

French Bounded Dependencies

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Introduction

Local dependencies such as subcategorization and modification have been the subject of numerous grammatical investigations over the centuries. Generative transformational studies have in addition investigated many phenomena involving long distance dependencies, e.g. filler-gap constructions. These dependencies have usually been treated as local in deep structure, with the dependent elements being “stretched apart” by the application of a movement transformation. Since most transformations can apply recursively, the resulting structures exhibit ‘unbounded’ dependencies in the surface, as shown by the following question-fronting example where the dependent elements are indicated in bold face:

- (1) a. **Who** do you want to talk **to**?
b. **Who** do you want to persuade Kim to ask Dana to talk **to**?

However, there are numerous linguistic phenomena where the dependencies involved are not strictly local, i.e. not clause-bound, but nevertheless bounded. In this class are control, agreement, extraposition, and clitic climbing. The subject or the object of the main verb can ‘control’ (i.e. be understood as the subject of) the infinitival complement of the same verb, but not that of a more embedded verb:

- (2) a. **Hilary** promised Sandy to **go** there.
b. Sandy told **Chris** to **go** there.
- (3) a. **Taylor** promised to try to **go** there.
b. *Taylor* promised to *tell* **Chris** to **go** there.

The apparent long dependency (noted again with bold face) between *Taylor* and *go* in (3a) results from the interaction of two shorter ones : one between *Taylor* and *try*, another between the (unexpressed) subject of *try* and *go*. As shown in (3b), if one changes the intervening verb, the relation between *Taylor* and *go* no longer holds.

Such ‘intermediate’ dependencies are not strictly local in the sense that they cross a phrasal boundary (all syntactic tests show that *to go there* forms a phrasal constituent) but are bounded in the sense that they cannot cross more than one. The Romance languages, as opposed to English or German for example, are generally said to exhibit specific instances of such bounded dependencies, for example ‘clitic climbing’ and ‘*tough*-constructions’ (Kayne 1975, Rizzi 1978).

Surface-based syntactic theories have been successful in designing various ways of giving non-transformational accounts of truly unbounded dependencies: Bresnan & Kaplan (1982), Zaenen (1983) proposed a direct characterization with an unbounded feature passing mechanism within LFG, an idea further elaborated by Kaplan & Zaenen (1989) with the notion of functional uncertainty; Gazdar 1981, Gazdar et al. 1985) proposed a treatment based on the category-valued feature SLASH, inherited according to GPSG’s Foot Feature Principle, a mechanism adapted to HPSG by Pollard & Sag (1987, 1994); categorial grammarians have used function composition (cf. Dowty 1988, Steedman 1985); and Kroch & Joshi (1985) used adjunction within Tree Adjoining Grammars.

Intermediate dependencies have generally received less attention, with the exception of control phenomena, which have been successfully modeled in unification-based grammars by reentrancy or coindexing (Johnson and Postal 1980, Bresnan 1982, Pollard & Sag 1991). Bounded dependencies are of particular interest in lexicalist frameworks such as HPSG since one of their general properties is lexical government: the set of predicates allowing each of them is usually lexically restricted.

There are in principle three ways of dealing with such bounded dependencies:

- (4) a. use the same mechanisms as for unbounded dependencies and add supplementary constraints (cf. Kayne’s (1975) transformational analysis of French clitics or Miller’s (1992) account of clitic climbing in GPSG with SLASH features),
- b. use only local mechanisms, but relax some of the associated constraints (cf. the base-generated analyses of pronominal clitics (Rivas 1977, Jaeggli 1982)), or
- c. use entirely different structures or mechanisms.

Positions (4a) and (4b) have generally led to descriptively inadequate analyses, or to highly ad hoc systems. The third position is exemplified by ‘restructuring’ in transformational grammars (Rizzi 1978), ‘clause-union’ in Relational grammar (Aissen & Perlmutter 1983, Davies & Rosen 1988), ‘type division’ in Categorial grammar (Moortgat 1989, Nishida 1990) or ‘local’ MC-TAG (Kroch & Joshi 1986, Abeillé 1994). The approach to bounded dependencies we will develop here is in a sense of this third variety, but we will take pains to demonstrate how the different techniques we utilize are in fact all independently motivated within HPSG.

Within HPSG, or phrase structure grammars in general, there are at least two possibilities for analyzing bounded dependencies, which can be combined:

- (5) a. a feature-based approach, relying on a standard (hierarchical) structure but allowing for unsaturated phrases, the completion of which is delayed to the next level up by a specific feature sharing mechanism. This has been used for control and raising phenomena,
- b. a structure-based approach, positing a specific syntactic structure, ‘flatter’ than usually proposed, with possible sisterhood between dependent predicates.

Both of these approaches involve what is sometimes called ‘argument composition’ (or ‘argument attraction’), i.e. the possibility for a given predicate to be left unsaturated, its missing argument being shared by another predicate, perhaps in a higher position. This idea was first introduced into HPSG by Hinrichs & Nakazawa (1989, 1994) to account for scrambling of arguments of German verb clusters. The application of this technique to Romance clitic climbing phenomena was independently proposed by Monachesi (1993a, 1993b) for Italian. It has now also been developed in an analysis of Japanese causatives (Iida et al. 1994), and for Dutch verb raising (Bouma & Van Noord 1994, Rentier 1994). Although argument composition makes crucial use of the notion of structure sharing (feature reentrancy), which is central to HPSG, it also in a sense loosens up the notion of ‘head’, allowing constructions where, roughly speaking, headedness (at least in the sense of the source of subcategorization constraints) is distributed among several distinct predicates.

We focus here on two types of bounded dependencies in French: ‘object raising’ in *tough* and infinitival relative constructions, on the one hand, and ‘clitic climbing’ on the other hand. We will advocate the feature-based approach for the first construction, arguing that French syntax involves a specific case of object-control. As for clitic climbing on tense auxiliary and causative constructions, we argue in favor of the structure-based approach, showing that French syntax has a flat complementation for certain auxiliary verbs and that so-called clitic climbing in these cases must be analyzed in a strictly local way that makes use of the very same objects that are accessible in our treatment of *tough* and infinitival relative constructions. We also show that copular verbs are a hybrid case: they allow composition of any number of arguments but preserve a phrasal complementation schema.

The material presented in this paper is based on analyses proposed in Sag & Godard 1993, Abeillé & Godard 1994, Miller & Sag 1994, and Abeillé, Godard & Miller 1994. It is part of a larger project aiming at an extensive phrase structure characterization of French syntax (Abeillé, Godard, Miller, & Sag in prep.), where we also deal with other cases of bounded dependencies, e.g. quantifier floating and position of negation.

1 *Tough*-Constructions and Infinitival *À*-Relatives

French and other Romance languages have the equivalent of the English *tough*-construction (involving the VP complement of adjectives such as *facile* (‘easy’), *utile* (‘useful’), *agréable* (‘pleasant’), and certain infinitival relative clauses with a missing object.

- (6) Cette chanson est facile à apprendre.
This song is easy to learn.

- (7) On m'a donné un travail à finir pour demain.
I have been given a job to finish by tomorrow.

Both constructions have the following properties:¹

- (8) a. they contain a phrase of the form VP[*inf*, *à*];
b. there is a dependency between the direct object of the infinitive (which is not syntactically realized) and an NP external to it;
c. this dependency is bounded, contrary to what is found in English, as shown by Kayne (1974–75) for French, and by Rizzi (1978) for Italian.

The *facile* complement is illustrated in (6) and the relative clause in (7). The understood complement of the infinitive is identified with the subject of the sentence in a *facile* copular construction (or with the modified N in a *facile* attributive construction), and with the NP traditionally called the antecedent of the relative clause.

These constructions contrast with their English equivalents, where the infinitival can be embedded under a control or raising V (English examples from Nanni 1980):²

- (9) a. *Ce manteau était difficile à persuader René de porter.
b. The coat was difficult to persuade René to wear.
(10) a. *Le travail était facile à essayer de finir.
b. The assignment was easy to try to finish.

In French, as in Italian, the verb with the unrealized NP complement must be the main infinitival verb, or the first verb following an infinitival tense auxiliary, *faire* or a perception verb:³

- (11) Cette chanson est facile à faire apprendre (à des enfants).
This song is easy to make (children) learn.
(12) On m'a donné un travail à avoir fini pour demain.
I have been given a job to have finished by tomorrow.

Let us ignore these cases for the moment. We return to them in section 2.

¹Contrary to what was suggested by Huot 1981, we do not find any other specific syntactic constraints on the infinitival VP. It can comprise a negation (*un stop difficile à ne pas voir* – ‘a stop sign difficult not to see’; *un film à ne pas voir en dessous de 13 ans* – ‘a film not to see before (the age of) 13’) or a clitic pronoun (*un livre difficile à se procurer* – ‘a book difficult to-get-for-oneself’; *une situation à leur expliquer d’urgence* – ‘a situation to explain to-them immediately’). There are of course certain semantic restrictions involving the adjective, the missing object and the infinitive (cf. Huot 1981).

²Nanni shows that English also has some bounded *tough*-constructions (*an easy to take laxative* vs. **an easy to persuade Bill to take laxative*) which she analyses as lexically derived ‘complex adjectives’. We ignore these cases here.

³Some speakers allow these constructions with some other raising verbs:

- (i) %un livre à devoir lire dès aujourd’hui (‘a book to have to read today’)
(ii) %une ville difficile à aller visiter en ce moment (‘a town difficult to go to visit now’)

We ignore such variation in what follows.

1.1 The Boundedness of French *Tough*-Constructions

The HPSG analysis of English *tough*-constructions (Pollard & Sag 1994: 166–171) relies on that proposed by Gazdar et al (1985) in GPSG in assuming a surface-based approach, where the relevant adjectives directly subcategorize for an infinitival VP missing an accusative object:⁴

$$(13) \text{ easy (predicative)} \left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \textit{adj} \\ \text{PRED} \quad + \end{array} \right] \\ \text{SUBJ} \quad \langle \text{NP}_i \rangle \\ \text{COMPS} \quad \left\langle \text{VP} \left[\begin{array}{l} \textit{inf} \\ \text{SUBJ} \quad \langle X \rangle \\ \text{COMPS} \quad \langle \rangle \\ \text{SLASH} \quad \{ \boxed{\text{NP}}[\textit{acc}]_i \} \end{array} \right] \right\rangle \\ \text{NONLOCAL} \quad [\text{BIND} \mid \text{SLASH} \{ \boxed{\text{NP}} \}] \end{array} \right]$$

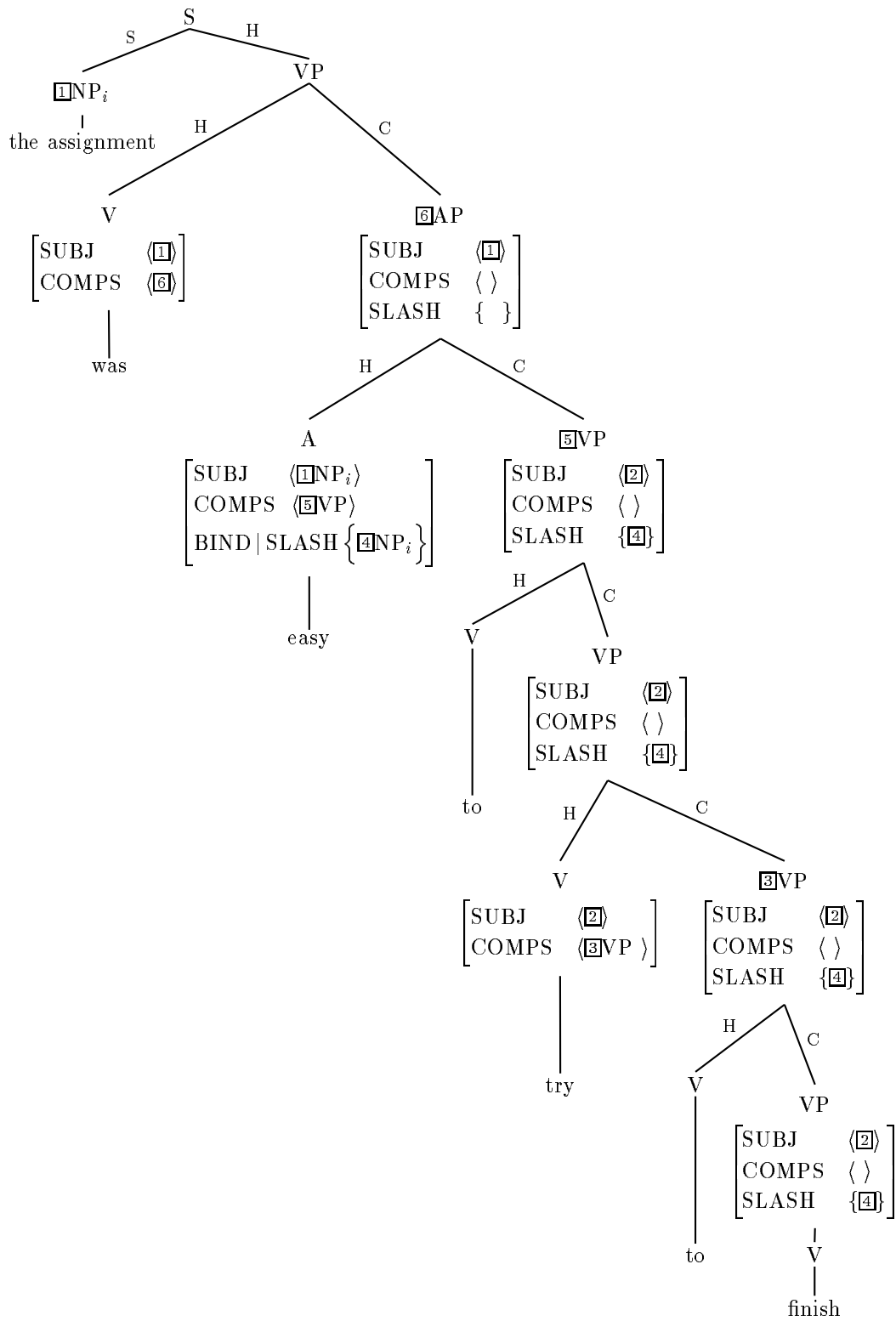
It differs from the GPSG analysis in at least the following two respects:

- (14) a. the missing object and its antecedent are not identified (they do not have the same case), but rather are simply coindexed (here with the index i);
- b. since SLASH is a set-valued feature, multiple extractions (a problem which Leslie is difficult to talk to about) can be treated.

The analysis of (10b) is as follows, assuming Sag & Fodor’s (1994) traceless account of missing constituents (SLASH being introduced by application of the Complement Extraction Lexical Rule to the verb *finish*):

⁴We follow the architecture presented in Pollard & Sag 1994, which distinguishes between LOCAL and NONLOCAL information, the latter being relevant to the way the category is involved in long-distance relationships. Note that the INHERIT | SLASH specification on the VP in (13) is in fact part of the NONLOCAL information concerning the lexical entry in question, since it crucially allows for an embedded gap.

