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This is a contribution from *Romance Perspectives on Construction Grammar*.

Edited by Hans C. Boas and Francisco González García.

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## A Romance perspective on gapping constructions\*

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Focusing on two Romance languages, French and Romanian, we provide a detailed analysis of gapping and present several empirical arguments for preferring a construction-based approach of gapping (with semantic reconstruction of ellipsis) over alternative accounts that rely on movement or deletion. We then study parallelism constraints and show that syntactic parallelism is less strict than what is usually assumed, while discourse parallelism is clearly required. Syntax is not completely ignored though, as each remnant is required to match some subcategorization frame of the verbal predicate its correlate depends on. We show how those core properties can be accounted for within a construction-based framework relying on inheritance hierarchies of typed feature structures, such as HPSG in its more recent versions.

### 1. Introduction

Since Ross (1967), the phenomenon of verb gapping in clausal coordinate structures has received a lot of attention in languages such as English, German and Japanese. By contrast, it has by and large been overlooked in Romance. This

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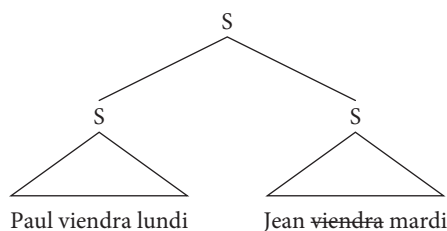
\* This research was partially funded by the ANR project PRO-GRAM (<http://pro-gram.linguist.jussieu.fr/>) and the CNRS Federation “Typologie et Universaux Linguistiques” (<http://ellipse.linguist.univ-paris-diderot.fr/>). We wish to thank for their comments and suggestions Olivier Bonami, Rui Chaves, Jonathan Ginzburg, Danièle Godard, Fabiola Henri, Frédéric Laurens, Jean-Marie Marandin, Philip Miller and Ivan Sag, as well as the audiences of the Paris 7 International Conference on Elliptical Constructions (Paris, 2008) and the 5th International Conference on Construction Grammar (Austin, 2008) where parts of this work have been presented. The usual disclaimers apply.

chapter aims at providing a detailed analysis of gapping in two Romance languages: French (F) and Romanian (R).<sup>1</sup>

- (1) F *Paul viendra lundi et Jean mardi.*  
 Paul will.come Monday and Jean Tuesday  
 ‘Paul will come on Monday, and Jean will come on Tuesday.’  
 R *Ion mănâncă mere, iar Maria pere.*  
 Ion eats apples, and Maria pears  
 ‘Ion eats apples and Maria eats pears.’

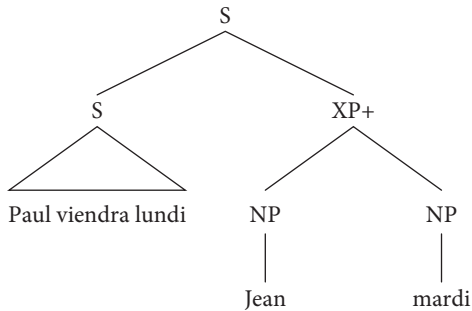
As the examples in (1) illustrate, gapping allows a sequence of “remnant” phrases to be interpreted as arguments or adjuncts within a saturated clause-type content recovered from some preceding conjoined sentence. As such, it falls under the general class of elliptical phenomena: some linguistic resources that are not given by pronounced words and phrases must be recovered from a source (Dalrymple et al., 1991). Three kinds of analyses have been explored to account for this unusual mapping, as schematized in (2): (a) the first appealing to some deletion process, preceded in some approaches by extraction of remnants in the left periphery (see among others Ross, 1967, 1970; Sag, 1976; Neijt, 1979; Merchant, 2001, 2004; Hartmann, 2000; Chaves, 2005), (b) the second appealing to a dedicated meaning-form rule, namely a ‘construction’, that maps a headless structure to a clausal meaning (see among others Sag et al., 1985; Chao, 1987; Steedman, 1990; Gardent, 1991, and, more recently, Culicover & Jackendoff, 2005), (c) the third, without ellipsis, appealing to some leftward movement process that combines across-the-board extraction of the shared head verb out of each conjunct and asymmetric extraction of non-shared constituents preceding the head verb out of the first conjunct (Johnson, 1994, 1996, 2009).

- (2) a. Deletion-based analysis

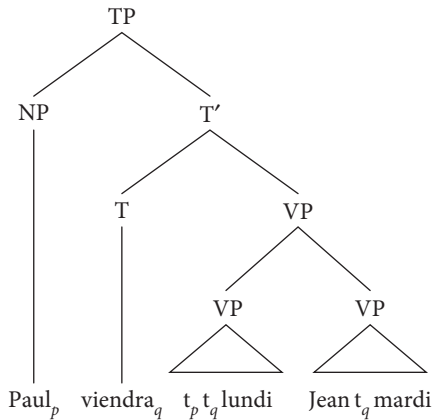


1. Throughout this chapter, we provide simplified glosses rather than translations, relying on the closeness between English, French and Romanian. For the sake of clarity, the material in the source clause that serves to interpret the gap in the elliptical clause is systematically underlined. Unless specified, the data considered are constructed. For corpus studies, see Bîlbîie (in prep.) and Rigaud (2010).

## b. Construction-based analysis



## c. Movement-based analysis



Here we argue in favor of the construction-based analysis on the grounds of empirical adequacy. We then provide additional evidence against the standard assumption, first challenged by Sag et al. (1985), that strong syntactic parallelism should hold between the gapped clause and its source. While discourse parallelism is clearly required, syntactic parallelism is less strict than what is usually assumed in terms of category, word order or number of realized dependents, as Romance makes it especially clear. Syntax is not completely ignored though, as each remnant is required to match some subcategorization frame of the verbal predicate its correlate depends on. We show how those core properties can be represented within a construction-based framework that relies on rich inheritance hierarchies of typed feature structures. We stick to a Head-driven Phrase Structure Grammar style formalization along the line of Ginzburg and Sag (2000) (see also Sag, 1997), but nothing hinges on that particular choice: our analysis could as well be incorporated within the recent Sign-Based Construction Grammar framework advocated by Ivan Sag and colleagues (see Boas & Sag, 2012; Sag,

2012) or within the Berkeley Construction Grammar framework of Fillmore and Kay (1996).

## 2. Basic data on gapping

Typical examples of gapping involve binary coordinate structures of any clause-type, namely declarative (3a, e), imperative (3b), interrogative (3c) or exclamative (3d), provided that the head is verbal (compare (3e) and (3f)).<sup>2</sup>

- (3) a. F *Paul a offert un disque à Marie et [Jean un livre  
Paul has offered a record to Marie and Jean a book  
à Pierre].*  
to Pierre  
'Paul offered a record to Marie and Jean (offered) a book to Pierre.'

2. As is well-known, the position of the gapped clause depends on the basic word order of the language: it must follow its source in head-initial languages such as French or Romanian, while it must precede it in head-final languages such as Japanese or Korean (cf. Ross, 1970). A tempting solution to derive this contrast would be to analyze the gapped clause marked by a conjunction as an adjunct to the source clause (see Munn, 1992). Unfortunately, this does not give the right results elsewhere. First, it predicts extraction should be allowed in the source clause without parallel extraction in the gapped clause, contrary to the facts (see example (i)).

- (i) a. F *C'est un auteur<sub>i</sub> dont Paul a lu tous les romans -<sub>i</sub> et Marie*  
this.is an author<sub>i</sub> DONT Paul has read all the novels -<sub>i</sub> and Marie  
*quelques nouvelles -<sub>i</sub>.*  
some short-stories -<sub>i</sub>  
'This is an author from whom Paul has read all the novels and Marie some short stories.'  
b. F *\*C'est un auteur<sub>i</sub> dont Paul a lu tous les romans -<sub>i</sub> et Marie*  
this.is an author<sub>i</sub> DONT Paul has read all the novels -<sub>i</sub> and Marie  
*ses<sub>i</sub> nouvelles.*  
his<sub>i</sub> short-stories

Second, it predicts that either omnisyndetic coordination should be ruled out, or else that the source clause introduced by a conjunction should be able to stand alone as a grammatical sentence, since adjunction is optional. As illustrated in (ii), neither of those predictions is borne out.

- (ii) a. F *Ou bien Paul dormira chez Marie ou bien Marie chez Paul.*  
either Paul will.sleep at Marie or else Marie at Paul  
'Either Paul will sleep by Marie's or else Marie by Paul's.'  
b. F *\*Ou bien Paul dormira chez Marie.*  
CONJ Paul will.sleep at Marie

- R *Ion a cumpărat o carte pentru Dana, iar [Petre un stilou*  
 Ion has bought a book for Dana, and Petre a pen  
*pentru Maria].*  
 for Maria  
 ‘Ion bought a book for Dana, and Petre (bought) a pen for Maria.’
- b. F *Demain va à la piscine et [après-demain*  
 tomorrow go to the swimming-pool and after-tomorrow  
*au stade]!*  
 to.the stadium  
 ‘Tomorrow go to the swimming pool and after-tomorrow go to the stadium.’
- R *Mâine gătește o pizza, iar [poimâine o*  
 tomorrow cook a pizza, and after-tomorrow a  
*friptură de vițel]!*  
 roast-beef  
 ‘Tomorrow cook a pizza, and after-tomorrow cook a roast-beef.’
- c. F *Qui va à Rome et [qui à Florence]?*  
 who goes to Rome and who to Florence  
 ‘Who goes to Rome and who goes to Florence?’
- R *Cine vine azi și [cine mâine]?*  
 who comes today and who tomorrow  
 ‘Who comes today and who comes tomorrow?’
- d. F *Quelle patience Paul a avec son fils et [Marie avec*  
 what patience Paul has with his son and Mary with  
*sa fille]!*  
 her daughter  
 ‘What patience Paul has with his son and Mary has with her daughter!’
- R *Ce oameni săraci a întâlnit Ion în Dolj și [Maria*  
 what people poor has encountered Ion in Dolj and Maria  
*în Vaslui]!*  
 in Vaslui  
 ‘What poor people Ion encountered in Dolj and Maria in Vaslui!’
- e. F *Paul étant pris le matin et [Marie l’après-midi],*  
 Paul being tied.up the morning and Marie the.afternoon,  
*la réunion est reportée.*  
 the meeting is postponed  
 ‘Paul being tied up in the morning and Marie in the afternoon, the meeting is postponed.’

