

**SKETCH OF
A REDUCTIONIST APPROACH TO
SYNTACTIC VARIATION AND DEPENDENCIES***

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Abstract: I begin by outlining some restrictive conditions on linguistic variation. I programmatically suggest that syntactic structure is completely invariant and that variation is strictly limited to morphophonological properties of (functional) heads. With this background, I explore a strongly reductionist program according to which syntactic properties are licensed by one of two mechanisms: spec/head licensing and incorporation. If necessary, these licensing configurations are arrived at by movement. The case of incorporation licensing subsumes head government and applies to strictly local relationships. The case of Spec/head applies to all other syntactic relationships involving c-command such as scope (wh-dependencies, quantifier scope, negative quantifiers, polarity quantifiers), clause typing and polarity (question/statement, affirmation/negation), focus constructions, clitic constructions, all anaphoric binding relations, Case assignment, theta assignment... The general idea is that each of these construction involves a particular property (Case, Theta, Wh-question, Scope of various kinds, Focus...) that we treat as a polarity property licensed in the specifier position of a designated licensing head. In other words, polarity items proper, or the current conception of wh-movement as a privileged relation to [spec,CP] with an appropriate content for C, are paradigmatic of all these syntactic dependencies: each (natural class of lexical) property is uniquely licensed in the specifier position of a particular head for that property. Licensing this property will (in general) require movement to a specific landing site, namely the specifier of the appropriate licensing head.

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1. Some Restrictive Boundary Conditions

I want to explore a strongly universalist and reductionist view of syntactic theory that seeks to radically restrict the inventory of: (i) variations between different languages and (ii) variations among different processes. The general proposal is that (surface) syntactic structure is crosslinguistically invariant, principles are not parametrized and variation is essentially confined to the pairing between morphophonological properties and semantico-syntactic properties of morphemes.

Syntactic theory has so developed in recent years that some fairly radical hypotheses can be entertained concerning crosslinguistic variation. In the principle and parameters approach (see Chomsky, 1981), languages are seen as sharing a common core grammar of available principles. With some of these are associated parameters whose value may vary along finite discrete scales from language to language. What aspects of grammatical systems can be parametrized in this way? Borer (1983) suggests that the only type of parametric differences between languages are found in the lexicon. Given that a certain amount of lexical variation among languages is incontrovertibly found, the idea of limiting linguistic variation to the lexicon appears to be the strongest initial hypothesis. I will therefore adopt it. Lexical variation itself is not unlimited. Thus, Borer (1983) suggests that variation might be restricted to the inflectional properties of different formatives and the inventory of inflectional rules. In modernized terms, we might take this to mean that variation is limited to the inventory and properties of functional projections. This proposal does not state exactly how inflectional properties may vary. If indeed syntactic representations are projected to a substantial extent from lexical properties (as the Projection Principle, in whatever guise, entails), lexical differences could entail the existence of important differences in the structure of syntactic representations as well. For example, if inflectional heads may vary in their selectional or subcategorizing properties, possible structural variation ensuing could be quite substantial. I would like to suggest a stronger possibility, namely that neither the inventory of inflectional processes nor the functioning of inflectional processes may vary. In terms of functional categories, this means that languages neither differ in the functional categories they use in a given syntactic context, nor in the inflectional properties correlated with the presence of a particular functional category. More generally, I would like to suggest that syntactic structures are crosslinguistically invariant.

Functional heads either instantiate grammatical properties (e.g. Case, agreement, subordinating functions (complementizers) etc..) or realize interpretive properties (tense, clause typing, clause polarity, focus, definiteness...). Clearly, languages differ in the way they exhibit Case, or agreement or tense, if at all. Restricting variation to functional projections is thus quite natural. However, although their audible

