French Relative Clauses as Secondary Predicates: A case study in Construction Theory

Jean-Pierre Koenig & Knud Lambrecht
Center for Cognitive Science and Linguistics Department, SUNY at Buffalo

Two properties characterize sign-based, constructional theories such as Head-driven Phrase Structure Grammar (HPSG) and Construction Grammar (CG). Firstly, phrases as well as words are organized in richly articulated networks of categories. Secondly, semantic and pragmatic or information-structural properties are used for linguistic categorization of types. As is customary with general architectural principles, full justification is hard to come by. Rather than attempting a thorough motivation of this architectural design, we more modestly illustrate in this paper some of the advantages which this particular view of the organization of grammatical information represents in the description of a particular French construction. This construction involves the use of relative clauses as predicates rather than modifiers. We will show that a category-based organization of phrases and words allows for a straightforward account of this somewhat non-canonical grammatical construction; by exploiting the hierarchical organization of categories, this construction type is handled through expected variations in feature values and does not require the introduction of new, otherwise unmotivated structures, as has often been the case in previous analyses. Furthermore, we argue that the visibility of information-structure properties to syntactic categories is crucial to an adequate account of this construction.

1 Properties of the PRC

Relative clauses (RCs) in French can receive three interpretations, restrictive (hereafter RRC), appositive (hereafter APRC), and predicative (hereafter PRC). These interpretations are illustrated in the three English translations of sentence (1):

(1): 

a. J’ai vu le professeur qui fumait. 

b. I saw the professor who was smoking.

c. I saw the professor smoking.

It is the construction illustrated by the third translation which we will concentrate on in this paper.¹

¹ We use the term PRC to refer both to the relative clause in (1c) and to the larger structure within which this relative clause occurs (involving in particular the class of verbs with which it co-occurs and the NP of whose referent it is predicated). The context makes clear
We begin with a review of the formal and semantic properties of the PRC, many of which have been noted by other linguists (see, among others, Sandfeld 1936, Schwarze 1974, Radford 1975, Kayne 1975, 1976, Ruwet 1978, van der Auwera 1985, Abeillé, Godard, and Miller 1995, Cinque 1995, Labelle 1996). Let us begin with the properties of the PRC which are internal to the relative clause. We know of three properties which distinguish the internal structure of the PRC from that of the RRC and the APRC.

Firstly, the relative pronoun must be the subject of the relative clause (see (2a) vs. (2b-c), where the asterisk indicates that the sentence is ungrammatical under a PRC interpretation.)

\[(2)\]
\[
a. \ast \text{Le professeur était là à qui tout le monde voulait parler.} \quad \ast \text{PRC)
\]
\[
b. \text{Le professeur à qui tout le monde voulait parler était là.} \quad \text{RRC)
\]
\[
c. \text{Le professeur, à qui tout le monde voulait parler, était là.} \quad \text{APRC)
\]

Secondly, the PRC must describe an event in the imperfective aspect rather than a state (see (3) and (4)), and this event is necessarily simultaneous with the event described by the matrix clause (see (5)-(6) and section 3 below):

\[(3)\]
\[
\text{J' ai vu le prof qui avait les cheveux longs. (RRC, APRC, *PRC)
\]
\[
\text{I saw the professor who had (having) long hair.}
\]

\[(4)\]
\[
\text{*Elle l'a rencontré qui ne l'aimait pas. (Kayne 1976)
\]
\[
\text{She ran into him not loving her.}
\]

\[(5)\]
\[
\text{Je le regardais qui faisait (having done) la vaisselle.}
\]
\[
\text{I was watching him doing the dishes.}
\]

\[(6)\]
\[
\text{Je le regardais qui faisait (having done) la vaisselle.}
\]
\[
\text{I was watching him doing the dishes.}
\]

Finally, the matrix predicate of the PRC cannot be negated nor be a complement to a modal verb, as indicated by the ungrammaticality of sentences (7a) and (7b):\footnote{Aside from these relative-clause-internal conditions, two constraints restrict the external contexts in which PRCs can occur. Firstly, by contrast to more garden-variety kinds of relative, PRCs do not form a constituent with the nominals of whose denotata they are semantically predicated. Fully justifying this point is difficult since constituency is not necessarily taken to directly follow from surface evidence in all syntactic theories. For reasons of space, we focus on two facts which point in this direction, at least within a monostratal approach to syntax. These are illustrated in (9) through (11). (9) shows that the nominal of which the PRC is predicated can be coded in the form of a so-called clitic pronoun. If we assume, as many linguists have argued in recent years, that clitic pronouns in French are lexically generated affixes (cf. most recently Sag and Miller, 1997), the grammaticality of (9) suggests that the PRC and its subject of predication do not form a constituent:}

\[(7)\]
\[
a. \ast \text{Je la voyais qui ne fumait pas.} \quad \ast \text{I saw her not smoking.}
\]
\[
b. \ast \text{Je le vois qui peut travailler.} \quad \ast \text{I see him being able to work.}
\]

