

# Pseudo Weak Crossover in French relative clauses & global economy

Benjamin Spector

Laboratoire de linguistique formelle – Université de Paris 7  
Département d'Etudes Cognitives, Ecole Normale Supérieure  
benjamin.spector@ens.fr

## 1 Apparent WCO effects in French relative clauses: an account in terms of competition

- (1) Le/(?)Aucun type que<sub>i</sub> son<sub>i</sub> père a frappé t<sub>i</sub> a pleuré  
*The/ No guy that<sub>i</sub> his<sub>i</sub> father has beaten t<sub>i</sub> has cried*  
(2) \*Le/\*Aucun type dont<sub>i</sub> le père t<sub>i</sub> l<sub>i</sub>' a frappé a pleuré  
*The/No guy of-whom<sub>i</sub> the father t<sub>i</sub> him<sub>i</sub> has beaten has cried*

Both (1) and (2) are WCO violations, since in both cases the trace does not c-command the pronoun<sup>1</sup>; yet (1) is fine but (2) isn't. Note that (2) would be acceptable with another co-indexing<sup>2</sup>. Quite interestingly, this contrast does not depend on whether the head of the DP is a quantifier or not.<sup>3</sup> It cannot be due either to the kind of relative pronoun used (*dont* vs *que*):

- (3) a. ?? Le type que<sub>i</sub> sa<sub>i</sub> mère a demandé à Paul de rencontrer t<sub>i</sub> est Jacques  
*The guy that<sub>i</sub> his<sub>i</sub> mother has asked Paul to meet t<sub>i</sub> is Jacques*  
b. Le type dont<sub>i</sub> la mère t<sub>i</sub> a demandé à Paul de le<sub>i</sub> rencontrer est Jacques  
*The guy of-whom<sub>i</sub> the mother t<sub>i</sub> has asked Paul to him<sub>i</sub> meet is Jacques*

- (3') a. ?? C'est le type [sur qui<sub>i</sub>]<sub>j</sub> ses<sub>i</sub> amis ont demandé à Paul de compter t<sub>j</sub>  
*It's the guy [on whom<sub>i</sub>]<sub>j</sub> his<sub>i</sub> friends have asked Paul to rely t<sub>j</sub>*  
b. C'est le type dont<sub>i</sub> les amis t<sub>i</sub> ont demandé à Paul de compter sur lui<sub>i</sub>  
*It's the guy of-whom<sub>i</sub> the friends t<sub>i</sub> have asked Paul to rely on him<sub>i</sub>*

Again, all the previous four sentences should be WCO violations, since in none of them does the trace of the operator c-command the pronoun. The structures in (3)a and (3')b. are not in themselves ungrammatical: another co-indexing would make them fine. Postal (1993) noticed these kinds of contrasts; he suggested that the difference between (1) and (2) is that (1) contains a *covert resumptive pronoun* in the position of the gap. But he himself acknowledges that his account is quite stipulative, since one would still have to account for the distribution of covert resumptive pronouns, and also for the fact that, at least in one dialect of French, there are no *overt* resumptive pronouns.

---

<sup>1</sup> This assertion actually depends on how exactly WCO is characterized. I am aware of no constraint that would predict the contrast in (1). In particular, the *leftness condition*, according to which a trace cannot be co-indexed with a pronoun on its left would predict (1) to be out and (2) to be fine.

<sup>2</sup> Note on co-indexing: even though I attach indices to *que* and *dont*, I do not mean that I take these lexical items to be the operators themselves; rather, *que* at least is quite probably a complementizer, with a null relative operator in its specifier. The index is to be interpreted as applying to the operator. Also, I want to remain neutral as to how exactly relative clauses are derived (operator movement vs. raising analysis).

<sup>3</sup> It is known that when the head noun of the relativized DP is not a quantifier, WCO effects are very weak (Lasnik & Stowell 1991) Yet the contrasts I am dealing with here do not depend on the presence or absence of a quantifier.