R *Ambii au reacționat urât: unul dominat de frică, [celălalt*  
both have reacted badly: one dominated by fear, the other  
*de rușine].*

by shame

‘They both reacted badly: one dominated by fear, the other dominated by shame.’

f. F *Les grands dans le jardin et [les petits \*(dans) leur*  
the older in the garden and the younger in their  
*chambre]!*

room

‘The older children in the garden and the younger children in their room!’

R *Ploi în vestul țării, [caniculă \*(în) sud].*

rains in the west of country, heatwave in south

‘Rain in the west of country, heatwave in the south.’

There may, however, be more than two conjuncts, and therefore more than one source clause and/or one gapped clause (4a). Furthermore, each conjunct may result from coordination, leading to complex recursive coordinate structures such as (4b).

(4) a. F *[Paul dormira chez Marie], [Anne dormira chez Jean], [Luc*  
Paul will.sleep at Marie, Anne will.sleep at Jean, Luc  
*chez Léa] et enfin [Jeanne chez Ivan].*

at Léa and finally Jeanne at Ivan

‘Paul will sleep by Mary’s, Anne will sleep by Jean’s, Luc by Léa’s and finally Jeanne by Ivan’s.’

R *[Mama vrea o casă], [tata vrea o mașină], [Ion un câine],*  
Mum wants a house, Dad wants a car, Ion a dog,  
*iar [Maria o pisică].*

and Maria a cat

‘The mother wants a house, the father wants a car, Ion a dog, and Maria a cat.’

b. F *Soit [Paul dormira chez Marie et Anne dormira chez*  
either Paul will.sleep at Marie and Anne will.sleep at  
*Jean], soit [Marie chez Paul et Jean chez Anne].*

Jean, or Marie at Paul and Jean at Anne

‘Either Paul will sleep by Marie’s and Anne by Jean’s, or Marie will sleep by Paul’s and Jean by Anne’s.’

- R *Fie [Ion va merge cu Maria și Dan va merge cu  
either Ion will go with Maria and Dan will go with  
Ana], fie [Ion cu Ana și Dan cu Maria].*  
Ana, or Ion with Ana and Dan with Maria  
'Either Ion will go with Maria and Dan with Ana, or Ion will go with  
Ana and Dan with Maria.'

As is well-known, the main head verb (or verb complex) must be omitted. Accordingly, a gapped clause cannot be embedded within the conjunct it belongs to (5a),<sup>3</sup> and tense auxiliaries must be gapped whenever past participles are (5b):<sup>4</sup>

- (5) a. F *\*Paul a mangé une pomme et on m'a dit que Marie  
Paul has eaten an apple and one me-has told that Marie  
une orange.  
an orange  
'Paul ate an apple and one told me that Marie ate an orange.'*
- R *\*Ion predă spaniola și mi s-a spus că Maria italiana.  
Ion teaches the.Spanish and me CL-has told that Maria the.Italian  
'Ion teaches Spanish and one told me that Maria teaches Italian.'*
- b. F *Jean a mangé des pommes et Marie (\*a) des bananes.  
Jean has eaten INDEF apples and Marie has INDEF bananas  
'Jean has eaten apples and Marie has bananas.'*

3. Embedding is possible in Romanian with some epistemic verbs like *a crede* ('to think'), and impersonal verbs such as *a părea* ('to seem'), which are best analyzed as 'syntactic amalgams' in the sense of Lakoff (1974) in these contexts (see Bilbiu, 2011).

- (i) R *Andrei a luat cartea și cred că Marga atlasul.  
Andrei has taken the.book and I.think that Marga the.atlas  
'Andrei took the book and I think that Marga took the atlas.'*
- (ii) R *Ion are trei copii și pare-se că Maria doar unul.  
Ion has three children and it.seems that Maria only one  
'Ion has three children and it seems that Maria has only one.'*

4. English differs in this respect from Romance by allowing what has been called 'pseudo-gapping' (i). Presumably, the contrast follows from the existence in English, but not in French or Romanian, of VP ellipsis (ii)–(iii):

- (i) *John ate the apple, and Mary did the orange.*
- (ii) *John ate an apple, and Mary did too.*
- (iii) F *\*Jean a mangé une pomme, et Marie a aussi.  
Jean has eaten an apple, and Marie has too*
- R *\*Ion a mâncat un măr, iar Maria a de asemenea.  
Ion has eaten an apple, and Maria has too*



- R *Ion a mîncat mere, iar Maria (\*a) banane.*  
 Ion has eaten apples, and Maria has bananas  
 ‘Ion has eaten apples and Maria has bananas.’

This is not to say, however, that the gap is always solely the verbal head: it may include, beside that constituent, various nonconstituent and/or discontinuous strings of words (6a), including strings belonging to different clauses (6b).

- (6) a. F *Pour un salaire de 20 000F, le coût d’emploi \_\_\_\_\_ serait*  
 for a wage of 20 000F, the cost-of-employment would be  
*majoré de 300F par mois et [pour un salaire de 50 000F,*  
 increased by 300F per month and for a wage of 50 000F,  
*de 1 500F].*  
 by 1 500F  
 ‘For a wage of 20 000F, the employment cost would be increased by  
 300F per month, and for a wage of 50 000F, it would be increased by  
 1 500F’ (French Treebank *Le Monde*)
- R *Ion merge SÂMbăta la piață, iar [Maria duMInica].*<sup>5</sup>  
 Ion goes on.Saturdays to market, and Maria on.Sundays  
 ‘Ion goes to the market on Saturdays, and Maria on Sundays.’
- b. F *Jean pense que la France va gagner et [Marie*  
 Jean thinks that DEF France will win and Marie  
*l’Argentine].*  
 DEF-Argentina  
 ‘Jean thinks that France will win, and Marie thinks that Argentina will  
 win.’
- R *Ion crede că FRANța va câștiga, iar [Maria ArgenTIna].*  
 Ion thinks that France will win, and Maria Argentina  
 ‘Ion thinks that France will win, and Maria thinks that Argentina will  
 win.’

Now consider remnants. As the following examples illustrate, not all constituents are allowed: predicative uses left aside, singular count nouns (or N’) do not stand as appropriate remnants without their specifier in Romance (7a), nor do oblique NPs without their head preposition (7b) and more generally XPs whose correlates in the source clause depend on some non verbal heads (7c, d), except for those found in complex predicates (8), which are (re)analyzed as complements of the light verb (Abeillé & Godard, 2003).

5. Capital letters mark prosodic focus.

- (7) a. F *Paul a mangé une pomme et Marie \*(une) orange.*  
 Paul has eaten an apple and Marie an orange  
 ‘Paul ate an apple and Marie ate an orange.’  
 R *Paul a mâncat o portocală, iar Maria \*(o) banană.*  
 Paul has eaten an orange, and Maria a banana  
 ‘Paul ate an orange, and Maria ate a banana.’
- b. F *Marie parle avec un avocat et Jean \*(avec) une actrice.*  
 Marie is.talking with a lawyer and Jean with an actress  
 ‘Marie is talking to a lawyer, and Jean to an actress.’  
 R *Maria vorbește cu un avocat, iar Ion \*(cu) o actriță.*  
 Maria is.talking with a lawyer, and Ion with an actress  
 ‘Maria is seeing a lawyer and Ion is seeing an actress.’
- c. F *Jean a lu la fin du livre bleu et Marie \*(la fin) du livre rouge.*  
 Jean has read the end of.the book blue and Marie the end of.the book red  
 ‘Jean read the end of the blue book and Marie read the end of the red one.’  
 R *Ion citește introducerea unui roman, iar Ana \*(introducerea) unui eseu.*  
 Ion is.reading the.introduction to.a novel, and Ana the.introduction to.an essay  
 ‘Ion is reading the introduction to a novel, and Ana read the introduction to an essay.’
- d. F *Jean a vendu sa voiture noire et Marie \*(sa voiture) rouge.*  
 Jean has sold his car black and Marie her car red  
 ‘Jean sold his black car and Maria sold her red one.’  
 R *Ion și-a vândut mașina albastră, iar Maria \*(mașina) roșie.*  
 Ion CL.REFL-has sold the.car blue, and Maria the.car red  
 ‘Ion sold his blue car and Maria sold her red one.’
- (8) a. F *Paul est très fier de sa fille et Marie (très fière) de son fils.*  
 Paul is very proud of his daughter and Marie very proud of her son  
 ‘Paul is very proud of his daughter and Marie is very proud of her son.’

- R *Tata e foarte mândru de fiul lui, iar mama (foarte  
Dad is very proud of the.son his, and Mum very  
mândră) de fiica ei.  
proud of the.daughter her  
'The father is very proud of his son, and the mother is very proud of  
her daughter.'*
- b. F *Paul a peur du noir et Marie (peur) du vide.  
Paul has fear of.the dark and Marie fear of.the void  
'Paul fears the dark and Marie (fears) the void.'*
- R *Criminalii au teamă de polițiști, iar polițiștii (teamă)  
criminals have fear of police, and police fear  
de criminali.  
of criminals  
'Criminals fear police and police (fear) criminals.'*

We conclude that gapping in French and Romanian abides by Hankamer's (1971) Major Constituent Condition: each remnant in the gapped clause must be paired with some "major" correlate in the source clause, namely some correlate that depends on a verbal head (be it matrix or embedded).

### 3. The case for a construction-based analysis of gapping

#### 3.1 Against Johnson's movement-based analysis

Consider first Johnson's (1994, 1996, 2009) movement-based analysis. According to this approach, gapping constructions do not result from ellipsis, but rather from some movement process that extracts the head verb "across-the-board", namely out of each conjunct. Note that several non-shared constituents belonging to the first conjunct may linearly precede that verb. Some additional movement rule must therefore be posited that extracts those constituents, which, according to Johnson, accounts in turn for the fact, discussed by Siegel (1984), that negations, modals or quantifiers in the first conjunct may take semantic scope over the coordination as a whole when gapping operates (9).

- (9) a. F *Paul n'èst pas venu hier, ni Marie avant-hier.  
Paul NE-has not come yesterday, nor Marie before-yesterday  
'It is not the case that Paul came yesterday or Marie came before  
yesterday.'*

- b. F *Jean peut difficilement avoir obtenu 15/20 et Marie seulement 10.*  
 Jean can with.difficulty have obtained 15/20 and Marie only 10  
 'It is unlikely that Jean obtained 15 and Marie obtained only 10'
- R *Ion nu poate locui într-un palat și Maria într-o cocioabă. Trebuie să facă ceva pentru a-și ajuta sora!*  
 Ion NEG can live in-a palace and Maria in-a dump. Must MRK.SUBJ do.3 something for to-CL.REFL help the.sister  
 'It can't be the case that Ion lives in a palace and Maria in a dump; he must do something to help his sister.'
- c. F *Peu de Français parlent l'anglais et d'Anglais le français.*  
 few DE French.people speak DEF-English and DE-English.people DEF French  
 'There are few x such that French x speak English and English x speak French.'