Aside from these relative-clause-internal conditions, two constraints restrict the external contexts in which PRCs can occur. Firstly, by contrast to more garden-variety kinds of relative, PRCs do not form a constituent with the nominals of whose denotata they are semantically predicated. Fully justifying this point is difficult since constituency is not necessarily taken to directly follow from surface evidence in all syntactic theories. For reasons of space, we focus on two facts which point in this direction, at least within a monostratal approach to syntax. These are illustrated in (9) through (11). (9) shows that the nominal of which the PRC is predicated can be coded in the form of a so-called clitic pronoun. If we assume, as many linguists have argued in recent years, that clitic pronouns in French are lexically generated affixes (cf. most recently Sag and Miller, 1997), the grammaticality of (9) suggests that the PRC and its subject of predication do not form a constituent:

\[(9)\]
\[
\text{C'est la petite Cavinet. En remontant, tout à l'heure, je l'ai aperçue qui se faisait embrasser par le fils Martinez dans le garage à vélos! (Les Bidochon)
\]
\[
\text{It's the little Cavinet girl. When I came upstairs just now I saw her getting kissed by the Martinez kid in the bicycle shed!}
\]

(10) shows that the coindexed nominal need not be a surface sister to the PRC. In the absence of any non-surface stratum, such non-adjacency is clear evidence of non-constituency:\footnote{It is sometimes difficult to distinguish the PRC from extraposed RCs. The following test can serve as a rule of thumb for present purposes: we are dealing with a PRC if one can substitute without a significant change in meaning en train de VP for the sentence final qui VP.}

\[(10)\]
\[
a. \text{La prof a été vue [qui fumait].} \quad \text{PRC, *RRC,*APRC)
\]
\[
\text{The professor was seen smoking.}
\]
\[
b. \text{La prof [qui fumait] a été vue.} \quad \text{RRC, PRC,*PRC)
\]
\[
\text{The professor (who was) smoking was seen.}
\]
As a final argument that the PRC and its coindexed nominal do not form a constituent, consider (11) (from Radford 1975, ex (35)):

(11) *J'ai vu [la femme] [qui travaille chez l'épicier] et [Marie] [qui faisait la vaisselle].
    'I saw the woman who works in the grocer's shop and Marie doing the dishes.'

The impossibility to coordinate a RRC and a PRC suggests that the sequence NP1 + PRC1 (Marie qui faisait la vaisselle) in (11) does not form a constituent.

As is often the case with constituency tests, the above evidence is not unequivocal. Example (12) (adapted from Cinque 1995) presents potential counterevidence to our claim:

(12) Ce que j'ai vu, c'est Marie et Pierre qui s'embrassaient.
    'What I saw was Marie and Pierre kissing.'

We do not, however, find such data compelling. As we see it, (12) does not involve the PRC and does not therefore constitute evidence that the sequence NP1 + PRC1 is a single constituent. It merely shows that this sequence (whatever its ultimate constituency status) can be coindexed with the pronominal object ce que. Notice the possible alternative structure in (12'):

(12') Ce que j'ai vu, c'est Marie et Pierre ivres.
    'What I saw was Marie and Pierre drunk.'

In (12') the NP + AP sequence Marie et Pierre ivres does not form a constituent (an assumption made in most, though not all, syntactic theories), yet the pronominal object ce que (‘what’) refers to the entire propositional denotatum of this sequence. Thus (12) only shows that the semantics of a NP1 + PRC1 sequence is such that it can be anaphorically referred to with a pronoun; it does not show that this sequence must constitute a single constituent. Given the preponderance of evidence in favor of a non-constituency analysis, we maintain our hypothesis that le professeur qui fumait does not form a constituent in (1c).

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The second major feature of the external syntax of the PRC is that it can only co-occur with certain classes of predicates. More precisely, nominals coindexed with the PRC pronoun must be arguments of verbs of perception (13a), verbs of discovery (13b-c), or what we call verbs of 'perceived location' (14a-b):

