

**Where do Experiencer-first Effects come from?**  
**An Empirical Study on the Effects of Animacy and Case**  
*Anne Temme & Elisabeth Verhoeven*  
Humboldt-Universität zu Berlin

1. Preliminaries

In German, it has been observed that experiencer objects may occur in the prefield without a contextual trigger, which is otherwise a property of subjects (cf. Bayer 2004, Fanselow 2003). Previous empirical studies show a robust O>S preference for dative experiencers (e.g. Bornkessel 2002, Haupt et al. 2008, Bader & Häussler 2010). For accusative experiencers, we find a more complex interplay of the relevant semantic and syntactic properties, notably agentivity and animacy (e.g. Scheepers 1997). The crucial question is whether the observed phenomena directly reflect the syntactic status of these particular arguments (implying thus that they are non-canonical subjects, see Belletti & Rizzi 1988) or if they may be deduced from effects of greater generality, as for instance animate-first effects.

The aim of this study is to answer the question whether experiencer-first effects are directly associated with the thematic role of experiencer. In a first experiment, we compare experiencer and non-experiential accusative objects in sentences with identical animacy configurations; in a second experiment, we compare the properties of dative experiencers with non-experiential animate datives. Both studies examine the contextual properties of the possible word orders of accusative and dative experiencers. Our assumptions are based on the idea that the canonical order is non-contextually restricted, while a non-canonical word order has to be contextually licensed (see Weskott et al. 2011). Hence, in both experimental studies, the question is whether the OS order with the verbs at issue is contextually restricted or not.

2. Method

We designed two separate experiments for Accusative and Dative Experiencers, which were carried out with 64 participants for accusative and 32 for dative. For both experiments we assume the factors (a) CONTEXT (licensing vs. non-licensing context) and (b) VERBTYPE (object-experiencer vs. non-experiencer verbs) having significant impact on WORDORDER (S>O vs. O>S).

The experimental method is a forced choice task, i.e., the speakers had to choose between an S>O and an O>S version of the same utterance in a context corresponding to one of the four permutations of CONTEXT\*VERBTYPE. Hence, the obtained results are word order frequencies revealing the *preferred* order in the condition at issue (and not the possibility of an order to occur). From a methodological perspective, the type of evidence obtained by this method has common properties with data from speech production in that it reflects the choice among a set of alternative expressions (see assumptions about this type of data in Featherston 2005).

For each verb ( $n$  of verbs = 16 per verb type), we construed two sentence pairs: the context followed by a target sentence with S>O order and, as a second pair, the same context followed by the corresponding O>S version of the target sentence, see (1) for data examples from the accusative experiencer experiment and (2) for the dative-experiencer experiment.

Factor CONTEXT: Contextual licensing of the O>S order was implemented in two ways. First, we created a Poset-relation between the subject in the context sentence and the object in the target sentence (see Weskott et al. 2011 showing that this manipulation results in strong contextual licensing). Second, we induced a contrast reading between context and target sentence in order to enhance the licensing effect for our type of data. The non-licensing level was represented through an 'all-new' context (answer to a generic question).

Factor VERBTYPE: in the accusative experiencer experiment, we compare experiencer-object verbs with non-experiencer-object verbs with animate objects; in the dative experiencer experiment, we compare dative experiencers with unintentional causers (i.e., datives with verbs such as *runterfallen* 'fall down' or *zerbrechen* 'break', see Schäfer 2008). In both cases we used inanimate stimulus/nominative arguments, which reduces the occurrence of the mentioned agentivity effect and makes it possible to integrate unintentional causers.

- (1) Die meisten Marktverkäufer hatten Angst vor der Zukunft.  
 ‚Most of the marketers were afraid of the future. ’  
 SO: *Der Umsatz hat den Fleischer erfreut.*  
 OS: *Den Fleischer hat der Umsatz erfreut.*  
 ‘(SO/OS) The butcher was pleased by the sales.’
- (2) Die meisten Sportler hatten keine Lust auf das Training.  
 ‚Most of the athletes were not in the mood for training.’  
 SO: *Die Übung hat dem Turner gefallen.*  
 OS: *Dem Turner hat die Übung gefallen.*  
 ‘(SO/OS) The gymnast was pleased by the routine.’

