Romance is so complex

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In this paper I want to look at what the evidence from Complex Predicates can tell us about the design parameters of an empirically adequate theory of Universal Grammar (UG). This is a fertile field for investigation because, according to the standard assumptions of the field, complex predicates are monoclausal with respect to some properties and multiclausal with respect to others and this tension can only be resolved by giving up some cherished beliefs. After introducing the problem in Section 1, Sections 2–4 will lay out the basis of the dilemma. Sections 2 and 3 argue that Romance complex predicates have an articulated rightward-branching phrase structure, and cannot be analyzed as some sort of verb compound or verbal complex while conversely Section 4 shows how in many respects a complex predicate does behave just like a single predicate. Hence we require a notion of monoclausality that these complex predicates satisfy despite their articulated phrase structure.

Section 5 then draws out the implications of this result for theories that have monostratal syntactic levels (in the sense of Ladusaw 1988) such as LFG, HPSG or Categorial Grammar.[1] While many of the same concerns occur in a multistratal theory such as GB or RG (and have long been debated in those frameworks[2]), there is more room for movement in such a theory, because complex predicates can be multiclausal on one stratum but monoclausal on another stratum. In a monostratal theory, the problem is more cleanly cut – on each level, one must regard a complex predicate as either one clause or as embedded clauses – and if a

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[1]LFG has two syntactic levels, c-structure and f-structure, each of which is monostratal, whereas HPSG and CG have only a single monostratal syntactic level.

[2]The RG multiclausal analysis of causatives (Gibson and Raposo 1986) is contested by the monoclausal analysis of Davies and Rosen (1988). The GB analysis of Burzio (1986) postulates a biclausal D-structure which is transformed into a monoclausal S-structure by an operation of VP raising, but this violates the Projection Principle (as was observed by Zubizarreta 1982). Kayne (1989) analyzes complex predicates as multiclausal at all levels of representation while Picallo (1990) suggests they are monoclausal at all levels (in particluar, at D- and S-structure).

monostratal theory is to be maintained you have to be prepared to live with the consequences of that decision.[3] In this paper I want to examine the options, and show how monostratal theories have to be changed if one adopts what seems to be the most appealing option: that despite the phrase structural embedding, complex predicates are monoclausal with respect to such features as grammatical functions and subcategorization. I will mainly be dealing with HPSG (Pollard and Sag 1987, forthcoming) and LFG (Kaplan and Bresnan 1982), and Section 5 assumes that the reader is familiar with the basic workings of these theories. I will not explicitly discuss Categorial Grammar, but the interested reader will see that various of the phenomena discussed are also problematic for categorial approaches, such as the Categorial Unification Grammar approach of Beaven (1990). First of all, however, let us step back and review the basics of the problem for which we wish to find an account.

[3]There are, of course, other arguments for adopting a monostratal theory of syntax. In this area, the most fertile pickings are to be found in the line of research begun by Perlmutter (1971). Perlmutter argued that the ordering of clitics in Spanish could not be generated as the output of a transformational component and that their distribution must therefore be explained by surface structure constraints. From there it is but a short jump to notice that, all else being equal, it would be far more economical to discard deep structure and a transformational component and predict all ordering from "surface structure constraints", that is from the grammar of a monostratal theory. While recent work under the banners of "The Mirror Principle" (Baker 1988) and "Functional Projections" (Pollock 1989) has suggested that morphology can be generated by syntax (more specifically, Move-α), Perlmutter's line of argument has recently been built on by Bonet i Alsina (1991) who makes two telling points. Firstly, it is just a fact that the ordering among clitics in a language (as phonological forms) is always the same regardless of whether these clitics are functioning in a single sentence as arguments, adjuncts, inherent clitics (clitics that routinely accompany a verb, forming a single predicate) or ethicals (first and second person dative clitics that express some sort of discourse function (emotional attachment) but which are not syntactically or semantically subcategorized or replaceable by a full NP adjunct; see Authier and Reed 1992). This would be unexpected from any approach in which the D-structure position of clitics was determined by something like the UTAH (Universal Theta Assignment Hypothesis) (Baker 1988) and where the surface structure position was then determined by constraints on movement (arguments should always appear on the same side of adjuncts, etc.). Secondly, Bonet looks at the huge variation in clitic ordering among various dialects and registers of Catalan. To show just a sample of Bonet's data, the ordering of a subset of the clitics in Valencian and Barceloní is contrasted below:

(i) a. Valencian: 1st person $<$ 2nd person $<$ reflexive/impersonal $<$ 3rd accusative

b. Barceloní: reflexive/impersonal $<$ 2nd person $<$ 1st person $<$ 3rd accusative

Bonet argues that these differences cannot possibly follow from the very minor syntactic differences between the dialects, and must be explained by what are essentially surface structure constraints (in a GB framework, Bonet suggests incorporating these constraints into a Morphology Component between S-structure and PF).

1 Introducing the problem

Complex predicates appear in numerous languages (to name but a few: Dutch and German (Koster 1987); Gbadi, a Kru language (Koopman 1984, p. 56); Urdu (and other Indian languages) (Butt et al. 1991); Czech, Jacaltec and Ancash Quechua (Aissen and Perlmutter 1983)), but in this paper I will confine my discussion to Romance, both because it is particularly well documented there and because various other syntactic phenomena in Romance happen to provide useful diagnostics as to what is actually going on, whereas in some other language families it can be much harder to tell. I will draw examples from various Romance languages – this runs the risk of my being regarded as cavalier, but the basic phenomenon of complex predicates does seem fairly general across Romance; while other syntactic features may mean that a point can best be illustrated with one language or another, in many cases it could equally well be exhibited in any Romance language. Space considerations and my theoretical goals discourage me from trying to give a complete description of the phenomenon in any one language, let alone contrasting all of them.

Complex predicates result when two or more verbs become more closely associated than they are in an ordinary construction in which one verb takes a verbal complement as a sister. There are numerous diagnostics that point to this closer relationship, but perhaps the most salient one in Romance has to do with clitic placement, and so I will illustrate it first.[4] With simplex verbs and normal complement taking verbs (analyzed as taking an XCOMP in LFG or a subcategorized VP[SUBCAT ⟨NP⟩] in HPSG) we observe the following clitic placement behavior:[5]

(1) a. **Sp** Luis comió las manzanas amarillas
Luis eat.3SG.PAST the apples yellow
'Luis ate the yellow apples.'

b. Luis **las** comió
Luis 3PL.FEM ate
'Luis ate them.'

c. Luis insistió en comer las manzanas amarillas
Luis insisted on eat.INF the apples yellow
'Luis insisted on eating the yellow apples.'

[4] At this stage, the use of the word 'clitic' is to be understood in the pretheoretical, traditional sense by which the words in question have customarily been referred to as 'object clitics'. Miller (1991) makes persuasive arguments that these items should actually be analyzed as phrasal affixes, an analysis to which I shall return.

[5] I will be using the standard orthographies for all Romance languages. In these orthographies, the proclitics are normally written as separate words while the enclitics are written joined to their hosts. I will sometimes set off enclitics with a hyphen for clarity. The two bold letters before the first sentence in each group of examples indicate the language: Spanish, French, Italian or Catalan. Except where noted, the Spanish data in Section 1 is from Aissen and Perlmutter (1983).

d. Luis insistió en comer-**las**
'Luis insisted on eating them.'

e. *Luis **las** insistió en comer

Full NP complements follow the verb they are an argument of, but clitics appear adjacent to the verb that they are an argument of (generally proclitic to a finite form and enclitic on an infinitive, though that is not the entire story). It is impossible for a clitic to 'float' up onto another verb, as shown in (1e). Note also that infinitives in Romance are often preceded by various things that are superficially prepositions, but which we might view as some sort of marker or complementizer, and which are selected for by the higher verb (**en** in (1c–e)). Our theory must thus allow such selection of infinitives that are marked a certain way.

The behavior of clitics with verbs forming a complex predicate differs from what was shown above. In these cases the clitic may appear on a higher verb than the one of which it is a semantic dependent, as shown in (2b).[6] This behavior could be made sense of in terms of the rule for clitic placement given above if we could optionally regard *try to eat* as some sort of finite complex verb, which a clitic would then appear in front of, in the usual manner.

(2) a. **Sp** Luis trató de comer-**las**
Luis try of eat.INF-them
'Luis tried to eat them.'

b. Luis **las** trató de comer

It is the higher verb(s) that license complex predicate formation. These verbs are nowadays often called light verbs, in contrast to which normal verbs are called heavy verbs. Romance complex predicates are conventionally subdivided according to the nature of this verb. One class contains causatives and permissives, sentences that have sometimes been described as undergoing a process called 'reanalysis'. The other class contains a variety of modal and aspectual verbs (including the basic motion verbs), such as **tratar** above, which have been described as undergoing 'restructuring' (Rizzi 1982 [1978]) and so verbs that allow formation of this kind of complex predicate are known as restructuring verbs. Except when dealing with French,[7] I will concentrate mainly on these restructuring verbs. Auxiliary verbs are not generally included in the class of

[6] The use of the word *may* is deliberate. In general, 'clitic climbing' is a sufficient test for complex predicate formation, but it is not a necessary result of complex predicate formation. There are scattered remarks on this topic throughout the Romance literature (Rizzi 1982, p. 44, footnote 26 is an early discussion); Moore (1990) offers a recent (though unorthodox) assessment.

[7] Modern French lacks restructuring verbs (though they were present until the 17th Century).

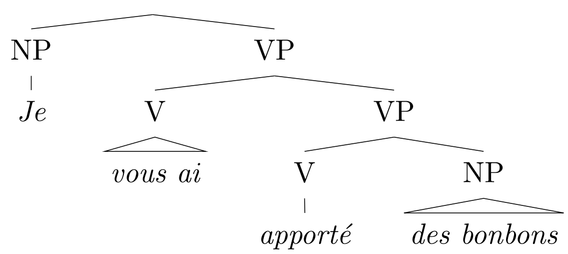
restructuring verbs (mainly because of the existence of the separate INFL node in GB under which they are placed, though it is far from clear that this is an adequate analysis, as many languages allow sequences of several auxiliaries), but if one adopts an auxiliary-as-raising-verb analysis (first suggested in Ross 1967, but later made famous in the GPSG tradition, and also adopted in LFG) then auxiliary verbs must also be regarded as restructuring verbs.

The category of restructuring verbs crosscuts various other groupings. It cannot be explained by the presence of the prepositional marker on the infinitive, as there are verbs selecting prepositionally marked infinitives that allow restructuring (**tratar de** 'try' and **empezar a** 'begin') and verbs which select bare infinitives that don't allow restructuring (**evitar** 'avoid' and **parecer** 'seem'). The distinction is also orthogonal to whether verbs are Raising or Equi verbs, as there are ones of each sort in each category (**soler** 'tend' vs. **parecer** 'seem' and **tratar (de)** 'try' vs. **insistir (en)** 'insist'). See Aissen and Perlmutter (1983) [1976] for further details on Spanish restructuring verbs.

The problem that the possibility of clitic climbing presents for a syntactic theory should be readily apparent. 'Classical' LFG (Kaplan and Bresnan 1982) provided no viable means of representing phenomena such as 'clitic climbing'. A standard analysis of auxiliaries as raising verbs taking VPs as XCOMP complements along the lines of Falk (1984) leaves us with no way to link up a raised clitic with the downstairs verb. The French sentence in (3a) would have a rightward-branching tree structure as in (3b) and produce an f-structure along the lines of (3c). We end up with an illegitimate f-structure and no apparent way to fix it: the $\mathrm{OBJ}_{\mathrm{go}}$ renders the upstairs f-structure incoherent, while the downstairs f-structure lacks an $\mathrm{OBJ}_{\mathrm{go}}$ and is incomplete.