<table>
<thead>
<tr>
<th>(13) a.</th>
<th>J'entends mon matelot qui fredonne. (V. Hugo)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'I hear my sailor humming.'</td>
</tr>
<tr>
<td>(13) b.</td>
<td>Je l'ai rencontré qui se promenait. (Grevisse 1959)</td>
</tr>
<tr>
<td></td>
<td>'I ran into him (while he was) taking a walk.'</td>
</tr>
<tr>
<td>(13) c.</td>
<td>Elle trouva Lazare et Louise qui s'embrassaient. (E. Zola)</td>
</tr>
<tr>
<td></td>
<td>'She found Lazare and Louise kissing.'</td>
</tr>
<tr>
<td>(14) a.</td>
<td>Il est là-bas qui arrose. (Grevisse 1959)</td>
</tr>
<tr>
<td></td>
<td>'He is over there watering.'</td>
</tr>
<tr>
<td>(14) b.</td>
<td>Une petite fille courut vers nous qui souriait.</td>
</tr>
<tr>
<td></td>
<td>'A little girl ran toward us smiling.'</td>
</tr>
<tr>
<td>(14') b.</td>
<td>Une petite fille courut qui souriait.</td>
</tr>
<tr>
<td></td>
<td>'A little girl ran smiling.'</td>
</tr>
</tbody>
</table>

What unites those verbs is the explicit or inferred presence of a center of perspective from which the situation described in the PRC is perceived. In the case of verbs of perception, the presence of such a center of perspective is consistent with the presence of an experiencer argument; in the case of verbs of discovery, it results from an entailment; and with verbs of perceived location it is implicit in the necessary presence of deictic semantic components, as shown in the contrast between (14b) and the infelicitous (14'b), which does not contain such a component.

Note that although the PRC can co-occur with verbs of perception, it cannot co-occur with verbs of belief, despite their otherwise similar subcategorization properties. Consider (15):

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4 In this respect, Italian differs from French, it seems. PRCs or a construction similar to the PRC can complement verbs such as (non) sopportare ‘(not) tolerate’ and detestare ‘detest’ (Cinque 1995). Neither corresponding French verb licenses a PRC.

5 Of course, not all discoveries are perceptual in nature; but all verbs of discovery which licence the PRC are. The meaning of trouver in (13c), for example, is one in which the referent of elle perceived the kissing event.
(15) *Je le croyais qui fredonnait toujours.
'I thought him to be humming all the time'

Nor can the PRC occur with uses of *voir which do not involve visual perception:

(16) a. Je la vois qui vend du muguet.
     'I see her selling some lilies of the valley.'

b. *Je la verrais bien qui vend du muguet.
     'I can easily imagine her selling lilies of the valley'

c. Je la verrais bien vendant du muguet.
     'I can easily imagine her selling lilies of the valley'

When *voir is used in the sense of ‘imagine’, as in the common collocation *voir bien in (16b-c), the use of the PRC is prohibited and a gerundive form of the verb must be used instead. Such sensitivity to the semantic nature of the predicate suggests lexical selection of the PRC. This sensitivity is an important element in our formal analysis in section 3.

Not only is the set of verbs with which the PRC can cooccur restricted, but so are their semantic and pragmatic properties. Semantically, the predicate of the matrix clause cannot be negated, as (17a) shows, it cannot be the complement of a modal verb, as illustrated in (17b), nor can it be questioned, as shown in (17c):6

(17) a. *Je ne le voyais pas qui fumait.
     'I didn’t see him smoking.'

b. *Je pouvais le voir qui fumait.
     'I could see him smoking'

c. ??Est-ce que tu l'as vu qui fumait ?
     'Did you see him smoking?'

All three facts follow from the information structure associated with sentences containing PRCs, as we argue in section 3. Let us simply observe that the proposition expressed by the PRC must be pragmatically asserted in

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6 Again, the restriction is not strictly syntactic: polar matrix questions are possible provided they are not used to perform an interrogative speech act.

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the sense of Lambrecht (1994); it cannot be presupposed. Compare (18) and (19):

(18) A: J’ai aperçu la petite Cavinet qui se faisait embrasser par le fils Martinez!
     'I saw the little Cavinet girl being kissed by the Martinez kid!'

     B: C’est incroyable!
     'That’s unbelievable!'

(19) A: J’ai aperçu la fille qui s’est fait embrasser par le fils Martinez!
     'I saw the girl who was kissed by the Martinez kid.'

     B: C’est incroyable!
     'That’s unbelievable!'

B’s disbelief in (18) cannot concern the occurrence of the perception of the kissing event. B can only be marveling at the occurrence of a kiss. By contrast, B’s disbelief in (19) can concern the perceiving event itself, irrespective of whether the occurrence of a kiss is a surprise or not.

2 The PRC as a distinct construction

We are now finished with our brief descriptive survey of the properties of PRCs. What is important for our purposes about this particular cluster of properties is that it identifies the PRC as a distinct French construction, irreducible to any other construction. The PRC alone must be a subject relative clause (see (2a) vs. (2b-c)); it alone is subject to the semantic constraints on its matrix predicate illustrated in (3)-(7); and only the PRC allows the nominal coindexed with its relative pronoun to be a clitic pronoun or to be the subject of a lexical NP in preverbal position (cf. (9) and (10)). The conclusion is clear: the PRC does not behave as other relatives do.