Logical form of (1) & (2) after conversion of pronouns into logical variables:

$\lambda x. \text{le père de } x \text{ a frappé } x$

Logical form of (3)a and (3)b. after conversion of pronouns into logical variables:

$\lambda x. \text{la mère de } x \text{ a demandé à Paul de rencontrer } x$

More generally, suppose you want to build a relative clause whose intended logical form would be of the following form :  $\lambda x. \dots x. \dots x$ . You will have in general two options: either realize the first occurrence as a trace and the second as a pronoun, or the other way around<sup>4</sup>. In case none of the two positions in which the variable occurs c-commands the other one, a WCO effect is expected no matter what. The hypothesis I will defend in this paper is similar in spirit to a proposal put forward in Ruys (1994): among the structures that *could* realize the logical form in question, the most *economic* one, in a sense to be defined, is preferred. More precisely, grammar generates a set of structures corresponding to a given logical form; a *metric* is defined over these structures, and the most *economic* structure is preferred to all others. A crucial point here is that this comparison process will apply only to structures that are otherwise well-formed, i.e. which, for instance, do not violate any known locality constraint. An immediate prediction that is made is that when one of the two potential candidates cannot be generated by the grammar, then there will be only one candidate, which will therefore be selected as the most economic one. Consider for instance:

- (4) a. \*C'est le type que<sub>i</sub> son<sub>i/j</sub> patron est parti avant d'avoir payé t<sub>i</sub>  
*It's the guy that<sub>i</sub> his<sub>i</sub> boss left before having paid t<sub>i</sub>*  
b. C'est le type dont<sub>i</sub> le patron t<sub>i</sub> est parti avant de l<sub>i</sub>' avoir payé  
*It's the guy of-whom the boss t<sub>i</sub> left after him<sub>i</sub> having paid*

(4)a is out on *any* interpretation, because extraction from an adjunct is generally impossible. It is therefore predicted that the other competitor should be fine, and it is.

It must be noticed that there may be sometimes more than two competitors due to the availability of parasitic gap constructions, or, for some speakers, of resumptive pronouns. I am however dealing here with a dialect of French in which resumptive pronouns are disallowed, except in a very limited range of constructions. A very common parasitic gap construction in French is illustrated in (5)a. (5)b. and (5)c. show that the parasitic gap is in fact obligatory:

- (5)a. C'est un type dont<sub>i</sub> la mère t<sub>i</sub> aime le père t<sub>i</sub>  
*It's a guy of-whom<sub>i</sub> the mother t<sub>i</sub> loves the father t<sub>i</sub>*  
b. ?? C'est un type dont<sub>i</sub> la mère t<sub>i</sub> aime son<sub>i</sub> père  
*It's a guy of-whom<sub>i</sub> the mother t<sub>i</sub> loves his<sub>i</sub> father*  
c. \* C'est un type dont<sub>i</sub> sa mère aime le père t<sub>i</sub>  
*It's a guy of-whom<sub>i</sub> his<sub>i</sub> mother loves the father t<sub>i</sub>*

## 2 Defining a metric

How are we to decide whether a structure is more economic than an other one in a given comparison class? Roughly, what seems to count is the *length* of the *extraction path* of the extracted element: while the direct object in (1) and (2) belongs to the matrix clause, as well as the possessor, it is not so in (3)a. in (3)b., so that extraction of the object in (3)a. could plausibly involve a longer extraction path than extraction of the possessive phrase in (3)b. A similar contrast can be built with respect to extraction of a PP:

- (6) a. ? Il y a un type [sur qui<sub>i/j</sub>]<sub>j</sub> sa mère compte t<sub>j</sub>  
*There is a guy [on whom<sub>i/j</sub>]<sub>j</sub> his<sub>i</sub> mother relies t<sub>j</sub>*  
b.\* Il y a un type dont<sub>i</sub> la mère t<sub>i</sub> compte sur lui<sub>i</sub>  
*There is a guy of-whom<sub>i</sub> the mother t<sub>i</sub> relies on him<sub>i</sub>*

<sup>4</sup> There may be more choices, due to the availability, in some contexts, of parasitic gap constructions or of resumptive pronouns

- (7) a. ?? C'est le type [sur qui]<sub>i</sub> sa<sub>i</sub> mère a demandé à Paul de compter t<sub>i</sub>  
*It's the guy [on whom]<sub>i</sub> his<sub>i</sub> mother has asked Paul to rely t<sub>i</sub>*  
 b. C'est le type dont<sub>i</sub> la mère t<sub>i</sub> a demandé à Paul de compter sur lui<sub>i</sub>  
*It's the guy of-whom<sub>i</sub> the mother t<sub>i</sub> has asked Paul to rely on him<sub>i</sub>*

