>
<td>Translation</td>
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<tr>
<td><code>gbôôô</code></td>
<td>‘guêpe(s)’</td>
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<tr>
<td><code>zïôô</code></td>
<td>‘moustique(s)’</td>
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<tr>
<td><code>zo</code></td>
<td>1) ‘pointe’ ; ‘epingle’ 2) ‘abeille(s)’</td>
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<tr>
<td><code>zlûû</code></td>
<td>‘fourmi(s)’</td>
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<tr>
<td><code>sôô</code></td>
<td>1) ‘dent(s)’ 2) ‘défense(s)’</td>
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<tr>
<td><code>sôôô</code></td>
<td>1) ‘ongle(s)’ 2) ‘griffe(s)’ 3) ‘sabot(s)’ (de cheval)</td>
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<tr>
<td><code>dê</code></td>
<td>1) ‘feuille(s) ; feuillage, herbe’ 2) ‘médicament’</td>
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<tr>
<td><code>kplôôô</code></td>
<td>‘cauri(s)’</td>
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<tr>
<td><code>sûsôôô</code></td>
<td>‘étoile(s)’</td>
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<tr>
<td><code>sîyôô</code></td>
<td>1) ‘boîte d’allumettes’ (litt : ‘maison de feu’) 2) ‘allumette(s)’</td>
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<tr>
<td><code>gboôôôgâ</code></td>
<td>‘une guêpe’</td>
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<td><code>zïôôgâ</code></td>
<td>‘un moustique’</td>
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<td><code>zoëgâ</code></td>
<td>‘une abeille’</td>
<td></td>
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<tr>
<td><code>zlûûgâ</code></td>
<td>‘une fourmi’</td>
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<tr>
<td><code>sôôgâ</code></td>
<td>1) ‘une dent’ 2) ‘crochet’ (de serpent)</td>
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<tr>
<td><code>sôôôgâ</code></td>
<td>1) ‘un ongle’ 2) ‘une griffe’ 3) ‘un sabot’</td>
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<tr>
<td><code>dêgâ</code></td>
<td>‘une feuille’</td>
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<tr>
<td><code>kplôôôgâ</code></td>
<td>‘cauri’</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>sûsôôôgâ</code></td>
<td>‘étoile’</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>sîyôôgâ</code></td>
<td>‘allumette’</td>
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</tbody>
</table>
Singulative

(2a. \( \bar{n} s\acute{\alpha} y\hat{\gamma}^{\alpha} \bar{n} k\ddot{\alpha} n\hat{\alpha} \))

ma dent elle me faire PROG

‘J’ai mal aux dents.’ / ‘J’ai mal à la dent.’

(2b \( \bar{n} s\acute{\alpha}g\ddot{\alpha} y\hat{\gamma} \bar{n} k\ddot{\alpha} n\hat{\alpha} \))

ma dent-unité elle me faire PROG

‘J’ai mal à la dent.’

<table>
<thead>
<tr>
<th>yâ</th>
<th>1) ‘yeux, œil’ 2) ‘regard’ 3) ‘couleur’</th>
</tr>
</thead>
<tbody>
<tr>
<td>yâgâ</td>
<td>1) ‘œil ; yeux’ 2) ‘œil d’insecte composé à facettes’</td>
</tr>
<tr>
<td>sê</td>
<td>‘corne(s)’</td>
</tr>
<tr>
<td>sêgâ</td>
<td>‘corne(s)’</td>
</tr>
<tr>
<td>tô</td>
<td>1) ‘oreille(s)’ 2) ‘bord’</td>
</tr>
<tr>
<td>tônlâgâ</td>
<td>‘oreille(s), pavillon de l'oreille’</td>
</tr>
</tbody>
</table>
Unit in quantifying expressions

(37) pỳddè nè à kpì å à mè gā häå hä
  village FOC je rencontrer sa personne unité quelque PP
  ‘J’ai rencontré quelques gens de ce village.’