(3) a. **Fr** Je vous ai apporté des bonbons
I you.DAT have brought candy
'I have brought you sweets.'

b.



c.
$$
\left[\begin{array}{ll}
\text{SUBJ} & \left[\begin{array}{ll}\text{PRED} & \text{“I”}\end{array}\right] \\
\text{OBJ}_{\text{go}} & \left[\begin{array}{ll}\text{PRED} & \text{“you”}\end{array}\right] \\
\text{PRED} & \text{‘perfect}\langle\text{XCOMP}\rangle\text{SUBJ’} \\
\text{XCOMP} & \left[\begin{array}{ll}
\text{SUBJ} & \text{—} \\
\text{PRED} & \text{‘bring}\langle\text{SUBJ, OBJ, OBJ}_{\text{go}}\rangle\text{’} \\
\text{OBJ} & \left[\begin{array}{ll}\text{PRED} & \text{“candy”}\end{array}\right]
\end{array}\right]
\end{array}\right]
$$

Grimshaw's (1982) analysis of French clitics almost entirely dodges the issue of clitics climbing onto auxiliaries and other clitic climbing (over **faire** and **laisser**). The one mention of auxiliaries is where the phrase structure rule (4), her (8), is proposed:

(4) $\text{V}' \quad \rightarrow \quad (\text{Cl})_1 \;\; (\text{Cl})_2 \;\; (\text{Cl})_3 \;\; (\text{Aux}) \;\; \text{V}$

but in a footnote, this is disowned, as not a serious proposal (footnote 1, p. 142):

> (8) is not intended as a serious proposal for the analysis of the French auxiliary. It has been convincingly argued (e.g., by Kayne 1975) that clitics and the verb they precede form a constituent, contrary to the prediction of (8).

In essence, the problem is that clitics are appearing with a verb that they are not semantically related to and standard LFG cannot link them with the sort of local dependencies that generally link grammatical functions.[8]

[8]The one approach that could be tried within 'Classical' LFG would be to suggest that auxiliaries and other restructuring verbs optionally subcategorize for athematic grammatical functions (GFs) which functionally control the same GF in the verbal complement and something analogous could be proposed in HPSG by putting clitics onto the SUBCAT list of the auxiliary. For (3), we would postulate an 'indirect object-to-indirect object' raising auxiliary verb as follows:

(i) ai 'have'
$$
\begin{array}{l}
(\uparrow\text{PRED}) = \text{‘perfect}\langle(\uparrow\text{XCOMP})\rangle(\uparrow\text{SUBJ}), (\uparrow\text{OBJ}_{goal})\text{’} \\
(\uparrow\text{SUBJ}) = (\uparrow\text{XCOMP SUBJ}) \\
(\uparrow\text{OBJ}_{goal}) = (\uparrow\text{XCOMP OBJ}_{goal})
\end{array}
$$

Two immediate problems that appear are that our theory of UG has been substantially weakened (because now we are postulating that languages can allow any GF to be athematic and any GF to be raised) and that the solution seems unparsimonious, requiring a lot of variants of each auxiliary: not only can direct and indirect object clitics climb but also locatives and partitives (French **y** and **en**) and most combinations of these classes. But presuming these objections could be ameliorated by some form of default rules, how satisfactory is this proposal? It would provide an immediate explanation of the Passive and *Tough* Movement facts that appear at the end of this section, but it would not explain some of the data discussed in Section 4: 'long object preposing', adverb scope and auxiliary selection in Italian. There would be no unified explanation of why these phenomena occur with the very same verbs that allow clitic climbing

Similar problems arise in the phrase structure grammar tradition (see the longer discussion in Miller 1991, p. 228ff). A SUBCAT list based theory of subcategorization and agreement (as developed in Pollard and Sag forthcoming) allows in a straightforward way for agreement with a subject or object, or even with a subcategorized oblique, such as a dative, as occurs in languages such as Basque (Saltarelli 1988), but it does not allow for clitics or agreement markers to appear on a verb higher than the one that is subcategorizing for the argument.[9] In this sense, clitic climbing in Romance restructuring appears to violate what Gazdar et al. (1985) call "Keenan's principle" – that agreement morphology may appear on an item A, indicating agreement of A with an item B, only if the semantic translation of A is a functor of which the translation of B is an argument.

This problem seems to lead naturally to an approach, born in the years of TG, that analyzes clitics as moving, by the normal mechanisms of long-distance movement from the VP in which they are an argument or agreement marker to a higher verb. At first this appeal to movement seems quite plausible. For example, it is not the case that clitics can move up over only one verb. Providing that all the higher verbs are restructuring verbs, clitics can move a long way. Rizzi (1982) gives example (5b) and an informant readily accepted a Spanish example of similar length (6b):

(5) a. **It** Maria avrebbe potuto stare per andare a prender-**li** lei stessa
'Maria would have been able to be on the point of going to get them herself.'

b. Maria **li** avrebbe potuti stare per andare a prendere lei stessa

(6) a. **Sp** quiero tratar de terminar de mostrar**-te-lo** mañana
'I want to try to finish showing them to you tomorrow.'

b. **te lo** quiero tratar de terminar de mostrar mañana

or of how these phenomena interact. As the downstairs verb is unchanged, it should behave the same, but the 'long object preposing' facts show that this is not the case. Finally, we would seem to have no natural explanation for the alternation in causative constructions between accusative and dative expression of the causee depending on whether the complement verb subcategorizes for a direct object.

[9]I vacillate here between whether to talk about subcategorization or agreement, but the point is valid for either. This reflects both differences in analysis and variation in the languages concerned. Regarding the former, the mainstream GB tradition, following Kayne (1975), has always regarded clitics as satisfying verbal subcategorization (by being generated in argument positions and then moved) whereas Miller (1991) regards clitics as agreement morphology (which is also essentially the role they play in the GB proposals of Jaeggli 1982 and Borer 1984). The variation between languages is that Spanish (unlike French) has clitic-doubling of at least dative arguments (both a dative NP and an agreeing clitic appear simultaneously – see example (7c)). These clitics, at least, seem as though they must be analyzed as agreement markers, regardless of whether they are viewed as inflectional morphology or not.

Thus one might suggest that clitics should be handled in a similar way to other constituents that can move an unbounded distance from the predicates of which they are semantically arguments (such as question words). The details would then depend on the actual theory: a movement transformation in GB, traces and SLASH inheritance in HPSG, the Foot Feature Principle in GPSG or perhaps functional uncertainty in LFG.

However, there is a lot of other evidence that what happens in restructuring should result in something that behaves as a unit for certain syntactic processes so that this sort of clitic climbing is really still a local dependency, not a long distance one. Certain processes that are widely regarded as applying to a lexical item (which we wish to maintain as local processes), can happen to an entire complex predicate. Perhaps the canonical example is the passive (cf. the analysis of Passive as a lexical rule in Bresnan 1982b and Gazdar et al. 1985, or Pollard and Sag 1987, forthcoming). While this is not possible with all restructuring verbs (see Aissen and Perlmutter 1983), certain Spanish restructuring verbs permit the formation of 'long passives' while such a process is impossible with ordinary verbal-complement-taking verbs, as it is in English:

(7) a. **Sp** Los obreros están terminando de pintar estas paredes
'The workers are finishing painting these walls.'

b. Estas paredes están siendo terminadas de pintar (por los obreros)
'These walls are being finished to paint (by the workers).'

c. **Les** pintan las paredes a los dueños
3PL.DAT paint.3PL.PRES the walls for the landlords
'They paint the walls for the landlords.'

d. Estas paredes **les** están siendo terminadas de pintar a los dueños
'These walls are being finished to paint for the landlords.'

e. *Estas paredes están siendo terminadas de pintar-**les** a los dueños

The (complex predicate) sentence (7a) can be passivized as shown in (7b). (7d) gives further confirmation of what is going on. As shown in (7c) an indirect object is doubled by a matching clitic appearing on the verb. In the passive of (7d), the doubling clitic (necessarily) climbs so as to appear before the passive auxiliary, again indicating how all the verbs in this sentence appear to be acting (in some sense) like one large verb.

The case of *Tough* Movement is similar. In contrast to English, *tough* movement in Romance is normally strictly clause bounded and an example like (8) is impossible:

(8) **Sp** *Tales cosas son difíciles de insistir en hacer
'Such things are difficult to insist on doing.'

But, in the case of a restructuring verb, a pair of verbs again seems to act like a single complex verb, and 'long distance' tough movement becomes possible:

(9) **Sp** Estos mapas serán difíciles de empezar a hacer
'These maps will be difficult to begin to make.'

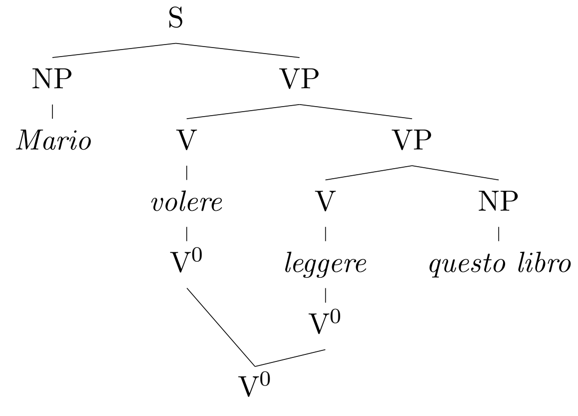
These contrasts between appearing monoclausal and multiclausal are the essence of the dilemma as to how to treat complex predicates.

2 Analysis as a verbal compound is impossible

One might initially think that the verbs in a complex predicate form some sort of verbal compound. A slightly more sophisticated version of this is a coanalysis account where a sentence has separate syntactic and morphological structures. Such an account is presented in Di Sciullo and Williams (1987) (following on from proposals of Williams 1979 and Zubizarreta 1985). Di Sciullo and Williams suggest the following structure for restructuring sentences (where the syntactic structure is shown above the words and the relevant part of the morphosyntactic structure is shown below the words):

(10) a. **It** Mario vuole leggere questo libro
'Mario wants to read this book.'

b.



However, this position seems untenable. The evidence that Rizzi (1982, p. 33ff) presented against base generation of a compound verb is weakened in the face of the proposal in (10b) to the extent that coanalysis lets you have the best of both worlds, but the fact that various kinds of adverbials can appear between a restructuring verb and its complement (Rizzi 1982, p. 38) still seems problematic:

(11) **It** lo verro subito a scrivere
it I-will-come at once to write
'I will come at once to write it.'

Earlier Kayne (1975, p. 217ff) had presented similar evidence from French that the causative verb **faire** and the verb of its complement do not form a constituent because they can also be split up by negatives and adverbial phrases:

(12) a. **Fr** Il ne fera pas partir Jean
'He will not make Jean leave.'

b. Ils la feront sans aucun doute pleurer
they her will.make without any doubt cry
'They will no doubt make her cry.'

c. Elles feront toutes les trois soigneusement contrôler
they make.FUT all the three carefully check
leurs voitures
their cars
'They will all three have their cars checked carefully.'

Consider also how prepositional markers in Italian and Spanish and the reflexive clitic **se** in French can occur within this compound verb and how a putative 'compound verb' can be split up in questions (and in imperatives):

(13) a. **Fr** Fera-t-il partir Marie?
will.make-he to.leave Marie
'Will he make Marie leave?'

b. Vous a-t-elle déja été présentée?
'Has she already been introduced to you?'