(15) the assignment was easy to try to finish:



The unbounded dependency between the subject and the missing object is directly captured by the use of the NONLOCAL feature SLASH. *Tough*-constructions are thus treated by the same mechanism as other UDCs except that they do not involve a specific filler position.⁵

For French, we also consider it to be a lexical property of certain adjectives that they subcategorize for an infinitival VP missing a complement. The crucial difference between French and English is that the missing complement in French cannot be represented using a feature like SLASH (which governs unbounded dependencies). In our analysis of French *facile*, the missing complement simply shows up on the COMPS list of the embedded verb. The lexical description of a *facile*-type adjective identifies (the INDEX value of) this missing complement with the subject of the copular construction or the head of an attributive construction (via the MOD feature). We thus have the two following (schematic) entries for adjectives of the *facile* class:

(16) a. facile (attributive)

$$\left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \textit{adj} \\ \text{MOD } N'_i \end{array} \right] \\ \text{COMPS} \quad \left\langle \text{VP} \left[\begin{array}{l} \textit{inf} \\ \text{MARKING} \quad \grave{a} \\ \text{SUBJ} \quad \langle X \rangle \\ \text{COMPS} \quad \langle \boxed{\text{NP}}[acc]_i \rangle \end{array} \right] \right\rangle \end{array} \right]$$

b. facile (predicative)

$$\left[\begin{array}{l} \text{HEAD} \quad \left[\begin{array}{l} \textit{adj} \\ \text{PRED} \quad + \end{array} \right] \\ \text{SUBJ} \quad \langle XP_i \rangle \\ \text{COMPS} \quad \left\langle \text{VP} \left[\begin{array}{l} \textit{inf} \\ \text{MARKING} \quad \grave{a} \\ \text{SUBJ} \quad \langle X \rangle \\ \text{COMPS} \quad \langle \boxed{\text{NP}}[acc]_i \rangle \end{array} \right] \right\rangle \end{array} \right]$$

Restricting the missing complement to accusative NPs also accounts for the fact that predicative NP complements (which we assume to be without case⁶) cannot appear in *tough*-constructions as noted by Kayne (1975:209).

⁵Further arguments (outside UDC's) for treating *tough*-constructions with the same feature SLASH as extraction phenomena, have been given by Hukari & Levine (1991). Among these arguments is the possibility of parasitic gaps:

- (i) This book is easy to file __ without reading __.
- (ii) An author easy for admirers of __ to talk to __.

However, there are also restrictions, and some variation among speakers' judgements, in English (cf. ??*This theorem is easy to show that Gödel proved in 1930*).

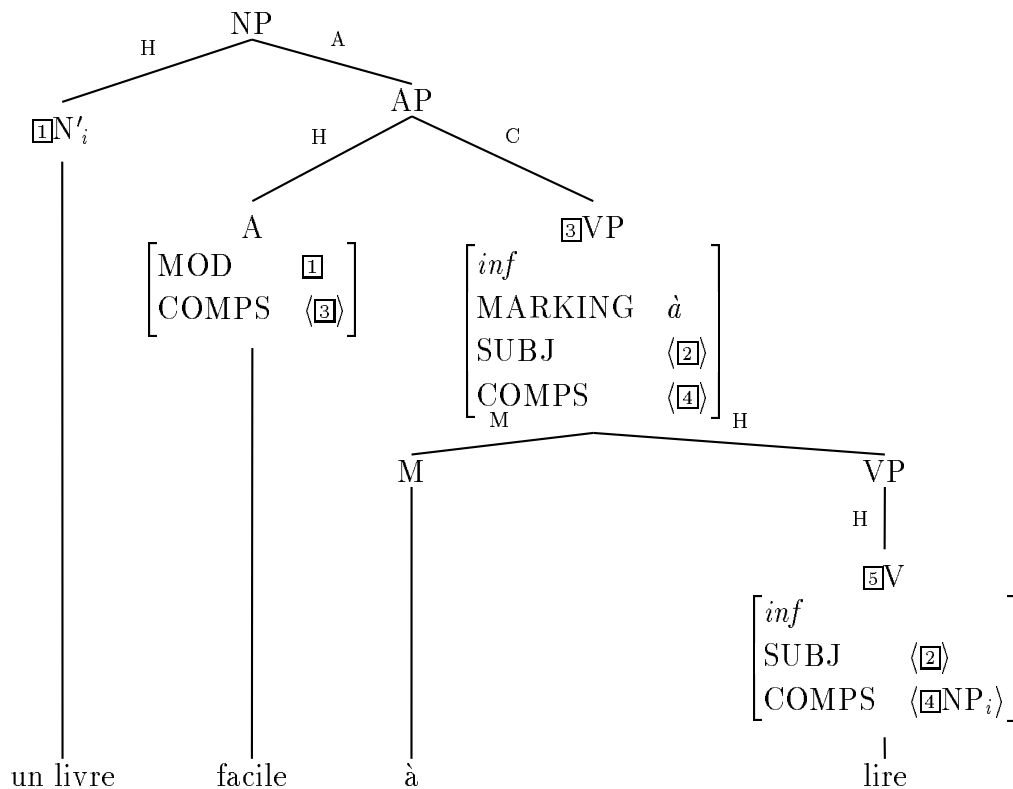
⁶The absence of accusative case on such NPs is what allows them to cooccur with an accusative NP, as in *Ils ont nommé Paul président*

(17) a. Il est facile de devenir ton ami.
It is easy to become your friend.

b. *Ton ami est facile à devenir.
 **Your friend is easy to become.*

And drawing on Kayne 1974–75, we do not analyse *à* as a preposition: we consider it to be a VP-marker. The structure for *un livre facile à lire* is as follows:

(18) *un livre facile à lire* (‘a book easy to read’):



Unbounded cases such as **un livre à promettre de lire* (‘a book to promise to read’) are predicted to be ungrammatical because *promettre* takes a (saturated) VP complement and cannot inherit the missing object of *lire*.

In order to build the unsaturated infinitival VP complement of *facile* adjectives, a minor revision of the Head-Complement ID schema is required:

(19) Head-Complement Schemata for French (preliminary version):

a. Saturated Phrases:

$$\begin{array}{c} X \\ \text{[COMPS } \langle \rangle] \end{array} \rightarrow \text{HEAD-DTR[word] , COMP-DTRS*}$$

b. Unsaturated Phrases:

$$\begin{array}{l} X \quad \rightarrow \text{HEAD-DTR}[word, nonfin], \text{COMP-DTRS}^* \\ [\text{COMPS } nelist] \end{array}$$

Schema (19a), the formulation given by Pollard & Sag (1994) for English and many other languages, is here restricted to lexical heads. Unlike schema (19a), schema (19b) requires that the mother's COMPS list be nonempty, i.e. that the phrase be nonsaturated. (19b) plays an important role in the grammar of Romance languages quite generally (as shown below, v. sec. 3, it can be generalized as part of the analysis of unsaturated APs and NPs), but phrases of this type do not exist in English.

Note, as shown by Huot (1981), that there is no systematic correspondence between *tough*-constructions and impersonal adjectival constructions such as (20):

(20) Il est facile de lire ce livre. *It is easy to read this book.*

First, as in English, they do not involve the same set of adjectives:

(21) a. Il est nécessaire d'engager Jean.
 It is necessary to hire J.

b. *Jean est nécessaire à engager.
 **J. is necessary to hire.*

(22) a. *Il est lourd de porter ce sac.
 * *It is heavy to carry this bag.*

b. Ce sac est lourd à porter.
 This bag is heavy to carry.

Second, in French, the marker is different (*de* vs. *à*). Third, there is no systematic paraphrase relation between the two types of construction.

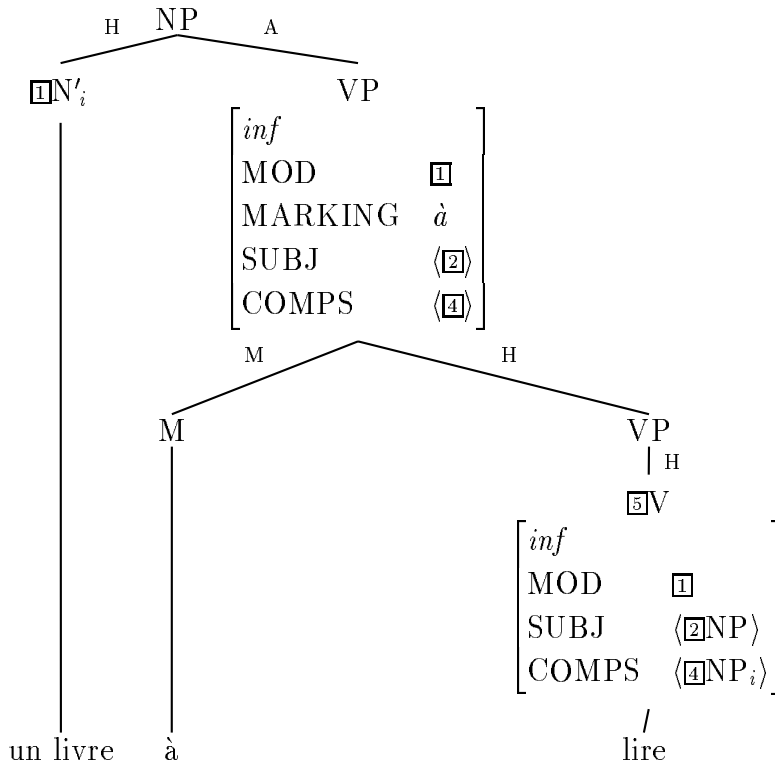
The lack of correspondence between *tough*-constructions and impersonal adjectival constructions strongly argues against an analysis of these data via movement transformations and in favor of a lexical analysis of the type proposed here.

1.2 Infinitival *à*-Relatives

As for *à*-relative constructions, we analyze these as unsaturated VP adjuncts, headed by the infinitival verb, and introduced by the (standard) Head-adjunct schema. Again, the crucial difference with English is that these constructions do not involve SLASH in French: the missing complement of the infinitival verb simply remains on its COMPS list.

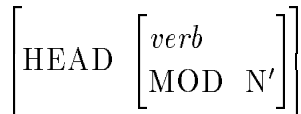
The resulting structure for the NP *un livre à lire* is as follows:

(23) un livre à lire (*a book to read*):



As before, we treat *à* as a marker. We also rely on a hierarchy of phrasal signs similar to that proposed for English by Sag (to appear) to introduce the MOD feature on the relative VP (and its verbal head) and to coindex the MOD value with the missing complement.⁷ The infinitival relative clause is thus a type of phrase that inherits constraints from two superordinate types: the Marker-head type and the Relative type. The phrasal type *relative* is constrained as follows for French:⁸

(24) Relative Clause:



where N' is coindexed with a member of SUBJ, COMPS, BIND|REL or BIND|SLASH.

Leaving aside (subject) *qui*, and *dont* relatives (which may involve a resumptive pronoun instead of a gap – see Godard 1988), French relative clauses can be cross-classified along two distinct parameters : whether they are introduced by a phrase containing a relative pronoun

⁷In Sag's treatment (q.v.), unlike that of Pollard and Sag 1994, certain verbs are simply underspecified with respect to the feature MOD, hence allowing either *none* or N' as value. Another innovation is the semantic treatment of relative clauses as propositions that are included in the restriction set of the modified nominal only at the N' level. That is (again departing from the analysis of Pollard and Sag 1994), the semantic content of relative and declarative clauses is essentially identical.

⁸The type *inf-rel-cl* also introduces into the semantic content the modality that is present in the interpretation of all infinitival relative clauses.

(preposition plus *qui, quoi, lequel*) or a marker (*que, à*), and whether they involve a long distance dependency (a slashed complement) or not.

The specific properties distinguishing relative pronouns from markers (following Godard 1988) are those shown in (25):

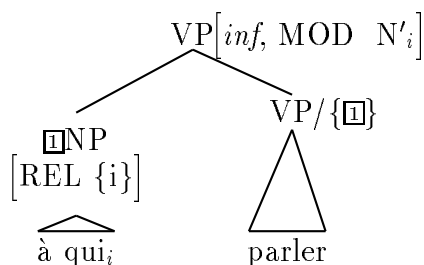
- (25) a. Pronouns (but not markers) may have a referential index,
 b. Pronouns (but not markers) may agree in number and gender (*lequel, laquelle* etc),
 c. Pronouns (but not markers) may have semantic features (preposition plus *qui* is only possible with an animate antecedent).

The markers *que* and *à* also occur with sentential or infinitival complements, respectively: *penser que Paul viendra* ('think that Paul will-come'), *chercher à venir* ('seek to come') We thus posit the following three types⁹ of relative clause (French relative clauses with a relative pronoun and no slashed daughter do not exist):¹⁰:

- (26) a. Filler-gap phrases with a relative pronoun in the filler
la fille à qui/laquelle tu penses ('the girl about whom you think'),
une personne à qui s'adresser ('a person to whom to address oneself'),
 b. Head-marker phrase with a gap in the clausal head
la personne que tu vois ('the person that you see'),
 c. Head-marker phrase without a slashed daughter:
un livre à lire ('a book to read').

We illustrate the various types of relative clause structures in (27):

- (27) a. Type (1) relative with VP head-daughter

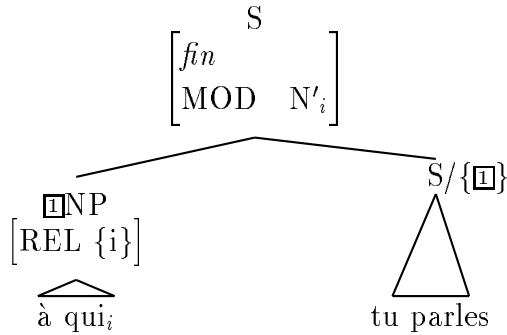


⁹Perhaps appositives with a subject relative pronoun, e.g. *le président lequel avait promis de venir...* should constitute a fourth type. We will not discuss these here.

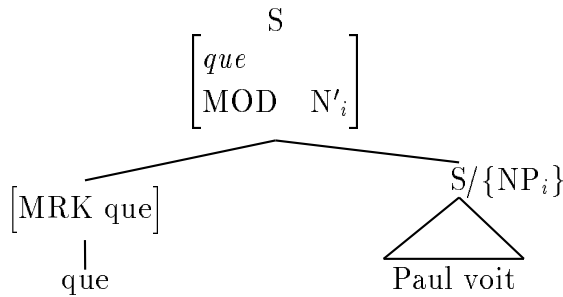
¹⁰Huot (1981: 171) shows (*pace* Kayne 1974-75) that infinitival relatives (with a relative pronoun) can exhibit an unbounded dependency:

- (i) Je cherche un projet auquel lui proposer de participer.
I'm looking for a project to propose to him to participate in.
 (ii) Je ne vois personne à qui lui conseiller de s'adresser.
I see no one to whom to advise him to address himself.

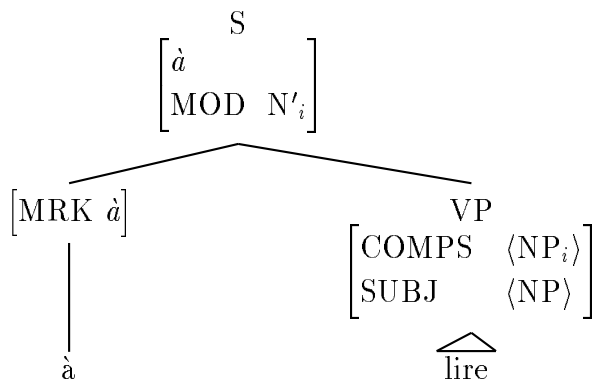
b. Type (1) relative with S head-daughter



c. Type (2) relative



d. Type (3) relative



The various properties specific to these phrasal types are factored out in terms of constraints on cross-classifying superordinate types. These types and the constraints they obey are laid out in Abeillé et al. in progress.

