LIAISON AND THE LOCALITY OF PRODUCTION PLANNING

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EXPERIMENT AND RESULTS

Manipulated variables in a factorial design

- **Conditional probability** of word2 given word1
- **Length:** 1-2 vs. 3 syllables for word1 and word2 (4 combinations)
- **Syntactic proximity**:
  - proximate: adjective-noun (40 sentences, 10 for each length combination)
  - distal: noun-adjective (40 sentences, 10 for each length combination)
- **Repetition** (First vs. second production of target sentence)
- **Speech Rate** (Speak at regular rate vs. as fast as possible)

Sample stimuli (click on *slow* or *fast* to listen to 1st repetition):

(1) Adjective-Noun

a. Low conditional probability; long word1; short word2:

Elle discute avec les **derniers élèves**.
she discusses with the last students

'She is talking with the latest students.' slow; fast

b. High conditional probability, short word1; short word2:

Vous regrettez vos **dernières années**.
you regret your last years

'You regret the previous years.' slow; fast

(2) Noun-Adjective

a. Low conditional probability; short word1; long word2:

Ils construisent des **douches intérieures**.
they construct of douches interior

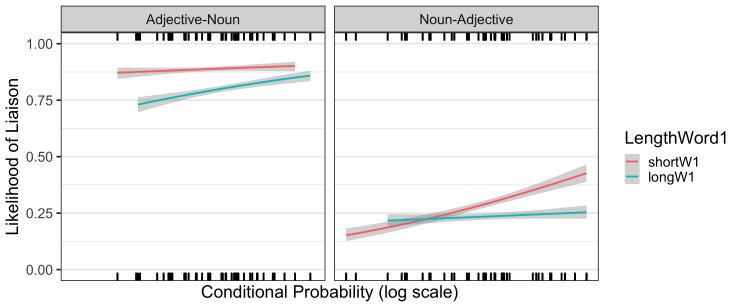
'They are constructing interior showers.' slow; fast

b. High conditional probability; short word1; long word2:

Mathilde regarde ses **dessins animés**.
Mathilde watches her drawing animated

'Mathilde is watching her cartoons.' slow; fast

Fig 1: Conditional Probability, Length of Word1, Syntax



Participants and procedure

- 16 speakers of European French living in Montréal
- Each recorded on 80 sentences and their (back-to-back) repetitions (each participant said 40 first slow then fast, and 40 first fast then slow)
- We asked to talk as naturally as possible, as if in a conversation
- Data were annotated for liaison and analyzed using ME logistic regression

Thanks for stopping by!

See overleaf for more information

MOTIVATION

- Reductive cross-word phonological processes are more likely when an upcoming word is predictable (though see Turnbull et al. 2018
- This could be for **information theoretic reasons** (**ITR**), since predictable information is reduced (cf. Jurafsky et al. 2001; Currie Hall et al. 2018 and references therein)...
- ...or because a predictable upcoming words are more likely to have at least been partially planned in time to trigger liaison ('**Locality of production planning hypothesis**', **PPH**)
- We look a non-reductive process, liaison, since PPH and ITR make diverging predictions
- Liaison encodes information about upcoming word (it must be vowel-initial)
- For ITR, it should be used when upcoming word is not predictable
- Our production experiment builds on Kilbourn-Ceron 2017a; Kilbourn-Ceron 2017b, who looked at liaison in corpus data

FINDINGS

- Conditional probability of word2 given word 1 increases liaison rate (✓ PPH; ⚠ ITR)
- Length of Word1 matters (✓ PPH; ⚠ ITR)
- Syntactic proximity matters (✓ PPH; ? ITR)
- Speech rate does not matter (⚠ PPH; ? ITR)
- Repetition does not matter (⚠ PPH; ? ITR)

['matter' = contributed significantly in logistic ME model]

DISCUSSION

- Most effects predicted by PPH, but not by ITR
- This shows that PPH effects exist that cannot be accounted purely by ITR factors
- Predictability effect contradicts at least *some* ITR accounts (e.g. Turnbull et al. 2018): Even though information about an upcoming word is encoded, the additional liaison consonant is pronounced when it is predictable
- Lack of speech rate effect (cf.Kaisse 1985) and repetition effect seem surprising based on PPH, and contrasts results from other cross-word processes, e.g. flapping (Kilbourn-Ceron, Wagner, and Clayards 2017; Kilbourn-Ceron, Clayards, and Wagner 2020)
- Bybee 2001 and Côté 2013 attribute frequency effects in liaison to the storage of larger sized units. This could explain the absence of these effects.
- Maybe in (at least partially) lexicalized processes like liaison, storage as in Bybee 2001 fossilizes effects of the PPH (as well as ITR effects such as reduction of frequent words)

ADDITIONAL PLOTS

Fig 2: Length of Word2

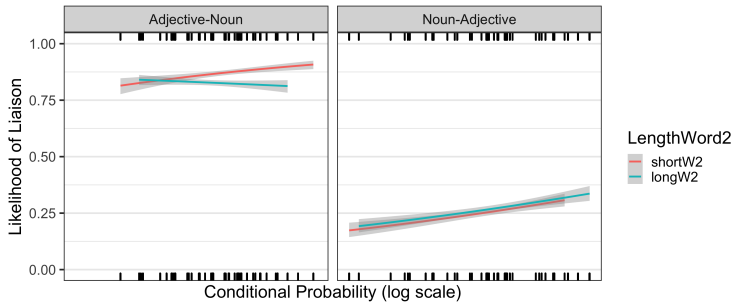
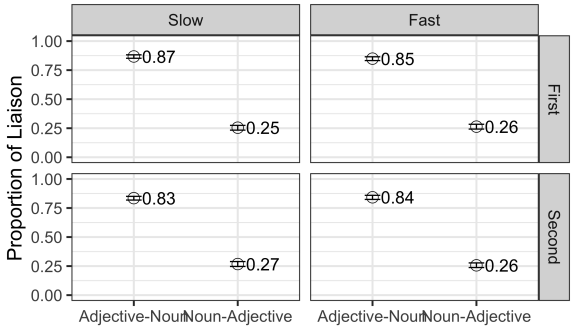


Fig 3: Speechrate and Repetition



ADDITIONAL DISCUSSION

- Note that the conditional probability of word1 (Fig 1) matters more when liaison rate is not close to ceiling (short word1 with adjective-noun order) or floor (long word1 with noun-adjective order)
- Length of word2 did not matter overall (Fig 2), which is expected since partial planning of word2 is sufficient to trigger liaison; oddly, however, in the adjective-noun word order, the effect of conditional probability of word2 appears to reverse when it is long
- Speech rate and repetition had no effect whatsoever (Fig 3). In slow speech, Liaison often applied even across a prosodic boundary
- Frequency of word 2 also matters (higher frequency, more liaison), but was not as well controlled as conditional probability
- Word length and frequency correlate (Zipf's law!), but the effect word length came out even with frequency in the same model

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