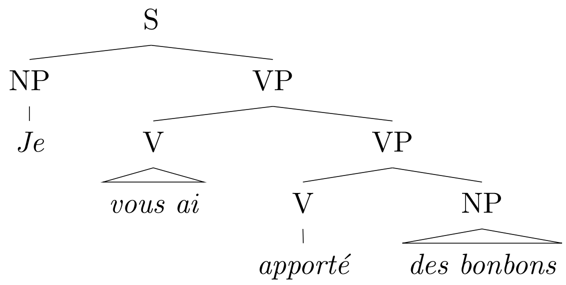
A compound verb analysis seems to be dead in the water. Di Sciullo and Williams (1987) attempt to deal with the adverb facts by suggesting that adverbs compound with a verb which then compounds with another verb (citing independent evidence of adverb-verb compounds), but it seems implausible that all the phenomena mentioned above duplicate syntax in the morphology in this way, and, indeed, such an analysis is abandoned in Di Sciullo and Rosen (1990) (see also Di Sciullo and Williams 1987, footnote 6, p. 101).

However, there are some restrictions on what can appear between the verbal elements involved in restructuring or reanalysis in Romance; in particular no NP argument (what Di Sciullo and Rosen 1990 refer to as "referential items") can appear between them. While the account of Di Sciullo and Rosen both exploits and attempts to explain this fact, it is unclear whether this fact should be deeply engrained in our theory of UG, as this does not seem to be the case universally. Butt et al. (1991) argue that intervening NP arguments can break up a complex predicate in Urdu and Aissen and Perlmutter (1983) concluded their article with similar evidence using data from Ancash Quechua and Czech. But, at any rate, we clearly do not have a compound verb, and, in fact, we shall argue below that there seems to be a much closer relationship between clitics and a finite verb than between two verbs that are engaged in 'restructuring'.

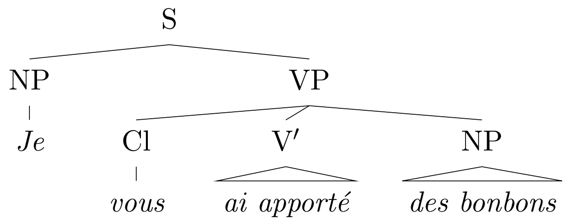
3 The introduction of a verbal complex is not a viable option

In the first section we assumed that sentences with restructuring had a rightward-branching structure. But even if it is not possible to say that the several verbs of a complex predicate are morphologically a single word, another possible option is to suggest that the verbs still form some sort of syntactic verbal complex. In other words, the suggestion would be that the phrase structure is more like (14b) than (14a).

(14) a.



b.



For the internal structure of the verbal complex itself, there are then three consistent possibilities to be entertained: it could be leftward-branching, flat or rightward-branching. The two branching structures have been proposed by Emonds (1978) and Bratt (1990) respectively, and something like a flat option was proposed in Aissen (1979), though she actually advocated a totally flat structure in which all the elements of the VP (verbs, clitics and subcategorized complements) were sisters.

The phrase structure shown in (14a) is the one now almost universally assumed by Romance linguists (among others see: Morin 1979, Burzio 1986, Zagona 1988, Picallo 1990), but one could argue that this is in part due simply to recent developments in GB X-bar theory that have made anything other than rightward-branching binary trees unfit for publication (despite the meager evidence that this position is true in general).

However, in this case there seems to be good evidence for this phrase structure. Evidence for (14a) is of two sorts: that clitics and the first verbal element appear to be a constituent and that the lower VP shown in (14a) appears to be a constituent. Evidence for both these positions will be presented below. Neither of these results is consistent with any of the options subsumed by the tree in (14b), regardless of the verbal complex's internal structure (nor with a totally flat structure of the sort proposed by Aissen (1979) or Grimshaw (1982)). Hence, I adopt structure (14a) as correct.

3.1 Arguments for the clitics and first verb being a constituent

Beginning at least with Kayne (1975, p. 81) it has been argued against a verbal complex hypothesis that "rather the pronoun and verb are more closely bound together." Indeed Miller (1991) argues that the so-called French clitics are not really clitics at all, but rather inflectional morphology on verb forms. Kayne (1975) cited evidence such as the following:

1. Nothing is allowed between a clitic and the verb (except other clitics).
2. Clitics can't be modified or contrastively stressed.
3. Clitics can't appear without a verb.
4. Clitics can't be conjoined (**Jean le et la voit.*).
5. The ordering of clitics differs from normal complement ordering (and depends on morphological features like the person of the clitic).
6. There are limitations and arbitrary restrictions on the types of clitic complements that can occur simultaneously (one can have 3rd person direct and indirect object clitics simultaneously but not 1st and/or 2nd person ones).

If one believes a subject clitic is in [Spec, IP], and derives subject-verb inversion via verb movement, another piece of evidence is that the non-subject clitics then appear to move with the verb:

(15) **Fr** $[_{\mathrm{V}^0}$Me le donneras$]_i$-tu t_i?
'Will you give it to me?'

However, admittedly, this last is only evidence if you buy the assumptions that it depends on.[10]

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[10]Two reasons to be suspicious of this argument are that in French, unlike English, 'inversion' occurs only with clitic subjects and not with full NP subjects:

(i) a.	A-t-il parlé?	b.	Has he spoken?
c.	*A Jean parlé?	d.	Has John spoken?

Miller (1991) builds a case on the basis of the criteria of Zwicky and Pullum (1983, henceforth Z&P) that French clitics are actually morphological affixes. While I think I will remain somewhat agnostic on this distinction, Miller provides further evidence for the close relationship between French 'clitics' and the first verbal element. He shows that the 'clitics' cannot just be analyzed as VP-initial elements, as negatives and adverbs can appear at the front of the VP, but clitics still appear with the verb:

(16) a. **Fr** Il faut [$_{\mathrm{VP}}$ ne rien lui donner]
'It is necessary to give him nothing.'

b. Il semble [$_{\mathrm{VP}}$ tout lui donner]
'He seems to give him everything.'

Further an analysis claiming VP-initial clitic placement could not possibly be maintained in other Romance languages where clitics appear enclitic on an infinitive, as in the following example (where concomitant with restructuring, the clitic **lo** has climbed but appears enclitic on the higher verb along with the verb's own clitic **te**):

(17) **Sp** Quiero permitír-**te-lo** hacer
want.1SG permit.INF-you-it do.INF
'I want to allow you to do it.'

This indicates selection of a host (Z&P Criterion A). There are arbitrary gaps in the set of combinations (Z&P Criterion B). The most famous is what is sometimes known as the **me lui* constraint which prohibits the appearance of a first or second person clitic serving as direct object when there is a third person indirect object clitic:

(18) **Fr** *Il me lui a présenté
'He presented me to him.'

but see Miller (1991, pp. 175–176) for others (impossibility of clitics on past positive imperatives, non-appearance of *je* in inverted contexts).

There are a few phonological idiosyncrasies that are stem-specific (Z&P criterion C), such as *Je sais* → *chais* [ʃe], and a number of others that are not stem-specific, but still not purely phonological, such as elision of *tu* in colloquial speech (*T'as pas cent balles?* 'Don't you have 100

---

and that in cases of 'complex inversion' one can get both a subject NP and the subject clitic:

(ii) Quel livre Jean a-t-il lu?
Which book Jean has he read?

However, if one accepts the GB analysis of Rizzi and Roberts (1989), this remains a valid argument: **il** is generated in [Spec, IP] while a full NP subject starts VP-internally; the leftmost verb, together with its non-subject clitics moves leftward into C^0 and **il** then cliticizes onto it. See Rizzi and Roberts (1989) for further discussion of these issues.

francs?') (Miller 1991, pp. 176–178). Finally Miller argues that conjunction facts provide strong evidence for affixal status, but we will defer this evidence to the next section.

Thus Miller argues that French pronominal clitics should be treated as affixes. In a lexicalist theory, it thus necessarily follows that these 'clitics' and their host are a unitary constituent. At the very least we already have strong evidence against a verbal complex analysis.

3.2 Nested VPs are a constituent

The best evidence for the lower nested VPs being constituents comes from examining conjunction (the facts that we consider in this section come from Kayne 1975, p. 97, though he was unable to provide a satisfactory interpretation for them within his model which involved gapping following sentential conjunction (see Miller 1991)). With simplex verb forms, a clitic cannot have wide scope over two conjuncts. The clitic must be repeated as shown in the examples below:[11]

(19) a. **Fr** Paul **la** déteste et **la** considère comme fort bête
'Paul hates her and considers her very stupid.'

b. *Paul **la** déteste et considère comme fort bête

c. Paul **te** bousculera et **te** poussera contre Marie
'Paul will bump into you and push you against Marie.'

d. *Paul **te** bousculera et poussera contre Marie

Miller observes that this is strong evidence for these 'clitics' being affixes rather than clitics, as clitics usually can take wide scope in this way

[11] There is a slight wrinkle in this data. An object clitic having wide scope over a conjunction of simplex verb forms is possible when two verbs are semantically very closely related (Kayne 1975, p. 97). For example, the following sentence is possible:

(i) **Fr** Paul les lit et relit sans cesse
'Paul has read and reread them without cease.'

Note that this is only possible with V^0 coordination, so that the related sentence (ii) is unacceptable.

(ii) **Fr** *Paul les lit très vite et relit soigneusement par la suite
'Paul reads them very quickly and rereads them carefully afterwards.'

Further, the important thing to remember is that this is not generally possible, so Kayne stars the following:

(iii) **Fr** *Jean vous parlera et pardonnera
'Jean will speak to you and forgive you.'

In the cases where this can happen we clearly have two conjoined verbs acting cognitively as a single unit, and they could plausibly be argued to be a lexicalized compound. Miller (1991, p. 159) reaches similar conclusions about these exceptional cases and quotes Blanche-Benvéniste (1975) who gives the following characterization of these cases: "la seule exception concerne les couples de verbes sémantiquement apparentés et d'usage fréquent."

(contrast English *John and Mary'll eat together tonight*). At any rate further examination of this phenomenon gives us compelling evidence for embedded rightward-branching VPs. For we observe that in compound tenses, just this sort of wide scope becomes possible:[12]

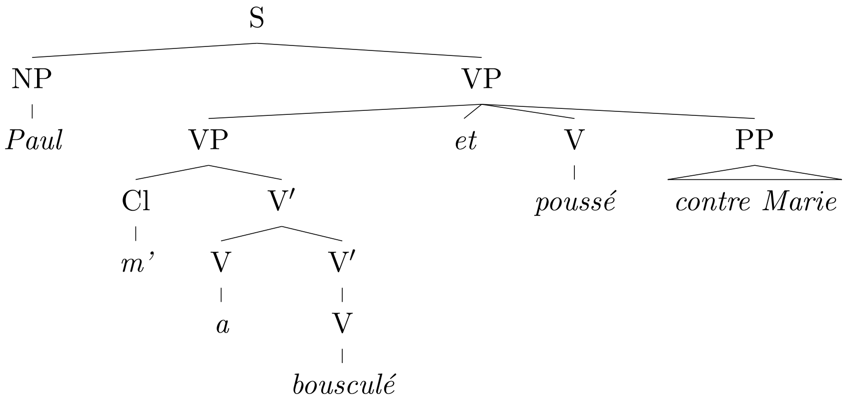
(20) a. **Fr** Paul **m**'a bousculé et poussé contre Marie
'Paul bumped into me and pushed me against Marie.'

b. Paul **l**'a insulté et mis à la porte
'Paul insulted him and threw him out.'

c. La bonne femme **les** a cuits au four et fait manger à son fils
'The woman cooked them in the oven and had her son eat them.'

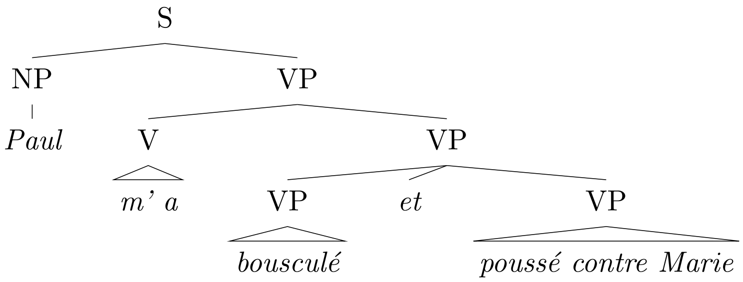
Here the clitic is and must be interpreted as also being an argument of the second verb (which subcategorizes for a direct object). This contrast between simple and compound verb tenses makes very little sense if we believe that there is a verbal complex. Under that assumption we have to suppose a gapped structure for conjunctions something like this:

(21)



However, we can make perfect sense of these examples if we use the rightward-branching structure shown in (22).

