

Extrapolation of relative clauses as specifying coordination

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Extrapolation of relative clauses and other constituents can be characterized by a list of properties. Many of these remain unexplained by existing theories. In particular, extrapolation from embedded positions, VP-topicalization facts and prohibition of stranding in the middlefield pose difficulties. I claim that extrapolation is neither rightward movement or adjunction (e.g. Büring & Hartmann 1994/1997, Culicover & Rochemont 1990), nor VP-internal stranding (Kayne 1994, Haider 1994/1997, Rochemont & Culicover 1997). Instead, I argue that extrapolation is specifying coordination, following Koster (1995a) and Rijkhoek (1998). This idea is embedded within G. de Vries's (1992) theory on coordination and ellipsis. Thus a better explanation of the facts is accomplished. Moreover, the presented analysis is compatible with Antisymmetry, Minimalism and the Promotion analysis of relative clauses.

1. Introduction

Relative clauses and many other constituents can be extrapolated, that is, the antecedent and the relative clause are separated by putting the relative at the end of the sentence. This is exemplified in (1).

- (1) a. *A man who carried a red suitcase* was noticed. [normal order]
 b. *A man* was noticed *who carried a red suitcase*. [extrapolation]

A list of properties goes with extrapolation. Several of these are difficult to explain from the perspective of rightward movement (e.g. Büring & Hartmann 1994/1997) or VP-internal relative clause stranding (e.g. Kayne 1994). Therefore, I will defend the alternative claim that extrapolation is *specifying coordination*, following Koster (1995a) and Rijkhoek (1998).

This article is built up as follows. Section 2 contains a list of properties associated with extrapolation. Sections 3 and 4 explain why extrapolation is probably not rightward movement or stranding. In section 5 a critical exposé of the ideas of Koster and Rijkhoek follows. In section 6 I improve their theory by interweaving it with G. de Vries's (1992) theory on coordination and ellipsis. In section 7 it is sketched how the theory can easily be extended to

constructions other than relative clauses. Section 8 is the conclusion.

2. Properties of extraposition

In order to provide an empirical foundation, I will discuss eleven properties related to extraposition. Most examples are from Dutch, where postparticipial material is clearly extraposed because the language is SOV (like German). The constructions are compared to sentences with coordination. Their behavior is strikingly similar, which suggests that the same mechanism is involved.

First of all: extraposition is optional. This was shown in (1) for relative clauses. It is also true for coordination structures; see (2). Notice that the verb agreement is adapted.

- (2) a. *Een man en een vrouw* werden gesignaleerd.
 A man and a woman were noticed
 b. *Een man* werd gesignaleerd *en een vrouw*.
 A man was noticed and a woman

Second, extraposition may take place from any constituent:

- (3) a. Ik heb de man *een boek* gegeven *dat hij graag wilde hebben*. [DO]
 I have the man a book given which he readily wanted to have
 b. Ik heb *iemand* de prijs gegeven *die het verdiende*. [IO]
 I have someone the prize given who it deserved
 c. *Iemand* heeft me een boek gegeven *die ik niet ken*. [S]
 Someone has me a book given who I not know
 d. Ik heb *op een plek* gelopen *waar jij ook bent geweest*. [Adv]
 I have on a spot walked where you also have been
 e. *Dat boek* heb ik de man gegeven *dat hij graag wilde hebben*. [TOP]
 That book have I the man given which he readily wanted to have
- (4) a. Ik heb *Jaap* een boek gegeven *en Joop*. [IO]
 I have Jaap a book given and Joop
 b. *Jaap* heeft me een boek gegeven *en Joop*. [S]

Even more spectacular, one can extrapose from embedded positions, viz. (5).

- (5) a. Ik heb [de papieren van *de man*] gecontroleerd *die een rode koffer droeg*.
 I have [the papers of the man] checked who a red suitcase carried
 b. Ik heb [de papieren van *Jaap*] gecontroleerd *en (van) Joop*.

If both from the subject and the object a relative clause is extraposed, a nesting symmetry arises, as shown in (6), cf. also (7).

