

# Subject , Tense and Truth: Towards a Modular Approach to Binding

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# Subject, Tense and Truth: Towards a Modular Approach to Binding

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## 0. INTRODUCTION

One can characterize the research done in the field of generative grammar over the last years as an attempt on the one hand to reach a better understanding of the nature of the general constraints which apply to rules and representations and on the other hand to investigate the nature of the elements which are submitted to these constraints. It is interesting to recall, from this point of view, that the Tensed-S condition and the Specified Subject Condition applied to the same elements in the EST model as formulated in Chomsky (1973) and (1977).

The fact that these two conditions apply to the same type of elements remains implicitly admitted in the framework of the government and binding theory (Chomsky (1981)). The effects of these conditions can be derived from the different axioms of the binding theory in this model, despite the fact that *Wh*-traces are supposed not to be subject to the SSC (nor to the tensed-S condition) as opposed to what had been claimed before (see Chomsky (1981) Chap. 4).

It is worth noting that this dichotomy between empty categories which are subject to the SSC and empty categories which are not has been corroborated by an independent characterization of these two types of elements with respect to the theta-theory. Traces which are subject to SSC are anaphors and do not bear a thematic role (the thematic role is in fact borne by the chain that the trace forms with its antecedent in argument position) while traces which are not subject to the SSC are variables and bear a thematic role.<sup>2</sup>

\* We are particularly indebted to R. Kayne without whom this work would never have been possible. His class lectures were important in creating the climate of research. J. Cl. Milner's seminar also played an important role and has inspired many ideas developed in section 2. I also want to thank J. Guéron, J. Y. Pollock and M. Ronat for their comments on earlier versions of this paper and J. Cl. Anagnostopoulou, R. Carter, R. Cattell, V. Deprez, G. Fauconnier, H. Obenauer, N. Ruwet, J. R. Vergnaud and R. Zuber with whom I have discussed some specific points related to the formulation of the theory.

<sup>2</sup> Thanks again to R. Charnock and J. Y. Pollock who read several versions of this paper and tried to make it sound like English.

This repartition of empty categories led to the discovery of another constraint whose effects are close to those of SSC or of the Tensed-S condition: The Empty Category Principle. We would however like to propose a reformulation of the binding theory in which the Tensed-S condition and the SSC are kept distinct from one another. Adopting the spirit of the general research of the last few years, we shall claim in section 1 that it is possible to show that the SSC and the tensed-S condition apply to two different kinds of elements. We show further in subsection 1.1 that these two kinds of elements can be characterized in terms of the theta-theory.

Our conception of the tensed-S condition however differs from earlier proposals in that we claim in section 2 that the subjunctive mood does not give rise to genuine tenses with respect to the Tensed-S condition.

The proper formulation of the Tensed-S condition and the SSC - whose effects have often been confused in the literature - will lead to the formulation of a third constraint which we call "the truth value condition".

We show in section 3 that the latter constraint, which we claim is part of the binding theory, applies to all elements which can be analyzed as variables at the appropriate level of representation (S-structure). We show that it does not apply to those variables which are so interpreted at the level of logical form only.

This will make it possible to formulate a theory where  $\bar{A}$ -binding of an anaphor is possible but highly restricted. Our formulation of the binding theory will lead us to sketch a new conception of the Empty Category Principle in section 4. We shall show it must be kept distinct from the binding theory (as opposed to what has sometimes been claimed in the literature) and must be defined in such a way that it can apply to certain lexical items.

#### 1. SUBJECT AND TENSE

The French sentence in (1) constitutes a clear counter-example to Chomsky's binding theory as formulated in Chomsky (1981) since the anaphor *soi* does not need to be bound in its governing category (presumably the embedded clause).

- (1) On<sub>i</sub> ne souhaite jamais que les gens ne regardent que soi<sub>i</sub>  
(One never wishes that people look (SUBJ<sub>i</sub>) only at oneself)

Sentences such as (1) illustrate the long distance reflexive phenomena observed in languages such as Icelandic, Latin and many others (see

for a review, Anderson (1982) and references cited there). Note that (1) is also a clear violation of the Specified Subject Condition as formulated in Chomsky (1973) and (1977). (1) also contrasts with (2) and (3) where the anaphors *se* and *l'un l'autre* must be bound in their respective governing category or, in other words, are subject to the SSC:

- (2) \*On<sub>i</sub> ne souhaite jamais que les gens se<sub>i</sub> regardent  
(One never wishes that people look (SUBJ<sub>i</sub>) at oneself (CL<sub>i</sub>))

- (3) \*Ils<sub>i</sub> ne souhaitent jamais que les gens disent du mal les uns des autres<sub>i</sub>  
(They never wish that people slander (SUBJ<sub>i</sub>) each other)

Such contrasts as (1) vs. (2) and (3) led us to propose in Picu (1984b) a theory which differs from the binding theory of Chomsky (1981) in that it claims that there exist two kinds of anaphors: anaphors in non-argument position and anaphors in argument position. We claimed further that these two different kinds of elements are subject to the SSC and to a condition close to the Tensed-S condition respectively.

Our conception of the Tensed-S condition differs from earlier proposals in that we consider that the subjunctive mood does not give rise to genuine tenses as developed in section 2.2 below.

The last point is supported by the contrast between (1) and (5) on the one hand and (4) on the other:

- (4) \*On<sub>i</sub> ne dit jamais que les gens disent du mal de soi<sub>i</sub>  
(One never says that people slander (IND<sub>i</sub>) oneself)
- (5) Une femme que l'on<sub>i</sub> dit avoir été amoureuse de soi<sub>i</sub><sup>3</sup>  
(A woman that one says to have been in love with oneself)

This theory leads us to consider that it is *les uns* and not *les uns les autres* which is an anaphor in (3) since *l'un l'autre* behaves like an anaphor in non-argument position, in other words, is subject to the SSC. A parallel should be made between the behavior of *l'un* in (3) and the floating quantifier *tous* in sentences like (6) and (7) (from Kayne (1981a)) where *tous* is subject to the SSC, and must be c-commanded by its antecedent:

- (6) \*Mes amis<sub>i</sub> pensent que je suis tous<sub>i</sub> partie  
(My friends think that I have all left)

- (7) \*La mère de mes amis<sub>i</sub> est tous<sub>i</sub> partie  
(The mother of my friends is all left)

Likewise, we do not consider that *each other* or *himself* in English are anaphors in the usual sense, at the level to which the binding theory applies, but rather that *each* and *self* are subject to the SSC because they are in non-argument positions.<sup>4</sup>

Note that the distinction between argument and non-argument anaphors is supported by the fact that, as predicted by our analysis, we find long distance binding (across an S or  $\bar{S}$  boundary) of non-argument anaphors in contexts where the SSC cannot apply. This occurs when the non-argument anaphor is part of the subject itself (even when the embedded clause is tensed), since non-argument anaphors are not subject to the tensed-S condition. Note that, in some of these contexts, the long distance binding of argument anaphors will not be possible, since such anaphors are subject to the tensed S condition. This is illustrated by the contrast between (8), (9) and the French sentence (10):

- (8) They<sub>i</sub> believed that pictures of each other<sub>j</sub> were on sale<sup>5</sup>  
 (9) They<sub>i</sub> believed that pictures of themselves<sub>j</sub> were on sale  
 (10) \*On<sub>i</sub> dit que des photos de soi<sub>j</sub> sont en vente<sup>6</sup>  
 (One says that pictures of oneself are (IND.) on sale)

Sentence (10) is not blocked by the SSC but rather by the revised Tensed-S condition. This is supported by the fact that sentences equivalent to (10) are grammatical if the mood of the verb of the embedded clause is a subjunctive as in (11):

- (11) On<sub>i</sub> souhaite que des photos de soi<sub>j</sub> soient en vente  
 (One wishes that pictures of oneself are (SUBJ.) on sale)

### 1.1. On the interaction between theta-theory and binding theory

In order to account for the fact that some empty categories in argument positions do in fact fall under the SSC (which would be surprising if we restricted the SSC to elements in non-argument positions), we suggested that part of the binding theory which is relevant to anaphors be reformulated as follows (cf. Pica 1984b):<sup>7</sup>

- (1)  
 An anaphor  $\beta$  must be bound in its binding category  $\alpha$ , where  $\alpha$  is a binding category for  $\beta$  if:  
 a)  $\alpha$  is the minimal category containing  $\beta$  and an accessible subject to  $\beta$  and  $\beta$  lacks a thematic role *or* is in a non-argument position.<sup>8</sup>

- b)  $\alpha$  is the minimal category containing  $\beta$  and the element [+TENSE] when  $\beta$  has a thematic role *and*  $\beta$  is in an argument position.<sup>9</sup>

This formulation of the binding theory permits us to account for the fact that NP traces which do not bear a thematic role are subject to the SSC. In the case of NP-trace, the  $\theta$ -role is assigned to the chain that the trace forms with its antecedent, or, alternatively, to the head of the chain.