In this section, we have shown that French *tough*-constructions and missing object relatives are constructions exhibiting bounded dependencies. In contrast to similar constructions in English, an analysis in terms of NONLOCAL features, e.g. SLASH, is dispreferred. We have in essence proposed to analyse these constructions as cases of object control in French.

2 French ‘clitics’ and ‘clitic climbing’

Miller & Sag (1994) propose a detailed surface analysis of French pronominal clitics, which we briefly review here.

Following Miller (1992), Auger (1994), Auger & Miller (1995), they assume that in standard French, pronominal clitics are in fact pronominal affixes i.e. inflexionally attached affixal pronouns.¹¹ Miller’s conclusion is based mainly on the following arguments:¹²

(28) Arguments that French Clitics are Inflectional Affixes:

- (a) high degree of selection with respect to the host,
- (b) arbitrary gaps in the set of combinations,
- (c) morphophonological idiosyncrasies,
- (d) rigid and idiosyncratic ordering,
- (e) lexical phonological rules that apply to clitic-host combinations,
- (f) the impossibility of clitics attaching to (and distributing their interpretation over) a coordination of verbs.

The conclusion that pronominal clitics are in fact lexically attached inflections leads naturally to an analysis stated in terms of lexical rules, which, like morphological lexical rules, produce (or constrain) additional verbal forms that bear clitics as pronominal affixes.

2.1 A Lexical rule for French complement clitics

Miller and Sag propose to analyze the syntactic core of cliticization in terms of a lexical rule¹³ that removes an element from a verb’s COMPS list, adding it to the verb’s value for the CAT feature PRONOMINAL-AFFIXES (PRAS).¹⁴ The basic lexical entry for a verb is specified as [PRAS { }] (i.e. has an empty value for this feature), so the way verbs acquire nonempty PRAS values (which is what triggers the presence of pronominal affixes) is through application of this rule, which we formulate as follows:¹⁵

(29) Pronominal Affixation Lexical Rule (PRAF-LR):

¹¹In the following discussion, as elsewhere in this paper, we will sometimes continue to use the classical term ‘pronominal clitic’, when it is convenient, to designate the items under discussion, even though Miller (1992) and Miller & Sag (1994) have specifically argued that this is a misnomer.

¹²See Monachesi 1993b for an application of the same criteria (with similar conclusions) to Italian clitics.

¹³There are interesting new alternatives to this procedural way of thinking of lexical rules (cf. Krieger and Nerbonne 1992 and Riehemann 1993, who formulate lexical generalizations of this sort in terms of hierarchical lexical structure. See also Copestake (1992)).

¹⁴Miller and Sag (to appear) are able to eliminate the feature PRAS, while otherwise preserving all explanations derived within the analysis presented here.

¹⁵Here \square and \boxplus designate possibly empty lists of *synsem* objects; \oplus designates list concatenation. \uplus designates disjoint set union, which is like familiar set union, except that its result is undefined if its set arguments are not disjoint.

$$\left[\begin{array}{ll} \text{HEAD} & \textit{verb} \\ \text{COMPS} & \boxed{1} \oplus \langle \boxed{2} \rangle \oplus \boxed{3} \\ \text{PRAS} & \boxed{4} \end{array} \right] \Rightarrow \left[\begin{array}{ll} \text{COMPS} & \boxed{1} \oplus \boxed{3} \\ \text{PRAS} & \boxed{4} \uplus \{ \boxed{2} \textit{pr-aff} \} \end{array} \right]$$

This formulation relies on the following type hierarchy for values of the feature SYNSEM. We assume that *synsem* objects are of two subtypes: *canonical(-synsem)*, corresponding to realized syntactic phrases, and *noncanonical(-synsem)*. The latter subtype (which never corresponds to an overt constituent) is in turn divided into the subtypes *pr-aff* and *gap*. *Synsems* of type *pr-aff* on a COMPS list correspond to pronominal affixes morphologically realized on a verb, whereas *synsems* of type *gap* correspond to arguments of a head that have been ‘extracted’ in a filler-gap construction. The various subtypes of *pr-aff* (e.g. *3sm-acc-pr-aff* or *de-pr-aff*) thus never correspond to overt pronouns (all of which occur only as kinds of phrases, and hence with SYNSEM values of type *canonical*), but rather function as the building blocks out of which are constructed the various values of verb’s PRAS feature; and these in turn trigger particular morphological realizations of the verb.

The following examples are typical of the lexical derivations induced by this rule:

- (30) $\textit{donner}_1 \left[\begin{array}{ll} \text{COMPS} & \langle \text{NP}[\textit{acc}], \text{NP}[\dot{a}]_1 \rangle \\ \text{PRAS} & \{ \text{NP}[\dot{a}]_1 \} \end{array} \right] \Rightarrow^{PRAF-LR}$
 $\textit{donner}_2 \left[\begin{array}{ll} \text{COMPS} & \langle \text{NP}[\textit{acc}] \rangle \\ \text{PRAS} & \{ \text{NP}[\dot{a}]_1 \} \end{array} \right] \quad (\textit{lui-donner}, \textit{nous-donner}, \textit{te-donner}, \textit{etc.})$
 $\textit{donner}_3 \left[\begin{array}{ll} \text{COMPS} & \langle \text{NP}[\dot{a}]_1 \rangle \\ \text{PRAS} & \{ \text{NP}[\textit{acc}] \} \end{array} \right] \quad (\textit{le-donner}, \textit{les-donner}, \textit{vous-donner}, \textit{etc.})$
 $\Rightarrow^{PRAF-LR}$
 $\textit{donner}_4 \left[\begin{array}{ll} \text{COMPS} & \langle \rangle \\ \text{PRAS} & \{ \text{NP}[\textit{acc}], \text{NP}[\dot{a}]_1 \} \end{array} \right] \quad (\textit{la-lui-donner}, \textit{me-les-donner}, \textit{etc.})$
- (31) $\textit{penser}_1 \left[\begin{array}{ll} \text{COMPS} & \langle \text{NP}[\dot{a}]_2 \rangle \\ \text{PRAS} & \{ \text{NP}[\dot{a}]_2 \} \end{array} \right] \Rightarrow^{PRAF-LR}$
 $\textit{penser}_2 \left[\begin{array}{ll} \text{COMPS} & \langle \rangle \\ \text{PRAS} & \{ \text{NP}[\dot{a}]_2 \} \end{array} \right] \quad (\textit{y-penser}, \textit{etc.})$
- (32) $\textit{venir}_1 \left[\begin{array}{ll} \text{COMPS} & \langle \text{NP}[\textit{de}]_2 \rangle \\ \text{PRAS} & \{ \text{NP}[\textit{de}]_2 \} \end{array} \right] \Rightarrow^{PRAF-LR}$
 $\textit{venir}_2 \left[\begin{array}{ll} \text{COMPS} & \langle \rangle \\ \text{PRAS} & \{ \text{NP}[\textit{de}]_2 \} \end{array} \right] \quad (\textit{en-venir}, \textit{etc.})$

Note that the verbal forms created by this lexical rule have the appropriate distribution: their valence is reduced (i.e. their COMPS list is shortened) just in case they bear the appropriate clitic morphology. The analysis thus immediately accounts for such contrasts as the following:¹⁶

¹⁶These judgements are true for standard French, where there is no clitic doubling. We analyze clitic doubling dialects as having undergone a reanalysis of pronominal affixes as agreement markers, cf. Auger 1994, Auger & Miller 1995.

- (33) a. Marie le voit.
Marie sees him.
- b. *Marie le voit l'homme.
Marie sees him the man.
- c. Marie lui donne un livre.
Marie gives her a book.
- d. *Paul lui donne un livre à Marie.
Paul gives her a book to Marie.
- e. *Marie le lui donne un livre.
Marie gives it to him a book.

In addition, the outputs of PRAF-LR give rise to phrasal structures by exactly the same principles as other verbs – there are no further devices needed to account for sentences containing cliticized verbal forms.

2.2 French ‘Clitic Climbing’

Unlike the treatment of unbounded dependency constructions, the treatment of cliticized verb forms just sketched is strictly local in that these forms bear no nonempty specifications for the feature SLASH. It follows directly therefore that clitic climbing will not in general be possible in modern French, as the following examples illustrate:

- (34) a. *John lui doit parler. *John to him must speak.*
- b. *John le veut voir. *John him wants to see.*
- c. John doit lui parler. *John must speak to him.*
- d. John veut le voir. *John wants to see him.*

The PRAF-LR thus applies to *voir* to give *le-voir*, but it can not apply to *veut* to produce a form that bears clitic morphology and in addition takes an overt infinitival complement. Nor is there any way for *veut* to undergo cliticization so as to bear a pronominal affix associated with the object of its infinitival complement.

Modern French differs from other Romance languages such as Italian or Spanish which do allow complement clitic pronouns to climb over control verbs (e.g. *volere* or raising verbs (e.g. *devere*):

- (35) a. Maria voleva vedere Giovanni. *M. wanted to see G.*
- b. Maria voleva vederlo. *M. wanted to see him.*
- c. Maria lo voleva vedere.

- (36) a. Maria deve parlare a Giovanni. *M. must speak to G.*
 b. Maria deve parlargli. *Maria must speak to him.*
 c. Maria gli deve parlare.

What then of those cases where clitic climbing is apparently allowed in modern French? Leaving aside the question of subject clitics, we focus here on French complement clitic climbing, which is allowed in the three instances shown in (37):

- (37) a. with tense auxiliaries:
 Paul l'a vu. *Paul him has seen.*
- b. with the copula, other predicative verbs and in passive constructions:
 Paul en est amoureux. *Paul of-him is in love.*
 Paul lui sera présenté. *Paul to him will-be introduced.*
- c. with causatives (*faire, laisser*) and perception verbs (*voir, entendre ...*):
 (Ces chaussures sont percées.) Je les ferai réparer par un bon cordonnier.
(These shoes have holes in them.) I them will-have repaired by a good shoe-maker.
 (Peut elle chanter cet air?) Je l'ai entendu chanter par beaucoup de gens et je ne laisserai chanter à personne d'autre que lui.
(Can she sing this this aria?) I it heard sing by many people and I it will-let no one else sing.

In all these cases, the clitics appear higher in the tree than the lexical item which selects them.

Clitic climbing raises an immediate problem for all transformational theories which decide to treat clitics as morphological affixes (cf. Rivas 1977). In the context of a lexicalist, constraint-based theory like HPSG, clitic climbing is also a priori problematic, given the generally accepted principle of subcategorization locality. Miller (1992) proposed an analysis of this problem in terms of FOOT features, the GPSG precursor of the NONLOCAL features used in HPSG for filler-gap dependencies. But the differences between clitic dependencies and truly unbounded dependencies make it necessary to impose certain constraints on the FOOT feature specifications governing clitic dependencies (cf. Miller 1992: 204–6). Our analyses of tense auxiliaries, copular and causative verbs make available an alternative approach to the clitic climbing phenomenon, stated in terms of argument composition; our account provides for the specific intermediate distance characteristics of clitic dependencies without any further stipulations of the sort that appear to be required in any analysis based on FOOT (or NONLOCAL) features.

We first present our analysis for tense auxiliaries (section 3), then for predicative verbs (section 4) and finally for causative constructions (section 5).

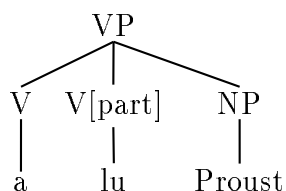
3 The Complementation of Tense Auxiliaries

Clitic climbing is obligatory with tense auxiliaries in French, as well as in other Romance languages. The explanation for this, we claim, is that these auxiliaries serve as the lexical head of a flat structure, take the past participle as their first complement and inherit all the complements of the participle as their remaining complements. There is thus no clitic climbing and the dependencies involved in such constructions are purely local in nature.

3.1 The Syntactic Structure of Tense Auxiliaries

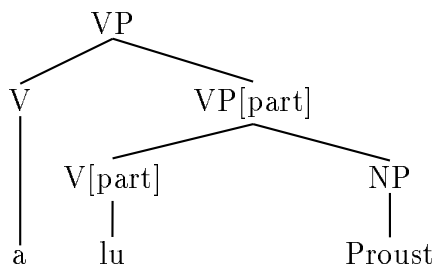
Several syntactic structures have been proposed for tense auxiliaries. Abeillé & Godard (1994) argue in favor of the flat structure (38) where the auxiliary, the past participle and its complements are all sisters (cf. Legaré & Rollin 1976, Fradin 1993):¹⁷

(38) Flat structure:



They systematically argue against the hierarchical structure in (39) with the auxiliary taking a VP complement, as suggested by Gazdar et al. (1982) for English (see also Pollock 1989, and Manning 1992.)

(39) Hierarchical structure:



Abeillé & Godard contrast the properties of the tense auxiliary with those of control verbs, for which they assume the hierarchical structure in (38). Their analysis is based on several independent empirical arguments. We briefly review three of them here: (a) classical constituency tests, (b) *tough*-constructions and infinitival relatives, and (c) causative constructions.

¹⁷The treatments by Aissen & Perlmutter (1983) and, Davies & Rosen (1988) embody essentially the same generalization using clause-union in relational grammar. Following an analogous intuition, Van Eynde (1994) proposes that the tense auxiliary is a VP marker, rather than the head of the VP. One problem with this analysis (in addition to the fact that it implies a serious revision of the Head Feature Principle) is that repetition of markers seems to be required on conjuncts in French (*Je me souviens de la fin, mais pas *(de) la première partie.*; v. Miller 1992.), while conjunction of participles and their complements with one auxiliary is normal: *Jean a bu du vin et mangé des fraises.*

3.1.1 Classical constituency tests

Classical constituency tests (pronominalization, VP-ellipsis, VP-preposing, clefting) show that the infinitival verb after a control verb forms a constituent with its complements.

(40) Jean peut venir chez nous, mais il ne le veut pas.

J. can stay with us, but he it does not want.

(41) Que veut-elle ? – Partir au Japon.

What does she want? – To-go to Japan.

(42) Ce que Jean voudrait, c'est partir immédiatement.

What John would like, it's to-go immediately.

However, this is not the case with tense auxiliaries: pronominalization, VP ellipsis or null complement anaphora, VP preposing, and cleft extraction are never possible and provide no evidence that the participle and its complements form a constituent.¹⁸

(43) a.*Jean n'est pas arrivé hier à l'heure au rendez-vous, mais Marie l'est.

J. is not arrived yesterday on time at the meeting, but M. it is.

b.*Jean croyait avoir compris, mais il ne l'avait pas.

J. thought he had understood, but he it had not.

(44) a.*Qu'est-elle ? – Partie au Japon.

What is she? – Gone to Japan.

b.*Qu'a-t-elle ? – Vendu ses livres.

What has she? – Sold her books.

