Multimodal encoding of motion events in French and Dutch as L1 and L2

Christina Piot
PhD Researcher at the University of Liège (Belgium)
Christina.piot@uliege.be

Can Motion Event Construal be Taught or Restructured? Evidence from Bilinguals and L2 Learners
16 – 17 April 2021
Introduction
Introduction

Motion events in speech

- **Verb-framed** vs. **Satellite-framed** languages (Talmy 2000)
  French vs. Dutch
  e.g. L’oiseau rentre dans la cage en volant.
  De vogel vliegt de kooi binnen.
  = The bird enters the cage flyings vs. The bird flew into the cage.

- Use of **posture verbs** in Dutch vs. **Neutral verbs** in French (Lemmens 2002)
  e.g. La bouteille est sur la table vs. De fles staat op tafel.
  = The bottle is (standing) on the table.

Gestures

Gestures are part of the **communication process** (i.a. McNeill 1985, 2005, Kendon 1980, 1994)


Gestures have both **universal** and **language-specific** characteristics (Kita & Özyürek 2003, McNeill 2005, 2006 and Brown & Chen 2013)

The typological differences between satellite-framed and verb-framed languages are **reflected** in gestures (Kita & Özyürek 2003, McNeill 2005, 2006, and Brown & Chen 2013)
Outline of the presentation

1. Theoretical background
2. Method
3. Results & discussion
4. Conclusion
5. Further Research & PhD project
1. Theoretical background
1.1. Linguistic taxonomies

Dynamic motion events

<table>
<thead>
<tr>
<th>Satellite-framed pattern</th>
<th>Verb-framed pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>[PREF&lt;sub&gt;path&lt;/sub&gt;]</td>
<td>[V&lt;sub&gt;manner&lt;/sub&gt;]</td>
</tr>
<tr>
<td>ac-courir</td>
<td>affluer</td>
</tr>
<tr>
<td>dé-rouler</td>
<td>déferler</td>
</tr>
<tr>
<td>éc-couler</td>
<td>échapper ...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>[PREF&lt;sub&gt;path&lt;/sub&gt;]</th>
<th>[N&lt;sub&gt;figure&lt;/sub&gt;] - er</th>
</tr>
</thead>
<tbody>
<tr>
<td>é-crem-er</td>
<td></td>
</tr>
<tr>
<td>é-trip-er</td>
<td></td>
</tr>
<tr>
<td>dé-peupl-er</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>[PREF&lt;sub&gt;path&lt;/sub&gt;]</th>
<th>[N&lt;sub&gt;ground&lt;/sub&gt;] - er</th>
</tr>
</thead>
<tbody>
<tr>
<td>ac-croch-er</td>
<td></td>
</tr>
<tr>
<td>em-pot-er</td>
<td></td>
</tr>
<tr>
<td>dé-rall-er</td>
<td></td>
</tr>
</tbody>
</table>

Spatial relationships

- Posture verbs
- Neutral verbs
- Transitive verbs (possession and perception)


Kopecka (2006: 98)
1.2. The dimensions within a co-speech gesture

Co-speech gestures

- Iconic
- Metaphoric
- Deictic
- Beats
- Pragmatic

1.3. Research questions

1. Which aspects (path/manner) do native speakers of French and Dutch and French-speaking learners of Dutch encode in their speech (verb and satellites)?

2. Which dimensions (cf. iconic, metaphoric, beats, deictic and pragmatic) are present in the gestures of native speakers of French and Dutch and of French-speaking learners of Dutch?

3. Which aspects (path/manner) do native speakers of French and Dutch and French-speaking learners of Dutch encode in their iconic gestures?

4. Are the different groups’ gestures complementary to speech?

5. Do learners tend to have a similar behaviour to the Dutch native speakers’? Or do they tend to keep behaving as in their mother tongue when they describe motion events in Dutch?

⇒ Can motion event construal be taught or restructured?
2 Method
2.1. **Tasks**

- **XP I: Retelling of video fragments**
- **XP II: Description of images**
2.2. Participants

- Dutch-speaking control group
  - 4 students and 2 assistants (KULeuven)

- French-speaking control group
  - 12 students (ULiège)

- Experimental group
  - 12 students (Germanic Languages & Literature, ULiège)
2.3. Data analysis
Results & Discussion
3.1. Number of utterances and gestures (average per group)

- **Number of gestures (XP I)**
  - Dutch speakers: 119.66
  - Learners: 107.83
  - French speakers: 73.16

- **Number of utterances (XP I)**
  - Dutch speakers: 99.33
  - Learners: 62.16
  - French speakers: 74.66

