Investigating fluency variables in learner language

Methodological concerns

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Background: Compiling interview corpora

LINDSEI-NO
English IL

NorwC
Norwegian NL1

Our research question:
How can a spoken learner corpus be compiled to make valid claims about utterance fluency variations?

LINDSEI: Gilquin, De Cock, & Granger (2010)
Background:
Zooming in on pause behaviour

- **Cognitive fluency** – **utterance fluency** – **perceived fluency** (Segalowitz, 2010)

- “**Fluency gaps**” (Segalowitz, 2010) between NL and IL speech (e.g. Ginther et al., 2010; Götz, 2013)
Background: Some transcription issues

- Turn-taking and segmentation issues:
  - Who “owns” the pause? When does a turn end?
  - How can we **identify** pauses reliably and validly?
  - Smaller data set from two corpora, possible to explore these issues in detail
Background: Transcription conventions

- The LINDSEI project: Minimalistic transcription standard ("broad transcription" (cf. Edwards, 1995))
  - Impressionistic detection of pauses
  - A "linear" representation of speech

- ↔ Specific research needs

"If not, [the transcript] can hinder detection of patterns of interest, and give rise to directly misleading impressions."
(Edwards, 1995, p. 19)
Transcribing pause behaviour in dialogue

- **Dialogue fluency** (Tavakoli, 2016)
  - “the decisions researchers make about the measurement of fluency in a dialogue may affect the different temporal aspects of L2 fluency” (p. 147)

- **Turn pauses** (Tavakoli, 2016; Peltonen, 2017; Witton-Davies, 2014)
  - Some correlations found between turn pause frequency and length and individual fluency measures: “highlight the importance of including these measures as indicators of fluency when interactional data are examined” (Peltonen, 2017, p. 11)
  - “approaching fluency solely from the perspective of an individual’s (cognitive) competence is not sufficient for characterizing fluency in an interactional setting” (ibid., p. 11)
<B> that's just an experience that was close in mind because I just came from talking to the people about the[i:] (eh) (eh) deadline for </B>

<A> (mm) </A>

<B> sending in the papers </B>

<A> yeah. okay </A>
Alternative transcription: Dialogical approach to the segmentation of speech

- **Contributing utterance**
  - Utterances from the speaker who holds the turn

- **Non-contributing utterance**
  - Utterances from the speaker who does not hold the turn, which do not result in turn change

- **Individual pauses**
  - “Belonging” to a single speaker

- **Shared pauses**
  - (cf. “turn pauses” (Tavakoli (2016) and Peltonen (2017))

Linell & Gustavsson (1987); Linell (2001)
Alternative transcription: Who owns the pause?

Pauses = silences $>0.25$ s

(cf. Goldman-Eisler, 1968; De Jong & Bosker, 2013)

PRAAT tool: Boersma & Weenink, 2013
Extraction script: Lennes, 2011
Alternative transcription: Who owns the pause?

**B turn, B utterance:**

that's just an experience that was close in mind because I (0.31) just came from (0.73) talking to the people about the: (0.28) (eh) (1.2) (eh) deadline (0.58) for (0.49) (response) sending in the papers (end B utterance)

**A utterance:** (response) (mm) (end A utterance) (end B turn)

[Shared pause, 2.76]

**A turn A utterance:**

yeah (pause) okay (end A utterance) (end A turn)

• A’s first backchanneling = non-contributing utterance
Summary: Guiding transcription principles

• A pause is considered part of a speaker’s utterance (an individual pause) if it occurs:
  – turn-initially after a direct question
  – turn-medially or utterance-medially
  – turn-finally, if the turn is viewed as interrupted

• A pause is considered shared between the speakers in a dialogue if:
  – it occurs between completed turns (consisting of contributing utterances)

Requires:
A segmentation of speech into turns and (contributing and non-contributing) utterances
Shared pauses as a possible indication of dialogue fluency and individual fluency?

### Table 1: Shared pause time ratio for each informant’s interviews (NL1 and IL), ranked

<table>
<thead>
<tr>
<th>NL1 (Norwegian)</th>
<th>IL (English)</th>
<th>Ranked</th>
</tr>
</thead>
<tbody>
<tr>
<td>5N</td>
<td>3E</td>
<td>1.94%</td>
</tr>
<tr>
<td>3N</td>
<td>1E</td>
<td>2.15%</td>
</tr>
<tr>
<td>1N</td>
<td>4E</td>
<td>2.84%</td>
</tr>
<tr>
<td>2N</td>
<td>5E</td>
<td>3.34%</td>
</tr>
<tr>
<td>4N</td>
<td>2E</td>
<td>6.28%</td>
</tr>
<tr>
<td><strong>6N</strong></td>
<td><strong>6E</strong></td>
<td><strong>6.37%</strong></td>
</tr>
</tbody>
</table>

### Table 2: Individual pause time ratio in each informant’s interviews (NL1 and IL), ranked (data from Aas & Rørvik, in press)

