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## **Pronouns, reflexives and something in-between: A cross-linguistic investigation of reference resolution in Finnish, German and Dutch**

### **Introduction**

In English and in many languages, it has been observed that pronouns and reflexives are in (nearly) complementary distribution. However, the complementarity breaks down in representational NPs (RNPs, e.g. *picture of her/herself*). In English RNPs, (i) interpretation of reflexives is guided by a strong structural subject preference and a weaker semantic *source-of-information* preference (Kuno 1987), and (ii) interpretation of pronouns is guided by a non-subject preference and a *perceiver-of-information* preference (Tenny 2003). These patterns are robust in off-line data and on-line processing (Kaiser et al. 2008), but the nature of the semantic preferences is not well-understood. To further our understanding of the source/perceiver effects, we conducted three experiments investigating the interpretation of pronouns, reflexives and emphatics in RNPs in German, Dutch and Finnish. The experiments aim to shed light on three aspects of the source/perceiver preference: (1) Can the source preference be attributed to intensifiers? (2) Can the source preference be derived from a general prominence bias? (3) How typologically and syntactically robust are the source/perceiver effects? Are they restricted only to certain syntactic constructions or to certain language families?

### **Question 1: Can the source preference be attributed to intensifiers?**

English emphatic intensifiers (ex.1) have the same form as syntactic reflexives (e.g. Koenig & Gast 2006). It has been suggested (e.g. de Vries 1999, see also Bergeton 2004) that intensified object pronouns surface as reflexives (*\*him himself => himself*).

- (1) a. Himself used as a reflexive: *The king washed himself.*  
b. Himself used as adnominal intensifier: *The king himself opened the doors.*

Thus, reflexives in English RNPs (*picture of himself*) could be proper reflexives or intensified pronouns. If use of intensifiers is guided by semantics (e.g. Koenig & Gast 2006), could the source effects with English RNP reflexives be due to the presence of an intensifier? German can be used to test this: Emphatic intensifiers (*selbst*) are distinct from reflexives (*sich*). If source effects for English reflexives are due to intensification, they should not arise with non-intensifier reflexives. This predicts that in German RNPs, refl+intensifier *sich selbst*, but not plain reflexive *sich*, should prefer sources.

### **Experiment 1: German**

This experiment crossed verb type (*tell/hear*) and anaphoric form (pronoun / reflexive / emphatic), creating six conditions. Participants read sentences (ex.2) and indicated who was shown in the picture (subject/object/either one possible/third person).

- (2) *Tobias {erzählte/hörte von} Peter von dem Bild von {ihm / sich / sich selbst}.*  
'Tobias {told/heard from} Peter about the picture of {pronoun / refl / emphatic}'

The results of Experiment 1 show that reflexives and emphatics pattern alike: Both preferred the subject (>70%); but this was modulated by a source preference: more subject choices with *tell* (Subj=source) than *hear* (Subj=perceiver),  $p's < .01$ . Pronouns trigger more object-choices (overall >50% object-choices, <20% subject-choices, >20% both-choices), but also exhibit a perceiver preference: more object-choices with *tell* (Obj=perceiver, 65%) than *hear* (47%),  $p's < .01$ . In sum, the pronoun results resemble English data (see Kaiser et al. 2008). Crucially, since both the plain and the emphatic reflexives prefer sources, the source preference cannot be attributed to an intensifier. This shows that semantic factors must be acknowledged even for plain reflexives.

### **Question 2: Can the source preference be derived from a general prominence bias?**

Existing psycholinguistic research does not explain why pronouns prefer perceivers and reflexives prefer sources. Does this follow from the fundamental distinction between pronouns vs. anaphors/reflexives? We explore another hypothesis, namely that the source preference is due to a general preference for prominent antecedents. Under this view, reflexives' subject preference follows from a preference for structural prominence, and their source preference from a preference for thematic prominence (the sources in Kaiser et al.'s (2008) sentences could be regarded as agentive, see Kuno 1987). If this hypothesis is correct, it predicts that referential forms that prefer prominent antecedents should prefer sources, independently of pronoun/reflexive status. Dutch allows us to test this: Emphatics (pro+intensifier, syntactically pronominal, see de Vries 1999) prefer antecedents that are prominent (de Vries 1999). If the source preference is part of a general prominent antecedent preference, Dutch emphatics should prefer sources. But if pronoun/reflexive status is what determines source/perceiver bias, emphatics (which are pronominal) should prefer perceivers.

### **Experiment 2: Dutch**

The design and methodology were the same as Exp.1. An example sentence is in (3).

- (3) *Arne {vertelde/hoorde van} Hans over de foto van {hem / zichzelf / hemzelf}.*  
'Arne {told/heard from} Hans about the picture of {pronoun / refl / emphatic}'

Participants' responses reveal that reflexives show an overall subject preference, modulated by a source preference: more subject choices with *tell* than *hear* (78% vs. 63%,  $p's < .01$ ). Like reflexives, emphatics show a subject preference (50% vs. 18%,  $p's < .01$ ), and a source preference. However, the subject preference is significantly weaker with emphatics than reflexives ( $p's < .01$ ). Pronouns trigger approx. 50% both responses (=both subj/obj possible) regardless of verb, but also exhibit a perceiver preference: more object choices with *tell* (35%) than *hear* (17%),  $p's < .01$ .