Leaving aside its transformational flavor, this analysis does not immediately extend to naturally occurring examples such as those illustrated in (6) above, where the gap includes not only the head verb, but also various elements which do not form continuous strings of words (see Huddleston & Peterson, 2002 for similar examples in English). Moreover, it wrongly predicts that initial conjunctions, which arguably mark the left edge of the first conjunct in Romance (see Mouret, 2005, 2007; Bîlbîie, 2008), should be realized after the alleged moved material, and not before, compare (10)–(11).

- (10) a. F *Ou bien Paul dormira chez Marie ou bien Marie chez Paul.*  
 either Paul will.sleep at Marie or Marie at Paul  
 'Either Paul will sleep at Marie's or Marie at Paul's.'
- R *Fie Dan va cânta la chitară, fie Maria la pian.*  
 either Dan will play at guitar, or Maria at piano  
 'Either Dan will play the guitar, or Maria the piano.'
- b. F *\*Paul dormira ou bien chez Marie ou bien Marie chez Paul.*  
 Paul will.sleep either at Marie or Marie at Paul
- R *\*Dan va cânta fie la chitară, fie Maria la pian.*  
 Dan will play either at guitar, or Maria at piano

- (11) a. F *Ni le compromis ne me paraît justifié, ni*  
 neither the compromise NE me seems justified, nor  
*l'acceptation pure et simple nécessaire.*  
 the-acceptance pure and simple necessary  
 'Neither the compromise seems to me justified, nor the pure and  
 simple acceptance seems to me necessary.' (*Dictionnaire du Français*  
*Contemporain*, cited by Grévisse & Goosse, 1991)
- b. F *\*Le compromis ne me paraît ni justifié, ni*  
 the compromise NE me seems neither justified, nor  
*l'acceptation pure et simple nécessaire.*  
 the-acceptance pure and simple necessary

We conclude that movement creates more problems than it solves.

### 3.2 Against deletion-based analyses

Deletion-based analyses of gapping and other related verbal ellipsis come in two varieties. Classical accounts such as Sag (1976), which may be stated in a declarative fashion (see Chaves, 2005), assign to the gapped clause the syntactic structure of an ordinary sentence with some material including the head verb left unpronounced. More recent accounts within derivational frameworks furthermore consider remnants to be extracted in some functional projections in the left periphery (Coppock, 2001; Konietzko & Winkler, 2010; Molnár & Winkler, 2010, etc.). Culicover and Jackendoff (2005) present several arguments against both. We review each of them, extending the data to French and Romanian.

#### 3.2.1 Problems for extraction-based accounts

First, consider extraction-based accounts. As Culicover and Jackendoff (2005) observe, remnants do not obey island constraints in English, contrary to what has been claimed since Ross (1967) (see for example Neijt, 1979, and more recently Merchant, 2001). When more than the head is deleted, remnants can appear in what would be an island for extraction, for example a circumstantial adjunct (compare (12a, b) and (13a, b)) or a relative clause (compare (12c) and (13c)):

- (12) a. Robin knows a lot of reasons why dogs are good pets, and Leslie cats.  
 (Culicover & Jackendoff's example (63e), p. 273)
- b. Robin believes that everyone pays attention to you when you speak  
 French, and Leslie, German. (Culicover & Jackendoff's example (62e),  
 p. 273)
- c. In the past, it has been the husband who has been dominant and the wife  
 passive. (Brown Corpus – 21990, in Bîlbîie, in prep.)

- (13) a. \*[Which animals]<sub>i</sub> does Robin know a lot of reasons why -<sub>i</sub> are good pets?  
 b. \*[Which language]<sub>i</sub> does Robin believe that everyone pays attention to you when you speak -<sub>i</sub>?  
 c. \*[How dominant]<sub>i</sub> has it been the husband who has been -<sub>i</sub> in the past?

As the following examples illustrate, similar data obtain in French and Romanian: remnants may occur not only in circumstantial adjuncts (14), but also in infinitival subjects (15) or relative clauses (16), out of which nothing can be extracted (17).

- (14) F *Quand tu parles chinois, tout le monde t'admire, mais*  
 when you speak Chinese, everyone you-admires, but  
*anglais personne.*  
 English nobody  
 'When you speak Chinese, everyone admires you, but when you speak English, nobody does.'
- R *Ion mănâncă uitându-se la documentare, iar Maria*  
 Ion eats watching-CL.REFL at documentaries, and Maria  
*la telenovele.*  
 at soap.opera  
 'Ion eats while watching documentaries, and Maria eats while watching soap operas.'
- (15) F *Comprendre le texte traduit est laborieux et le texte*  
 to.understand the text translated is painstaking and the text  
*original encore plus laborieux.*  
 original yet more painstaking  
 'Understanding the translated text is painstaking and understanding the original text is all the more painstaking.'
- R *Să înveți la pian e greu, dar la vioară și*  
 MRK.SUBJ learn.2SG at piano is difficult, but at violin yet  
*mai greu.*  
 more difficult  
 'Learning the piano is difficult, but learning the violin is all the more difficult.'
- (16) F *C'est Paul qui fait la vaisselle et Marie la lessive.*  
 it's Paul who does the dishes and Marie the washing  
 'It's Paul who does the dishes and Marie the washing.'
- R *Sunt oameni care preferă singurătatea, iar alții, contrariul.*  
 exist people who enjoy the.solitude, and others, the.opposite  
 'There are some people who enjoy solitude, and others, the opposite.'

- (17) a. F \**C'est [chinois]<sub>i</sub> que tout le monde t'admire quand tu*  
           it's Chinese that everyone you-admires when you  
           *parles -<sub>i</sub>*  
           speak  
       R \**[La documentARe]<sub>i</sub> mănâncă Ion uitându-se -<sub>i</sub>*  
           at documentaries eats Ion watching-CL.REFL  
       b. F \**C'est [le texte traduit]<sub>i</sub> que comprendre -<sub>i</sub> est laborieux.*  
           it's the text translated that to.understand is painstaking  
       R \**[La piAN]<sub>i</sub> să înveți -<sub>i</sub> e greu.*  
           at piano MRK.SUBJ learn.2SG is difficult  
       c. F \**C'est [la lessive]<sub>i</sub> que c'est Marie qui fait -<sub>i</sub>*  
           it's the washing that it's Marie who does  
       R \**[SingurăTAtēa]<sub>i</sub> sunt oameni care preferă -<sub>i</sub>*  
           the.solitude exist people who enjoy

Extraction of remnants in the left periphery is therefore not empirically supported. As a result, deletion, if it is adopted as the source of gapping, must be allowed to target non-constituent strings.

### 3.2.2 Problems for accounts without extraction

Turning to the deletion process itself, there are two sets of problems that arise. First, consider identity conditions. As is well-known, the alleged deleted verb may differ from its source with respect to its agreement specifications (see (18a) and (19a)), while tense specifications must be preserved, as in (18b, c) and in (19b, c).

- (18) a. His brother lives in Boston and his parents ({live / \*lives}) in New York.  
       b. John arrived yesterday, and Bill (arrived) this morning.  
       c. John arrived yesterday, and Bill \*(will arrive) tomorrow.
- (19) a. F *Paul va à Paris et ses enfants ({vont / \*va}) à Rome.*  
           Paul goes to Paris and his children {go.3PL / go.3SG} to Rome  
           'Paul goes to Paris and his children to Rome.'  
       R *Eu iubesc animalele, iar Ioana ({iubește / \*iubesc}) florile.*  
           I like the.animals, and Ioana {like.3SG / like.1SG} the.flowers  
           'I like animals and Ioana flowers.'  
       b. F *Paul est arrivé hier et Marie (est arrivée) ce matin.*  
           Paul has arrived yesterday and Marie has arrived this morning  
           'Paul has arrived yesterday and Marie this morning.'  
       R *Ion a sosit ieri, iar Maria (a sosit) azi-dimineață.*  
           Ion has arrived yesterday, and Maria has arrived this-morning  
           'Ion has arrived yesterday and Maria this morning.'

- c. F *Paul est arrivé hier et Marie \*(arrivera) demain.*  
 Paul has arrived yesterday and Marie will arrive tomorrow  
 ‘Paul has arrived yesterday and Marie will arrive tomorrow.’
- R *Ion a sosit ieri, iar Maria \*(va sosi) mâine.*  
 Ion has arrived yesterday, and Maria will arrive tomorrow  
 ‘Ion has arrived yesterday and Maria will arrive tomorrow.’

Moreover, the verb may differ from its source in French and Romanian with respect to clitics (20). As shown by the examples in (20a), pronominal clitics hosted by the source verb may differ from those required when the alleged deleted verb is reconstructed. Moreover, while absent in the source, some clitics, such as negative particles or subject weak pronouns, may be required in the reconstructed clause given the form of remnants. The n-word *aucun* (‘none (of them)’) in (20) requires, for example, the particle *ne* (‘not’) on the reconstructed verb in French, and the n-word *niciuna* (‘none (of them)’) asks for the particle *nu* (‘not’) in Romanian. Similarly, the strong pronoun *moi* (‘me’) is not easily used as subject in the reconstructed form in (20c), unless it is doubled by the pronominal clitic *je* (‘I’). It seems then that identity conditions required as a trigger for deletion, though admittedly amenable to formalization (see in particular Chaves, 2005), cannot be stated in a simple way.

- (20) a. F *Luc en a lu seulement certains, mais Max*  
 Luc EN has read only some(of.them), but Max  
 ({*les* / \**en*} *a lu*) *presque tous.*  
 {CL.3PL / EN} has read almost all  
 ‘Luc has read only some of them, but Max has read almost all of them.’
- R *Ana îl iubește pe Ion, iar Dan ({*o* / \**îl*})*  
 Ana CL.3SG.MASC loves PE Ion, and Dan {CL.3SG.FEM / MASC}  
*iubește*) *pe Maria.*  
 loves PE Maria  
 ‘Ana loves Ion and Dan loves Maria.’
- b. F *Paul en a lu peu et Marie \*(*n*)*en a lu**  
 Paul EN has read few(of.them) and Marie NEG-EN has read  
*absolument aucun.*  
 absolutely none  
 ‘Paul has read few of them and Marie has read absolutely none of them.’
- R *Ion a citit câteva dintre ele, dar Maria \*(*nu*) *a citit**  
 Ion has read some of them, but Maria NEG has read  
*absolut niciuna.*  
 absolutely none  
 ‘Ion has read some of them, but Maria has read absolutely none of them.’