<table>
<thead>
<tr>
<th>NL1 (Norwegian)</th>
<th>IL (English)</th>
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<tbody>
<tr>
<td>3N</td>
<td>1E</td>
<td>18.66%</td>
</tr>
<tr>
<td>1N</td>
<td>5E</td>
<td>19.03%</td>
</tr>
<tr>
<td>5N</td>
<td>3E</td>
<td>19.57%</td>
</tr>
<tr>
<td>4N</td>
<td>2E</td>
<td>24.17%</td>
</tr>
<tr>
<td><strong>6N</strong></td>
<td><strong>4E</strong></td>
<td><strong>31.52%</strong></td>
</tr>
<tr>
<td><strong>2N</strong></td>
<td><strong>6E</strong></td>
<td><strong>29.56%</strong></td>
</tr>
</tbody>
</table>

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**Note:** The tables show the percentage of shared and individual pauses between NL1 and IL, ranked from lowest to highest.
<table>
<thead>
<tr>
<th>Original transcription</th>
<th>Alternative transcription</th>
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<tbody>
<tr>
<td>&lt;B&gt; that's just an experience that was close in mind because I just came from talking to the people about the[...] (eh) (eh) deadline ... for &lt;/B&gt;</td>
<td>&lt;turn who=&quot;B&quot;&gt; &lt;u who=&quot;B&quot;&gt; that's just an experience that was close in mind because I &lt;upause dur=&quot;0.31&quot;/&gt; just came from &lt;upause dur=&quot;0.73&quot;/&gt; talking to the &lt;trunc&gt; p &lt;/trunc&gt; &lt;fpause/&gt; (eh) people about &lt;long/&gt; the &lt;upause dur=&quot;0.28&quot;/&gt; &lt;fpause/&gt; (eh) &lt;upause dur=&quot;1.2&quot;/&gt; &lt;fpause/&gt; (eh) deadline &lt;upause dur=&quot;0.58&quot;/&gt; for &lt;upause dur=&quot;0.49&quot;/&gt; &lt;response/&gt; sending in the papers &lt;/u&gt; &lt;u who=&quot;A&quot;&gt; &lt;response/&gt; (mm) &lt;/u&gt; &lt;/turn&gt;</td>
</tr>
<tr>
<td>&lt;A&gt; (mm) &lt;/A&gt;</td>
<td></td>
</tr>
<tr>
<td>&lt;B&gt; sending in the papers &lt;/B&gt;</td>
<td>&lt;spause dur=&quot;2.76&quot;/&gt;</td>
</tr>
<tr>
<td>&lt;A&gt; yeah . okay &lt;/A&gt;</td>
<td>&lt;turn who=&quot;A&quot;&gt; &lt;u who=&quot;A&quot;&gt; yeah &lt;upause/&gt; okay &lt;/u&gt; &lt;/turn&gt;</td>
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• = 2 B (individual) pauses

• = 6 B (individual) pauses
Second issue: How many pauses?

<table>
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<tr>
<th>Informant</th>
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<th>OT</th>
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<tr>
<td>1E</td>
<td>252</td>
<td>123</td>
<td>129</td>
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<tr>
<td>2E</td>
<td>293</td>
<td>311</td>
<td>-18</td>
</tr>
<tr>
<td>3E</td>
<td>236</td>
<td>248</td>
<td>-12</td>
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<tr>
<td>4E</td>
<td>328</td>
<td>333</td>
<td>-5</td>
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<tr>
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<td>208</td>
<td>242</td>
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</tr>
<tr>
<td>6E</td>
<td>227</td>
<td>216</td>
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Table 3 Number of Individual pauses in the alternative transcription (AT) and the original transcription (OT) of the IL English interviews

→ Utterance fluency vs. (transcriber’s) perceived fluency
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Table 3 Number of Individual pauses in the alternative transcription (AT) and the original transcription (OT) of the IL English interviews

Speaker 1 (more pauses in the alternative transcription):
- Pauses in conjunction with non-contributing utterances from the interlocutor
- Pauses in conjunction with other disfluency phenomena (in disfluency clusters)
- Pauses at syntactic junctures
- Silences in conjunction with noticeable breathing
- The transcriber “blinded” by other fluency variables?

Speaker 5 (fewer pauses in the alternative transcription):
- Many short pauses (shorter than the cut-off point of 0.25 s)
- Pauses in overlap situations
- Other hesitation phenomena picked up by the transcriber as pauses?

→ Utterance fluency vs. (transcriber’s) perceived fluency
Conclusion

R.Q.: How can a spoken learner corpus be compiled to make valid claims about utterance fluency variations?

- **Issues related to turn-taking** are significant from the perspective of fluency research.
  - Turn-initial, turn-medial, and turn-final pauses
- **Dialogue fluency**: Utterances should not be viewed as independent of their immediate co-text.
- A small set of manageable criteria related to the dynamics of the conversation can create a more valid picture of pause behaviour, and should also be included in the compilation and transcription/modification of large-scale spoken corpora.
- Lays the ground for more valid contrastive fluency research, viewing pause behaviour within and across languages.
References