When the two variables belong to different CPs, we find that extracting from the first CP is clearly preferred:

- (8) a. ?? C'est le type que<sub>i</sub> son<sub>i</sub> frère croit que Marie aime t<sub>i</sub>  
*It's the guy that<sub>i</sub> his<sub>i</sub> brother believes that Marie loves t<sub>i</sub>*  
 b. C'est le type dont<sub>i</sub> le frère t<sub>i</sub> croit que Marie l<sub>i</sub>'aime  
*It's the guy of-whom<sub>i</sub> the<sub>i</sub> brother t<sub>i</sub> believes that Marie loves him<sub>i</sub>*

**Length** is computed as follows: I take the extracted element (be it the relative pronoun itself, a null operator, or simply the head of the NP) to bear a wh-feature that triggers movement towards the left periphery of the relative clause. This movement is *successive-cyclic*, i.e. involves several steps. Under current assumptions, a phrase cannot move in one single step further than the edge of the *phase* it belongs to. Let X be the phrase undergoing  $\bar{A}$ -movement to Spec, CP. I define the *length of X's path* as the number of phase boundaries crossed by X on its way to Spec, CP, where a "phase" is either a vP, a CP or (contrary to Chomsky 1999), a DP. In the case of relative clauses, the succession of  $\bar{A}$ -movements triggered by the wh-feature of the operator defines a single path for the operator or the pied-piped phrase – a path starting from the pre-wh-movement position and ending in Spec, CP. Then among several relative clauses corresponding to the same logical form, the most economic one is that in which the phrase containing the operator has moved along the shortest path.

Illustration:

- (8) a. ?? C'est le type que<sub>i</sub> son<sub>i</sub> frère croit que Marie aime t<sub>i</sub>  
*It's the guy that<sub>i</sub> his<sub>i</sub> brother believes that Marie loves t<sub>i</sub>*  
 b. C'est le type dont<sub>i</sub> le frère t<sub>i</sub> croit que Marie l<sub>i</sub>'aime  
*It's the guy of-whom<sub>i</sub> the<sub>i</sub> brother t<sub>i</sub> believes that Marie loves him<sub>i</sub>*

In this particular case, it is quite clear that (8)a. involves a longer extraction path than (8)b. In (8)a., the moved element (*sur qui*) must have crossed at least the embedded CP and the matrix vP, i.e. at least **2 phase boundaries**. In (8)b., on the other hand, the genitive operator has crossed only **one** phase boundary (the DP it belongs to).

### 3 The position of objects before wh-movement

Given the contrast between (1) and (2), extracting the object, as in (1), must count as more economic than extracting the complement of *père*. Yet, if the object in (1) is extracted from a vP-internal position, it has crossed **one** phase (i.e. vP) before reaching Spec CP. And so has the genitive complement of *père* in (2), since it has crossed the DP it belongs to. So the two should be exactly as economic.

There is however independent support for the claim that the object is not extracted from its thematic, vP-internal position, but from a higher position in the I-domain: extraction of an object can trigger past participle agreement:

- (9) La chaise que Paul a prise est jolie  
*The chair that Paul has taken-(fem.) is beautiful*

Assuming that agreement obtains in a Spec-Head configuration, this suggests that the object has reached a position above the verb before wh-movement takes place. I therefore conclude that complements of verbs in *finite* clauses always move to a position in the I-domain before being "relativized" (more on non-finite clauses below). As a consequence, the length of the path of the extracted element in (1) is **zero**, since the object is extracted from a position above the vP. The contrast between (6) and (7) is accounted for in the same way.

Cross-linguistic prediction: in a language in which objects remain within the VP, we should not find a comparable contrast. Furthermore, if two languages have different pied-piping possibilities, the metric will predict quite different judgements. English is a case in point:

- (10) a. ?? No guy that his mother loves is unhappy  
 b. No guy whose mother loves him is unhappy
- (11) a. ?? No guy that his brother rely on is unhappy  
 b. No guy whose brother relies on him is unhappy

The pied-piped phrase in (10)b. hasn't crossed any phase boundary. Hence the length of the movement in (10) is **zero**. If, on the other hand, the object in (10)a. has been extracted from the VP, it must first have targeted Spec,VP, and the length of the movement is **one**.