(38) gòó dò r gā plè ‘douze’
  dix- un son unité deux
<table>
<thead>
<tr>
<th>term</th>
<th>translation</th>
<th>term</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>zùr</td>
<td>‘coeur’</td>
<td>zùrgà</td>
<td>‘coeur’</td>
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<tr>
<td>yā</td>
<td>1) ‘œil’ 2) ‘regard’</td>
<td>yāgà</td>
<td>1) ‘œil’ 2) ‘œil d’insecte composé à facettes’</td>
</tr>
<tr>
<td>tó</td>
<td>1) ‘oreille(s)’ 2) ‘bord’ 3) ‘ouïes’</td>
<td>tónagà</td>
<td>‘oreille, pavillon de l’oreille’</td>
</tr>
<tr>
<td>kù́kù́</td>
<td>‘sexé masculin’</td>
<td>kù́rágà</td>
<td>‘sexé masculin’</td>
</tr>
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<td>pënē</td>
<td>‘clitoris’</td>
<td>pënégà</td>
<td>‘clitoris’</td>
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<td>dúuíj</td>
<td>‘balafon’</td>
<td>dúuíngà</td>
<td>‘maïloche de balafon’</td>
</tr>
<tr>
<td>sée</td>
<td>1) ‘arc’ 2) ‘flèche’</td>
<td>séeğà</td>
<td>‘flèche’</td>
</tr>
<tr>
<td>bū</td>
<td>‘fusil’</td>
<td>būgà</td>
<td>‘balle de fusil’</td>
</tr>
<tr>
<td>dâa</td>
<td>‘mâchette’</td>
<td>dâagà</td>
<td>‘couteau ; lame de couteau’</td>
</tr>
</tbody>
</table>
Laudatory use

(39)  å  bâ  kó  bλ,  kó  gā  mût
   sa  POSS  maison  DEF  maison  grain  être
   ‘Sa maison est très grande/belle.’

(41)  yà  gbâwûyê  gâ  sù  dô  dâ  rû  bû
   il-PRF  boubou  grain  joli  un  porter  REFL  PP
   ‘Il a porté un très joli boubou.’

(42)  blùí  gâ  rû  woû  nû,  kû  kwââû  â  kλ  bλ
   forêt  grain  que  ils-la donner  pour  que  nous  la  cultiver  DEF
   ‘C’est une forêt dense/grande qu’on nous a donné pour cultiver.’
Essence/nature

(51) ɗâŋ bā dēè â gā yà tṛ̋
ciel DEF aujourd’hui sa nature elle-PRF devenir noir
‘Le ciel est sombre aujourd’hui.’

(52) yí nè à gā yṛ̋ tṛ̋ṛ̋tṛ̋ ḏēè
eau FOC sa nature elle-être clair très
‘Que cette eau est claire!’ (cf : yí ‘eau’ ; yīgā ‘rivière’)

(53)a. sé nè à gā {yṛ̋} nūāēěz ā
terre FOC sa nature {elle-être} rouge
‘Cette terre est rouge.’
Singulatives across Mande

The nouns are not always cognate, but the distribution is similar:

<table>
<thead>
<tr>
<th>dan-blo</th>
<th>kwēē</th>
<th>‘sel’</th>
<th>kwēēgā</th>
<th>‘grain du sel’</th>
</tr>
</thead>
<tbody>
<tr>
<td>toura</td>
<td>wḕ</td>
<td>‘sel’</td>
<td>wḕwḕ</td>
<td>‘grain de sel’</td>
</tr>
<tr>
<td>beng</td>
<td>bīē</td>
<td>‘sel’</td>
<td>bīē wle’</td>
<td>‘grain de sel’</td>
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<td>gban</td>
<td>gīē</td>
<td>‘sel’</td>
<td>gīē wli’</td>
<td>‘grain de sel’</td>
</tr>
<tr>
<td>wan</td>
<td>ò</td>
<td>‘sel’</td>
<td>ò ụ̄</td>
<td>‘grain de sel à gros grains’</td>
</tr>
<tr>
<td>bambara</td>
<td>kògō’</td>
<td>‘sel’</td>
<td>kògōkìse’</td>
<td>‘grain de sel à gros grains’</td>
</tr>
<tr>
<td>Language</td>
<td>Word 1</td>
<td>Meaning 1</td>
<td>Word 2</td>
<td>Meaning 2</td>
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<tr>
<td>dan-blo</td>
<td>wū</td>
<td>'cheveux'</td>
<td>wūgā</td>
<td>'cheveu'</td>
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<td>mwan</td>
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<td>'cheveux'</td>
<td>wībē</td>
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<td>wan</td>
<td>mēkāyi</td>
<td>'cheveu(x)'</td>
<td>mēkāyi ūn dó</td>
<td>'cheveu'</td>
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<tr>
<td>gban</td>
<td>ūlē</td>
<td>'cheveux'</td>
<td>ūlē wli</td>
<td>'cheveux'</td>
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<tr>
<td>beng</td>
<td>ūlucēy</td>
<td>'cheveux'</td>
<td>ūlucēy wle</td>
<td>'cheveux'</td>
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<tr>
<td>gouro</td>
<td>ū</td>
<td>'cheveux'</td>
<td>ū wōlē</td>
<td>'tresse'</td>
</tr>
<tr>
<td>dan-blo</td>
<td>zō</td>
<td>1) 'pointe ; epingle'</td>
<td>zōgā</td>
<td>'abeille'</td>
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<td></td>
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<td>2) 'abeille(s)'</td>
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<td>toura</td>
<td>zōō</td>
<td>1) 'pointe' 2) 'abeille(s)'</td>
<td>zōō wēe dó</td>
<td>'abeille'</td>
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<tr>
<td>gban</td>
<td>zō</td>
<td>'abeille(s)'</td>
<td>zō wli</td>
<td>'abeille'</td>
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<tr>
<td>mwan</td>
<td>zrō</td>
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<td>Language</td>
<td>Word 1</td>
<td>Word 2</td>
<td>Meaning 1</td>
<td>Meaning 2</td>
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<td>-----------</td>
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<td>dù wlé</td>
<td>lame de couteau</td>
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<tr>
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<th>Meaning 1</th>
<th>Meaning 2</th>
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<td>sààwée</td>
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<td>‘arc’</td>
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<td>kálá</td>
<td>‘arc’</td>
<td>kálákîse</td>
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Possible network for Dan