Such differences are probably at the root of analyses of PRCs as covert complement clauses (hereafter CCs), a longstanding tradition within generative linguistics since at least Kayne (1975). But in fact, as we show in this section, the PRC is not a CC either. Reducing PRCs to CCs does not simplify our descriptive quandaries, since many properties of PRCs would remain unexplained if PRCs simply were a subtype of ordinary CCs. Firstly,
PRCs and CCs are not licensed by the same set of matrix predicates. *Ecouter*, for example, can cooccur with a PRC, but not a CC, as (20a) vs. (20b) shows. Conversely, CCs can cooccur with verbs which do not take PRCs, as we can see with (21).

(20) a. Je l'écoute [surprenant, rencontre] qui chante.  
   'I listen to [surprise, run into] her singing.'  

b. *Je l'écoute [surprenant, rencontre] qu'elle chante.  
   'I listen [surprise, run into] that she is singing.'  

(21) a. Je prétends qu'elle chante.  
   'I claim that she's singing.'  

b. *Je la prétends qui chante.  
   'I claim her singing.'

Secondly, temporal coincidence of the perceived and the perceiving event, which is required of the PRC, as we saw in (5) and (6) above, is not required of CCs:

(22) a. *Je le vois qui est parti.  
   'I see him having left.'

b. Je vois qu'il est parti.  
   'I see that he left.'

Thirdly, CCs are not subject to the constraints on negation (see (23) and (24)) and modality (see (25)) which apply to PRCs:

(23) a. *Je la voyais qui ne fumait pas.  
   'I saw her not smoking.'

b. Je voyais qu'elle ne fumait pas.  
   'I saw that she wasn't smoking.'

(24) a. *Je ne le voyais pas qui fumait.  
   'I didn't see him smoking.'

b. Je ne voyais pas qu'il fumait.  
   'I didn't see that he was smoking.'

(25) a. *Je le vois qui peut travailler.  
   'I see him being able to work.'

b. Je vois qu'il peut travailler.  
   'I see that he can work.'

Fourthly, extraction is possible out of CC's, not out of PRC's:

(26) a. *La cigarette que je l'ai vu qui fumait.  
   'The cigarette that I saw him smoking.'

b. La cigarette que j'ai vu qu'il fumait.  
   'The cigarette that I saw he was smoking.'

Finally, PRCs and CCs differ pragmatically. Unlike PRCs, CC propositions do not have to be pragmatically asserted. Compare (18) with (27) below. B's disbelief in (27) concerns the telling event, not the loving situation.

(27) A: Thérèse m'a dit qu'elle ne m'aime pas.  
   'Thérèse told me she doesn't love me.'

B: Je ne te crois pas!  
   'I don't believe you!'

We summarize the properties of the various French RCs and CCs in Tables 1 and 2.

<table>
<thead>
<tr>
<th></th>
<th>full NP coindexation</th>
<th>Clinic coindexation</th>
<th>Subject relative only</th>
<th>Forms a single constituent with coindexed nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRC</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>RRC</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>APRC</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>CC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 1: Summary of properties of Relative Clauses and Complement Clauses (I)

<table>
<thead>
<tr>
<th></th>
<th>&quot;Perception&quot; verb required</th>
<th>Simultaneity of main and subord. events required</th>
<th>Must be pragmatically asserted</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRC</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>RRC</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>APRC</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CC</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 2: Summary of properties of Relative Clauses and Complement Clauses (II)

Tables 1 and 2 demonstrate that the properties of the PRC are unique. But if the PRC is neither an ordinary RC nor an ordinary CC, what is it? Our claim is (i) that PRCs are relative clauses (in a sense to be made clear in section 3) and (ii) that they function as 'predicative phrases lacking a subject' (XCOMP's in the LFG tradition, mono-unsaturated phrases in HPSG) or 'small clauses' (in the Principles-and-Parameters tradition), as argued independently in Cinque (1995).
In view of what we said at the beginning of this section concerning the separate-construction status of PRCs, the claim that the PRC is a kind of RC after all might seem puzzling. Two pieces of evidence suggest to us that PRCs are indeed relatives, albeit not of the ordinary RRC or APRC kind. Firstly, by treating PRCs as relatives, we directly account for the impossibility of extracting a WH-phrase out of PRCs (see (26) above). Secondly, we do not need to introduce an otherwise unmotivated form of the complementizer (qui) rather than the more usual que: qui in the PRC is simply the subject relative pronoun.7

The evidence for our second claim, that PRCs are secondary predicates, is mainly distributional. The PRC only occurs with verbs which license secondary predicates with parallel interpretations, as (29) illustrates:

   'I saw [noticed, smelled] Alex drinking / drunk.'
   b. Je l'ai surpris [découvert, trouvé] [qui se droguait] / [drogué].
   'I surprised [discovered, found] him taking drugs / drugged.'
   c. Alex était [restait, se tenait] là [qui pleurait] / [en larmes].
   'Alex was [remained, stood] there crying / in tears.'