It predicts that any anaphor which lacks a thematic role will be subject to the SSC. It deals with the following contrast in Danish:

- (12) Jørgen<sub>i</sub> bad Gertrude fotografere sig<sub>j</sub>  
 (Georges asked Gertrude to photograph himself)  
 (13) \*Jørgen<sub>i</sub> bad Gertrude skamme sig<sub>j</sub>  
 (Georges asked Gertrude to be ashamed of himself)

That is, *sig* lacks a thematic role in (13) as opposed to (12) since *skamme sig* (to be ashamed of oneself) is a kind of intrinsic reflexive verb in Danish (see also on this point Hellan (1982) and Pica (1984b)).

The stronger claim that any "dependent" element lacking a thematic role is an anaphor (that is, is subject to the SSC) seems in fact to hold true as illustrated by the following contrast from Ronat (1979):

- (14) \*Il<sub>i</sub> voudrait qu'il pleuve lui<sub>j</sub> toute l'année  
 (He would like that it rains him during the whole year)  
 (15) Il<sub>i</sub> voudrait qu'il pleuve, lui<sub>j</sub>, toute l'année  
 (He would like that it rains, him, during the whole year)

Ronat notes that the relation between the "distinctive" pronoun and its antecedent is subject to the SSC in (14) as opposed to what prevails in (15) where *lui* is a "topic" pronoun (Ronat's terminology).

*Lui*, we assume, is directly generated in a non-argument position and cannot be  $\theta$ -Marked in (14). This contrasts with (15) where the pronoun is in a "peripheral" thematic position. This is supported by the fact that the pronoun can be replaced by a noun in (15) but obviously not in (14).<sup>10</sup>

This suggests that the fact that *each* and *self* are anaphors does not need to be stipulated in the lexicon but rather that *each* or *self* are anaphors when they are "dependent" and do not bear a thematic role.

This is again strongly supported by the contrast between (3) and (16) in French which shows that *les uns* does not behave as an anaphor when it is in an argument position:

- (16) Ils disent que Jean sait que les propos de l'un sur l'autre avaient été rapportés  
(They say that John knows that the stories of one about the other had been reported (IND.))

Note that the anaphoric relation between *l'un* and *l'autre* is not subject to the SSC when *l'un* is in subject position, as predicted in the present framework:

- (17) L'un dit que Jean parlera à l'autre;  
(One says that John will speak to the other)

## 2. ON THE NOTION TENSE

That anaphors in thematic argument position are not subject to the SSC while anaphors in non-thematic or non-argument positions are, seems also to be illustrated by (18)...(22). They show that the relation between *ne* and *jamais*, *guère* and *pas* is subject to the SSC while the relation between *ne* and *personne* is not:

- (18) \*Pierre n'entend Jean jamais; parler  
(Peter NEG hears John never speak)
- (19) \*Pierre n'entend Jean guère; parler  
(Peter NEG hears John not much speak)
- (20) \*Pierre n'entend Jean pas; parler  
(Peter NEG hears John not speak)
- (21) Pierre n'entend Jean parler à personne;  
(Peter NEG hears John speak to nobody)
- (22) ?Pierre n'a voulu que je parle à personne;  
(Peter NEG has wanted that I speak (SUBJ.) to nobody)

The fact that *jamais*, *guère* and *pas* are anaphors need not be stipulated in the lexicon since these elements are "dependent" and in non-thematic and non-argument positions.<sup>11</sup> We claim in Pica (1984b) that *personne* is an anaphor in argument position. This is supported by the fact that, while *personne* is not subject to the SSC as demonstrated by (21) and (22), *personne* does seem to be subject to the Tensed S-condition as illustrated by the contrast between (21) and (23). Recall that, in our

terms, the tenses of the subjunctive mood do not count as [+TENSE] with respect to the Tensed-S condition:

- (23) \*Pierre n'a dit que je parle à personne;  
(Peter NEG has said that I speak (IND.) to nobody)

This analysis amounts to claiming that the contrast between *personne* and *pas* is of the same type as the contrast between *soi* and *se* since the latter but not the former is subject to the SSC (see the contrast between (1) and (2) above).

Such an analysis can carry over to *rien* in (24) and (25) where *rien* is both in an argument position and in a thematic position and behaves like *personne* as predicted by the present theory:

- (24) Pierre n'est disposé à s'occuper de rien;  
(Peter NEG is willing to take care of nothing)
- (25) ?Pierre n'a voulu que je m'occupe de rien;  
(Peter NEG has wanted that I take (SUBJ.) care of nothing)

Note again the contrast between (25) and (26) which is arguably blocked by the Tensed-S condition:<sup>12</sup>

- (26) \*Pierre n'a dit que je m'occupe de rien;  
(Peter NEG has said that I take (IND.) care of nothing)

This line of approach again leads us to say that *aucun* is in a position which is both thematic and argumental in the partitive construction illustrated in (27) which contrasts with (28):

- (27) Pierre n'a voulu que je peigne aucun; de ces portraits  
(Peter NEG has wanted that I paint (SUBJ.) none of these portraits)
- (28) \*Pierre n'a dit que je peins aucun; de ces portraits  
(Peter NEG has said that I paint (IND.) none of these portraits)

The same type of contrast can be observed in the construction illustrated in (29) and (30) which differs from the partitive construction in ways which have been intensively studied (see Milner (1978a) and, for a different point of view, Haik (1982)):

- (29) Pierre n'a voulu que je peigne aucun; portrait  
(Peter NEG has wanted that I paint (SUBJ.) none portrait)

- (30) \*Pierre n'<sub>i</sub>a dit que je peins aucun<sub>i</sub> portrait  
(Peter NEG says that I paint (IND.) none portrait)

Müher (1978a) gives an analysis which amounts to saying that *aucun* in (29) is in the same position as *beaucoup* in (31):

- (31) Pierre veut que je peigne beaucoup de portraits?  
(Peter wants that I paint much of portraits)

We will not take a stand as to whether some lexical material has been deleted or not in sentences like (31) or (29) but it is interesting to note that there is good reason to suppose that the position occupied by *beaucoup* in (31) can indeed receive a thematic role: The trace of *combien* behaves like a variable (and must consequently bear a thematic role) when *combien* is moved from a position similar to the one of *beaucoup* in (31) as shown by (32):

- (32) Combien<sub>i</sub> Pierre a-t-il dit que je peins e<sub>i</sub> de portraits?  
(How many did Peter say that I paint (IND.) of portraits)

The same point can be made about (33) which recalls (28).

- (33) Combien<sub>i</sub> Pierre a-t-il demandé que je peigne e<sub>i</sub> de ces portraits  
(How many did Peter ask that I paint (SUBJ.) of these portraits)

Note that neither (32) nor (33) is sensitive to the mood of the embedded clause as expected under the present theory if the trace of *combien* is a variable (see however section 3 below).

Before turning to the study of empty categories, let us look at sentences of the type illustrated by (34). They contrast with (27): The relation between *ne* and *guère* is subject to the SSC in (34), but the relation between *ne* and *aucun* in (27) is not, although the two lexical items *guère* and *aucun* seem to be in the same position:

- (34) \*Pierre n'<sub>i</sub>a voulu que je peigne guère<sub>i</sub> de portraits  
(Peter NEG has wanted that I paint (SUBJ.) not much of portraits)

Note that (34) contrasts with (35):

- (35) Pierre ne<sub>i</sub> peint guère<sub>i</sub> de portraits  
(Peter NEG paints not much of portraits)

The contrast between (34) and (27) suggests that the NP preceded by *guère* in fact contains an empty QP and that *guère* is always in non-argument adverbial position. This hypothesis is supported by the contrast between (36) and (37).