- c. F *Marie aime les pommes et moi (\*j')aime les oranges.*  
 Marie likes the apples and me I-like the oranges  
 'Marie likes apples and I like oranges.'

A second and stronger piece of evidence against deletion relies on the fact that gapped clauses do not have the same distribution as their complete counterpart. As noted by Culicover and Jackendoff (2005), there are contexts where gapped clauses are allowed and complete clauses excluded. In other words, syntactic reconstruction is not always warranted. This is illustrated in (21) for English (adapted from Morgan, 1973) and (22) for French and Romanian: a gapped clause may be introduced by functors such as constituent negation adverbs<sup>6</sup> or lexicalized comparative connectives, which do not combine with finite sentences.

- (21) a. Bill invited Jane and **not** Jane (\*invited) Bill.  
 b. Bill wanted to meet Jane **as well as** Jane (\*wanted to invite) him.
- (22) a. F *Paul dormira chez Marie et non pas Marie (\*dormira)*  
 Paul will.sleep at Marie and not Marie will.sleep  
*chez Paul.*  
 at Paul  
 'Paul will sleep at Marie's and not Marie at Paul's.'
- R *ION țipă la Maria și nu ea (\*țipă) la el.*  
 Ion is.shouting to Maria and not her is.shouting to him  
 'Ion is shouting to Maria and not her to him.'
- b. F *Paul a cueilli des framboises ainsi que Marie*  
 Paul has picked INDEF raspberries as well as Marie  
 (\*a cueilli) des fraises.  
 has picked INDEF strawberries  
 'Paul picked raspberries as well as Marie strawberries.'
- R *Ion se comportă cu Maria la fel ca*  
 Ion CL.REFL behaves towards Maria in the same way as  
*fratele lui (\*se comportă) cu Ana.*  
 the.brother his CL.REFL behaves towards Ana  
 'Ion behaves towards Maria in the same way as his brother towards Ana.'

To our knowledge, such data stand as a serious challenge for any deletion-based account. On the other hand, they immediately fall out from a construction-based analysis, which does not derive the unusual meaning-form mapping in the

6. In Romanian, the constituent negation *nu*<sub>1</sub> and the sentential negation *nu*<sub>2</sub> are homonyms: they have different distributional properties and thus different syntactic status (adverbial modifier vs. affix in the verbal complex). For more details, see Barbu (2004) and Ionescu (2004).

gapped clause from hidden syntactic structure: if there is no head verb in the gapped clause, then the gapped clause itself is not finite and thus appropriate for combination with functors selecting some non finite constituent. We conclude that deletion-based accounts are not empirically supported and must therefore be rejected.

#### 4. Parallelism constraints on gapping

An alternative analysis to deletion is what Elugardo and Stainton (2005) call ‘semantic ellipsis’, which induces, from a syntactic perspective, the recourse to a specific licensing construction. A recent proposal is given in Culicover and Jackendoff (2005) along the lines of Ginzburg and Sag (2000)’s account of short questions and answers. Under this approach, semantic reconstruction is paired with discourse and syntactic parallelism constraints.

##### 4.1 Discourse parallelism constraints

First consider discourse. As it is the case for English (cf. Kehler, 2002), some symmetric relation (viz. preserved when the order of the conjuncts is reversed) must hold between the source clause and the gapped clause in French and Romanian. As the following examples illustrate, gapping is felicitous with relations such as parallelism (23a) or contrast (23b),<sup>7</sup> while it is excluded with cause-effect relations, such as concession (23c) or condition (23d).

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7. Gapping with symmetric relations such as exemplification (i) or generalization (ii) is more difficult, probably due to the lack of appropriate contrast between remnants and their correlates in these contexts (see Abeillé and Mouret, 2010).

- (i) F *Un président flatte son électorat et ainsi Chirac ??(flatte) les*  
 a president flatters his voters and so Chirac flatters the  
*électeurs de droite.*  
 voters of the.right  
 ‘A president flatters his voters and so Chirac flatters the voters of the right.’
- (ii) F *Chirac flatte les électeurs de droite et généralement les*  
 Chirac flatters the voters of the.right and generally the  
*hommes politiques ??(flattent) leur électorat.*  
 men politician flatter their voters  
 ‘Chirac flatters the voters of the right and, more generally, the politicians flatter their voters.’

- (23) a. F *Paul aime Marie et (réciproquement) Marie Paul.*  
 Paul likes Marie and reciprocally Marie Paul  
 ‘Paul likes Marie, and vice versa.’  
 R *Ion o iubește pe Maria și și Maria pe Ion.*  
 Ion CL likes PE Maria and also Maria PE Ion  
 ‘Ion likes Maria and Maria likes Ion, too.’
- b. F *Mes amis ont voté aujourd’hui. Jean a voté pour*  
 my friends have voted today. Jean has voted for  
*Sarkozy, mais (par contre) Michel pour Royal.*  
 Sarkozy, but by contrast Michel for Royal  
 ‘My friends voted today. Jean voted for Sarkozy, but Michel voted for Royal.’  
 R *Amândoi prietenii au fost azi la vot. Ion a votat*  
 both DEF.friends have been today to vote. Ion has voted  
*cu Băsescu, însă Mircea cu Antonescu.*  
 for Băsescu, but Mircea for Antonescu  
 ‘Both the friends voted today. Ion voted for Băsescu, but Mircea voted for Antonescu.’
- c. F *D’habitude, Jean agit de la même façon que Michel, mais pas*  
 usually, Jean does the same thing as Michel, but not  
*aujourd’hui. Jean a voté pour Sarkozy, mais (#étonnamment)*  
 today Jean has voted for Sarkozy, but surprisingly  
*Michel pour Royal.*  
 Michel for Royal  
 ‘Jean usually does the same thing as Michel, but not today. Jean voted for Sarkozy, but, surprisingly, Michel voted for Royal.’  
 R *Ion era supărat și (#totuși) prietena lui foarte voioasă.*  
 Ion was upset and yet girlfriend his very happy  
 ‘Ion was upset and, surprisingly, his girlfriend was very happy.’
- d. F *Jean ira à Londres ou (#sinon) Paul à Berlin.*  
 Jean will.go to London or else Paul to Berlin  
 ‘Jean will go to London or else Paul will go to Berlin.’  
 R *Ion va pleca la Paris sau (#în caz contrar) Maria la Roma.*  
 Ion will go to Paris or else Maria to Rome  
 ‘Ion will go to Paris or else Maria will go to Rome.’

This immediately explains why gapping occurs neither in comparative correlatives (24a) (which involve an *if...then* interpretation, cf. Beck, 1997), nor in causal coordinations (24b) or subordinated contexts (24c).

- (24) a. F *Plus Marie lira de romans et plus Jean*  
 the.more Marie will.read DE novels and the.more Jean  
*\*(lira) de BD.*  
 will.read DE comics  
 'The more novels Marie will read, the more comics Jean will (read).'
- R *Cu cât Ion citește mai multe cărți, cu atât Maria*  
 CORREL Ion reads more.FEM.PL books, CORREL Maria  
*\*(citește) mai multe reviste.*  
 reads more.FEM.PL magazines  
 'The more books Ion reads, the more magazines Maria will (read).'
- b. F *Jean a mis un costume, car Marie \*(a mis) une*  
 Jean has put a suit, because Marie has put a  
*jolie robe.*  
 nice dress  
 'Jean dressed in a suit, because Marie dressed in a nice dress.'
- R *Ion și-a luat o cămașă maro, căci Maria*  
 Ion CL.REFL-has put a shirt brown, because Maria  
*\*(și-a luat) o fustă crem.*  
 CL.REFL-has put a skirt cream  
 'Ion dressed in a brown shirt, because Maria dressed in a cream skirt.'
- c. F *Jean a persuadé Marie que Pierre \*(a persuadé) Jeanne.*  
 Jean has persuaded Marie that Pierre has persuaded Jeanne.  
 'Jean persuaded Marie that Pierre has persuaded Jeanne.'
- R *Maria cântă la vioară, pentru că Ion \*(cântă) la pian.*  
 Maria plays at violin, because Ion plays at piano  
 'Maria plays the violin, because Ion plays the piano.'

For symmetry to hold, each remnant must stand in semantic contrast with respect to a correlate in the source, as discussed by Sag (1976), and more recently by Hartmann (2000) and Repp (2009).<sup>8</sup> An appropriate contrast can only be

8. Since Kuno (1976), semantic contrast is commonly conflated with informational focus or topic. As far as French and Romanian are concerned, this does not stand. Remnants and their correlates may correspond to narrow foci as in (i), or narrow topics as in (ii), but they may correspond as well to subparts of an all-focus utterance as in (iii).

- (i) F L1: *Qui veut quoi ce soir?*  
 who wants what tonight  
 'Who wants what tonight?'  
 L2: *Marie veut des pâtes et moi du riz.*  
 Marie wants INDEF pasta and I INDEF rice  
 'Marie wants pasta and I want rice.'

established between elements of a well-defined alternative set (different agents, different locations, different times, etc.). Consequently, contrasting elements from different sets (25b) or contrasting only one pair (26b) results in unacceptability. Such constraints do not apply, on the other hand, when the missing material is restored (25c)–(26c).

- (25) a. F *Jean mange des pommes et Marie des bananes.*  
 Jean eats INDEF apples and Marie INDEF bananas  
 ‘Jean eats apples and Marie bananas.’  
 R *Ioana a mâncat un măr, iar Maria o pară.*  
 Ioana has eaten an apple, and Maria a pear  
 ‘Ioana ate an apple and Maria a pear.’
- b. F *#Jean mange des pommes et Marie à minuit.*  
 Jean eats INDEF apples and Marie at midnight  
 R *#Ioana mănâncă mere, iar Maria la miezul nopții.*  
 Ioana eats apples, and Maria at midnight
- c. F *Jean mange des pommes et Marie mange à minuit.*  
 Jean eats INDEF apples and Marie eats at midnight  
 ‘Jean eats apples and Marie eats at midnight.’  
 R *Ioana mănâncă mere și Maria mănâncă la miezul nopții.*  
 Ioana eats apples and Maria eats at midnight  
 ‘Ioana eats apples and Maria eats at midnight.’
- (26) a. F *Léa a composé le numéro de Paul et ensuite Jean*  
 Léa has dialed the number of Paul and then Jean  
*le numéro d’Anne.*  
 the number of-Anne  
 ‘Léa dialed the Paul’s number and then Jean dialed the Anne’s number.’

