Exploring cross-linguistic influences of placement/removal events on speech and gesture in the Casamance, Senegal

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Methods in Multimodality
Majority are multilingual

Research on monolingual speech

Widely spoken, standardised languages

Second language learning

Much to be discovered!
Expression of events

- **Speech**
  - Varies cross-linguistically in form and meaning

- **Gesture**
  - Emphasize the info in speech
  - Enhance speech
  - Stand alone & supply info
  - Formal properties, contrastive meaning
  - Analytical tool
Placement events & posturals

- CAUSED MOTION & RELOCATION
- CAUSED MOTION & RELOCATION + FINAL CONFIGURATION

sit, stand, lay
Previous findings

1. French: *mettre*  German: *stellen, setzen, legen*

   Avoidance strategies & overgeneralize verbs

2. French: *mettre*  German: *stellen, setzen, legen*

   Mix of patterns in gesture

3. Overextend verbs and converge to a more general system

   (Alferink & Gullberg, 2014; Gullberg, 2009; Berthele, 2012)
Research question

How do highly multilingual speakers of languages that make semantic distinctions in the domain of placement events organise their mental lexicons and conceptual space to express this real world event?
## Preliminary data

<table>
<thead>
<tr>
<th>General system</th>
<th>Specific system</th>
</tr>
</thead>
<tbody>
<tr>
<td>French*</td>
<td>Kujireray</td>
</tr>
<tr>
<td>Wolof</td>
<td>Banjal</td>
</tr>
<tr>
<td></td>
<td>Gubëeher</td>
</tr>
</tbody>
</table>

*Preliminary data come from FLEx corpora, *Mesospace Project* tasks, & elicitation sessions (Watson, 2014 & Cobbinah, 2013)
Elle **met** le bol sur la table

‘She **puts** the bowl on the table’

- high frequency of use, wide range of contexts
- a high degree of semantic generality
- requires more detailed information encoded in adpositions
Caused posturals in Kujireray

1. **Jinde jaju injē b-e-il -en -e jo**
   AGR:ji.unspecific pn DEM.DE 1S purp-stand CAU PERF AGR:j.pn S
   ‘The little thing there, I stand it up.’
   MSRWNOS37, 4:01, 07

2. **meme nu-robu-en -e yo mat u-jux yo**
   even 2S sit CAUS PERF pn NEG.FU 2S –see Pn T
   ‘Even if you sit it down, you won't see it.’
   MSRWNOS32, 2:37, 02

3. **Nu-fil -en jo me**
   2S lay CAUS AGR:j subord det
   ‘If you lay it down...’
   MSRWNOP27, 2:22, 07
Data

- Caused Positions
- Put and Take Stimulus
  - Director/matcher task
  - Research assistant
  - Embedded in target language
  - Video
The participants

- Of 25 participants (aged 15-42)
- 18 completed both tasks in Kujireray and Senegalese French (aged 18 – 33)
- Diverse linguistic repertoires, backgrounds
- Kujireray and S. French to some degree of fluency
Segmenting gestures

- Gesture unit:
  - Preparation phase
  - Stroke
  - Retraction phase
  - Resting position

- Sound off (biased coding)
- Multiple strokes within a unit: change in direction, speed, handshape
- Frame by frame
Coding gestures

- Handshape vs. ‘floppy’ (no handshape)
  - Precursory gestures (prep phase)
  - Complementary distribution

- Dynamic vs. static
  - Movement vs. no movement
  - Path vs. manner (after)

- Binary coding scheme (1/0) into ELAN
Examples of gesture types

- Handshape + Dynamic
- Handshape + Static
- ‘Floppy’ + Dynamic
- ‘Floppy’ + Static
- Pointing*
Handshape + Dynamic
Handshape + Static
‘Floppy‘ + Dynamic
‘Floppy’ + Static
Preliminary results

- Gestures rates vary on individual basis, proportions-based
- Range of gestures: 6 to 269
- 6 participants randomly selected
- Both tasks combined (will separate after)
- Within participants, between participants
Within participants