- **Number of gestures (XP II)**
  - Dutch speakers: 13
  - Learners: 22
  - French speakers: 13.16

- **Number of utterances (XP II)**
  - Dutch speakers: 14.16
  - Learners: 23.66
  - French speakers: 23.83
The expression of motion events in speech
Aspects in the verbs in XP I

3.2.1.
3.2. Types of verbs in XP II

- Dutch speakers:
  - Neutral: 15.29%
  - Posture verb: 43.53%
  - Perception: 11.76%
  - Possession: 9.41%
  - Movement: 8.24%
  - None: 2.8%
  - Others: 2.36%

- Learners:
  - Neutral: 57.75%
  - Posture verb: 7.75%
  - Perception: 7.04%
  - Possession: 4.93%
  - Movement: 3.52%
  - None: 15.79%
  - Others: 3.22%

- French speakers:
  - Neutral: 81.12%
  - Posture verb: 2.8%
  - Perception: 2.8%
  - Possession: 1.2%
  - Movement: 1.4%
  - None: 9.41%
  - Others: 6.28%
Examples

Dutch native speakers
‘Tweety loopt weg, uit de kooi’ (MTC, FRAGMENT1, DEEL1)

‘Achter die plint staat er een bank waar twee jongens op staan en tussen die jongens staat iets.’ (MTE, PRENT7, OBJECT2)

French native speakers
‘[…] sauf qu’il y a un lion sur le bateau et que du coup le lion lui fait rugir dessus donc il quitte le bateau en courant’ (NT2D, FRAGMENT4, DEEL1)

‘Alors donc l’objet est euh près de l’entrée du zoo euh il est aussi tout près de l’enclos des… des chevaux.’ (NT2K, PRENT3, OBJECT2)

French-speaking learners of Dutch
‘Hij loopt euuh heen en terug langs…langs euh ja ik weet het niet. Dat is dicht bij het gebouw en euh… Ha ik herinner me niet of hij ook weggaat of dat Titi opnieuw aan het vliegen is omdat Grosminet weg is ja.’ (NT2E, FRAGMENT3)

‘Dus je hebt een beeld met veel kinderen en euh euh aan de achterkant van het beeld zijn er twee kinderen die kledingen dragen’ (NT2G, PRENT7, OBJECT1)
The expression of motion events in speech

- Aspects in native speakers’ speech (RQ1)
  Differences between the verb-framed and satellite-framed languages reflected in the oral productions of the control groups

- Differences between French and Dutch in the expression of static motion events: present here as well
  ➔ // Lemmens (2002)

Aspects in learners’ speech (RQs 1 & 5)

- The learners are acquiring the structures used in Dutch to describe dynamic motion events (i.e., they tend to encode manner in the verb similarly to native speakers, but they still underuse verbs in which manner is encoded in the stem and path in a prefix in comparison to Dutch native speakers)

- The acquisition of the structures used in Dutch to describe static motion events (i.e. posture verbs) seems difficult. Learners still overuse neutral verb and underuse the posture verbs. But possession verbs*.
  ➔ // Lemmens & Perrez (2010, 2012, 2018*)
3.3. The expression of motion events in co-speech gestures
3.3.1. Dimensions in gestures in XP I
3.3.2. Dimensions in gestures in XP II

<table>
<thead>
<tr>
<th>Category</th>
<th>Dutch speakers</th>
<th>Learners</th>
<th>French speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iconic gestures</td>
<td>69.62</td>
<td>59.09</td>
<td>64.1</td>
</tr>
<tr>
<td>Pragmatic</td>
<td>13.92</td>
<td>21.21</td>
<td>23.08</td>
</tr>
<tr>
<td>Beats</td>
<td>15.19</td>
<td>16.67</td>
<td>10.26</td>
</tr>
<tr>
<td>Deictic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dutch speakers | Learners | French speakers
--- | --- | ---
Iconic gestures | 55 | 78 | 50
Pragmatic gestures | 11 | 22 | 18
Beats | 12 | | 8
Deictic gestures | | | |

Column for each category represents different speakers and their corresponding gestures.
Aspects in the iconic gestures in XP I