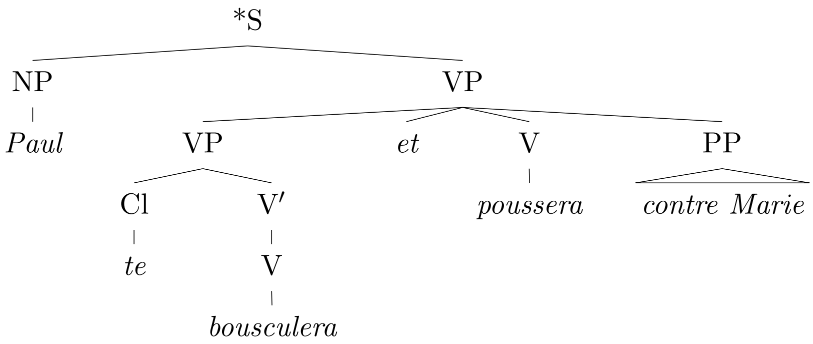
(22)



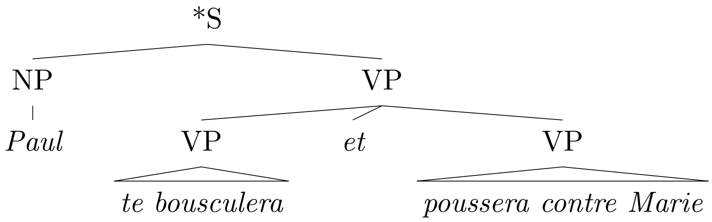
[12]Of course, possible does not mean necessary; repeating the clitics and auxiliaries is also perfectly good: *Paul m'a bousculé et m'a poussé contre Marie*. Such a sentence would be analyzed as (maximal) VP conjunction in a way exactly parallel to the examples in (19a,c).

The reasoning behind this conclusion is as follows. Under the verbal complex analysis, a corresponding structure for the coordination of verbs in simple tenses would presumably be as in (23a). These sentences are ungrammatical (19b,d) but there seems to be no sensible way to make structure (23a) ungrammatical while continuing to admit structure (21). Any form of gapping or interpretation scheme that would allow a structure such as (21) would surely also admit the simpler structure shown in (23a) but this is the wrong result. However, the ungrammaticality of (19b,d) follows in a simple way if we assume a rightward-branching phrase structure: in (22) the object clitic is higher up and necessarily has scope over all conjuncts, whereas with a simple tense form, we have a phrase structure as in (23b). Now, the clitic is inside one of the conjuncts and so we expect this sentence to be bad because the subcategorization requirements of the verb in the righthand conjunct have been violated.

(23) a.



b.



Bratt (1990, p. 41) tries to contest this test for constituency, suggesting that we could be dealing with non-constituent coordination (presumably roughly as in (21)), citing degraded acceptability when there are non-parallel conjuncts, but the data do not seem to square with cases of non-constituent coordination. In a paradigm case of non-constituent coordination, various ‘components’ can be repeated in the second conjunct and the rest appear to be semantically reconstructed, as shown in (24).

(24) a. Paul gave the cassettes to Marie on Wednesday and the CDs on Thursday.

b. Paul gave the cassettes to Marie on Wednesday and to Kim on Thursday

c. Paul gave the cassettes to Marie on Wednesday and the CDs to Kim on Thursday.

We would thus predict that it should be possible to introduce a different direct object into the second conjunct. But this is not the case: it is necessary to gap arguments that are realized as clitics on the verbal auxiliary in all conjuncts:

(25) a. **Fr** *Paul l'a frappé et mis sa soeur à la porte
'Paul struck him and threw his sister out.'

b. *Je lui ai parlé et écrit à sa femme
'I spoke to him and wrote to his wife.'

Again this makes perfect sense if one adopts the rightward-branching structure shown in (22). The clitic on the auxiliary must distribute over both conjuncts; it cannot play a role in just one. Moreover, note that this is not an allowed type of nonconstituent coordination in English. Compare this example and its English translation:

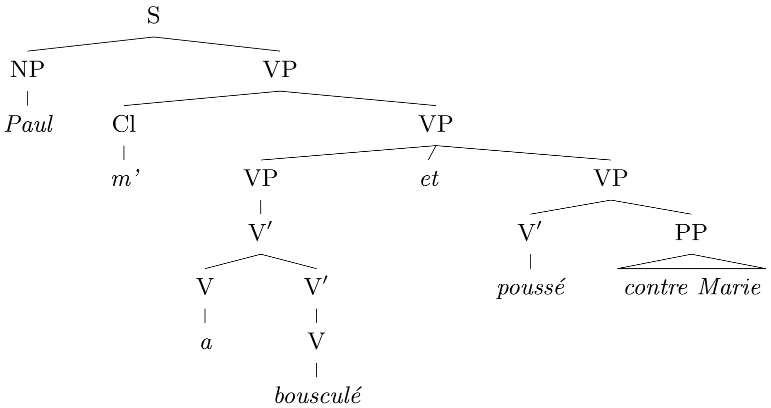
(26) **Fr** Paul m'a bousculé et poussé contre Marie
'Paul bumped into me and pushed me against Marie.'

Note how in the English translation, *me* must be repeated in each conjunct. If the second *me* is omitted, the meaning of the sentence is completely changed: it cannot retain the same meaning via semantic reconstruction.[13]

This section has concentrated on auxiliary verbs in French, but note that similar conjunction facts hold for causatives and for restructuring verbs (in other Romance languages). For example, embedded VPs can be conjoined after **faire** in French (27a) and after restructuring verbs in Spanish (27b–c).

[13] Finally, it could be suggested that the verbal complex analysis could be maintained and these conjunction facts correctly predicted, by raising clitics above the conjunction and suggesting the structure shown in (i):

(i)



However, this proposal (i) produces strange non-parallel conjuncts (since the verbal auxiliary **avoir** appears in only the first conjunct), (ii) doesn't account for the close relationship between clitics and the first verbal element and (iii) still requires abandoning the SUBCAT Principle (see Section 5.1).

(27) a. **Fr** Marie le fera lire à Jean et déchirer par Paul
'Marie will make Jean read it and Paul tear it up.'

b. **Sp** Carlos me siguió topando y empujando contra María
'Carlos kept on bumping into me and pushing me against María.'

c. Carlos me estaba tratando de topar y de empujar contra María
'Carlos was trying to bump into me and push me against María.'

Note, here, that prepositional markers (e.g., **de**) are repeated on each conjoined infinitive. Under Miller's analysis, this would be indicative of these markers also being inflectional affixes.[14] Thus, from the above, it seems that a rightward-branching phrase structure is correct in general for all Romance complex predicates. We saw in the last section that this phrase structure is problematic for LFG and HPSG analyses of complex predicates under the assumption that the dependency between clitics and the verb they are an argument of is a local one. In the next section, I will present arguments that this assumption is correct.

4 Evidence for monoclausality

We have seen the problems that complex predicates cause for monostratal theories of grammar, and we have seen that a proposed analysis using a verbal complex is implausible. We have also already seen that one way to move would be to assume that complex predicates are really multi-clausal, and that things such as clitic climbing would then be explained as long distance dependencies. This is the approach adopted in Miller (1991). Miller handles French non-subject clitics via a foot feature and does agreement using the Foot Feature Principle – the unbounded dependency construction of GPSG. Thus object clitics become a sort of long distance agreement morphology.

However, it is here that we must part company with Miller because there are a whole range of interrelated 'transparency' effects that occur with light verbs which indicate that this approach is wrong. The evidence I will consider draws a contrast between simplex clauses and ones with complex predicates in them on the one hand, versus sentences with embedded complements on the other hand. This distinction cannot be suitably captured if we regard a complex predicate as just like any other

[14] There are of course other conjunction facts to be considered, although it seems that the class discussed here bear most directly on the phrase structure of Romance complex predicates and other cases could reasonably be assimilated into the descriptive classes of Right Node Raising and non-constituent coordination. However, I freely admit that coordination is a difficult subject on which the last word has yet to be written.

case of an embedded clause except for the fact that there has been long distance movement through it. So in this section I will argue that despite the articulated rightward-branching phrase structure that was argued for in the previous section, in a certain sense an entire complex predicate is monoclausal not multiclausal, and hence clitics do not engage in long distance movement.

4.1 Passive revisited

For example, consider again the 'long passives' seen earlier:

(28) a. **Sp** Los obreros están terminando de pintar estas paredes.
'The workers are finishing painting these walls.'

b. Estas paredes están siendo terminadas de pintar (por los obreros).
'These walls are being finished to paint (by the workers).'

An example like (28b) cannot possibly be explained as a lexical rule passivizing just one verb. Passive should not be able to apply to *finish* when it is taking a verbal/sentential complement. One can passivize *paint* but embedding this under *finish* is marginal in English (*??The walls finished being painted by the workers*) and at any rate this is not what is happening here. The whole complex predicate is being passivized (as evidenced by the passive auxiliary appearing before **terminar**). In these cases we wish to say that there is some bounded domain in which passivization can apply; normally that domain is the projection of a single verb, but with these complex predicate constructions, that domain is larger: passivization can apply over an entire complex predicate. The *tough*-movement data in Section 1 are further evidence for this position. It does not seem that the use of long distance dependencies in the analysis would be very insightful in explaining either of these phenomena.

4.2 Long Object Preposing

Similar results can be seen by looking at the phenomenon of Object Preposing that occurs in conjunction with the impersonal **si** construction in Italian (Rizzi 1982).[15] In fact, unlike 'long' passives which are rather restricted (Aissen and Perlmutter 1983, p. 392), this phenomenon is more generally applicable to all cases of restructuring.

One use of the 'reflexive' clitic **si** in Italian is as an impersonal subject marker:

(29) a. **It** Non vi si dorme volontieri
Not there **si** sleeps willingly
'One doesn't sleep willingly there.'

[15]This construction is also known as the Reflexive Passive. Almost identical facts obtain with **se** in Spanish. See Aissen and Perlmutter (1983, pp. 369–372).

b. Si mangiano aragoste in primavera
si eat.PL lobsters in spring
'One eats lobsters in the spring.'

One might think that these sentences involve **si** filling the subject slot and giving it the semantic content of a PRO_{arb} (unspecified 'impersonal' referent), but in cases like those in (30) where this construction is associated with Object Preposing (OP), such an analysis could not possibly be maintained in either HPSG or LFG (or indeed even in 'Classical' GB: the analysis of Burzio (1986, p. 48) violates the projection principle/theta criterion by suggesting that both **si** and the preposed object spend some time in the subject position).

(30) a. **It** si costruisce troppe case in questa città.
si builds.SG too many houses in this city

b. troppe case si costruiscono in questa città
too many houses **si** builds.PL in this city

In (30b), the 'logical object' appears before the verb, and verbal agreement (and the ability to undergo Raising and *pro*-drop: see Burzio 1986, p. 46) suggests that it is occupying the subject position.[16] If this is the case, then we would expect OP to be clause-bound: the principles of most current linguistic theories would prohibit the 'logical object' NP from moving through or occupying a subject position that is getting a thematic role from somewhere. (31b) shows that this is the case.

(31) a. **It** Si propende sempre a pagare le tasse il più tardi
si is inclined always to pay taxes as late as
possibile.
possible

b. *Le tasse si propendono sempre a pagare il più tardi
possibile.

