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Verb Movement, Universal Grammar, and the Structure of IP

In this article I will attempt to shed some light on a few systematic differences between French and English with respect to the syntax of sentence negation, questions, adverbs, floating quantifiers, and quantification at a distance. In line with much recent work in comparative syntax, I will suggest that the differences between the two languages in these seemingly unrelated areas can, and therefore should, be correlated.

I will in fact show that they can be deduced from the structure of Universal Grammar (UG) and one abstract parameter having to do with what I will call the "opacity" or "transparency" of Agr(eement) in French and (Modern) English.

As I proceed, I will be led to take a fresh look at old problems concerning the structure of the simple sentence in English and French—questions concerning so-called *Do* Support, the syntactic status of auxiliary verbs, and other related problems that have been on the research agenda ever since Chomsky (1955) put them there. This article can therefore be viewed as an attempt to show how recent proposals in the "principles and parameters" framework of generative grammar can be brought to bear on long-standing problems and puzzles and how they in fact provide real explanations for them.

In order to reach this goal, I will adopt an approach to the structure of IP that is more highly articulated than most contemporary work would seem to suggest. I will provide empirical arguments in favor of the view that Infl(ection) should not be considered as one constituent with two different sets of features ([±Tense, ±Agr]) and that instead each of these sets of features is the syntactic head of a maximal projection, AgrP and IP (the latter to be called, more perspicuously, T(ense)P). In the same spirit, I will suggest that both French and English have a maximal projection NegP. Each such maximal projection will be shown to be a potential barrier for certain types of movements

(see Chomsky (1986a)). Having established this, I will demonstrate that the Empty Category Principle (ECP) (specifically the Head Movement Constraint of Chomsky (1986a, sec. 11)), θ-theory, and quantification theory provide all the tools needed to understand the core cases of the syntax of negation, questions, adverbs, and floating quantifiers in the two languages under study. The more idiosyncratic features of Modern English will be shown to follow from the "opacity" of its Agr and from its clause structure. The ECP, quantification theory, and θ-theory, which are not open to parametric variations, would seem to virtually require a language with these properties to develop an auxiliary verb like English *do* with all its specific characteristics.

The article is constructed as follows. Sections 1 and 2 are essentially descriptive and introduce data that any comparative analysis of French and English should cover. Section 1 deals with fairly well known properties of tensed clauses, and section 2 with less well known facts in infinitival clauses. Sections 3, 4, and 5 aim at providing real explanations for the stipulative aspects of the informal analysis suggested on the basis of sections 1 and 2. Section 6 introduces more data, analyses, and speculations concerning further comparative work in the area of Verb Movement and concludes the article.

1. French versus English Verb Movement in Tensed Clauses[1]

1.1. Comparative Implications of a Standard Analysis

Although work in the 1950s and 1960s in generative grammar was seldom, if ever, of a comparative nature,[2] some of it had obvious comparative implications. This is true of Emonds's and Jackendoff's work on the French and English auxiliary systems in the (late) 1960s. Suppose that French has an obligatory rule of Verb Raising to Infl ("Aux" in Emonds's (1978) terminology) but that English has only a limited version of that rule, the so-called *Have/Be* Raising of Emonds (1976) and Jackendoff (1972). Suppose further that French and English share the D-Structure form in (1), where (Adv) is an optional adverbial position that can be occupied by VP adverbs like *often/souvent, seldom/rarement, hardly/à peine*.

(1) $[_{IP}$ NP I $([_{Neg}$ not/pas]) $[_{VP}$ (Adv) V . . .]]^3

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[1] Arguments similar to those developed in this section have been independently used by a number of researchers, among them Kayne (1984, 228, fn. 18) and Taraldsen (1983, chap. 1) for French versus English. Similar data involving the placement of adverbs, negation, and quantifiers have been used by many linguists to support various verb movement analyses in a great variety of languages. See, among others, Koopman (1984), Den Besten and Moed-van Walraven (1986), Holmberg (1987), and all the literature on the verb-second phenomenon in Germanic languages going back at least to Koster (1975).

[2] One notable exception is Klima (1964). Klima was also at the root of the *Have/Be* Raising analysis later developed by Emonds (1976) and Jackendoff (1972) (see, for example, Klima and Bellugi's (1966, 190) "Replacement of *do*" rule).

[3] Implicit in this structure is the idea that *pas*, but not *ne*, is the French counterpart of English *not*. The historical evolution of English and French clearly shows that this is the right grouping: Old English had a negative preverbal adverb *ne/na* that could optionally be "strengthened" by *not/noght* (Mossé (1959, 153–

If we take these proposals seriously, as we should, we can account for the minimal pairs in (2)–(5) as the surface reflex of one abstract syntactic difference, the respective scope of Verb Movement in the two languages.

(2) a. *John likes not Mary.
    b. Jean (n') aime pas Marie.
(3) a. *Likes he Mary?
    b. Aime-t-il Marie?
(4) a. *John kisses often Mary.
    b. Jean embrasse souvent Marie.
    c. John often kisses Mary.
    d. *Jean souvent embrasse Marie.
(5) a. *My friends love all Mary.
    b. Mes amis aiment tous Marie.
    c. My friends all love Mary.
    d. *Mes amis tous aiment Marie.

Clearly, (2a) is excluded because for the verb to end up in prenegative position, it would have to move to Infl, which it cannot since English Verb Movement is restricted to *have* and *be*. (2b) is fine because all lexical verbs undergo Verb Movement in French. (3a) is straightforwardly excluded if we analyze so-called Aux-NP Inversion as movement to the left of Infl (say, (head) movement of Infl to Comp, as in Chomsky (1986a)): for a lexical verb like *kiss* to occur in presubject position, it would first have to move to Infl, which it cannot. Therefore, (3b) is fine for exactly the same reasons as (2b): lexical verbs move to Infl in French. Given the structure in (1), the facts in (4) and (5) also follow straightforwardly. Assuming that neither French nor English allows for Adverb Movement (to the right),[4] the only way for *often* in (4a) to end up between the verb and its object would be for the verb to move to Infl, which it cannot do. The only acceptable English sentence is therefore (4c). Since *embrasser* can, on the contrary, move to Infl, (4b) is accounted for. As for the ungrammaticality of (4d), it can also be dealt with if we assume, as Emonds (1978) did, that French Verb Movement to Infl is obligatory.

The facts in (5) are obviously parallel to those in (4) and will receive the same explanation if we adopt Kayne's (1975) view that floating quantifiers move to adverbial positions.[5]

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154)). *Ne/na* became optional in the fourteenth century, just like Modern French *ne*. As a consequence, next to sentences like *He ne held it noght* one can find *My wyfe rose nott* or *Cry not so* (Mossé (1959, 153)). French has undergone a very similar evolution (Jespersen (1968, 335–336)): *Jeo ne di > Je ne dis pas > Je dis pas* is exactly parallel to *Ic ne sege > I ne sye not > I say not*. Also, as E. Raposo points out (personal communication), *not/pas* can negate adverbs like *bad/mal* (*pas mal, not bad*), whereas Portuguese *não*, clearly the counterpart of French *ne*, cannot (*não mal) (unlike Italian *non*, which can, for reasons that are unclear).

   [4] For reasons I come back to in section 2. See also footnote 14.

   [5] This is not true under an analysis of Quantifier Floating like the one advocated by Sportiche (1988) in which quantifiers do not "float" off (subject) NPs but are stranded in the subject's D-Structure position by Move α applying to the (rest of the) subject. If Sportiche's approach is correct, we can still describe the facts

This analysis makes an interesting prediction: if English had a lexical verb that inverted in questions, it should exhibit a "French" pattern of behavior with respect to negation, adverbs, and floating quantifiers as well. As pointed out by Pullum and Wilson (1977, 745) and Kayne (1984, 228, fn. 18), among others, British English *have* fulfills these predictions. Next to the "American" pattern of (6a–d), we also find the well-formed (6e–h):[6]

(6) a. Do you have any wool?/Does John have enough money?
    b. You don't have any wool./He doesn't have enough money.
    c. John seldom has enough money./He doesn't really have much money.
    d. They all have nice homes to go back to./My kids each have a new pet.
    e. Have you any wool?/Has John enough money?
    f. You haven't any wool./He hasn't enough money.
    g. John has seldom enough money./He hasn't really very much money.
    h. They've all nice homes to go back to./My kids have each a new pet.

Of course, it won't do to simply stipulate that lexical *have* is the only verb that can still optionally move to Infl. We will have to explain both why it can and also why it need not, unlike *be* in sentences like (7a), which must (see (7b)). Still, as it stands, the paradigm in (6) obviously supports the proposed comparative analysis, as do the well-known French facts in (8).

(7) a. John is not happy.
    b. *John does not be happy.

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in (5) by stating, as he does, that subject NPs are base-generated in the same D-Structure position (say, as specifiers of VP) in the two languages and that obligatory Verb Movement to Infl subsequently applies in French but not in English. It would take me too far afield to try to choose between these two competing approaches. It would seem that the well-formedness of English sentences like (i) is unexpected under Sportiche's analysis:

(i) The children all will leave.

Notice that his insightful remarks concerning the oddity of sentences like (ii) should carry over to the equally odd (iii):

(ii)   Which children all will leave?
(iii) Which children soon will leave?

Sportiche's account will have to say something about the ungrammaticality of (iv) *and* (v) in French, which are dealt with naturally under Kayne's standard analysis.

(iv) *Les enfants tous vont partir.
       the children all   are going to leave
(v)   *Les enfants bientôt vont partir.
       the children soon   are going to leave

Also, as R. Kayne points out (personal communication), the acceptability of sentences like *Ils ont tous parlé* 'They have all spoken' raises delicate problems for Sportiche's analysis given the fact that these participles do not otherwise allow subjects in small clause relatives and absolute constructions. On (iv)–(v), see footnote 8.

[6] The genuine contemporary British pattern is represented by sentences like *Have you got any wool?*, *Has John got enough money?*, *They've all got nice homes to go back to*. These are obviously irrelevant to the point at issue, with *got* the participle of an ordinary main verb and *have* the perfect auxiliary. Clearly, the fact that *got* here is not interpreted as an "ordinary" perfect should not obscure its syntactic status.

(8) a. Pierre n'a   rien   mangé.
        Pierre *ne* has nothing eaten
        'Pierre hasn't eaten anything.'
    b. *Pierre n'a mangé rien.
        (same as (8a))
    c. Pierre ne mange rien.
        Pierre *ne* eats   nothing
        'Pierre doesn't eat anything.'
    d. *Pierre ne rien mange.
        (same as (8c))

Rien (and also *tout* 'everything' for some speakers; see Kayne (1975, 38–41)) must move to the left of a participle, as the contrast between (8a) and (8b) shows. Yet, surprisingly, *rien* cannot move to the left of a tensed verb. Clearly, we can explain (8d) if we assume that *rien* has indeed moved to the front of VP (for instance, to the optional VP-initial Adv position in (1)) and if Verb Movement to Infl conceals the movement at S-Structure. On that view, (8a) surfaces because *avoir* 'have', but not the participle, can move to Infl, as the much simplified structure in (9) shows:[7]

(9) [$_{IP}$ Pierre (n') [$_I$ a$_i$][$_{VP}$[$_{Adv}$ rien$_j$] e$_i$ mangé e$_j$]]

A similar paradigm arises with "quantification at a distance" cases like (10) (on which see Obenauer (1985)) and can obviously be explained in the same way, the only difference being that *beaucoup* (similarly *trop* 'too much', *énormément* 'enormously', *autant* 'as much', and so on) never has to move to the initial adverb position in the VP, which accounts for the acceptability of (10a).

(10) a. Pierre a lu beaucoup de livres.
         'Pierre has read lots of books.'
     b. Pierre a beaucoup lu de livres.
         (same as (10a))
     c. Pierre lit beaucoup de livres.
         'Pierre reads lots of books.'

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[7] For reasons we come back to in section 6.3. As R. Kayne observes (personal communication), the idea that *rien* has moved to a VP-initial position in sentences like *Jean ne comprend rien* 'Jean *ne* understands nothing', despite appearances, is independently supported by contrasts like those in (i):

(i) a. Elle comprend bien/mal l'espagnol.
        she understands well/badly Spanish
        'She understands Spanish well/badly.'
    b. Elle ne comprend rien bien.
        'She understands nothing well.'
    c. ??Elle ne comprend bien rien.
        (same)
    d. Elle comprend tout mal.
        'She understands everything badly.'
    e. ??Elle comprend mal tout.
        (same)

    d. *Pierre beaucoup lit de livres.
       (same as (10c))

Obviously, this approach also accounts for the fact that French and English behave similarly when Verb Movement applies to the same elements in the two languages, namely, *be/être* and (auxiliary) *have/avoir*:[8]

(11) a. He hasn't understood./Has he understood?
      b. Il (n') a pas compris./A-t-il compris?
      c. He is seldom satisfied./They are all satisfied.
      d. Il est rarement satisfait./Ils sont tous satisfaits.

[8] They do not behave identically because, aside from the differences due to the respective scope of Verb Movement in the two languages, they differ in the number of base positions they allow for adverbs. English, but not French, has one between Infl and the subject NP, whence contrasts like (i) versus (ii) (see Kayne (1975, 20, n. 2) on some acceptable structures of the English type in French):

  (i) a. My friends rarely/often/seldom are unhappy for long periods.
      b. My friends rarely/often/seldom have helped me.
      c. I wonder if John ever was a rational man.
  (ii) a. *Mes amis souvent/rarement sont malheureux très longtemps.
      b. *Mes amis souvent/rarement m'ont aidé.
      c. *Je me demande si Jean jamais fut un homme rationnel.

That there is need for this extra position in English is shown, under any analysis, by sentences like (iii):

  (iii) a. Well, I never did hear anything like that before!
       b. You never can get anything to eat in that restaurant!

Not all adverbs can occur there (see Jackendoff (1972, 75)):

  (iv) a. *John completely will lose his mind.
      b. *John completely has lost his mind.
      c. *John very much will object to that.

That this additional difference between French and English does not suffice to deal with the *Adv + Tensed V + NP* versus *Tensed V + Adv + NP* contrast is demonstrated by pairs like (v) and (vi), which can only be accounted for under the analysis given in the text:

  (v) a. John completely lost his mind.
      b. *John lost completely his mind.
  (vi) a. *Jean complètement perdit la tête.
      b. Jean perdit complètement la tête.

This extra position in English allows for the structural ambiguity of sentences like *Lucy always seems crabby* with *always* either in the pre-Infl position or in the VP-initial position. In *Lucy always is crabby* there is no ambiguity, however, with *always* necessarily in the pre-Infl position. This should probably be correlated with the respective intonation patterns of the two sentences. Whether this further difference between English and French can be correlated with other differences is unclear. Lois (1988) observes that Spanish, unlike French, seems to have a pre-Infl adverbial position of the English type, with sentences like (vii) (her (9)) acceptable on a (more or less) flat intonation. Because Scandinavian languages also seem to allow for such a position, no clear typological regularity emerges that might shed light on this further difference between the two languages dealt with here.

  (vii) a. Juan a menudo/rara vez esta deprimido.
         'Juan often/rarely is depressed.'
      b. Los vecinos   nunca/a veces me molestan.
         the neighbors never/seldom me disturb
         'The neighbors never/seldom disturb me.'
      c. Maria casi   no bebe.
         Maria almost not drinks
      d. El niño apenas camina.
         'The child hardly walks.'

1.2. Problems

Despite the interesting comparative generalizations it makes possible, this analysis raises a number of problems. It is interesting to observe that in the "standard theory" of generative grammar within which Emonds's and Jackendoff's analyses were originally formulated, they either could not be raised at all or had no interesting answer. The fact that we must now face them shows that the field has made significant progress.

The most obvious question is (A):

(A) Why is Verb Movement to Infl lexically restricted in Modern English?

Clearly, (A) could have been raised in the late 1960s. However, since it was common then to allow the structural description of transformations to refer to specific lexical items, (A) could only have been a nontechnical question. But if Verb Movement to Infl is an instance of Move α, as I will assume, the question why it is restricted to *have* and *be* in Modern English has to be answered. We will also want our answer to (A) to say something about the history of the language since, as is well known, up until Elizabethan times English exhibited a "French" behavior with respect to questions, negations, and adverbs.[9] Observe further that question (A) can be reformulated as (A'):

(A') Why can't Affix Movement apply in French tensed clauses?

Given (1) and the idea that Verb Movement cannot apply to lexical verbs in English, UG must allow for a rule lowering Infl to the verb in the VP. But if so, (A') immediately arises. Seen in this light, it is French, not English, that appears to require an explanation. Clearly, we will want our answer to (A') to be essentially identical to our answer to (A).

At least two other questions arise in connection with Affix Movement in English:

(B) Why does UG allow for Affix Movement, a lowering rule?
(C) Why does the negative particle *not* block Affix Movement whereas other (negative) adverbs do not?

Although these questions are in some sense more technical than (A'), they are just as important if we are to achieve explanatory adequacy. (B) did not arise in, say, Chomsky (1955), because trace theory simply did not exist: it is the c-command requirement on antecedent-trace pairs, first explicitly formulated I believe in Fiengo (1974), that is cur-

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In English *not* cannot occur in the pre-Infl position, unlike *never, seldom*, and so on (compare *Is John satisfied? No/Yes, he never/seldom/often/*not is*). We can describe this by stating that *not* must be in the c-command domain of Infl. Hopefully this will follow from some deeper property of UG. On *ne . . . pas/plus*, and so on, see section 6.3. Scandinavian embedded clauses like *om Johan inte köpte boken* 'if John not bought the book' need not be considered counterexamples to this general principle if Comp in Scandinavian is Comp + Infl, as argued, for example, by Platzack (1983) and Haider (1986). On *Is John happy?* versus **Est Jean heureux?* versus *Is he happy?/Est-il heureux?*, see Kayne (1984, chap. 9).

⁹ Sentences of the form *Lexical V + Adv + NP* (and *Lexical V + Q + NP*) are much less frequent in (late) Middle English (say, Shakespeare's English) than *Lexical V + not + NP/Lexical V + NP + X?* structures, presumably because of the pre-Infl adverbial position discussed in footnote 8. Of course, the nonoccurrence of a structure in a dead language cannot prove that it was impossible. Lightfoot (1979) does give examples of the expected *V + Adv + NP* sequences. See also Roberts (1985, 48–49).

rently taken to ban lowering rules. Question (C), as formulated, presupposes that some version of Chomsky's classical *Do* Support analysis is correct. Obviously, question (C) arose in 1955 just as it does now. However, since the structural descriptions of transformations allowed for contiguous terms and optional elements, it was legitimate to write the rule in such a way that it could "hop" Infl over a designated class of adverbs including *often, never, seldom*, and so on, but not over *not* (see, for example, Chomsky (1955, 443)). It is fair to say that that was only descriptively adequate.