- (6) a. (?) *Een zekere misdadiger* heeft de kluis gekraakt die tweehonderd

Extraposition of relative clauses as specifying **Error! Bookmark not defined.**

A certain criminal has the safe cracked that two hundred
diamanten bevatte, *die ook meneer X heeft vermoord*.
 diamonds contained, who also mister X has killed

- b. * *Een zekere misdadiger heeft de kluis gekraakt *die ook meneer X heeft vermoord*, die tweehonderd diamanten bevatte.*

- (7) a. *Ik heb hem gezien en haar, en jij (ook).*

I have him seen and her, and you (too)

- b. * *Ik heb hem gezien *en jij (ook)*, en haar.*

Next, extraposition obeys the Right Roof Constraint, that is, it cannot cross sentence boundaries; see the examples in (8).

- (8) a. * [Dat *de man* de baan krijgt] is belangrijk, *die al twee jaar werkloos is*.

[That the man the job gets] is important, who already two years unemployed is

- b. * [Dat *Jaap* de baan krijgt] is belangrijk, *en Joop*.

Sixth, stranding in the middlefield is not allowed, i.e. if the antecedent or first conjunct is topicalized, the relative clause or second conjunct cannot be left behind at the normal object position:

- (9) a. * *De man* heb ik *die een rode koffer draagt* gesignaleerd.

The man have I who a red suitcase carries noticed

- b. * *Jaap* heb ik *en Joop* gesignaleerd.

Generally, verb preposing is possible (10b/11b), but V+EX (the verb plus an extraposed subconstituent) is inert (10a/11a). Still, if the antecedent is contained within a larger preposed constituent, then it is possible to pied pipe the extraposed material (10c/11c).

- (10) a. * [Gesignaleerd *die een rode koffer draagt*] heb ik *de man*.

[noticed who a red suitcase carries] have I the man

- b. [Gesignaleerd] heb ik *de man die een rode koffer draagt*.

- c. [*De man* gesignaleerd *die een rode koffer draagt*] heb ik.

- (11) a. * [Gesignaleerd *en Joop*] heb ik *Jaap*.

- b. [Gesignaleerd] heb ik *Jaap en Joop*.

- c. [*Jaap* gesignaleerd *en Joop*] heb ik.

Eighth, extraposed constituents are islands for extraction; see (12).

- (12) a. * [Wat] heb je *de man* gesignaleerd *die* __ *droeg*?

[What] have you the man noticed who __ carried?

- b. * [Wie] heb je *Jaap* gesignaleerd *en* __?

Contrary to (rightward) extraposition, (leftward) preposing is not possible:

- (13) a. * *Die een rode koffer draagt*, heb ik *de man* __ gesignaleerd.
 Who a red suitcase carries, have I the man __ noticed
 b. * *En Joop*, heb ik *Jaap* __ gesignaleerd.

Tenth, multiple extraposition is possible for both relative clauses and coordinated structures, cf. (14).

- (14) a. Ik heb *de man* gesignaleerd [*die je beschreef*], [*die een rode koffer draagt*].
 I have the man noticed [who you described], [who a red suitcase carries]
 b. Ik heb *Jaap* gesignaleerd [*en Joop*], [*en Joep*].

Finally, binding (e.g. Principle C, variable binding) applies at the 'base position' (Büring & Hartmann 1994/1997, contra Rochement & Culicover 1997), i.e. for binding facts the relative clause must be reconstructed at its D-structure position near the antecedent, as follows from the facts in (15). In (15a) the IO-quantifier can bind a variable within the DO-complement clause, but in (15b) the DO-quantifier cannot bind a variable in a subject relative clause because an object does not c-command a subject at D-structure. These facts are combined in (15c) with Principle C effects.

- (15) a. I told everyone_i *the fact* yesterday *he_i wanted to know*.
 b. * *A man* entered [every room]_i yesterday *who lived in it_i*.
 c. Er heeft *iemand* haar_i gezegd [*die Ida_i/zij_i blind vertrouwt*]
 [dat **Ida_i/zij_i* zeer oud wordt].
 There has someone her said [who Ida/she blindly trusts] [that Ida/she very old becomes]

This concludes a rather long list of relevant properties to be explained.

3. Extraposition is not rightward movement or adjunction

What we might call 'proper extraposition theory' involves movement of a constituent to a right-adjoined position. For instance, an object relative clause is generated next to its antecedent and can be extraposed by moving it to a position right-adjoined to VP. This view is defended by Büring & Hartmann (1994/1997) among others.

