Argument linearization in the production of German and Dutch verbs

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Abstract

In this paper we will compare the results of a German and a Dutch production experiment on argument linearization patterns (subject-before-object, object-before-subject and passive). We distinguish between several factors that have an effect on the outcome (agent vs. experiencer, dative vs. accusative, animate vs. inanimate) and conclude that SubjectFirst, AgentFirst, ExperiencerFirst and DativeFirst are all important principles, but AnimateFirst is not, surprisingly.

1 Introduction

One linguistic phenomenon that is intrinsically tied to verbs is *argument linearization*. Three well-known linearization patterns are: (i) *subject-before-object (SbO)* as in *John wrote this book*; (ii) *object-before-subject (ObS)* as in *This book, John wrote*; and (iii) *passive* as in *This book was written by John*. Studies on the perception of linearization patterns have identified several important factors: animacy (animate or inanimate), case (nominative, accusative, dative) and semantic roles (agent, patient or experiencer). This paper will present a novel view on linearization from the production perspective brought about by the results of two sentence production studies, one in German and one in Dutch, which shall disentangle the above-mentioned factors.

Although Dutch and German are two closely related languages, they differ in many aspects. Dutch, with no overt case marking of full noun phrases, exhibits a strong preference for SbO sentences (e.g. Lamers, 2005). For German, a language with overt case marking of full noun phrases, SbO preference seems to be less robust. Psycholinguistic perception studies have shown that for sentences with verbs that assign dative case the ObS order is preferred (e.g. Bornkessel & Schlesewesky, 2006; Bornkessel-Schlesewsky & Schlesewsky, 2009).

2 Method

By using different types of verbs the influence of case marking from other factors that might influence the linearization of the arguments was isolated. In both studies participants were asked to construct a sentence using the words (two arguments and a verb) provided in a prompt (see Ferreira, 1994). The four types of verbs and their characteristics can be found in Table 1. The experiment featured six different verbs per verb type.

Verb type	Restrictions	Passivize	Case on object	German/Dutch example
Standard Agentive	Animate subject	Yes	Accusative	*kritisieren/bekritiseren* 'to criticize'
Caustive Psych	Animate object	Yes	Accusative	*verblüffen/verbazen* 'to amaze'
Unaccusative Psych	Animate object	No	Dative	*gefallen/bevallen* 'to please'
Dative Agentive	Animate object	No	Dative	*schaden/-* 'to damage'

Table 1: Verb types and their characteristics (Agentive Dative verbs do not exist in Dutch)

3 Results

The results of the two studies show not many differences between Dutch and German. Overall, more SbO than ObS sentences were produced. Stimuli with Causative Psych verbs resulted in more passive constructions than with Standard Agentive verbs. ObS structures were most frequent with Unaccusative Psych verbs. See Table 2 and Table 3 for an overview.

However, one difference is that in German prompts with Unaccusative Psych verbs resulted in more ObS sentences than in Dutch. Furthermore, for German two additional issues could be tested: the effect of argument animacy and the class of Dative Agentive verbs. The effect argument animacy was surprisingly small. Only for Dative Agentive verbs there was an important difference: a prompt with one animate and one animate argument resulted in more object-initial sentences than a prompt with two animate subjects.

Verb type	**Example**	**Argument animacy**	**Subject-initial**	**Passive**	**Object-initial**	**Other**
Standard Agentive	'to criticize'	1 animate 1inanimate	79	16	0	6
Causative Psych	'to amaze'	1 animate 1inanimate	60	27	2	11
Unaccusative Psych	'to please'	1 animate 1inanimate	61		24	14

Table 2: Dutch linearization patterns (in percentages) for a number of input combinations

Verb type	**Example**	**Argument animacy**	**Subject-initial**	**Passive**	**Object-initial**	**Other**
Standard Agentive	'to criticize'	1 animate 1inanimate	84	4	2	9
		2 animates	83	3	1	13
Causative Psych	'to amaze'	1 animate 1inanimate	60	22	10	8
		2 animates	67	20	4	10
Unaccusative Psych	'to delight'	1 animate 1inanimate	37		54	8
		2 animates	39		47	14
Dative Agentive	'to damage'	1 animate 1inanimate	65	1	28	6
		2 animates	88	2	3	8

Table 3: German linearization patterns (in percentages) for a number of input combinations

4 Discussion

To explain the differences in patterns between sentences with different types of verbs on the one hand, and between the two languages on the other hand, we follow a multifactorial approach as proposed by Primus (1999, 2009; see also Lamers, to appear). In her approach argument realization results from the interplay of multiple factors. These factors give us several competing prominence principles (e.g. SubjectFirst, AnimateFirst, and AgentFirst).