Finally, we will also need to answer question (D):

(D) Why is Verb Movement obligatory whenever it can apply?

That Verb Movement to Infl is indeed obligatory is shown for French by the ungrammaticality of (4d) and (5d) and for (standard) English by the ungrammaticality of (12a–c):

(12) a. *I don't have sung.
     b. *I don't be singing.
     c. *I don't be happy.

Again assuming some version of *Do* Support to be correct, failure to move *have* and *be* would yield these sentences. Since Verb Movement is an instance of Move α, usually analyzed as an optional rule, we will need to derive its obligatory character in tensed clauses from the way it meshes with other modules of UG, as is done for Move NP and Move *Wh*. As noted earlier, we will also have to explain why lexical *have* in British English is the only verb that allows Verb Movement to apply optionally and why imperative sentences like (13a–d) are well-formed:

(13) a. Don't (you) have finished your work when I come back!
     b. Don't be silly!
     c. Don't (you) be singing when I come back!
     d. Do be a good sport! Lend me five dollars!

2. Verb Movement in Infinitives

2.1. *On the Structure of Infinitives*

Before I start examining Verb Movement in infinitives, I must spell out my assumptions about their structure. I will adopt what I take to be the null hypothesis and assume that they differ from finite clauses only in the feature composition of their Infl(ection) (and/or Comp). It will suffice for the time being to assume that infinitives and tensed sentences are distinguished by some feature, say [−finite] and [+finite]. If that is indeed the only difference between them, then structure (1) —[$_{IP}$ NP I ([$_{Neg}$ not/pas]) [$_{VP}$ (Adv) V . . .]]— is the D-Structure form of both types of sentences.

I will also take up Chomsky's (1981) far-reaching hypothesis that there are no construction-specific rules. In particular, I will assume that no specific rules of Negative

or Adverb Movement are at work in infinitives (or, for that matter, in any other clause type). If that is indeed true, then we can adopt the descriptive statement (14), upon which the rest of my argumentation crucially depends:

(14) *Not* and *ne . . . pas* stand in the same structural position in tensed clauses, infinitives, and gerunds.

2.2. Ne . . . pas *and Verb Movement in French Infinitives*[10]

It follows from the assumptions made in the previous section that we can investigate the properties of Verb Movement in infinitives by simply looking at the order of their constituents. Let us first consider French infinitives with *être* and *avoir*:

(15) a. Ne pas être heureux est une condition pour écrire des romans.
          '*Ne* to not be happy is a prerequisite for writing novels.'
      b. N'être pas heureux est une condition pour écrire des romans.
          '*Ne* to be not happy . . .'
      c. Ne pas avoir eu d'enfance heureuse est une condition pour écrire des romans.
          '*Ne* not to have had a happy childhood is a prerequisite for writing novels.'
      d. N'avoir pas eu d'enfance heureuse est une condition pour écrire des romans.
          '*Ne* to have not had a happy childhood . . .'
      e. Ne pas avoir de voiture en banlieue rend la vie difficile.
          '*Ne* to not have a car in the suburbs makes life difficult.'
      f. N'avoir pas de voiture en banlieue rend la vie difficile.
          '*Ne* to have not a car . . .'

(15a–b) show that *être* can but need not move to [−finite] Infl. The order of constituents in (15a) is interesting in itself because in our terms it is the overt manifestation of the D-Structure form (1) that was postulated on completely different grounds. Without (1) and the Verb Movement analysis, the acceptability of (15a) would force us to hold the inelegant view that the order of elements in tensed clauses and infinitives obeys totally different principles.[11] On the theory advocated here, we need only say that Verb Movement is optional in infinitives to account for both (15a) and (15b), an otherwise rather mysterious pair. (15c–d) and (15e–f) will clearly be accounted for in the same way. The sentences (15b,d,f) are usually considered somewhat literary and "recherché" (see Gaa-

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[10] *Ne . . . pas* is taken here as a representative of a larger class of elements including *ne . . . guère* 'not much', *ne . . . plus* 'no more', *ne . . . rien* 'not anything', *ne . . . jamais* 'not ever', which for many speakers pattern essentially like *ne . . . pas* with respect to the constructions under study. See section 6.3 for some important differences.

[11] In other words, elementary facts about the comparative analysis of French and English provide strong support for the one crucial hypothesis made in transformational grammar, namely, that any given sentence is associated with several levels of distinct syntactic representation.

tone (1971, 51)) but are perfectly fine. Emonds's (1978) analysis of French infinitives fails here: since it assumes that infinitives do not have an Infl node (an Aux node in Emonds's terminology), it cannot describe them. Observe finally that the well-formedness of (15a,c,e) paves the way to an answer to question (D): we can conclude that the obligatoriness of Verb Movement to Infl is to be correlated with the presence of the feature [+finite].

Let us now consider infinitives with lexical verbs. The situation here contrasts sharply with the paradigm in (15), as (16) shows:

(16) a.   Ne pas sembler heureux est une condition pour écrire des romans.
           'Ne not to seem happy is a prerequisite for writing novels.'
      b.   *Ne sembler pas heureux est une condition pour écrire des romans.
           'Ne to seem not happy . . .'
      c.   Ne pas posséder de voiture en banlieue rend la vie difficile.
           'Ne not to own a car in the suburbs makes life difficult.'
      d.   *Ne posséder pas de voiture en banlieue rend la vie difficile.
           'Ne to own not a car . . .'
      e.   Ne pas regarder la télévision consolide l'esprit critique.
           'Ne not to watch television strengthens one's independence.'
      f.   *Ne regarder pas la télévision consolide l'esprit critique.
           'Ne to watch not television . . .'
      g.   Ne pas pleurer en lisant Les Misérables dénote de la sécheresse d'âme.
           'Ne not to weep on reading Les Misérables means you have a cold heart.'
      h.   *Ne pleurer pas en lisant Les Misérables dénote de la sécheresse d'âme.
           'Ne to weep not on reading Les Misérables . . .'

It appears that although Verb Movement can apply to auxiliaries and lexical avoir, it cannot apply to lexical verbs in infinitives in French. This should obviously be looked at in the same light as the lexical restrictions on Verb Movement in tensed clauses in English. In other words, any adequate analysis of Verb Movement in French should deal with pairs like (16a) versus (16b) and (16c) versus (16d) in essentially the same way it deals with (17), (18), and (19) in (British) English:

(17) a.   John is not happy.
      b.   *John seems not happy.
(18) a.   John hasn't a car.
      b.   *John owns not a car.
(19) a.   *John watches not television.
      b.   *John weeps not when reading Les Misérables.

This in itself is an important result since the parallelism between (16) on the one hand and (17), (18), and (19) on the other shows that the lexical restrictions on Verb Movement in English are not idiosyncratic, contrary to what has always, to the best of my knowledge, been assumed.

Although the lexical restrictions on Verb Movement in French infinitives closely parallel those in tensed clauses in English, they are not entirely equivalent. Aside from *être* and *avoir*, infinitives also somewhat marginally allow modal-like verbs such as *vouloir, devoir*, and *pouvoir* to raise to Infl, as illustrated by the following sentences:

(20) a.   Je pensais ne pas pouvoir dormir dans cette chambre.
          I   thought *ne* to not 'can' sleep   in   this   room
          'I thought I wouldn't be able to sleep in this room.'

   b.   ?Je pensais ne pouvoir pas dormir dans cette chambre.
                  ne to can not
        (same as (20a))

   c.   Il avait estimé ne pas devoir donner suite   à ma demande.
        he had deemed *ne* to not need to take action concerning my letter
        'He had thought it unnecessary to take action concerning my letter.'

   d.   ?Il avait estimé ne devoir pas   donner suite à ma demande.
                  ne to need not
        (same as (20c))

   e.   Il avait dit ne pas vouloir donner suite   à ma demande.
        he had said *ne* to not will to take action concerning my letter
        'He had said he did not wish to take action concerning my letter.'

   f.   ?Il avait dit ne vouloir pas donner suite à ma demande.
                  ne to will not
        (same as (20e))

The question mark is meant here as an indication that (20b,d,f) have a very literary ring to them, not that they are unacceptable. Since modals in English cannot occur in infinitives, the comparison with French cannot be direct.

2.3. Not *and Verb Movement in English Infinitives*

English infinitives raise difficult problems that are largely beyond the scope of this article, essentially concerning the status of *to*. In line with much recent work (see, for example, Chomsky (1986a, 25)) I will assume that *to* is base-generated in [−finite] Infl. I will also assume that it can (but need not, because it is not a bound morpheme) be moved by Affix Movement (Chomsky's (1981) ''rule R'') and that this rule adjoins it to VP at S-Structure. I will assume that sentences like *John wants to not go* and *Peter expects his friends to not object to his proposals* are derived when rule R does not apply to *to*. When the rule does apply, the result is the ''normal'' ordering *NP not to VP*.

   Given these assumptions,[12] we can now investigate the properties of Verb Movement

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[12] Another probably preferable analysis would draw on the structure of IP that I will propose in sections 3, 4, and 5: it could be claimed that *to* is generated either under Tense or under Agr, the former yielding the *to + not* ordering, the latter the ''normal'' *not + to* sequence. If this analysis is correct, the *not to* versus *to not* alternation provides independent support in favor of one of the major conclusions reached in this article. Needless to say, neither this proposal nor the one made in the text exhausts what has to be said concerning *to*. For relevant material, see Zagona (1988) and Zwicky (1981), among others.

in English infinitives, again using (14) as a guideline. Consider first sentences with *be* and *have* like (21a–f):

(21) a.   Not to be happy is a prerequisite for writing novels.
     b.   ?To be not happy is a prerequisite for writing novels.
     c.   Not to have had a happy childhood is a prerequisite for writing novels.
     d. (?)To have not had a happy childhood is a prerequisite for writing novels.
     e.   Not to be arrested under such circumstances is a miracle.
     f.   ?To be not arrested under such circumstances is a miracle.

(21b,d,f) I will analyze as examples of Verb Movement to Infl with *to* standing in its D-Structure position. It seems that such sentences are marginally acceptable, although there is much variation in acceptability judgments.[13] Be that as it may, many speakers find a significant contrast between such sentences and the following:

(22) a.   Not to seem happy is a prerequisite for writing novels.
     b.   *To seem not happy is a prerequisite for writing novels.
     c.   Not to get arrested under such circumstances is a miracle.
     d.   *To get not arrested under such circumstances is a miracle.

If this is indeed the case, then this contrast reproduces in infinitives the contrast found in well-known pairs like (23a–b) and (23c–d):

(23) a.   He is not happy.
     b.   *He seems not happy.
     c.   He was not arrested.
     d.   *He got not arrested.

In short, not too surprisingly, Verb Movement to Infl in English infinitives obeys the same lexical restrictions as it does in tensed clauses.

2.4. Adverbs, Quantifiers, and Verb Movement in Infinitives

2.4.1. French.   In section 1 we established that there is a significant correlation in French between the placement of negation and that of adverbs and quantifiers in tensed clauses. Continuing to assume that D-Structure form (1) characterizes both finite sentences and infinitives, a simple-minded extension to infinitives of our reasoning in section 1 makes a number of interesting predictions.

     First, since Verb Movement in infinitives is never obligatory, we should find well-formed sequences of the type $Adv + V + NP$ and $Q + V + NP$ that never surface in tensed clauses because Verb Movement obligatorily applies. This expectation is indeed fulfilled, as the examples in (24) and (25) attest:

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[13] Many speakers tend to find (21d) better than (21b) (whence the optional question mark), although I have found some who hold the opposite view.

(24) a. A peine parler l'italien après cinq ans d'étude
         to hardly speak Italian   after five years of study
         dénote un manque de don pour les langues.
         denotes a lack   of gift for languages
         'To hardly speak Italian after five years of hard work means you lack a
         gift for languages.'
     b. Souvent paraître triste pendant son voyage de noce, c'est   rare.
         to often look   sad   during one's honeymoon   that is rare
         'To often look sad during one's honeymoon is rare.'
     c. Complètement perdre la tête pour les belles étudiantes,
         to completely lose one's head for pretty students
         c'est   dangereux!
         that is dangerous
         'To completely lose one's head over pretty students is dangerous.'
     d. Presque oublier son nom,   ça n'arrive pas   fréquemment.
         to almost forget one's name that *ne* happens not frequently
         'To almost forget one's name doesn't happen frequently.'

(25) a. On imagine mal   les députés   tous démissionnner
         one imagines badly the representatives to all resign
         en même temps.
         at the same time
         'It is hard to imagine the representatives all resigning at the same time.'
     b. J'ai entendu mes enfants chacun raconter une histoire différente.
         I have heard my kids   each   tell   a   story   different
         'I have heard my kids each tell a different story.'
     c. J'ai vu   mes étudiants tous sortir en même temps de la salle.
         I have seen my students   all leave at the same time from the room
         'I have seen my students all leave the room at the same time.'
     d. Beaucoup/peu/énormément voir de films yougoslaves
         to many/few/a great number see of films Yugoslavian
         à Zagreb, c'est   normal.
         in Zagreb that is normal
         'To see many/few/a great number of Yugoslavian films in Zagreb is
         normal.'
     e. Ne rien comprendre   à la linguistique, ce n'est pas un crime.
         to *ne* nothing understand about linguistics that is not   a   crime
         'To understand nothing about linguistics isn't a crime.'
     f. Tout oublier   pendant les vacances, c'est   normal.
         to everything forget during the vacation   that is normal
         'To forget everything during the vacation is normal.'

As with negation, the sheer fact that these sentences are acceptable and contrast sharply

with the totally unacceptable sentences in (26) gives strong support to the one funda-
mental claim of transformational grammar, namely, that sentences can be paired with
a number of different syntactic representations: if that were not the case (that is, if (1)
were not the D-Structure form of both tensed sentences and infinitives), it would be
impossible to provide a unitary explanation for the ordering of adverbs and quantifiers
in the two types of sentences.

(26) a. *Pierre à peine parle   l'italien.
        Pierre hardly speaks Italian
     b. *Mes enfants chacun racontèrent une histoire différente.
        my kids   each   told   a   story   different
     c. *Pierre beaucoup voit de films yougoslaves à Zagreb.
        Pierre many   saw of films Yugoslavian in Zagreb
     d. *Pierre presque oublie son nom.
        Pierre almost   forgets his name

Obviously, it would also be impossible to correlate this with the negation facts dealt
with earlier. The hypothesis that there exists a transformation of Verb Movement allows
for the required unitary account once it is recognized that the rule is obligatory in tensed
clauses and optional in infinitives.

   The second prediction, however, is not fulfilled: since Verb Movement to Infl is
impossible in infinitives with lexical verbs (recall (16b,d,f)), a "naive" extension of our
previous reasoning would lead us to expect sentences of the form *Lexical
V + Adv + Complements* to be equally impossible. Since we have seen that floating quan-
tifiers pattern with adverbs, we would predict them not to be able to occur between a
verb and its complements in infinitives. *Rien* and *tout* should likewise be excluded in
that position. This is not true, as shown by the acceptable sentences in (27) and (28), to
be compared with the ungrammatical sentences in (29) and (30):

(27) a.   Parler à peine l'italien après cinq ans d'étude dénote un manque de don
          pour les langues.
          'To speak hardly Italian . . .'
     b.   Paraître souvent triste pendant son voyage de noce, c'est rare.
          'To look often sad . . .'
     c.   Perdre complètement la tête pour les belles étudiantes, c'est dangereux!
          'To lose completely one's head . . .'
     d.   Oublier presque son nom, ça n'arrive pas fréquemment.
          'To forget almost one's name . . .'
(28) a.   On imagine mal les députés démissionner tous en même temps.
          'It is hard to imagine the representatives resigning all . . .'
     b.   J'ai entendu mes enfants raconter chacun une histoire différente.
          'I have heard my kids tell each . . .'

    c.   J'ai vu mes étudiants sortir tous en même temps de la salle.
        'I have seen my students leave all the room . . .'

    d.   Ne comprendre rien à la linguistique, ce n'est pas un crime.
        '*Ne* to understand nothing about linguistics . . .'

    e.   Oublier tout pendant les vacances, c'est normal.
        'To forget everything during the vacation . . .'

(29) a. *Ne comprendre pas   l'italien apres cinq ans d'etude . . .
        ne to understand not

    b. *Ne perdre pas la tête   pour les belles étudiantes, c'est   bien.
        ne to lose not one's head for pretty students   that is good

    c. *Ne paraître pas triste pendant son voyage de noce, c'est normal.
        ne to look not sad

    d. *N'oublier pas   son nom,   ce n'est pas un exploit.
        ne to forget not one's name isn't worth writing home about

(30) a. *Après ce scandale, on voit mal   les députés   ne
        after this scandal   it's hard to imagine the representatives *ne*
        démissionner pas.
        to resign   not

    b. *J'imagine mal   les enfants ne raconter pas cette histoire.
        it's hard to imagine the kids   *ne* to tell not   this story

    c. *Je vois mal   mes étudiants ne sortir pas   en même temps.
        it's hard to imagine my students   *ne* to leave not at the same time

    d. *Ne comprendre pas la linguistique, ce n'est pas un crime.
        ne to understand not linguistics   isn't   a crime

    e. *N'oublier pas   la linguistique pendant les vacances, c'est bien.
        ne to forget not linguistics   during the vacation   is a good thing

We obviously do not want to lose our previous generalization. We must therefore impute the grammaticality of (27)–(28) to the existence of some yet to be described grammatical process. Continuing to assume, as above, that there are no rules of Adverb Movement,[14] the process in question is easily circumscribed. If the adverbs in (27) are generated in the VP-initial position in (1), then it must be a Verb Movement rule, different from Verb Movement to Infl, moving the nonfinite verb to some intermediate position before the negative adverb *pas*. If the adverbs are generated in the VP-final position, we could derive the order of elements in (27)–(28) by a rule moving the object to the right (adjoining it to VP), as shown schematically in (31):

(31) $[_{IP}$ NP Infl $[_{VP}[_{VP}$ V e_i Adv$]$ NP$_i]]$

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[14] It is not inconceivable that there might be rules moving adverbs from one adverb position to another, for example, moving adverbs from VP-final to VP-initial position or to the pre-Infl position in English. What I am assuming here is that there are principles of UG that ban insertion of adverbs between a verb and its complements, perhaps Stowell's (1981) adjacency requirement on Case assignments or, more likely (because of ungrammatical sentences like *John seems seldom happy*), Kayne's binary branching (see Kayne (1984, x)).