There may well exist independent reasons for which each of these constructions is impossible. But it is clear that standard syntactic tests provide no support whatsoever for the hierarchical verb phrase structure in (39).

3.1.2 Tough-constructions and infinitival relatives

These constructions can be used as tests for the validity of the hierarchical VP structure. If the tense auxiliaries were to take a VP complement, like the control verbs *promettre* and *prévoir*, we would expect the infinitival relative clause and the *facile* construction to be impossible with an infinitival auxiliary followed by a participle, since the unrealized NP would be the complement of an embedded VP headed by the participle (cf. above section 1). But this is not what we find, as illustrated in (45) and (46):¹⁹

¹⁸Pronominalization can be allowed with certain participles and *être* for certain speakers (?*Jean est déjà arrivé mais Marie ne l'est pas encore.* 'Jean is already arrived but Marie is not it yet. '), but these are copular constructions, not compound tenses, as shown by the present tense interpretation.

¹⁹A constraint on the semantic type of the verb seems to be at work here; the acceptability of these constructions with a past infinitive (infinitival auxiliary followed by past participle) depends on the choice of verb.

- (45) a. ? L'année est trop courte ; le programme est difficile à avoir maîtrisé au moment de l'examen.
The year is too short; the content is difficult to have acquired at the time of the exam.
- b. C'est le genre de gens utiles à avoir fréquenté pendant sa jeunesse.
They are the type of people useful to have known during one's youth.
- (46) a. On vient de me donner un travail à avoir terminé pour demain sans faute.
I have just been given a job to have finished for tomorrow at the latest.
- b. On lui avait donné une somme à s'être avalé avant la fin du week-end.
He had been given a heavy-book to have read before the end of the week-end.

The acceptability of these examples follows directly from the flat structure, since the unrealized NP is the complement of the tense auxiliary.

3.1.3 Causative constructions

As is well-known, the causee in French causative constructions is realized either as an unmarked NP or an NP marked with *à*, depending on properties of the infinitival V complement. We assume the relevant distinction here is the transitive/intransitive distinction, which is a property of lexical verbs. This is illustrated in (47). The crucial point here is that the alternation is not restricted to nominal complementation, but is also relevant for verbs with infinitival or tensed sentential complements, as observed by Burzio (1986) for Italian. Very generally, verbs with an unmarked infinitival complement are treated as transitive by *faire*, as shown in (48):

- (47) a. Paul fera sortir (*à) Jean. *P. will-make leave J. /*to J.*
- b. Paul fera passer son examen *(à) Jean. *P. will-make take his exam *J. / to J.*
- (48) Le juge fera avouer *(à) Jean être responsable de la tentative de corruption.
*P. will-make confess *J./ to J. to be responsible for the corruption attempt.*

Thus, some transitive verbs have an ARGUMENT-STRUCTURE of the form ⟨NP, NP, ...⟩ and others have a ⟨NP, VP[unmarked], ...⟩ or ⟨NP, S, ...⟩ ARG-S list. If the auxiliary took an unmarked phrasal complement (by hypothesis, a VP), we might well expect it to be treated as transitive by *faire*, or, at least, to be treated in a consistent way. But this is not at all what we find. In fact, when the sentence is acceptable (again, there are strong aspectual constraints), the realization of the causee depends entirely on the transitivity value of the participle:

- (49) Leur flair et leur ambition ont fait avoir fréquenté les gens qu'il fallait *(à) notre nouveau ministre et *(à) sa femme.
Their flair and their ambition have made have known the right people to our new minister and his wife.

(50) La frugalité a fait avoir vécu jusqu'à 110 ans (* à) notre concitoyenne, et la fera vivre encore longtemps.

Frugality made her have lived until 110 years our fellow-citizen, and will her make yet live a long time.

Fréquenter is transitive, and *avoir* in (49) is treated as a transitive verb; conversely, *vivre* is intransitive, and *avoir* is treated as intransitive in (50). It is difficult to see how to reconcile these data with the hierarchical verb phrase structure. Under the hierarchical hypothesis, one would have to assume that a verb (the auxiliary) with an ARG-S argument list of the form ⟨NP, VP⟩ is transitive or intransitive depending on the transitivity of the head of the VP (the participial VP). Note that even if one were to accept that transitivity is transmitted from the head V (the participle) to the VP – (a move that would require further justification, given the unclarity of the notion transitive VP) – it does not follow that a verb (the auxiliary) should itself inherit the transitivity classification of its complement VP. On the other hand, the data in (49)-(50) can be accommodated within the flat structure analysis, as long as the auxiliary inherits the transitivity of the participle that is its complement.

3.2 An ‘Argument Composition’ Analysis

Having rejected the hierarchical VP complement structure for French tense auxiliaries, Abeillé & Godard (1994) defend the flat structure in (42) above on the grounds that it provides the simplest account of this whole range of data.²⁰ The tense auxiliary is thus analysed as the morphosyntactic head of a VP; its SUBJ value is identified with that of the participle, as is the case for all raising verbs. But, unlike raising verbs, it also inherits the content, the complements and the transitivity of its V^0 complement — the participle.²¹ The auxiliary thus assigns the relevant semantic role to its inherited complements, and no changes have to be made to the Head Feature Principle or the semantic principles of HPSG. This particular feature sharing mechanism is what we call ‘argument composition’.

Appropriate schematic lexical entries for *avoir* and *être* are sketched in (51) and (52):

²⁰The verbal complex structure proposed by Emonds (1978) could also account for these data. However, the intuition that the auxiliary-participle-complement(s) sequence has two heads, a morphosyntactic one (the auxiliary) and a semantic one (the participle) can be captured in HPSG by relevant structure sharing in the two lexical entries, rather than in constituent structure terms.

²¹We use V^0 as a shorthand for [LEX +] verbs. Our theory of categories is in fact barless.

(51) avoir:

$$\left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{1} \rangle \\ \\ \text{COMPS} \quad \left\langle \begin{array}{l} V^0 \\ \left[\begin{array}{ll} \text{V-AUX} & \textit{avoir} \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \boxed{5} \\ \text{ARG-S} & \boxed{4} \\ \text{TRANS} & \boxed{3} \\ \text{CONT} & \boxed{2} \end{array} \right] \end{array} \right\rangle \oplus \boxed{5} \\ \\ \text{TRANS} \quad \boxed{3} \\ \text{ARG-S} \quad \boxed{4} \\ \text{CONT} \quad \boxed{2} [\dots] \end{array} \right]$$

(52) être:

$$\left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{1} \rangle \\ \\ \text{COMPS} \quad \left\langle \begin{array}{l} V^0 \\ \left[\begin{array}{ll} \text{V-AUX} & \textit{\text{être}} \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \boxed{5} \\ \text{TRANS} & \boxed{3} \\ \text{ARG-S} & \boxed{4} \\ \text{CONT} & \boxed{2} \end{array} \right] \end{array} \right\rangle \oplus \boxed{5} \\ \\ \text{TRANS} \quad \boxed{3} \\ \text{ARG-S} \quad \boxed{4} \\ \text{CONT} \quad \boxed{2} [\dots] \end{array} \right]$$

Structure sharing is indicated by tag identity in the familiar way. As with raising verbs, the auxiliary’s SUBJ value and that of the verbal complement (the participle) are both tagged as $\boxed{1}$. To represent the inheritance of the complements, here the list $\boxed{5}$, we use the mechanism of argument composition explained above: the auxiliary takes as complements the lexical participle (V^0), which remains unsaturated for its complements $\boxed{5}$, and the list $\boxed{5}$. Notice that $\boxed{5}$ is a variable and can be empty (in the case of a participle without complements). The transitivity (TRANS) is also shared (as indicated by the tag $\boxed{3}$).²² The sharing of ARG-S values between the auxiliary verb and its participial complement has the effect of making the ARG-S of both verbs a list whose first element is $\boxed{1}$ and whose rest is the list $\boxed{5}$.²³

The participle is specified as [V-AUX *\textit{\text{être/avoir}}*], indicating simply whether it combines with the auxiliary *\textit{\text{être}}* or *\textit{\text{avoir}}*. Although we cannot enter into this question here, we see

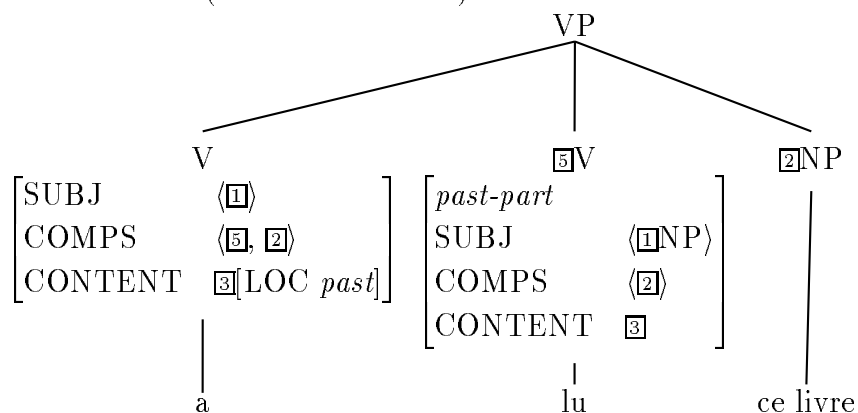
²²TRANS is here treated as a feature whose primary consequent is that the subject of [TRANS +] verbs is realized a NP[à] in the (composition) causative construction (see below). Transitive verbs will also be a subset of the [TRANS +] verbs. Finally, note that transitivity cannot simply be read off of a verb’s COMPS list. Thus objectless *manger* is intransitive, while objectless *gouter* is transitive, as their contrasting behavior in the causative construction demonstrates.

²³This ARG-S sharing is crucial to our account of participial agreement. See Miller and Sag 1994 and Abeillé et al. (in progress) for discussion.

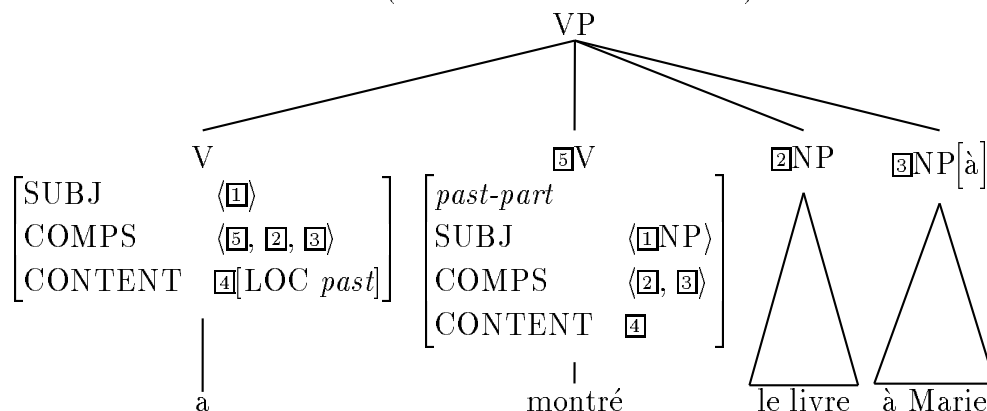
this as a lexical matter, which cannot be reduced to any other property. Most [V-AUX *être*] verbs are reflexives (verbs of the form *se-V*) to which one can add some thirty intransitive verbs (in standard French), which have to be listed.

Examples of VPs headed by a tense auxiliary are (53) and (54):

(53) a lu ce livre (*has read this book*)



(54) a montré le livre à Marie (*has shown the book to M.*)



This analysis of tense auxiliaries is a case of argument composition in the sense that a functor (the tense auxiliary) inherits the COMPS requirements of its argument (the past participle). The functor is allowed to combine with an unsaturated argument (one whose COMPS requirements have not been satisfied) and then directly with the arguments that the unsaturated argument itself requires. For instance, the lexical entry as instantiated in (54) for *avoir* takes as its first complement a past participle of a verb missing a direct object and a dative complement, and as its second and third complements the very same direct object and dative complement selected by the participle.

One should also note that this analysis requires no new phrasal type, nor any specific feature passing mechanisms: tense auxiliary constructions are instances of the standard Head-Complement schema and hence obey the Head Feature Principle, the Valence Principle and the Semantics Principle. The Head features of the VP are thus those of the auxiliary itself. The COMPS value of the VP is that of the auxiliary minus the realized complement

daughters. The CONTENT value of the VP is that of the auxiliary, i.e. the content of the participle and its arguments, unified with the tense and aspect contribution of the auxiliary.²⁴

The correct word order is obtained by a single constraint that orders lexical elements before the complements they select:²⁵

$$(55) \left[\begin{array}{l} \textit{word} \\ \text{COMPS} \langle \dots \boxed{1} \dots \rangle \end{array} \right] < \boxed{1}$$

Note that this LP rule constrains the lexical head to precede all complements. In addition, it guarantees that the participle, as a complement, must precede the other complements (but may be preceded by modifiers):

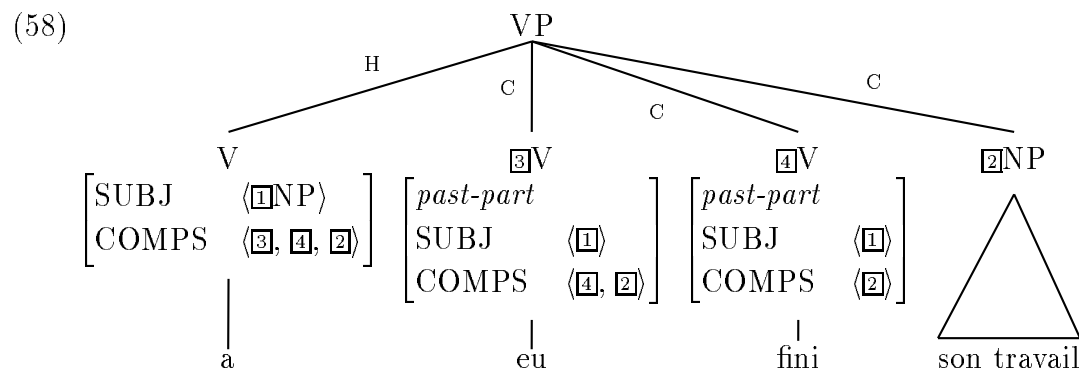
- (56) a. *Paul a son travail terminé. *P. has his work finished.*
 b. *Paul s'est à Jeanne adressé. *P. is (=has) to Jeanne addressed himself.*

Note further that the rule in (55) correctly predicts the order of elements in the 'surcomposé' construction, where there are two lexical V complements that have to be ordered, namely *eu* and *fini* in the following example:

- (57) a. Quand Paul a eu fini son travail... *When P. has had finished his work...*
 b. *Quand Paul a fini eu son travail...

Because the participle *fini* appears on the COMPS list of *eu* it must follow *eu*, and because both *eu* and *fini* appear on the COMPS list of *a*, both must follow *a*. Hence only the correct word order (57a) is produced by our analysis.²⁶

For speakers having the surcomposés, the resulting structure is flat: the first auxiliary inherits the complements of the following auxiliary, which itself inherits the complements of the last participle. The structure for *a eu fini son travail* ('has had finished his work') is the following:



²⁴We have nothing specific to say here about the semantic contribution of the auxiliary, which we simply note as the addition of a [LOC *past*] specification to the content.

²⁵We ignore adverb placement here.

