

# Non-restrictive Relative Clauses, Ellipsis and Anaphora

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## 1 Introduction

Blakemore (2006) points out that B's answer in (1) is understood as 'Just as we predicted, Jo thinks you should say nothing':

- (1) A: What did Jo think?  
B: Just as we predicted, you should say nothing.

In other words the host of the *as*-parenthetical is 'pragmatically enriched' with content from the preceding question (specifically, "Jo thinks..."). Blakemore suggests that this supports an orphan analysis, in which "the parenthetical is inserted not into a syntactic representation at the level of grammatical representation, but into a conceptual representation at the level of pragmatic or utterance interpretation". We have similar data with non-restrictive relative clauses (NRRCs). In (2) B expresses surprise that Jo thinks you should say nothing (not just that you should say nothing):

- (2) A: What did Jo think?  
B: You should say nothing, which is surprising.

This might lead one to expect that such examples would provide evidence for an orphan analysis of NRRCs. However, on closer inspection such examples turn out to provide evidence *against* such an analysis and in favour of the kind of syntactically integrated approach developed in, for example, Arnold (2004, 2007). In fact the analysis of such examples follows straightforwardly from Arnold's approach and the sort of approach to ellipsis and anaphora developed in Ginzburg and Sag (2000) (G&S). Moreover they appear to provide some evidence against approaches to ellipsis and anaphora which involve deletion or replacement of a full syntactic structure. These observations seem to be novel. We are not aware of any previous exploration of this interaction between NRRCs, ellipsis and anaphora in any framework.

## 2 Phenomena

Consider first a pair of examples where there is no ellipsis or anaphora (other than that involved in any relative clause):

- (3) Kim owns a dog, which is regrettable.  
(4) Kim owns a dog, which is a dachshund.

In (3) the antecedent for the NRRC is the clause *Kim owns a dog*, in (4) the antecedent is the NP *a dog*. Consider now an example involving ellipsis (so-called 'bare argument ellipsis'):

- (5) A: Who owns a dog?  
B: Kim, which is regrettable/\*which is a dachshund.

Here the relative pronoun can only be interpreted as 'Kim owns a dog' (i.e. with a 'propositional' antecedent). We have a similar situation with anaphora, such as the anaphoric relation between a 'propositional lexeme' like *yes* and its antecedent. Consider the following:

- (6) A: Does Kim own a dog?  
B: Yes, which is regrettable/\*which is a dachshund.

Again the relative pronoun can only be interpreted as having the ‘propositional’ antecedent ‘Kim owns a dog’, and cannot be associated with the NP *a dog*.

Whatever approach is taken to ellipsis and anaphora, the bare argument *Kim* in (5) and the propositional lexeme *yes* in (6) will have essentially the same conceptual representation as *Kim owns a dog*, since they have the same meaning. If NRRCs are only integrated into a larger structure at the level of conceptual representation, the NRRCs in (5) and (6) should be able to combine either with the conceptual representation of *Kim owns a dog* or the conceptual representation of *a dog*. But only the former is possible.

Notice that there is no problem expressing the problematic meanings with normal anaphora:

- (7) A: Who owns a dog?  
B: Kim, and it’s a dachshund.
- (8) A: Does Kim own a dog?  
B: Yes, and it’s a dachshund.

In the following section we will show how these and other facts involving the interaction of NRRCs, ellipsis and anaphora follow automatically when a ‘syntactically integrated’ approach to NRRCs, such as that put forward in Arnold (2004, 2007),<sup>1</sup> is combined with an approach to ellipsis and propositional lexemes such as that proposed in G&S.

### 3 Analysis

Arnold’s analysis of NRRCs is a straightforward extension of the analysis of restrictive relatives in Sag (1997), the main features can be seen the representations of (9a) and (9b) given in (10) and (11):<sup>2</sup>

- (9) a. Kim owns a dog, which is regrettable.  
b. Kim owns a dog, which is a dachshund.