- 
- (ii) F L1: *Est-ce que tes enfants aiment les fruits?*

INTERROG your children like the fruits  
 ‘Do your children like fruits?’

- L2: *Paul apprécie les oranges et Marie les bananes.*  
 Paul appreciates the oranges and Marie the bananas  
 ‘Paul likes oranges and Marie likes bananas.’

- (iii) F L1: *Qu’est-ce qui ne va pas?*

what’s wrong  
 ‘What’s wrong?’

- L2: *Paul veut aller au cinéma et son frère à la piscine!*  
 Paul wants to go to the cinema and his brother to the swimming-pool  
 ‘Paul wants to go to cinema and his brother to the swimming pool.’

- R *Maria a câștigat concursul de fotografie și Ioana*  
 Maria<sub>i</sub> has won the.competition of photography and Ioana  
*pe cel de pictură.*  
 PE the.one of painting  
 ‘Maria won the photography competition and Ioana the painting one.’
- b. F??[*Léa*]<sub>i</sub> *a composé le numéro de Paul et ensuite [cette*  
 Léa<sub>i</sub> has dialed the number of Paul and then this  
*cruche]*<sub>i</sub> son<sub>i</sub> propre numéro.  
 stupid.woman<sub>i</sub> her own number  
 R??[*Maria*]<sub>i</sub> *a câștigat concursul de fotografie și*  
 Maria<sub>i</sub> has won the.competition of photography and  
*[proasta asta]*<sub>i</sub> și pe cel de pictură.  
 stupid.woman<sub>i</sub> this also PE the.one of painting
- c. F [*Marie*]<sub>i</sub> *a composé le numéro de Paul et ensuite*  
 Marie<sub>i</sub> has dialed the number of Paul and then  
*[cette cruche]*<sub>i</sub> a composé son<sub>i</sub> propre numéro  
 this stupid.woman<sub>i</sub> has dialed her own number  
 ‘Marie dialed the Paul’s number and then this stupid woman dialed  
 his own number.’
- R [*Maria*]<sub>i</sub> *a câștigat concursul de fotografie și*  
 Maria<sub>i</sub> has won the.competition of photography and  
*[proasta asta]*<sub>i</sub> l-a câștigat și pe cel de pictură.  
 stupid.woman<sub>i</sub> this CL-has won also PE the.one of painting  
 ‘Maria won the photography competition, and this stupid woman has  
 also won the painting one.’

Romanian distinguishes itself from French and other Romance languages in this respect by having a special ‘contrastive’ conjunction *iar* (‘and’),<sup>9</sup> which is the most used conjunction in gapping coordinations, as in Slavic languages which have equivalent connectives, e.g. *a* in Russian and Polish (27) (Jasinskaja & Zeevat, 2009; Repp, 2009):

- (27) Rom. *Ion adoră fotbalul, iar Maria baschetul.*  
 Ion likes football, and Maria basketball  
 ‘Ion likes football, and Maria likes basketball.’
- Russ. *Oleg ljuvit futbol, a Maria basketbol.*  
 Oleg likes football, and Maria basketball  
 ‘Oleg likes football, and Maria basketball.’

9. For more details on the behavior of *iar* in Romanian, see Bilbiie and Winterstein (2011).

## 4.2 Syntactic parallelism constraints

Now consider syntax. Contrary to what is commonly assumed (see for example Hartmann, 2000), gapping does not require strong syntactic parallelism. As first noted by Sag et al. (1985) for English, the order of remnants in the gapped clause does not necessarily need to parallel that of their correlates in the source clause (28a), provided that this order is licit in the grammar. Moreover, remnants may differ from their correlates with respect to their category, see (28b). Still, syntax is not left completely unconstrained: besides being “major” (see Section 1 above), each correlate must match a subcategorization frame that could also be met by its parallel remnant, hence the ungrammaticality of (28c) given the selection properties of the verb *become* as in (28d).

- (28) a. A policeman walked in at 11, and at 12, a fireman.  
 b. Pat has become [crazy]<sub>AP</sub> and Chris [an incredible bore]<sub>NP</sub>.  
 c. \*Pat has become [crazy]<sub>AP</sub> but Chris [in good spirit]<sub>PP</sub>.  
 d. He became {crazy / an incredible bore / \*in good spirit}.
- (from Sag et al., 1985, pp. 156–158)

In other words, remnants and their correlates in gapping constructions obey the same syntactic constraint than conjuncts in ordinary constituent coordinations: each must match some subcategorization of the shared predicative material, though not necessarily the same one (cf. (29)).

- (29) a. He has become [crazy]<sub>AP</sub> and [an incredible bore]<sub>NP</sub>.  
 b. \*He has become [crazy]<sub>NP</sub> but [in good spirit]<sub>PP</sub>.

As the examples in (30) and (31) illustrate, French and Romanian parallel English in this respect: order and category asymmetries are allowed, provided the syntactic constraints mentioned above are observed.

- (30) a. F *De nombreuses familles habitent dans le 19ème, mais dans*  
 INDEF many families live in the 19th, but in  
*le 2ème, très peu.*  
 the 2nd, very few  
 ‘Many families live in the 19th district, but in the 2nd district, very few.’  
 R *Mulți adolescenți merg la film, dar la operă, foarte puțini.*  
 many teenagers go to cinema, but to opera, very few  
 ‘A lot of teenagers go to cinema, but to opera, very few.’

- b. F *Certains réclament [des augmentations]<sub>NP</sub> d'autres*  
 some demand INDEF increases, others  
*[qu'on leur garantisse la sécurité]<sub>S</sub>.*  
 that-one CL warrants the safety  
 'Some demand some increases, others demand that one warrants their safety.'
- R *La meeting-ul de azi, unii cereau [demisia*  
 at the.meeting of today, some were.demanding the.resignation  
*Preşedintelui]<sub>NP</sub> alţii, [să li se mărească*  
 of.the.President, others MRK.SUBJ CL CL.REFL increase  
*salariile]<sub>S</sub>.*  
 the.salaries  
 'At the today's meeting, some were demanding the resignation of the President, others were demanding that one increases their salaries.'
- c. F \**Certains réclament [des augmentations]<sub>NP</sub> d'autres*  
 some demand INDEF increases, others  
*[être mieux protégés]<sub>VPinf</sub>.*  
 be better protected
- R??*La meeting, unii cereau [demisia*  
 at meeting, some were.demanding the.resignation  
*Preşedintelui]<sub>NP</sub> alţii, [a avea salarii mai mari]<sub>VPinf</sub>.*  
 of.the.President, others to have wages higher
- d. F *Ils réclament {des augmentations / qu'on leur garantisse*  
 they demand {INDEF increases / that-one CL warrants  
*la sécurité / \*être mieux protégés}.*  
 the safety / be better protected}  
 'They demand {some increases / that one warrants their safety / to be better protected}.'
- R *La meeting, unii cereau {demisia*  
 at meeting, some were.demanding {the.resignation  
*Preşedintelui / să li se mărească salariile /*  
 of.the.President / MRK.SUBJ CL CL.REFL increase the.salaries /  
*?a avea salarii mai mari}.*  
 to have wages higher }  
 'At the meeting, some were demanding {the resignation of the President / that one increases their salaries / to have higher wages}.'



- (31) a. F *Ils réclament [des augmentations]<sub>NP</sub> et [qu'on leur*  
 they demand INDEF increases and that-one CL  
*garantisse la sécurité]<sub>S</sub>.*  
 warrants the safety  
 'They demand some increases and that one warrants their safety.'
- R *Manifestanții cer [demisia Președintelui]<sub>NP</sub> și*  
 demonstrators demand the.resignation of.the.President and  
*[să li se mărească salariile]<sub>S</sub>.*  
 MRK.SUBJ CL CL.REFL increase the.salaries  
 'Demonstrators demand the resignation of the President and that one increases their salaries.'
- b. F *\*Ils réclament [des augmentations]<sub>NP</sub> et [être mieux*  
 they demand INDEF increases and be better  
*protégés]<sub>VPinf</sub>.*  
 protected
- R??*Manifestanții cer [demisia Președintelui]<sub>NP</sub> și*  
 demonstrators demand the.resignation of.the.President and  
*[a avea salarii mai mari]<sub>VPinf</sub>*  
 to have wages higher

Still, Romance languages provide more striking asymmetries, as mainly shown by Romanian data below. First, given its relatively free word order, there are many ways to linearize remnants and correlates in Romanian:

- (32) a. R *Dimineața (EU) spăl (EU) vesela (EU), iar*  
 in.the.morning (I) wash (I) the.dishes (I), and  
*seara IOAna.*  
 in.the.evening Ioana  
 'In the morning I wash the dishes, and in the evening Ioana does.'
- b. R *EU spăl vesela dimineața, iar seara IOAna.*  
 I wash the.dishes in.the.morning, and in.the.evening Ioana  
 'I wash the dishes in the morning, and in the evening Ioana does.'
- c. R *Eu spăl vesela dimiNEAața, iar Ioana SEArA.*  
 I wash the.dishes in.the.morning, and Ioana in.the.evening  
 'I wash the dishes in the morning, and Ioana in the evening.'
- d. R *DimiNEAața spăl eu vesela, iar Ioana SEArA.*  
 in.the.morning wash I the.dishes, and Ioana in.the.evening  
 'I wash the dishes in the morning, and Ioana in the evening.'

Moreover, remnants may differ from their correlates not only with respect to their basic category (33a), but also with respect to case marking, as in (33b), where the second remnant *tuturor copiilor* ('to all the children') bears an affix marking a dative

form, while its correlate in the source *la trei dintre copii* ('to three of the children') is introduced by a prepositional marker *la* ('to') asking for an accusative form.

- (33) a. R *Marian citește [ziua]<sub>NP</sub> iar Maria [pe-ntuneric]<sub>PP</sub>.*  
 Marian reads the.day, and Maria at.night  
 'Marian reads during the day and Maria at night.'
- b. R *Ion oferă mere [la trei dintre copii], iar Maria [tuturor copiii].*  
 Ion gives apples to three of children, and Maria all.DAT  
 children.DEF.DAT  
 'Ion gives apples to three of the children, and Maria to all of them.'