- (36) a. Pierre n'<sub>i</sub>a pensé à aucun<sub>i</sub> portrait  
(Peter NEG has thought of no portrait)  
b. Aucun<sub>i</sub> portrait n'<sub>i</sub>a été détruit  
(No portrait NEG has been destroyed)

- (37) a. \*Pierre n'<sub>i</sub>a pensé à guère<sub>i</sub> e<sub>i</sub> de portraits  
(Peter NEG has thought of not much of portraits)  
b. \*Guère<sub>i</sub> e<sub>i</sub> de portraits n'<sub>i</sub>ont été détruits  
(Not much of portraits have been destroyed)

One natural question that arises at this stage is whether there exists a type of empty category corresponding to what we have identified as lexical thematic A-anaphors. That is, does there exist an empty category subject to the revised Tensed-Condition and immune to the SSC? A natural candidate might be the trace of *tout* which is subject to the same constraints as *personne* or *rien*. This is illustrated by the following paradigm where the embedded clause is an infinitive in (38) and a subjunctive in (39):

- (38) Il aurait tout<sub>i</sub> fallu refaire e<sub>i</sub>  
(It would all things have been necessary to do again)
- (39) ?Il aurait tout<sub>i</sub> fallu que je refasse e<sub>i</sub>  
(It would all things have been necessary that I do (SUBJ.) again)

Note crucially, that, sentences of type (26) become ungrammatical if the indicative mood is used as illustrated by (40).

- (40) \*Pierre a tout<sub>i</sub> dit que je fais e<sub>i</sub>  
(Peter has all things said that I do (IND.))

That the constraints on leftward quantifier movement (or more precisely that the constraints on a quantifier in non-argument position and the empty QP that it binds) are of the same type as the constraints on the relation between *ne* and an element such as *rien* or *personne* can be illustrated by the following contrast:

- (41) a. \*Pierre n'<sub>i</sub>a dit que je m'occupe de rien;  
(Peter NEG has said that I take (IND.) care of nothing)  
b. \*Pierre n'<sub>i</sub>a rien dit que je fais e<sub>i</sub>  
(Peter NEG has nothing said that I do (IND.))

- (42) a. ?Pierre n'<sub>i</sub>a voulu que je m'occupe de rien;  
(Peter NEG has wanted that I take (SUBJ.) care of nothing)  
b. ?Pierre n'<sub>i</sub>a rien voulu que je fasse e<sub>i</sub>  
(Peter NEG has nothing wanted that I do (SUBJ.))

Note however that sentences like (42) (a) and (b) become ungrammatical when the embedded clause is an "induced" subjunctive, i.e. in a subjunctive found under verbs of opinion like *croire* (believe) or *penser* (think) that normally take an indicative subordinate but which require their subordinate clause to be in the subjunctive if they are in an interrogative or negative main clause. This state of affairs is illustrated by (43), (44):

- (43) a. \*Pierre ne<sub>i</sub> croit que je voie personne;  
(Peter NEG believes that I see (SUBJ.) nobody)  
b. \*Pierre n'<sub>i</sub>a rien cru que je fasse e<sub>i</sub>  
(Peter NEG has nothing believed that I do (SUBJ.))

- (44) a. \*N'<sub>i</sub>a-t-il cru que je voie personne?  
(NEG has he believed that I see (SUBJ.) nobody)  
b. \*N'<sub>i</sub>a-t-il rien cru que je fasse e<sub>i</sub>?  
(NEG has he nothing believed that I do (SUBJ.))

Sentences (a) and (b) of (43) and (44) contrast with sentences (a) and (b) of (45) where the main clause contains a volition verb like *vouloir* (want) which always requires the subjunctive in the embedded clause:

- (45) a. N'<sub>i</sub>a-t-il voulu que je voie personne?  
(NEG has he wanted that I see (SUBJ.) nobody)  
b. N'a-t-il rien voulu que je fasse e<sub>i</sub>?  
(NEG has he nothing wanted that I do (SUBJ.))

Sentences (a) and (b) of (45) or (42) also contrast with examples with embedded subjunctives under main clauses which contain factive verbs such as *regretter* (regret) despite the fact that this kind of verb always requires the subjunctive in the embedded clause:

- (46) a. \*Pierre ne<sub>i</sub> regrette que je voie personne;  
(Peter NEG regrets that I see (SUBJ.) nobody)

- b. \*Pierre a tout<sub>i</sub> regretté que je fasse e<sub>i</sub>  
(Peter has all things regretted that I do (SUBJ.))

It is significant that sentences similar to (46) remain ungrammatical when the embedded clause is in the infinitive, as (a) and (b) of (47) show:

- (47) a. \*Pierre ne<sub>i</sub> regrette avoir parlé à personne;  
(Peter NEG regrets to have spoken with nobody)  
b. \*Pierre a tout<sub>i</sub> regretté avoir fait e<sub>i</sub>  
(Peter has all things regretted to have done)

(46) - (47) recall the contrasts between (48b) and (49b) noted by Kayne (1975) and Pollock (1978) and the pair (48a) vs. (49a) noted by Milner (1979):

- (48) a. Pierre ne<sub>i</sub> veut voir personne;  
(Peter NEG wants to see nobody)  
b. Pierre a tout<sub>i</sub> voulu voir e<sub>i</sub>  
(Peter has all things wanted to see)

- (49) a. \*Pierre ne<sub>i</sub> dit voir personne;  
(Peter NEG says to see nobody)  
b. \*Pierre a tout<sub>i</sub> dit avoir vu e<sub>i</sub>  
(Peter has all things said to have seen)

These facts are unexpected under the present theory if such elements as *personne*, *rien* and the trace of *tout* (which all bear a thematic role and are in argument position) were anaphors falling under the Tensed-S condition.

One can claim however, in the present framework, that the embedded infinitival clauses of (47) and (49) and the embedded subjunctives in (43), (44) and (46) are "tensed", as opposed to subjunctives or infinitives embedded under a main clause containing volition verbs such as *vouloir*, which are not. The element [+TENSE] would, if this were true, be responsible for the ungrammaticality of sentences such as (47), (49), (43), (44) or (46).

This hypothesis - which is very close to the one proposed in Luján (1978) (for partially similar data in Spanish) - does not hold however. We will claim rather that there are good reasons for accepting the view that the embedded infinitives in (47) and (49) are tensed (as opposed to infinitives embedded under main clauses containing a volition verb) but that the element [+TENSE] of these infinitives can be shown not to be relevant to the tensed-S condition: We will draw a parallel between the



tense of certain infinitival clauses and the tense of subjunctive clauses in general. Although all subjunctive clauses are tensed, their element [+TENSE] does not count for the Tensed-S condition. This amounts to saying that the anaphoric relation which holds between elements like *persone* and *ne* or the trace of *tout* and its antecedent is *not* subject to the tensed-S condition (as opposed to the relation between elements like *soi* and its antecedent) as opposed to what we have claimed in this section. We will indeed suggest in section 3 below that *ne* - *persone*, *tout* and its trace, are subject to a different condition which we call the "truth value condition".

Let us first examine the case of infinitives.

### 2.1. On the tense of infinitival clauses

The paradigm (50)-(51) is reminiscent of Rizzi's work on Italian infinitival clauses (Rizzi (1982)). It illustrates the distinction between infinitives embedded under verbs of saying and under opinion verbs (such as *dire* "say" or *penser* "think") exemplified in (50) and infinitival clauses embedded under volition verbs as in (51).<sup>13</sup>

- (50) a. \*On dit [<sub>i</sub> une femme être amoureuse d'un autre  
(One says a woman to be in love with another)  
b. \*Une femme<sub>i</sub> est dite [<sub>i</sub> e<sub>j</sub> être amoureuse d'un autre  
(A woman is said to be in love with another)  
c. Une femme<sub>i</sub> que l'on dit [<sub>i</sub> e<sub>j</sub> être amoureuse d'un autre  
(A woman that one says to be in love with another)
- (51) a. \*On veut [<sub>i</sub> une femme être amoureuse d'un autre  
(One wants a woman to be in love with another)  
b. \*Une femme<sub>i</sub> est voulue [<sub>i</sub> e<sub>j</sub> être amoureuse d'un autre  
(A woman is wanted to be in love with another)  
c. \*Une femme<sub>i</sub> que l'on veut [<sub>i</sub> e<sub>j</sub> être amoureuse d'un autre  
(A woman that one wants to be in love with another)

Example (50a) is ruled out because the NP *une femme* cannot receive Case. There is no rule for the movement of the auxiliary in Comp in French and the only way to rescue the structure is to move the subject of the infinitive clause in the upper Comp by successive Wh-movement through the intermediate Comp. This is illustrated in (50c) which is well attested in French (see Ruwet (1979), Huot (1981) and Kayne (1981b) for a study of this construction and, for a different approach, Pollock (this volume)).