There is evidence that both processes exist in French. First, adverbs like *à peine* and *presque* occur only in VP-initial position, as shown by the ungrammaticality of (32a–b):[15]

(32) a. *Jean comprend   la   question presque.
          Jean understands the question almost
     b. *Jean lit   les journaux à peine.
          Jean reads the papers   hardly

It follows that sentences like (27a) and (27d) can only be derived via Verb Movement. There are also adverbs like *hier, aujourd'hui*, and *demain* that can never occur VP-initially:

(33) a. *Jean pensait demain   rencontrer son patron à la Sorbonne.
          Jean thought tomorrow to meet   his boss   at the Sorbonne
     b.   Jean pensait rencontrer son patron à la Sorbonne   demain.
          Jean thought to meet   his boss   at the Sorbonne tomorrow
          'Jean thought he would meet his boss at the Sorbonne tomorrow.'
     c. *Jean pense hier avoir vu   Marie place de l'Opéra.
          Jean thinks to yesterday have seen Marie near the Opera.
     d.   Jean pense avoir vu   Marie place de l'Opéra hier.
          Jean thinks to have seen Marie near the Opera   yesterday
          'Jean thinks he saw Marie near the Opera yesterday.'

However, the sentences in (34) are perfectly acceptable:

(34) a.   Jean pensait rencontrer demain   son patron à la Sorbonne.
          Jean thought to meet   tomorrow his boss   at the Sorbonne
          'Jean thought he would meet his boss tomorrow at the Sorbonne.'
     b.   Jean pense avoir vu   hier   Marie place de l'Opéra.
          Jean thinks to have seen yesterday Marie near the Opera
          'John thinks he saw Marie yesterday near the Opera.'

Clearly, these can only be derived as sketched in (31). There are poorly understood restrictions on the rule in question (usually called Scrambling); for instance, the sentences in (34) would be much worse without the locative complements (see Koster (1986) for similar facts in Dutch). Also, for a number of speakers of French, the scrambled NP cannot be too "light." I find (35a–b) very dubious at best:[16]

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[15] I am ignoring here, as elsewhere, cases of "afterthoughts" that would be more or less acceptable but are only possible if the adverb is set off from the rest of the sentence by a heavy pause. This is presumably how one should interpret Grevisse's (1968) very odd example *J'entends Granier pleurer presque* 'I hear Granier weep almost'.

[16] (35a) contrasts sharply with (i):

   (i) Cette guerre atroce, il pense y   mettre demain   la fin tant   souhaitée/une fin honorable.
        that war   horrible he thinks to it to put tomorrow the end so much hoped for an end honorable

(35) a. ?*Cette guerre atroce, il pense y   mettre demain   fin.
        that war   horrible he thinks to it to put tomorrow end
        'That horrible war, he expects to put an end to it tomorrow.'

   b. ?*C'est avec le   plombier que j'espère prendre demain   langue.
        it's   with the plumber that I expect to take tomorrow tongue
        'It's the plumber that I expect to approach tomorrow.'

It is therefore of some interest to note that the two sentences of (36) are perfect:

(36) a.   Cette guerre atroce, il pense y mettre bientôt/rapidement/peut-être fin.
                                              soon/rapidly/perhaps

   b.   C'est avec le plombier que j'espère prendre
        bientôt/rapidement/peut-être langue.
        soon/rapidly/perhaps

We can make sense of this pair by assuming that (unlike *demain*) an adverb like *bientôt*, *rapidement*, or *peut-être* can be generated in the VP-initial position in the infinitive and that the verb is moved leftward over it.

We can safely conclude, then, that French infinitives like those in (27) and (28) can, and sometimes must, be analyzed as involving a Verb Movement rule that moves the verb to some position between the negative adverb *pas* (also *plus, guère, jamais*, and so on) and the VP-initial adverb position in (1). Call this "short" Verb Movement. Unlike Verb Movement to [−finite] Infl, it is not lexically restricted: it applies to auxiliaries and to lexical verbs alike. In addition, French, like many other languages (see Koster (1986)),[17] has a rule "scrambling" NPs to the right, adjoining them to VP.

2.4.2. English.   Consider the English counterparts of the French sentences in (24):

(37) a.   To hardly speak Italian after years of hard work means you have no gift for languages.
   b.   To often look sad during one's honeymoon is rare.
   c.   To completely lose one's head over pretty students is dangerous!
   d.   To almost forget one's name doesn't happen frequently.

It could be suggested that the sentences in (35) are excluded because (31) being essentially a variable/operator configuration, the scrambled NP must at the very least define a range for the variable it binds (that is, it must be referential), which determinerless NPs like *fin* or *langue*, not being referential, cannot do. Adding (adverbial) complements of various kinds to (35a–b) improves them, which might suggest that the variable/operator configuration is then destroyed.

[17] Koster's interesting paper makes the very strong claim that only pro-drop languages can freely make use of Scrambling. Because French, a notoriously non-pro-drop language, allows Scrambling very freely, Koster's generalization cannot be entirely correct (unless French qualified as a limited pro-drop language because of stylistic inversion in subjunctive contexts and because of constructions like *Dans la forêt vivait un vieil ermite* 'In the forest lived an old hermit'; see Pollock (1985b; 1986), Kayne (1987)). The fact that English allows only a very limited amount of Scrambling thus remains without an explanation. If we were to take the informal suggestion in footnote 16 seriously, we might suggest that in English right NP adjunction to VP does not define an Ā-position, thus making the structure uninterpretable. Alternatively, we could suggest with Rizzi (1986, fn. 31) that French and Italian allow Scrambling because, unlike English, they can license pro in object position.

If English also had lexically unrestricted short Verb Movement, the sentences in (38) should be well-formed, which they clearly are not. English does seem to have a lexically restricted version of short Verb Movement, however, as shown by the acceptability of (39c,f,g,i).

(38) a.   *To speak hardly Italian after years of hard work means you have no gift for languages.
     b.   *To look often sad during one's honeymoon is rare.
     c.   *To lose completely one's head over pretty students is dangerous!
     d.   *To forget almost one's name doesn't happen frequently.
(39) a.   I believe John to often be sarcastic.
     b.   I believe John to often sound sarcastic.
     c. (?)I believe John to be often sarcastic.
     d.   *I believe John to sound often sarcastic.
     e.   The English were then said to never have had it so good.
     f.   The English were then said to have never had it so good.
     g.   John is said to seldom be on time at his appointments.
     h.   John is said to seldom arrive on time at his appointments.
     i. (?)John is said to be seldom on time at his appointments.
     j.   *John is said to arrive seldom on time at his appointments.

Although the facts are again a bit murky, it does appear that a significant number of speakers make fairly sharp distinctions between sentences like (39c) and (39d) or (39i) and (39j). If this is indeed correct, we are led to the conclusion that short Verb Movement in English is fundamentally restricted to *have* and *be*.[18]
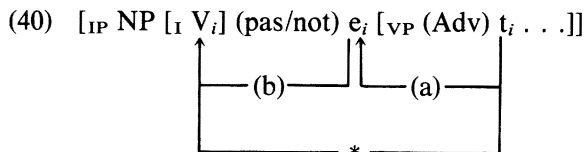
We have now arrived at a fairly striking result. Although the French/English contrast with respect to Verb Movement to Infl ceases to exist in infinitives—in both languages only auxiliaries can undergo the rule—the very same contrast crops up in infinitives in another form: short Verb Movement is free in French but restricted to *be* and *have* in English. We would clearly miss a desirable generalization if we failed to relate the lexical restrictions on short Verb Movement and those on Verb Movement to Infl in tensed clauses: English shows lexical restrictions on both, French on neither.

Let us take this correlation seriously and assume that Verb Movement to Infl exhibits lexical restrictions in tensed clauses if and only if short Verb Movement is also lexically

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[18] Lexical *have* is also marginally acceptable in pre-Adv position in British English. Compare (i) versus (ii) and (iii) versus (iv):

   (i)   Peter is said to seldom have enough money.
   (ii)   (?) Peter is said to have seldom enough money.
   (iii)   Peter is said to seldom make enough money.
   (iv)   *Peter is said to make seldom enough money.

restricted. A natural way of expressing this generalization formally consists in assuming that Verb Movement to Infl is not a one-step process but rather the sum of two more "local" processes, the first one consisting of short Verb Movement, the second one moving the verbs to Infl from the intermediate position they thus reach. If we make the further hypothesis that Verb Movement to Infl can never be a one-step process, we will indeed express the correlation in its strongest possible form. We can represent this as shown in diagram (40). Our next task will be to explain why Verb Movement to Infl has to have these properties.

(40) $[_{IP}$ NP $[_{I}$ V$_i]$ (pas/not) e_i $[_{VP}$ (Adv) t_i . . .]]

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       ┌──(b)──┘  └──(a)──┐
       │                  │
       └────── * ─────────┘
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3. Short Verb Movement as Movement to Agr

So far we have only seen evidence that there is need for short Verb Movement in the grammar of French and English. We obviously have not yet characterized the rule.

In the *Barriers* framework that I will be presupposing throughout, Verb Movement is an instance of head movement that obeys the Head Movement Constraint (HMC) formulated by Chomsky (1986a, 71):

(41)   Movement of a zero-level category β is restricted to the position of a head α that governs the maximal projection γ of β, where α θ-governs or L-marks γ if $\alpha \neq$ Comp.

Clearly, if we take the position to which short Verb Movement "hops" verbs to be a head different from Infl and "closer" to VP, we will obtain as an automatic consequence the "step-by-step" derivation represented informally in (40): it will be a consequence of the existence of (41) in UG, since a direct "jump" from the VP position to Infl would violate the ECP (see Chomsky (1986a, sec. 11) and section 5.5 of this article). In order to reach this desirable result, I will henceforth assume that short Verb Movement is in fact Verb Movement to Agr. Agr I will assume is a category in its own right, to be distinguished from Tense, which is the head of what has so far been called Infl. We might more appropriately call the latter T(ense) and its maximal projection TP. Agr is also the head of a maximal projection AgrP, the properties of which we will come back to in sections 4 and 5.

In short, I am suggesting that a somewhat fleshed-out version of (40) should read as follows:

(42)   IP

IP'

NP   I   (pas/not)   AgrP

VP

Agr   (Adv)   V

(b)   (a)

*

(c)
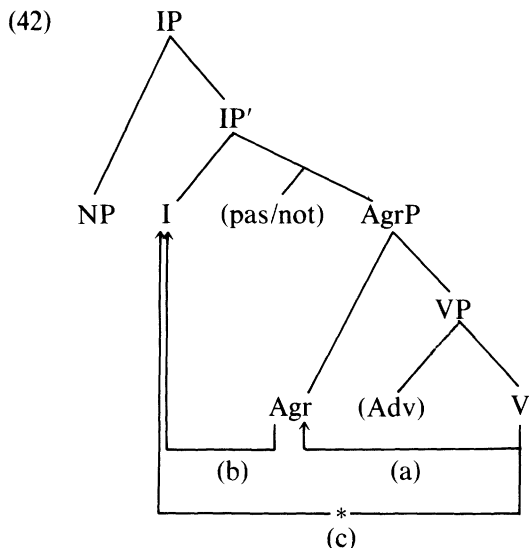
AgrP is a complement of Infl. VP is a complement of Agr. Both AgrP and VP have a specifier position that I have not indicated here.[19] Observe that if we can provide an explanation for why step (a) of Verb Movement is restricted to *have* and *be* in (Modern) English, the HMC will explain why only those two verbs can end up under Infl (= Tense). Similarly, the HMC will explain why Verb Movement to Infl is free in French if we can provide an explanation for why step (a) is not lexically restricted. I will crucially rely on θ-theory to provide this explanation and will give it a form that will allow it to carry over to the lexical restrictions on step (b) in French infinitives.

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[19] In Pollock (1985a) I suggested a structure exactly like this for totally different reasons. I believe that the recent analyses—see Sportiche (1988), Kuroda (1987), Manzini (1987), among many others—that revive the spirit of the "subjectivalization" rule of Fillmore (1968) (see Fukui and Speas (1987, fn. 7)) could be profitably reinterpreted in terms of structure (42): subject NPs might be generated as specifiers of AgrP, later moved to the specifier of Tense position by Move α. It must be emphasized that the order of embedding chosen—*TP + (NegP +) AgrP* rather than *AgrP + (NegP +)TP*—is supported by the comparative properties of French, Modern English, and Old and Middle English both in tensed clauses and in infinitives (see sections 2, 5, and 6.4). The alternative ordering, first suggested to me by E. Raposo (personal communication) and used since independently by Belletti (1988) in an attempt to deal with the Italian/French contrasts described in section 6.3, despite its more transparent morphological character, fails to express the required comparative generalizations, as far as I can see. In particular, it is hard to see how it could describe the restrictions on short Verb Movement in English since there is no reason to suppose that the opacity/transparency properties of English T(P) differ in any significant way from those of French T(P). It must be emphasized that the structures in (42) and (77) embody empirical hypotheses about the structure of English and French. Independent empirical arguments would be needed to extend the analysis to other languages. In particular, the idea that there is an AgrP in English and French is obviously not meant as a universal: languages could differ precisely along that dimension. See footnote 32. Also, pending further work on the structure of UG and its parameters, languages could in principle vary in the order of embedding of AgrP and TP. In a similar spirit, it is plausible to assume that some languages could analyze their Agr as a specifier of TP rather than as its complement.

4. θ-Theory and Verb Movement

4.1. Verb Movement and the θ-Criterion

Ignoring for the time being the slightly more complex case of modals like *vouloir, devoir,* and *pouvoir*, it appears that Verb Movement (to Agr or to Tense) is either free of any lexical restrictions or only applies to *have/avoir* and *be/être*. These verbs have a unique status with respect to θ-theory: they arguably fail to assign any θ-role to the constituents they are subcategorized for. This suggests that there is a potential tension between θ-role assignment and movement to (certain types of) Agr and to [−finite] Tense. The fact that only *have* and *be* can move in certain configurations would then follow from the fact that only these two verbs do not have to assign θ-roles. Let us pursue this line of thought and suggest that Verb Movement creates structures that sometimes block θ-role assignment. If this is true, we will be able to impute the ungrammaticality of sentences like (38a–d) in English and (16b,d,f,h) in French to a violation of the θ-Criterion, an informal formulation of which is repeated under (43):

> (43)   An argument bears one and only one θ-role, and each θ-role is borne by one and only one argument.

In Chomsky (1986a, sec. 11) Verb Movement is characterized as an adjunction to a head, creating a structure of the form (44) (where "Aff" stands for Agr or Tense):

> (44) $[_{Aff} [V] Aff]$

Let us make real use of this derived structure and suggest that Agr, whether it is morphologically overt, as in tensed clauses, or covert, as in French and English infinitives,[20] can sometimes block θ-role assignment of the verb. More precisely, let us suppose that Agr in English, unlike Agr in French, is not "rich" enough morphologically to permit transmission of the verb's θ-role(s)—in other words, that it is "opaque" to θ-role assignment, unlike French Agr, which, being richer morphologically, is "transparent" to θ-role assignment. I will assume that (44) blocks assignment of both internal and external θ-roles,[21] even though the latter are assigned "compositionally" via the VP of which (the trace of the raised) V is the head.

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[20] See Raposo (1987) on Portuguese inflected infinitives.

[21] Whence, in this framework, the unacceptability of structures with intransitive, unaccusative, or transitive verbs raised to opaque Agr or Tense, like the sentences in (i):

> (i) a. *Ne tousser   pas lorsque l'on fume   est rare.
>   *ne* to cough not when   one smokes is rare
>   b. *N'arriver   pas à l'heure à ses rendez-vous   est grossier.
>   *ne* to arrive not on time   at one's appointments is   rude

(ii) is excluded because *seem/sembler* (and *appear*, and the like), even though they have no θ-role to assign to their expletive subject, assign one to the clause they are subcategorized for:

> (ii) a. *It seems not that John is clever.
>   b. *Ne sembler pas heureux est une condition pour écrire des romans.

One way of "executing" this idea is to say that when Agr is opaque, the θ-grid of V cannot percolate up to Agr. As a consequence, the "foot" of the chain, the trace of the amalgamated Agr + V, has no θ-grid to assign, thereby causing a θ-Criterion violation, assuming, as in Chomsky (1986a, 72), that only the terminal D-Structure position of a verbal chain retains the capacity to θ-mark (or Case-mark).

"Affix Movement" creates a structure crucially different from (44):

(45)   [$_V$ V Aff]

Here, despite the fact that English Agr is opaque to θ-role assignment, nothing will prevent the verb from assigning its θ-grid, as required by (43). In brief, we are capitalizing on a difference in structure that followed from the *Barriers* framework but did not seem to have any empirical consequences. If our approach is correct, it does indeed have empirical consequences, of an advantageous sort: in conjunction with the θ-Criterion, it explains why Verb Movement to (Agr and to) Tense is lexically restricted to those verbs that do not assign θ-roles and paves the way to understanding why Affix Movement "rescues" structures that would otherwise be excluded.

Consider now the structure resulting from movement of Agr to Tense:

(46)   [$_T$[$_{Agr}$ V Agr] T]

We need only assume that [−finite] Tense is "opaque" to θ-role assignment (perhaps universally; see section 6) to account for the lexical restrictions on Agr to Tense (step (b) in (42)) in French infinitives exemplified by (16b,d,f,h): these too will be θ-Criterion violations. Thus, as promised, we do provide a unified account for the lexical restrictions on Verb Movement to (Agr to) Infl (= Tense) in English and for the virtually identical restrictions on Verb Movement (from Agr) to [−finite] Tense in French.

4.2. *A Note on* Be/Être, Have/Avoir, *and Modals*

To conclude this section, let us take a closer look at the thematic properties of the verbs that can be moved (to opaque Agr and) to Infl in English and to opaque Tense in French. That aspectual *be/être, have/avoir*, and "passive" *be/être* are not θ-role assigners is not, I think, controversial. There are uses of these verbs, however, that are not so straightforward. For instance, "existential" *be/être* and "lexical" *have/avoir* can undergo Verb Movement to opaque Tense, as shown for example by the following sentences:[22]

Observe, incidentally, that if our analysis is correct, we can derive support for the existence of null subjects in infinitives from sentences like (ia–b): if they did not have null R-expressions in subject position, it would seem very difficult to provide a unifying account of these and (iiia–b) in English:

(iii) a. *People cough not when they don't smoke.
      b. *People who arrive not at their appointments on time are rude.

[22] Here again the optional question mark is meant to denote very literary style rather than dubious acceptability, at least in French.

(47) a.   Etre ou ne pas être, telle est la question.
     b.   (?)Etre ou n'être pas, telle est la question.
     c.   To be or not to be, that is the question.
     d. (?)To be or to be not, that is the question.
(48) a.   Ne pas avoir de voiture en banlieue rend la vie difficile.
     b.   N'avoir pas de voiture en banlieue rend la vie difficile.
     c.   John doesn't have enough money.
     d.   John hasn't enough money.