Our results show that SubjectFirst must be a very strong principle: overall there are less ObS than SbO sentences. We are also in need of a No-Passivization principle, as there are not many passive sentences overall either.

The Causative Psych verbs show that an AnimateFirst principle cannot be very strong: the differences between verbs with two animates and verbs with one animate and one inanimate here is negligible. Instead, an ExperiencerFirst principle seems to be relevant, as a great number of passives are produced for Causative Psych verbs, and after passivization the Experiencer argument is in

front. Yet, the NoPassivization principle is still stronger, because the number of subject-initial sentences produces is still rather large.

ExperiencerFirst is also at work in Unaccusative Psych verbs. Here this principle results in an increased number of object-initial sentences, as passivization is ungrammatical for these verbs. Furthermore, there is a difference between German and Dutch: in the German study far more object-initial sentences were constructed. We propose that morphological case is the cause of this difference. In German objects of Unaccusative Psych verbs are overtly case-marked. Hence, if a dative argument is fronted the dative signals to the addressee that a non-subject is fronted. Therefore it is easier in German to front the object of an Unaccusative Psych verb. This analysis does not hold for accusative arguments. Probably, dative arguments like to be fronted because they are prototypically animate.

This DativeFirst principle also applies to Dative Agentive verbs. However, since the objects of these verbs do not have the Experiencer role, the ExperiencerFirst principle does not apply, resulting in smaller numbers/occurrences of object-initial sentences. Furthermore, when the subject of an Dative Agentive verb is animate, it is virtually always seen as having the Agent role. Finding almost no ObS structures may thus be explained in terms of the preference to place the Agent in sentence initial position (AgentFirst principle).

Surprisingly, AgentFirst applies to Standard Agentive verbs, but not to Causative Psych verbs. The subject of Causative Psych verbs is seldom seen as an Agent – not even when this argument is animate – and therefore AgentFirst does not apply, see Broekhuis (in prep.). Our data supports this analysis: where 100% of the passives with German Standard Agentive verbs are unambiguously agentive (i.e. use *werden* 'to become' as the passive auxiliary), only 9% of the passives with German Causative Psych verbs are.

Finally, Table 4 provides an overview of the way in which each verb diverges from the standard pattern of producing an active, subject-initial sentence.

5 Conclusion

In sum, we conclude that there are several important principles in choosing a linearization pattern in the production of German and Dutch: SubjectFirst, ExperiencerFirst, DativeFirst and AgentFirst, for example. Surprisingly, the AnimateFirst principle seems to be of little influence on the linearization process. Note, however, that AgentFirst, ExperiencerFirst and DativeFirst all apply to obligatorily animate arguments. As such, animacy *is* of great importance.

Verb type	Example	Argument animacy	German	Dutch
Standard Agentive	*'to criticize'*	1 animate 1inanimate	$\chi_{\text{AgentFirst}}$	$\chi_{\text{AgentFirst}}$
		2 animates	$\chi_{\text{AgentFirst}}$	
Causative Psych	*'to amaze'*	1 animate 1inanimate	$\surd_{\text{ExperiencerFirst}}$	$\surd_{\text{ExperiencerFirst}}$
		2 animates	$\surd_{\text{ExperiencerFirst}}$	
Unaccusative Psych	*'to please'*	1 animate 1inanimate	$\surd_{\text{ExperiencerFirst}}$ $\surd_{\text{DativeFirst}}$	$\surd_{\text{ExperiencerFirst}}$
		2 animates	$\surd_{\text{ExperiencerFirst}}$ $\surd_{\text{DativeFirst}}$	
Dative Agentive	*'to damage'*	1 animate 1inanimate	$\surd_{\text{DativeFirst}}$	
		2 animates	$\chi_{\text{AgentFirst}}$	

Table 4: Divergence from producing active, subject-before-object (SbO) sentences in German and Dutch (χ = no divergence; $\surd$ = minor divergence; empty cell = not investigated)

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