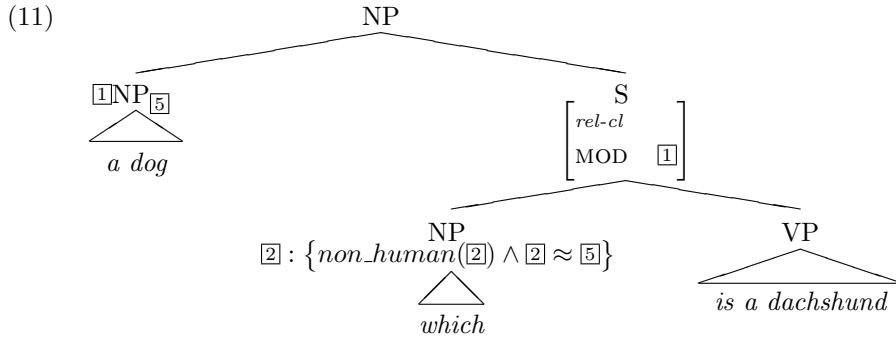
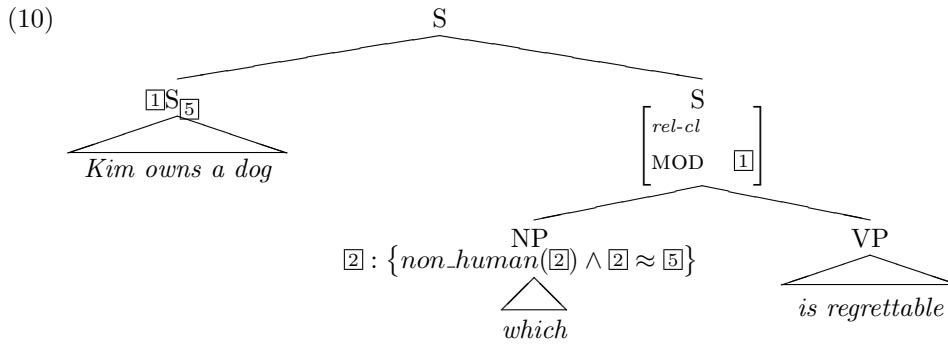
The main point to note here is that NRRCs normally form a syntactic constituent with their heads, which can be of essentially any category (unlike restrictives, which only modify nominals). The result is a head-adjunct construction, where the relative clause is the adjunct, which selects its head via the MOD feature in the normal way, and the antecedent of the relative pronoun is the ‘index’ of the head.<sup>3</sup>

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<sup>1</sup>Other syntactically integrated approaches might serve equally well. See Arnold (2007) for references.

<sup>2</sup>Here and below we use a number of abbreviations and simplifications. In particular, we will use NP<sub>[i]</sub> for an NP whose CONTENT | INDEX is [i], and S<sub>[i]</sub> for an S whose CONTENT | SITUATION value is [i]. We use the term ‘index’ loosely for [i] in either case.

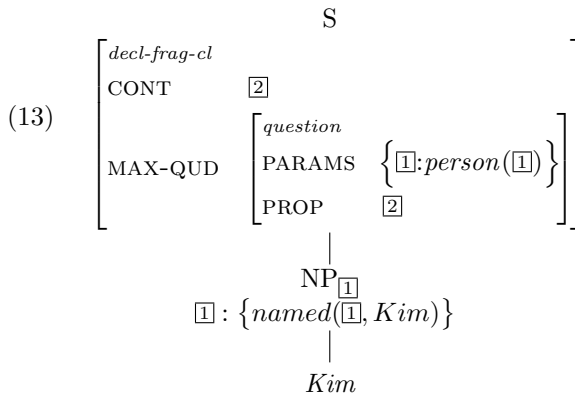
<sup>3</sup>The relation between a relative pronoun in an NRRC and its antecedent is treated as one of ‘anaphoric dependence’ (much like a normal pronoun — this is expressed in the restriction [2] ≈ [5] in the CONTENT of *which*, where [2] is the index of *which*, and [5] is the index or situation variable of whatever the relative clause modifies).



Now consider the analysis of a case of ‘bare NP ellipsis’ such as B’s utterance of *Kim* in (12):

- (12) A: Who owns a dog?  
 B: Kim.

The basic outline of G&S’s analysis can be seen in (13). *Kim* is treated as an NP which is the sole daughter of a *declarative-fragment-clause*, whose CONTENT (a *proposition*) is the value of the PROP feature in the current MAX-QUD (the current ‘question under discussion’).



In the case of A’s utterance in (12), this proposition is roughly (14a) (the question being roughly: for which  $x$ , where  $x$  is human, is this proposition true). A variety of constraints interact to ensure that the normal content of *Kim* is combined with this proposition, giving (14b) as the content of *Kim* in this context.

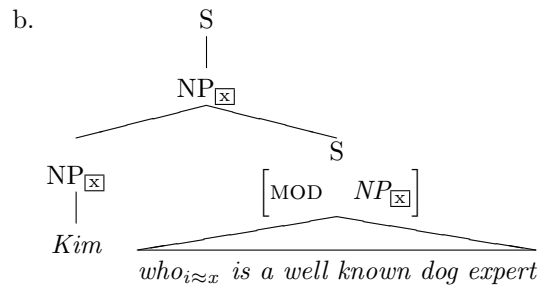
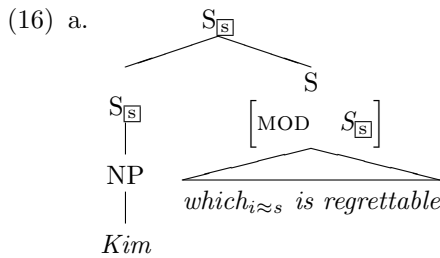
- (14) a.  $s : \{\exists y | own\_rel(s) \wedge owner(x) \wedge owned(y) \wedge dog(y)\}$   
 b.  $s : \{\exists y | own\_rel(s) \wedge owner(x) \wedge owned(y) \wedge dog(y) \wedge named(x, Kim)\}$