Finally, the number of remnants may differ from the number of realized correlates, as shown by the subject pro-drop phenomenon in (34) for Romanian and Italian, or the object pro-drop in (35) for Romanian and French (see Bilbiie, 2011 for discussion):

- (34) R *Lunea merg la film, iar sora mea la muzeu.*  
 on.Mondays, PRO<sub>subj</sub>-go to cinema, and the.sister my to museum  
 'On Monday, I go to the cinema, and my sister goes to the museum.'
- I *Mangio la pasta e Giovanni il riso.*  
 PRO<sub>subj</sub>-eat DEF pasta and Giovanni DEF rice  
 'I eat pasta and Giovanni eats rice.'
- (35) R *Ion tot mai citește, dar Maria nici măcar ziarul.*  
 Ion CL.ADV CL.ADV reads, but Maria not even the.newspaper  
 'Ion still reads, but Maria doesn't read anything, not even the newspaper.'
- F *Paul nage comme un poisson, mais Marie seulement la brasse.*  
 Paul swims like a fish, but Marie only the  
 breaststroke  
 'Paul swims very well, while Mary only swims the breaststroke.'

We conclude that syntactic parallelism operates neither at the level of phrase structure, nor at the level of word order, but rather at the more abstract level of grammatical functions, as listed in the argument structure of predicates.

## 5. A construction-based analysis in HPSG

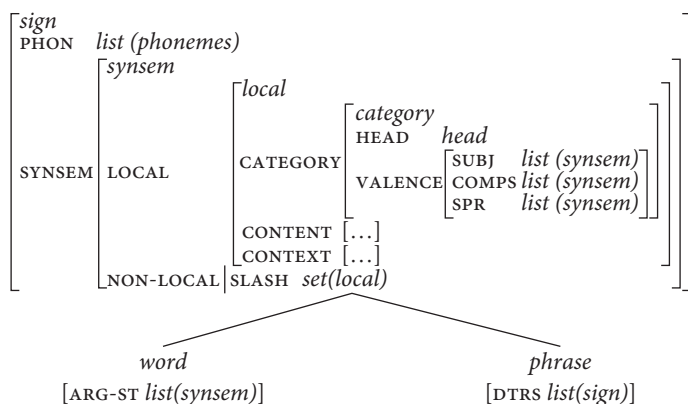
In this section, we sketch a formal analysis of gapping within a construction-based version of Head-driven Phrase Structure Grammar (henceforth HPSG) that relies on rich inheritance hierarchies of lexical and phrasal constructional types

(Sag, 1997; Ginzburg & Sag, 2000). We follow previous work for the syntactic analysis of coordination in Romance (see Abeillé, 2003, 2005; Sag, 2003; Mouret, 2006, 2007; Bîlbîie, 2008). We then build on Ginzburg and Sag (2000) as well as Culicover and Jackendoff (2005) to represent gapping constructions at the syntax-semantics-discourse interface.

### 5.1 General architecture

Linguistic expressions in HPSG are modeled as feature structures of type *sign* that encode phonological, syntactic and semantic information of words and phrases:

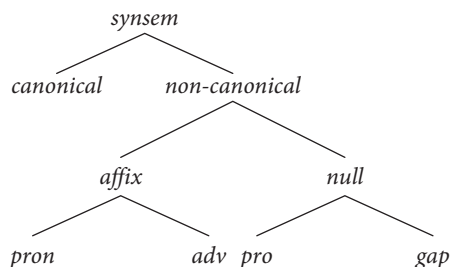
#### (36) Simplified hierarchy of signs



Words, unlike phrases, have an argument structure (ARG-ST) which encodes as a list of *syntsem* objects the subcategorization properties of lexical items. Canonical *syntsem* descriptions occurring in the argument structure of a word also occur in its valence. Non canonical *syntsems*, on the other hand, do not project as signs in syntax: they occur in the argument structure of lexical items, but not in their valence, as illustrated by the Argument Conservation Principle in (37). Non canonical *syntsems* fall under four classes in Romance (38): (i) extracted elements, typed as *gap*, (ii) ‘empty’ pronouns, typed as *pro* (to account for subject or object pro-drop), (iii) pronominal clitics, analysed as verbal affixes, typed as *pron-affix* (cf. Miller & Sag, 1997; Monachesi, 1999), and (iv) adverbial clitics, such as Romanian *tot* (‘still’), *mai* (‘still’) in (35) or the Romanian sentential negation *nu* (‘not’) in (20b), which behave like verbal affixes, typed as *adv-affix*.

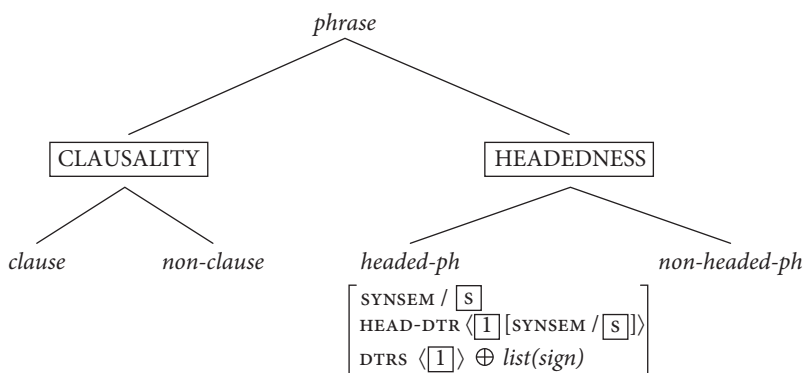
## (37) Argument Conservation Principle

$$word \Rightarrow \left[ \begin{array}{l} \text{VALENCE} \left[ \begin{array}{l} \text{SUBJ} \boxed{1} \\ \text{SPR} \boxed{2} \\ \text{COMPS} \boxed{3} \end{array} \right] \\ \text{ARG-ST} \boxed{1} \oplus \boxed{2} \oplus \boxed{3} \circ \text{list}(\text{non-canonical}) \end{array} \right]$$

(38) Hierarchy of *synsem* values

Phrases, unlike words, have a feature DAUGHTERS (DTRS) that lists immediate constituents. Following Sag (1997) and Ginzburg and Sag (2000), we assume a cross-classification along two dimensions: *clausality* and *headedness* (cf. (39)). The *clausality* dimension is used to distinguish phrases with a clause type-content (namely a *message*) such as declaratives, interrogatives, imperatives, etc. from non-clauses, while *headedness* is used to distinguish headed phrases from non-headed phrases. Headed phrases obey the Generalized Head Feature Principle (Ginzburg & Sag, 2000): the SYNSEM value of the mother of a headed phrase and that of its head daughter must be identical by default (/).

## (39) Cross-classification of phrases



5.2 A formal analysis of coordinate constructions

We represent coordinate phrases as a subtype of non-headed phrase,<sup>10</sup> consisting of two or more immediate constituents, which may each be introduced by a conjunction (cf. Abeillé, 2003, 2005; Mouret, 2006, 2007):

(40) General rule of coordination

$$coord\text{-}phrase \Rightarrow non\text{-}headed\text{-}ph \ \& \ \left[ \begin{array}{l} \text{SYNSEM} \quad [CONJ \text{ nil}] \\ \text{DTRS} \quad list ([CONJ \text{ nil}]) \oplus list ([CONJ \boxed{1} \neg nil]) \end{array} \right]$$

Conjunctions are analyzed as weak heads that inherit most of their syntactic properties from the complement with which they combine, except for the CONJ feature they introduce. Consequently, [Conj XP] phrases share their syntactic category with the XP that the conjunction combines with.

(41) Simplified lexical entry for a conjunction

$$conj\text{-}word \Rightarrow \left[ \begin{array}{l} \text{CATEGORY} \left[ \begin{array}{l} \text{HEAD} \quad \boxed{1} \\ \text{MARKING} \quad \boxed{2} \\ \text{VALENCE} \left[ \begin{array}{l} \text{SUBJ} \quad \boxed{3} \\ \text{SPR} \quad \boxed{4} \\ \text{COMPS} \left\langle \begin{array}{l} \text{HEAD} \quad \boxed{1} \\ \text{MARKING} \quad \boxed{2} \\ \text{SUBJ} \quad \boxed{3} \\ \text{SPR} \quad \boxed{4} \\ \text{COMPS} \quad \boxed{5} \\ \text{CONJ} \quad nil \end{array} \right\rangle \oplus \boxed{5} \end{array} \right] \\ \text{CONJ} \quad \neg nil \end{array} \right] \end{array} \right]$$

According to the distribution of conjunctions, three main subtypes of coordinate constructions may be distinguished for Romance languages (cf. Mouret, 2006, 2007; Bîlbîie, 2008): (i) simplex coordinations (with at least one conjunction, before the last conjunct) (42a, b), (ii) omnisyndetic coordinations (with the conjunction repeated on each conjunct, including the first one) (43a, b), and (iii) asyndetic coordinations (with no overt conjunction) (44a, b):

- (42) a. *simplex-coord-ph* => [DTRS *nelist*([CONJ nil])  $\oplus$  *nelist*([CONJ  $\boxed{1}$   $\neg$  nil])]  
b. F *Paul, (et) Jean et Bernard*  
Paul, (and) Jean and Bernard  
'Paul, Jean and Bernard'

10. For a detailed discussion on the advantages of this kind of approach over an Xbar ConjP analysis, see Borsley (2005).