Rightward movement is not in accordance with some recent ideas in syntax. E.g. in Kayne's (1994) *The Antisymmetry of Syntax* rightward movement or adjunction is not possible due to the Linear Correspondence Axiom. Furthermore, the promotion analysis of relative clauses (Kayne 1994, Bianchi 1995, M. de Vries 1996) is not directly compatible with proper extraposition theory, if at all. For a relative clause cannot move rightwards without dragging along the antecedent that is contained within it. Finally, optional movement to an adjunction position does not fit into the Minimalist Program (Chomsky 1995).

Extraposition of relative clauses as specifying **Error! Bookmark not defined.**

However, apart from these theory-internal considerations, proper extraposition theory has serious difficulties with the data outlined in the previous section. First of all, extraposition from embedded positions (5) is unpredicted because movement may not cross island boundaries. Second, [V+EX]-preposing (10a/11a) cannot be excluded. If an extraposed constituent is an adjunct to VP, it is automatically pied piped if VP is topicalized; but this should not be possible. Third, if a constituent can be right-adjoined to VP, why is left-adjunction not possible? This would lead to ungrammatical sentences like * *Ik heb die een koffer draagt de man gezien* 'I have who a suitcase carries the man seen', or (with object scrambling) * *Ik heb de man_i gisteren [_{VP} die een koffer draagt [_{VP} t_i gezien]]*. Related to this, it is not clear how to exclude preposing of a relative clause (13). (The non-binding configuration between antecedent and relative clause is irrelevant: DO does not c-command adj-VP either; besides the relative clause must be reconstructed anyway.) Finally, proper extraposition theory does not exclude stranding in the middlefield (9): the antecedent or first conjunct can be topicalized if there is extraposition (3e), so why is this not possible if there is no extraposition?

Related to proper extraposition theory is base-generation of an extraposed constituent in a right-adjoined position (see e.g. Culicover & Rochemont 1990). This theory suffers from most of the problems mentioned above, except that it is compatible with the Minimalist framework and that it has no problem with embedded antecedents. However, some extra problems arise. First, base adjunction lacks the 'base position' near the antecedent needed for binding (15). Second, it leads to 'interpretative licencing', that is, the relation between antecedent and extraposed constituent must be established pragmatically.

I conclude that there is vast evidence against a rightward movement and/or adjunction approach to extraposition (see also Haider 1997).

4. Extraposition is not stranding

The 'stranding theory of extraposition' (e.g. Kayne 1994, Rochemont & Culicover 1997, Haider 1994/1997) claims that extraposed constituents are stranded at their base position inside VP whilst other material (notably the antecedent) is moved leftward (for instance to an agreement projection).

Stranding theory was designed to be compatible with modern theory like Antisymmetry or Minimalism. However, it has serious problems with the data in section 2. Again, [V+EX]-preposing (10a/11a) cannot be excluded. Since an extraposed constituent is stranded within VP, it is wrongly predicted to be carried along if VP is topicalized. Second, as with proper extraposition theory, extraposition from embedded positions (5) is unpredicted (except in Haider (1995), where a relative clause is generated separate from its antecedent). This is because a non-constituent would have to be moved. E.g. (5) must be derived from *I have checked [the papers [of [the [man who...]]]]*, where *the+papers+of+the+man* is moved and the relative clause *who...* is stranded;

but this is impossible. Third, stranding in the middlefield (9) is not excluded again. The antecedent or first conjunct can or must be moved alone if there is extraposition, so why can't it be topicalized if there is no extraposition? Next, optional complement clause extraposition is underivable. For instance, in sentences like *I have said, yesterday, that...* the complement clause is at an even more right-peripheral position than its base position in the complement of the main verb (*said*). Obviously, this cannot be derived if extraposition is stranding in the base position. Finally, if we assume that subject relative clauses are generated (with the subject) in spec-VP and object relatives in the complement of V, the nesting symmetry reported in (6) and (7) is unpredicted. In fact, the reverse order would arise if both a subject and object relative clause were stranded in VP.

Concerning Haider (1995), who claims that a relative clause is generated separate from its antecedent within VP, the same problems as with base adjunction arise: the 'base position' near the antecedent needed for binding (15) lacks, and 'interpretative licencing' is involved.

I conclude that there is vast empirical evidence against the stranding approach to extraposition, too (cf. Büring & Hartmann 1994/1997).