Account of the contrast in (3):

- (3) a. ?? Le type que<sub>i</sub> sa<sub>i</sub> mère a demandé à Paul de rencontrer t<sub>i</sub> est Jacques  
*The guy that<sub>i</sub> his<sub>i</sub> mother has asked Paul to meet t<sub>i</sub> is Jacques*  
 b. Le type dont<sub>i</sub> la mère t<sub>i</sub> a demandé à Paul de le<sub>i</sub> rencontrer est Jacques  
*The guy of-whom<sub>i</sub> the mother t<sub>i</sub> has asked Paul to him<sub>i</sub> meet is Jacques*

Assuming that the finite clause is a full CP, then the object in (3)a. has crossed at least **two** phases, i.e. the embedded CP and the matrix vP, while *dont* in (3)b. has crossed only **one** phase boundary. Note that it is crucial that the embedded clause is indeed a full CP, and not simply an IP.

ECM constructions: In ECM constructions, the embedded infinitive clause is generally thought to be an IP. So let us consider the following case, which, apparently, yields quite different judgements for different speakers. The judgements shown here are mine:

- (12) a. ??? *Un type que<sub>i</sub> j'ai vu son<sub>i</sub> père frapper t<sub>i</sub> a pleuré*  
*A guy that<sub>i</sub> I have seen his<sub>i</sub> father beat (-fin) t<sub>i</sub> has cried*  
 b. ? *Un type dont<sub>i</sub> j'ai vu le père t<sub>i</sub> le<sub>i</sub> frapper a pleuré*  
*A guy of-whom<sub>i</sub> I have seen the father t<sub>i</sub> him<sub>i</sub> beat(-fin) has cried*

If the object in (12)a has moved to an A-position in the I-domain of the embedded clause before undergoing wh-movement, and assuming that the ECM subject raises for case reasons to the I-domain of the matrix clause, then the two sentences should be exactly as economic: in (12)a., the embedded object would have crossed **one phase** – the matrix vP-, and so would have the 'genitive' operator in (12)b.

But there is in fact no evidence that objects in non-finite clauses move to the embedded I-domain before being extracted in French. In particular, while accusative and dative clitics occur higher than negation in finite clauses, they occur lower than negation in non-finite clauses. Furthermore, extraction of an object from a non-finite clauses sometimes does not license past-participle agreement in the dialect of French I am dealing with (that is, mine):

- (13) C'est une décision que je regrette d'avoir pris(\*e)  
*It is a decision (fem.) that I regret to have taken (\*fem)*

So the contrast in (12) could be accounted for by an independently motivated claim: while objects of finite verbs move to the I-domain before undergoing wh-movement, this would not be the case for objects of non-finite verbs<sup>5</sup>.

On the other hand, some speakers do not share these judgements. They seem to find both sentences relatively acceptable. I speculate that this could be due to the fact that, for these speakers, objects of non-finite verbs move to a position above the embedded vP before undergoing wh-movement. If so, (12)a and (12)b would indeed be exactly as economic. Those speakers would be expected to allow past-participle

---

<sup>5</sup> Alain Rouveret, p.c.

agreement in (13). But one would have to check whether the dialect in question does license past-participle agreement at all when an object is extracted from a finite clause<sup>6</sup>.

#### 4 Non-finite complements and restructuring<sup>7</sup>

- (15)a. C'est un type que<sub>i</sub> son<sub>i</sub> patron a voulu renvoyer t<sub>i</sub>  
*It's a guy that<sub>i</sub> his<sub>i</sub> boss has wanted to fire t<sub>i</sub>*  
 b. ?C'est un type dont<sub>i</sub> le patron t<sub>i</sub> a voulu le<sub>i</sub> renvoyer  
*It's a guy of-whom<sub>i</sub> the boss t<sub>i</sub> has wanted to him<sub>i</sub> fire*