The PRC can also be conjoined with secondary predicates:

(30) Je la vis [debout près de la fenêtre] et [qui pleurait]. (Sandfeld 1936:149)
   'I saw her standing near the window (and) crying.'

Under the commonly-made assumption that only like categories can be conjoined, (30) strongly suggests that PRCs are of the same category as secondary predicates (within the HPSG tradition, mono-unsaturated maximal...

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7 This second claim is not uncontroversial. It differs from Kayne (1975, 1976) and Cinque (1995), or Abeille, Godard, and Miller (1995). Space considerations prevent us from discussing any of these proposals at length. Suffice it to say that the hypothesis that qui is a relative pronoun comes at no theoretical cost within the framework of HPSG and accounts for its distributional restrictions (to simplify, relative clauses). We see this reduction of the number of French complementizer forms as an argument in favor of our hypothesis.

8 Although, like Cinque, we analyze the PRC as (the HPSG equivalent of) a small clause, our analysis of the internal structure of PRCs is different from his. Furthermore, he assumes PRCs are sometimes small clause complements and sometimes adjuncts; by contrast, we assume that, in French at least, they always function as secondary predicates.
combine with their heads: head with complements, head with subjects, head with adjuncts, and so forth. As in all structured inheritance networks, properties of a supercategory are inherited by subcategories. So, properties of phrases are inherited by members of the category head-nexus-phrase; properties of head-nexus-phrases are inherited by members of the head-complement-phrase category, and so forth.

Figure 1

Figure 2 represents the head-subject-phrase for English. Simply put, the diagram says that members of that category combine a head-daughter subcategorizing for a subject (the value of the VALISUBJ path) and a non-head-daughter whose syntactic and semantic properties are identical to the properties of the subject for which the head subcategorizes (such identity is marked by the tag numbered #1). The resulting structure does not subcategorize for a subject anymore; the subject requirement is cancelled (as indicated by the empty SUBJ list).\(^9\)

\(^9\) The type of category described by such Attribute-Value Matrices (AVMs) is indicated in italics at the bottom left of each AVM. As HPSG-savvy readers will notice, our diagrams are simplified in various respects. Such simplifications are irrelevant to our main point. Note that a numbered tag after a colon marks the index of the element it follows. Thus, #1:#2 in figure 2 indicates that the index of the subject valence requirement identified by the tag #1 is the index identified by the tag #2.

Now the structure of the French head-subject-phrases is slightly richer. Alongside the English-style way of combining heads and subjects, French also allows, in a restricted set of environments, for a head to combine with a subject without canceling it off from the subject requirement list.

For French, then, we need to distinguish between two subtypes of head-subject phrases, the head-subject-cancelled-phrase (identical to the head-subject-phrase for English) and the head-subject-maintained-phrase, as shown in Figure 3. The definitions of the relevant French head-subject categories as well as their common properties are represented in figures 4-6.\(^{10}\) The difference between these two ways of realizing subjects are illustrated in the structures for the RRC and the PRC diagrammed in figure 7 and 8 (using more traditional tree-based representations of constituent structure for clarity.) The top node of the RRC in figure 7 does not subcategorize for a subject anymore, the top node of a PRC in figure 8 still does.

\(^{10}\) All clauses, including RCs, have a null REL set in Sag’s treatment of relatives (op. cit.). To account for the fact that PRCs maintain the index of the relative pronoun in the REL attribute of the overall clause, we must change Sag’s hard constraint into a default which the French head-subject-maintained-phrase type overrides.
The crucial difference between French and English, then, reduces to a single property (attribute value difference): French does not always force realized subjects to discharge a head’s need for a subject.¹¹

¹¹ Figure 6 does not mention that the overall phrase still subcategorizes for the realized subject. This information follows from a universal default VALENCE PRINCIPLE which, ceteris paribus, percolates to mother nodes their heads’ valence requirements.

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Note that the head-subject-maintained-phrase category is needed independently of the PRC. Unsaturated RCs can be the predicates of main clauses in French, as item (31) shows:

(31) a. Madame, votre broche qui se décroche. (Grégoire 1949)
   ‘Ma’am, your brooch [which] is becoming unhooked.’