²⁶The acceptability of surcomposé forms shows significant dialectal variation. For speakers who don't have them, one can simply exclude the participle forms of *être* and *avoir* from the auxiliary entries shown above. We thus deal with the attested variation in purely lexical terms.

Given the transitivity of argument composition, nothing in our analysis prevents an unbounded number of tense auxiliaries, although the upper acceptable limit is clearly two:

(59) ?*Quand Jean a eu été allé à P... When Jean has had gone to P...

Although minor modification of lexical entries could be made to rule out such examples, we believe that the upper limit here has a semantic basis. A *surcomposé* denotes a time which is anterior to a past time: a ‘*sur-surcomposé*’ would have to denote a past time with respect to a past time with respect to a past time with respect to the reference time. We do not think that temporal constructions of this complexity ever arise in natural languages.

3.3 Clitic Climbing with Tense Auxiliaries

The above analysis of tense auxiliaries interacts with the analysis of clitics sketched in the previous section in a way that immediately accounts for a wide range of clitic climbing phenomena. Since the complements of the participle are complements of the auxiliary, they are cliticized under the same conditions as ordinary complements. The tense auxiliaries thus undergo PRAF-LR like any other verb.

The Schematic lexical entries for *avoir* and one form derived from it by PRAF-LR are sketched in (60).

- (60) a. a (montré le livre à Daniel)
- $$\left[\begin{array}{l} \text{PRAS} \quad \{ \} \\ \text{SUBJ} \quad \langle \boxed{3} \rangle \\ \text{COMPS} \quad \left\langle V^0 \left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{3} \rangle \\ \text{COMPS} \quad \langle \boxed{2} \text{NP}[\textit{acc}], \boxed{4} \text{NP}[\textit{à}] \rangle \end{array} \right], \langle \boxed{2}, \boxed{4} \rangle \right\rangle \\ \text{ARG-S} \quad \langle \boxed{3}, \boxed{2}, \boxed{4} \rangle \end{array} \right] \Rightarrow \text{PRAF-LR}$$
- b. l’a (montré à Daniel)
- $$\left[\begin{array}{l} \text{PRAS} \quad \{ \boxed{2} \text{NP}[\textit{acc}]_{3\textit{msg}} \} \\ \text{SUBJ} \quad \langle \boxed{3} \rangle \\ \text{COMPS} \quad \left\langle V^0 \left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{3} \rangle \\ \text{COMPS} \quad \langle \boxed{2}, \boxed{4} \rangle \end{array} \right], \langle \boxed{4} \text{NP}[\textit{à}] \rangle \right\rangle \\ \text{ARG-S} \quad \langle \boxed{3}, \textit{pr-aff} \langle \boxed{2}, \boxed{4} \rangle \rangle \end{array} \right]$$

This shows how the cliticization of a complement of the participle is possible on the tense auxiliary but not why it is obligatory. We assume a general morphological constraint which rules out cliticization on past participles, and prevents PRAF-LR from applying to participle forms, as can be seen with absolute participials:²⁷

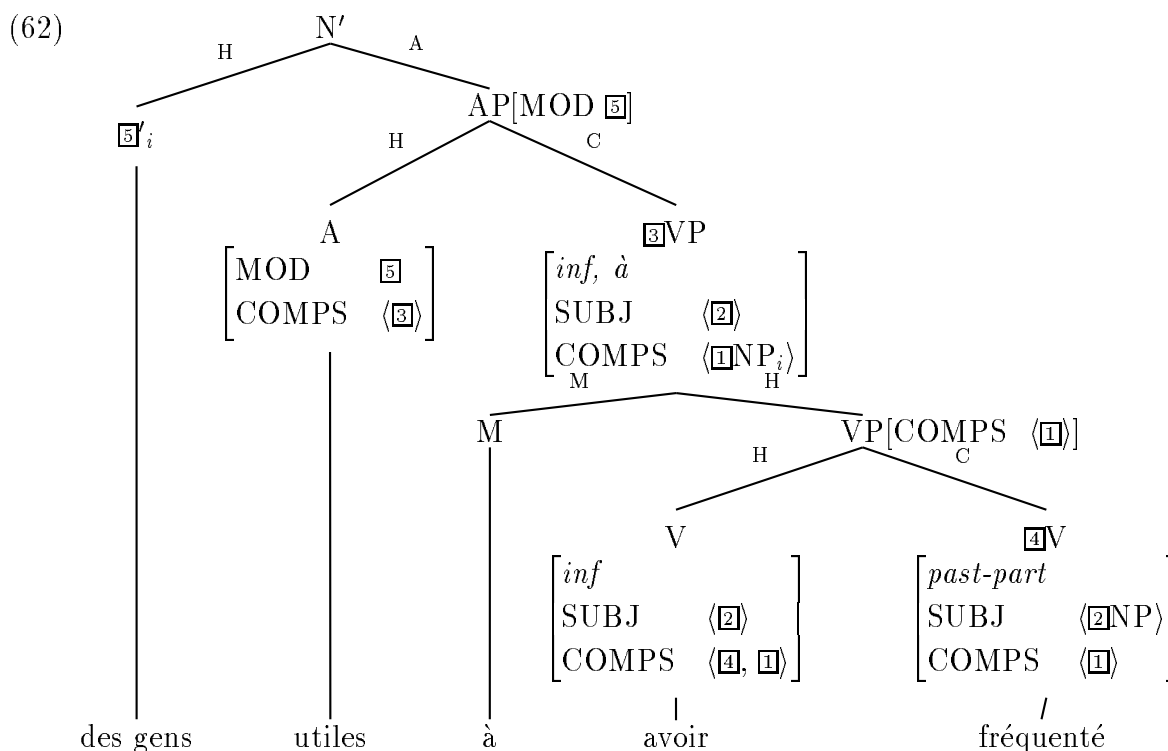
²⁷The situation is different in Italian where cliticization is possible on past participles in absolute participials but not in tense auxiliary constructions. Monachesi 1993b proposes that the entry for the tense auxiliary specifies that its V^0 complement has an empty PRAS value.

- (61) Descendu dans le grand canyon, Jean ne pensait qu'à remonter.
Gone-down into the G Canyon, J. was thinking of nothing but of climbing back up.
 *Y descendu, Jean ne pensait qu'à remonter.

It should also be noted that 'inherent' clitics (inherent reflexives, idiomatic clitics) also climb with tense auxiliaries (*P. s'est suicidé* 'P. committed suicide', *P. en a vu de toutes les couleurs* 'P. had a lot of trouble'). Because such verbs are lexically assigned complements of type *pr-aff* on their COMPS list (*NP-pr-aff* or *PP-pr-aff*), they are shared by the COMPS list of the auxiliary and hence must be removed by an application of PRAF-LR to the finite auxiliary. Their removal by PRAF-LR is guaranteed by the fact that overt complements have *canonical* SYNSEM values, and are hence inconsistent with these specifications on a head's COMPS list.²⁸

3.4 Tough-Constructions with Tense Auxiliaries

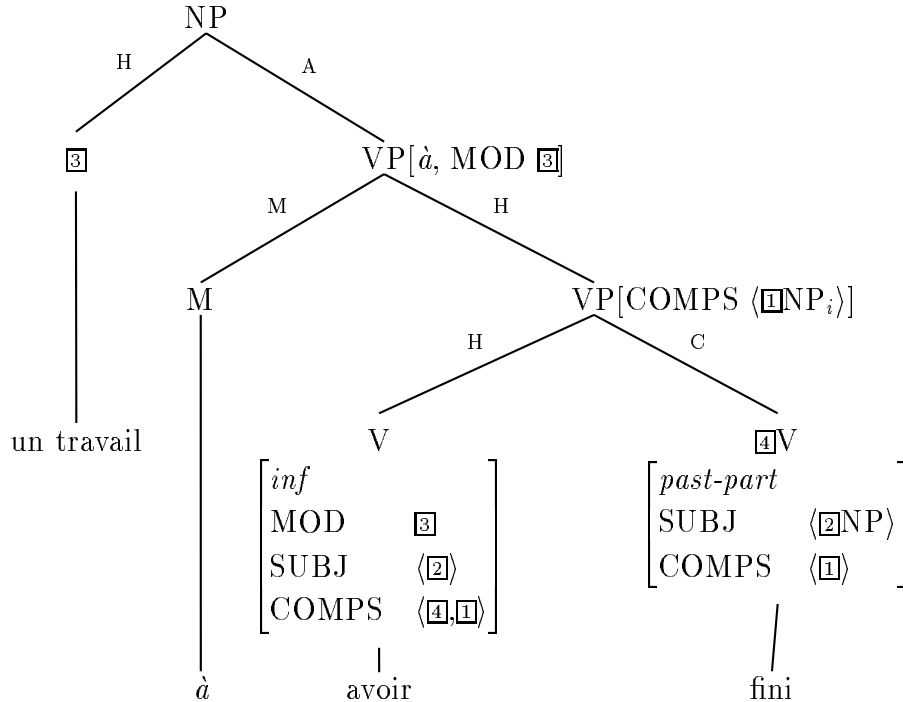
The representation of *tough*-constructions, or infinitival relatives, involving compound tenses is also straightforward. When the infinitival VP comprises a tense auxiliary, it is the missing NP complement of the auxiliary (shared with the past participle) which is identified with the antecedent of the attributive adjective. The following tree shows the analysis of the NP *des gens utiles à avoir fréquenté* ('people useful to have known').



And the description of the complex NP *un travail à avoir fini* ('a job to have finished') is given in (63).

²⁸And of course such COMPS members cannot undergo the Complement Extraction Lexical Rule (CELR) of Sag and Fodor 1994 either, as this rule requires the removed *synsem* element to be of type *gap*.

(63)



We have motivated a novel flat complementation structure for tense auxiliaries, basing our proposal on several independent empirical arguments. This analysis captures the fact that all arguments of the past participle (in compound tense constructions) must be realized as arguments of the auxiliary. Given the effect of argument composition, it becomes clear that no additional mechanism for clitic climbing is required. Let us turn now to passive constructions which exhibit quite different behavior.

4 Passive and the Complementation of Copular Verbs

Let us now turn to the case of clitic climbing out of predicative complements – APs, NPs and passive VPs. It is well-known that complements of predicative APs, NPs and passive VPs can be extracted or cliticized on the main verb:²⁹

(64) a. Pierre reste fidèle à ses amis. *P. remains faithful to his friends.*

b. A qui reste-t-il fidèle ? *To whom does he remain faithful?*

c. Pierre leur reste fidèle. *P. remains faithful to them.*

(65) a. Pierre est le chef de la majorité. *P. is the head of the majority.*

b. De quel parti Pierre est-il le chef ? *Of which party is P. the head?*

²⁹Of course, all PPs in French, including predicative PPs, are islands for extraction phenomena (relativization, question, cliticization), and contrast with object NPs: *Pierre est contre la révision de la constitution*. **Pierre en est contre la révision* ‘*P. is against the revision of the constitution*’; ‘*P. is against the revision of it*’.

- c. Pierre en est le chef. *P. is the head of it.*
- (66) a. Pierre sera présenté aux invités par Marie. *P. will be presented to the guests by Marie.*
- b. A qui Pierre sera-t-il présenté? *To whom will P. be presented?*
 - c. Pierre leur sera présenté par Marie. *P. will be presented to them by M.*

At first blush, one might assume that clitic climbing and extraction in these cases is evidence for a treatment of verbs governing predicative complements parallel to that proposed for tense auxiliaries, using a flat structure. However, as discussed in detail in Abeillé and Godard (1994b), the same tests that argue against the existence of a VP constituent as a complement to tense auxiliaries suggest that predicative complements of verbs *are* constituents. For instance, these complements can be pronominalized, questioned, clefted, or dislocated:

- (67) a. Fidèle à ses convictions, Pierre le restera certainement.
Faithful to his convictions, P. will certainly remain it.
- b. Pierre n'est plus le chef qu'il a été.
P. is no longer the leader that he used to be.
 - c. Pierre le sera. [le = présenté aux enfants par Marie]
P. will be it. [it=presented to the children by Marie]
- (68) a. Qu'est-ce qu'elle a été, la malheureuse, agressée ou seulement délestée de son portefeuille ?
What has she been, the poor woman, mugged or merely relieved of her wallet?
- b. C'est délestée de son portefeuille qu'elle a été, la malheureuse.
It's relieved of her wallet that she has been, the poor woman

One could thus posit multiple structures for these constructions (as for Italian restructuring verbs, see Monachesi 1993): one with a (single) phrasal complement, and the other a flat structure (with all complements of the predicate realized as complements of the main verb). But there are other properties which set these constructions apart. It is possible to cliticize the head of the predicative complement, leaving its complement behind:

- (69) a. Fidèle, Pierre le restera à ses convictions, mais non à ses amis.
Faithful, P. will remain it to his convictions, but not to his friends.
- b. Pierre est-il le chef de la majorité?
Non, il ne l'est que d'une partie du RPR.
Is P. the head of the majority? No, he it-is only of a part of the RPR.
 - c. Pierre a-t-il été présenté aux parents?
Non, mais il l'a été aux enfants.
Has P. been introduced to the parents? No, he it is has been to the children.

One can also cliticize the head predicate with one of its complements, leaving the other complement behind:

(70) *Présenté aux enfants, Pierre le sera certainement par Marie.*
Presented to the children, Pierre will certainly be it by Marie.

(71) *Pierre a t-il été présenté aux parents par Marie?*
 – *Oui, mais il l’avait d’abord été aux enfants. (l’= présenté par Marie)*
Has P. been introduced to the parents by M.? – Yes, but he it had first been to the children.

In order to account for this array of data, Abeillé & Godard propose to assign to predicative verbs (including passive *être*)³⁰ a single underspecified complementation frame: a phrasal complement which can be partially saturated. The entry for copular *être*, for example, takes predicative complements (APs, PPs, NPs or passive VPs) with which it may share some complements.³¹

(72) *être* (copula):

$$\left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{1} \rangle \\ \text{COMPS} \quad \left\langle \text{XP} \left[\begin{array}{l} \text{PRED} \quad + \\ \text{SUBJ} \quad \langle \boxed{1} \rangle \\ \text{COMPS} \quad \boxed{3} \\ \text{CONT} \quad \boxed{2} \end{array} \right] \right\rangle \oplus \boxed{3} \\ \text{TRANS} \quad - \\ \text{CONT} \quad \boxed{2}[\dots] \end{array} \right]$$

As $\boxed{3}$ is a variable ranging over lists, it can be empty (in that case XP is saturated). Alternatively, $\boxed{3}$ may consist of one or more of the complements missing in XP. Notice that, as is the case with tense auxiliaries (and all raising verbs), the copula shares its subject with the predicative XP. As with the tense auxiliaries, the copula inherits the content of its XP complement and adds tense or aspect information represented here by [...]. The same type of entry is also used for other verbs taking [+PRED] complements, such as *devenir*, *paraître*, *rester*, etc., which also allow argument composition.

Unlike the tense auxiliaries, copular verbs are always intransitive, as shown by their behavior in causative constructions (first example from Kayne (1975: 208)). This is a direct consequence of the fact that predicative NPs are not accusative (cf. the impossibility of predicative NPs appearing in *tough*-constructions, as shown in example (17a) above).