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correlate vary, the properties expressed by functional heads which have a grammatical function are not obviously absent in any language either for formal or for semantic reasons. For example, if (structural) Case is a necessary property of certain DPs, and if structural Case is assigned in [spec,AGR] (Chomsky, 1991, Mahajan, 1990, Sportiche, 1990) all languages will have to have Case and AGR even if they are not overtly realized. Postulating variations for functional heads expressing interpretive properties is dubious if, as appears plausible (are there languages without yes/no questions or wh-questions, without definiteness or without negation?), the set of interpretive functions that have to be expressed and the conditions under which they are expressed are universal. Furthermore, every serious grammatical theory reasonably assumes the existence of phonologically or phonetically unrealized syntactic or interpretive properties, e.g. a non-past tense morpheme in English. This simple observation raises a very general problem concerning the availability of silent morphemes and in particular of silent functional heads (that may be equivalently viewed as features of particular heads) and more generally of silent categories. Because we know that they are not necessarily phonologically realized, their observed absence is not an indication of their structural absence.

To begin to accommodate the cross linguistic or cross constructional observed variations in this area, I will resort to a type of lexical difference that is incontrovertibly available, namely the pairing between a *signifié* and a *signifiant* (*l'arbitraire du signe*), i.e. the pairing between morphophonological properties of a given item and its syntactic and semantic properties. Clearly, languages differ as to how the same head is pronounced. As initial assumption, I want to suggest that this is, apart from lexical vocabulary differences (e.g. lack of a French word for *shallow* or the systematic absence of say, adjectives in a given language)¹, the only type of difference found in the lexicon. Thus the sound associated to a particular referent or property varies. This is of course a substantial window of variation. However, if it is plausible that there are no syntactically relevant variation w.r.t. lexical categories, the only type of parameter will concern morphophonological properties of functional heads and in particular how functional heads may be realized.

There are two fundamental types of effects arising from the morphophonological space of variation, which I will address in turn.

¹The discussion of conflation later on might be taken to suggest that even this kind of variation is even more superficial than it appears. For example *shallow* might be analyzed in English as the conflated *not-deep*.

1.1 Affixation and Conflation

1.1.1 Affixation

Let us begin with the idea that the mapping from words or morphemes to syntactic heads can be one to many. Consider first surface structure words. A surface word or morpheme does not necessarily correspond to an atomic property. For example neither of the words *derives*, *derivation* is atomic. However, they are usually treated differently depending on the version of the Lexicalist Hypothesis adopted. *Derivation* is usually considered to enter syntax as one nominal unit without further internal structure as it is assumed that its internal structure has no bearing on and is not dependent upon syntax. The internal structure of the 3rd person singular verb *derives* is syntax dependent (on what the subject of its clause is and whether its distance to Tense is short enough). This means that fundamentally, it is not atomic from the point of view of syntax. There are a variety of ways to handle this observation. One which has been dominant in recent years is to suppose that *derives* is syntactically two morphemes *derive+s* each heading a different projection (V and AGRs) and concatenated by a syntactic rule (of head movement relating V and AGRs). In this account, some stipulation has to be introduced to the effect that the head of AGRs is both overt and affixal in English. This description of the realization of AGR, or more generally of functional heads, is not crosslinguistically stable. Thus English AGRo is always silent, whereas French AGRo may be overt. English future of the present morpheme may be an independent word (*will*) while French's is a bound morpheme (*-er-*). The French future of the present is a morphologically affixed bound morpheme while English's may be a clitic (*'ll*). Finally, French preverbal definite third person clitic pronoun is a phonological clitic while Trentino Italian's is a syntactic clitic (see Sportiche, 1993). More generally, we find the following kind of variation:

(\$N1) Functional Heads may be realized as silent (covert) or as overt

if overt: as independent words

or as bound morphemes

if as bound morphemes:

as morphological affixes (with or without segmental content)

or as clitics

if as clitics

as phonological clitics only

or as syntactic clitics (hence phonological clitics)

To take a clear case, the correspondence between the French word *mangeront* (*will eat-3rdPL*) and correlated syntactic heads is one to many (in fact here one to three: AGRs, Tense and V). However there is a sense in which it is not a one-to-three mapping as there are three clearly identifiable morphemes *mang+er+ont* each corresponding to, and very possibly syntactically generated as, one head. Notice that the English case *eats, eat* (*eat+Present+3rdSG, eat+present+non3rdSG*) can be treated in similar way if, as is standard, appeal is made to silent morphemes, here Non-past.