   ‘“Odette, Sagan [who] says hello”, Swann observed to his wife.’ (Proust)

(32) *Votre broche [à votre broche se décroche]

In the case of both main-clause-predicative RC’s and PRC’s, though, the predicate must be restricted to relative clauses, as demonstrated by the ungrammaticality of (32): only relative clauses can have both an internal and an external “subject”. To ensure that this constraint is satisfied, we make use of the independently needed feature REL which percolates the semantic index of the relative pronoun within the fronted WH- phrase. By constraining this set to be non-null in the definition of the head-subject-maintained-phrase (see the tags numbered #2 which correspond to the identical indices of the relative pronoun and the subject), we guarantee that its left-most element contains a relative pronoun.

Having described in more detail the internal properties of the PRC, we can now make more precise the sense in which it is a relative clause. It is a relative in the sense that it is a phrase whose leftmost constituent contains a relative pronoun. But it is not an unsaturated modifying maximal projection. Hence it is not a member of the class of rel-clause structures in the sense of Sag (1997), since the latter are defined as nominal modifiers while the French RCs we are concerned with are predicative. In other words, we need to distinguish relatives as a clausal category (on a par with declaratives and interrogatives), which the PRC is not (it is a declarative clause), and relatives as a phrasal category, which the PRC is. This dual status of PRC ‘relatives’
provides further evidence for the bidimensional classification of phrases proposed in Sag (1997): PRCs are and are not relatives, depending on which properties one focuses on (to simplify, combinatorial properties, represented in the headedness dimension, or functional properties, represented in the clausality dimension.)

We have now accounted for the particular syntactic properties of the PRC. Note that we had no need for any new descriptive vocabulary or structure. The PRC is an ordinary subject relative clause but for a single property: the subject requirement it helps satisfy is not explicitly cancelled, which entails, via the universal (DEFAULT) VALENCE PRINCIPLE, that the relative clause as a whole has the same subcategorization properties as its head VP, that is, it still subcategorizes for a subject. We need not posit structures otherwise unattested: featural differences of the kind otherwise found (whether feature percolation occurs or not) is sufficient to account for an unsaturated relative clause.

We still need to properly restrict the syntactic environment in which finite VP or S secondary predicates occur, as well as account for the particular information-structure properties associated with it. To achieve the first goal, we again make use of the fact that relative phrases in HPSG have a non-null REL set (via the lexical entry for the relative pronoun qui and the Universal Wh-Inheritance Principle.) Through constraints on the membership in this set, we can distinguish between finite verb projections which can be secondary predicates and those that cannot. Only those whose REL set is not empty can function as secondary predicates. Figure 9 represents the argument-structure of an entry for verbs like voir or trouver as used in (1c) or (13c) respectively. It includes two NPs (corresponding to the subject and object of its active forms) and either a non-verbal predicative phrase or a finite VP with a non-empty REL set.

The requirement that the REL set contains one member properly excludes finite VPs by the default constraint to which we alluded in footnote 10, but not finite PRCs; it thus accounts for the contrast between (33a) and (33b). (33b) is ungrammatical since it does not satisfy the constraint that those secondary predicates which are finite verbal projections of voir be RCs (encoded as a phrase with a non-empty REL set in HPSG).\footnote{XP[PRED +] abbreviates the class of predicative APs, NPs, PP, and non finite VPs. XP[VFORM finite, REL [ #1]] abbreviates finite verbal projections (VP or S) which contain a relative pronoun, the common category of the PRC and the main clause predicative relative in (31).}

(33) a. Je le voyais qui fumait.
   *Je le voyais fumait.
   'I saw him smoking' (lit.)

Since we treat PRCs as secondary predicates, ‘basic’ verbs do not include the selected PRC on their argument-structure list. To relate verbs which subcategorize for a PRC to their non-PRC entry, we posit the lexical rule in figure 10 whose import is the addition to a verb’s argument structure of a VP with a non-null REL set in need of a subject coindexed with a nominal of the input verb. The application of the PRC Lexical Rule to voir is shown in Figure 11.

\begin{verbatim}
[ARG-S (NP, NP, XP[PRED +] v XP[VFORM finite, REL [ #1]])]
\end{verbatim}

Figure 9

\begin{verbatim}
[ARG-S #1<...NP:#2...> ]
⇒
   pre-verb [ARG-S #1<...NP:#2...> @< VP[SUBJ < NP:#2>, REL _null_ ]> ]
\end{verbatim}