- (16)a. C'est un type que<sub>i</sub> son<sub>i</sub> patron a voulu essayer de renvoyer t<sub>i</sub>  
*It's a guy that<sub>i</sub> his<sub>i</sub> boss has wanted to try to fire t<sub>i</sub>*  
 b. C'est un type dont<sub>i</sub> le patron t<sub>i</sub> a voulu essayer de le<sub>i</sub> renvoyer  
*It's a guy of-whom<sub>i</sub> the boss t<sub>i</sub> has wanted to try to him<sub>i</sub> fire*

(15)a. is slightly better than (15)b. On the other hand, (15)b is clearly better than (3). And (16)a. and (16)b. seem to me to be equally acceptable. Again, speakers seem to vary. Are the embedded non-finite clauses IPs or CPs? If they are CPs, then the b. cases should clearly be worse than the a. cases. But even if there are IPs, then according to the above metric, (16)b. should count as more economic than (16)b., whatever we assume regarding objects of non-finite verbs.

What could be going on here is that, as in other Romance languages, structures of the form [vP V [IP... [IP...]]], can, under some circumstances, undergo *restructuring*, a process whereby the whole structure behaves as if it were a single vP. Assuming restructuring is optional, the judgements in (16) are expected. Since you compare structures that share the same logical form after conversion of pronouns into variables, you either compare two structures in which restructuring has taken place or two structures in which it hasn't. If it has, then (16)a. is predicted to be better than (16)b. If it hasn't, then (16)b. is preferred. Is there an independent way to test this hypothesis? While restructuring in Italian is typically identified by the fact that it licenses, for instance, clitic climbing, clitic climbing is never an option in French. Yet French displays two phenomena that look like restructuring: *quantifier climbing* and *adverb climbing*:

##### 4.1 Quantifier climbing

- (17) a. Ces livres, Paul a voulu les donner tous à Pierre  
*These books, Paul has wanted to them give all to Pierre*  
 b. Ces livres, Paul a tous voulu les donner à Pierre  
*These books, Paul has all wanted to them give to Pierre*

In (17)b, the floating quantifier appears on the left of the matrix verb, even though it is semantically linked to the object of the embedded verb. I take quantifier climbing to indicate that restructuring has applied. Suppose that starting from the structure in (17)b., you try to build a relative clause whose intended logical form would be something like:  $\lambda x. le\ père\ de\ x\ a\ tous\ voulu\ les\ donner\ à\ x.$  Since the v-IP sequence counts as a single vP-phase in (17)b., due to restructuring, it is predicted that extracting the object should be less costly than extracting from within the subject (just as in (1) and (2)). In particular, the *dont*-variant should be unacceptable, and it is indeed:

- (18) \*C'est le type dont<sub>i</sub> le père t<sub>i</sub> a tous voulu les lui<sub>i</sub> donner  
*It's the guy of-whom<sub>i</sub> the father t<sub>i</sub> has all wanted them to him<sub>i</sub> give*

<sup>6</sup> Given that object past-participle agreement is anyway not obligatory for most French speakers, it could be that some dialects have even lost it. I am not entirely sure that object past-participle agreement is always impossible in non-finite clauses in my own dialect; maybe this is so in certain environments and not in others. More investigation is needed.

<sup>7</sup> The ideas developed in this section originate in a suggestion made by Dominique Sportiche (p.c.). Though the contrasts mentioned here are real for at least some speakers, they are often quite slight.

It is also predicted that if quantifier climbing hasn't applied, then the *dont*-variant should be better, which is again the case (though (19) is not perfect):

- (19) ?? C'est le type dont<sub>i</sub> le père t<sub>i</sub> a voulu les lui<sub>i</sub> donner tous  
*It's the guy of-whom<sub>i</sub> the father t<sub>i</sub> has wanted them to him<sub>i</sub> give all*

Last but not least, (20) should be better than (18), and it is (though it's not perfect) :

- (20) ? C'est le type [à qui<sub>i</sub>]<sub>j</sub> son<sub>i</sub> père a tous voulu les donner t<sub>j</sub>  
*It's the guy [to whom]<sub>j</sub> his<sub>i</sub> father has all wanted them give t<sub>j</sub>*

## 4.2 Adverb climbing

- (21) a. Paul a dû **mal** élever Pierre  
*Paul has must badly educate Pierre* (“Paul must have badly educated Pierre”)  
 b. Paul a **mal** dû élever Pierre  
*Paul has badly must educate Pierre*