5. Extraposition as coordination

Given that the theories on extraposition discussed above meet severe empirical and theoretical problems, the time has come to explore some quite different ideas. Since coordinated structures and extraposed relative clauses behave much the same (see section 2), Koster (1995a) and Rijkhoek (1998) assume that extraposition is a kind of coordination.

According to these authors a relative clause is a base-generated specifying conjunct, cf. (16).

- (16) a. [ConjP [NP John] [and [NP Pete]]]
 b. [ConjP the man [: [who...]]]

The conjunction phrase in (16a) signifies normal coordination of two NPs, where the coordinative head is *and*. In (16b) a relative clause is attached to an NP by means of an empty coordinative head (the colon). The second conjunct (the relative clause) specifies the first conjunct (the antecedent), hence the term *asyndetic specifying coordination*.¹ Because of spec-head agreement the ConjP has the properties of its specifier, the antecedent (cf. Johannesen 1993).

Koster and Rijkhoek assume that attachment of the second conjunct is possible at any level. Then the structure in (17) represents extraposition.

¹ This notion is not made up here. It exists already, cf. constructions like *d'Artagnan, a musketeer...* where the second conjunct is a specification of the first one.

Extraposition of relative clauses as specifying **Error! Bookmark not defined.**

- (17) Ik heb [_{ConjP} [_{AgrOP} *de man* gesignaleerd] [_{ConjP'} : [_{CP} *die een rode koffer draagt*]]].
I have the man noticed who a red suitcase carries

The relative clause is attached to AgrOP, that is, a ConjP is generated with AgrOP as its specifier and the relative clause as its complement. Because of spec-head agreement the ConjP behaves as an AgrOP. The relative clause is interpretationally linked to its antecedent, which is the highest NP in the specifier, AgrOP. If a constituent is extraposed from another position, e.g. from the subject, then the first conjunct must be another category, AgrSP/IP.

Koster and Rijkhoek show that most empirical properties discussed in section 2 follow from this system – see also the next section. However, it is not unproblematic. First of all, it allows for unlimited coordination of semantically unequal categories. Such a grammar would grossly overgenerate because normally unequal categories cannot be coordinated (e.g. **He looks great and at me*). Second, there is no syntactic dependency between the first and second associate. This has many negative consequences. For instance, the ‘base position’ needed for binding is absent (cf. 15). Furthermore, the link between the relative clause and its antecedent must be established pragmatically, not to mention the agreement between antecedent and relative pronoun. Finally, this theory is incompatible with the promotion analysis of relative clauses, since the antecedent is generated separately from the relative clause.

I conclude that the coordination theory of extraposition is on the right track, but it is in want of a thorough revision.

6. Asyndetic specification and deletion

I propose to modify the coordination theory of extraposition. The adaptation is small in itself, but it is essential and has far reaching consequences. It will become clear that all problems mentioned above vanish at once.

I reject the idea of unlimited coordination and adhere to the well-established principle that only constituents of equal semantic class may be coordinated. Now consider (18).

- (18) a. *A man and a woman* were noticed.
b. *A man* was noticed, *and a woman* (too).
c. *A man* was noticed, *and a woman* was noticed (too).
d. *A man* was noticed, *and a woman* ~~was noticed~~ (too).

The sentence in (18b) with extraposition is *not* derived from (18a) without extraposition because the verb agreement is different. Rather, (18b) is like (18c); the predicate is elided as shown in (18d).

Similarly, sentences with extraposed relative clauses can be analysed as coordinative structures; see (19).

- (19) a. *A man who carried a red suitcase* was noticed.
 b. *A man* was noticed *who carried a red suitcase*.
 c. *A man* was noticed, namely, a man *who carried a red suitcase* (was noticed).
 d. *A man* was noticed, ~~a man~~ *who carried a red suitcase* (~~was noticed~~).

As in (18), (19b) is not derived from (19a), but rather from (19c). Ellipsis takes place along the lines of (19d).² So the structure of (19b) is (20).

- (20) [_{ConjP} [_{IP} *A man* was noticed] [: [_{IP} ~~a man~~ *who carried a red suitcase* ~~was noticed~~]]].

In (20) two equal categories (IP) are coordinated. The second conjunct contains redundant information, which is deleted. The coordination in (20) is not normal coordination, but asyndetic specifying coordination. The coordinative head is empty. It may be spelled out as *namely* (cf. (19c)) and can be symbolized by a colon, which identifies a subset relation: the second conjunct is more specific than the first one.