The key points of the analysis can be seen in the representation in (15).

$$(15) s : \{\exists y | \text{own\_rel}(s) \wedge \text{owner}(x) \wedge \text{owned}(y) \wedge \text{dog}(y) \wedge \text{named}(x, \text{Kim})\}$$

$$\begin{array}{c} \text{S}_{[s]} \\ | \\ \text{NP}_{[x]} \\ | \\ x : \{\text{named}(x, \text{Kim})\} \\ | \\ \text{Kim} \end{array}$$

Clearly, this makes available just two attachment points for NRRCs, and just two antecedents for relative pronouns: an NRRC can be adjoined to the mother S node, as in (16a), or the daughter NP node, as in (16b), corresponding to the two grammatical possibilities in (17). Notice there is no attachment point available corresponding to *a dog*, hence no way of licensing the ungrammatical utterance B”.



- (17) A: Who owns a dog?  
 B: Kim, which is regrettable.  
 B’: Kim, who is a well-known dog expert.  
 B”: \*Kim, which is a dachshund.

The contrast noted in (5) thus falls out automatically. This analysis extends straightforwardly to other kinds of bare argument ellipsis, such as the following (notice that (18c), where the argument is clausal, parallels example (2) above).

- (18) a. A: What colour is Kim’s dog?  
 B: Yellow, which is surprising. (AP)  
 b. A: Where is Kim’s dog?  
 B: In the cellar, which is surprising. (PP)  
 c. A: What does Jo think of Kim’s dog?  
 B: (That) it’s a nuisance, which is surprising. (S)

The main outlines of G&S’s analysis of propositional lexemes such as *yes*, *no*, *probably*, *regretably*, *unfortunately*, etc. can be seen in (19).

$$(19) \begin{array}{c} \text{ADV} \\ \left[ \begin{array}{l} \text{CONT} \quad [ ] \\ \text{MAX-QUD} \quad \left[ \begin{array}{l} \text{PARAMS } \{ \} \\ \text{PROP } [ ] \end{array} \right] \end{array} \right] \\ | \\ \text{Yes} \end{array}$$

*Yes* is analyzed as an adverb with propositional content; specifically, the propositional content associated with the question under discussion (MAX-QUD). In the case of (8) this proposition is (14b) (the same as that of *Kim* above).

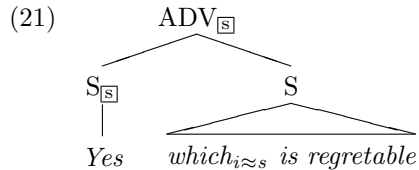
$$(20) \quad s : \{ \exists y | \text{own\_rel}(s) \wedge \text{owner}(x) \wedge \text{owned}(y) \wedge \text{dog}(y) \wedge \text{named}(x, \text{Kim}) \}$$

$$\quad \quad \quad \text{ADV}_{\boxed{S}}$$

$$\quad \quad \quad |$$

$$\quad \quad \quad \text{Yes}$$

This gives us just one attachment point for an NRRC, as in (21), capturing the contrast noted in (6) above.



## 4 VP-Ellipsis

The pattern that we have discussed above is also found with other kinds of ellipsis. Consider, for example, VP-ellipsis:

(22) Kim owns a dog, and Lee does, which is fortunate/\*a dachshund.

As in earlier examples, the relative pronoun can only mean ‘Kim owns a dog’ and hence only the first version of the NRRC is acceptable. This is as we expect if the NRRC is attached to the preceding clause (*Lee does*) in the syntax. Consider now the following:

(23) Kim is going to the match, which Lee isn’t.

Here, there is no ellipsis, and *which* is understood as ‘going to the match’. This is expected if the NRRC is attached to the non-finite VP *going to the match*. Consider now the following:

(24) ??Kim is going to the match, and Sandy is, which Lee isn’t.

Here the NRRC is preceded by an elliptical clause and the example seems unacceptable. This is expected if missing VPs are only represented at the conceptual level. Since there is no non-finite VP in the syntax for the NRRC to attach to. On the other hand, if missing VPs were the result of a deletion process and hence were represented in the syntax, it is not clear why such an example should be unacceptable.

It looks, then, as if we have evidence not only for a syntactically integrated approach to NRRCs but also for an approach to ellipsis and anaphora like that of G&S.

## References

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