1.1.2 Conflation

Some cases of one-to-many correspondences cannot be handled in this fashion. Consider the English form *ate*. Here the word *ate* contains two morphemes in a sense (morphosyntactically: V+past) but is atomic in another (phonologically) and presumably, this irregular spellout of the concatenation of two morphemes is stored in the lexicon. Suppose, thinking in derivational terms,² that morphosyntactically complex inflectional forms of this sort are always formed by head movement. This forces the existence of lowering rules in syntax: In English, there is good evidence that a main verb inflected for Tense, say Past, does not raise to T in the syntax (as it follows all VP initial material). Allomorphy checking will require concatenation of Past and V, i.e. lowering or affix hopping of T to V. This raises problems because (i) lowering is extremely restricted (it seems to occur only with affixes): unlike raising, it does not occur with phrasal movement; (ii) lowering of an affix A to a head H is possible

²As we will see, the conclusion of this section, and all others in this article are consistent with a model of syntax comprising a unique level of representation conflating D-structure and S-structure as in Sportiche, 1983. In fact, it is consistent with a model comprising a unique level of representation conflating D-structure, S-structure and LF, i.e. one lacking syntactic derivations altogether. I will continue talking in derivational terms to keep exposition on familiar terms.

iff raising of H to A is possible in principle. One solution adopted in Chomsky (1991) to explain the second property is to require that, in case A overtly lowers to H, LF raising of H+A to A take place in order to erase the effects of A to H lowering. Besides the unnaturalness of this proposal (why lower to raise later), this says nothing of the first problem (why can't DPs lower overtly and raise back at LF?).

Chomsky (1992) proposes a simpler and more principled approach to this problem which explains both of (i) and (ii). He suggests dissociating the concatenation process itself from the process of checking the form and ordering of morphemes composing a complex word. According to this view, call it the checking approach,³ a verb is drawn from the lexicon fully inflected, say [[V+T]+AGRs]. This verbal complex must raise by LF to T and AGRs in order to check (or cancel out) the properties of the inflectional affixes, the Tense and agreement features of the verb. One immediate advantage of this approach is that it does away with lowering entirely but keeps the idea that head movement is involved. Secondly, the treatment of suppletion, i.e. of forms such *eat+past=ate*, becomes identical, from the point of view of the syntax, to that of non suppletive forms *like+ed=liked*. Finally, it explains why "lowering" only occurs with affixes, i.e. heads: it will occur only when a word made of several morphemes is involved.

This proposal does not eliminate incorporation as a syntactic process of concatenation. Incorporation could be the result of either syntactic movement or the morpholexical process subject to syntactic checking just discussed. In the first case, incorporation takes place in the syntax proper as a result of overt movement as is the case of say, preverbal pronominal cliticization in Romance. Call it Syntactic Incorporation. Because the concatenation of morphemes is the result of the application of head movement, we expect: (i) that it will always involve upward movement, never lowering and (ii) that the properties of the compound will be strictly compositionally computed (since input from the lexicon is unavailable). When concatenation is not syntactic, call it Morpholexical incorporation (MI).⁴ Because the concatenation of morphemes is a lexical operation, we expect to find (i) apparent cases of lowering (since a word may be generated with an affix whose licensing position is higher in the tree) and (ii) non compositionality of the concatenation (lexical exception, suppletion, etc... or meaning idiosyncrasies - as in the case of derived nominals discussed in Chomsky, 1970). Both phonological and semantico-

³This is a generalization to head movement of an approach that has been suggested for phrasal movement in Jaeggli, 1980, who suggested replacing Case assignment by Case checking.

⁴This distinction is reminiscent of Marantz's (1992) distinction between D-structure incorporation and S-structure incorporation. Differences between the two incorporation processes are recently discussed in Sportiche, 1993, in connection with pre and post verbal subject clitics in French. For a more general approach to these questions, see Koopman, 1993a, and references therein.