Thus coordination of unequal categories is no longer necessary. The fact that the antecedent of the relative clause is syntactically (but not phonologically) present in the second conjunct has several immediate advantages. First, the antecedent and relative clause are in a local relationship; 'interpretational linking' is not needed. The agreement between relative pronoun and antecedent can also be established syntactically. Moreover, the promotion analysis of relative clauses can be maintained. Finally, the 'base position' needed for binding relations is present in the second conjunct. The data in section 2 will be addressed in a moment.

Intermezzo: ellipsis and coordination

Meanwhile, it is obvious that the ellipsis in (20) needs justification. A suitable, independent theory on ellipsis is already available in G. de Vries (1992). She i.a. makes use of Fiengo's Head Condition. Some important results are summarized in (21).

- (21) a. The Head Condition: X [lex] --> XP [lex]
 b. Head Linking Conditions: I [lex] <--> V [lex] (Dutch)
 I [lex] <-- V [lex] (English)
 c. Recoverability: A domain of ellipsis (CP or NP) has to contain at least one remnant to be recoverable.

The Head Condition states that if the head of a projection is lexical, then all its

² For my purposes it is irrelevant whether ellipsis involves PF-interface deletion or phonetically empty categories that receive their interpretation from an antecedent (G. de Vries 1992) □ and which must have a full feature specification.

Extraposition of relative clauses as specifying **Error! Bookmark not defined.**

arguments must be lexical, too. For example, if V is the relevant head: *I saw Pete and *(you) saw *(John)*. If the head is absent, all kinds of remnants may be present: *I saw Pete and you John*. Of course zero remnants are impossible due to Recoverability: **I saw Pete and*.

The Head Linking Condition for Dutch states that if V is lexical, then I must be lexical and the other way round. In English the condition is one way. Thus, if we assume that an auxiliary is in I, VP-deletion is possible in English, but not in Dutch: *Who has left? John has. Wie is er vertrokken? Jan (*is)*.

As long as no condition is violated, there is a certain freedom concerning the remnants. However, it is tacitly assumed by G. de Vries that remnants must provide new information. This important pragmatic principle is illustrated in (22).

- (22) John gave me a book yesterday, and...
- | | | | | | |
|---------------|----|---------|------------|-------------------|------------------|
| a. Pete | -- | you | a CD | today. | |
| b. Pete | -- | you/*me | -- | --. | |
| c. Pete/*John | -- | -- | -- | today. | |
| d. Pete | -- | you | a CD/*book | --. | |
| e. -- | -- | -- | a CD | today/*yesterday. | |
| f. Pete | | gave | me | a book | yesterday (too). |

In (22a-e) any combination of remnants is possible as long as each of them provides new information. In (22f) this practise is overruled by the Head Condition: the verb is present, therefore all its arguments must be projected, too, whether new or not.

G. de Vries presents her theory of ellipsis in tandem with an alternative view on coordination, based on ideas by Rini Huybrechts and others. According to them coordination structures are 3-dimensional, that is: coordinated phrases are in parallel (partial) tree structures, cf. (23).

- (23) Ik heb _ Jan _ gezien. 'I have seen Jan and Piet.'
- \ & Piet /

Two important arguments for this view and against the hierarchical structure in (16) are i) a first conjunct does not c-command the second one, hence cannot bind it (**John_i and himself_i*, etc.) and ii) the deep embedding of multiple coordination structures (*[John [and [Pete [and [Mary [and [Chris]]]]]]])* does not reflect the meaning well: all conjuncts are equally important.

Although for extraposition theory it does not matter which analysis on coordination one chooses, I will follow the 3D-view here. A practical advantage is that the representations are simpler to read than the hierarchical ones.

Mark de Vries

Given this theoretical foundation, consider again the data laid down in the second section. It turns out that the derivation of the properties discussed is almost trivial.

Consider (24), where a relative clause is extraposed from the subject. Two IPs are coordinated. The second IP includes the relative clause, so it is more specific than the first one. Therefore, this is an instance of asyndetic specifying coordination, which is indicated by &: (‘and, namely’). According to G. de Vries (1992), the two IPs would be partial tree structures in a ‘third dimension’, but the effect would be the same if &: is a coordinative head in a more traditional structure as in (20).