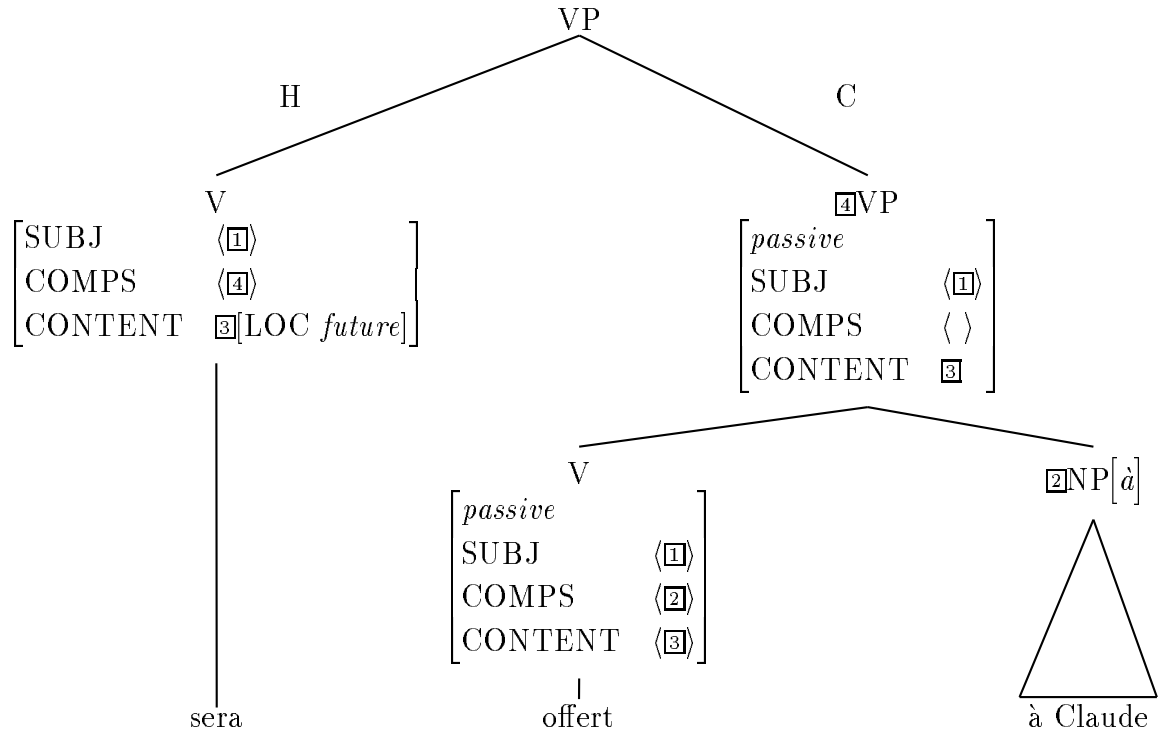
³⁰Following a suggestion of Milner (1986), Abeillé & Godard (1994b) show that copular *être* and passive *être* are the same lexical item, as opposed to the tense auxiliary. This conclusion is reached on the basis of arguments that concern tense, transitivity, past participle agreement, position and scope of manner adverbs, pronominalization, coordination and binding.

³¹Other constructions of the copula involve identity NPs (*L’ami d’Horatio est Hamlet* ‘The friend of Horatio is H.’) and locative PPs (*Jean est dans la maison de Paul* ‘Jean is in Paul’s house.’). In contrast to predicative complements, these may not be cliticized with *le*, and do not allow for the raising of their complements either. We ignore them here, but they could be related to the proposed entry by lexical rule.

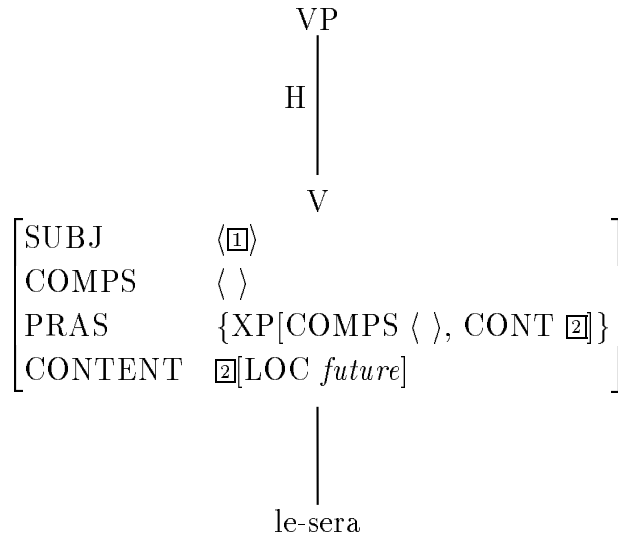
- (73) a. Cela fera devenir son fils un bon professeur.
This will-make his son become a good teacher.
- b. *Cela fera devenir un bon professeur à son fils.
- c. Cela fera devenir Jean fou. *This will-make J. become mad.*
- d. ?*Cela fera devenir fou à Jean.

The passive VP *sera offert à Claude*, for example, has two analyses (one with $L = \langle \rangle$; one with $L = \langle \text{NP}[\text{à}] \rangle$), each of which corresponds to a different cliticization:

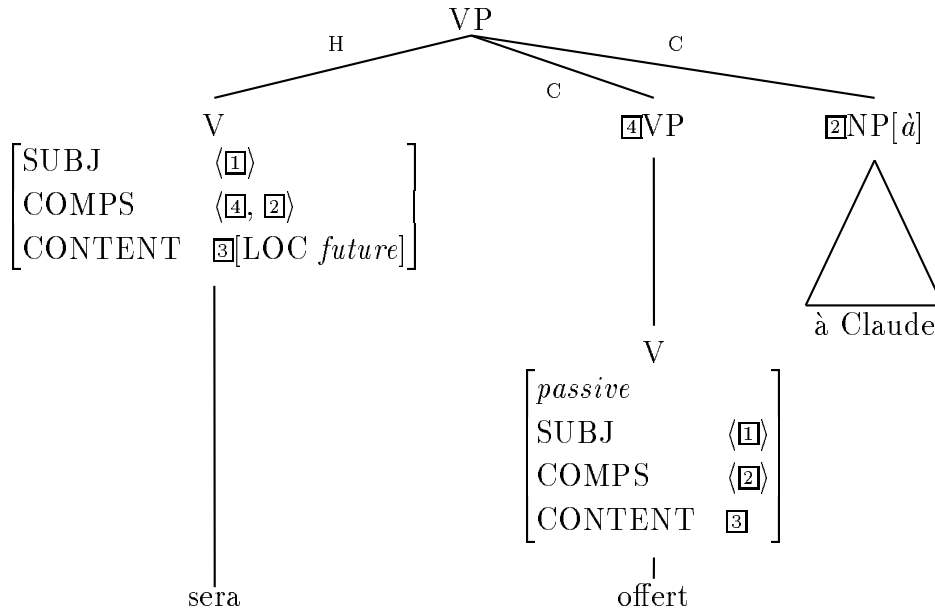
(74) a. *sera offert à Claude* ('will-be offered to C.') with a saturated VP complement:



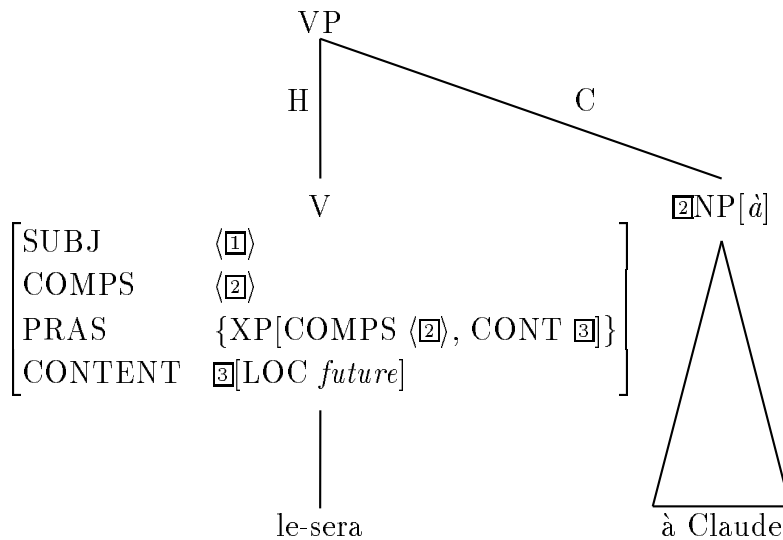
b.



(75) a. *sera offert à Paul* with an unsaturated VP complement



b.



To license partially saturated phrases of the kind just illustrated, we use the modified Head-Complement schema discussed above (section 1.1) for *tough*-constructions. But in order to accommodate the full range of unsaturated predicative complements (including NPs, APs and PPs), we must generalize the schema in (19b), which allowed for only verbal unsaturated phrases. In fact, we can accommodate all these cases by collapsing the two schemata in (19b) as follows:

(76) Head-Complement Schema (final version):

$$X \rightarrow \text{HEAD-DTR}[\textit{word}] , \text{COMP-DTRS}^*$$

As such, this analysis predicts that it is possible to get clitic climbing out of a post-copular predicative PP, since PPs can be a predicative complements and no part of speech restriction is imposed on the complement of the copula in (72). But in fact clitic climbing out of a PP is disallowed (*Il sera contre le président./*Il le sera contre.*) Since there is also a general constraint against preposition stranding in French (**Quel quai on va sur?; *Qu'est-il contre?*), we appeal to a general constraint on prepositions in French which allows them to select only *canonical* objects on their COMPS lists, excluding both *pr-aff* and *gap* elements. Thus we do not rule out structures such as **il le sera* by imposing a constraint on the copula, but rather by appealing to independent constraints that prevent cliticization or extraction. This gives us an independent unified account of the impossibility of preposition stranding by extraction and of clitic climbing out of PPs.

Let us see how the above structures correctly interact with the clitic facts mentioned above. In (a), when the PRAF-LR applies to *être* the only result is *le-sera*. In case (b), applying the PRAF-LR to *être* gives two results: *le-sera à Claude* and *lui-sera offert*. One may wonder how we rule out cliticization of both complements in (b), namely **le-lui-sera*. Recall that, as illustrated in (69c) above, even an unsaturated XP can be cliticized. The ungrammaticality of **le-lui-sera* seems to be the result of a parochial constraint on predicative *le*, which appears to systematically resist cooccurrence with any other clitic pronoun:

- (77) a. Jean est heureux à Paris. *J. is happy in Paris.*
 b. Jean y est heureux. *J. is happy there.*
 c. *Jean l'y est. *J. is it there.*
- (78) a. Elle nous semble malade. *She seems ill to-us.*
 b. ??Elle nous le semble. *She seems it to-us.*

To conclude our discussion of predicatives, we have shown that climbing of complements of passive participles, nominal or adjectival predicates is not limited to pronominal clitics, if one takes into account the full range of pronominalization facts (including cliticization of the predicative head itself). We handle these constructions by allowing predicative verbs to take an unsaturated phrasal (XP) complement. Unlike tense auxiliary constructions, merging of complement lists here is optional and crosses exactly one phrasal boundary. The difference between this and *tough*-constructions (or missing object relatives) is that here any complement (and possibly several) can be missing in the XP and realized as a complement of the main verb.

Let us now turn to the last case of seemingly non local clitic-verb dependencies in French, namely causative and perception verbs.

5 Causatives and Perception Verbs

A third case of clitic climbing in French involves causatives (*faire, laisser*) and perception verbs. In these constructions, the causee (the understood subject of the V[*inf*], a complement of the V[*inf*], or both, can attach as a clitic to the main verb:

- (79) Le professeur les fera chanter. *The professor them will-make sing.*
- (80) Pierre nous laissera certainement tomber. *P. us will-let certainly fall-down.*
- (81) Jean l' a entendu chanter par la chorale de Radio-France.
Jean it has heard sing by the RF choral.
- (82) Jean la fera goûter aux enfants. (la tarte aux pommes)
Jean it will-make taste to the children (the apple pie).
- (83) Jean la leur fera goûter. *Jean will-make them taste it.*
- (84) Jean la leur laissera chanter. *Jean will-let them sing it.*

The situation is different from cases with tense auxiliary or a predicative verb, since clitics may also appear on the infinitival verb form some speakers:

- (85) %Jean les fera la goûter (la tarte aux pommes). *J them will-make it taste (the apple pie).*
- (86) %Pierre nous laissera les ramasser (les pommes). *P us will let them pick-up (the apples).*
- (87) %Jean les a entendus en parler. *J them has heard of-it talk.*

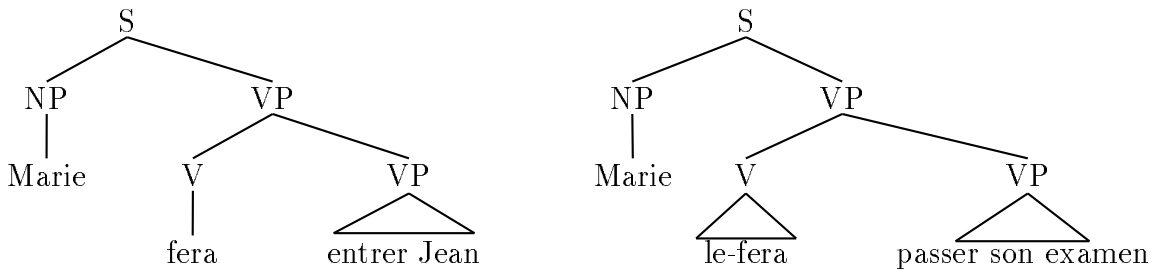
Does this mean that clitic climbing is optional in cases like these?

5.1 The Double Structure of Causative Constructions

We follow here Abeillé, Godard & Miller (1994) who show that no clitic climbing is in fact involved in the preceding cases. We argue that two different constructions are to be distinguished: a composition construction with a flat structure similar to that of tense auxiliaries (available for all speakers), and a control construction with a VP complement (and without clitic climbing), which is the locus of major variation between speakers. The flat structure, where *faire* (or *laisser* or the perception verbs) inherits the subject and the complements of the infinitive, forces all clitics to appear on the main verb.³²

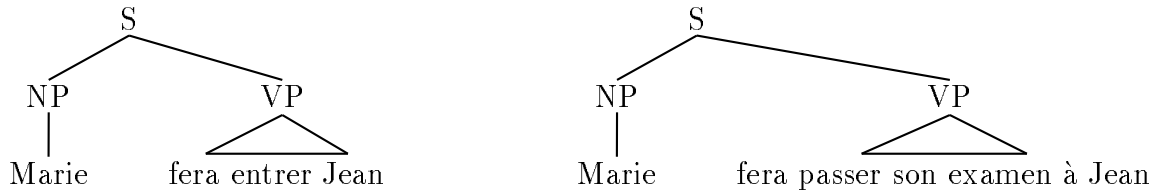
The two structures are the following:

- (88) Control *faire*



³²Except inherent clitics, and reflexives for some speakers, to which we return below. Note that a similar bipartition was proposed by J.Y. Morin 1978 in a GPSG perspective.