If the fronted NP is occupying the subject position, it follows that the **si** in (30b) can't be a mere marker of an impersonal subject (like **man** in German) but must indicate suppression of the highest theta role (along the general lines of the passive, but always semantically binding it as a PRO_{arb} rather than allowing realization via an adjunct).

Restructuring verbs, however, diverge markedly from this expected pattern (Rizzi 1982, p. 16), appearing to allow 'long' OP into subject position:

[16]Note that the form in (30a) is somewhat of an idealization of the data, as for many Italians this sentence is fairly bad with a singular verb form (see Burzio 1986, footnote 31, p. 76). I accept Burzio's analysis that the related sentences where there is agreement with the 'logical object' but where this NP appears at the end of the sentence follow from the general possibility of Subject Postposing in Italian.

(32) a. **It** Queste case si vogliono vendere a caro prezzo.
these houses **si** wants to sell at a high price
They want to sell these houses at a high price.

b. I problemi principali si continuano a dimenticare
the problems main **si** continues to forget
People continue to forget the main problems.

Rizzi furthermore goes on to show that these apparently anomalous 'long-distance' OP constructions appear in correlation with the usual properties of 'restructuring' constructions, such as the inability to pied-pipe the lower VP in cases of *Wh*-movement. Apparent long-distance OP can require clitic-climbing, in the presence of appropriate clitics:

(33) a. **It** Si vuole vender-gli queste case a caro prezzo.
si wants sell-him these houses at a high price

b. Gli si vuole vendere queste case a caro prezzo.

c. *Queste case si vogliono vendergli a caro prezzo.

d. Queste case gli si vogliono vendere a caro prezzo.

This provides quite strong evidence that the possibility of OP is a consequence of whatever is going on in 'restructuring' constructions that permits clitic climbing. It seems that we should thus seek a unified structural explanation for all of these phenomena.

The OP phenomenon is seemingly unexplainable in a theory where restructuring constructions are structurally akin to ordinary complement constructions as whatever prevents a 'logical object' moving out of a complement VP should still apply. Within a version of GB that obeys the Projection Principle, it is hard to reconcile with either use of a restructuring transformation, or with the idea of coanalysis.[17] In the present context, this phenomenon again shows the complex predicate acting as a single unit, the logical subject (highest theta role) of which is being suppressed. There seems to be no adequate way to capture this as an operation affecting just a single verb accompanied by a long distance movement. If the impersonal subject clitic **si** affected the lexical entry of only the verb it was attached to, there would be no way to explain the contrast between examples (32) and (31b). Again, argument structure changing operations that normally apply to a single verb all seem to apply to a complete complex predicate.[18]

[17]In coanalysis, both analyses should be good independently and hence combine together monotonically. For example, Di Sciullo and Williams (1987, p. 89) write "both analyses of a coanalysis structure must be able to exist independently and meet whatever conditions analyses must meet in the language" (see also the discussion of similar proposals of 'covalency' in Koster 1987, pp. 276ff). But under normal assumptions, the rightward-branching structure (corresponding to the upper tree in (10b)) should be disallowed in cases of 'long' OP for the same reason that (31b) is disallowed.

[18]Raposo and Uriagereka (1990) dispute the very foundations of this section suggest-

4.3 Adverb scope

Pollard and Sag (1987) suggested that adjuncts must appear within the maximal projection of the lexical head which they modify, not embedded in any other maximal projection (except that relative clauses can be structural sisters of the NPs they modify). Further thought has suggested that this requirement is too severe, and that adjuncts can engage in long distance dependencies. Examples like (34) have been known for a long time, but attributed to the special properties of 'bridge' verbs like *think* and *believe* (they also appear in parenthetical tags, etc.).

(34) a. How long ago do you believe that John left?

b. When do you think your husband is going to leave you?

However, one can also find examples of long distance adjunct extraction without using a bridge verb. I suggested (35a) and Pollard and Sag (forthcoming) include the perhaps more natural sounding (35b):

(35) a. During my term as president of this university, I categorically deny that there were any improper appropriations of federal funds.

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ing that the preposed 'logical object' is actually a topic rather than a subject. Their argument runs roughly as follows: Burzio (1986, p. 52) notes that in Italian preposed objects are incompatible with Control and gives a Case Theoretic argument as to why this is so, but preposed objects are also incompatible with control in European Portugese and Burzio's Case Theoretic argument breaks down there because Portugese has inflected infinitives from which nominative Case is available. Thus they suggest that preposed objects are really in a topic position. Somewhat independently they suggest that the violation of the Theta Criterion in Burzio's analysis (both **si** and the preposed object occupy the subject position at different stages of the derivation) can be avoided by the introduction of additional functional heads (Pollock 1989) as then one of these elements can be in [Spec, TP] and the other in [Spec, AgrP]. However, there remain certain unanswered questions regarding their analysis. Burzio (1986, p. 46) mentions three subject properties of the preposed object: (i) it triggers agreement, (ii) it can be raised, (iii) it can be *pro*-dropped. Raposo and Uriagereka (1990) show how the first one can be modeled in their proposal, but it would seem that the second would be highly problematic: Raising should presumably apply to the Spec of the highest functional projection below Comp (occupied by an empty element in a chain with **se** in Raposo and Uriagereka's analysis) and not to an adjoined topic. Further, analysis as a topic would not explain the contrast in acceptability between examples (31b) and (32). However, on the other side, Alessandro Zucchi suggested to me that he thought the sentences in (32) did involve topicalized NPs and that he perceived little difference in acceptability between examples like (31b) and those in (32). This contrast with the judgements of Rizzi and Burzio suggests that there might be dialectal variation. Thus, these data clearly deserve further attention, but for the moment, despite the fact that Burzio's account does not completely transfer to Portugese (for essentially the same reason that all GB Case Theoretic arguments break down in Portugese), I will accept Rizzi and Burzio's data and analysis wherein the preposed 'logical object' is a surface subject.

b. With no tools but a crowbar and a ballpeen hammer, I'm not very confident that Butch is going to be able to fix that disk drive.

These examples show that adjuncts need to be incorporated into a adequate theory of fronting and topicalization, but it is certainly not the case that adjunct placement is free. In particular, I wish to maintain the principle that an adjunct cannot modify a higher clause than the one that it is embedded in:

(36) a. ?I'm confident that we will be highly able to solve this problem.
$\neq$ 'I'm highly confident that we will be able to solve this problem.'

b. I made him climb down without hesitating into the pit of vipers.
$\neq$ 'Without hesitating I made him climb down into the pit of vipers.'

It is thus initially surprising with Romance causative and restructuring verbs that such modification of the 'main' verb from 'downstairs' is possible. The following examples are from Catalan (Alsina 1991 and p.c.):

(37) a. **Ca** He fet beure el vi a contracor a la Maria.
I have made drink the wine against x's will to the Mary
'I have made Mary drink the wine against her/my will.'

b. Volia tastar amb molt d'interès la cuina tailandesa
I wanted to taste with much interest the cuisine Thai
'I wanted to taste Thai food with much interest'
(with *with much interest* most naturally modifying *want*)

Since there is no phrase-structural reason not to regard the embedded complement as a VP, it thus seems that the phrase-structural notion of 'maximal projection' is not the right way to capture adverb scope. Rather, if we regard complex predicates as syntactically monoclausal, that is, monoclausal at f-structure within LFG, the notion of 'scoping within a level of f-structure' seems the right notion. For simple predicates this definition and the previous definition coincides, but this new definition correctly groups simple clauses and complex predicate clauses together against multiclausal sentences. The prediction is that an adverb appearing inside a complex predicate will be able to modify any semantically appropriate verb (or more accurately, relation) within the complex predicate, and this seems to be correct.[19]

[19] Alex Alsina (p.c.) supplied me with some further Catalan judgements that support this position. It is a well-known fact that 'restructuring' cannot occur when the embedded clause is negated. Thus while we can form a complex predicate that allows clitic climbing in the usual way as in (i):

4.4 Word order in causatives

Work within the GB tradition has generally assumed that in causatives, the causee argument (lower 'subject') is attached higher than the remaining arguments of the embedded verb, in a specifier position. Depending on the particular approach, this may be deemed the Spec of any of VP, IP, CP or perhaps one of the newer functional projections, but at any rate, there is an asymmetry between the causee argument and the remaining arguments of the embedded verb of the general form shown in (38). The claim is that surrounding the lower verb there is a full clausal structure.

(38) a. **Fr** Pierre fait écouter Jean à Marie
'Pierre makes Marie listen to Jean.'

(i) **Ca** L'he volgut entendre.
'I have wanted to understand it.'

if the embedded verb is negated, it must be in a normal verbal complement and hence clitic climbing is impossible as is shown in (ii):

(ii) **Ca** *L'he volgut no entendre.
'I have wanted to not understand it.'

We thus predict that an adverb embedded in the complement clause should be able to take wide scope (scope over the higher verb) in (i) but not in (ii), and that indeed seems to be the case, as is shown by using the adverbial phrase *moltes vegades* 'many times' which is here only semantically compatible with modifying **volgut** 'wanted':

(iii) **Ca** He volgut entendre moltes vegades aquest problema.
'I have wanted to understand this problem many times.'

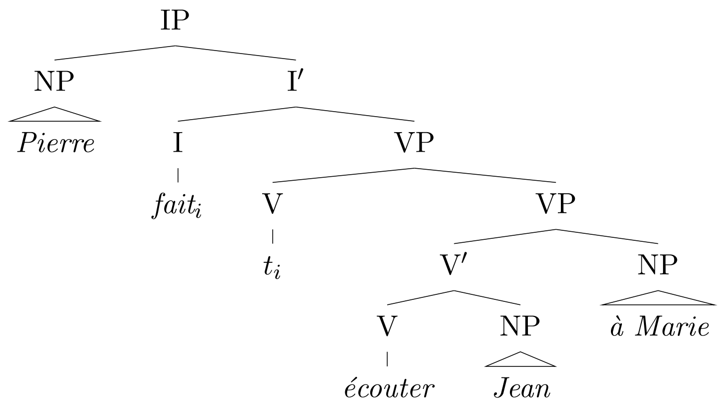
(iv) **Ca** *L'he volgut no entendre moltes vegades.

The sentence (v) with the adverbial phrase at the end is much better, but in this case we can regard the adverb as being a sister of the higher verb.

(v) **Ca** ?He volgut no entendre aquest problema moltes vegades.
'I have wanted to not understand this problem many times.'

While negating an infinitive is apparently never particularly felicitous in Catalan, the contrasts between (iii) and (iv) and (iv) and (v) support the hypothesis advanced in the text. Incidentally note that an adverb embedded in the lower clause can apparently take wide scope regardless of whether clitics climb or not. This would support the position of Moore (1990) that clitic climbing is basically always optional in cases of restructuring, but we will not explore the ramifications of this fact here.

b.