- Since the verb *bespied* 'spied-on' is elliptic in the second IP, the other constituents are legitimate remnants. The rules on ellipsis in (21) are not violated. However, remnants must provide new information (cf. 22), therefore *iemand* 'someone' and *hij* 'me' are also elliptic. Only the relative clause remains. Note that this theory is independent of possible analyses of relative clauses. Within the second conjunct, the relative could be an adjunct to the antecedent, or the antecedent could be raised from within the relative clause (the promotion analysis).

(25) Ik heb [[_{DP} de papieren van de man] gecontroleerd]
 &: [[_{DP} de papieren van de man die ' n rode koffer droeg] gecontroleerd].
 'I have checked the papers of the man who carried a red suitcase.'

(26) [Ik heb [hem gezien]
& [haar gezien]],
& [jij hebt hem en haar (ook) gezien].
'I have seen him and her, and you (too).'

A possible Right Roof Constraint violation would be the structure in (27).

- (27) * [[Dat [de man] de baan krijgt] is belangrijk]
 &: [[Dat [~~de man~~ die al twee jaar werkloos is] ~~de baan krijgt~~] is belangrijk].
 'That the man gets the job is important, who is already unemployed for two years.'

However, there is a second constraint on recoverability (G. de Vries 1992) that I did not mention before: *a CP smaller than a conjunct has to contain a lefthand clue to be recoverable*. This constraint prevents sentences like **He says that Peter went to the movies and she _ John _ to school*. It also excludes (27), where the conjoined CP is [*dat... werkloos is*]. The necessary lefthand clue to recover the sentence is *dat* 'that', but in fact *dat* is elliptic. It cannot be spelled out, either, because then the whole sentence must be overt due to the head (linking) rules in (21).

Next, if VP is preposed, an extraposed constituent cannot be pied piped without the antecedent; see (28).

- (28) a. Ik heb [*de man* gesignaleerd]
 &: [~~de man~~ *die een rode koffer draagt* gesignaleerd].
 ‘I have noticed the man who carries a red suitcase.’
 b. * [*Gesignaleerd die een rode koffer draagt*] heb ik *de man* ____.
 c. [*De man* gesignaleerd *die een rode koffer draagt*] heb ik ____.
 d. [*Gesignaleerd*] heb ik [*de man die een rode koffer draagt*] ____.

If (28a) designates an extraposed structure, (28b) could not be derived from it by VP-preposing, since the (overt) verb and the relative clause are not a constituent. Of course, preposing the whole coordinated structure as in (28c), including the antecedent, is unproblematic. Preposing a bare verb (28d) can be derived from the non-extraposed order.

Islandhood of extraposed material (29) follows from the Coordinate Structure Constraint (and in (29) also from the Complex NP Constraint).

- (29) * [Wat] heb je [*de man* gesignaleerd]
 &: [[~~de man~~ die __ droeg] gesignaleerd]?
 `What did you notice the man who carried __'

The relative clause only exists in the second conjunct, where the antecedent, although phonetically empty, is structurally present, too. Thus extraction is impossible. For the same reason preposing (30) is prohibited.

- (30) * [Die een rode koffer draagt], heb ik [~~de man~~ gesignaleerd]
 &: [~~de man~~ __ gesignaleerd].
 `Who a red suitcase carries I have noticed the man'.

Similarly, stranding in the middlefield is impossible, because of the Coordinate Structure Constraint.

Mark de Vries

- ` Jan I have seen and Piet.'

(32) a. * [A *man* entered [every room]_i yesterday]
 &: [~~a man who lived in it_i~~ entered [every room]_i yesterday].
 b. I [told everyone_i *the fact* yesterday]
 &: [~~told everyone_i the fact~~ he_i wanted to know yesterday].

To summarize, I showed that the empirical properties of extraposition can be derived easily within the present analysis of extended coordination and ellipsis.

The properties shared by extraposed relative clauses and normal coordinated phrases (see section 2) have an even more general character. They are valid for all constructions in which constituents that have a first associate, are extraposed (cf. Rijkhoek 1998, Koster 1995a, M. de Vries in prep.):

- | | <u>XP</u> | <u>YP</u> |
|-----------------------------|-----------|-----------|
| a. real coordinated phrases | XP and | YP |
| b. relative clauses | NP | who... |
| c. result clauses | so A | that... |
| d. appositions | NP, | (NP), |
| e. comparative clauses | A-er | than... |
| f. NP complement PPs | NP | PP |

³ Extraposition of NP complement PPs is restricted by nonsyntactic factors, too. According to Guéron (1980), these limitations are semantic in nature, but Truckenbrodt (1995) shows that prosodic

Extraposition of relative clauses as specifying **Error! Bookmark not defined.**

- (34) ... [XP ... V]
&: [~~XP~~ YP ... ~~V~~]

Thus at a certain point the sentence splits up into two parts: a first and second conjunct (of equal category). The first conjunct contains only the first associate, XP, (e.g. the antecedent of a relative clause), the second one *syntactically* contains both the first and second associate, XP and YP, but *phonetically* only YP is present.