Note that the subject trace is governed by the intermediate trace in Comp.

The same analysis can obviously be extended to (51a) and (51b) but the contrast between (50c) and (51c) suggests (as in the Italian cases) that infinitival clauses embedded under volition verbs do not have a Comp position in French. There is no intermediate trace to govern the empty category in subject position in (51c), which is excluded by the empty category principle and by the principle according to which a variable must bear a case since *voulait* cannot case-mark the trace in subject position and since there is no intermediate trace under  $\bar{S}$  if the embedded clause of this example lacks COMP.<sup>14</sup>

Let us assume, following Stowell (1982) that an infinitival clause which has a Comp position is tensed while clauses which lack such a position are not. This seems to be corroborated by the paradigm (52)-(53) which recalls the so-called inflected infinitives observed in some Romance languages (see among others Rouwerer (1980)). The interpretation of the tense of the infinitival clause is less dependent on the main clause when it is embedded under *dire* than when it is embedded under *vouloir*: The scope of the adverb may be the embedded clause in (52) but not in (53):

- (52) a. Pierre dit être un espion (depuis hier)  
(Peter says to be a spy (since yesterday))  
b. Pierre dit avoir été un espion (depuis deux ans)  
(Peter says to have been a spy (since two years))
- (53) a. Pierre veut être un espion (\*depuis hier)<sup>15</sup>  
(Peter wants to be a spy (since yesterday))  
b. \*Pierre veut avoir été un espion (\*depuis deux ans)  
(Peter wants to have been a spy (since two years))

Note however that the relation between *soi* and its antecedent is not sensitive to the tense of the infinitive as can be seen in (5) restated in (54):

- (54) Une femme que l'on<sub>i</sub> dit avoir été amoureuse de soi<sub>i</sub>  
(A woman that one says to have been in love with oneself)

The contrast between (54) and (49) strongly suggests that the relation between *soi* and its antecedent on the one hand, and the relation between *persone* and *ne* (and the trace of *tout* and its antecedent) on the other hand, are not sensitive to the same constraints.

Note that infinitival clauses embedded under factive verbs like *regretter* behave like those embedded under *dire*:

- (55) a. Pierre regrette (d') être espionné (depuis hier)  
 (Peter regrets to be spied (since yesterday))  
 b. Pierre regrette (d') avoir été espionné (depuis hier)  
 (Peter regrets to have been spied (since yesterday))

This seems to indicate that the ungrammaticality of (56) is not due to the fact that the embedded clause lacks a Comp position in (55) but rather to the fact that there is no movement to the Comp position of a factive verb, as argued on different grounds by Zubizarreta (1982):

- (56) ?\*Une femme<sub>i</sub> que l'on regrette (d') e<sub>j</sub> être amoureuse d'un autre  
 (A woman that one regrets to be in love with another)

## 2.2. On the Tense of subjunctive clauses

That the relation between *soi* and its antecedent is not subject to the same constraints as the relation between *personne* and *ne* or the relation between the trace of *tout* and its antecedent, is suggested by the following:

- (57) a. On<sub>i</sub> regrette toujours que les gens disent du mal de soi<sub>i</sub>  
 (One always regrets that people slander (SUBJ<sub>i</sub>) oneself)  
 b. On<sub>i</sub> ne croit jamais que les gens disent du mal de soi<sub>i</sub>  
 (One NEG never believes that people slander (SUBJ<sub>i</sub>) oneself)  
 c. Croit-on<sub>i</sub> toujours que les gens disent du mal de soi<sub>i</sub>?  
 (Does one always believe that people slander (SUBJ<sub>i</sub>) oneself?)

Sentences (57) (a), (b) and (c), which contrast with examples (46), (43) and (44) respectively, show that the anaphoric relation between *soi* and its antecedent is not sensitive to the nature of the embedded subjunctive. This suggests that the tense of a subjunctive or an infinitive mood never counts as [+TENSE] with respect to the tensed-S condition. It is reasonable to assume that this is so because the interpretation of the embedded infinitive is in fact always dependent on the interpretation of the main clause. This can be shown by the fact that infinitives cannot be independent propositions (in most cases), as noted, for example, by Picallo (1984).

The tense of subjunctive subordinators is not completely dependent on the tense of the main clause, however, as shown by (58):

- (58) a. Il aurait fallu qu'il vint  
 (It should (COND.) be necessary that he came (SUBJ. imper. fact))

- b. Il aurait fallu qu'il vienne  
 (It should (COND.) be necessary that he come (SUBJ. present))

Examples (a) and (b) of (58) (which do not seem to be correlated to a semantic distinction) seem to indicate that the fact that tenses of the subjunctive mood do not count as such with respect to the Tensed-S condition cannot be reduced to the tense agreement phenomena. This contrast is what is claimed in Anderson (1983) and Pica (1984b) among others.

Note moreover that the tense of a subjunctive clause does not block the relation of *sig* to its antecedent in sentences such as (59) in Icelandic where there is no verb to control the embedded subjunctive:

- (59) Lóngun Jóns, til að María elski sig<sub>i</sub>  
 (John's wish that Mary love (SUBJ<sub>i</sub>) himself)

That the tense of the subjunctive mood is partly independent (in the languages that we are studying) is also suggested by the fact that one can occasionally find independent subjunctive clauses as in (60):

- (60) Soit un axiome s'appliquant aux variables  
 (Be (SUBJ<sub>i</sub>) an axiom applying to variables)

Putting aside the case of pseudo-tenses built with help of semi-auxiliaries (of the *il va venir* type, (he is going to come)),<sup>16</sup> let us assume that the infinitive and the subjunctive moods do not possess relative tenses but only absolute tenses in the sense of Benveniste (1965). It seems to be generally the case that these moods do not possess a complete set of relative tenses such as future, conditional and definite past (*passé simple*, claimed by Milner (1984) to be a relative tense).

The subjunctive mood usually possesses absolute tenses such as present and imperfect (*imparfait*). They do not create a reference point with respect to the moment of utterance and are not, as such, sufficient to set up a temporal frame relevant for the tensed-S condition.

Let us therefore adopt the following hypothesis: *Only those tenses which are part of a complete temporal system (for a given mood) are relevant for the tensed-S condition.*

### 3. ON TRUTH

Let us now come back to the contrast between (49) and (54), (46) and (57a), (43) and (57b), (44) and (57c). The data presented in the preceding

section lead us to an apparent paradox: Why should *personne* or *rien* and the trace of *tour* be sensitive to the nature of the embedded infinitive or subjunctive while other anaphors in argument position like *soi* are not?

The same kind of phenomenon can also be observed in (61) with *tous*. *Tous* is base-generated in a non-argument position and binds the trace of the clitic (according to the analysis of Kayne (1981a) with whom we agree on this point):

- (61) a. Pierre a tous; voulu les; lire e;  
 (Peter has all wanted to read them (CL))  
 b. \*Pierre a tous; dit les; avoir lus e;  
 (Peter NEG; has all said to have read them)  
 c. ?Pierre a tous; voulu que je les; lise e;  
 (Peter has all wanted that I read (SUBJ.) them (CL))  
 d. \*Pierre a tous; regretté que je les lise e;  
 (Peter has all regretted that I read (SUBJ.) them (CL))  
 e. \*Pierre a tous; dit que je les lise e;  
 (Peter has all said that I read (IND.) them (CL))

The  $\theta$ -role of a clitic trace is absorbed by the clitic and the relation between the trace and the clitic is consequently subject to the SSC (see Pica (1984b)).