Miller (1991) and Alsina (1991) have argued from French and Catalan respectively that this higher attachment of the causee cannot be correct and hence that the causee should not be represented (at a level like D-structure) as a phrase structure subject (A-specifier). Looking at the surface form there are obvious reasons for not representing the causee as a subject: where morphological markings are available (with cliticized pronominal objects or with indirect objects), the causee clearly surfaces as a direct or indirect object (depending on the transitivity of the lower verb. An argument for not representing the causee as even a D-structure subject comes from the inability of such a theory to felicitously account for the word ordering of the causee. The argument of Miller and Alsina goes as follows: with intransitive and simple transitive embedded verbs, the causee follows the other arguments, as predicted by the above structure, but that result follows independently, anyway (in the intransitive case there are no other complements, and in the transitive case the 'indirect object' causee follows the direct object because full NP indirect objects always follow direct objects in Romance languages. Thus the result follows trivially or by independently needed linear precedence rules and the above structure explains nothing. However, if we look at verbs that subcategorize for (i.e., require) a PP complement, we see the following:

(39) a. **Ca** L'estora, la farem posar sota la taula a la
the rug it we shall make put under the table to the
Maria.
Mary

b. L'estora, la farem posar a la Maria sota la
the rug it we shall make put to the Mary under the
taula.
table
'The rug, we shall make Mary put it under the table.'

c. Aquest Van Gogh, el farem comparar amb un
this Van Gogh it we shall make compare with a
Gauguin a la Maria.
Gauguin to the Mary

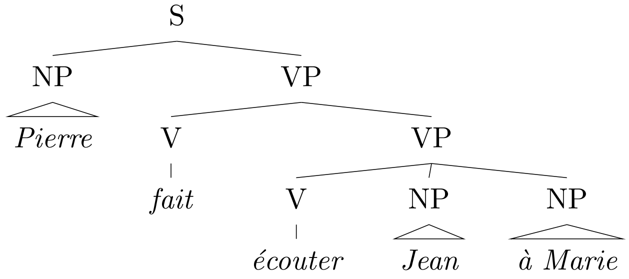
d. Aquest Van Gogh, el farem comparar a la
this Van Gogh it we shall make compare to the
Maria amb un Gauguin.
Mary with a Gauguin
'This Van Gogh, we shall make Mary compare it to a Gauguin.'

e. Farem creure /confiar la Maria en
we shall make believe/rely the Mary on/in
l'atzar.
the chance

f. ??Farem creure /confiar en l'atzar la
we shall make believe/rely on/in the chance the
Maria.
Mary
'We shall make Mary believe in/rely on chance.'

The pattern is clear – with a transitive embedded verb, the causee can appear freely ordered with other PP complements, whereas with a verb that only subcategorizes for a PP complement, the direct object causee must precede the PP complement. These facts immediately fall out from independently required linear precedence constraints if the causee is represented as a sister of the embedded V. However, if the sort of asymmetrical 'causee-as-subject' structure mentioned above is used, some sort of extraneous fixup must be done: Rosen (1989) suggests PP extraposition (right adjunction).[20] It seems, then that a structure like the following should be the null hypothesis, and we adopt it here.

(40)



[20]See further Alsina (1991) who argues that this adjunction cannot be forced by Case Theory and Miller (1991, pp. 238–239) who argues that Heavy NP Shift data are also best explained by generating the causee among the complements of the lower verb rather than in a higher specifier position.

4.5 Auxiliary selection in Italian

The basic facts about the alternation of the perfective auxiliary in Italian between **avere** 'have' and **essere** 'be' are well known (see Rizzi 1982 and especially Burzio 1986). It will be sufficient for present purposes to know that **essere** is used with unaccusative verbs, giving basic facts such as these:

(41) a. **It** Piero ha/*è mangiato con noi
'Piero has/*'is' eaten with us.'

b. Piero ha/*è voluto questo libro
'Piero has/*'is' wanted this book.'

c. Piero *ha/è venuto con noi
'Piero *has/'is' come with us.'

The facts of present interest are what happens when a restructuring verb that takes **avere** as its auxiliary, like **volere** in (41b), takes a verbal complement:

(42) a. **It** Piero ha/*è voluto mangiare con noi
'Piero has/*'is' wanted to eat with us.'

b. Piero ha/è voluto venire con noi
'Piero has/'is' wanted to come with us.'

Avere is always good, but if the downstairs verb would normally take **essere**, then **essere** is also possible.[21] Importantly, it seems that **essere** is necessarily used as the auxiliary when restructuring has occurred (and not otherwise).[22] For example, VP pied-piping accompanying *Wh*-movement, which prevents complex predicate formation prevents the auxiliary change (43a) and clitic climbing is impossible without the auxiliary change having occurred (43b).

(43) a. **It** La casa paterna, tornare alla quale Maria
the house paternal return.INF to the which Maria
{ avrebbe voluto / have.COND wanted | *sarebbe voluta / 'be'.COND wanted } già da molto tempo, ...
already since much time
'Her paternal home, to which Maria would have wanted to go back for a long time, ...'

[21] Restructuring verbs that take **essere** as an auxiliary always maintain this auxiliary. I will not further discuss them in this section, but their existence in no way undermines the point that is being made.

[22] Recall that restructuring is optional with these modal and aspectual verbs in Italian.

b. *?Maria **ci** ha dovuto venire molte volte
'Maria has had to come there many times.'

We thus have the result that in cases of restructuring, it is the righthand verb that is determining whether the auxiliary is **avere** or **essere**. This result seems completely general. Rizzi (1982, p. 22–23) demonstrates that in cases with complex predicates, no matter how many restructuring verbs occur between the auxiliary and the rightmost verb, it is still the rightmost verb that determines auxiliary selection:[23]

(44) a. **It** Maria li avrebbe voluti andare a prendere lei stessa
[avere] [essere] [avere]
'Maria would have (**avere**) wanted to go to get them herself.'

b. Maria ci sarebbe dovuta cominciare ad andare
[avere] [avere] [essere]
'Maria would have (**essere**) had to begin to go there.'

c. Maria li avrebbe potuti stare per andare a prendere
[avere] [essere] [essere] [avere]
lei stessa
'Maria would have been able to be on the point of going to get them herself.'

So, again we are faced with a choice. If we regard restructuring verbs as normal complement taking verbs, then auxiliary selection clearly cannot be via a local dependency. It is presumably possible to implement some technical solution that would work, such as introducing yet another ad hoc feature which would be passed up by something like the Foot Feature Principle (noting that we would have to be careful that this feature is introduced only by the bottom verb and not by intermediate restructuring verbs), but this would be yet another stipulation, and I think further indicates that there is something wrong with this whole approach.

The correct way of looking at things again seems to be to say that a complex predicate occupies a single level of f-structure. Within this level, the restructuring verbs are acting basically like auxiliary verbs (and are often described as such in Italian textbooks); for example, their semantic content seems bleached so that their meaning is more similar to that of a modal or aspectual morpheme in other languages. If we look at things thus, it is quite natural that auxiliary choice is being decided by the 'main verb', that is, the righthand verb. A method for correctly generating the results of this light verb argument combination will be suggested later. For further similar evidence for a monoclausal analysis within a

[23]The auxiliaries that verbs would normally select are shown beneath them in these examples. Note that each example has a climbed clitic proving that restructuring has taken place and the auxiliary shown is in each case the only choice possible.

Relational Grammar framework, see Rosen (1990) (which additionally examines participial agreement and participial absolutes).[24]

4.6 Summary

The story has developed like this: if we adopt the idea of analyzing clitic climbing as a long distance movement operation, we find that there are all sorts of other features and phrases which we would also have to analyze as engaging in long distance dependencies. This would not only force us to postulate a menagerie of new features, but we would be suggesting that it is merely chance that all of these long distance dependencies happen to be allowed in the presence of restructuring and causative/permissive verbs. But this is surely not the case. Rather it seems that we want to propose a structural difference between complex predicate clauses and simple clauses on the one hand and sentences with ordinary embedded VP complements on the other hand. In particular, as many of these phenomena seem to be local argument structure (valence) changing processes, I suggest that the first group should be identified as sentences that are *syntactically monoclausal*. In this way we can hope to explain why the periphrastic causatives of Romance behave similarly to the lexical causatives of languages such as Turkish or Chicheŵa (Alsina in preparation).

5 The consequences of monoclausality

However, if we adopt a (syntactically) monoclausal analysis of complex predicates, then we have to adapt our theory in other ways. For then we have monoclausal structures containing multiple argument taking predicates (i.e., verbs, predicative adjectives and so on). While this decision seems to explain a diverse group of phenomena fairly well, it also has a price, and we have to introduce new machinery to complete our new model. In this section, we will first show the problems that the rightward-branching phrase structure presents for an HPSG analysis and then outline various other problems caused by postulating monoclausal but multiword complex predicates.

5.1 Ramifications for HPSG

The untenability of the verbal complex analysis (Section 3) has important ramifications for the theory of HPSG (Pollard and Sag 1987, forthcoming). One way to analyze clitic-climbing in HPSG would be as an unbounded dependency construction (UDC), but, given the arguments

[24] This intuition of 'monoclausal at f-structure' is also how we plan to capture the idea that simple tenses and compound tenses formed with auxiliaries are in many ways not that different. Although compound tenses have a more articulated phrase structure, as was shown above, at f-structure they are monoclausal, just like simple tense forms.

in Section 4 that analyzing clitic-climbing as involving a long distance dependency is implausible, the dependency between clitics and the verb they are an argument of must be local. However, if this is the case, then the only way to maintain HPSG's SUBCAT principle in such sentences is to propose a verbal complex.[25] Given that this approach was shown above to be wrong, I will conclude that the SUBCAT Principle must be modified. Let us work through why this is the case.[26]

The central property of HPSG that we are concerned with is the SUBCAT principle which determines how immediate dominance constituency relates to subcategorization. It can be paraphrased as follows:

> The SUBCAT principle maintains that more oblique things on the SUBCAT list must be discharged before less oblique things, although multiple daughters can be discharged simultaneously.

The SUBCAT principle is a strong universal claim that limits the possible phrase structure configurations of a head and its subcategorized arguments (stronger than the global completeness and coherence requirements of LFG), but in this section I will argue that it is overly strong because it cannot account for the Romance data we have been considering.

An additional complicating factor in HPSG is the phonological realization of a sign. In theory, HPSG allows an arbitrary relationship between the phonologies of the daughters of a sign and that of its mother. In practice this flexibility has been little exploited. The English grammar proposed in Pollard and Sag (forthcoming) uses only *concatenation* as a phonological operation (so that HPSG trees have much the same interpretation as those in mainstream generative grammar). In particular the head-wrapping analyses of Pollard (1984) have been abandoned.[27] Initially I will show how the argument holds under the additional assumption

[25] And such an HPSG analysis was adopted by Bratt (1990).

[26] This section assumes that clitics are subcategorized elements rather than just agreement markers (see the discussion in footnote 9). If one is assuming a SUBCAT list based theory of agreement that obeys Keenan's Principle (that agreement morphology may appear on an item A, indicating agreement of A with an item B, only if the semantic translation of A is a functor of which the translation of B is an argument), then the results of this section hold unchanged. Another approach is to have subcategorization satisfied by empty elements (essentially equivalent to GB's *pro*), and for the features of these empty elements to be passed up the tree to where the agreeing clitics are found. But this necessitates introducing new features that 'store' information about these empty elements, and thus becomes essentially identical to the long-distance dependency approach to clitic-climbing explored in Miller (1991). While the proposal remains to be worked out in detail, these similarities suggest that the points raised in Section 4 would argue against this variant as well.

[27] The daughters of an HPSG phrasal sign are merely a list of signs which the mother immediately dominates (hence each daughter is referred to as an immediate dominance constituent). There is no claim that these daughters are ordered or even contiguous in the phonological realization of a sentence. One example of a postulated operation that makes phrasal signs discontinuous in their phonological realization is head-wrapping. 'Head-wrapping' refers to a family of operations for combining the phonologies of con-

of *concatenation* as the only means of joining the PHONOLOGY of daughters, but towards the end I will show that the conjunction facts mentioned above suggest that the argument is valid even if another phonological operation is assumed (the most plausible of which is a head-wrapping operation).

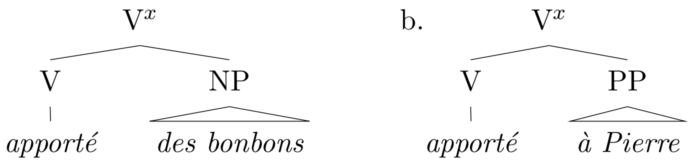
To see how adoption of the SUBCAT Principle forces a certain phrase structure, consider the two French sentences:

(45) a. **Fr** Je vous ai apporté des bonbons
'I brought you some sweets.'

b. Je l'ai apporté à Christophe
'I brought it to Christophe.'

