1. Research question

Does strong expectation entail prediction of specific lexical items?

2. Introduction

• Accumulation of contextual constraint strengthens expectation for syntactic and lexical properties of downstream words, speeding up their reading (Hale 2001, Levy 2008).

• Evidence for the prediction of specific words is not yet conclusive (Wicha et al., 2004; De Long et al., 2005; Van Berkum et al., 2005; Husain et al., 2014; cf. Safavi et al., 2016; Nieuwland et al., 2017).

• We tested whether the crystallisation of strong expectations into specific predictions in constraint-matched sentences depends on the number of particles licensed by a particle verb.

3. Hypotheses/predictions

• German particle verbs comprise a base verb and separable, downstream particle.

• Strong expectations for a particle are generated by verbs with both large and small sets of particles, e.g. [durch/auf/ab/mit/ein/an/fest/frei/…]-halten vs. [nieder/zusammen/an/auf]-schreien.

• However, only a small set of particles may allow prediction of a specific particle.

• Therefore, small set verb particles should be read faster than large set verb particles.

4. Experiment design

Small set/short distance:

Auf dem sehr unangenehmen Arbeitsweg schrie sie den Fahrer an der Kreuzung an, weil

Small set/long distance:

Auf dem Arbeitsweg schrie sie den sehr unangenehmen Fahrer an der Kreuzung an, weil

Large set/short distance:

Auf dem sehr unangenehmen Arbeitsweg hielt sie den Fahrer an der Kreuzung an, weil…

Large set/long distance:

Auf dem Arbeitsweg hielt sie den sehr unangenehmen Fahrer an der Kreuzung an, weil…

On the very frustrating way to work screamed/stopped she the very annoying driver at the crossing at, because…

5. Results

• Cloze probability large set: M=0.53, SD=0.33; small set: M=0.57, SD=0.36.

• Frequency per million tokens large set: M=7.40, SD=12.16; small set: M=2.55, SD=3.84.

• Self-paced reading: Large set particles read faster than small set particles, \( \beta = -12 \) ms, Pr(\( \beta < 0 \))= 0.98, CrI: [-24, 0 ms].

• Eye-tracking: Large set particles read faster at short distance but slower at long distance, \( \beta = 25 \) ms, Pr(\( \beta > 0 \))= 0.98, CrI: [1, 49 ms].

6. Discussion

• Unexpectedly, small set particles were read slower; the slow-down began at the verb.

• We speculated that:
  a) in the short distance/small set condition, the additional material before the verb may have increased constraint/time, contributing to prediction of the target particle;
  b) making a prediction may allow deeper semantic analysis of downstream material and/or require resources to maintain the prediction, accounting for slowed reading after the verb.