- **functional/essential part**
  - **lexicalization**
  - **inference**
  - "the essence is significant"
- **essence**
  - **inference**
- **laudatory use**
- **fruit**
  - **inference**
- **grain**
  - **lambda-abstraction**
  - **inference**
- **bone**
- **conventional unit**
  - **lexicalization**
- **singulative**
  - **syntacticization?**
- **unit in quantifying expressions**
The network in Wan

- **functional/essential part**
  - lexicalization
  - inference
  - "the essence is significant"
  - laudatory use

- **fruit**
  - inference
  - lambda-abstraction
  - bone

- **conventional unit**
  - lexicalization

- **grain**
  - inference
  - singularive

- **unit in quantifying expressions**
  - syntactication?
Singulativity: summary

• A similar set of uses across Mande languages, centered on the meaning ‘grain’;
• differences in the use of the markers are surprisingly minor in light of their lack of common ancestry;
• the semantic map model helps to make sense of the parallels in the use of historically unrelated markers;
• as well as to identify possible gaps in the existing lexical descriptions.
Diminutivity vs. singulativity

• Diminutive markers are cognate, singulatives are not necessarily so;
• the same general types of semantic relations are used to organize the networks;
• in both domains, Wan differs significantly from its related languages;
• yet its disintegrated uses make sense when viewed in the context of the polysemy networks of the other languages.
Conclusion

Comparison of the two semantic domains, explored at the micro-scale level, highlights the strengths of the model:

• can capture cross-linguistic diversity without making assumptions about the synchronic status of meanings or relationships between meanings,

• can yield insights into relationships between languages,

• has the potential of accounting for the ways expressions compete with each other and take over new territory or recede over time.

The comparison also points to the need for improvement:

• cannot capture differences in productivity,

• cannot capture differences in lexical restrictions.
Thank you
Selected references


METAPHOR: A meaning shifts to a new domain, based on a general metaphor which maps between the old and new domains. The mapping will preserve certain features of the old domain (Sweetser 1990; Heine et al. 1991).

INFEERENCE OR CONTEXT-INDUCED REINTERPRETATION: A morpheme acquires a new meaning which had been an inference or implicature of its old meaning. The historically earlier meaning of a morpheme causes the listener to naturally draw some inference; this inference gradually becomes conventionalized as the literal meaning of the morpheme (Traugott & König 1991; Heine et al. 1991; Bybee et al. 1994).

GENERALIZATION OR BLEACHING: A new sense is created from an old one by abstracting away specific features of meaning. The new meaning is more general and less informative than the old one.

to the generalization mechanism. Lambda-abstracting takes one predicate in a form and replaces it with a variable. The resulting expression is now a second-order predicate, since its domain includes a variable which ranges over predicates. For the diminutive, this process takes the original concept ‘small(x)’, which has the meaning ‘smaller than the prototypical exemplar x on the scale of size’, and lambda-abstracting it to ‘lambda(y)(smaller than the prototypical exemplar x on the scale y)’.