In (21)b., the adverb *mal* occurs higher than the matrix verb, but semantically modifies the embedded vP. Again, I assume that restructuring has applied. Then the following is predicted:

- (22) a. Le type que<sub>i</sub> ses<sub>i</sub> parents ont mal dû élever t<sub>i</sub> est ici  
*The guy that<sub>i</sub> his<sub>i</sub> parents have badly must educate t<sub>i</sub> is here*  
 b. ??Le type dont<sub>i</sub> les parents t<sub>i</sub> ont mal dû l<sub>i</sub>' élever est ici  
*The guy of-whom<sub>i</sub> the parents t<sub>i</sub> have badly must him<sub>i</sub> educate is here*

On the other hand, if the adverb remains in the embedded clause, then restructuring is optional, and we expect both variant to be fine. While it seems to me that (23)b is indeed better than (22)b, it is far from perfect though, which suggests that there is a *ceteris paribus* preference for restructuring:

- (23) a. Le type que<sub>i</sub> ses<sub>i</sub> parents ont dû mal élever t<sub>i</sub> est ici  
*The guy that<sub>i</sub> his<sub>i</sub> parents have must badly educate t<sub>i</sub> is here*  
 b. ?Le type dont<sub>i</sub> les parents t<sub>i</sub> ont dû mal l<sub>i</sub>' élever est ici  
*The guy of-whom<sub>i</sub> the parents t<sub>i</sub> has must badly him<sub>i</sub> educate is here*

## 4.3 Dative interveners block restructuring

Can we find a case where, on the contrary, we can be sure that restructuring did **not** take place ?

- (24) a. ?? Voici un gamin que<sub>i</sub> sa<sub>i</sub> mère a promis à Paul d'aider t<sub>i</sub>  
*Here is a kid that<sub>i</sub> his<sub>i</sub> mother has promised Paul to help t<sub>i</sub>*  
 b. Voici un gamin dont<sub>i</sub> la mère t<sub>i</sub> a promis à Paul de l<sub>i</sub>'aider  
*Here is a kid of-whom<sub>i</sub> the mother t<sub>i</sub> has promised Paul to him<sub>i</sub> help*

- (25)a. Voici un gamin que<sub>i</sub> sa<sub>i</sub> mère a promis d'aider t<sub>i</sub>  
*Here is a kid that<sub>i</sub> his<sub>i</sub> mother has promised to help t<sub>i</sub>*  
 b. ? Voici un gamin dont<sub>i</sub> la mère t<sub>i</sub> a promis de l<sub>i</sub>'aider  
*Here is a kid of-whom<sub>i</sub> the mother t<sub>i</sub> has promised to him<sub>i</sub> help*

(25)a. and (25)b. are expected to be both fine: (25)a wins if there is restructuring, (25)b otherwise<sup>8</sup>. In (24), on the other hand, restructuring is impossible, due to the presence of a dative object in the matrix

<sup>8</sup> I need to assume that restructuring is possible with *promettre*, even though quantifier climbing and adverb climbing are not licensed. But restructuring comes in different flavours; for instance, some verbs that allow clitic-climbing in Italian fail to exhibit other aspects of restructuring, such as, for instance, having the auxiliary determined by the embedded verb.

clause –which is known to block clitic-climbing in Italian. Therefore (24)b. is rightly predicted to win, since extraction of the object in (24)a becomes too costly (2 phase boundaries crossed).

## 5 Remaining problems

### 5.1 Adjuncts

Consider the following contrast:

- (26) a. ??Je connais un type [sans qui]<sub>k</sub> sa<sub>i</sub> femme a vu le dernier James Bond t<sub>k</sub>  
*I know a guy [without whom]<sub>k</sub> his<sub>i</sub> wife has seen the last James Bond t<sub>k</sub>*  
 b. Je connais un type dont<sub>i</sub> la femme t<sub>i</sub> a vu le dernier James Bond sans lui<sub>i</sub>  
*I know a guy of-whom<sub>i</sub> the wife t<sub>i</sub> has seen the last James Bond without him<sub>i</sub>*

If the *sans*-adjunct originates in the vP in (26b)., (26a) et (26b) are exactly as economic according to the above metric; in both cases, the extracted element has crossed exactly one phrase boundary. Yet (26b) is clearly preferred. In order to account for this fact, one would have to assume that adjunct-extraction *per se* is more costly than argument-extraction, and change the metric accordingly, for instance by adding 1 to the length of the path in case of adjunct extraction. Further investigation is needed.