Note however that the fact that the clitic trace does not bear a thematic role does not prohibit the long distance binding of the trace by *tous* in (61). That is, the clitic trace behaves as a non-thematic anaphor (subject to the SSC) with respect to the anaphoric relation between the trace and the clitic. The same clitic trace however, behaves like the trace of *tour* (that is, is subject to a condition close to the tensed-S condition) with respect to the anaphoric relation between the trace and *tous*.

This paradox suggests that the anaphoric relation between the clitic trace and *tous* is immune to the SSC because the trace is included in a chain to which a thematic role is assigned (CL...t) and absorbed by the clitic. This amounts to saying that *tous* in fact binds the chain (CL...t) and that a chain (a discontinuous argument) can in general be bound by an antecedent as long as the general constraints on chain formation are not violated.<sup>17</sup>

(62)...(64) show that the relation between a non *Wh* quantifier like *tous*, *tout*, *rien*, *beaucoup*, *guère*, *pas* and the empty category it binds is, quite generally sensitive to the same properties of the embedded infinitive or subjunctive as the ones illustrated by paradigm (61).

- (62) a. Pierre a beaucoup; voulu voir e; de films  
 (Peter has much wanted to see of films)

- b. \*Pierre a beaucoup; dit avoir vu e; de films  
 (Peter has much said to have seen of films)  
 c. ?Pierre a beaucoup; voulu que je voie e; de films<sup>18</sup>  
 (Peter has much wanted that I see (SUBJ.) of films)  
 d. \*Pierre a beaucoup; dit que je vois e; de films  
 (Peter has much said that I see (IND.) of films)

- (63) a. Pierre a trop; voulu voir e; de films  
 (Peter has too much wanted to see of films)  
 b. \*Pierre a trop certifié avoir vu e de films  
 (Peter has too much certified to have seen of films)

- (64) a. Pierre n'a rien; voulu faire e;  
 (Peter NEG has nothing wanted to do)  
 b. ?Pierre n'a rien; certifié avoir fait e;  
 (Peter NEG has nothing certified to have done)

These sentences clearly show that the relation between an empty QP and its antecedent in non-argument position does not obey the constraint that holds of the relation between *soi* and its antecedent: while *soi* is an argument anaphor falling under the tensed-S condition, the empty QP is a variable and falls under a constraint of another kind. It also applies to auxiliaries of negation which are both in argument and thematic positions like *personne*, *aucun* or *rien* when they are bound by an element in non-argument position, *ne*. This indicates that such elements are analyzed as variables at the level to which this additional constraint applies.

Let us formulate it as in (11):

- (11) *Truth value condition*  
 A variable must be  $\bar{A}$ -bound in its proposition  $\alpha$  if  
 a)  $\alpha$  has an independent truth value (*per se*)  
 or  
 b) the truth of  $\alpha$  is presupposed (by the verb of the main clause)

Note that the clause embedded under an opinion verb, like *croire* (believe) or *penser* (think) has an independent truth value, as illustrated by (65):

- (65) Jean croit/pense que Marie est ici mais c'est faux  
 (John believes/thinks that Mary is (IND.) here but it is false)

The same observation holds for verbs of report, whether they are followed by an indicative or an infinitive clause:

- (66) Jean dit être le plus fort mais c'est faux  
(John says to be the strongest but it is false)
- (67) Jean dit qu'il est le plus fort mais c'est faux  
(John says that he is (IND) the strongest but it is false)

Subpart (b) of (II) trivially holds of factive verbs which presuppose the truth of the proposition expressed by the complement sentence, as illustrated by the ungrammaticality of (68):

- (68) ?\*Jean regrette que Marie soit ici mais Marie n'est pas ici  
(John regrets that Mary is here but Mary is not here)

Clauses embedded under volition verbs do not have a truth value (in either of the senses (a) or (b) of (II)):

- (69) a. \*Je veux voir Jean partir mais c'est faux  
(I want to see John leave but it is false)
- b. \*Je veux que Jean vienne mais c'est faux  
(I want that John come (SUBJ) but it is false)
- c. Je veux voir Jean partir mais Jean ne part pas  
(I want to see John leave but John does not leave)
- d. Je veux que Jean vienne mais Jean ne vient pas  
(I want that John come (SUBJ) but John does not come)

There is however one case in which the embedded subjunctive under a volition verb such as *vouloir* has a truth value. This is the case of "attracted" subjunctives induced by volition verbs but separated from the verb by a clause.

This phenomenon is illustrated in (70):

- (70) Veux-tu que Pierre croie la que Jean peigne des portraits?  
(Do you want that Peter believe (SUBJ) that John paint (SUBJ) some portraits?)

The embedded subjunctive clause  $\alpha$  has a truth value in this case as illustrated by (71a) and consequently a variable cannot be free in  $\alpha$ . This is illustrated by the ungrammaticality of (71c) which shows that such an element as *aucun* cannot be "long distance" bound by its antecedent *ne* as expected in the present framework:

- (71) a. Veux-tu que Pierre croie que Jean peigne des portraits alors que c'est faux?  
(Do you want that Peter believe (SUBJ) that John paint (SUBJ) some portraits although it is false)
- b. Veux-tu que Pierre croie que Jean ne<sub>i</sub> peigne aucun<sub>j</sub> portrait?  
(Do you want that Peter believe (SUBJ) that John NEG. paint (SUBJ) no portrait)
- c. \*Veux-tu que Pierre ne<sub>i</sub> croie que Jean peigne aucun<sub>j</sub> portrait?  
(Do you want that Peter NEG believe (SUBJ) that John paint (SUBJ) no portrait)

Our analysis amounts to saying that there is a kind of identification process which runs as follows: An  $\bar{A}$ -bound element is interpreted as a variable unless this interpretation is blocked at the appropriate level. Such elements fall under our condition (II). This is the case of thematic argument elements such as *personne*, *rien*, *aucun*, etc. bound by *ne*, an element in  $\bar{A}$  position. The same analysis holds of thematic argument empty categories bound by quantifiers in  $\bar{A}$  position. These elements are not analyzed as anaphors but as variables contrary to what was suggested in section 1.

When an  $\bar{A}$ -bound element cannot be so interpreted it is interpreted as an anaphor and falls under the appropriate axiom of (I).

This is the case of clitic traces which cannot be interpreted as variables because they lack a thematic role. This is also the case of  $\bar{A}$ -bound non-argument anaphors such as *pas*, *guère*, etc. which cannot be interpreted as variables because they are generated in a non-argument position.  $\bar{A}$ -bound elements are interpreted as anaphors whether they are in argument position (as in the case of *soi*) or in non-argument position (as in the case of *each*).

This fairly simple analysis can also account for the fact that the grammaticality of (22), (25), (39) etc. is doubtful for some speakers, as indicated by question marks. That is, some speakers (especially from the north of France) do not accept long distance (say across an  $\bar{S}$  boundary) binding of a variable of the type illustrated in (62c) by its antecedent although the embedded clause which contains the variable is in the subjunctive mood. The same speakers however do not have any reluctance in accepting the long distance binding of the reflexive *soi* in cases like (1). This can be interpreted under the assumption that such speakers consider that the realization of a tense implies a truth value (or else that they employ a more restricted version of our condition (II)).<sup>19</sup>

Note incidentally that the same speakers accept sentences such as (72a) and (72b), however, as predicted in the present framework if the embedded infinitives of these sentences are not tensed:

- (72) a. Il n'aurait voulu avoir été l'ennemi de personne  
(The NEG would have wanted to have been the enemy of nobody)  
b. Il aurait tout voulu avoir fini  $e_1$  (avant que Paul ( $n'$ ) arrive)  
(He would have all things wanted to have finished (before Paul arrives))

This state of affairs has led to a lot of confusion in the literature where the effects of the truth value condition, as observed in (61) for example, have been systematically confused with the effects of the SSC or of the Tensed-S condition.

A question arises at the stage: why should condition (II) be restricted to variables bound by non *Wh* quantifiers? That is, why should (II) not apply to *Wh* traces bound by *Wh* words in Comp. One possibility would be to use the escape hatch in Comp.<sup>20</sup>

In effect, the Comp escape hatch permits the variable to escape from the effect of condition (II). This is illustrated in (73) where the *Wh*-word *qui* is first moved to the intermediate Comp position before being moved to the front position in the matrix S.