<table>
<thead>
<tr>
<th></th>
<th>Dutch speakers</th>
<th>Learners</th>
<th>French speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>3.3.3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manner</td>
<td></td>
<td>10.08</td>
<td>3.13</td>
</tr>
<tr>
<td>Manner + Path</td>
<td></td>
<td>13.45</td>
<td>7.81</td>
</tr>
<tr>
<td>Others</td>
<td>7.97</td>
<td>8.4</td>
<td>13.28</td>
</tr>
<tr>
<td>Depiction</td>
<td>13.77</td>
<td>9.24</td>
<td>11.72</td>
</tr>
<tr>
<td>Approximative depiction</td>
<td>7.03</td>
<td>9.24</td>
<td>13.28</td>
</tr>
<tr>
<td>Location</td>
<td>38.41</td>
<td>47.9</td>
<td>49.22</td>
</tr>
</tbody>
</table>

Dutch speakers, Learners, French speakers.
3.3.4. The expression of motion events in gestures

**Dimensions in native speakers’ gestures (RQ2):**
- Mainly **iconic gestures**

**Dimensions in leaners’ gestures (RQ2):**
- Iconic gestures
- Many **non-substantive gestures** (pragmatic and beats)

**Aspects in native speakers’ gestures (RQ3):**
- **Path:** more often encoded by French speakers (∆/ Gullberg 2008 en 2011) than by Dutch speakers
- Manner: no big difference between the two groups
- Depiction

**Aspects learners’ gestures (RQs 3 & 5):**
- **Path:** rather similar to French (∆/ Gullberg 2009)
- Manner: between the two groups
- Depiction
Example: Manner + Path
Example: Manner + Path

‘[...] Daarvoor neemt hij een euh een **stuk boom** en hij wil dat te... te gebruiken om euh om **hard te lopen** en daarna **boven het stukje boom gaan en dan vliegen boven het meer.**’

NT2F, FRAGMENT8

[[...] To do this, he takes a euh a piece of tree and he wants to use it to run and afterwards to go above the piece of tree and then fly above the lake.]
3.4. Speech vs. gestures
3.4.1. Speech vs. gestures in XP I

Dutch speakers
Verb - Gesture: 8.79%
Satellite - Gesture: 9.16%
Verb - Sat - Gesture: 16.48%
Verb - Gesture (prefix): 30.77%
Extra: 29.67%
Others: 5.13%

Learners
Verb - Gesture: 16.51%
Satellite - Gesture: 18.35%
Verb - Sat - Gesture: 2.75%
Verb - Gesture (prefix): 10.09%
Extra: 33.94%
Others: 18.36%

French speakers
Verb - Gesture: 14.4%
Satellite - Gesture: 18.4%
Verb - Sat - Gesture: 1.6%
Verb - Gesture (prefix): 12.8%
Extra: 24%
Others: 28.8%
3.4.2. Speech vs. Gestures

Speech vs. Gestures in the native speakers groups (RQ4):
- French speakers: verb, satellite, extra
- Dutch speakers: satellite, verb and satellite, extra

Speech vs. Gestures in the learners group (RQ4):
- NT2: satellite, extra, verb

- Intergesture system? // interlanguage (Selinker 1972)
Example: Extra information
‘Hij sleept Sylvester mee, houdt het nog eventjes boven het water.’

MTF, FRAGMENT4

[He drags Sylvester with him, holds it above the water for a bit.]
Conclusion

Can motion event construal be taught or restructured?
Can motion event construal be taught or restructured?

<table>
<thead>
<tr>
<th>Dynamic motion events</th>
<th>Static motion events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not explicitly taught</td>
<td>Posture verbs explicitly taught to half of the participants but sill underused</td>
</tr>
<tr>
<td>Frequent use of manner motion verbs</td>
<td></td>
</tr>
<tr>
<td>Less frequent use of the verbs in which manner is encoded in the stem and path in a prefix</td>
<td></td>
</tr>
</tbody>
</table>
Can motion event construal be taught or restructured?

Degree of complexity
- Semantic networks of posture verbs
- Verb with manner in stem and path in prefix

Similarities and differences with L1
- Existence of manner motion verb in French vs. non-existence of posture verbs

Gesture
- Frequence of path gestures similar to L1 but form? Boundary crossing?
- Non-substantive gestures
- Synchronization?

Acquisition vs. learning?
Further Research & PhD Project
5. Further Research PhD Project

- Standard language test
- **CLIL-pupils** in the 4th form => Influence of the way the target language is learned/acquired
- **Longitudinal** study (4th, 5th and 6th forms)
- **Synchronization** between speech and gesture
- Analysis per motion event
- **Transcription** using **Stam** (2008)’s codes
- **Speech analysis** also on the basis of **Woerfel** (2019)’s parameters
- **Gesture analysis** also based on **Bressem** (1999 mentioned in 2013)’s taxonomy
- **Speech/gesture analysis** using **Özyürek et al.** (2008)’s methodology


References


References


References


Thank you for your attention!