An interesting fact, in any case, is the acceptability of (27), which contrasts strikingly with the unacceptability of (26a):

- (27) Je connais un type sans qui<sub>i</sub> sa<sub>i</sub> femme aurait vu le dernier James Bond  
*I know a guy without whom<sub>i</sub> his<sub>i</sub> wife would have seen the last James Bond movie*

The only difference between (27) and (26a) is the presence of conditional mood in (27). This contrast is likely to be linked to the fact that a *sans*-PP cannot be left-adjoined to an indicative IP, but can be left-adjoined to a conditional IP (with a change in meaning, see below):

- (28) Sans Pierre, Marie \*a<sup>ok</sup>aurait vu le dernier James Bond  
*Without Pierre, Marie (indicative) has seen/(conditional) would have seen the last JB movie*

The grammaticality of (27) can then be derived from the fact that the *sans*-adjunct has been extracted from a position much closer to the periphery than in (26a), corresponding to the position of the *sans*-adjunct in (28). If so, indeed, (27) has no competitor, because *dont*-relativization is simply impossible across a fronted *sans*-adjunct:

- (29) \* Je connais un type dont sans Pierre je n'aurais pas lu le livre  
*I know a guy of-whom<sub>i</sub> without Peter I wouldn't have read the book t<sub>i</sub>*

Interestingly, when the *sans*-PP is fronted, as in (28) (with conditional mood), it can only be interpreted as a kind of reduced counterfactual, and not as modifying the VP; that is, (28) can only mean something like “Had not Pierre done what he did, Marie would have seen the last James Bond movie” (implying that in fact she hasn't). It turns out that this “counterfactual” interpretation is actually the only possible one for (27), i.e. (27) must mean more or less the following: *I know a guy G such that had not G done what he did, G's wife would have seen the last James Bond Movie*. This is fully expected: given that (26a) is bad, (27) not only can but also *must* be derived from a structure in which the *sans*-adjunct is fronted. That we are witnessing a competition effect here is clear from the fact that this counterfactual reading is no longer obligatory with another co-indexing. If, on the other hand, indicative mood is replaced with conditional mood in (26b), the sentence is still fine, and has a reading in which the *sans*-adjunct is still modifying the VP.

### 5.2 Optional and obligatory parasitic gaps

As mentioned above, there may be more than two competitors for a given logical form, due to the existence of parasitic gap constructions. I have no proposal as to how parasitic gap constructions are evaluated by the metric; it is actually not even clear that, when the parasitic gap is optional, the parasitic

gap variant shares the same logical form as the non-parastic gap variant. Parasitic gap constructions are indeed generally assumed to involve an additional null operator that binds the parasitic gap (as in Chomsky 1986).

### 5.3 Deeply embedded pronouns

(30) \*C'est un livre que<sub>i</sub> le type qui l<sub>i</sub>'a lu aime t<sub>i</sub>  
*It's a book that<sub>i</sub> the guy who read it<sub>i</sub> likes t<sub>i</sub>*

(30) is bad even though there is no other competitor. This seems to be a genuine counterexample to my proposal. One conceivable way out is based on the fact that there is a variant of (30), with a different word-order, that improves it very significantly, namely (31), with a post-verbal subject (so-called *stylistic inversion*):

(31) C'est un livre qu<sub>i</sub>'aime t<sub>i</sub> le type qui l<sub>i</sub>'a lu  
*It's a book that<sub>i</sub> likes t<sub>i</sub> the guy who read it<sub>i</sub>*

(30) could then be argued to be compared to (31), which would then count as more economic than (30). Yet this option does not seem very tenable, since it is far from clear that (30) and (31) share the same LF, and if so, that (31) is indeed more economic. Up to now, it was assumed that comparison classes include structures that are identical at LF after conversion of traces into variables; in order for (31) to be a competitor for (30), one would have to widen comparison classes without losing our previous analyses. In particular, one would need to find an equivalence relation that would be more liberal than LF-identity, but not so liberal as to render equivalent any two sentences that have the same truth-conditional content.