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syntactic information about lexical items is stored in the lexicon. If the lexicon interfaces with the rest of the grammar only at one point, phonological features would be inserted at the same time as others: in this case, phonological allomorphy and suppletion are indicative of MI. Alternatively, phonological properties of lexical items are not present at all in syntax and are accessed by morphophonological rules mapping syntactic representations onto phonological representations (i.e. the “phonological lexicon” interfaces with post syntactic representations input to morphophonology only, unlike the “syntactic/semantic lexicon”). This has some conceptual and other advantages that I will not discuss here, and the drawback that access to the lexicon occurs twice. If this view is correct, morphophonological suppletion has no bearing on whether MI or SI is involved in concatenation (unlike what is assumed in Sportiche, 1993).

Cases of Morpholexical Incorporation or Conflation are cases of one to many mapping from words to syntactic heads. I believe recent work show this phenomenon to be extremely pervasive, both when functional categories are involved and when lexical categories are involved (thus considerably reducing the actual syntactic variation observed for lexical categories).

Extremely general instances of Morpholexical Incorporation for lexical categories are illustrated by (an interpretation of) the recent work of Hale and Keyser (1991) on lexical decomposition of verbs and other predicators. They demonstrate that an illuminating account of the existence of systematic gaps in the set of available verbs can be given by assuming that verb have a sort of internal syntactic structure subject to syntactic well-formedness conditions (e.g. the ECP). For example, they postulate incorporation of the head of internal arguments in a great variety of cases (very roughly: the verb *dance* has the VP internal structure of *do a dance*, with the noun *dance* incorporating into the verb *do*; similarly *put the book on shelf* ---> *shelve the book*..). I read them as assuming that these processes takes place in the lexicon (their L-syntax level). However, because they are subject to constraints defining of syntactic processes, operative in syntax, they should be viewed as belonging to syntax proper (thus explaining why syntactic constraints are relevant). In the perspective of Chomsky’s checking approach, we can analyze a V+N category as [*dance*] as generated syntactically in the V slot licensing its V part with its N part incorporated (whether by MI or SI⁵) in it.

We can slightly modify Larson's 1988 VP shell proposal so that it can be looked at from the same point of view. It is because *kill* is the *lexical* concatenation of CAUSE and DIE that *kill* projects two VPs one with the agent as specifier and the other with the patient as specifier. Under this modification, the lower VP has the same internal structure as that projected by DIE and the higher one as that projected by

⁵This would depend mostly on whether strict compositionality is respected. In general with these cases, it is not.

CAUSE.⁶ In effect, this is a contemporary version of Lexical Decomposition analyses.⁷ However, because there is a lexical component to it - the verb *kill*= Cause-to-die is formed in the lexicon and is listed as such in the lexicon, it is immune to the arguments leveled against lexical decomposition, as nothing prevents these conflated words to display idiosyncratic properties beyond their basic "decomposed" meaning (indicating in the present instance that MI is involved).⁸

Other examples are found in the work of Kayne (1993) justifying the derivation of the verb *have* from *be*+*F*, i.e. from the verb *be* incorporating a category F (which Kayne takes to be a P or a D) is another illustration involving functional categories, or in the work of Bhatt and Yoon (1991) that we discuss below.

Since conflation exists and is available in principle, we must inquire, any time we find linguistic variation, whether the observed variation is not reducible to conflation being used in one case but not in another. This is especially significant where variation is most obvious, the crosslinguistic distribution of functional properties, which involve closed classes.

1.2 Universal Constituent Structure and Recoverability

Perhaps only because of the way in which functional properties crosslinguistically differ in their realization (or lack thereof), one central question concerns variability in the way functional heads are syntactically mapped. Essentially because of the way we construe affixation and conflation and the possibility of invoking the existence of silent morphemes (as English present tense), it seems to me plausible to assume the most restrictive position from the point of view of syntax i.e. that languages simply neither differ in the stock of functional heads that they have, nor in the principles that govern their

⁶Larson's proposal differ in that it would allow *kill* to project the agent as the specifier and the patient as the complement within the same unique VP.