- (43) a. *omnisyndetic-coord-ph* => [DTRS *nelist*([CONJ  $\boxed{1} \neg nil$ ])]  
 b. F *et Paul et Jean*  
     CORREL Paul CORREL Jean  
     ‘both Paul and Jean’
- (44) a. *asyndetic-coord-ph* => [DTRS *nelist*([CONJ *nil*])]  
 b. F *Paul, Jean, Bernard*  
     Paul, Jean, Bernard  
     ‘Paul, Jean, Bernard’

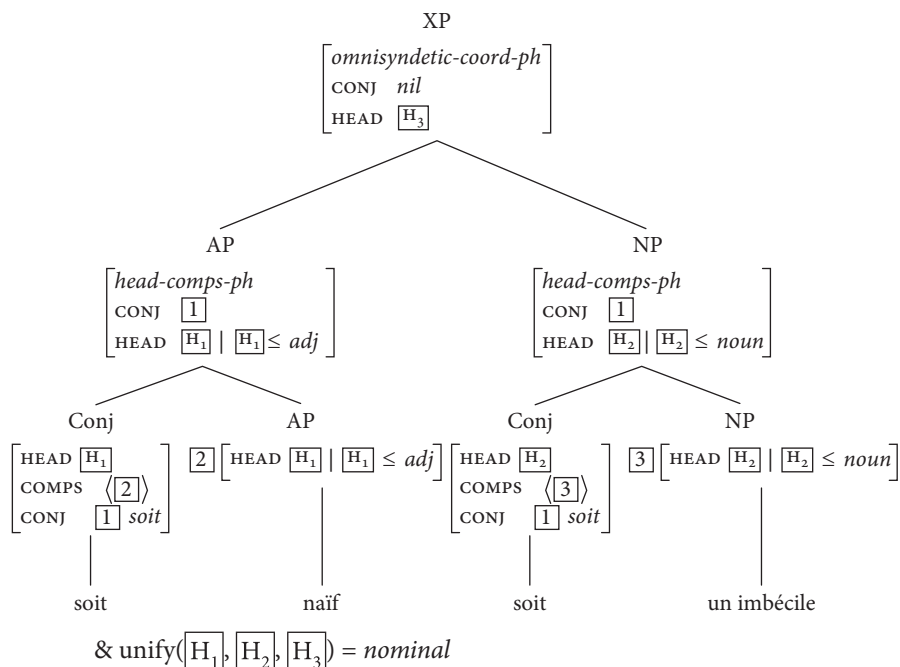
Turning to feature constraints, we follow Sag (2003) in assuming that lexical entries do not fix the type of their HEAD value, but rather put an upper bound on it as illustrated in (45), where  $\leq$  means ‘equal or a supertype of’. Coordinate structures, on the other hand, require not only identity of SLASH and VALENCE features between the conjuncts and their mother node (which prevents asymmetric extraction, as well as the coordination of predicates with different subcategorization requirements), but also, by default, identity of HEAD features, as represented in (46):

- (45) a. *naïf* (‘naïve’): [HEAD  $\boxed{1}$  |  $\boxed{1} \leq adj$ ]  
 b. *imbécile* (‘fool’): [HEAD  $\boxed{2}$  |  $\boxed{2} \leq noun$ ]
- (46) Parallelism constraints in coordinate constructions

$$coord\text{-}phrase \Rightarrow \left[ \begin{array}{c} \text{SYNSEM} \\ \text{DTRS} \end{array} \left[ \begin{array}{c} \text{HEAD / } \boxed{H} \\ \text{VALENCE } \boxed{V} \\ \text{SLASH } \boxed{S} \end{array} \right] \left\langle \left[ \begin{array}{c} \text{HEAD / } \boxed{H} \\ \text{VALENCE } \boxed{V} \\ \text{SLASH } \boxed{S} \end{array} \right], \dots, \left[ \begin{array}{c} \text{HEAD / } \boxed{H} \\ \text{VALENCE } \boxed{V} \\ \text{SLASH } \boxed{S} \end{array} \right] \right\rangle \right]$$

From (45) and (46), it follows that one may coordinate conjuncts of different categories, in which case the HEAD value of the coordinate phrase will be left underspecified, as illustrated in (47). The coordinate construction *soit naïf soit un imbécile* (‘either naïve or a fool’) which combines an AP with an NP receives by unification an underspecified category *nominal*, which is a common supertype for nouns and adjectives. As such, it may unify with the predicative complement selected by verbs such as *être* (‘to be’) or *devenir* (‘to become’) (whose category may correspond to an NP or an AP, among others), but not, for instance, with the complement selected by a complex predicate such as *avoir l’air* (‘to seem’) (whose category can correspond to an AP but not to an NP), hence the contrast in (48) which is similar in this respect to those illustrated above in (29) and (31).

## (47) Simplified tree for a coordination of unlikes



- (48) a. F *Paul est soit naïf soit un imbécile.*  
 Paul is either naïve or an idiot  
 ‘Paul is either naïve or an idiot.’
- b. F \**Paul a l’air soit naïf soit un imbécile.*  
 Paul has the-appearance either naïve or an idiot
- c. F *Paul est {naïf / un imbécile}.*  
 Paul is {naïve / an idiot}  
 ‘Paul is {naïve / an idiot}.’
- d. F *Paul a l’air {naïf / \*un imbécile}.*  
 Paul has the-appearance {naïve / an idiot}  
 ‘Paul seems to be {naïve / an idiot}.’

## 5.3 A formal analysis of gapping

## 5.3.1 Clusters and fragments

As argued for in Section 2, we adopt a “what you see is what you get” syntactic structure for elliptical constructions. A similar approach is given in Ginzburg and Sag (2000) who posit a head-only fragment construction to account for short answers and short questions, such as (49a, b), where the NPs *John* and *who*

receive a clausal interpretation without having the internal structure of an ordinary sentence.

- (49) a.  $L_1$  – Who came?  
            $L_2$  – [[John]<sub>NP</sub>]<sub>S</sub>.  
       b.  $L_1$  – Someone called.  
            $L_2$  – [[Who]<sub>NP</sub>]<sub>S</sub>?

In line with Culicover and Jackendoff (2005), we extend here the analysis in order to integrate the variety of fragments, which may involve more than one remnant (50a), and may be used not only as stand-alone utterances, but also as conjuncts, complements or adjuncts in various elliptical constructions among which gapping constructions (50b), which differ from other types such as “stripping” as in (50c), “comparative ellipsis” as in (50d), or “circumstantial ellipsis” as in (50e), by featuring both coordination and multiple remnants.

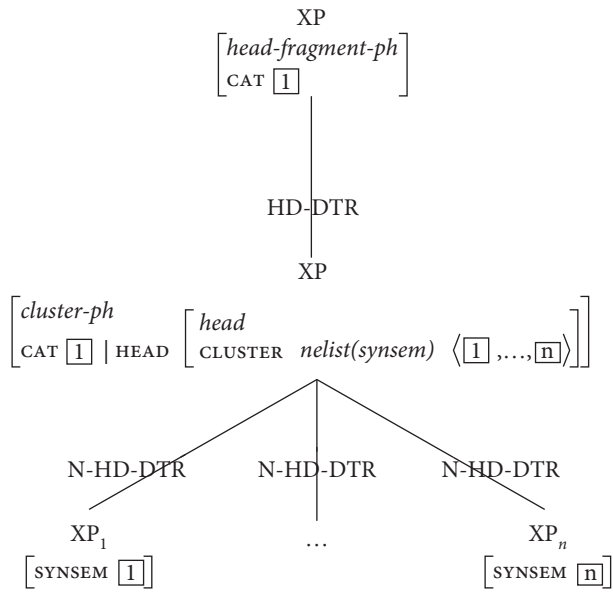
- (50) a. F  $L_1$  – *Qui d'autre compte venir?*  
           Who else is.planning to.come?  
           ‘Who else is planning to come?’  
            $L_2$  – *Paul (avec Marie).*  
           Paul (with Marie)  
           ‘Paul (with Marie).’  
       b. F *Paul aime les pommes et Marie \*(les oranges).*  
           Paul likes the apples and Marie the oranges  
           ‘Paul likes apples and Marie oranges.’  
       c. F *Paul viendra, {ou (peut-être) Anne / mais \*(pas) Anne /*  
           Paul will.come, {or (maybe) Anne / but not Anne /  
           *et Anne ?(aussi)}.*  
           and Anne too  
           ‘Paul will come, {or maybe Anne / but not Anne / and Anne too}.’  
       d. F *Paul aime autant les pommes que Marie (les oranges).*  
           Paul likes as.much the apples than Marie (the oranges)  
           ‘Paul likes apples as much as Marie (oranges).’  
       e. F *Ses enfants l'appellent régulièrement, quoique (Marie) assez peu.*  
           his children him-call regularly, though (Marie) not so often  
           ‘His children call him regularly, though (Marie) not so often.’

We represent fragments as a subtype of *head-only-phrase* whose single head daughter corresponds to a “cluster”, namely to a subtype of *non-headed-phrase* with some underspecified category and one immediate daughter or more registered in a CLUSTER head feature (cf. Mouret, 2006). This cluster phrase has been proposed



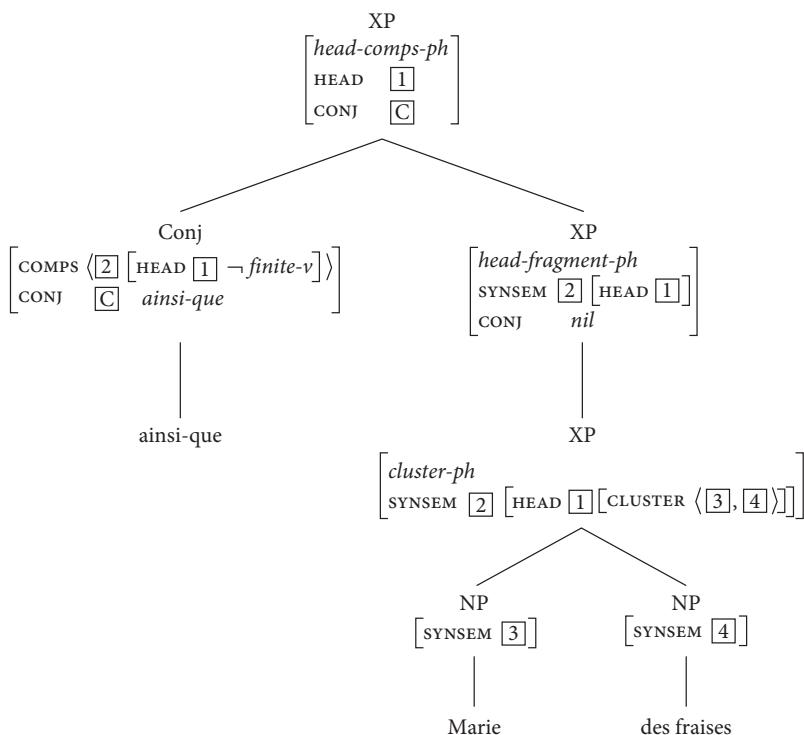
independently to account for non-constituent coordinations as in *I'll give [Mary a book and John a record]*.

(51) Representation of a fragment with its cluster daughter



The fragment phrase inherits from its daughter its underspecified category and may as such combine with functors selecting some non finite category, such as the conjunction *ainsi que* (‘as well as’) or the sentential adverb *non pas* (‘(and) not’) in French, as illustrated in (52) (from example (22b) above, Section 2.2.2).