In (45a) the clitic is the Indirect Object while the final NP is the Direct Object, while in (45b) the configurations are reversed. Consider then the putative constituents:

(46) a. b.



One of these, (46a), could only be created by discharging an element from the SUBCAT list (the Direct Object) while a more oblique term (the Indirect Object) remained on the SUBCAT list. Hence if we are to maintain the SUBCAT principle, it follows immediately that the things in (46) are *not* immediate dominance constituents of the sentences in (45).

Consider further the two sentences:

(47) a. **Fr** Tu me donneras des bonbons
You me.DAT will.give candy
'You will give me sweets.'

b. Tu le donneras à Pierre
You it.ACC will.give to Pierre
'You will give it to Pierre.'

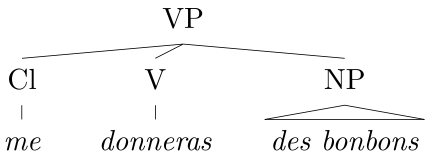
and the putative constituents:

(48) a. b.

stituents in which one daughter is positioned relative to the head of the other daughter, which may mean that it is positioned in the middle of its phonological string, thus violating the 'no crossing lines' constraint that many assume for syntactic trees. For example, using head-wrapping we can suggest that the immediate dominance constituents of the sentence *Can he come?* are *he* and *can come*, and that the phonology of the mother is generated by placing *he* to the right of the head of the other constituent, which is *can*.

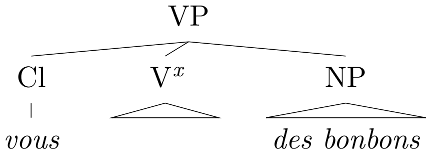
By exactly the same reasoning, one of these, (48b), cannot be a constituent either or again the SUBCAT principle would be violated. Indeed, further consideration of the SUBCAT principle should convince one that both the pre-verbal clitics and the post-verbal complements on the SUBCAT list of a verb *must* be discharged at the same time, and thus the immediate dominance structure of the sentences in (47) must be of the form shown in (49):[28]

(49)



What then of the examples in (45) where there was a verbal auxiliary? One option would be to form an immediate dominance constituent as above, and then have this form an immediate dominance constituent with the auxiliary (**avoir**), but for the phonological realization of this structure to be 'head-wrapped' so that the form of **avoir** appears immediately before the verb (in the formalism of Pollard (1984) this would be the operation RR1). We will consider this option below, but for the moment, let us presume that we are dealing simply with the concatenation of phonologies. Then this option is no longer open to us, and so we must suggest that the immediate dominance structure of the whole VP is as in (50). That is, we must propose the sort of verbal complex that we have argued above to be untenable.

(50)

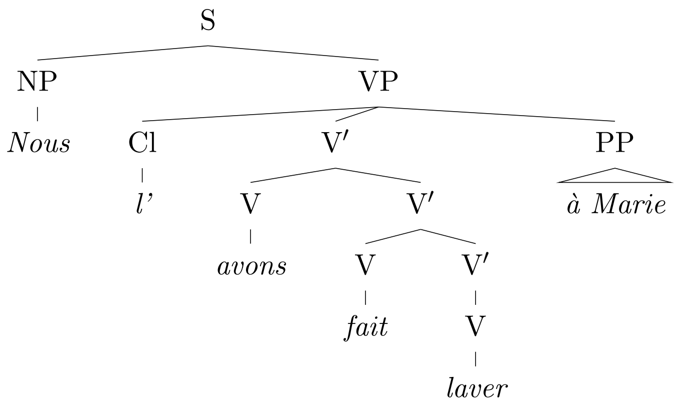


This leaves us looking for a suitable structure for the intervening verbal elements. The details are not vitally important to the arguments we will make here, but Bratt (1990) adopts a rightward-branching structure for the verbal complex, so that the structure of sentence (51a) is as shown in (51b):

(51) a. **Fr** Nous l' avons fait laver à Marie
We it.ACC have made wash to Marie
'We have made Marie wash it.'

[28]The only other move one could make would be to suggest that pairs such as (47a) and (47b) have radically different phrase structures, but this position seems both unmotivated and untenable. Note in particular that first and second person clitics always precede third person clitics, so that an attempt to propose a constituency of *Tu [[me donneras] les bonbons]* and *Tu [le [donneras à Pierre]]* could not be extended to *Tu me le donneras* (without head-wrapping).

b.



So that the upper V′, headed by **avons** can subcategorize for arguments of the lower verb, Bratt uses an HPSG implementation of what is essentially function composition so that **avons** inherits the lower verb's arguments. To constrain function composition to verb forms that have yet to discharge any of their arguments (so that the above phrase structure is the only one permitted) Bratt employs a covert system of bar levels (the features ±LEX and ±PHRAS).

In addition to the problems already mentioned for the verbal complex approach, note a further problem here concerning subject clitics. In Bratt's analysis, the subject clitics appear in the position of full NP subjects licensed by the same Schema 1 used for English subjects (Pollard and Sag forthcoming). However, this cannot possibly be the whole story, as recall that subject clitics can be inverted in questions (and imperatives), breaking up the supposed verbal complex:

(52) a. **Fr** Fera-t-il partir Marie?
will.make-he to.leave Marie
'Will he make Marie leave?'

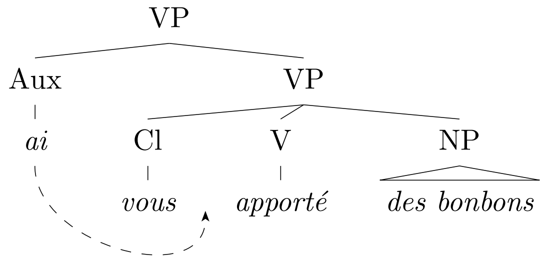
b. Vous a-t-elle déja été présentée?
'Has she already been introduced to you?'

Again, one might initially think that these examples could be made some sense of by copying Pollard's (1984) analysis of English subject-verb inversion as an instance of head-wrapping (operation RL2), but clearly the flat structure proposed for subject-verb inversion (Schema 3) in Pollard and Sag (1987, forthcoming) neither allows clitic climbing nor integrates with the verbal complex analysis outlined above. In contrast, Miller (1991) regards subject clitics as inflectional morphology too. The analysis here is somewhat less clear as subject clitics have traditionally been regarded as allowing wide scope over conjunctions. However, Miller suggests this is not really true of modern colloquial French, but only of written registers.[29]

[29]Thus it is normally asserted that the subject clitic can have wide scope in a sentence like *Je frappai et entrai* 'I knocked and entered', but Miller argues that this sounds

Does the use of head-wrapping allow us to maintain the SUBCAT principle? I conjecture that the answer is no. I will not prove that no use of different PHONOLOGY-combining operations gives the right results, but I will show that head-wrapping in auxiliaries (or restructuring verbs) is not a possible analysis. The outline of such an analysis would be as follows: in compound tenses, the main verb would take its (non-subject) dependents all at once, and then this constituent would combine with the auxiliary which would be head-wrapped in by Pollard's (1984) operation RR1, giving an immediate dominance tree like this:

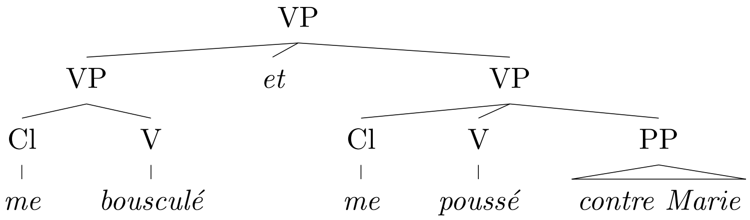
(53)



but a phonological realization in which **ai** appeared to the left of the head of the righthand top-level constituent (**apporté**).

First note that this analysis has done nothing to explain the close bonds we noted above between clitics and the first verbal element. One could try and argue that those facts could be dealt with separately under a theory of prosody (although it would be hard), so perhaps more tellingly note how this proposal comes a cropper in the face of the conjunction facts. Consider how we would deal with head-wrapping into the following VP:

(54)



In a coordinate structure, head-wrapping should presumably apply across the board;[30] at any rate, not doing this and putting an auxiliary into just one conjunct would give an illegitimate sentence, for example **Paul m'a bousculé et me poussé contre Marie*. Applying head-wrapping across the

much worse in the present (*Je frappe et entre*) than in the 'literary' passé simple and that in normal conversational contexts one always repeats the clitic and says *Je frappe et j'entre*, even in a narrative usage. In this and other respects French subject clitics differ from the subject pronominals of Spanish and Italian (Jaeggli 1982, pp. 90–92) and Old French (Miller 1991, p. 220) which appear to be true pronouns. See Miller (1991, p. 158ff) for further discussion.

[30]A brief perusal suggests that there is no discussion of how to handle coordination in Pollard (1984).

board would give us the following perfectly legitimate sentence (which we have analyzed as resulting from (maximal) VP conjunction):

(55) Paul m'a bousculé et m'a poussé contre Marie.

There is no problem with that, the problem is that there seems to be no possibility of generating the other grammatical variant with lower VP coordination:

(56) Paul m'a bousculé et poussé contre Marie.

Under an analysis in which auxiliaries were head-wrapped in, this would require the implausible operation of head-wrapping into the leftmost conjunct while simultaneously gapping clitics in the righthand conjunct(s). But deletion transformations are not permitted in HPSG. Thus I conclude that use of head-wrapping does not provide a straightforward solution to the problems presented here.

5.2 Lexical rules must be abandoned

If, as we have seen, Passive can apply not just to a single word, but an entire complex predicate, then Passive can no longer be regarded as a lexical rule. Indeed, lexical rules in general must be reinterpreted as operations manipulating the argument structure and mapping to grammatical functions of an arbitrary (simple or complex) predicate. These ideas have been developed in LFG (Bresnan 1990, Alsina 1991) where the lexical rules of 'Classical' LFG (Bresnan 1982b) have been replaced by the Lexical Mapping Theory (LMT). However, it is as yet unclear whether a truly satisfactory theory has been worked out of how the LMT applies over multiple words in a complex predicate (see Andrews and Manning (in progress) for one attempt).

Considering this issue, we might recall the well known cases of English passives appearing to involve the promotion of something other than a direct object:

(57) a. Everything is being paid for by the company.

b. John was taken advantage of by the lawyer.

c. This bed was slept in by George Washington.

d. That barn has been gotten drunk down in back of more than anywhere else in the county.

Such phenomena are extensively discussed in Bresnan (1982b, pp. 50–59). There it is suggested that the preposition/particle (or adverb etc.) incorporates with the V forming a single lexical item. Such an analysis is plausible because, as Bresnan shows, in English nothing can appear between the incorporated item and the verb (this contrasts markedly with the facts in the case of Romance complex predicate formation, as was shown above).

Nevertheless, it seems in retrospect that we might want to incorporate these cases into a general theory of predicate combination, in which the resulting complex predicates are subject to subsequent valence changing operations like Passive or Applicative. The required adjacency of the incorporated element and the preposition in English would then become an English-specific fact. In a movement-free theory of grammar, such a requirement cannot possibly be maintained in general, for, as is shown in Koster (1975), the same sort of verb plus preposition/particle complex predicates occur in Dutch and there, within a tensed clause, the verb is regularly separated from the particle.