⁷In ongoing work (Sportiche, 1993a), building on Collins and Thrainson's (1993), I argue we can and we should go one step closer to lexical decomposition analyses in postulating that there is full clausal structure per verb and even per VP: (i) each verb has its own full clausal structure (ii) Each VP (of a VP shell) projection has its own full clausal structure; there is no VP shell literally: *kill*=cause to die corresponds to two full clauses (see Collins and Thrainson's (1993) work arguing that Icelandic double object constructions in Icelandic are biclausal).

⁸For example, the verb *die* is not present in the syntax at all as such, and so cannot be modified by adverbs, as in cause-to-die. Note also that correlatively, it is also possible to have a syntactic aspect to derivational morphology exactly as in the case of inflectional morphology, a conclusion with some merits, see Valois, 1991.

appearance in structure. Functional heads being associated with lexical⁹ categories, I will assume that every lexical category is uniquely and invariantly associated with a set of functional projections which are all always projected with the same hierarchical organization.¹⁰ In effect, this is saying that from the point of view of syntactic structure, there is only one language, i.e. that syntactic structure is invariant. The price to pay for syntactic invariance is analytic abstractness. Some of it is inevitable but I would like to limit it to a certain extent by requiring a degree of overtness.

The choice among the various modes of realization listed in (§1) seem arbitrary from the point of view of synchronic grammars except for the overt/covert distinction. It seems reasonable to require that the presence of a given property be somehow recoverable. Let us distinguish between necessary properties and contingent properties of clauses and other constituents, and between predictable properties and arbitrary properties of heads. Necessary properties need not be overt: their existence is required. Such are AGRo, AGRs, Nominative, T etc... Among contingent properties of clauses, predictable properties of heads may be left covert. Thus, knowing what the verb of a clause is, we may infer how many arguments there are and their category. These arguments may thus stay covert if there is some universal convention allowing to recover their content. There seem to be such principles: the content of a covert category may be recovered through some antecedent; or antecedentless covert DP's must be pronouns - pro. There seems to be no such general predictability for other lexical categories. As they by definition have idiosyncratic, hence non recoverable properties, they must be overt except of course when they have antecedents (VP deletion, Gapping..).

Among contingent properties of clauses, we also find properties expressed by functional heads. Take Clause typing (the statement/question distinction) or Polarity (the affirmation/negation distinction) for example. The clause typing information must be recoverable. A clause is not necessarily a question or necessarily a non question, but it is necessarily one or the other. This suggest that it is not the presence of the functional category that is contingent but rather the value that its head assumes. A plausible construal of this recoverability requirement is that these values must, in a given paradigm say, of clause typing, all

⁹Lexical categories are V, N, A and perhaps P, i.e. predicative categories. I use lexical also in the sense of idiosyncratic, as in lexical properties of some functional head, e.g. how future Tense is pronounced in French.

¹⁰This means for example that every verb always is associated with a full clausal structure, as I discuss in Sportiche (1993a). Alternatively, there may be general principles predicting which if any, of these functional projections is not present in given contexts.

be overt save one¹¹ (thus, non question clause typing may be left covert but question must be overt; affirmation may be covert but negation must be overt and so on). Whether this is tenable is unclear. I assume for the moment that it is. Making explicit this discussion, suppose that:

(\$N2) Recoverability Principle: Optional properties of heads must be recoverable

Let us understand it as follows: if a head (or some property of this head) is present in a particular location in which its occurrence is paradigmatically optional, there must be a way to recover its presence. We will try to specify how as we go along, introducing modifications as we proceed with particular case studies.

It is possible that we also find truly contingent properties expressed by functional heads (although it is not completely obvious that it exists). Thus we may argue that Focus is not necessarily present (some sentences may lack a focused constituent). If so, Focus (and other such properties) when present must be overtly indicated.

1.3 Movement

Superficially, languages do look different in other ways than the type of realization heads may have, i.e. abstracting away from the affixal or the conflated nature of heads. Ordering is the most visible such case. We need to provide other plausible sources for the observed differences. A partial answer compatible with what was said so far is inherent in (\$1). The relative ordering of a functional or of a lexical head with respect to other material in a clause will be affected by whether or not it is overt or not, and in the former case whether or not the head is a syntactically bound morpheme or not. If it is, it might precede material that an independent head would follow. For example the respective order of a head and one of its argument could change as a result of the head appearing before its argument instead of after because as a syntactically bound morpheme, it must appear incorporated in another - possibly covert - head to the left of the argument (see for example the alternation *an interesting one/someone interesting*).