<table>
<thead>
<tr>
<th></th>
<th>Ousseynou Type</th>
<th>Kujireray Type</th>
<th>French Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>n=269</td>
<td>n=53</td>
<td>n=53</td>
</tr>
<tr>
<td>pointing</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>F + S</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>F + D</td>
<td>11%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>HS + S</td>
<td>43%</td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td>HS + D</td>
<td>39%</td>
<td>49%</td>
<td>49%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Dadi Type</th>
<th>Kujierray Type</th>
<th>French Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>n=75</td>
<td>n=84</td>
<td>n=84</td>
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<tr>
<td>pointing</td>
<td>1%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>F + S</td>
<td>5%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>F + D</td>
<td>13%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>HS + S</td>
<td>29%</td>
<td>35%</td>
<td>35%</td>
</tr>
<tr>
<td>HS + D</td>
<td>51%</td>
<td>50%</td>
<td>50%</td>
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</table>

- Handshapes
- Similar between languages
## Within participants

<table>
<thead>
<tr>
<th></th>
<th>Jonas</th>
<th>Kujireray</th>
<th>French</th>
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</thead>
<tbody>
<tr>
<td>Type</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n= 71</td>
<td>n= 75</td>
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</tr>
<tr>
<td>pointing</td>
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<td>3%</td>
<td></td>
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<tr>
<td>F + S</td>
<td>7%</td>
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<td></td>
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<tr>
<td>F + D</td>
<td>34%</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>HS + S</td>
<td>31%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>HS + D</td>
<td>28%</td>
<td>36%</td>
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<td>Fefe</td>
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<td></td>
<td>n=104</td>
<td>n=50</td>
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<tr>
<td>pointing</td>
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<tr>
<td>F + S</td>
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<td>4%</td>
<td></td>
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<tr>
<td>F + D</td>
<td>24%</td>
<td>16%</td>
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<tr>
<td>HS + S</td>
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<td>18%</td>
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<tr>
<td>HS + D</td>
<td>45%</td>
<td>62%</td>
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- Floppy + Dynamic
- Handshapes
- Mix of gestures
### Within participants

<table>
<thead>
<tr>
<th></th>
<th>Kujireray</th>
<th>French</th>
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<tbody>
<tr>
<td><strong>Christian</strong></td>
<td>n=71</td>
<td>n=22</td>
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<tr>
<td>Type</td>
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<tr>
<td>pointing</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>F + S</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>F + D</td>
<td>42%</td>
<td>5%</td>
</tr>
<tr>
<td>HS+ S</td>
<td>17%</td>
<td>23%</td>
</tr>
<tr>
<td>HS + D</td>
<td>38%</td>
<td>64%</td>
</tr>
<tr>
<td><strong>Francisco</strong></td>
<td>n= 6</td>
<td>n=0</td>
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<tr>
<td>Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pointing</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>F + S</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>F + D</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>HS+ S</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>HS + D</td>
<td>83%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- Christian’s: F + D
- Francisco, few strokes
Between participants/Kujireray

- Handshape, Dynamic
- Handshape, Static
- Floppy, Dynamic
- Floppy, Static
- pointing

- Ousseynou
- Jonas
- Francisco
- Fefe
- Dadi
- Christian
Next questions

- Looking at linguistic profiles of speakers
- Sound & speech!
- Gestures compensate, enhance speech?
- Naturalistic data
- Significant/correlation stats...
Thank you!
Within participants

Ousseynou % of types

French
Kujireray

Fefe % of types

French
Kujireray

Jonas % of types

French
Kujireray

Francisco % of types

French
Kujireray
Cont.
Linguistic Profiles

- To assess speakers’ multilingual repertoires:
  - Language usage patterns
  - Language use questionnaires
  - Fluency/reaction times
Multiple regression model

Use of languages expressing caused posturals

Higher

French
Wolof

Lower

Kujireray
Gubëeher
Eegimaa