### 3. Results

The obtained data are summarized in Table 1. For data analyses, we performed mixed effect regression modeling in order to consider fixed (VERBTYPE, CONTEXT) and random (subjects, items) effects on WORDORDER frequency.<sup>1</sup> The results strengthen the first impression of the frequencies. *Accusative:* Due to implementation, we find significant impacts of the factors CONTEXT ( $p < .001$ ) and VERBTYPE ( $p < .001$ ), but no interaction effect. Thus, being embedded in licensing contexts and containing experiencer verbs cumulatively increase the choice probability of the O>S version of a sentence. As expected, the manipulated CONTEXT has the strongest influence, followed by VERBTYPE. *Dative:* The data exhibit a missing CONTEXT effect, since the O>S probability in non-licensing contexts is already high. The only significant fixed effect is VERBTYPE ( $p < .001$ ), showing that the usage of the non-experiential unintentional causer dative increases the O>S probability significantly. Again, there is no interaction of the fixed factors.

Table 1.

	Non-experiencer verbs				Experiencer verbs			
	non-licensing c.		licensing c.		non-licensing c.		licensing c.	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Acc., (% out O>S of 256)	45	13	139	54	105	41	178	70
Dat., (% out O>S of 128)	120	94	120	94	87	68	89	70

### 4. Discussion and relevance of the findings

The experiments make a contribution to the discussion of contextual licensing of object-initial word orders in German. The results of the accusative experiment show that in licensing contexts the choice probability of O>S order is four times higher than in non-licensing contexts. Thus, the design and the task of the study provide evidence for the contextual dependency of word order in German.

Furthermore, the experimental findings reveal differences between dative and accusative experiencers that are novel in the research on this subject. Accusative-experiencer objects are frequently fronted without a contextual trigger and are thus also licensors for O>S order. In a non-licensing (‘all-new’) context, the choice probability of O>S order is two times higher for an experiencer verb than for a non-experiencer verb. This is a strong effect in the accusative experiencer domain, since we generally expect intervening agentivity and/or animacy effects. Nevertheless, O>S is

<sup>1</sup>Details: A logistic regression modeling with mixed effects was performed in R (version: R-2.15.2; packages: lme4). See (i) for the specified parameters of the full model for both experiments. On the basis of the results models were fitted via maximum likelihood method and AIC comparison.

(i) word.order~verb.type\*context+(1|subjects)+(1|items)

not the overall preferred order for accusative experiencer arguments; in fact, the presence of a contextual licenser has a cumulative effect (resulting to 70% O>S).

The empirical situation with dative-experiencers is different: with these arguments O>S is the preferred option across contexts. The interesting issue is, however, that this property is not restricted to experiencer datives but also applies to unintentional causers – even to a larger extent. The findings indicate a complex picture of the word order preferences of experiencer structures. If we assume a fronting that is solely based on animacy and resulting discourse prominence, we should expect a fronting tendency for all examined verbs, since all relevant structures contain inanimate nominative arguments and animate human objects. A syntactic approach on fronting preferences must explain the gradation and the significant difference between experiential verbs with accusative objects and the two dative-licensing verbs – all stated as unaccusatives.

## References

- Bader, M. & J. Häussler (2010). Word order in German: A corpus study. *Lingua* 120, 717-762.
- Bayer, J (2004). Non-nominative subjects in comparison. In P. Bhaskararao & K. V. Subbarao (ed.) *Non-nominative Subjects*. Amsterdam - Philadelphia: John Benjamins Publishing. 49–76.
- Belletti, A. & L. Rizzi (1988). Psych-verbs and  $\Theta$ -Theory. *Natural Language and Linguistic Theory* 6, 293-352.
- Bornkessel I. (2002). *The argument dependency model: A neurocognitive approach to incremental interpretation*. PhD Thesis. Leipzig: Max Planck Institute of Cognitive Neuroscience.
- Fanselow G. (2003). Zur Generierung der Abfolge der Satzglieder im Deutschen. In S. Tanaka (ed.) *Akten des 30. Linguistenseminars*, Kyoto, Tokio.
- Featherston, S. (2005). The decathlon model: Design features for an empirical syntax. Reis M. & Kepser S. (ed.) *Linguistic Evidence: Empirical, Theoretical, and Computational Perspectives*. Berlin: Mouton de Gruyter.
- Haupt, F. et al. (2008). The status of subject-object reanalyses in language comprehension architecture. *Journal of Memory and Language*, 54–96.
- Schäfer, F. (2009). The Oblique Causer Construction across Languages. In A. Schardl, M. Walkow & M. Abdurrahman (ed.) *Proceedings of NELS 38*, 297-308.
- Scheepers, C.(1997). *Menschliche Satzverarbeitung. Syntaktische und thematische Aspekte der Wortstellung im Deutschen*. Doctoral dissertation. Freiburg University.
- Weskott T., Hörnig, R., Fanselow G. & Kliegl, R. (2011). Contextual Licensing of Marked OVS Word Order in German. *Linguistische Berichte* 225, 3-18.