Ordering differences are not limited to alternation between a head and some other material. We also find such alternations between phrases. Combining ideas of Chomsky's (1992) and Kayne's (1993a), we can reduce this type of variation to the first one, i.e. to properties of heads.

Examining the properties of head initial /head final languages, Kayne (1992) notes that the expected mirror image distribution of properties in head initial and head final languages is not found. Instead, bias toward initial headedness is found. He proposes to account for this asymmetry by postulating

¹¹It appears that which one is covert (statement, affirmation) is constant cross linguistically, a generalization without explanation but which demands one.

that all languages are essentially head initial, and that the appearance of final headedness is given by post head arguments of a head moving around this head (i.e. to its left) overtly. This position is more restrictive than the more usual head initial/ head final parameter and I will adopt it.

Dependencies between two positions exhibiting movement properties are not always realized as overt movement, as the literature on LF wh-movement illustrates. A reasonable account of this observation postulates that non overt movement dependencies between two positions showing movement properties are cases of covert movement as suggested for example in the case of wh-movement in Aoun, Hornstein and Sportiche (1981) or Huang (1982). We may assume then that different constructions in the same language or the same construction in different languages can differ in involving covert movement instead of overt movement. Kayne's proposal concerning the head initial/head final alternations can be straightforwardly integrated with Chomsky's (1992) proposals by construing head final languages, i.e. languages moving (some) arguments around to the left of their heads as languages doing overt rather than covert movement.

There is an alternative approach to the question of covert movement that simply denies its existence while maintaining that movement is involved by postulating that "covert movement" constructions actually involve overt movement of a covert element as the work of Aoun and Li (1993) Watanabe (1991) or Lisa Cheng (UCLA colloquium) points out in the case of wh-movement. This approach looks quite plausible in such cases. If it could be extended quite generally, crosslinguistic variation based on overt vs. covert movement could be entirely eliminated, obviously a desirable move if the overt movement/covert movement distinction was reduced to some independently necessary property.¹² Although I believe there is some advantage to an approach eliminating covert movement I will keep to the familiar overt/covert assumption, making occasional remarks on the alternative.

The remaining question asks what exactly differentiates overt movement constructions from covert movement constructions. In the cases he looks at, Chomsky, pursuing his minimalist ideas, suggests that overt movement constructions involve overt movement because some phonological property of some head must be licensed. He calls this diacritic property of heads "strong" and the lack thereof "weak". If indeed this could be maintained (and it is surely conceptually desirable - movement must feed the phonology because some phonological property is involved - eventhough it is most unclear how to do

¹²For example, following Cheng's suggestion, we could analyze a Chinese wh-phrase as [OP wh-word], with overt movement of the silent operator OP much as *combien* movement in French *combien as-tu vu d'enfants*. We could then treat English wh-words the same way but with OP movement of this null operator requiring pied-piping of the entire phrase in English and prohibit it in the case of Chinese wh-movement.

it precisely), it would reduce the overt movement/covert movement distinction to the phonological property of some head, i.e. would fall within the range of parametric properties listed in (§1).

1.4 Summary

In sum, the general picture that emerges is in effect a generalized version of the Universal Base Hypothesis in which there is no crosslinguistic differences in the syntactic structures of the various levels of syntactic representations: a given ordered set of properties exhaustively instantiated as a string of (possibly covert, possibly affix-like, possibly conflated) heads in any language, is associated with a unique syntactic structure. Observed variations arise (i) either because of morphophonological properties of the string of heads involved as in (§1), conflation or (ii) because some movement dependency involved is instantiated overtly instead of covertly - quite possibly a subcase of (i). This set of constraints may appear too restrictive to handle the observed cross constructional or cross linguistic variations. The opposite is probably closer to the truth. It is easy to realize that an extremely large number of (but not every possible) ordering and concatenation can be generated given a universal (and possibly invariant) clausal structure, augmented with the possibility of leftward movement of phrases and of heads.