- (73) Qui dis-tu [e<sub>1</sub> que [ Jean a vu e<sub>1</sub>?  
(Who do you say that John has seen (IND.))

Note however that *Wh*-movement is still possible from an embedded clause even when the Comp position is filled by an interrogative word, as long as the subjacency condition is not violated, as Rizzi (1980) showed and as is illustrated by the following sentences in French:

- (74) Combien de filles<sub>i</sub> sais-tu où inviter e<sub>i</sub>? (Obensauer 1984)  
(How many girls do you know where to invite)  
(75) C'est à mon cousin<sub>i</sub> que je sais lequel offrir e<sub>i</sub> (Sportliche 1981)  
(It is to my cousin that I know which one to offer)  
(76) Voilà une liste de gens à qui on n'a pas encore trouvé quoi envoyer e<sub>i</sub>.  
(Here is a list of people to which one still did not find what to send)

These are only apparent counter-examples to constraint (II), however, since it is well known that no truth value can be assigned to an interrogative clause (see, among others, Hiz (1978)). Note however, that not all variables are subject to constraint (II), as indicated by the following sentences where the quantifier *quelques* (some) can have a wide scope inter-

- (77) a. Tous les étudiants disent que Jean a réussi quelques examens  
(All the students say that John has passed (IND.) some exams)  
b. Tous les étudiants souhaitent que Jean ait réussi quelques examens  
(All the students wish that John has passed (SUBJ.) some exams)

Examples (77) (a) and (b) can be associated with the logical forms (78) (a) and (b) respectively, which both correspond to the wide scope interpretation of the quantifier (that is, to the case where there is a unique set of examinations to which all the students refer):

- (78) a. For some  $x_1$   $x_1$  an exam [ all the students say [ that John has passed (IND.)  $x_1$   
b. For some  $x_1$   $x_1$  an exam [ all the students wish [ that John has passed (SUBJ.)  $x_1$

Note that the variable produced by the LF rule of quantifier raising is not bound in its proposition in either (78a) or (78b) although the embedded clause of (78a) has a truth value, as opposed to what is predicted, by (II).

One cannot invoke LF movement of the nominal quantifier *quelques* in this case, since movement of a non-*wh* element to Comp is excluded on general grounds. This is indicated by the behaviour of *personne*, *rien* (in argument positions) or of the trace of *tout* since these elements are always subject to the truth value condition.

These facts show that constraint (II) applies to  $\bar{A}$ -bound elements which are in thematic as well as argument positions when nothing prevents them from being interpreted as variables. This holds of *rien* or *personne* when they are in argument position (since they are bound by *ne*) and, obviously, of the trace of *tout*, etc. They can consequently be identified as variables at the level of S-structure. This is not true however of variables bound by quantifiers such as *quelques* (some), *everyone*, etc. which cannot be so interpreted at S-structure but are at LF.

Let us summarize the situation: We have identified three kinds of elements to be carefully distinguished. Anaphors in non-thematic non-argument positions are subject to the SSC while anaphors in thematic argument positions are subject to the tensed-S condition. Anaphors must be kept distinct from variables which fall under what we have called the truth value condition, if they can be identified as variables at the level of S-structure. It is reasonable to argue that the truth value condition is in fact part of the binding theory.

We are now in a position to give an answer to the question raised in the first part of section 2. That is, could there exist one type of empty category corresponding to what we have identified as lexical thematic argument anaphors? In other words, could there exist an empty category subject to the tensed-S condition but immune to the SSC? It is now clear that the answer is negative and that this state of affairs is predicted by the general framework developed in this work: An argument thematic anaphor (whether lexically realized or not) cannot be bound by an element in non-argument position, at S-structure – the level at which the binding theory applies – since it would be interpreted as a variable at this level. An empty argument thematic anaphor cannot be bound by an element in argument position since it would be interpreted as PRO, which we know must be ungoverned (see Chomsky (1982)).

This amounts to saying that an empty thematic anaphor cannot exist and that there is a clear distinction between variables and anaphors at the level at which the binding theory applies (recall note 2).

Note however that a *Wh*-trace in Comp is immune to the effects of the SSC (as illustrated by (73)). This shows that the empty category in Comp is not specified for features [ $\pm$ Pronominal] and [ $\pm$ Anaphor] and cannot fall under (I).<sup>21</sup> This state of affairs may be related to the fact that we do not find any empty category in other  $\bar{A}$ -positions but Comp, a situation which does not seem to be predicted by the theory. It should also be noted that the presence of an empty category (left by the movement of a *Wh*-word through Comp) is crucial in examples such as (73). It is the empty category in Comp which permits such sentences to escape from the effects of the truth value condition. This shows that the indeterminacy of the empty category with respect to the anaphor/variable distinction is not relevant for the "truth value condition".<sup>22,23</sup>

#### 4. A NOTE ON THE EMPTY CATEGORY PRINCIPLE

The theoretical implications of the theory sketched in the preceding sections go far beyond the scope of the present article (see for some extensions, Pica (in preparation)).

Let us however briefly examine the consequences of our theory for the formulation of the Empty Category Principle. It is interesting to note that in the framework of Chomsky (1981), there is a redundancy between the effects of the binding theory and those of the Empty Category Principle in many cases.

This is illustrated by (79) which is excluded both by the ECP (since the trace in subject position is not properly governed) and also by axiom (A) of the binding theory (since the trace which is an anaphor is not bound

in its governing category (the embedded clause) as defined in terms of accessible SUBJECT (see Chomsky (1981) (Chap. 3))):

- (79) \**Paul<sub>i</sub> semble que e<sub>j</sub> est malade*  
(Paul seems that is sick)

One could accordingly propose that ECP in fact derives from the binding theory, which would then imply that all empty categories are anaphors (since all empty categories are subject to the ECP).

This would in turn imply that the notion of anaphor should be extended to elements whose antecedents are in non-argument positions (as opposed to what is suggested in Chomsky (1981)).

These three claims are developed in detail in Aoun (1981) who claims that they are all correct. We implicitly accepted the last of these claims when we said for example that *jean<sub>i</sub>* is an anaphor whose antecedent is *me*, clearly an element in  $\bar{A}$ -position. We have however restricted the possibility of  $\bar{A}$ -binding to anaphors which cannot be interpreted as variables (that is, in the usual case, to anaphors which are not in a thematic  $\bar{A}$ -position). This means that we do not accept the claim that all empty categories are anaphors.

Rather, we claim that those empty categories which are analyzed as variables at the level to which the binding theory applies (S-structure) are subject to the truth value condition while empty categories which are analyzed as anaphors at this level are subject to the SSC.

As for the ECP, we believe that it cannot be derived from the binding theory if the framework we propose is correct.

The binding theory formulated in (1) cannot exclude sentences like (79): here we predict that the trace is subject to the SSC since it does not bear a thematic role. There is indeed no SSC violation in (79). Furthermore, the binding theory as formulated in the present framework cannot exclude any of the following sentences where the empty category is interpreted as a variable. There is indeed no violation of the truth value condition in these sentences.