Importantly, both conjuncts must be grammatical in combination with the rest of the sentence. This has many beneficial consequences. Generally, selected constituents (i.e. arguments and proper predicates) cannot be extraposed, because then the first conjunct would be ungrammatical.⁴ For instance, if an indirect object is extraposed, there would be a first conjunct where an argument lacks, hence case cannot be assigned, etc.

On the contrary, adjuncts can be left out with preservation of grammaticality, so they can be extraposed. Thus, apart from the structures above, where the adjunctive elements have a first associate, a list of independent adjuncts can be analysed in a similar fashion. These are adverbs, adverbial PPs, adverbial NPs, and adverbial clauses; cf. (35).⁵ They all may be analysed according to the scheme in (36).

constraints yield roughly the same output. *Preposing* of NP complement PPs is impossible; in fact preposed PPs are adverbial. This is shown by Klein & Van den Toorn (1980) □ contra Kooij & Wiers (1980) and Barbiers (1995). This fits in nicely with the ideas that i) NPs (or coordination structures) are islands for extraction, and ii) extraposition involves coordination, not rightward movement. Postverbal prepositional objects may be in base position, unless they follow other postverbal material. I think *unselected* extraposed PPs involve a coordination structure, as an alternative to Koster (1993) and Barbiers (1995).

⁴ Exceptions are complement clauses, heavy (listed) NPs, and free relatives (which are a kind of heavy NPs). Right dislocated NPs are appositions and presuppose a dummy or full NP in the normal position. According to Koster (1995b) extraposed complement clauses also involve a dummy element in the normal position, which can be proved by using parasitic gaps. Therefore these constructions can also be analysed as involving specifying coordination.

Unselected adverbial NPs can be extraposed, as expected. According to Klooster (1995) they are in fact PPs with an empty situating preposition. Presumably oblique case is provided by the P head.

⁵ APs seem somewhat problematic. Selected predicative AP' s may not be extraposed, as expected; extraposed attributive AP' s are in fact NPs with a deleted N, according to Veld (1993). However, for unknown reasons extraposition of adverbial APs is severely restricted, and predicative adjunct APs can only be extraposed if there is an intonational pause.

Clearly, the analysis advanced does not (as yet) provide an explanation concerning intonation, or restriction/apposition contrasts.

- (35) a. Ik ben [*e*] wezen zwemmen *gisterenmiddag*.
 ` I have been swimming, yesterday afternoon'
 b. Ik heb [*e*] gezwommen *in de Gaasperplas*.
 ` I have swum, in the Gaasperplas.'
 c. Ik ben [*e*] wezen zwemmen *die dag*.
 ` I have been swimming, that day.'
 d. Hij is [*e*] al vertrokken *omdat hij haast had*.
 ` He has already left, because he was in a hurry.'
- (36) ... [[*e*] ... V]
 &: [[XP] ... \forall]

It really makes sense to analyse these as involving specifying coordination, since they all have an explanatory connotation, e.g. for (35a): "I have been swimming, namely, (it is) yesterday afternoon (that I have been swimming)".

Obviously, the extensions proposed need a more thorough treatment than can be possibly provided in this squib (but see M. de Vries, in prep.).

8. Conclusions

In this article I showed that rightward movement, adjunction and stranding theories of extraposition are inadequate. Instead, following Koster and Rijkhoek, I proposed that extraposition may be analysed as (asyndetic and/or specifying) coordination. I combined their ideas with the theory on coordination and ellipsis by G. de Vries. Thus, most empirical properties of extraposed relative clauses and coordination structures can be derived easily. The analysis is also compatible with a promotion theory of relative clauses. Finally, since other extraposable constituents show the properties discussed, too, the analysis advanced may well constitute the overarching scheme for extraposition phenomena.

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