Clearly, section 4.1 forces us to say that whatever R-expressions are contained in those sentences must be θ-marked by predicates other than the moved verbs. Our task is all the more interesting because there are synonyms of these verbs that do not permit Verb Movement. For instance, there is a clear acceptability contrast between (47b–d) and (49b–d) and between (48b–d) and (50b–d):

(49) a.   Exister ou ne pas exister, telle est la question.
     b.   *Exister ou n'exister pas, telle est la question.
     c.   To exist or not to exist, that is the question.
     d.   *To exist or to exist not, that is the question.
(50) a.   Ne pas posséder de voiture en banlieue rend la vie difficile.
     b.   *Ne posséder pas de voiture en banlieue rend la vie difficile.
     c.   He doesn't own a car.
     d.   *He owns not a car.

Section 4.1 forces us to interpret the unacceptability of (49b), (49d), (50b), and (50d) as a violation of the θ-Criterion. (49a–d) contain a null R-expression in the subject position of the infinitive (= PRO) that must obey (43). It must therefore receive a θ-role from *exist/exister*. It can only do so when the verb is not moved to Agr or to nonfinite Tense. When it is so moved, opaque Agr and/or opaque Tense inhibits θ-role assignment to PRO in the manner described above, whence a θ-Criterion violation. Obviously, this analysis raises the problem of existential *be/être* all the more acutely.

Starting with existential *be/être*, let us assume that we can deal with (49a–d) in the same way we would deal with (51a–b):

(51) a.   Etre là ou ne pas être là, telle est la question.
           'To be there or not to be there, that is the question.'
     b.   Etre là ou n'être pas là, telle est la question.
           'To be there or to be not there, that is the question.'

(51a–b) contain what I will analyze as a locative predicate *là* 'there'. I will posit that it is this locative predicate that assigns PRO its θ-role. For concreteness, I will suppose that the S-Structure form of the relevant parts of (51a) can be analyzed as shown in (52a):

(52) a.   . . . [$_{TP}$ PRO$_i$ (ne) T pas Agr être [$_{SC}$ e$_i$ là]] . . .
     b.   . . . [$_{TP}$ PRO$_i$ (ne) T pas Agr être [$_{SC}$ e$_i$ Loc]] . . .

Là is the head of the SC for which *être* is subcategorized[23] and assigns (the trace of) PRO its θ-role. Since *être* does not assign any θ-role here, it can freely move (to Agr and thence) to [−finite] Tense. I will extend this analysis to the sentences in (47), which I will assume differ from (51) only in having a nonlexical locative predicate "Loc" instead of *là* or *there* (see (52b)). Like *there*/*là*, Loc is the element that assigns PRO its θ-role in (47), whence the fact that *be*/*être* can freely move to opaque positions. Obviously, if our account of pairs like (47b) and (49b) is to succeed, *exist*/*exister* cannot have that type of lexical entry.[24]

My analysis of lexical *have*/*avoir* is in the same spirit and draws heavily on work by Kayne (see Kayne (1984, 134–136)) and Guéron (see Guéron (1986)). In a spirit similar to their work, I will assume that (54) is a possible D-Structure representation for a sentence like (53):

(53)   Jean a une voiture.
       'John has a car.'
(54)   [$_S$ NP$_i$ a$_j$ e$_j$ [$_{SC}$ P e$_i$ [une voiture Loc]]]

In (54) the two R-expressions *Jean* and *une voiture* are θ-marked by the phonetically null preposition P and the abstract predicate Loc, respectively. The preposition assigns *Jean* a θ-role (say, "goal"). It sometimes has an overt morphological reflex when the SC in (54) is selected by a different verb, like *croire* in sentences like (55) (see Ruwet (1982, chap. 5)):

(55)   Je lui   croyais une plus belle voiture.
       I   to him thought a nicer car
       'I thought he had a nicer car.'

In (55) *lui* originates as the D-Structure subject of a SC identical to the one in (54) and

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[23] Although *be*/*être* are subcategorized for SCs (see Stowell (1981), Kayne (1985), among many others), they crucially do not assign them a θ-role, unlike other raising verbs like *seem*/*sembler* (see footnote 21). For instance, although *Pierre est malade* 'Pierre is sick' and *Pierre semble malade* 'Pierre seems sick' can both be analyzed as in (i),

   (i)   [$_S$ NP$_i$ semble/est [$_{SC}$ e$_i$ malade]]

only *être* can move to an opaque position. There is independent evidence in favor of this idea. Compare (ii) and (iii):

   (ii)   Il semble que Pierre est malade.
          'It seems that Pierre is sick.'
   (iii) *Il est que Pierre est malade.
          it is   that Pierre is   sick

[24] Which suggests that *exist*/*exister*, like all lexical verbs, must assign at least one θ-role. The question of what evidence concerning *be*/*être* the child draws on to arrive at the correct lexical entries remains mysterious to me.

is marked dative by P (compare *Je lui crois with Je le crois). As for une plus belle voiture, it receives its θ-role from Loc essentially the same way PRO did in (52b). Again like Kayne and Guéron, I will suppose that have/avoir can (sometimes must, as in American English) have a less "exotic" lexical entry, essentially similar to the one associated with verbs like posséder or own. These do assign a θ-role to their surface subjects and objects. As a consequence, they can never raise to an opaque position (see (50b–d)).[25]

This will suffice to provide an answer to two questions we raised earlier. First, we can analyze the fact that British English have is the only lexical verb that undergoes Verb Movement as a consequence of the existence of the "exotic" structure (54).[26] Second, we can analyze the fact that among the verbs that can undergo the rule it is the only one that need not do so as a consequence of the fact that it is the only "quasi" auxiliary in Modern English that also has a "normal" transitive lexical entry (unlike be).

Let us now go back to the three modals of examples like (20a–f), repeated here in (56):

(56) a.   Je pensais ne pas pouvoir dormir dans cette chambre.
          I   thought ne to not 'can' sleep   in   this   room
          'I thought I wouldn't be able to sleep in this room.'

     b.   ?Je pensais ne pouvoir pas dormir dans cette chambre.
                    ne to can not
          (same as (56a))

     c.   Il avait estimé ne pas devoir donner suite à ma demande.
          he had deemed ne to not need to take action concerning my letter
          'He had thought it unnecessary to take action concerning my letter.'

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[25] Guéron (1986) suggests that avoir sentences with a definite object are always analyzed as though they contained a verb of the own type. This is incompatible with the present analysis since it would wrongly predict that (ib) is unacceptable:

(i) a.   Ne pas avoir   le mot   de la fin   dans une conversation, c'est fréquent.
         ne not to have the word of the end in a conversation   it is frequent
         'It's frequent not to have the last word in a conversation.'
    b.   N'avoir pas le mot de la fin dans une conversation, c'est fréquent.
         (same)

Independently of this problem, Guéron's analysis of the indefiniteness effect and the structures she assigns to sentences like (55) would seem to predict incorrectly that sentences like (ii) are unacceptable (see her remark about her (77)):

(ii) Je ne lui   connaissais pas cette voiture./Je ne te   connaissais pas cette cravate.
     I ne to him knew   not this car   I ne to you knew   not this tie
     'I didn't know he had this car./I didn't know you had this tie.'

More generally, it seems to me that Guéron's attempt to correlate the indefiniteness effect with unaccusative structures (via her principle (38)) is insufficiently general in view of the fact that a sentence like ?*Je possède le livre (lit.: 'I own the book'), a transitive structure on anyone's analysis, is at least as dubious as ?*J'ai le livre.

[26] Unfortunately, I have no explanation for the fact that only British English has retained structure (54).

   d. ?Il avait estimé ne devoir pas donner suite à ma demande.
                   ne to need not
       (same as (56c))
   e. Il avait dit ne pas vouloir donner suite   à ma demande.
       he had said *ne* to not will to take action concerning my letter
       'He has said he did not wish to take action concerning my letter.'
   f. ?Il avait dit ne vouloir pas donner suite à ma demande.
                   ne to will not
       (same as (56e))

The promised conclusion of section 4.1 is that in (56b,d,f) *pouvoir, devoir*, and *vouloir*
do not assign a θ-role to either their subject NP or their clausal complement. Obviously,
though, unlike *be* and *have*, they contribute something to the interpretation of the sen-
tence in which they occur, their root or epistemic meanings. Yet these readings, however
one wishes to represent them, cannot be associated with ordinary θ-role assignment. In
order to solve the problem, I will rely on early work by Jackendoff on modals in English
(see Jackendoff (1972, 100–107)), taken up later by Zubizarreta (1982). I will assume
that French modal verbs, although they have none of the syntactic properties of their
English counterparts, can also behave like modifiers. When they do so, they contribute
their semantic interpretation via (adverbial) modification and not via "ordinary" θ-role
assignment.[27] This will suffice to describe the pairs in (56). For concreteness, let us say
that Zubizarreta's theory of "adjunct" θ-roles provides a first clue about how one might
wish to proceed to make these intuitive remarks precise.[28]

   It is important to notice that the largely implicit theory of modification we are thus
appealing to will have to provide a nontrivial explanation for the fact that only these
three verbs can function like adverbial modifiers. That this is indeed so is shown, among
other things, by minimal pairs like those in (57), in which *pouvoir* and *supporter* or *vouloir*
and *envisager*, otherwise fairly close synonyms, behave strikingly differently with re-
spect to Verb Movement to opaque Tense:

   [27] In other words, *Pierre a voulu partir* can be interpreted analogously to *Pierre est parti volontairement.*
When it is so interpreted, it can move to the opaque [−finite] Tense position. English main verbs like *want/
wish* (= *vouloir*), *manage* (= *pouvoir*), and so on, cannot function like modifiers (which describes why *He
wished not to stay* or *He managed not to kiss Mary* cannot be interpreted with *not* the sentence negation of
the main clause), presumably because English has a syntactic class of verbs, the modals, that always function
like modifiers (see Zubizarreta (1982)). Maybe this prevents other verbs from having that function (perhaps
some version of Di Sciullo and Williams's (1987, 10–14) "blocking" constraint is at work here).
   [28] Despite the fact that I make crucial use of some of Zubizarreta's main ideas, I have to disagree with
her on some important issues. For instance, she states (1982, 135) that "The semantic relation induced by
modals with respect to the clausal argument is formally realized in a different way in [French and English]:
in English as a modification relation, in French as an argument θ-relation." This is clearly incompatible with
the proposal made here. However, Zubizarreta's theory does lend itself to a solution to the problem stated in
the text: we need only say that *vouloir, pouvoir*, and *devoir* can assign adjunct θ-roles to their subjects and
clausal objects and that assignment of adjunct θ-roles is not sensitive to the opaque versus transparent dis-
tinction, which makes good sense if the pertinent verbs also have adverbial properties.

(57) a.   ?Je pensais ne pouvoir pas dormir dans cette chambre.
           (same as (56a–b))

    b.   *Je pensais ne supporter pas de dormir dans cette chambre.
           (same as (57a))

    c.   ?Pierre dit   ne vouloir pas que Jean reste.
           Pierre says *ne* to want not that Jean stay
           'Pierre says he does not want Jean to stay.'

    d.   *Pierre dit n'envisager pas que Jean reste.
           (same as (57c))

Let us summarize the results of this section. We have suggested that θ-theory is the module of UG that is responsible for the lexical restrictions that bear on Verb Movement to Agr in English and to [−finite] Tense in French. If we are on the right track, θ-role assignment is "blocked" by the morphologically "poor" Agr of Modern English (which is "opaque" to θ-role assignment) and by "opaque" [−finite] Tense. This, in crucial conjunction with structure (42), is the essence of our answer to question (A):

(A)   Why is Verb Movement to Infl lexically restricted in Modern English?

Observe that it is only because there exists a "conspiracy" among structure (42), the HMC (that is, ultimately, the ECP), and θ-theory that our "opacity" versus "transparency" parameter can be said to provide a genuine answer to (A). Observe also that the structure of our solution implicitly points to possible typological variations among languages. We will return to this in section 6.

Before we can take up this question, we must attempt to provide an answer to the remaining three questions raised in section 1.2. We will do so by further elaborating on the structure of IP and by drawing on the resources of quantification theory on the one hand and the ECP as analyzed in Chomsky (1986a) on the other.

5. Verb Movement, Quantification Theory, the Structure of IP, and the ECP

5.1. Affix Movement in French and English

Let us return to question (A′):

(A′)   Why can't Affix Movement apply in French tensed clauses?

The properties of infinitives show clearly that the nonexistence of Affix Movement in French is indeed restricted to tensed sentences. Since in all infinitives with a lexical verb Verb Movement (to Agr) to Tense is excluded by the θ-Criterion, [−finite] Tense (the *-er, -ir,* and *-oir* endings of French infinitives) must move to V by Affix Movement. Moreover, *pas*, unlike *not* in English tensed clauses, does not block the rule here ($[PRO + ne + -ir + pas + [dorm-]] \Rightarrow [PRO + ne + pas + [dorm- + ir]]$). Similar observations can be made on the basis of English infinitives and gerunds. The latter pattern with

infinitives with respect to Verb Movement. Only *be* and *have* can somewhat marginally raise (to Agr and) to Tense. In a sentence like (58a), then, *-ing* must have been moved over *not* from its D-Structure position as sketched in (58b):[29]

(58) a.   John not being fond of beer, he ordered white wine.
     b.   [John ing not [be- [fond of beer]]] ⇒ [John not [be + ing [fond of beer]]]

What French infinitives and English gerunds show, then, is that it is not negation per se that blocks Affix Movement. Negation has this property only in tensed clauses. My answer to question (A') will be formulated in such a way that it can shed light on this manifestation of the [±finite] dichotomy.

Observe also that question (D) is adequately formulated only for tensed sentences.

(D)   Why is Verb Movement obligatory whenever it can apply?

Recall that in English and French infinitives, *have/avoir* and *be/être*, although they can move to (Agr and to) Tense, need not do so (see (15), (21a–f), among many other examples). Again, English gerunds exhibit the same pattern of behavior, as shown for example by (58a).

In short, the [±finite] dimension will have to play a crucial part in our answers to questions (A'), (C), and (D): [+finite] Tense requires Verb Movement to (Agr to) Tense, prohibits Affix Movement in French, and turns *not* into a block for Affix Movement in English. [−finite] Tense, on the other hand, does not require Verb Movement, does not prohibit Affix Movement and allows *not* not to count as a block for Affix Movement.

5.2. Verb Movement and Quantification Theory

The problems noted in the previous section can be solved elegantly if we make the assumption in (59):

(59)   [+finite] Tense (that is, [±Past]) is an operator.

If (59) is true, then [±Past] will have to bind a variable, like other operators. Suppose a variable for [±Past] is defined as follows:

(60) α is a variable for [±Past] iff α = [$_{V_i}$ e] bound by [±Past].

The intuitive idea behind (59) and (60) is that Verb Movement to Infl in tensed clauses and *Wh* Movement are similar in that they each provide an abstract operator ([±Q] and [±Past], respectively) with an appropriate variable. The variable defined in (60) can be looked upon as the syntactic counterpart of Davidson's (1966) "event variable" with [±Past] binding it and the lexical content of the verb defining its range of variation—in other words, the "type" of event and its participants (see Higginbotham

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[29] On gerunds in English, see Reuland (1983). See section 6.1 for a comparison with French gerunds.

(1985, 554–556)).[30] *Bound* as used in (60) is to be understood in the customary way, as in (61):

(61) α is bound by β iff α is c-commanded by β and coindexed with it.

5.3. Verb Movement, Affix Movement, and Quantification Theory in French

As they stand, (59), (60), and (61) suffice to describe the properties of Verb Movement and Affix Movement in French. Consider for example the ill-formed sentence in (62a) and its much simplified D-Structure and S-Structure forms in (62b) and (62c):

(62)   a.   *Pierre ne pas mange.
             Pierre *ne* not eats
       b.   [$_{TP}$ NP ne [$_T$ $-$Past] pas Agr [$_{VP}$ mang-]]
       c.   [$_{TP}$ NP ne pas [$_{VP}$[$_V$ mang- [$-$Past] Agr]]]

Independently of the usual morphological requirement on the necessary attachment of bound morphemes to a head that excludes (62b) as it stands, the ban on vacuous quantification in natural languages also excludes it: [$-$Past] in (62b) should bind a variable but does not. (62c) is well-formed morphologically but is still excluded because it violates the ban on vacuous quantification. So does (63), the structure derived from (62b) by Verb Movement to Agr, whence the ill-formedness of sentences like (64):

(63)   [$_{TP}$ NP ne [$_T$ $-$Past] pas [$_{Agr_i}$[$_V_i$ mang- Agr]] [$_{VP}$ Adv e$_i$]]

(64)   *Pierre ne pas mange souvent.
        Pierre *ne* not eats   often

I will assume that no accidental binding could occur in a structure like (63) by positing that Tense (but not Agr; see section 5.5.3) can only receive an index by "inheriting" one from a verb in the customary way (see Chomsky (1986a, sec. 11)). In fact, given (59), (60), and (61), the only well-formed structure that can be derived from (62b) is (66), which corresponds to sentence (65):

(65)   Pierre ne mange pas.
        Pierre *ne* eats   not

(66)   [$_{TP}$ NP ne [$_{T_i}$[$_{Agr_i}$[$_V_i$ mang]- Agr] $-$Past] pas e$_i$ [$_{VP}$ e$_i$]]

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[30] If Higginbotham (1983) is correct, there cannot be a one-to-one correspondence between event variables as used by Davidson and other semanticians and the syntactic variables I make use of for [$\pm$Past]. A sentence like (i) is analyzed by Higginbotham (1983) as in (ii) (his (10) and (11)):

   (i)   John sees Mary leave.
   (ii) There exists x: x an event & leave (Mary,x) | John sees x

But the complement of perception predicates is an infinitive and as such does not allow Verb Movement to Tense. Hence, there is no trace and no syntactic variable in them, despite their interpretation. Not unlike Higginbotham (1983; 1985), I will posit that "event" variables can (indeed must) be assumed to exist in (tensed) sentences containing state verbs or even the copula and APs and predicative NPs.

Structure (66) is derived by Verb Movement to Agr and Agr-Verb Movement to Tense, with the usual conventions on index percolation. The operator $[_T - \text{Past}]$ binds a variable, which could be either the Verb trace in the VP or the Agr trace. Under the first option, the Agr trace in (66) would be considered the Verb Movement counterpart of a trace in Comp in cases of "long" *Wh* Movement. Under the second option, the Verb trace in the VP would be the counterpart of the D-Structure object trace in passive questions like *Who was failed at the exam?*, that is, an anaphoric Verb trace. Since I know of no clear evidence in favor of one or the other, I will keep the question open here, tentatively adopting the second option for purposes of execution but noting that nothing crucial seems to hinge on this, as far as I can see.