(52)



To account for the amount of syntactic parallelism required, we further constrain remnants to unify their HEAD features with the HEAD features of some contextual correlates, using the context SAL(ient)-(sub)UTT(erance) introduced by Ginzburg and Sag (2000), which we consider here to take a list of *synsem* objects as its value:<sup>11</sup>

(53) Syntactic constraints on *head-fragment-ph*

$$head-fragment-ph \Rightarrow \left[ \begin{array}{l} \text{CONTEXT} \mid \text{SAL-UTT} \left\langle \left[ \begin{array}{c} \text{HEAD} \boxed{H_1} \\ \text{MAJOR} \quad + \end{array} \right], \dots, \left[ \begin{array}{c} \text{HEAD} \boxed{H_n} \\ \text{MAJOR} \quad + \end{array} \right] \right\rangle \\ \text{CATEGORY} \mid \text{HEAD} \mid \text{CLUSTER} \left\langle \left[ \begin{array}{c} \text{HEAD} \boxed{H_1} \end{array} \right], \dots, \left[ \begin{array}{c} \text{HEAD} \boxed{H_n} \end{array} \right] \right\rangle \end{array} \right]$$

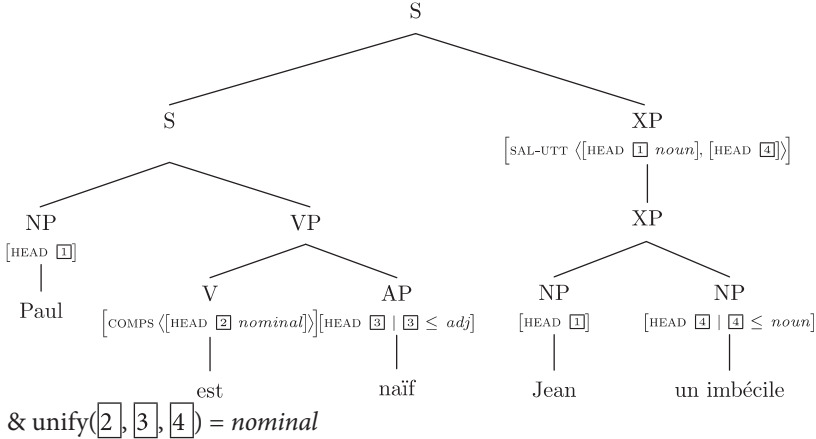
As abbreviated by the [MAJOR+] specification, correlates must match *synsem* objects on the ARG-ST list of some verbal predicate in the source, in accordance with Hankamer's 'Major constituent condition' (see Section 1 above). However, they are not necessarily instantiated in the syntax: they can be typed as *non-canonical* and therefore realized as verbal affixes (as in (60) below) or as null pronouns (as in (34)–(35) above).

11. See Ginzburg (2012) for a similar approach in terms of "focus establishing constituents".

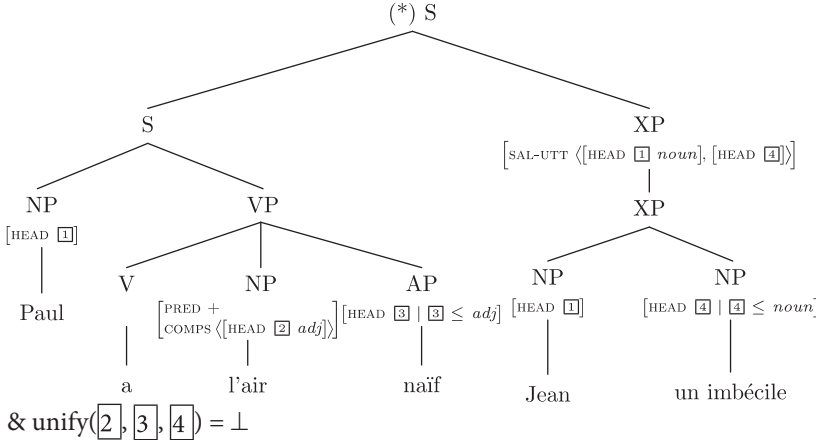
Assuming, as stated above, that lexical entries and the phrases they project only put an upper bound on the value of their HEAD feature, it follows that remnants and their correlates in elliptical constructions may differ with respect to their syntactic category, as long as the underspecified result of the unification of their HEAD features matches the subcategorization requirements of the source predicative material. This correctly accounts for contrasts such as the one in (54), similar to those in (28b, c, d) and (30b, c, d) above, as illustrated in (55) and (56).

- (54) a. F *Paul est naïf (et) Jean un imbécile.*  
Paul is naïve and Jean an idiot  
'Paul is naïve and Jean an idiot.'  
b. F *\*Paul a l'air naïf et Jean un imbécile.*  
Paul has the appearance naïve and Jean an idiot

(55) Simplified tree for (54a)



(56) Simplified tree for (54b)



Turning to semantic reconstruction, there are several possible routes. For example, Dalrymple et al. (1991) propose to define the content of fragments by applying to the content of remnants some function  $[F]$  resulting from higher-order unification (U) of two lambda-terms: (i) the semantic representation of the source clause, (ii) the semantic representation resulting from applying some property  $P$  to the content of correlates in the source. While this account provides the right results for several types of ellipsis including gapping, as shown in (57), its extension to the full array of elliptical constructions remains controversial (see Ginzburg, 2012 for discussion).

- (57) a. John invited Sue and Bill Jane.  
 b. John invited Sue = invited'(john', sue')  
 c.  $[F] = U(\text{invited}'(\text{john}', \text{sue}'), P(\text{john}', \text{sue}')) = \lambda x. \lambda y. \text{invited}'(x, y)$   
 d. Bill Jane =  $[F][(\text{bill}', \text{jane}')] = \lambda x. \lambda y. [\text{invited}'(x, y)](\text{bill}', \text{jane}')$   
     = invited'(bill', jane')

We leave aside here the resolution of this issue, only requiring fragments' content to be built from the meaning of the source, the remnants and their correlates by some placeholder relation  $R_{sem}$ .

- (58) Semantic constraint on *head-fragment-ph*

$$head-fragment-ph \Rightarrow \left[ \begin{array}{l} \text{CONTEXT} \left[ \begin{array}{l} \text{SOURCE } message \boxed{M} \\ \text{SAL-UTT } \langle [\text{CONTENT } \boxed{C_1}], \dots, [\text{CONTENT } \boxed{C_n}] \rangle \end{array} \right] \\ \text{CLUSTER } \langle [\text{CONTENT } \boxed{C_1'}], \dots, [\text{CONTENT } \boxed{C_n'}] \rangle \\ \text{CONTENT } R_{sem}(\boxed{M}, \langle \boxed{C_1}, \boxed{C_1'} \rangle, \dots, \langle \boxed{C_n}, \boxed{C_n'} \rangle) \end{array} \right]$$

### 5.3.2 Gapping constructions

To account for the specific properties of gapping over other types of ellipsis, we posit a subtype of coordinate phrase, which combines a non-empty list of  $n$ -ary fragments (each consisting in at least two remnants) to some preceding non-empty list of verbal clauses, the last of which is analyzed as the source:

(59) Gapping construction

*gapping-ph*  $\Rightarrow$  *coord-ph* &

$$\left[ \begin{array}{l} \text{HEAD } \boxed{H} \text{ verbal} \\ \text{CONTEXT} \mid \text{BACKGROUND } \{ \dots, \text{sym-discourse-rel}(\boxed{M_1}, \dots, \boxed{M_j}, \boxed{M_{j+1}}, \dots, \boxed{M_n}), \dots \} \\ \text{DTRS } \left\langle \left[ \begin{array}{l} \text{HEAD } \boxed{H} \text{ verbal} \\ \text{CLUSTER } \text{elist} \\ \text{CONTENT } \boxed{M_1} \end{array} \right], \dots, \left[ \begin{array}{l} \text{HEAD } \boxed{H} \text{ verbal} \\ \text{CLUSTER } \text{elist} \\ \text{CONTENT } \boxed{M_j} \end{array} \right] \right\rangle \oplus \\ \left\langle \left[ \begin{array}{l} \text{HEAD } \text{CLUSTER } \langle \boxed{1}, \dots, \boxed{n} \rangle \\ \text{SOURCE } \boxed{M_j} \\ \text{CONTENT } \boxed{M_{j+1}} \end{array} \right], \dots, \left[ \begin{array}{l} \text{HEAD } \text{CLUSTER } \langle \boxed{1'}, \dots, \boxed{n'} \rangle \\ \text{SOURCE } \boxed{M_j} \\ \text{CONTENT } \boxed{M_n} \end{array} \right] \right\rangle \end{array} \right]$$

As registered in the BACKGROUND contextual feature, some symmetric discourse relation must hold between conjuncts. In addition, the coordinate phrase must share its HEAD value (i.e. its category) with the HEAD value of its non-elliptical daughters, but not with that of its fragment daughters, hence overriding the default constraint in (46) above. We thus avoid underspecification of the gapping construction as a whole, since its distribution, contrary to fragments, is clearly that of a verbal clause.

Leaving open how exactly contextual correlates should be formally accessed within complete clauses, we provide to conclude an example of gapping structure in Romanian, which combines the three kinds of syntactic asymmetries considered in this chapter (category, word order and number of realized dependents), as shown in (60) and (61).

- (60) R *Mai merg acasă, dar la socri niciodată.*  
 ADV-CL go at.home, but at parents-in-law never  
 ‘I sometimes go home, but I never go to my parents-in-law.’



## 6. Conclusion

Focusing in this chapter on two Romance languages, French and Romanian, we presented several empirical arguments for preferring a construction-based approach of gapping (with semantic reconstruction of ellipsis) over alternative accounts that rely on movement or deletion. We then proceeded to study parallelism constraints, which prove stronger at the discourse level than at the syntactic level. Interestingly though, syntax is not completely overridden by semantics and discourse. While remnants may differ from their correlates with respect to their category, their position or their surface realization, each must still match a possible subcategorization of the verbal predicate its correlate depends on. We showed how this generalization, which is identical to the generalization governing the so-called coordination of “unlikes”, can be accounted for within a construction-based framework relying on inheritance hierarchies of typed feature structures such as HPSG in its more recent versions.

A construction-based approach enables gapping sentences to inherit properties from related constructions. We analyze the overall construction as a particular type of asymmetric coordination with the main conjunct as being non elliptical and verbal, and the gapped one as fragmentary and non verbal. The gapped sentence inherits both from the fragment type (used in short answers and short questions) for its contextual constraints, and from the cluster type (used for non-constituent coordinations) for its internal n-ary structure. While this goes beyond the scope of this chapter, we believe such analysis could be translated into other constructional frameworks such as Sign-Based Construction Grammar, provided that care is taken to ensure the non local feature checking between remnants and their correlates.

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