5.3 The LFG notion of projections must be modified

The conclusion that we can have more than one semantic relation (i.e., predicator taking arguments) within something that we wish to regard syntactically as a single clause, is problematic for the LFG approach of codescription of language using various levels related via correspondence functions (as described most clearly in Kaplan 1987 and Halvorsen and Kaplan 1988, though the notion of correspondences was introduced in Kaplan and Bresnan 1982). In these works it is suggested that the functional structure (f-structure) and the semantic σ-structure are separate levels of representation that are related to the surface constituent structure (c-structure) by correspondence functions off the c-structure named ϕ and σ respectively. I will indicate why this approach must be modified by showing the problems it creates for the version of LFG described in Halvorsen and Kaplan (1988) (which was adopted for modeling complex predicates by Butt et al. 1991), where both the f-structure and the semantic σ-structure are projected off the surface c-structure, though actually the same problems obtain for any possible projection architecture (Dalrymple et al. 1992).[31] This argument is initially due to John Maxwell.

If f-structure and σ-structure are both projections off c-structure, relations between the two have to be described by using composite functions through c-structure nodes, namely $\phi' = \sigma^{-1} \circ \phi$ and $\sigma' = \phi^{-1} \circ \sigma$ (as in Halvorsen and Kaplan (1988) or Butt et al. (1991)). However, because of the way that various c-structure nodes map onto a single node of the f-structure, the attempt to use these composite functions leads to difficulties.[32] For consider what happens if we embed a complex predicate

[31] *Ceteris paribus.* There are proposals (such as using functional uncertainty in the semantics to allow a more indirect relation between syntax and semantics) that might allow the continued use of a projection architecture, but such innovations were not assumed in the works cited earlier and it is unclear whether the perfect solution has yet been found. Again, see Dalrymple et al. (1992) for further discussion.

[32] The use of the word 'function' above is loose – since the correspondence functions

as the sentential complement of another verb, such as **dubitare** 'doubt':

(58) **It** Dubitiamo che egli possa venire domani
'I doubt that he can come tomorrow.'

We would want to do this via a c-structure rule of the general form:

$$\text{(59)}\quad \text{VP} \rightarrow \underset{\uparrow=\downarrow}{\text{V}} \quad \underset{(\uparrow\text{COMP})=\downarrow}{\text{S}'}$$

and specify the relation between the syntax and the semantics of the matrix verb lexically via a rule on the verb such as:[33]

(60) **dubitiamo** *doubt* $(\uparrow_\sigma \text{ ARG2}) = (\uparrow_\phi \text{ COMP})_{\phi^{-1}\sigma}$

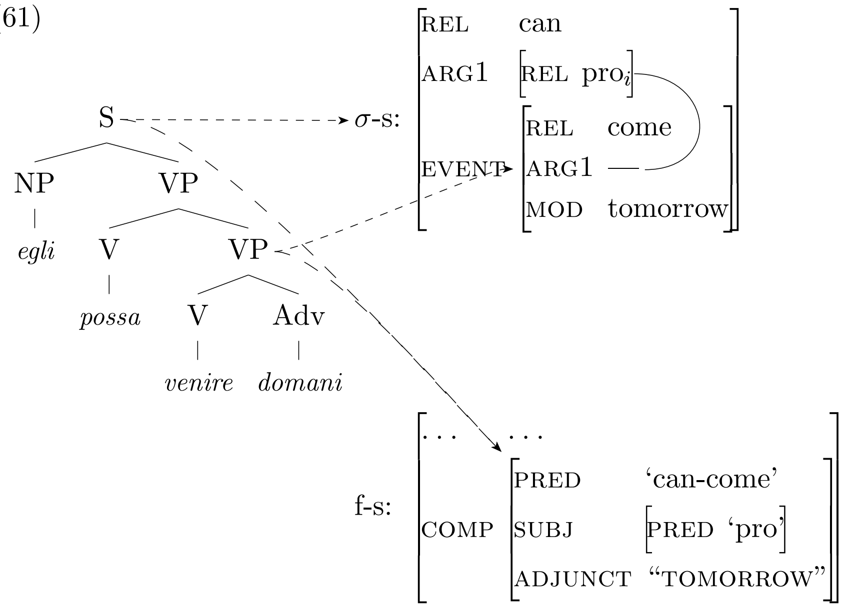
Here we are using the modern notation for writing projections in LFG, where they appear as subscripts rather than prefixed functions. The meaning is function application but this notation allows functional equations to be read simply from left-to-right, which is more intuitive. The equation says that the ARG2 of the matrix verb *doubt* is the σ-structure of the c-structure node(s) that produced the COMP. But, unfortunately, if we have a complex predicate (which in LFG terms is something which is 'multiclausal' at σ-structure but 'monoclausal' at f-structure), then two or more c-structure nodes which have different σ-structures contributed to the COMP (a restructuring or causative predicate and the lower verb have the same f-structure correspondent but different σ-structure correspondents). This is shown in (61).

are neither one-to-one or onto, their inverses are in general not functions at all but relations, and this is actually the source of our troubles. Halvorsen and Kaplan (1988) tried to make sense of what happened when a correspondence was applied to a set of nodes, suggesting that the result was the generalization of the values obtained by applying the correspondence to each member of the set, but that notion clearly is of no value here.

[33]We would not wish to mention a semantic argument attribute, such as ARG2, in the phrase structure rule, because then the correspondence between ARG2 and a certain phrase structural position would be fixed, whereas we want it to be able to vary according to the verb, that is, to have the relationship mediated by grammatical relations in the usual way. For example, the COMP may sometimes be the ARG2 and sometimes the ARG3, as can be seen by comparing the sentences *I believe that Bush will be re-elected* and *I persuaded him that the Iraqis are evil*. (Note that here the semantic structure is representing a conventional semantic form such as **doubt**(x, y) by the attribute value matrix shown in (i), much as is done within the CONTENT of an HPSG *sign*.)

$$\text{(i)}\quad \begin{bmatrix} \text{REL} & \text{doubt} \\ \text{ARG1} & x \\ \text{ARG2} & y \end{bmatrix}$$

(61)



From the COMP's value, ϕ^{-1} takes one back to both the S and the VP nodes (as noted ϕ^{-1} is not a function). Unfortunately, the σ correspondence of these nodes is different, being the outer and inner clauses of the depicted σ-structure. Clearly, the desired semantic value of the COMP is that of the whole complex predicate, that is the value of the outer σ-structure shown above, but this approach does not allow us to get to it uniquely. And an approach that tried to project f-structure off σ-structure suffers from similar problems.

There are various ways that one could think about rectifying this problem (several are mentioned in Dalrymple et al. 1992), but perhaps the simplest is to abandon the LFG conception of separate projections related by correspondence functions and instead use a unified feature structure of the sort that has been proposed in HPSG (Pollard and Sag 1987). Such a unified feature structure is explored in Andrews and Manning (in progress).

5.4 A new form of control is needed (argument fusion)

To be able to handle multiple argument taking verbs within a syntactically monoclausal structure, new subtheories are needed. A case in point is controlled complements. Consider a complex predicate with a meaning such as *want to go*. When such a meaning is expressed by a true VP-complement structure (as happens in English), the subject of *want* and *go* are the same. In LFG this is modeled by the Lexical Rule of Functional Control (Bresnan 1982a, p. 322), which in this case adds the annotation ($\uparrow$XCOMP SUBJ) = ($\uparrow$SUBJ) to the lexical entry of *want*. HPSG uses a similar mechanism so that the lexical entries of complement taking verbs end up equating one of their arguments with the undischarged subject of the complement verb. These methods are syntactic methods that rely on *want* and *go*, above, each appearing in a separate clause (syntactically). However, if we now conclude that *want* and *go* are within the same syntactic clause, then another mechanism must be introduced. If we accept that complex predicates are still semantically multiclausal then the most likely candidate is a sort of fusion of the argument structures of the two verbs.

To illustrate the idea, and to move this paper onto a more positive note within its dying pages, I will present a proposal for the sort of argument fusion that is needed to handle restructuring verbs (causative verbs require a somewhat different treatment and will not be considered here). In particular I wish to provide an account that will deal naturally with the auxiliary selection facts in Italian that we saw earlier. The idea that I wish to develop is that although *want* is clearly a binary predicate semantically, *want(wanter, wanted)*, the lexical entry for **volere** 'want' in Italian, when acting as a restructuring verb, only projects one of its arguments, the one corresponding to the desired situation. We will call this argument its ARG*, as that is the notation I will use for an argument that fuses with another relation during complex predicate formation. The result of this is that the only nominal arguments projected into the argument structure will be those of the final heavy verb. In this way we can capture Picallo's (1990) intuition that in restructuring constructions the heavy verb is really the main verb and hence determines subcategorization. So, for example, light verb **volere** and heavy verb **venire** 'come' will have the following (partial) lexical entries (where we use $\hat{\theta}$ to represent the highest argument of a verb on the thematic hierarchy, as in Bresnan and Kanerva 1989):

(62) a. **volere** *want* $\begin{bmatrix} \text{REL} & \textbf{want}(\text{—}, \text{—}) \\ \text{ARG*} & \begin{bmatrix} \hat{\theta} & \text{—} \end{bmatrix} \end{bmatrix}$

b. **venire** *come* $\begin{bmatrix} \text{REL} & \textbf{come}(\text{—}) \\ \text{ARG}_{\textit{theme}} & \text{—} \end{bmatrix}$

If these two verbs combine as a complex predicate, the heavy verb (62b) will merge with the ARG* of the light verb and this will then identify the $\hat{\theta}$ of the light verb with the $\text{ARG}_{\textit{theme}}$ of the heavy verb, yielding the following argument structure:

(63) $\begin{bmatrix} \text{REL} & \textbf{want}(\text{—}, \text{—}) \\ \text{ARG*} & \begin{bmatrix} \text{REL} & \textbf{come}(\text{—}) \\ \text{ARG}_{\textit{theme}} & \text{—} \end{bmatrix} \end{bmatrix}$

Continuing with the simplification that only unaccusative verbs take **essere** as an auxiliary, it is then sufficient to propose that the auxiliary is **essere** if and only if the highest argument (on the thematic hierarchy) of the whole complex predicate is a theme. This will be seen to correctly predict the auxiliary choice for sentences (64a) and (64c) (in (64b) the highest argument to be linked is an agent and so the auxiliary is **avere**, while in (64d), the highest argument to be linked is the theme and so the auxiliary is **essere**).

(64) a. Maria li avrebbe voluti andare a prendere lei stessa
[avere] [essere] [avere]
'Maria would have (**avere**) wanted to go to get them herself.'

b.
$$\left[\begin{array}{ll} \text{REL} & \textbf{past.conditional}(\text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{want}(\text{—}, \text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{go-to-do}(\text{—}, \text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{get}(\text{—}, \text{—}) \\ \text{ARG}_{agent} & \text{—} \\ \text{ARG}_{theme} & \text{—} \end{array}\right] \end{array}\right] \end{array}\right] \end{array}\right]$$

c. Maria ci sarebbe dovuta cominciare ad andare
[avere] [avere] [essere]
'Maria would have (**essere**) had to begin to go there.'

d.
$$\left[\begin{array}{ll} \text{REL} & \textbf{past.conditional}(\text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{obligation}(\text{—}, \text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{begin}(\text{—}, \text{—}) \\ \text{ARG*} & \left[\begin{array}{ll} \text{REL} & \textbf{go}(\text{—}, \text{—}) \\ \text{ARG}_{theme} & \text{—} \\ \text{ARG}_{loc} & \text{—} \end{array}\right] \end{array}\right] \end{array}\right] \end{array}\right]$$

6 Conclusion

And that's where we'll end this little saunter through Romance complex predicates. Clearly this has been more of an examination of the problems than a worked out solution to them. But still it seems that considerable progress has been made. We have confirmed that the conventionally assumed rightward-branching phrase structure for Romance complex predicates is correct, and we have seen much evidence motivating a notion of monoclausality to explain how a complex predicate behaves like a simple predicate. Using these conflicting requirements we have identified whole classes of solutions that are definitely wrong and changes that will have to be made to both HPSG and LFG before a satisfactory theory of complex predicates can be constructed within those frameworks.

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