The pronoun-emphatic difference indicates that the source/perceive preference is independent of pronoun/reflexive status, and is compatible with the hypothesis that source preference is part of a general prominence preference.

### Question 3: How typologically robust are the source/perceive effects?

Dutch, German and English are all members of the Germanic branch of Indo-European. Do the source/perceiver effects extend to typologically distinct non-Indo-European languages? Furthermore, are these effects restricted to a particular structural configuration? To test this, we investigated whether two kinds of RNPs in Finnish show the same patterns. Finnish has post-nominal RNP constructions (ex.4), similar to English, Dutch and German, but Finnish also has pre-nominal constructions (ex.5) which distinguish pronominal and reflexive-like forms.

In the post-nominal construction, we focus on pronouns, reflexives and emphatics, following the Dutch and German experiments (ex.4). The emphatic form we focus on here is a combination of pronoun+refl (*hänestä itsestään*). Its referential properties are not well-understood; it is not clear whether it is a pronoun modified by an intensifier or a reflexive preceded by an emphatic pronoun (cf. Featherston 2002 for related discussion on German).

In the pre-nominal construction, we tested pronouns, reflexive-like null forms and demonstratives. In Finnish, the presence/absence of the genitive possessive pronoun (*hänen* 's/he-GEN') influences interpretation: it is claimed that an overt possessive pronoun refers to a non-subject (resembling pronouns in English) and its absence ( $\emptyset$  in ex.(5a)) indicates subject-reference (resembling reflexives, see Vilkuna 1996). A possessive suffix is present on the head noun in both cases (Vilkuna 1996). To provide a baseline, we also investigated the genitive demonstrative *tämän* 'this-GEN,' which is claimed to prefer non-subjects, similar to *hänen* 's/he-GEN.'

- (4) *Mari {kertoi Liisalle / kuuli Liisalta} vitsin {hänestä / itsestään / hänestä itsestään}*  
'Mari {told Liisa / heard from Liisa} a joke about {pronoun / ref / emphatic}.'
- (5a) *Mari {kertoi Liisalle / kuuli Liisalta} { $\emptyset$  / hänen} muotokuvastaan.*  
'Mari {told Liisa / heard from Liisa} about { $\emptyset$  / her} portrait.'
- (5b) *Mari {kertoi Liisalle / kuuli Liisalta} tämän muotokuvasta.*  
'Mari {told Liisa / heard from Liisa} about this' portrait.'

Thus, Finnish allows us to investigate (i) whether the source/perceiver biases occur in a non-Indo-European language and (ii) whether pre- and post-nominal constructions pattern alike--in particular, whether reflexive elements that are morphologically different (overt reflexives in post-nominal RNPs and null reflexives in pre-nominal RNPs) pattern similarly.

### Experiment 3: Finnish

The design and method were basically the same as Exp.1 and 2. Sentences like ex.(4) and (5) were used. The results show that in the **post-nominal construction**, pronouns prefer perceivers-of-information: Participants chose subjects more with *heard* (17%) than *told* (3%),  $p < 0.01$ . However, reflexives and emphatics show no verb effects. With both verbs, reflexives prefer subjects (>90%); emphatics are split between subject and object. In the **pre-nominal construction**, no verb effects arise. Absence of an overt genitive possessor triggers subject-choices (*tell*=99%, *hear*=97%). Demonstratives trigger object-choices (*tell*=94%, *hear*=93%), whereas possessive pronouns show no clear object preference (both *tell* and *hear* result in approx. 60% object choices).

The results for pronouns in Finnish post-nominal RNPs show that the perceiver bias extends to non-Indo-European languages. However, no source preference is observed for regular reflexives or emphatics in post-nominal RNPs. This asymmetry suggests that source effects and perceiver effects can occur independently of each other, a finding which provides further support for the idea that one should not regard these effects as being inherently linked to a constituent's pronominal vs. reflexive status (see Exp.2; we will also discuss briefly the implications of this claim for a more marked compound reflexive form, *omasta itsestään* 'own+refl'). Moreover, the striking absence of any perceiver effects for the pronouns in pre-nominal RNPs suggests that, at least in certain syntactic domains, structural factors can overpower semantic biases that do arise in other syntactic structures: although Finnish pronouns prefer perceivers in post-nominal RNPs, they show no such preference in pre-nominal RNPs.

## Conclusions

German and Dutch exhibit a source preference with reflexives and a perceiver preference with pronouns, showing that this phenomenon is not restricted to English. Finnish also shows a perceiver preference with pronouns in post-nominal constructions, extending the results beyond Indo-European and providing further evidence that a purely structurally-oriented approach to anaphor resolution is not sufficient. However, our results make clear that structural factors cannot be disregarded: As the Finnish data indicate, in some syntactic configurations structural factors overrule semantic preferences. We follow Kaiser et al. (2008) in regarding reference resolution as being guided by multiple factors.

In addition, the German data show that a source preference arises with reflexives even when an intensifier is clearly not present. The Dutch data indicate that source/perceiver patterns can be separated from the refl/pro distinction. On a related note, the Finnish results suggest that the source/perceiver opposition should not be equated with the pronoun/reflexive opposition. Put together, these results suggest that, in the languages we investigated, the source preference cannot be blamed on intensification, and instead may be part of a general preference for prominent antecedents. If this approach is on the right track, it provides a potentially promising means of connecting at least some of the seemingly disparate factors that influence anaphor resolution.

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