Processing of Intraclausal Garden-path Sentences in Czech

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According to the Good-Enough Approach (GE) the initial misanalysis of garden-path sentences lingers even after the reanalysis of the structure is done, i.e. the new analysis is fully specified and complete, but the initial misanalysis is not deleted completely (e. g. Slattery et al., 2013). However, recent findings of Chromý (submitted) indicate that readers may actually fail to form a full and complete representation of garden-path sentences in many cases. Even though the rate of incorrect answers to the questions targeting the initial misanalysis is higher in the case of garden-path sentences, the same goes for comprehension questions targeting other regions of the sentence.

We aim to test the idea of lingering misanalysis in an experiment using Czech intraclausal garden-path structures with external possessor, such as "*Kastelán zamkl průvodkyni v předsálí kolo, když skončily návštěvní hodiny.*", English: "*The castle manager locked the (female) guide's bike in the antechamber, after the visiting hours were over.*" (similar structures in Czech are discussed in Fried, 2009). The word *průvodkyni* (dat. sg. f. *guide*) is initially interpreted as accusative, i.e. a direct object of the verb *zamkl* (past tense of *to lock*), since the accusative and dative forms of the noun are homonymous. However, because the verb *zamkl* can take only one direct object, which is, in this sentence, *kolo* (acc. sg. n. *bike)*, the only syntactically correct analysis of the noun *průvodkyni* is dative, i.e. external possessor of *kolo*, and the sentence thus needs to be reanalysed when the reader encounters the word *kolo*.

To test comprehension, we use open-ended questions to minimize the risk of suggesting a specific analysis or reactivating the initial misanalysis through syntactic similarities. If the initial misanalysis lingers, question targeting the ambiguous region will have higher incorrectness rate for the GP condition than for the non-GP conditions and the type of mistake will correspond to the original misanalysis (Experiment 1). If a full syntactic representation is made, other regions of the sentence should be analysed correctly and questions targeting these regions should have similar incorrectness rate in both GP, and non-GP conditions (Experiment 2). Both experiments were designed as self-paced reading (sentences are presented as a whole to provide the participants with a natural reading situation) and consisted of twenty-four experimental items and ninety-six fillers.

In Experiment 1, grammatical gender of the target noun (resulting in possible homonymy and local syntactic ambiguity) and grammatical case of the target noun (setting the syntactic role of the target noun as direct object or external possessor to test the plausibility of the accusative interpretation) were manipulated. Incorrect answers were classified by three independent annotators into following categories – "I don't know", "substitution of the target word" (marked as "GP", if the substitution corresponds to the original misanalysis, or as "intra" if the target word is substituted with another constituent), "different question" and "rest" (including incomplete answers). 84 Charles University students participated in the experiment. In accordance with the previous findings of GE, questions following garden-path sentences have significantly higher incorrectness rate (GP dative – 13 %, non-GP dative 2.7 %, feminine accusative 8.9 %, masculine accusative 11.8 %). Almost 75 % of the wrong answers correspond with the "GP" type. Higher incorrectness rate for both accusative conditions was caused mostly by a high amount of incomplete or underspecified answers (the "rest" category). We would also like to report the results of Experiment 2, which employs two dative conditions from Experiment 1 and adds comprehension questions targeting subject of the sentence and locative adjunct. According to the original plans, the experiment was supposed to get realized in a laboratory, it was, however, carried out on-line instead. 91 people participated.

EXPERIMENT 1 – ITEM EXAMPLE

2x2 conditions (1,2 = syntactic role; a,b = syntactic ambiguity):

1a) Target noun – dat. sg. (external possessor), feminine (ambiguous) (GP)
Kastelán zamkl <u>průvodkyni</u> v předsálí
castle-manager-NOM.M.SG lock-3SG.M.PST guide-DAT.F.SG in antechamber-LOC.N.SG
kolo, když skončily návštěvní hodiny.
bike-ACC.N.SG after be over-3PL.F.PST visiting hour-NOM.F.PL
The castle manager locked the (female) guide's bike in the antechamber, after the visiting hours were over.

1b) Target noun – dat. sg. (external possessor), masculine (non-ambiguous) (non-GP)
Kastelán zamkl <u>průvodci</u> v předsálí
castle-manager-NOM.M.SG lock-3SG.M.PST guide-DAT.M.SG in antechamber-LOC.N.SG
kolo, když skončily návštěvní hodiny.
bike-ACC.N.SG after be over-3PL.F.PST visiting hour-NOM.F.PL
The castle manager locked the (male) guide's bike in the antechamber, after the visiting hours were over.

2a) Target noun – acc. sg. (direct object), feminine (ambiguous) (non-GP)
Kastelán zamkl <u>průvodkyni</u> v předsálí
castle-manager-NOM.M.SG lock-3SG.M.PST guide-ACC.F.SG in antechamber-LOC.N.SG
hradu, když skončily návštěvní hodiny.
castle-GEN.N.SG after be over-3PL.F.PST visiting hour-NOM.F.PL
The castle manager locked the (female) guide in the antechamber of the castle, after the visiting hours were over.

2b) Target noun – acc. sg. (direct object), masculine (non-ambiguous) (non-GP)
Kastelán zamkl <u>průvodce</u> v předsálí
castle-manager-NOM.M.SG lock-3SG.M.PST guide-ACC.M.SG in antechamber-LOC.N.SG
hradu, když skončily návštěvní hodiny.
castle-GEN.N.SG after be over-3PL.F.PST visiting hour-NOM.F.PL
The castle manager locked the (male) guide in the antechamber of the castle, after the visiting hours were over.

Comprehension question:
  a) **Targeting initial analysis**
     Co udělal kastelán?
     What did the castle manager do?

EXPERIMENT 2 – ITEM EXAMPLE

2x3 conditions (sentences 1a, 1b from Experiment 1 + 3 comprehension questions):

Comprehension questions:
  a) **Targeting initial analysis (object of the sentence)**
     Co udělal kastelán?
     What did the castle manager do?
  b) **Targeting subject of the sentence**
     Kdo zamkl kolo?
     Who locked the bike?
  c) **Targeting the locative adjunct**
     Kde se to stalo?
     Where did it happen?