Of course, (62a) contrasts sharply with the acceptable infinitive in (67), and the well-formed (65) with the ungrammatical infinitive (68):

(67)   Ne pas manger . . .
       ne not to eat
(68) *Ne manger pas . . .
       ne to eat   not

We have discussed (68) and the like at length above. (67) can only be derived by Affix Movement. Recall that *Pierre ne pas mange* was excluded because $[-\text{Past}]$ had no variable to bind. If this is the correct approach, Affix Movement as such is not involved in explaining the ungrammaticality of (62a). Therefore, to explain the grammaticality of (67), we need only assume that $[-\text{finite}]$ Tense is *not* an operator. Its S-Structure form (69) will then be well-formed if no other principles of UG exclude it. Since the sentence *is* well-formed, we must conclude that none do.

(69) $[_{IP}$ PRO ne e_i pas e_j $[_{VP}[_V$ mang- $[_{T_i} -\text{finite}] + \text{Agr}_j]]]$

At this point we again have several options. If Affix Movement is an ordinary rule of syntax applying on the D-Structure/S-Structure side, we could allow for the deletion of the trace of essentially "empty" (that is, recoverable) $[-\text{finite}]$ Tense and Agr. A second option is to analyze Affix Movement as a rule applying on the PF side of the grammar and to assume that such rules do not leave a trace. A third would state that Affix Movement is a PF movement rule and that movement leaves a trace here too but that since the (contemporary counterparts of) PF "readjustment" rules create essentially "flat" structures (Chomsky and Halle (1968, 7–11)), no c-command violation is incurred by downgrading at that level of representation. Lack of space prevents me from trying to choose among these alternatives. Other, perhaps more radically different approaches are possible: along lines developed for English by N. Chomsky in his 1987 fall class lectures at MIT, one could suggest an LF movement rule of Verb + Affix Movement to (Agr to) Tense satisfying the ECP at that level of representation—that is, undoing Affix Movement at LF. Suffice it to say that within the framework investigated here one of these alternatives (or a combination of them) has to be correct.

Assuming this is indeed so, observe that our solution does meet the requirement we put on any answer to questions (A') and (D) (repeated and reformulated for French as (D')), namely, that any answer to one should also be an answer to the other.

(A') Why can't Affix Movement apply in French tensed clauses?
(D') Why is Verb Movement obligatory in tensed sentences in French?

On our analysis, (A') and (D') have a common raison d'être, namely, the ban on vacuous quantification in natural languages (70):

(70)   All operators must bind a variable in natural languages.[31]

5.4. Verb Movement, Affix Movement, and Quantification Theory in English

Of course, by starting off with French, we chose the easy route. The reader will no doubt have wondered how our analysis of the obligatoriness of Verb Movement to (Agr to) [+finite] Tense in French can be reconciled with sentences of English as elementary as (71) in which we know Affix Movement has applied (see section 1.1):

(71)   John left.

Brute force will not do: if we said that [±Past] did not behave like an operator in English, we would obviously be able to derive (71) and the like, but we would also expect (72) to be well-formed (recall that French *Ne pas manger . . . , Ne pas partir . . .* are fine):

(72)   *John not left.

Similarly, under the analysis suggested in section 5.3, this hypothesis would lead us to expect Verb Movement to always be optional. Consequently, all other things being equal, we would expect (73a–c) to be well-formed:

(73) a.   *John does have gone.
     b.   *John doesn't be singing.
     c.   *John doesn't be happy.

That (auxiliary) *Be/Have* Movement to (Agr and to) [±Past] is obligatory, contrary to what this hypothesis would lead us to expect, can be established on other grounds than (73). Recall that adverbs like *completely* and *very much* cannot be found in the pre-Infl adverbial position (see footnote 8 and Jackendoff (1972, 75)), although they can occur in VP-initial position, as shown by the minimal pairs in (74):

(74) a.   John completely lost his mind.
     b.   *John completely will lose his mind.

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[31] (70) could be strengthened in the usual way to ensure a one-to-one correspondence between operators and variables (see Koopman and Sportiche (1982)). This extension plays no part here.

   c.   John very much objected to that.

   d.   *John very much will object to that.

Observe now that if *be/have* did not have to move to [+finite] Tense, the ungrammatical (75a–b) should be well-formed and should not contrast with the well-formed (76a–b), clearly an erroneous prediction.

(75) a. *John completely is losing his mind.

      b. *John very much has objected to that.

(76) a. John is completely losing his mind.

      b. John has very much objected to that.

Aside from these empirical considerations, which decidedly speak against it, adopting this rather drastic solution would probably leave too much space to linguistic variation (see Higginbotham (1985, 547–553)). For these two reasons I will stick to (59), (60), and (61) as well as to the auxiliary hypotheses I suggested in section 5.3.

We now seem to have worked ourselves into a pretty desperate situation: quantification theory requires Verb Movement to [±Past], but θ-theory and the ECP, because of the "opacity" of English Agr (that is, its morphological poverty), forbid it.
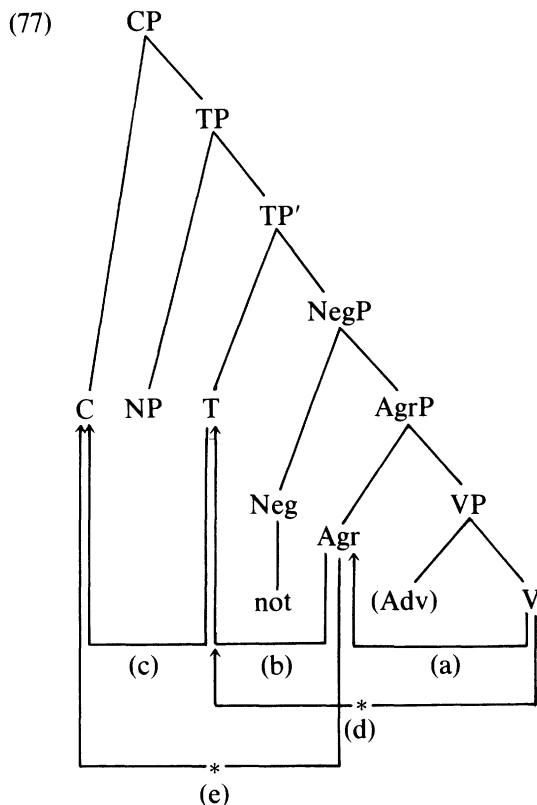
When they are in a predicament of this sort, it seems to me that UG leaves the grammars of individual languages essentially two possible ways out. They can go one notch farther down on the poverty line of their Agr and get rid of it entirely: indeed, if Agr altogether disappeared from D-Structure representations like (42), the HMC would cease to block Verb Movement to transparent [±Past] (at least if negation did not interfere with Verb Movement to Tense). The other option consists of allowing an auxiliary verb generated beyond the VP barrier to count as a substitute for the immovable main verb in the VP.

It is plausible to analyze some Scandinavian languages as having adopted the first strategy.[32] My claim is that English has adopted the second.

5.5. *On the Structure of TP in English and the Status of Auxiliary Verbs*

5.5.1. *On the Structure of TP.*   Let me first elaborate somewhat more on the structure of TP in Modern English. I want to claim that the structure of (negative) sentences in English is as shown in diagram (77):

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[32] Mainland Scandinavian languages do not have *any* agreement morphology on their verbs, yet there is some evidence that they do have Verb Movement to (Infl to) Comp (see Holmberg (1987, chaps. 4 and 5)). Rouveret (1987) argues convincingly in favor of the absence of any Agr in Welsh, an argument from which a number of intriguing features of the language follow.

(77)

```
(77)        CP
           /  \
          /    TP
         /    /  \
        /    /    TP'
       /    /    /  \
      /    /    /    NegP
     /    /    /    /   \
    /    /    /    /     \
   C    NP   T   /       AgrP
                Neg      /   \
                  \     Agr   VP
                   \     |   /  \
                   not  (Adv)    V

        (c)      (b)      (a)
             *(d)
         *(e)
```

(77) shows that aside from CP, TP, and AgrP there is also a NegP. Somewhat arbitrarily, (77) embodies the idea that *not* is the head of NegP (see section 6.5 for an alternative). As in (42), I have not indicated the specifier position of CP, NegP, and AgrP (see footnote 19 and section 6.5).

Extending and modifying the *Barriers* framework to accommodate the richer structure of IP thus postulated—in a way that I think is natural—I will assume that not only VP but also NegP and TP are "inherent" barriers (for justification, see sections 5.5.6 and 5.5.7). On the contrary, because of its morphologically "defective" nature, AgrP can only be a barrier by inheritance (see Chomsky (1986a, sec. 4)). In brief, I am transferring to AgrP what Chomsky (1986a) assumed held for IP. Given my reconstruction of the notion, this seems to be a natural move. Finally, I will assume that heads intrinsically inert for government, as Neg probably is, if it is a head at all (for a view that it is not, see section 6.5), do not count as potential intervening head governors for the minimality principle, in the spirit of Rizzi's (1987a) "relativized" minimality theory. This will ensure that *not*, if it is a head, does not block movement from Agr to Tense, at least in nonimperative sentences (on the latter, see section 5.5.5; for an approach to the

structure of NegP that does not require (this interpretation of) relativized minimality, see section 6.5).

Naturally, as above, the HMC requires Verb Movement to Agr, Agr to Tense, and Tense to Comp (the (a), (b), and (c) arrows of (77)) but prohibits direct movement of V to Tense or of Agr to Comp (the (d) and (e) arrows), or, of course, direct movement of V to Comp. We are now in a position to analyze all the properties of Verb Movement in English.

5.5.2. Have and Be.   Let us start with the simple cases:

>   (78) a.   John is happy/singing.
>   b.   John has lost his way.
>   c.   John isn't happy/singing.
>   d.   John hasn't lost his way.
>   e.   John hasn't any money.

The structure of the derivation of all the sentences in (78) is sketched in (79):

>   (79)   [$_{TP}$ John [$_{T_i}$[$_{Agr_i}$[$_{V_i}$ be/have] Agr] T] ([$_{NegP}$ not) e$_i$ [$_{VP}$ e$_i$ . . .]()]]

VP being an inherent barrier, V moves to Agr, thus forming the amalgamated V + Agr that L-marks VP, thus voiding barrierhood (Chomsky (1986a, sec. 11)). V + Agr next moves to T, forming the amalgamated constituent T$_i$ shown in (79). If the sentence is affirmative, T$_i$ L-marks AgrP. If the sentence is negative, it L-marks NegP, thus voiding barrierhood, but does not L-mark AgrP. *Not* is not an L-marker either. This causes no harm since AgrP, being defective, does not count as a blocking category and is only a barrier by inheritance. Therefore, the sentences in (78) obey the ECP.

Recall that they abide by the requirements of θ-theory: *be* and *have* not being θ-role assigners, they can move to opaque Agr and from there to Tense. Finally, they also abide by the requirements of quantification theory since [− Past] binds a variable, the VP trace (see section 5.3 and footnote 33).

5.5.3. Modals.   Next consider (80) and its S-Structure form (81):

>   (80)   John should/can/might (not) go.
>   (81)   [$_{TP}$ John [$_{T_i}$[$_{M_i}$ can/shall/may] T] ([$_{NegP}$ not)[$_{Agr}$ e$_i$][$_{VP}$ go]()]]

As in Chomsky (1955) and all of Chomsky's subsequent work, I assume that modals are generated under [± Past] Tense. The index associated with them percolates up to Tense. Since [± Past] is an operator, it must bind a variable. I will assume that the empty Agr, which may bear the same index (and therefore must, because of the requirements of quantification theory), qualifies. The variable satisfies the ECP since AgrP is a defective category and since T$_i$ L-marks NegP.

Under Chomsky's analysis of modals (but not under any version of the "main verb hypothesis" so often advocated in the literature), we can offer some explanation for why

they have a defective person paradigm: being generated under Tense, at no point do they go through Agr and they can therefore never "amalgamate" with it. If "amalgamation" with a head is required for Agr features to become overt, we can correlate the one basic structural property of modals and their defining morphological characteristic that, to the best of my knowledge, has so far always been considered purely idiosyncratic. This seems like a step in the right direction.

5.5.4. Do in Indicative Sentences.   Let us now consider "simple" negative sentences like (82a–b):

> (82) a.   John did not go.
>   b.   John doesn't understand.

Structure (83) represents their derivation:

> (83) $[_{TP}$ John $[_{T_i}[_{Agr_i}[_V$ do$]$ Agr$]$ T$][_{NegP}$ not$][_{AgrP}$ e_i $[_{VP}$ V$]]]$

Unlike modals, *do* is a morphologically "well-behaved" verb; yet it obviously cannot be generated under VP. That does not leave us much room for maneuvering. *Do* must be generated under Agr. From there it (or rather the amalgamated Agr + V) moves to [±Past] Tense, forming the constituent T_i shown in (83). [±Past] does bind a variable in that structure, e_i. The ECP is satisfied for the same reason as in (80), the amalgamated *do* + Agr + T L-marking NegP. Therefore, (82) is syntactically well-formed.

Let us examine (83) somewhat more closely, however, and try to be more explicit about what element the [±Past] operator quantifies over. In other words, let us raise the question of what "event" is described as present or past in (82). Clearly, although [±Past] is morphologically affixed onto *do*, what these sentences denote are instances of (not) *going* or (not) *understanding*. We can see this very clearly if we consider their French translations:

> (84) a.   Jean ne partit pas.
>   b.   Jean ne comprend pas.

Here the morphology and the interpretation coincide: [±Past] is affixed onto the verbs that define the past or present events referred to by (84). There is clearly no reason to suppose that (82) and (84) differ in interpretation. In fact, there are excellent reasons to suppose that they cannot (see Higginbotham (1985)). If so, the grammar of English must somehow permit (83) to be understood as though the variable bound by [±Past] was the event variable associated with the main verb.

My claim—an extremely traditional one—is that *do* is a substitute for those verbs. One way of making this traditional analysis somewhat more precise is to say that the trace of *do* bound by [±Past] copies the θ-grid of the verbs in the VP.

That (main verb) *do* can function as a substitute is of course well known and required by sentences like *John took more time over it than he had ever done before*, or British English sentences like *I don't know the answer but Peter may do* (see, for example,

Pullum and Wilson (1977, 761)). What I am suggesting, then, is that auxiliary *do* crucially shares this function. Thus, in (83) [±Past] does have scope over (the event denoted by) *go* and *understand*, as seems required, because it has scope over the trace of *do*, a semantic copy of them.

By looking at auxiliary *do* in this light, we can relate the ungrammaticality of sentences like (85a–d) and that of sentences like (86a–h):

(85) a. *John doesn't be happy.
    b. *John does not have gone.
    c. *John did not be singing.
    d. *John didn't be kissed by Mary.
(86) a. *Peter isn't happy, does he?
    b. *Peter isn't happy, is he done?
    c. *John hasn't gone, does he?
    d. *John hasn't gone, has he done?
    e. *John wasn't singing, did he?
    f. *John wasn't singing, was he doing?
    g. *John wasn't kissed by Mary, did he?
    h. *John wasn't kissed by Mary, was he done?

Neither main verb *do* nor auxiliary *do* can substitute for a VP containing a copula and an adjective (see (85a) and (86a)) or for an adjective (see (86b)). They cannot substitute for a VP containing the perfect auxiliary and a participle (see (85b) and (86c)) or for the participle itself (see (86d)). Nor can they stand for a VP containing "progressive" *be* and its gerund (see (85c) and (86e)) or for the gerund itself (see (86f)). Finally, they cannot substitute for a VP containing the copula and a passive participle (see (85d) and (86g)) or for the passive participle itself (see (86h)).

It is tempting to assume that those facts follow from the correct definition of what a substitute verb is, on the one hand, and from the interpretation of structures like (83), on the other. Earlier we analyzed auxiliary *be* and *have* as verbs whose lexical entries lack a θ-grid. Thus, it is plausible to assume that in (85) (the trace of) *do* does not have anything to copy, thereby remaining semantically empty. Recall that it is interpreted as an event variable bound by [±Past]. Observe now that the quantification structure associated with (85), although configurationally well-formed, is semantically ill-formed if we assume, as seems independently necessary (see, for example, Williams (1986, 266)), that a variable should always have a restricted range of variation. Since it does not have one here, the variable bound by [±Past] fails to denote anything, whence the ungrammaticality of (85a–d) and (86a,c,e,g).[33]

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[33] This seems to require the variable bound by [±Past] in sentences like *John is happy* to somehow denote a state of happiness. We can achieve this by assuming that (the VP traces of) *be/être* and *have/avoir* inherit the θ-grid of the predicate they select the maximal projection of by virtue of agreeing with an NP θ-marked by the predicate in question. We thus analyze θ-grid inheritance in this case as an instance of feature sharing under agreement. The same analysis should probably hold of French sentences like *Jean est heureux* or *Jean*

Concerning (86b,d,f,h) there are two conceivable types of approach within this framework. One could claim that *do* cannot copy the θ-grid of a participle or a gerund because gerunds, participles, and *do* do not belong to the same syntactic class. If this is correct, those sentences fall in with the other examples in (86). One could also view their ill-formedness as being essentially semantic and due to the principles (whatever they are) that also exclude *Peter isn't happy, is he happy?*, *Peter wasn't singing, was he singing?*, and so on.

5.5.5. Do and Imperatives.   Assuming this line of thought to be correct, we are forced to adopt a fairly unconventional view of imperative sentences like (13a–d), repeated here:

(87) a.   Don't (you) have finished your work when I come back!
  b.   Don't be silly!
  c.   Don't (you) be singing when I come back!
  d.   Do be a good sport! Lend me five dollars!

These sentences raise a bevy of problems that I cannot hope to do justice to in this article. I will be satisfied here with sketching out what I consider plausible approaches to three of them.

Aside from the obvious question of why *do* is acceptable here, we must explain why (88a–c) are ill-formed, that is, why *Be/Have* Movement to Tense cannot take place:

(88) a.   *Have not finished your work when I come back.
  b.   *Be not silly.
  c.   *Be not singing when I come back.