(89) Composition *faire*



Clitic placement is the main criterion for distinguishing the two constructions (cf. Aissen and Perlmutter 1983), but it crucially correlates with five independent contrasting properties, namely: (a) the realization of the causee, (b) *tough*-constructions, (c) negation, (d) coordination, and (e) semantic entailments.

We give examples of the first three contrasts. The causee (with a transitive infinitive) is realized as an *à* or *par* complement (or a dative clitic) with composition *faire*, but only as clitic *le* with control *faire*:

(90) a. Jean fera réparer la voiture à Paul / par Paul. (composition *faire*)
J. will-make repair the car to/by P.

b. Jean la fera réparer à Paul/ par Paul.

c. Jean la lui fera réparer.

d. ?* Jean lui fera la réparer.

(91) a. %Jean le fera la réparer. (control *faire*)

b.*Jean fera la réparer à Paul/ par Paul.

Tough-constructions are possible with composition *faire*, but not with control *faire*:

(92) a. Cette chanson est difficile à faire apprendre à /par nos enfants. (composition *faire*)
This song is difficult to make our children learn.

b. Cette chanson est difficile à leur faire apprendre.

(93)*Cette chanson est difficile à les faire apprendre. (control *faire*)

The differences between structures (88) and (89) immediately accounts for this contrast, given the analysis of *tough*-constructions in French proposed above: composition *faire* patterns like the tense auxiliaries which share the same flat structure.

Negation of the infinitival is OK with control *faire*, but not with composition *faire*:

(94) a.*Ça fera ne pas réparer la voiture à/par Paul. (composition *faire*)
This will-make not repair the car to/by P.

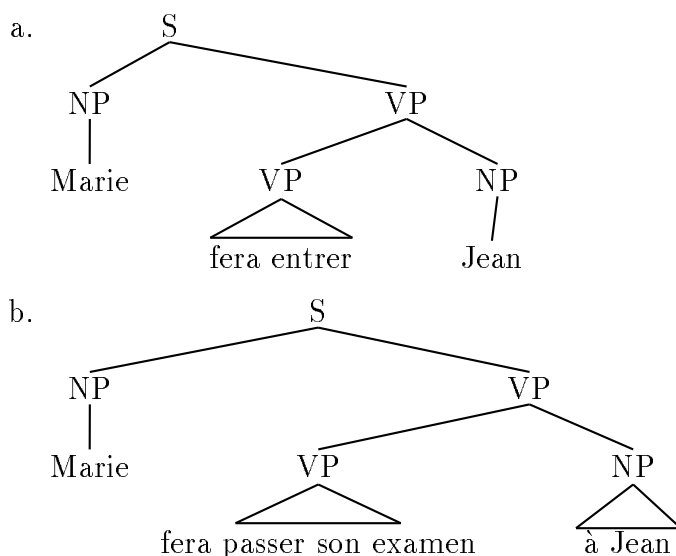
b.*Ça la fera ne pas réparer à/par Paul.

- (95) %Ça le fera ne pas la réparer. (control *faire*)
This him will-make not repair it.

This is straightforward if *ne-pas* adjoins to VP (and not to V).

A third kind of structure has been proposed for French *faire*, involving either an S or a VP complement (e.g. Kayne 1975, Rouveret & Vergnaud 1980). One version of this is illustrated in (96):

- (96) Hierarchical Structure:



Specific arguments against (96) are the following (cf. Miller 1992:237ff.). First, contrary to what is to be expected from (96b), the order between the causee and the complements of the V[*inf*] follows the general principles governing the unmarked ordering of sister arguments in French, namely accusative NPs precede case marked NP and the order among case-marked NPs or PPs is free. This can be seen by comparing (97) and (98) which involve ditransitive lexical verbs and (99) and (100) with composition *faire*.

- (97) a. Jean donnera le livre à Marie. *J. will-give the book to M.*

b. ?Jean donnera à Marie le livre.

- (98) a. Jean parle de Pierre à Marie. *J. will-talk about P. to M.*

b. Jean parle à Marie de Pierre.

- (99) a. Marie fera parler Jean à Paul. *M. will make J. speak to P.*

b. ?Marie fera parler à Paul Jean.

- (100) a. Marie fera disposer les livres sur la table aux enfants.

- b. Marie fera disposer les livres aux enfants sur la table.
Marie will make the children set the books on the table.

This contrasts with what is found with control verbs, where one cannot permute a VP-internal NP[*de*] and a VP-external NP[*à*]:

- (101) a. Jean promettait [_{VP} de se souvenir de cela] à Marie
J. promised to remember this to M.

- b.*Jean promettait de se souvenir à Marie de cela.

Second, the hierarchical structure (96b) predicts that heavy NP shift should not be possible between *son examen* and *à Jean* in that sentence. This is predicted for the same reasons that explain why (102b) is not a possible reordering of (102a), which has an infinitival VP complement. Heavy NP shift occurs only between sister constituents, not between sister and niece constituents.

- (102) a. Marie [VP promettra [VP de passer [NP l'examen qu'elle reporte depuis des mois]]
[NP à Jean]]
Marie will promise John to take the exam that she has been putting off for months.

- b.*Marie promettra de passer à Jean l'examen qu'elle reporte depuis des mois.

- c. Marie promettra à Jean de passer l'examen qu'elle reporte depuis des mois.

But in fact, in composition-*faire* structures, heavy-NP shift applies exactly as it does between the arguments of a ditransitive verb like *donner*, which has a flat complementation structure. This is shown by the parallelism between (103a) and (103b).

- (103) a. Pierre a donné à Marie le livre qu'il avait acheté la veille.
Pierre gave to Marie the book that he had bought the day-before.

- b. Pierre a fait regarder à Marie le livre qu'il avait acheté la veille.
Pierre made Marie look-at the book that he had bought the day-before.

Finally, contrary to what we would expect from (96a), the NP causee has the structural properties of a direct object (Abeillé, Godard & Miller 1994): quantitative *en* can be extracted:

- (104) a. Il en a acheté trois *He of-them has bought three.*

- b.*Trois en ont couru. *Three of-them have run.*

- c. Il en fera courir trois. *He of-them-will-make run three.*

These three arguments not only cast doubt on hierarchical structures like (96), but also argue in favor of our flat structure where the causee and the other complements are sisters. The other arguments for having a flat structure for composition *faire* are the very same as those used for tense auxiliaries, namely, classical constituency tests, position and scope of manner adverbs and *tough*-constructions. Similarly, the classical constituency tests argue in favor of a flat structure for composition *faire*, in parallel to what was shown above for the tense auxiliaries in examples (40) and following.

5.2 The Analysis of Composition *Faire*

We analyse composition *faire* as the head of a flat VP, taking as complements the causee, the lexical infinitive (V^0), and inheriting the complements of the latter. Depending on the realization of the causee (direct object or NP[\hat{a}]), which itself depends on the transitivity of the infinitive, we distinguish two entries for composition *faire*:

- (105) Composition *faire*:
 (a) with a transitive V[*inf*]

*faire*₁:

$$\left[\begin{array}{l}
 \text{SUBJ} \quad \langle \boxed{1} \text{NP}_i \rangle \\
 \\
 \text{COMPS} \quad \left\langle \boxed{3} V^0 \begin{array}{l}
 \left[\begin{array}{l}
 \textit{inf} \\
 \text{PRAS} \quad \{ \} \\
 \text{SUBJ} \quad \langle \text{NP}_j \rangle \\
 \text{COMPS} \quad \boxed{5} \\
 \text{TRANS} \quad + \\
 \text{CONT} \quad \boxed{4}
 \end{array} \right] \\
 \oplus \langle \boxed{2} \text{NP}[\hat{a}]_j \rangle \oplus \boxed{5}
 \end{array} \right\rangle \\
 \\
 \text{TRANS} \quad + \\
 \text{ARG-S} \quad \langle \boxed{1}, \boxed{2} \rangle \oplus \boxed{5} \\
 \\
 \text{CONT} \quad \left[\begin{array}{l}
 \textit{cause-rel} \\
 \text{CAUSER} \quad i \\
 \text{CAUSEE} \quad j \\
 \text{SOA-ARG} \quad \boxed{4}
 \end{array} \right]
 \end{array} \right]$$

(b) with an intransitive V[*inf*]

*faire*₂:

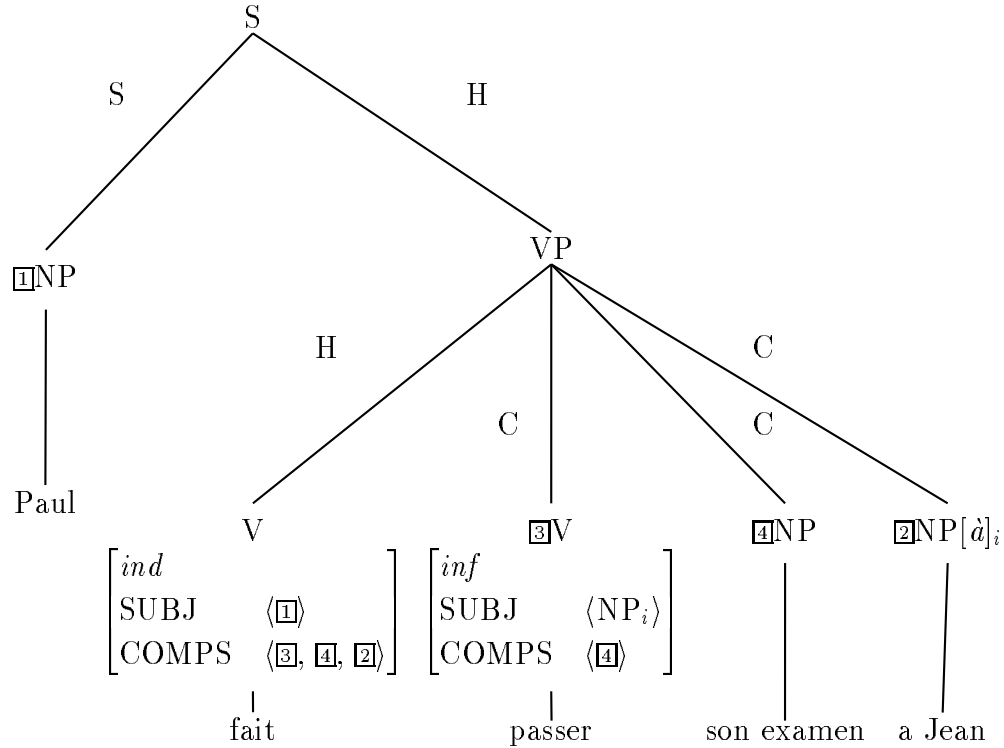
$$\left[\begin{array}{l} \text{SUBJ} \quad \langle \boxed{1} \text{NP}_i \rangle \\ \\ \text{COMPS} \quad \left\langle \text{V}^0 \begin{array}{l} \begin{array}{l} \textit{inf} \\ \text{PRAS} \quad \{ \} \\ \text{SUBJ} \quad \boxed{2} \\ \text{COMPS} \quad \boxed{5} \\ \text{TRANS} \quad - \\ \text{CONT} \quad \boxed{4} \end{array} \end{array} \right\rangle \oplus \boxed{2} \langle (\text{NP}_j) \rangle \oplus \boxed{5} \\ \\ \text{TRANS} \quad + \\ \text{ARG-S} \quad \langle \boxed{1}, \boxed{2} \rangle \oplus \boxed{5} \\ \\ \text{CONT} \quad \begin{array}{l} \textit{cause} \\ \text{CAUSER} \quad i \\ \text{CAUSEE} \quad j \\ \text{SOA-ARG} \quad \boxed{4} \end{array} \end{array} \right]$$

The first entry is for cases where *faire* combines with a (lexical) transitive infinitive: the causee is realized as NP[*d*]. The second one is for cases where *faire* combines with a (lexical) intransitive infinitive: the (missing) subject of V[*inf*] is realized as the direct object of *faire*.³³

The structure obtained for *Paul fait passer son examen à Jean* ('P. will-make J. take his exam'), using (105a) and the standard (COMPS-saturated) Head-Complement schema is the following:

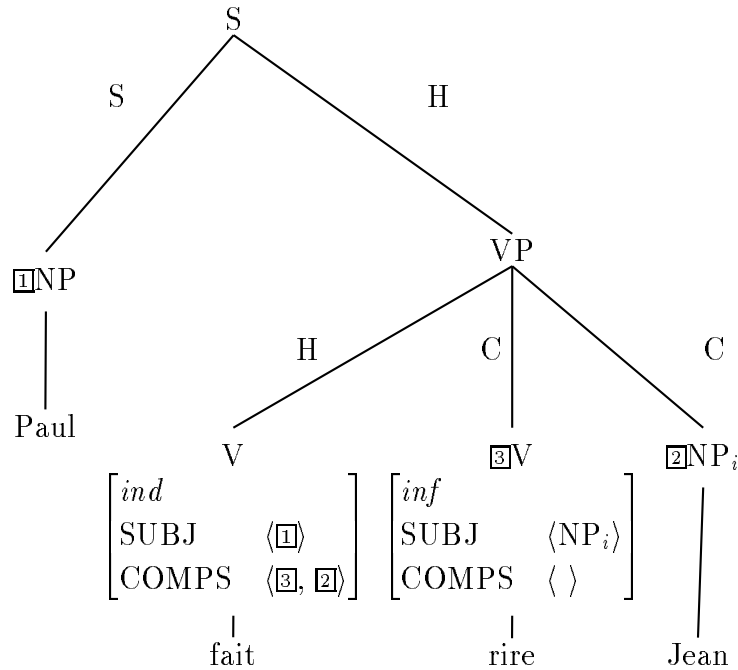
³³Following Fauconnier (1983), we analyze *faire-par* constructions in terms of a 'passive' infinitival V, which has a *par*-NP as one of its complements, but has no subject. This intransitive verb (derived from the active V[*inf*] by a subject demotion rule) is thus combined with the second entry for *faire*. This treatment allows us to account for the well-known binding differences between *faire-à* and *faire-par* constructions. In addition, it explains why an intransitive V[*inf*] (with its complements) can be conjoined with a V[*inf*]-*par*-NP as complements of *faire*, while a transitive V[*inf*] and an intransitive V[*inf*] cannot be conjoined.

(106)



The structure assigned to *Paul fait rire Jean* ('P. makes J. laugh'), derived with *faire* as in (105b), is shown in (107):

(107)



Notice that both cases use the LP rule (55) defined above (section 3.2) for tense auxiliaries, which orders the lexical V complement before the other complements. The relatively free word order between the other complements is obtained by the same principles that hold between all sister complements:

- (108) a. Unmarked NP complements usually precede complements with a marker and PPs
 b. NP complements usually precede VP ones,
 c. PPs and marked NPs are not ordered with respect to one another,...

Finally, let us insist on the fact that the structures produced for composition-*faire* sentences, given these lexical entries, ensure that both the causee and the complements of the infinitive will be realized as clitics on *faire*, rather than on the infinitival verb. This means that we account for the special distribution of clitics in causatives, namely the so-called clitic-climbing facts illustrated in (109), by the very same mechanism (PRAF-LR) needed for classical clitic complements of simple verb forms:

- (109) Pierre la lui fera manger. (sa tartine, à son fils)
Pierre it to-him will-make eat it. (the sandwich, to his son).