Figure 10
The lexical rule represented in Figure 9 is simplified in many respects. In particular, it does not represent the additional semantic relation introduced by the secondary predicate. In order to represent this additional semantics, it is necessary for the semantic contribution of lexical items to involve a list of relations, rather than a single relation along the lines of what Minimal Recursion Semantics proposes (see Copestake, Flickinger, and Sag 1997) or what Baxter (1998) independently suggests. Since such matters are not relevant to our purposes in this paper, we leave the matter to another occasion. Note that we also assume that PRCs are always secondary predicates, contra what Cinque claims for Italian. Cinque presents two arguments in favor of the ambiguity of the PRC between complement and secondary-predicate status with verbs of the voir class. His first argument is the putative constituency of the PRC small clause in examples like (12). As we mentioned, we do not find such evidence for the hypothesized constituency compelling. His second argument is based on the behavior of verbs of the supportare class, which in French do not allow PRCs. For French, we are thus left with no argument for the structural ambiguity of sentences like (1c). Pesetsky (p.c.) has suggested another possible argument in favor of the ambiguity of (1c). If sentences such as (34) do not entail that the speaker heard the professor, French verbs of perception must allow PRCs as complements as well as added secondary predicates, since the semantic role of content of experience would have to be borne by the PRC and not le professeur in that case.

(34) J'ai entendu le professeur qui se faisait chahuter.
'I heard the professor being ragged'

Judgments on (34) are murky. A verb like entendre can be used in contexts where the experiencer does not literally hear the object's referent. For example, (35) could be uttered in a situation where the only noise heard by the speaker was the neighbor's TV:

(35) J'ai entendu le voisin jusqu'à 5 heures du matin.
'I heard my neighbor until 5 O'clock in the morning.'

It might be that the extent to which (34) is accepted depends on how willing native speakers are to extend literal uses of entendre. In the absence of any positive evidence to the contrary, we conclude on Occamian grounds that the PRC always acts as a secondary predicate in French.

The only remaining task is the characterization of the set of verbs which subcategorize for a PRC, those we have loosely called 'perception verbs'. To that effect, let us consider the semantic/pragmatic contribution of PRC complements and compare the PRC with two related kinds of complements, gerundial and small clause complements (cf. Hatcher 1944 too.) Even though the PRC is semantically similar to French infinitival complements introduced by en train de or to the English gerundial complements of perception verbs with which it is often most appropriately translated, some of the semantico-pragmatic constraints on the PRC are unique to this category. As (36)-(38) show, only the PRC is restricted to positive declarative-clause contexts (cf. ex. (17) above); secondary predicates containing en train de can occur in negative or interrogative contexts, despite being aspectually identical to the PRC:
(36) a. Je les ai trouvés en train de s'embrasser  
"I found them kissing each other"
 b. Je les ai trouvés qui s'embrassaient.

(37) a. Les as-tu trouvés en train de s'embrasser?  
"Did you find them kissing each other?"
 b. *Les as-tu trouvés qui s'embrassaient?

(38) a. Je ne les ai pas trouvés en train de s'embrasser.  
"I didn't find them kissing each other"
 b. *Je ne les ai pas trouvés qui s'embrassaient.

Similarly, even though the semantics of the PRC is similar to what has been claimed for 'small clauses' and secondary predicates (i.e. that they describe direct sensory experience of a situation, cf. Borkin 1984, Ruwet 1982), only the PRC is subject to the positive-declarative-form constraint. Consider (39) and (40) when the negation is not interpreted metalinguistically.

(39) A: Es-tu allé là-bas et l'as-tu vu ivre mort?  
'Have you seen him completely smashed?'
 B: Oui, mais je ne l'ai pas vu ivre mort; il était sobre.  
'Yes, I did, but I didn't find him completely smashed; he was sober.'
 B': #Oui, mais je ne l'ai pas vu qui était ivre mort; il était sobre.

(40) A: Es-tu allé là-bas et l'as-tu vu vomissant son repas?  
'Have you seen him throwing up his lunch?'
 B: Oui, mais je ne l'ai pas vu vomissant son repas. Il était sobre.  
'Yes, I did, but I didn't find him throwing up his lunch; he was sober.'
 B': #Oui, mais je ne l'ai pas vu qui vomissait son repas. Il était sobre.

More positively, the semantics/pragmatics of the PRC can be characterized as follows. The onset of the perception of the referent of the NP complement must coincide with that of the perception of the event described by the PRC. This condition is illustrated in (41)-(43). Despite the similar aspectual semantics of the predicate introduced by *en train de* and the PRC in (41a) and (41b), only the former is felicitous. The reason, we surmise, lies in the pragmatics of the PRC. The NP of which the PRC is predicated must be introduced in the perceptual world described by the sentence containing the

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PRC.13 In (41b), the speaker explicitly said that she saw the referent of the subject of predication, *les*, in the sentence preceding the one containing the PRC. She said the referent before witnessing the kissing. Hence the infelicity:

(41) a. Je les observais constamment à la jumelle. Ils ont mangé, puis je les ai vus en train de s'embrasser.  
'I was observing them with binoculars. They ate, and then I saw them kissing.'
 b. #Je les observais constamment à la jumelle. Ils ont mangé, puis je les ai vus qui s'embrassaient.