It has often been assumed that English imperatives contain an element blocking Verb Movement, either a special Imp element (Lasnik (1981, 168–169)) or a special (empty) auxiliary (perhaps shared by subjunctives) (Roberts (1985, 40–41)). Such approaches, plausible though they are, do not seem to me general enough. French infinitives, especially in the negative, can sometimes function like imperatives. The following sentences, although not very frequent, are perfectly acceptable as sentences with imperative force:

(n')a (pas) mangé. One might be tempted to generalize it to English modals. This would be required if, as claimed earlier, English modals always function like modifiers (that is, if they lack a θ-grid). The same might be true of French *devoir/pouvoir/vouloir* for similar reasons. As pointed out to me by R. Kayne and L. Rizzi (personal communication), it is crucial for this process not to incorrectly save sentences like (85). The difference between the two types of copying processes erroneously confused in such cases is intuitively easy to characterize, although I will not attempt to provide a formal solution to the problem here: *do* copies the θ-grid of a V(P), whereas *be, have*, and modals inherit one by (a form of) specifier-head agreement. It is plausible to assume that an ill-formed statement like *He didn't be happy* could only be saved if *do* could inherit a θ-role in the manner of *be/have* and modals, which it cannot do (*He does happy*). The inheritance of θ-grids by (the VP trace of) *be/have* clearly must not interfere with the θ-Criterion account of the restrictions on Verb Movement in French and English adopted in section 4.

(89) a.   Attention! Ne pas toucher!
          beware   *ne* not to touch
          'Beware! Don't touch!'
     b.   Voyons, s'il vous plaît, ne pas être idiot!
          come on please   *ne* not to be silly
          'Come on, please, don't be silly!'
     c.   Allons,   ne pas avoir peur,   s'il vous plaît!
          come on *ne* not to be scared please
          'Come on, don't be scared, please!'

However, although *avoir* and *être* can normally move to [−finite] Tense (see section
2.2), they cannot do so here:

(90) a.   *Voyons, s'il vous plaît, n'être pas idiot!
     b.   *Allons, n'avoir pas peur, s'il vous plaît!

It would be a little implausible, it seems to me, to suppose that these otherwise perfectly
ordinary infinitives have some special element in their Tense blocking Verb Movement.
Yet it is tempting to try to account for (90) and (88) in the same way. We can do so if
we adopt the descriptive generalization (91) (see footnote 51 for a tentative elaboration
of (91)):

(91)   In [−finite] sentences with imperative force, Neg counts as a head for Verb
       Movement.

Recall that we assumed earlier, in a spirit similar to Rizzi's (1987a) "relativized" min-
imality, that Neg, if a head, does not block Verb Movement. (91) suppresses this pos-
sibility. The ECP will then automatically account for (90) and (88), assuming English
imperatives can count as [−finite] for (91), a plausible view given their morphological
properties.

    If (91) is on the right track, we cannot analyze *do* in (87a–c) as an instance of auxiliary
do, a natural conclusion under our analysis of (85) and (86): all other things being equal,
none of the sentences in (87) should be acceptable.

    That in some cases imperative *do* should not be analyzed as an auxiliary at all is
supported by the sheer existence of (87a) and (87c): under the auxiliary analysis of
imperative *do*, *you* would have no source in those sentences, unless further Verb Move-
ment to Comp was postulated, not very plausibly it seems to me.

    If *do* in (87a) and (87c) is not an auxiliary, it can only be a main verb, similar to *let*
in *Let's go*, which has never been viewed as an auxiliary (no doubt because of *Don't
let's go*). Let me suggest that imperative *do* in those sentences is a "living fossil," closely
related to the Old and Middle English causative *do* illustrated in (92) (from Mossé (1959,
145); the English glosses are a translation of Mossé's French ones):

(92) a. Grim dede maken a ful   fayr bed.
         Grim made make a very nice bed
         'Grim had a very nice bed made.'
     b. He did   cary grete   quantitee of Armure.
         he made carry a great quantity of weapons
         'He had a great quantity of weapons carried.'
     c. Sodeynly rescous   doth   hym escapen.
         'Suddenly the rescue makes him escape.'

As a fossil, (negative) "causative *do*" still exhibits the chief property of the syntax of negation in Old English, whence the sequence *do + not*, which makes things so confusing. I will assume that negative imperative *do*, like French *laisser* or *faire*, can optionally Case-mark and govern the subject of its infinitival complement (compare (92a–b) with (92c)); hence the *you* in (87a) and (87c).[34]

This analysis leaves sentences like (87d) as a residue. It is not very plausible to analyze *do* in, say, *Do be quiet!* as a main verb, if only because imperatives like **Do you be quiet!* seem impossible. If so, contrasts like the one between *Do be quiet!* and **He does be quiet* remain unexplained.

Recall that we accounted for the sentences in (85) and (86) by saying that the variable they contain does not range over any domain (that is, it fails to denote an event) and therefore cannot be bound by [±Past].

Assume now that imperative sentences contain an Imp in their Tense. [−Past] must bind a variable in imperatives as well. But suppose Imp in English can provide the variable bound by [−Past] with its own range of variation.[35] Then *do* does not have to copy any θ-grid. Therefore, (87d) is well-formed. It is crucial to assume that Tense in imperatives is a quantifier having to bind a variable because otherwise sentences like (93) would be well-formed, just like infinitives of the type *Not to sing that song . . .* or *Not to be happy . . .*

(93) a. **Not sing that song!*
     b. **Not be a fool!*

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[34] Observe that if *do* in (some) negative imperatives is a main verb, then double negations should occur in them more easily than in ordinary affirmative sentences since here the two *not*'s would be two sentence negations, whereas they could not be in statements. Indeed, (ia–b) strike me as less odd than (iia–b):

  (i) a.   Don't you not be working when I come home!
     b.   Don't you not know your lesson when I come home!
 (ii) a.   ??He wasn't not working when I came home.
     b.   ??He didn't not know his lesson when I came home.

The fossilized character of negative imperatives is presumably what accounts for the (rather weak) contrast—pointed out to me by R. Kayne—between ??*Don't she move* and **Don't her move* with accusative Case reinterpreted as nominative.

[35] Perhaps something close to what is denoted by verbs like *want* and *require* or modals like *shall* and *will*.

Consider their much simplified D-Structure form (94):

(94)   [$_{TP}$ NP [$_T$ T, Imp] [$_{NegP}$ not] [$_{AgrP}$[$_{VP}$ be/sing . . .]]]

Because of (91), no Verb Movement can take place. But because Tense is an operator, Affix Movement would also yield an ill-formed structure: when affixed to V, it would of necessity fail to have any potential variable in its c-command domain.

As a consequence of this, (94) cannot have a well-formed S-Structure representation associated with it. In fact, given (91), a D-Structure representation with Imp in Tense can surface as a well-formed structure only if NegP is not present. I will indeed show that simple nonnegative imperatives like *Sing that song!* or *Be a good sport!* have the D-Structure representation in (95). First, however, I must establish the existence of a null counterpart of *do* that will allow Tense in (95) to bind an appropriate variable in AgrP.

(95)   [$_{TP}$ NP [$_T$ T, Imp] [$_{AgrP}$[$_{VP}$ be/sing . . .]]]

5.5.6. Null Do *and the ECP.*   In order to provide evidence for a null counterpart of *do*, I will leave imperatives at this stage and tackle "simple" affirmatives like (96a–b):

(96) a.   John left.
     b.   John leaves.

Like a number of researchers working in the 1960s, I will assume that (96a–b) are essentially identical to (97a–b):

(97) a.   John did leave.
     b.   John does leave.

However, I will not postulate a *Do* Deletion rule, as was common then. Rather, I will assume that English has a nonlexical counterpart of *do*, call it Ø, which shares with it all its defining properties except its lexical character. In particular, Ø, like *do*, is a substitute verb and can therefore copy the θ-role of the main verb in the VP. Like *do*, Ø is generated under Agr and moves to Tense. This allows for the generation of S-Structure forms like (98):

(98)   [$_{TP}$ John [$_{T_i}$[$_{Agr_i}$[$_{V_i}$ Ø] Agr] T] [$_{AgrP}$ e$_i$ [$_{VP}$ leave]]]

(98) abides by all the principles of UG we have made use of so far. In particular, it satisfies the ECP since AgrP, being a defective category, is not an inherent barrier and need not be L-marked, which it could not be in (98) since Ø is nonlexical. Similarly, (98) satisfies quantification theory since [±Past] binds e$_i$, the event variable that has copied the θ-grid of *leave* and therefore denotes an event. All we need to add to be able to say that (98) *is* the S-Structure representation of (96) is a rule moving Agr and Tense to *leave*, the only lexical "prop" present in the sentence. Affix Movement is that rule.

Of course, since Ø alternates freely with *do*, nothing prevents the generation of

structures like (100), which corresponds to the ill-formed (99a–b):

(99) a. *John not left.
     b. *John not leaves.

(100) [$_{TP}$ John [$_{T_i}$[$_{Agr_i}$[$_{V_i}$ ∅] Agr] T] [$_{NegP}$ not [$_{AgrP}$ e$_i$ [$_{VP}$ leav-]]]]

It is easy to check that the ECP correctly excludes this structure. Since NegP is a maximal projection and, unlike AgrP, an inherent barrier, it must be L-marked to become transparent to antecedent government. ∅ not being lexical, it cannot L-mark NegP, and the structure is correctly ruled out by the ECP.

On this account, the fact that *leav-* and Agr + T are not contiguous plays no part in the explanation of the ungrammaticality of (99a–b). I will use this property of the analysis to account for the well-formedness of (101a–c), the S-Structure form of which is (102):

(101) a. John hardly speaks.
      b. John never reads.
      c. John seldom understands.

(102) [$_{TP}$ John [$_{T_i}$[$_{Agr_i}$[$_{V_i}$ ∅] Agr] T] [$_{AgrP}$ e$_i$ [$_{VP}$ Adv V]]]

Structure (102) obeys the ECP: *never, hardly, seldom* are generated in the VP-initial adverbial position of (1).[36] The only intervening category between the amalgamated ∅ + Agr + T and its trace is AgrP, a defective category, which, not being an intrinsic barrier, does not need to be L-marked. Affix Movement applies to (102) and affixes Agr + T to *leave*, disregarding the presence of lexical material between its source position and its target.

We have now arrived at a principled explanation for question (C):

(C) Why does the negative particle *not* block Affix Movement whereas other (negative) adverbs do not?

In effect, we are saying that Affix Movement as such is never sensitive to the presence of lexical material between its source position and its target. The phenomenon of which question (C) was supposed to be a description we have reinterpreted as involving Verb Movement of the null counterpart of *do*, ∅. Movement of a nonlexical element, like all instances of Move α, is of course constrained by the ECP; and it is the ECP, in conjunction with the analysis of *not* as an element of a NegP (either its head or its specifier; see (129) and section 6.5), that explains the different behavior of adverbs like *never, seldom, hardly* on the one hand and *not* on the other. This, again, seems to be a step forward.

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[36] A possibly preferable solution would be to analyze these adverbs as specifiers of a NegP with an empty head serving as a landing site to Verb Movement. If NegP only counted as an inherent barrier when its head was lexical, the HMC would allow (i), the derivation of (98) under this alternative:

(i) [$_{TP}$ John [$_{T_i}$[$_{Agr_i}$[$_{V_i}$ ∅] Agr] T] [$_{NegP}$ Adv e$_i$] [$_{AgrP}$ e$_i$ [$_{VP}$ V]]]

See section 6.3 for an analysis of *ne . . . pas/plus/point/guère/rien* along similar lines. (i) is incompatible with the alternative view of English NegP sketched in section 6.5 and footnote 51.

As the facts themselves obviously require,[37] our analysis of (96) and (98) carries over to (103) and (104):

(103) a.   Did John leave?
      b.   Does John leave?
(104) a.   *John left.
      b.   *John leaves?

Given the existence of the free variants *do* and $\emptyset$ in English, we must explain why (103a–b) are well-formed under the S-Structure representation shown in (105) and why (104a–b) are not under that in (106):

(105) $[_{CP}[_{C_i}[_{T_i}[_{Agr_i}[_{V_i}$ do] Agr] T]] $[_{TP}$ John e_i $[_{AgrP}$ e_i $[_{VP}$ V]]]]

(106) $[_{CP}[_{C_i}[_{T_i}[_{Agr_i}[_{V_i}$ $\emptyset$] Agr] T]] $[_{TP}$ John e_i $[_{AgrP}$ e_i $[_{VP}$ V]]]]

I have adopted here the standard analysis of so-called Aux-NP Inversion as movement of Infl (= Tense) to Comp (see Chomsky (1986a, 6)). It is easy to see that if TP is an inherent barrier, like NegP, the pair (103) versus (104) will be accounted for in exactly the same way as the pair (107) versus (108) (= (99)) namely, as an ECP violation:

(107) a.   John did not leave.
      b.   John does not leave.
(108) a.   *John not left.
      b.   *John not leaves.

Indeed, recall that (108) is excluded because (amalgamated Agr + T +) null $\emptyset$ cannot L-mark NegP. In (106) (amalgamated C + Agr + T +) $\emptyset$ cannot L-mark TP, contrary to *do* in (105). Hence, the ECP will be violated in (106), but not in (105), provided that TP is an inherent barrier. I will indeed adopt this conclusion.[38]

5.5.7. $\emptyset$, Be, and Have *in Imperatives and Declaratives.*   In the generation of declaratives like *John is happy*, the use of $\emptyset$ cannot result in a well-formed structure. To see why, consider (109):

(109) $[_{TP}$ John $[_{T_i}[_{Agr_i}[_{V_i}$ $\emptyset$] Agr] $-$ Past]$[_{AgrP}$ e_i $[_{VP}$ be A]]]

(109) is syntactically well-formed. It abides by the ECP, and [– Past] does bind a potential event variable. However, that variable is semantically ill-formed because t_i bound by $\emptyset_i$ cannot copy any θ-role (section 5.5.4) and thus fails to denote. In short, (109) is excluded for exactly the same reasons as its lexical counterpart *John does be happy.* This is how we account for the obligatoriness of *Be/Have* Movement in declaratives, which we have shown to be empirically well supported (see the discussion of (12) and

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[37] Recall that the "French" pattern of behavior for negation went out of the language at the same time as the "French" style of questions.
[38] Suggested on completely different grounds by Ambar (1987) and Frampton (1987). The latter work discusses the implications for *Wh* Movement at length, with TP a possible adjunction site for *wh*-words.

(75) versus (76)). Given our assumptions in section 5.5.5 concerning Imp, the same is *not* true of a sentence like *Be a good sport*. Here *be* need not move to Tense because Imp can "inherently" restrict the range of variation of the variable bound by [−Past]. As a consequence, imperative sentences with *be* can (must if the sketch in section 6.5 is on the right track) be analyzed as parallel to the well-formed *Do be a good sport*— that is, as containing ∅ in Tense.

As for simple imperatives like *Sing!*, the reader can easily check that their derivation is identical to that of affirmatives like *He sings*, that is, that it involves raising of ∅ to Tense and Affix Movement.

5.6. Summary

Let us briefly go over the results reached so far. We have now answered the five questions raised in section 1.2 in a principled way. We know that the lexical restrictions on Verb Movement to Tense in Modern English are a consequence of the poverty of its Agr(eement morphology), which renders it "opaque" to θ-role assignment. We know further that the ban on vacuous quantification explains why Verb Movement is obligatory in tensed clauses and why Affix Movement is disallowed in French tensed sentences. Finally, we have seen that the ECP explains why *not*, unlike *never* or *seldom*, seems to block Affix Movement in English and have explained why English allows it in contexts in which it cannot apply in French.

We have necessarily had to make a number of auxiliary hypotheses on the way, about the semantic import of Verb Movement, the structure of TP, auxiliary verbs, *do*, and imperatives. Some of them are very tentative. I feel they have received empirical and theoretical justification, however, although obviously one could—probably should, and no doubt will—question some of them. Nevertheless, the fact that they allow us to provide very general, conceptually simple solutions to a fairly wide array of data and problems is an indirect measure of their success.

The purpose of the next rather speculative section is to point to some consequences of these results for additional comparative work between French and English and to provide extra plausibility to the analysis of Verb Movement and the structure of TP by showing that it carries over to other constructions and languages in a revealing way.

6. Verb Movement and Further Aspects of Comparative Syntax

6.1. Gerunds in French and English

We noted earlier that dealing with the respective properties of the two much-simplified S-Structure representations of (110a–b) by saying that [±Past] does not behave like an operator in English would, all other things being equal, wrongly predict that (111b) is well-formed.

(110) a. $[_{TP}$ Jean $[_{T_i}$ embrasse$]$ e_i $[_{VP}$ e_i Marie$]]$
        b. $[_{TP}$ John $[_T[_{VP}$ kisses Mary$]]]$

(111) a.   Not to kiss Mary . . .
      b.   *He not kisses Mary.

French and English gerunds, however, exhibit systematic differences in behavior that it is tempting to interpret in this way. Gerunds in French pattern with tensed sentences with respect to sentence negation, adverbs, and floating quantifiers, whereas they pattern with infinitives in English:

(112) a.   N'étant pas intéressé par la syntaxe, Pierre fait de la phonologie.
      b.   *Ne pas étant intéressé par la syntaxe, Pierre fait de la phonologie.
      c.   Ne travaillant pas (beaucoup), Pierre a échoué.
      d.   *Ne pas travaillant (beaucoup), Pierre a échoué.
      e.   Mes amis embrassant tous ma fille, je l'enferme.
      f.   *Mes amis tous embrassant ma fille, je l'enferme.
      g.   Mes étudiants ne faisant rien, ils seront collés.
      h.   *Mes étudiants ne rien faisant, ils seront collés.
(113) a.   ?Being not interested in syntax, Peter works in phonology.
      b.   Not being interested in syntax, Peter works in phonology.
      c.   *Working not (much), Peter flunked.
      d.   Not working (much), Peter flunked.
      e.   *My friends kissing all my daughter, I lock her up.
      f.   My friends all kissing my daughter, I lock her up.
      g.   *My students working not at all, I'll fail them.
      h.   My students not working at all, I'll fail them.

In view of such contrasts, let me indeed suggest that gerunds in French are finite structures. In English, on the other hand, Tense in gerunds has nonfinite properties. As a consequence, Affix Movement will result in a violation of the ban on vacuous quantification (70) in French (whence (112b,d,f,h)) but will yield a well-formed structure in English. We will account for (113c,e,g) as we accounted for comparable data in infinitives: gerunds contain a covert opaque Agr that, in conjunction with the HMC, prevents all θ-role-assigning verbs from reaching (opaque) Tense. The marginal character of (113a) should be viewed in the same light as the marginal character of *Be/Have* Movement to (Agr to) Tense in infinitive constructions like (21b,d,f).

The difference in feature composition thus postulated should not be overly controversial since it is well known that many French infinitives can only be rendered by gerunds in English:

(114)   Pierre insiste pour travailler sur ce projet.
(115) a.   *Peter insists on (to) work on this project.
      b.   Peter insists on working on this project.