- (80) \**Pierre veut tout<sub>i</sub> que e<sub>j</sub> soit vendu*  
(Peter wants all things that be (SUBJ.) sold)

- (81) \**Pierre ne<sub>i</sub> veut rien<sub>j</sub> que e<sub>j</sub> soit vendu*  
(Peter NEG wants nothing that be (SUBJ.) sold)

- (82) \**Pierre ne<sub>i</sub> veut pas<sub>j</sub> que e<sub>j</sub> de portraits soient vendus*  
(Peter NEG wants no that of portraits be (SUBJ.) sold)

- (83) \*Pierre veut beaucoup; que e<sub>i</sub> de portraits soient vendus  
(Peter wants much that of portraits be (SUBJ.) sold)

Another example not violating any constraint of the binding theory, (since the trace is again a variable subject to the truth value condition) but ruled out by ECP, is given in (84):

- (84) \*Qui; veux-tu que e<sub>j</sub> vienne?  
(Who do you want that comes)

That (84) does not violate any constraint of the binding theory is, in our terms, confirmed by the well-known contrast between (84) and (85) where the trace is governed by *qui*:

- (85) Qui; veux-tu qui; e<sub>j</sub> vienne?  
(Who do you want that comes)

Taraldsen (1982) claims that the contrast between (85) and (86b) is due to the SSC:

- (86) a. J'ai entendu Marianne; que Pierre grondait e<sub>j</sub>  
(I have heard Marianne that Pierre scolded)  
b. \*J'ai entendu Marianne; qui Pierre grondait e<sub>j</sub>  
(I have heard Marianne that Pierre scolded)

We can restate Taraldsen's observation in our framework by saying that the *que* ⇒ *qui* rule operative in (85) allows *qui* to absorb the thematic role of the empty category. That is, *qui* becomes a kind of pronominal complementizer which properly governs the subject trace. The fact that sentences (80)-(83) are ungrammatical whether the *que* ⇒ *qui* rule applies or not can then be reduced to the fact that such elements as *tout*, *rien*, etc. cannot in general be the antecedent of a pronoun as illustrated by (87):

- (87) a. \*Tout; est tombé parce qu'il; était mal attaché (Kayne 75)  
(All fell because it was badly attached)  
b. \*Tout; est tombé parce que je l; avais mal attaché  
(All fell because I had badly attached it (CL))

Note that the trace governed by *qui* in (85) and (86b) lacks a thematic role (since it has been absorbed by the pronominal complementizer) and is consequently subject to the SSC as predicted under the present framework and as is illustrated by the ungrammaticality of (86b).<sup>24</sup> Our analysis is supported by the fact that the *que* ⇒ *qui* rule cannot apply

in (79) since the trace does not bear a thematic role. This is illustrated by the ungrammaticality of (88). (88) is also excluded by the fact that an element in Comp cannot be bound by an antecedent in an A-position, whatever the reason for this state of affairs turns out to be.

- (88) \*Paul; semble qu'il; e<sub>i</sub> est malade  
(Paul seems that e is sick)

The theory sketched in the preceding sections leads us to claim that the Empty Category Principle must in fact apply to some lexical anaphors and is responsible for the ungrammaticality of sentences like (89) or (90) where we consider that the auxiliary is not a proper governor (see Kayne (1983b)):

- (89) \*On; souhaite toujours que soi; puisse gagner<sup>25,26</sup>  
(One always wishes that oneself can (SUBJ.) succeed)  
(90) \*Gianni; ritiene aver se stesso; vinto il concorso (Rizzi 1982)  
(John believes having himself won the competition)

We come back to this point in detail in Pica (1984d) where we suggest that the requirement for an anaphor to be properly governed is in fact restricted to anaphors which are defined as such in the lexicon like *soi*, and does not apply to anaphors whose properties follow from general principles of the grammar like *janrais*, *pas*, *l'un* (each), etc. We show there that the distinction between such anaphors as *soi* and those anaphors which do not need to be entered as anaphors in the lexicon, plays an important role with respect to different modules of the grammar. We also show that this distinction is especially important with respect to the understanding of the notion of proper government and suggest a slight modification of this concept.

It is interesting to note, from the present point of view, that English reflexives are subject to the ECP as illustrated by the following contrast from Lebeaux (1983):

- (91) a. John and Mary; didn't know what each other; had done  
b. \*John; didn't know what himself; had done

Lebeaux suggests that this contrast is due to the effect of an LF movement rule. Let us suggest rather that the application of ECP in (91b) is due to a lexicalisation process in English.

Although it is *self* which is interpreted as an  $\bar{A}$  anaphor with respect to the binding theory, *himself* (*themselves*, etc.) functions as an A-ana-

phor as a whole with respect to the ECP. Thus (89)-(91) support the main claim of this section according to which the binding theory must be kept distinct from the ECP.

#### 5. CONCLUDING REMARKS

We have shown that the theory sketched in this article yields many revealing accounts of a wide empirical domain. Our distinction between three different domains defined in terms of Subject, Tense and Truth value has moreover been corroborated by an independent characterisation of different types of elements with respect to the theta-theory and with respect to the A-binding  $\bar{A}$ -binding distinction. It has been shown that the distribution of variables and anaphors with respect to the latter distinction is more complex than is generally assumed in the literature although the mechanism yielding the correct distribution can be reduced to fairly simple principles.

The leading idea of this article, according to which anaphors which are in a thematic A-position are subject to a weaker constraint than other anaphors is, we feel, intuitively convincing.<sup>27</sup> If the theory outlined above is in the right direction it tends to show once more that very complex data can be explained by the interaction of rather simple mechanisms which often belong to different modules of the grammar.

Note finally that the treatment of reflexives suggested here makes it possible to incorporate the treatment of the so-called "long distance" reflexive phenomena in the core of the grammar, a clearly desirable result.<sup>28</sup>

Paris, September 1983

#### NOTES

1. The work presented in this paper is closely related to the theory developed in some recent publications of ours and in work in progress all noted in the bibliography. Because of lack of space it was not possible to summarize all the relevant material of these papers. For the same reason, we could not stress as much as we would have liked the differences between our proposals and alternatives.

We come back to this in forthcoming work. The reader can however find a detailed criticism of Manzini (1983) in Pica (1984c).

2. More precisely, the variable is the only argument of the chain, that it constitutes. The thematic role of an NP trace is not borne by the empty category itself but by the chain that the trace forms with its antecedent. This amounts to saying that an NP trace is not a thematic anaphor in the sense of the text below.

3. See Pica (1984a) where it is shown that *soi* (oneself) is not subject to any locality

constraint on binding in NPs as predicted under the present theory. Needless to say, the whole sentence can serve as a binding category when principle (1) cannot apply.

4. Our analysis implies that *soi* is not the head of such an element as *himself*, as opposed to what is claimed in Helke (1971). We pursue this matter in detail in Pica (in preparation).

5. The use of *l'un l'autre* is more restricted in French as illustrated by the following sentences which will be dealt with in Pica (in preparation):
- (i) \*Ils croient que des photos l'un de l'autre sont en vente  
(They believe that pictures of each other are on sale)
  - (ii) \*Ils croient que l'affection l'un, pour l'autre est connue  
(They believe that the affection for each other is known)

6. For some comments on the fact that there are some speakers who accept sentences (4) and (10) but feel that (1) is better; see note (19).

7. The interaction between theta-theory and binding theory was first noted by Bellet (1981).

8. Note that our analysis raises some terminological problems as noted in Pica (1984b). Our notion of anaphor is indeed more comprehensive than Chomsky's which, in our terms, paradoxically includes only anaphors in  $\bar{A}$  or  $\bar{\theta}$  positions. We suggested there that the notion ANAPHOR could include both types.

9. On the theoretical consequences of this formulation of binding theory with respect to the notion of governing category and SUBJECT, see Pica (1984a).

We claim there that the notion of governing category has to be dropped in favor of the notion of binding category along the lines of Chomsky (1981) and that the generalization made by the notion of SUBJECT (including the grammatical subject and the element AGR (agreement) of tensed sentences) is a spurious one.

10. For partially similar data in Kannada (a Dravidian language), see Amritavalli (1983).

11. Note that, crucially, adverbial auxiliaries of negation such as *jamais*, *guère* and *pas* are not excluded from the preverbal position when the verb is non finite as illustrated by (i) and (ii) below:

- (i) \*Pierre entend Jean ne<sub>i</sub> jamais<sub>i</sub> parler  
(Peter hears John NEG never speak)
- (ii) Pierre laisse Jean ne<sub>i</sub> jamais<sub>i</sub> parler  
(Peter lets John NEG never speak)

(i) contrasts with (18) in the text. (ii) contrasts with (iii) below, which is, in our terms, excluded by the SSC:

- (iii) \*Pierre ne<sub>i</sub> laisse Jean jamais<sub>i</sub> parler  
(Peter NEG lets John never speak)

12. On the grammaticality of such sentences as (i) in French, where *rien* is long distance bound by *ne* although it is an  $\bar{A}$ -position, see our note (17) below:

- (i) \*Je n'<sub>i</sub>ai envie de rien<sub>i</sub> faire  
(I NEG am willing of (to) nothing do)

13. See however, Pollock (this volume), where a different judgment of grammaticality is given with respect to sentences similar to (50b).