There exists another potential solution, based on a remark made in Potts (2001). Potts notices, following Postal (1993), that some but crucially not all WCO effects can be repaired by some properly placed focus-sensitive adverbs such as *only* and *even*, as shown in (32) (repairable WCO) and (33) (non-repairable WCO):

(32)a. \*The lawyer who<sub>i</sub> his<sub>i</sub> clients hate t<sub>i</sub>  
 b. The lawyer who<sub>i</sub> *even* his<sub>i</sub> clients hate t<sub>i</sub>

(33) a. \*The artist who<sub>i</sub> (you reported that) only criticism of HER<sub>i</sub> would upset t<sub>i</sub>  
 b. \*The artist who<sub>i</sub> (you reported that) criticism of only HER<sub>i</sub> would fail to bother t<sub>i</sub>

Potts' conclusion is that WCO is not a unified phenomena; some WCO effects are "repairable", and some are not. What seems to be the case is that my proposal, if correct, accounts only for *repairable* WCO effects in French relative clauses. (2) (repeated as (34a)) can indeed be repaired (34b):

(34)a. \*Le type dont<sub>i</sub> le père t<sub>i</sub> l<sub>i</sub>' a frappé  
*The guy of-whom<sub>i</sub> the father t<sub>i</sub> him<sub>i</sub> has beaten*  
 b. Le type dont<sub>i</sub> *seul* le père t<sub>i</sub> l<sub>i</sub>'a frappé  
*The guy of-whom<sub>i</sub> only the father t<sub>i</sub> him<sub>i</sub> has beaten*

On the other hand, (30) is not repairable:

(35) ?? C'est un livre que<sub>i</sub> *seul* le type qui l<sub>i</sub>'a lu aime t<sub>i</sub>  
*It's a book that<sub>i</sub> only the guy who read it<sub>i</sub> likes t<sub>i</sub>*

I tentatively conclude that my proposal accounts only for cases of "repairable" WCO violations. WCO is therefore not a unified phenomenon.

## 6 Conclusion

Some apparent WCO violations can be accounted for in terms of a global economy principle of the kind Ruys (1994) suggested. One can wonder whether a mechanism of global comparison is really needed, or whether the economy principle could be reformulated as follows : *In a relative clause in which a trace and a pronoun are co-indexed, the trace must be **closer** to the relative operator than the pronoun (where 'closer' is interpreted with respect to the metric given above).*

There are two cases where this could make a difference: first, if only one competitor is generated by the grammar, a global comparison mechanism predicts this unique competitor to be fine, while the formulation above makes no such prediction in the general case. Second, recall that in case of pied-piping, what counts is the length of the extraction path of the whole pied-piped phrase. Suppose the pronoun is not in an extractable position, but is nevertheless in a position that can host a relative operator triggering movement of a bigger phrase (pied-piping); then even if the pronoun is further from the left periphery than the actual gap is, the competitor could count as more economic, since it would actually not be formed by extracting a relative operator occurring in the position of the pronoun, but by extracting a bigger phrase, which would be closer to the left periphery.

To conclude, I have offered a global economy account of apparent WCO effects in Relative Clauses. I haven't seriously tried to make my proposal work for WCO effects outside the realm of relative clauses. I am not claiming here that *all* WCO effects can be reduced to a single principle. Rather, as suggested in the previous section, I take WCO to be just a descriptive term, with no implication that a single principle can account for all the relevant cases.

## References

- Chomsky, N. (1986), *Barriers*, Cambridge, MIT Press.
- Chomsky, N., 1999, Derivation by phase, *MIT Occasional Papers in Linguistics*.
- Lasnik, H & T. Stowell, 1991, "Weakest crossover", *Linguistic Inquiry* 22:4 : 687-720.
- Postal, P., 1993, "Remarks on Weak Crossover", *Linguistic Inquiry* 24:539-556.
- Potts, C., 2001, "(Only) Some crossover effects repaired", *Snippets*:3.
- Ruys, E., 1994, "A global economy account of Weak Crossover", *Linguistics in the Netherlands 1994*: 223-234.
- Tellier, C., 1990, "Subjacency and subject condition violations in French", *Linguistic Inquiry*:21: 306-311.