I will assume that exposure to structures like (115b) suffices for the language learner to attribute the right feature composition to the head of gerunds.[39]

6.2. Aux-to-Comp in Romance

The phenomena described under the "Aux-to-Comp" heading are well known and have been fairly intensively described in the recent literature (see Rizzi (1982, chap. 3), Raposo (1987), among many other studies). My purpose here is not to provide any new insight concerning pairs like (116a–b) in Italian or (117a–b) in Portuguese but to concentrate on the lexical restrictions to which the rule is sensitive.

Aux-to-Comp is the rule that is responsible for the Case assignment on the subject of the infinitive in (116b) and (117b) ((116a) = (3b) and (116b) = (6b) in Rizzi (1982)).

(116) a. *Mario affermava questa donna   non volerlo sposare.
          Mario stated   this   woman not to want to marry him
      b. Mario affermava non esser lui   in grado di affrontare la   situazione.
          Mario asserts   not to be he/him able   to face   the situation
(117) a. *O Manel pensa os amigos terem   levado o   livro.
          Manuel   thinks his friends to have + Agr taken   the book
      b. O Manel pensa terem os amigos levado o livro.
          (same as (117a))

In Italian it can take place in a variety of sentence types: in infinitives like (116b) but also in subjunctives and gerunds. Judging from Rizzi's account of the relevant facts, it appears that all constructions undergoing the rule are on the stylistically "marked" side (see his footnote 9). What is remarkable from the point of view of this article is that there is a significant contrast between infinitives on the one hand and other sentence types on the other. The former seem to allow only *essere* 'be', *avere* 'have', and modals like *dovere* 'must', *potere* 'can', *volere* 'want'. Aux-to-Comp in gerunds and subjunctives, on the other hand, seems to "relax the 'auxiliary-hood' requirement in certain cases" (see Rizzi (1982, 112–113) and especially the contrast between his (i) and his (ii)).

In view of the similarity between the lexical restrictions on Aux-to-Comp in infinitives and those holding on Verb Movement to (Agr to) [−finite] Tense in French, it is tempting, perhaps mandatory, to try to account for them in a unified fashion.

In the *Barriers* framework, Aux-to-Comp can only be analyzed as an instance of Move α with α = V. Consequently, it must be (re)analyzed as Verb Movement to Infl to Comp. Assuming our preceding conclusions to be correct, we reinterpret it as Verb Movement to Agr to Tense to Comp. Italian Agr being at least as "transparent" to θ-role assignment as French Agr (a conclusion forced on us by the morphological "rich-

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[39] Subjunctive constructions like *It's essential that he not leave* could be analyzed along the same lines as English gerunds (that is, as involving a nonoperator Tense) or as involving a null modal verb blocking Verb Movement to Tense as suggested in Roberts (1985).

ness'' of Agr in pro-drop languages like Italian and Portuguese), the restriction can only be on Agr to Tense or Tense to Comp. It is in fact extremely difficult to think of data that would unambiguously choose one of the two possibilities.

If Tense to Comp were involved, we would have to assume that Agr to Tense in Italian and Portuguese infinitives was not lexically restricted, contrary to what prevails in French, thus implicitly postulating a significant difference between the feature composition of infinitives in Italian/Portuguese and their feature composition in French. This hypothetical difference we might in turn want to use to explain why Aux-to-Comp does not exist in (Modern) French, which in turn might perhaps be related to the disappearance of infinitives like *Penso di partire* (compare **Je pense de partir* and *Je pense partir* 'I think (of) to go') and the nonexistence of forms like *Penso di no/si* 'I think of no/yes' in French.

No such difference would have to be postulated if the Agr to Tense step was responsible for the lexical restrictions on Aux-to-Comp, the disappearance of which in French would then be considered orthogonal to the question at hand.

Whichever of these two possibilities turns out to be correct, it should be noted that our previous analysis of Verb Movement will provide a desirable generalization with French and English. In our framework, the lexical restrictions on either step will be analyzed as a manifestation of a θ-Criterion violation stemming from a conspiracy between the HMC and θ-theory requiring Verb Movement to an opaque position (whether it be [$-$finite] Tense or Comp). In other words, despite the unsolved problem just noted, the proposed analysis does provide an integrated description of the lexical restrictions on Verb Movement in English, Italian, and French, a welcome result.

The lexical restrictions on Verb Movement to (Agr to Tense to) Comp in Portuguese are very similar to those of Italian, thus suggesting very strongly that they should be dealt with in essentially the same way. The rule yields well-formed sentences with the two copulas *estar* and *ser, ter* 'have', and modal verbs like *poder* 'can', *dever* 'must', and *querer* 'want'. I will suppose that θ-theory can be appealed to here as well in conjunction with the idea that Agr-to-[$-$finite] Tense or Tense to Comp is movement to an opaque position.

It should be stressed, however, that Aux-to-Comp may well have a slightly larger domain in Portuguese than in Italian because of the following well-formed examples ((118a–c) = (84), (85), and (86) in Perlmutter (1976)):

(118) a.   Ele disse existirem   muitos candidatos nesta eleição.
            he   said exist + Agr many   candidates in this election
            'He said there are many candidates in this election.'

      b.   Ele disse acontecerem coisas como essas só nos Balcãs.
            he   said happen + Agr things like   these in the Balkans
            'He said things like these happen in the Balkans.'

      c.   Ele disse surgirem   controvérsias como essas.
            he   said crop up + Agr controversies like   these
            'He said controversies like these crop up.'

If such sentences are indeed examples of Verb Movement to (Agr to Tense to) Comp, they contrast with the ill-formed French examples in (119a,c,e):

(119) a. *Les choses que je croyais n'exister pas existent.
      the things that I thought *ne* exist not exist

    b. Les choses que je croyais ne pas exister existent.
      the things that I thought *ne* not to exist exist
      'The things that I thought didn't exist, exist.'

    c. *Les choses que je croyais ne se produire pas se produisent.
      the things that I thought *ne* to happen not happen

    d. Les choses que je croyais ne pas se produire se produisent.
      the things that I thought *ne* not to happen happen
      'The things that I thought didn't happen, happen.'

    e. *Les controverses que je croyais ne surgir   pas surgissent.
      the controversies that I thought *ne* to crop up not crop up

    f. Les controverses que je croyais ne pas surgir   surgissent.
      the controversies that I thought *ne* not to crop up crop up
      'The controversies that I thought didn't crop up, crop up.'

If the examples in (118) really are what they appear to be—note that all the verbs involved in those examples are unaccusatives, which could indicate that they do not involve Verb Movement to Comp at all—our previous analyses force us to suppose that the Portuguese counterparts of verbs like *exist, happen*, and *crop up* can fail to be θ-role assigners. One might perhaps suggest that this is possible in Portuguese but not in French because Portuguese has two copulas differing in aspectual properties. This might allow speakers to consider the verbs in (118) as aspectual alternates of *ser* analyzed as *be/être* were in section 4.2. Should this rather speculative suggestion prove tenable, we would add Portuguese to the list of languages amenable to our account of the lexical restrictions on Verb Movement.

6.3. Verb Movement to (Agr to) Tense in Italian and French Participles and Infinitives

French and Italian exhibit a number of rather surprising syntactic differences that it is tempting to interpret as the surface manifestation of the respective scope of Verb Movement to Agr or Verb Movement to Agr to [−finite] Tense in the two languages. Recall that in section 1 we analyzed pairs like (120a) versus (120b–c) in terms of Verb Movement to Tense:

(120) a. Jean ne mange plus/rien/pas.
      Jean *ne* eats   no more/nothing/not
      'Jean doesn't eat any more/anything/—.'

    b. Jean n'a   plus/rien/pas   mangé.
      Jean *ne* has no more/nothing/not eaten
      'Jean hasn't eaten anything more/anything/—.'

    c. *Jean n'a mangé plus/pas/rien.
      (same)

As noted there, this account presupposes that the participle *mangé* does not move up to [±Past] Tense. The pair in (121) and (122) were also analyzed in terms of Verb Movement with *manger* not moving up to [−finite] Tense for reasons described at length above.

(121) a.   pour ne pas manger
         for   *ne* not to eat

      b.   *pour ne manger pas
         (same)

(122) a.   Pierre dit   ne pas manger.
         Pierre says *ne* not to eat

      b.   *Pierre dit   ne manger pas.
         Pierre says *ne* to eat   not

Interestingly enough, Italian has no such contrast between the order of negative adverbs in finite clauses and their order in infinitives:

(123) a.   Gianni non mangia più/niente/mica.
         Gianni *non* eats   no more/nothing/not a thing

      b.   per non mangiare più/niente/mica
         for *non* to eat   no more/nothing/not a thing

      c.   *per non più/niente/mica mangiare
         (same)

More generally, Italian seems to disallow infinitives of the form *Adv/Q + nonfinite V + Complement* that are common in French and requires the same ordering as in tensed sentences. For example, the Italian counterparts of the sentences in (24) and (25) are ill-formed and only (some of the sentences in) (27) would yield an acceptable word-for-word translation. If this is indeed the correct situation,[40] it is tempting to try to analyze these differences in terms of Verb Movement.[41] If Italian required Verb Movement to Agr or Verb Movement to Agr to Tense in infinitives, the facts would follow straight-forwardly. Again, as in the previous section, it is very difficult to choose between the two possible analyses.

If the first alternative proved correct, it could be suggested that the pro-drop para-meter was involved. We might claim, for instance, that Agr in Italian infinitives is too

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[40] The facts seem to be sometimes a little murky. For example, judging from Battye (1983, 96), some speakers marginally accept constructions like (i) whereas others reject them. (ii), the French counterpart of (i), is perfect:

   (i)   ??una proposta da ben considerare
   (ii)   une proposition à bien considérer
        'a proposal to take seriously'

[41] As suggested by R. Kayne in his 1986 class lectures at MIT (see Rizzi (1987a)). He proposed that obligatory Verb Movement to Tense was involved in Italian. Because of the distinction between Verb Move-ment to Tense and Verb Movement to Agr we have argued for here, we have a choice he did not have to make.

"rich" (despite its nonlexical nature in infinitives) to undergo Affix Movement. Such an approach, recently advocated in Belletti (1988), would seem to predict that all pro-drop languages should behave like Italian with respect to the ordering of adverbs in infinitives. R. Kayne (personal communication) informs me that certain varieties of Occitan seem to be counterexamples to this claim.

Under the second alternative, we would have to claim that Italian infinitives can sometimes behave like tensed clauses with respect to Verb Movement (that is, they would contain a Tense behaving like an operator, thereby prohibiting Affix Movement (see section 5)).

Since an analysis of all the data necessary to settle the problem is clearly beyond the scope of this article, I will leave it open and briefly turn to a comparison between Verb Movement in French infinitives and Verb Movement in French participles, two sentence types that exhibit contrasts that might indirectly bear on the question. To start with, observe that both sentences in (124) are ill-formed, as we would expect:

(124) a. *Je n'ai   mangé pas.
         I *ne* have eaten   not
      b. *Pierre dit   ne manger pas.
         Pierre says *ne* to eat   not

However, there is an unexpected contrast between the sentences in (125):

(125) a. *Je n'ai   mangé point/plus/rien.
         I *ne* have eaten   not/no more/nothing
      b. (?)Pierre dit   ne manger point/plus/rien.
         Pierre says *ne* to eat   not/no more/nothing

Although the sentences in (125a) are clearly impossible, those in (125b) strike most speakers as perfect, with at worst a slightly literary ring to them (whence the optional question mark). Why should that be so? The question has clear implications for the analysis of participial clauses. Let us start with the observation that infinitives and participles contrast sharply with respect to their ability to take sentence negation. Infinitives allow *ne pas*, participles do not (see Kayne (1975, 199)):

(126) a. Pierre dit   ne pas manger.
         Pierre says *ne* not to eat
         'Pierre says not to eat.'
      b. *Pierre a   ne pas mangé.
         Pierre has *ne* not eaten

We will analyze (126a–b) as being due to the absence of Tense in participial structures with *ne* requiring Tense, on the one hand, and *pas* (similarly *plus, rien, point*, and so on) having to be "close enough" to *ne*, on the other hand.

Most generative work on the question gives this traditional idea a binding-theoretic execution (see, for example, Milner (1982, 186–223), Pica (1986), among many others).

In a spirit close to recent work by Kayne and Pica (see Kayne (1987), Pica (1987)), let us try to give it instead a structural execution, an a priori much more plausible approach.[42]

Suppose in particular that *ne* is typically the head of the French NegP, with *pas* its typical specifier. I will also assume that *point, plus, guère* are specifiers of a negative adverbial position in VP-initial position, with *ne* again a head. Finally, I will assume that *ne* is also the head of a negative NP generated in an A-position, with *rien* a specifier (see (129)).

(127)
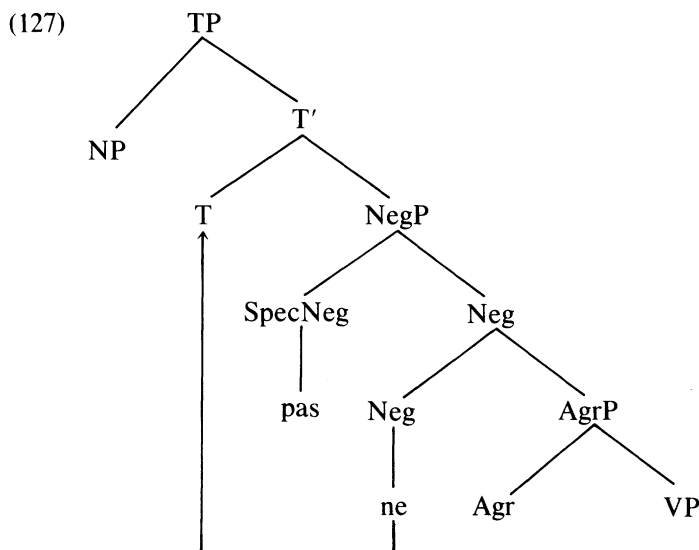
Because *ne* is a clitic, it must, like other clitics, move to (some) Tense (position), as shown in (127). Because participles do not have a Tense position, cliticization within the participle itself is impossible, whence the ungrammaticality of (126b), thus viewed as the negative counterpart of the equally impossible (128a–b):[43]

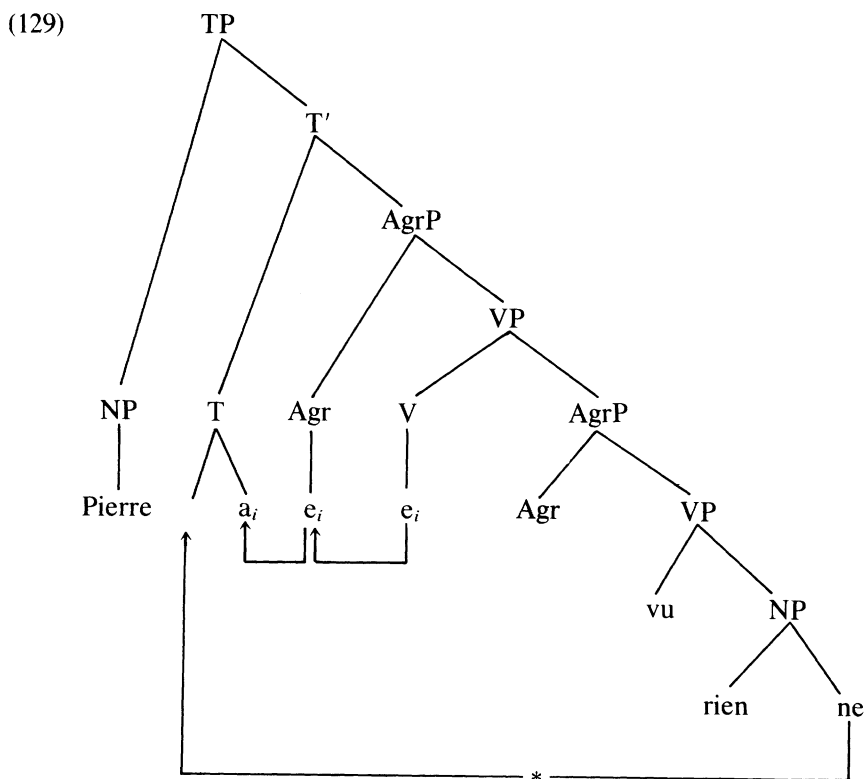(128) a. *J'ai   le mangé.
          I have it eaten

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[42] Because a "naive" (and I think essentially correct) view of binding theory would lead one to adopt it only to deal with anaphoric dependencies between arguments. Neither *plus* nor *point* nor even *rien* can even remotely be considered like R-expressions. For a critical discussion of part of the empirical evidence Milner (1982) is based on, see Muller (1984, 81).

[43] This approach thus expresses a correlation first conjectured by Kayne (1975, 199), although it cannot directly capture the clitic-ordering results of Kayne (1987, sec. 5); the latter fits the clitic-ordering results but does not directly express the *ne*-clitic correlation. The structures in (127) and (129) remain vague concerning the exact position in Tense *ne* moves up to. In a spirit similar to that of Rizzi (1987b), I am tacitly assuming that Tense will have to include a variety of different positions, one for tense itself, of course, but also others for subject and object clitics and one for negative clitics like French *ne*. That *ne* is in Tense at some suitable level seems to be shown by (i):

(i) N'est-il pas venu?
     ne is he not come
     'Hasn't he come?'

b. *Tu as   lui   parlé.
you have to him spoken

The next step is to say that *ne*, unlike referential clitics, cannot "reach" the appropriate Tense above the participle SC from a position within the small clause itself. This impossibility seems to be yet another manifestation of the ECP. Indeed, consider structure (129) (corresponding to a sentence like *Pierre n'a rien vu* 'Pierre *ne* has nothing seen = Pierre has seen nothing'), where *rien . . . ne*, the object of the participle, stands in its base position:

(129)

```
                    TP
                   ╱╲
                  ╱  ╲
                 ╱   T′
                ╱   ╱╲
               ╱   ╱  ╲
              ╱   ╱  AgrP
             ╱   ╱   ╱╲
            ╱   ╱   ╱  ╲
           ╱   ╱   ╱   VP
          ╱   ╱   ╱   ╱╲
         ╱   ╱   ╱   ╱  ╲
        ╱   ╱   ╱   ╱    ╲
       NP   T  Agr  V    AgrP
       │   ╱╲   │   │    ╱╲
       │  ╱  ╲  │   │   ╱  ╲
     Pierre aᵢ eᵢ  eᵢ  Agr  VP
                               ╱╲
                              ╱  ╲
                             vu  NP
                                 ╱╲
                                ╱  ╲
                              rien  ne
```

Suppose that *ne*, unlike referential clitics like *le, en, lui,* cannot adjoin to the lower Agr. If so, VP will remain a barrier to movement of *ne* because the lower VP will fail to be L-marked: (the trace of) *a* can only L-mark AgrP, not VP. So the direct movement of *ne* to Tense shown in (129) is excluded by the ECP. Similar movement of *en* or *le,* as in *Pierre en a vu (trois)* ('Pierre some/(of them) has seen (three) = Pierre has seen some/(three of them)') or *Pierre l'a vu* ('Pierre him/it has seen = Pierre saw him/it') would not be because *en* and *le,* like other referential clitics, can move through Agr, thereby L-marking VP and thus voiding barrierhood (see Kayne (1987)).