14. For a more detailed analysis of infinitival clauses embedded under *voltion* verbs, see Pica (in preparation).

15. The embedded infinitival clause of (53) in the text can however be interpreted as referring to the future as illustrated by (i):

- (i) *Pierre veut être un espion demain*  
(Peter wants to be a spy tomorrow)

This state of affairs does not contradict our hypothesis according to which infinitival clauses embedded under *voltion* verbs are not tensed. This kind of interpretation seems to be available for non tensed clauses in general as illustrated by the grammaticality of (ii) in English where the gerund is clearly not tensed:

- (ii) Going to Paris tomorrow would be a good idea

16. Only those tenses which are marked by a specific inflexion are relevant for the tensed-S condition. This is supported by the fact that we do find long distance reflexives binding across tense boundaries in languages where verbs are not inflected (see Pica (1984a)).

17. This analysis can be carried over to example (i) of note (12) where *ne* binds the chain consisting of *rien* and its trace:

- (i) *Je n'ai envie de rien, faire ç*  
(I NEG am willing of (to) nothing do)

This analysis however is not compatible with the notion of chain developed in Kayne (1983a) where it is claimed that the head of a chain can be an A position as long as it is not an operator. Sentences like (61) in the text and (i) above might indicate that the requirement for a variable to be in an argument position might be relaxed in certain circumstances if the variable is a lexically realized element.

The anaphoric relation between *tous* and *les* in (61) in the text recalls that between *tous* and *ils* in sentences (iii) (a) and (b) of note (23) below and might be expressed in the same terms.

18. Obenauer (1983) shows that quantifiers such as *beaucoup* and *tous* are not subject to the same constraints as illustrated by (i) vs. (ii):

- (i) \**Il en a beaucoup apprécié*  
(He has them (CL) much appreciated)
- (ii) *Il les a tous appréciés*  
(He has them (CL) all appreciated)

He suggests that this is due to the fact that the trace bound by *beaucoup* is a kind of anaphor (for a similar claim but for different reasons, see Milner (1978b)). This is not compatible with the present theory. We come back to the contrasts noted by Obenauer in Pica (in preparation) where we claim that they must be expressed at the level of LF (along the lines of Haid (1982)).

19. This analysis is also supported by the fact that some speakers do accept sentences like (4) in the text (see note (6)) where *soi* is an indicative embedded clause. This type of sentence is however completely excluded in Icelandic (see Anderson (1983) and references cited there). Facts about French seem to be due to the fact that in this language *soi* is restricted to generic contexts (see among others Pica

(1984a) and that for those speakers sentences with generic interpretation do not count as being tensed with respect to the tensed-S condition. Note however that no speakers accept long distance binding of a variable by its antecedent when the embedded clause is in the indicative mood in sentences of the type illustrated by (62d) in the text.

We take up problems related to the proper formulation of the concept of truth value in Pica (in preparation).

20. See however note (23) below.

21. See also on that point Maly (1981)

22. One interesting consequence of our analysis is that it does not presuppose that sentences like (i) below involve the realization of an intermediate stage like (ii), contrary to what is sometimes assumed in the literature:

- (i) *Jean savait tout; voulu avoir compris ç*  
(John would have all things to have understood)
- (ii) *Jean aurait voulu avoir tout; compris ç*  
(John would want to have all things understood)

Successive movement of *tout* in (i) through the intermediate stage shown in (ii) will leave an empty category in the position of *tout* in the latter example. This empty category would not be properly governed because auxiliaries are not proper governors (see section (4) in the text).

23. Torrego (1982) and (1983) shows however that long distance movement of a *wh*-word over one *Comp* is not limited to *wh*-island contexts in Spanish.

This indicates that a kind of resumptive pronoun strategy can be used and that a *wh*-phrase can in fact bind an empty *Pro* which acts as the lexically realized resumptive pronoun of (i) which is grammatical in non standard French:

- (i) *La fille; que Paul dit que Jean sait que je lui parle*  
(The girl that Paul says that John knows that I speak to her (CL))

Such pronouns are not interpreted as variables at the level of S-structure and are consequently not subject to the truth value condition. This strategy is in fact proposed for different reasons by Cinque (1983) and Obenauer (1984). Both claim that the use of *Pro* is possible only in place of an NP node.

This leads us to expect a situation where only NPs would be extractable from positions which have a truth value without being obliged to move through the escape hatch of *Comp*. It might be on the other hand that only NPs can be interpreted as variables at the S-structure level. One would expect that, in this case, condition (II) would only apply to NPs.

These points require further empirical investigation going far beyond the scope of the present article.

We want however to suggest that the use of an empty pronominal category is restricted to situations in which an appropriate antecedent can be found.

The fact that one cannot use the "Pro-strategy" in sentences in which quantifiers such as *rien*, *tout*, *trop*, etc. are used is for example clearly shown by the paradigm (62)-(64) in the text. (62d), (63b) and (64b) cannot be rescued by the use of an empty pronominal element. This may be related to the fact that these quantifiers are not NPs. In other words, a non nominal quantifier cannot serve as antecedent for a pronoun, as is also illustrated by (87) in the text.

This analysis is supported by the fact that we do not find parasitic gap constructions (which involve a pronominal empty category (see Chomsky (1982)) with this last type of quantifier in French:

- (ii) a. \*Il a tout lu  $e_i$  sans offrir  $e_j$  à Marie  
(He has all things read without offering to Mary)  
b. ?Quels livres $_i$  a-t-il lus  $e_i$  sans offrir  $e_j$  à Marie  
(Which books did he read without offering to Mary)

Both empty categories of (iii) are interpreted as variables at the S-structure level, a state of affairs which is incompatible with the syntax of parasitic gap constructions.

Note that overt pronouns bound by non-nominal quantifiers (at the level of S-structure) do not behave as such at this level but rather behave as 'degenerate' pronouns, i.e. as variables, with respect to their relation to the QP.

This last point is shown by the contrast between (iia) and (iib) which is reminiscent of Ronat (1973):

- (iii) a. ?Il veut tous $_i$  qu'ils partent  
(He wants all that they leave (SUBJ))  
b. \*Il dit tous $_i$  qu'ils partent  
(He says all that they leave (IND))

That pronouns behave as variables under the conditions described above is confirmed by the ungrammaticality of (iv) below which is reminiscent of (46b) in the text

- (iv) \*Il a tout $_i$  regretté qu'ils partent  
(He has all regretted that they leave (SUBJ))

We return to this matter which is closely related to the notion of variable in Pica (in preparation).

24. Note again that our analysis amounts to saying that all 'dependent' non-thematic elements are subject to the SSC. We deal with the notion of 'dependency' in Pica (1984c).

25. Note that our analysis amounts to saying that the explanation of the ungrammaticality of (89) is not entirely the same as that of the ungrammaticality of (9) below where *not* is a pronoun:

- (i) \*Je $_i$  souhaite toujours que moi $_j$  puisse gagner  
(I wish always that me could (SUBJ.) win)

We take up this point in Pica (in preparation).

26. The following contrast is an apparent counter-example to the claim that *soi* is submitted to the ECP if the analysis developed in Kayne (1981c) is adopted:

- (j) a. Chacun $_i$  pense à soi $_i$   
(Each thinks to oneself)  
b. \*Qui $_i$  as-tu pensé à  $e_i$   
(Who did you think to)

We take up this point in Pica (1984d) where a slight modification of the concept of proper government is proposed.

27. We claim that a constraint defined in terms of Tense is less restrictive than one defined in terms of Subject because Tense implies Subject while the opposite is obviously not true (see note (3)).

28. The binding theory advocated in this paper gives strong support for the analysis developed in Pica (1984a) according to which anaphors and pronouns are only partly in complementary distribution and where we claim that many effects of Chomsky's Axiom (B) derive in fact from the Avoid Pronoun Principle. The parallelism between axioms (A) and (B) of the binding theory seems indeed difficult to maintain.

Note finally that the fact that PRO is not subject to the SSC in sentences like (i) from Chomsky (1981) is expected under the present theory since PRO bears a thematic role in this kind of sentences:

- (i) They $_i$  thought I said that PRO $_i$  to feed each other would be difficult

We cannot however derive the fact that PRO must be ungoverned from the fact that it is both an anaphor and a pronominal in the present theory. We take up this point in Pica (in preparation).

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