Similarly, (42) is infelicitous because by the time of A’s second utterance the referent of *le* has already been introduced in B’s perceptual world:

(42) A: Tu le vois? 'Do you see him?'
 B: Oui, oui, ‘Yes, yes.’
 A: Il est là-bas en train d’arroser. ‘He is over there watering’
 A’: #Il est là-bas qui arrose.

The PRC is thus similar to the presentational constructions involving two different discourse worlds described in Lambrecht (1994). Whereas simple deictic presentational structures such as English *Here is Johnny* mark a referent as new in the perceptual world of the speech participants, the PRC generalizes this presentational pragmatics: the perceptual world in which the entity is marked as appearing need not be the speech participants’ world; it can be the perceptual world of any cognizer that functions as a center of perspective in the sentence. Thus, a sentence like (43) is pragmatically construed in such a way that Marc and Marie are new to Ursule’s perceptual world at the time she sees them kissing:

(43) Tout à coup, Ursule aperçu Marc et Marie qui s’embrassaient.  
‘All of a sudden, Ursule noticed Marc and Marie kissing each other.’

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13 The NP may, of course, be already part of the non-perceptual discourse world (after all the NP may be a clitic!). We thus follow Lambrecht (1994) and distinguish between two discourse worlds.
4 Conclusion

The French Predicative Relative Construction presents an interesting interplay of phrasal and lexical characteristics. By its internal structure, it is a relative clause whose singular characteristic is not the result of the projection of a particular lexical property. We know of no independent evidence that would justify attributing to either qui or fumait in (1) unique properties just in case the relative is interpreted as a PRC, as in (1c). In fact, for all intents and purposes, the clause qui fumait is built in the same manner as ordinary subject relatives. Thus, the unsaturated nature of the resulting PRC clause does not stem from properties of its lexical make-up; it is an emergent property of the PRC as a whole. We showed that such emergent phrasal properties are easily accommodated in the approach to phrase structure presented in Sag (1997) or Fillmore and Kay (to appear): it merely requires run-of-the-mill variation in feature values in the definition of phrasal categories.

But PRCs are also restricted lexically in their external contexts of occurrence. Only certain verbs select for them and those verbs must bear specific pragmatics features. When selecting a PRC secondary predicate, these verbs must entail or imply the presence of a center of perspective as well as carry what we call an extended presentational information structure. What is crucial here is the inclusion in the description of lexical classes of information-structure properties to whose marking their use can be

To account for this extended presentational pragmatics attached to the PRC, we introduce the pragmatic condition in (44) for the use of the PRC:

(44) **DISCOURSE CONDITION ON PRC SENTENCES:** The PRC marks an entity as new in the perceptual world of a perceiver (= center of perspective) and as appearing in this perceived world through his/her involvement in a particular event. Both the perception event and the perceived event are pragmatically asserted.

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VPE as a Proform: Some Consequences for Binding

Daniel Hardt*
Villanova University

According to the proform view of VP Ellipsis (VPE), elided VP’s share with pronouns the properties of being syntactically unstructured and being semantically identified with an antecedent. This paper explores some consequences of the proform view of VP Ellipsis, concerning binding theory and the binding of traces. Since the VPE is syntactically empty, syntactic binding theory constraints do not apply; nor is it possible for an operator to (syntactically) bind a trace within a VPE. I will show that these consequences are supported by the facts, despite appearances to the contrary in certain cases. I will contrast the proform view with an alternative view, in which the VPE consists of a syntactic copy of the antecedent which is unpronounced.

1 Introduction

English allows verb phrases to be elided, with an auxiliary verb remaining in the place of the missing verb phrase. The following is a simple example of VP ellipsis (VPE):

(1) Tom loves his cat. John does too.

Here, the antecedent loves his cat from the first sentence provides the meaning for the elided VP of the second. In general, it would appear that a syntactically empty VP is semantically identified with an antecedent VP. On this view, VPE’s are proforms; they share with pronouns the properties of being syntactically unstructured and semantically identified with an antecedent.

In this paper I will explore some consequences of the proform view of VPE, concerning binding theory and the binding of traces. Since the VPE is syntactically empty, syntactic binding theory constraints do not apply; nor is it possible for an operator to (syntactically) bind a trace within a VPE. I will show that these consequences are supported by the facts, despite appearances to the contrary in certain cases. I will contrast the proform view with an alternative view, advanced by Fiengo and May (1994), in which the VPE consists of a syntactic copy of the antecedent which is unpronounced.

In what follows, I first outline background assumptions concerning the syntax and semantics of the proform view of VPE, and I review several ar-

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