In fact, given this framework, *ne* could only escape from the VP inside the participial

SC by adjoining to VP. But because *ne* is a head and therefore must obey the HMC, it cannot.

However, the phrase of which *ne* is the head *can* adjoin to VP. We in fact know this quite independently: colloquial French has well-formed sentences like (130) in which *rien/plus* (also *jamais/point*, and so on) clearly stand in the adjoined position to the subordinate tensed clause:

(130) a.   Il (ne) faut rien   que tu   dises.
          it *ne*   must nothing that you say
          'You mustn't say anything.'
      b.   Il ne faut plus que tu   parles.
          it *ne* must more that you speak
          'You mustn't speak anymore.'

Given the adjunction in (130), the idea that *rien/plus* . . . *ne* can be adjoined to VP is clearly natural. From that adjoined position within the participle SC I will assume that it can again be adjoined to the higher VP, yielding the structure shown in (131):

(131)
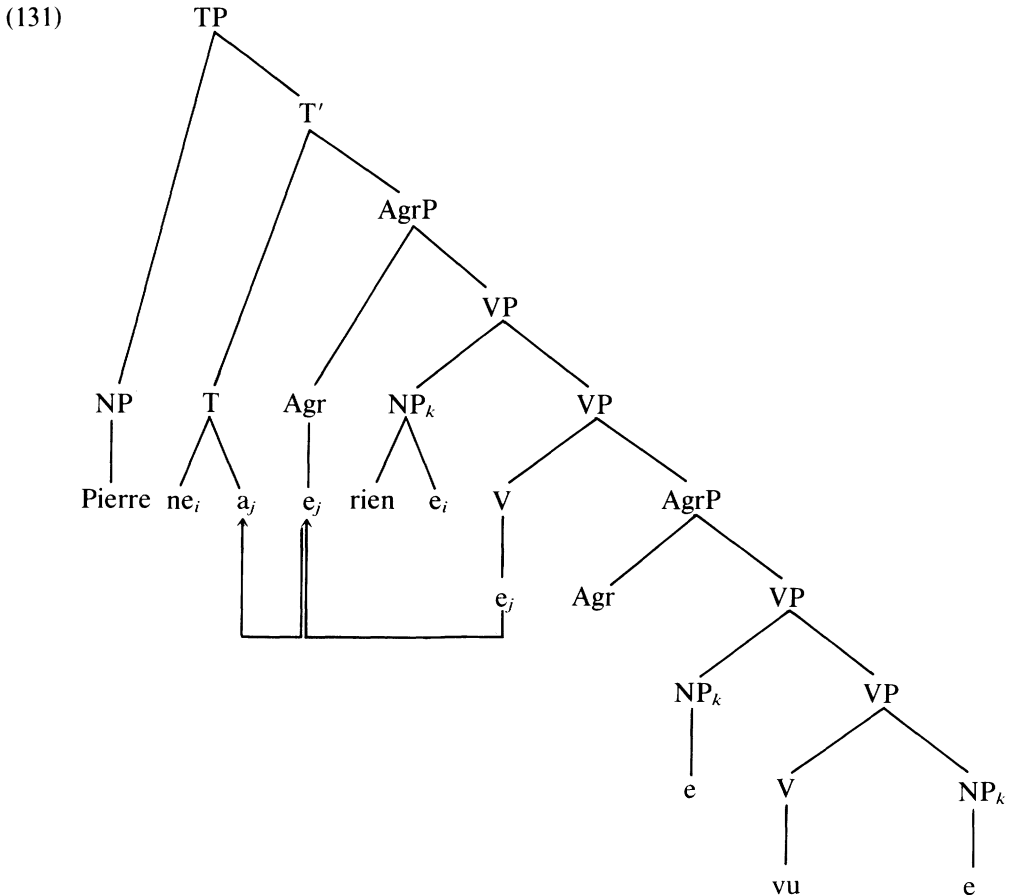
Adjunction to the lower and higher VPs voids barrierhood. In (131) *ne* can move to Tense without violating the ECP since (the trace of) *a* L-marks VP. Therefore, the structure is well-formed. Let me again repeat that a sentence like *Pierre en a vu trois* or *Pierre l'a vu* does not (in fact *cannot*) involve NP adjunction: only quantifierlike elements such as *rien . . . ne* and *plus . . . ne* can be adjoined to VP.

Now short Verb Movement (that is, Verb Movement to Agr) can take place in the participial clause. Sentences like (133a–b) are well-formed; in fact, they sound just as natural to my ear as (132a–b):

(132) a. Pierre a presque mis fin au conflit.
          'Pierre has almost put an end to the conflict.'
      b. Pierre a à peine vu Marie.
          'Pierre has hardly seen Marie.'
(133) a. Pierre a mis presque fin au conflit.
          (same as (132a))
      b. Pierre a vu à peine Marie.
          (same as (132b))

Recall from section 2.4.1 that *à peine* and *presque* can only be generated in a VP-initial position. Therefore, the participle in (133a–b) has necessarily moved to the lower Agr. If so, what blocks movement of the participle to the top Agr? The answer is simple. If it moved there, *avoir* could no longer move to Tense: there would be a head (the top Agr occupied by the participle) between it and its target position, Tense. But because of quantification theory *avoir* must move to Tense. If it does, the HMC is violated; if it does not, quantification theory is violated, because Tense cannot bind an event variable (that is, the sentence cannot denote).

In short, the ECP explains both why negative phrases like *rien . . . ne/plus . . . ne* must adjoin to VP or be generated there and why Verb Movement to Agr can only move a participle to its lower Agr.

Now consider infinitives. Their structure is essentially that of tensed clauses, except for the nature of their Tense (section 2.1). As a consequence, the D-Structure representation of the well-formed (125b) is as shown in (134):

(134)   [Pierre dit [$_{TP}$ PRO [Tense] [$_{AgrP}$ Agr [$_{VP}$ manger [rien ne]]]]]

Movement of *ne* to Agr is impossible, as above. Therefore, direct movement of *ne* to Tense is also impossible: VP remains a barrier. As in participles, *rien + ne* must adjoin to VP, voiding barrierhood. From that adjoined position *ne* moves to Tense. *Ne + T* L-marks AgrP, voiding barrierhood.[44] If nothing further happens, this yields *Pierre dit*

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[44] As is well known, *ne* in Modern French is not phonetically present in tensed sentences in ordinary conversation. To my ear the same is not always true in infinitives: I find sentences like ??*Pierre dit ∅ rien manger*, ??*Pierre dit ∅ plus comprendre* distinctly odd. That contrast is expected in the framework proposed here. In tensed clauses Verb Movement to Agr to Tense ensures L-marking of AgrP. In infinitives Verb Movement to Tense is impossible; therefore, *ne* should tend to remain lexical if "L-marking" means, in the unmarked case, "marking by a lexical item at S-Structure and PF." Acceptable sentences like *C'est malin de*

ne rien/plus/point manger. Verb Movement to Agr is free to apply, however. If it does, *manger* "hops" over the adjoined phrase, yielding the perfect (albeit slightly literary) *Pierre dit ne manger plus/guère/rien/point.* However, short Verb Movement cannot yield **Pierre dit ne manger pas* because the NegP *pas . . . ne,* unlike *plus/point . . . ne,* is generated above the AgrP and cannot occur in the adverbial VP-initial position. Such sentences can therefore only be derived by Verb Movement to Tense, which is blocked for lexical verbs by θ-theory in conjunction with the suggestion made in section 4 that [−finite] Tense is "opaque" to θ-role assignment.

Observe finally that all elements traditionally assumed to be somehow "dependent" on *ne* do not behave like *rien, plus, point,* and so on. *Personne,* for instance, can (indeed, must) occur in postparticipial position, as shown by the pair in (135):

(135) a. Je n'ai   vu   personne.
           I *ne* have seen nobody
     b. *Je n'ai personne vu.
         (same)

This will be described in our framework by saying that *personne* and *ne* do not form a constituent—in particular, that *personne* is the head of its NP and that *ne* is plausibly base-generated in the specifierless NegP above the participial SC.[45]

It could be that languages as close to one another as French and Italian still differ with respect to the way they analyze certain phrases. *Niente* 'nothing', for example, could perhaps still be analyzed like *personne* rather than like *rien.* If such was the case, the fact that a sentence like (136) is fine, as opposed to (137), would simply reflect that lexical difference.

(136) Non ho   visto niente.
       non I have seen nothing
(137) *Je n'ai   vu   rien.
       I *ne* have seen nothing

6.4. Modern English versus Old and Middle English

It seems fitting to end this work with a short note about the history of Verb Movement and the auxiliary system in English. Clearly, as pointed out earlier, our analysis of Modern English Verb Movement should say something about the history of the language.

Like Roberts (1985), although in a notably different fashion, I have implicitly attributed the present properties of Verb Movement in English to the disappearance of a morphologically "rich" system of agreement inflections. In the terms adopted in sections

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jamais dire la vérité 'It's silly to never tell the truth' and *C'est bien de plus fumer* 'it's good to no more smoke = It's good not to smoke anymore' either show that the requirement of PF lexicality is sometimes relaxed (with *de + ne → de + ∅* a PF rule) or that *de* can L-mark AgrP.

[45] An anonymous *LI* reviewer points out that "in some idiolects of speakers of Genevan French" sentences like (135b) are well-formed, which indicates even greater variability than that postulated in the text.

3 and 4 only a "rich" enough Agr can be "transparent" to θ-role assignment. Because English lost most of its verbal inflections, Agr became "opaque" to θ-role assignment, whence the loss of its previous general Verb Movement to (Agr to) Tense, which became restricted to *be/have*. The crucial fact, as Roberts points out, seems to have been the loss of plural agreement.[46] This meant that preterits showed no person agreement and that ultimately (because *thou* became obsolete in the sixteenth century) only third person singular retained a distinct ending.

It should be noted that although French Agr is relatively impoverished when compared with the Agr of other Romance languages (no phonetic distinctions remain between first, second, and third person singular), it does have a plural agreement of a robust kind (for example, *chanter* 'sing': 1, 2, 3pl. pres. *chantons/chantez/chantent*, 1, 2, 3pl. imperf. *chantions/chantiez/chantaient*, 1, 2, 3pl. indic. pret. *chantâmes/chantâtes/chantèrent*, and so on).[47]

It is likely that the rise of a syntactically well defined class of modal verbs in English is to be related to loss of "transparent" Agr, although things might be more indirect than currently thought. Similarly, the rise of so-called periphrastic constructions might have been favored by this loss (see Jespersen (1938, 194)).

I would like to speculate here on an often noted phenomenon in the history of English that, to the best of my knowledge, has so far eluded any precise analysis. It concerns the rise of "auxiliary" *do*, described as follows by Jespersen (1938, 195):

> At first it [auxiliary *do*] was used indiscriminately without any definite purpose. In some poets such as Lydgate, in the beginning of the fifteenth century, it served chiefly to fill up the line and to make it possible to place the infinitive at the end as a convenient rime-word. . . . The culmination was reached in the sixteenth century, when it might almost seem as if all full verbs were "stripped of all those elements which to most grammarians constitute the very essence of a verb, namely, the marks of person, number, tense and mood" (Progress in Lang. 124), leaving them to lesser verbs placed before them. But then a reaction set in and gradually restricted the use of *do* to those cases that are well known from grammars of Present English.

If the description is correct,[48] this is a most surprising development. Why should *do*

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[46] Readers familiar with the classical literature on the history of English (see, for example, Mossé (1959, vol. 1, chap. 10 and vol. 2, 111–123), Jespersen (1959, part 6, 6–23)) will have perceived that this hypothesis rests on a considerable idealization of data that ignores many intricate geographical variations and similarly simplifies the finer details of the chronology of the disappearance of the plural endings. As is often the case with parameters involving morphological properties (for example, Taraldsen's (1978) original formulation of the pro-drop parameter; see footnote 47), ours would require detailed dialectological investigation clearly beyond the scope of this article.

[47] Incidentally, this should suffice to show that the link between the pro-drop phenomenology and relative poverty of Agr is far from direct, an observation reinforced by the fact that the French subjunctive, with its weak agreement, does allow a limited amount of null subjects and free inversion (for example, *Je veux que Ø soit procédé à la vente* 'I want that Ø be proceeded to the selling = I want the sale to start', *Il faudrait que e_i viennent plus de linguistes_i à nos réunions* 'it must that come more linguists at our meetings = It'd be nice if more linguists came to our meetings')). On these, see Pollock (1985b).

[48] Judging from the statistics reported in Roberts (1985, 45), it is.

lose its grip in this way? Surely, Jespersen's talk of "reaction setting in" is at best metaphorical.

Here is what our previous analysis suggests. Suppose loss of plural agreement does make Agr opaque to θ-role assignment, as above. But suppose that, perhaps because of lingering second person singular agreement, AgrP in the sixteenth century remains an inherent barrier. If this is so, then not only are all verbs except *be/have* prevented from reaching Tense, as in Modern English, but also use of "null *do*" cannot result in a well-formed structure since, by definition, Ø cannot L-mark AgrP. It is only at the beginning of the seventeenth century, when AgrP became fully defective, that use of Ø emerged as a productive process, whence the gradual disappearance of nonemphatic *do* in affirmative declarative sentences.[49]

6.5. Conclusion

Although this article draws heavily on some very recent theoretical developments in the principles and parameters framework of generative grammar, it should be obvious that it crucially relies and elaborates on one fundamental intuition that goes back to the earliest work in generative grammar: without the idea proposed in Chomsky (1955) that Tense and Agreement morphemes should be analyzed as separate syntactic entities at an abstract level of representation, it would have been impossible to formulate any of the analyses suggested here.

Insofar as my elaboration on this idea succeeds in integrating into a coherent body of principled explanations a variety of seemingly unrelated phenomena in quite a few languages, I take it that the fairly "abstract" conception of syntax and morphology on which it is based should be considered to have received fresh support.

The chief variations on this fundamental idea that I have put forward here are, to my mind, the following:

(a) There exists an AgrP in French and English. It is "defective" in (Modern) English (that is, it is not an inherent barrier) but not in French. AgrP in both languages is a complement of Tense or Neg.

(b) IP, the entity traditionally called "sentence," should be analyzed as TP and seems to be an inherent barrier. If true, this will have a variety of consequences for the

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[49] It could be suggested that the change was gradual because although our grammar is an attempt at describing an idealized speaker's I-language (see Chomsky (1988a)), statistics are based on texts that reflect uses of conflicting or nonhomogeneous I-languages. Concerning emphatic *do* itself, it might be suggested that it is to be analyzed as "ordinary" *do* reassigning the copy of the main verb's θ-grid, with double assignment of the same θ-grid interpreted as "emphatic." So far I have not offered any account for the absence of nonemphatic *do* in Modern English: I have only provided a tentative explanation for why nonemphatic *do* ceased to be required in the sixteenth century. Perhaps there is an "Avoid Do" principle in the grammar of Modern English falling under some version of Chomsky's (1981) "Avoid Pronoun" principle, itself conceivably the by-product of some more general "least effort" principle (see Chomsky (1988b, 17)).

analysis of Case assignment and proper government of subject NPs, to name just two areas for which this idea has consequences.

(c) There exists a NegP in both languages, also an inherent barrier.[50]

In French *ne* is the head of NegP and is cliticized to some position in TP. *Pas* is a specifier of that phrase. *Ne* is also the head (1) of a negative AdvP generated in the VP-initial position and (2) of NPs with *rien* as a specifier.

The internal structure of English NegP is more problematic. If, as tentatively suggested so far, *not* is the head of NegP, then some version of Rizzi's "relativized" minimality must be adopted since *not* does not block movement of *be/have/do* to TP. Although it lacks the overt (synchronic) support it has in French, one could adopt the alternative idea that NegP in English has a null head and that *not* stands in its specifier position, like *pas* in French. This would allow us to preserve an "absolute" version of minimality, at least for the problems at hand, since the pertinent verbs would move through the empty head position of NegP on their way to Tense.[51] The rest of our analysis would remain the same; in particular, as above, "null *do*" (= ∅) would be prevented from moving up to Tense when NegP is present, since it would fail to L-mark it. Of

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[50] Independently of the arguments made here in favor of NegP, Kayne (1987, secs. 5 and 6) provides strong evidence for such a phrase in Italian and French by showing that the ECP and the idea that *ne/non* is a head can explain why clitic climbing is blocked in sentences like (ib) (Italian) and (iib) (French):

   (i) a. Gianni vuole non vederli.
          Gianni wants not to see them
     b. *Gianni li   vuole non vedere.
          Gianni them wants not to see
     c. Gianni vuole vederli.
          Gianni wants to see them
     d. Gianni li   vuole vedere.
          Gianni them wants to see
  (ii) a. Jean/Cela l'a fait   manger à l'enfant.
          Jean/that it has made eat   to the child
          'Jean/That made the child eat it.'
     b. *Jean/Cela l'a fait   ne pas manger à l'enfant.
          Jean/that it has made *ne* not eat   to the child
          ('Jean/That made the child not eat it.')

Naturally, the idea that there is a NegP in English and Romance does not commit me to the view that there is one universally: languages could differ precisely in that some could have a NegP and others could have a purely adverbial Neg. Perhaps Scandinavian languages are of the latter type (see footnote 3). In other languages Neg might be a specifier of Tense. Many other typological variations concerning the status of Neg readily come to mind. See also footnotes 19 and 32.

[51] Under this alternative, one could push things one step further and analyze the *so* of sentences like (i) as another (positive) specifier of the same maximal projection (which we might then want to call *Ass(ertion)P*):

   (i) He did so faint.

"Emphatic" *do* as in (ii) (= (i) with null specifier)

   (ii) He did faint.

would then be analyzed on a par with negative *do*: both would be required to L-mark AssP. This, again, would be a "modern" rendering of an idea from Chomsky (1955). If this speculation proved tenable, one might suggest that the raison d'être of our descriptive principle (91), if correct, is the presence of Imp in the head position of AssP, blocking Head-to-Head Movement.

course, this unconventional analysis of NegP in English and relativized minimality might both turn out to be correct. Still, as far as I can see, the facts studied here are neutral with respect to Rizzi's redefinition of minimality.

Results (a), (b), and (c), when used in conjunction with the θ-Criterion and the Head Movement Constraint, yield a coherent and explanatorily interesting account of the comparative problems we set out to describe in this work.

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