What prevents an optional clitic realization on the V[*inf*] is the restriction [PRAS { }] in the *faire* entries in (105).³⁴

5.3 The Analysis of Control *Faire*

As argued above, control *faire* takes a VP complement and forces all clitics to attach on the V[*inf*], except the accusative clitic corresponding to the causee.³⁵ Its structure is the same as that of (object) control verbs, except that the object cannot be a full (i.e. nonclitic) NP:

- (110) a. %Paul le fera la réparer. *P. will-make him repair it.*
 b. *Paul fera la réparer Jean.
 c. *Paul fera Jean la réparer

³⁴Note however, that it is in fact possible to have inherent clitics downstairs when there are unambiguous indications of composition, namely the presence of a causee marked with *à* or *par*. This is the case for all speakers for clitics that are idiom chunks, as in the following example, and for inherent reflexives (*s'imaginer*), idiomatic reflexives (*se casser la figure*), and middle-passive reflexives (*se briser*) (as noted in Rouveret & Vergnaud 1980)

- (i) Cette situation a fini par faire en avoir marre à Marie.
This situation ended up by making Marie completely fed up.
 (ii) *Cette situation a fini par en faire avoir marre à Marie.

See Abeillé, Godard & Miller 1994 and Godard & Sag 1995 for an analysis of these cases and of the related ‘clitic-trapping effect’.

³⁵Abeillé, Godard & Miller (1994) argue that there are two other varieties of control *faire* available with interspeaker variation: one where the causee is realized as an ‘extended’ dative (*Je lui ferai changer d’attitude* ‘I will-make him/her change his/her attitude’) and one with an inverted NP causee (*Paul fera en parler Jean*. ‘P will-make J talk about it.’) which is analysed as VP-internal. Neither of these constructions is specific to *faire*. Both constructions exhibit the crucial control properties: negation of the VP, no *tough*-constructions, etc.

(111) Control *faire*:

$$\left[\begin{array}{l}
 \text{SUBJ} \quad \langle \boxed{1} \text{NP}_i \rangle \\
 \text{COMPS} \quad \left\langle \left(\boxed{2} \text{pr-affNP}[\text{acc}]_j, \boxed{4} \text{VP} \left[\begin{array}{l} \text{inf} \\ \text{SUBJ} \quad \langle \text{NP}_j \rangle \\ \text{COMPS} \quad \langle \rangle \\ \text{CONT} \quad \boxed{3} \end{array} \right] \right) \right\rangle \\
 \text{CONT} \quad \left[\begin{array}{ll} \textit{cause-rel} & \\ \text{CAUSER} & i \\ \text{CAUSEE} & j \\ \text{SOA-ARG} & \boxed{3} \end{array} \right] \\
 \text{TRANS} \quad + \\
 \text{ARG-S} \quad \langle \boxed{1}, \boxed{2}, \boxed{4} \rangle
 \end{array} \right]$$

The causee can never be realized on our analysis because it is a general property of all syntactic phrases that their SYNSEM value is of the subtype *canonical-synsem*, which is in conflict with the type *pr-aff* specified for the causee in (111).

The syntactic realization of the causee, unlike English, is in fact optional:

(112) %Il faut faire en parler.

It is necessary to cause [people] to talk about it.

By making the object optional in (111), we allow arbitrary control of the subject of the lower verb as an alternative to the clitic controller, as in (112).

Notice that, as is the case with control verbs, the realization of the controller (the causee) with control *faire* is indifferent to the transitivity of the embedded V[*inf*]:

(113) a. Elle le fera dormir. *She him will-make sleep*

b. Le professeur les fera lire Proust. *The teacher them will make read Proust.*

Furthermore, if it were the result of composition *faire*, a structure like that in (113b) would require a COMPS list with two accusative NP positions. This would force us to revise our lexical entries for composition *faire* to allow for this. But this is not an advisable move, as the resulting entry would violate a general prohibition in French against items subcategorizing for two accusative complements.

To conclude our discussion of *faire*, we have posited several structures, which fall into two main classes: composition *faire* (with local clitic placement on *faire*, except for idiomatic clitics and inherent reflexives) and control *faire* (with downstairs clitics on the V[*inf*] except for the causee), with possible structural ambiguity between the two. A sentence like *Le professeur les fera travailler* ('The professor will-make them work') will have two analyses: one via composition; one via control.

An interesting feature of this analysis is that it allows for structural ambiguity of certain forms. For instance, sentences like *Le professeur les fera travailler* or *Je le ferai venir*. have two analyses – one via composition, one via control (with an inverted VP[*inf*] in the second example). Such ambiguities are in fact expected, given that we are facing a typical variation situation, and ambiguous analyses of certain forms are a property of such situations: (1) there are important regional-dialect differences in judgements, (2) there are important differences in judgements between social groups in a single region, and (3) there are register-related differences in judgements for single speakers. More specifically, though all speakers share the composition *faire* construction, the control *faire* construction varies considerably. Some speakers refuse it under all circumstances. Others will allow it only in cases where some independent factor makes the composition construction impossible, as is the case for (114a). This sentence is a case of control *faire*, with the 2nd person object clitic causee *te*, and the dative complement of the verb *expliquer* as the dative clitic *nous*. Composition *faire* is impossible in such a case, since it would yield (114b), which displays an illicit clitic sequence (which we treat as a morphological template problem):

(114) a. Je te ferai nous expliquer la solution du problème.

b.*Je te nous ferai expliquer la solution du problème.

I will make you explain the solution of the problem to us.

Other speakers allow the use of the control *faire* construction in a much broader range of cases, but for these speakers the construction is usually felt to be a higher register construction. Furthermore, we know from the historical data of sources such as Damourette & Pichon 1911-1930 that the competition between the composition and the control structures has been going on since the 13th century at least.

We believe that any attempt at a unitary analysis for the whole set of attested data (if it is at all possible) will necessarily be baroque and unprincipled. But, even more problematic is the fact that such a unitary analysis will have no way of explaining the variation between speakers as to the acceptability of numerous theoretically crucial sentences.

The analysis we propose relies on analyses that are in general independently motivated and rather simple, and the competition between them provides a direct account for the variation attested.

5.4 *Laisser* and the Perception Verbs

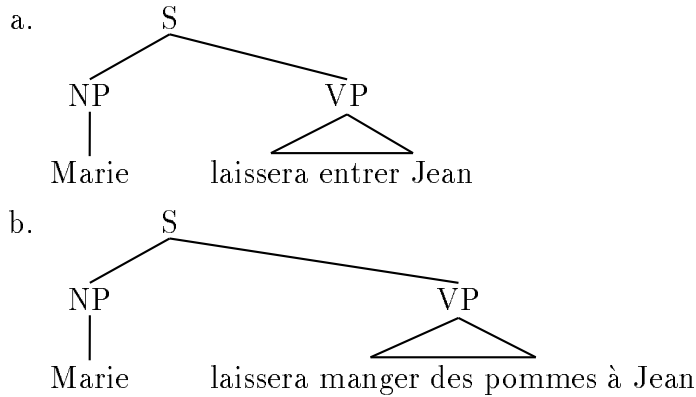
Let us turn now to *laisser* and the perception verbs (*voir*, *entendre*, *regarder*, *écouter*). For these we also posit a double structure: a flat composition structure, and a control structure with an NP and an infinitival VP complement. The composition structure exhibits the same contrast as *faire* in the realization of the understood subject of the V[*inf*]: a direct object with intransitive V[*inf*], an NP[*à*] (or PP[*par*]) with transitive infinitives. The main difference with *faire* concerns the control structure: it is a classical object control construction, and the understood subject of the V[*inf*] can be realized as an unmarked NP (preceding the infinitival VP), as well as as an accusative clitic:

(115) a. Paul laisse Jean les manger. *P lets J eat them.*

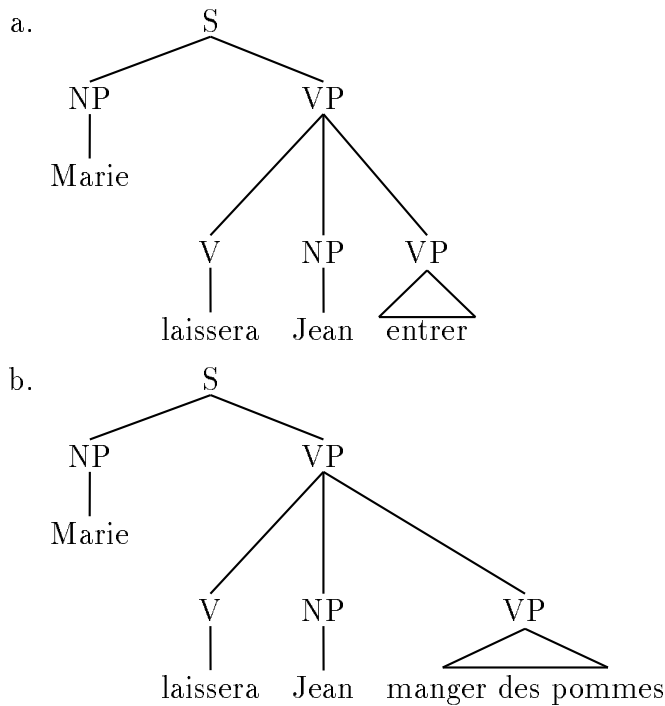
b. Paul le laisse les manger.

For example, we have the following structures:

(116) Composition *laisser*



(117) Control *laisser*



The difference between the two structures is shown by the same set of tests that we used with *faire*, namely, clitic placement ((118)), realization of the causee ((119)), *tough*-constructions ((120)-(122)), negation ((123)-(124)), among others, plus a specific contrast in word order: the causee tends to precede the V[*inf*] in control structures but always follows it in composition structures.³⁶

³⁶Examples like (118c) are in fact possible, if the NP is sufficiently ‘heavy’. This is in fact a case of the control structure, with the order VP[*inf*] NP[*acc*].

- (118) a. *Marie ne laissera pas en parler son associé aux clients.
(composition *laisser*)
- b. Marie ne laissera pas son associé en parler aux clients.
(control *laisser*)
M will not let her associate talk of-that
- (119) a. J'ai entendu jouer ce morceau par un grand violoniste. (composition *entendre*)
- b. Je l'ai entendu jouer par un grand violoniste.
- c. *J'ai entendu le jouer par un grand violoniste.
I heard this piece play by a great violonist.
- d. J'ai entendu un grand violoniste jouer ce morceau. (control *entendre*)
- e. *Je l'ai entendu un grand violoniste jouer.
- f. J'ai entendu un grand violoniste le jouer.
I heard a great violonist play this piece.
- (120) a. Cette purée est intéressante à voir préparer par/à un grand chef. (composition *voir*)
- b. *Cette purée est intéressante à voir un grand chef préparer. (control *voir*)
This puree is interesting to see a big chef prepare.
- (121) a. ? Ce film est impossible à laisser regarder à /par des enfants (composition *laisser*)
- b. *Ce film est impossible à laisser des enfants regarder. (control *laisser*)
This movie is impossible to let children see.
- (122) a. C'est une sonate agréable à entendre jouer par un professionnel, mais insupportable par un amateur. (composition *entendre*)
- b. *C'est une sonate agréable à entendre un professionnel jouer. (control *entendre*)
This is a sonata pleasant to hear played by a professional (but unbearable by an amateur.)
- (123) a. Et vous avez laissé les enfants ne rien manger! (control *laisser*)
- b. Et vous les avez laissés ne rien manger!
- c. *Et vous avez laissé ne rien manger aux enfants/les enfants! (composition *laisser*)
And you let the children eat nothing!
- (124) a. Je n'ai jamais vu Paul ne pas travailler. (control *voir*)

- b.*Je n'ai jamais vu ne pas travailler Paul. (composition *voir*)
I never saw P not working.

Our explanation for placement of negation is this: *ne pas* adjoins only to VP[*inf*] (cf. Hirschbühler and Labelle 1993), never to V[*inf*], and hence is systematically impossible in flat structures.³⁷

The set of verbs allowing argument composition in French is thus exactly the same as the set of verbs traditionally said to allow clitic climbing, namely tense auxiliaries, the copula and other predicative verbs, *faire*, *laisser* and the perception verbs. We can thus conclude that French clitics do not climb at all. When one correlates complement clitic placement with other syntactic properties, only lexical rules (such as the CELR and PRAF-LR seen above) can account for the full range of facts. To the extent that the combination of these verbs gives semantically plausible results, we can find what appear to be long distance clitic dependencies and *tough*-constructions, as in the following examples:

- (125) Ce morceau, après qu'elle l'eut entendu jouer par Pollini, elle ne pouvait plus l'écouter sans pleurer.
This piece, once she had heard it played by Pollini, she could not listen to it without crying.
- (126) C'est une volaille intéressante à voir faire cuire par un grand chef.
It is a fowl interesting to see make cook by a big chef.

Within our analysis, these are predicted to be good and receive a totally flat structure. The finite auxiliary verb *eut* in (125) has two lexical V complements plus the *par*-phrase; *voir* in (126) has two plus a *par*-phrase.

We can thus conclude that no clitic climbing is involved in these constructions. Either there is strong evidence for a flat complementation structure, and the infinitival shares all its complements (clitic or not) with the main verb, or else the data clearly indicate a control pattern with an infinitival VP complement where the clitics, like any complement of the V[*inf*], stay downstairs. This dual complementation system is the only one that clearly correlates the intricate facts of clitic placement with the full range of data including *tough*-constructions, negation placement and complement order.

6 Conclusion

We have focused here on the study of intermediate dependencies, that is, dependencies which are not strictly local but are nevertheless bounded. We have studied two cases of such bounded dependencies in French, first *à*-infinitives in *tough*-constructions and missing-object relatives; then complement clitic climbing with various verbs.

We have shown the first case to be strictly bounded (as opposed to similar constructions in English) and to involve crossing exactly one phrasal boundary (VP). The feature-based

³⁷The contrastive data correlating placement of negation and the position of the causee were observed by Kayne (1975), who admits that 'unfortunately [he does] not have a satisfying explanation' (Kayne 1975: 232), and by Morin 1978.

approach of HPSG is particularly suitable for defining partially saturated VPs (VPs missing exactly one object) which are needed in carefully controlled circumstances to account for these constructions.

We have shown so-called clitic climbing to be syntactically heterogeneous in French. Leaving aside climbing of noun complements (realized as the clitic *en*), we have focused on the complements of past participles (in compound tense), passive participles and infinitivals (in causative constructions). We have shown that climbing of complements of passive participles, nominal or adjectival predicates is not limited to pronominal clitics and involves crossing one phrasal boundary and can be handled by allowing unsaturated predicative phrases (XP). The difference between these and *tough*-constructions (or missing object relatives) is that any complement (and possibly several) can be missing in the XP and realized at the higher level. Tense auxiliaries, on the other hand, have been shown to have a flatter complementation structure than usually assumed: the clitic dependency can thus be treated in a strictly local way.

Finally, we have proposed a dual complementation for causatives and perception verbs: a flat and a hierarchical structure. We have shown that so-called complement clitic climbing strictly correlates with the flat complementation structure. Here too, the clitic dependency is in fact strictly local.

What all the cases studied here have in common is that they rely on an argument composition mechanism, both for the phrasal complementation and for the flat complementation case. This analytic technique would thus seem to be a previously unappreciated unifying force in the grammar of French.

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