Movement plays a prominent role in such a view. I will argue that this role extends to more cases than is customarily acknowledged, but at the same time that possible types of movement are radically restricted. More specifically, I will propose that (almost) all syntactic dependencies should be analyzed the same way, say, as movement dependencies:¹³

- (§N3) a. There is only one type of non local syntactic dependency
 b. There is only one type of local syntactic dependency

In the rest of this article, I will explore ways to substantiate these proposals. In essentials, I will explore the possibility that the only non local syntactic dependency is movement to specifier of some designated projection, and that the only local dependency is incorporation.

¹³Note that strictly speaking, there is no sense, if we reduce say all movement and binding relations to one type to say that we have reduced them to movement (or binding). They now are all and the same and if the text is correct of the type antecedent/trace relation. Saying that they reduce to movement is saying that the driving property in a formal (properties are licensed in spec/head relations) rather than an interpretive requirement (anaphors must be provided with “reference”, variables with a range...).

2. Types of Syntactic Dependencies

2.1 A Preliminary Inventory of Syntactic Dependencies

The following list illustrate the variety of syntactic dependencies.

1. Movement: (landing site, trace), the moved item may be a head or a phrase and must command its trace.
2. C-selection or subcategorization: a lexical category imposes categorial identity on some phrase that it commands.
3. S-selection: a word level category imposes a particular property on some head that it commands.¹⁴
4. Anaphor/pronominal binding: (antecedent, anaphor/pronoun), the antecedent must command the anaphor/pronoun.
5. Scope: (scope "position", quantifier), the scope position of a quantifier must command the quantifier.
6. Clitics: (clitic, argument position), the clitic must command the argument position it stands for.
7. Polarity items: (polarity licenser, polarity item), the licenser must command the polarity item.
8. Quantifier split constructions (English *only*, *even* or French *beaucoup* modifying another constituent in its command domain).

Recent work extends this inventory to include:

9. Case for DPs: (Case position, theta position), the Case position commands the theta position.¹⁵
10. Agreement processes in general (Koopman, 1992, Kayne, 1989) are construed as relations between a head and its phrasal specifier.

Number for DP: (number determination, NP), the locus of number commands the NP position that has this number (see Ritter 1991, Valois 1991, Koopman, 1993b)

How many primitives are needed to describe these relations? If this sample is significant, it suggests that this set is quite narrowly constrained. Putting agreement processes aside, which I analyze as instances of specifier/head relationships, any of these dependencies D obeys two properties:¹⁶

¹⁴I am for the moment ignoring selection on external argument to which I will return.

¹⁵Although this is the usual account for NP-movement in passive or raising structures, it has been considerably extended recently by Chomsky, 1991, Koopman, 1992, Mahajan, 1990, Sportiche, 1990.

¹⁶It is quite possible that the following extends to all syntactic dependencies. For example, although there are superficial cases of say, n-ary relations, essential such cases are possibly non-existent. N-ary relations

- (\\$N4) a. D is a binary relation $D(x,y)$
 b. One of $\{x,y\}$ must command the other

where (§4b) is stated in terms of some unique appropriate primitive of "command", which we will take to be i-command¹⁷ roughly defined as:

- (\\$N5) I-command
 i-command(x,y) iff the first constituent containing x contains y , $x \neq y$.

These two properties are neither syntactically nor semantically necessary. It is easy to manufacture a language, syntax and semantics, that would use different structural requirements for each of these dependencies. If this uniform characterization is correct, this uniformity needs to be explained. One way of explaining it, and the one that I will pursue, is that there is a central uniformity to the way in which the syntax of these dependencies ought to be construed. I want to pursue a line of explanation which at the most abstract level of analysis, simply reduces all these relations to the same one. This approach is inspired by that adopted by Chomsky (1977). There he suggested that if some constructions had a sufficient number of common properties, they should be analyzed as involving the same process (wh-movement in this instance). Carrying this further, I propose that if constructions have any property in common, they should, at the proper level of analysis, be analyzed as identical. Given that movement is essentially a binary relation and that movement is always to a (i-)commanding position, I will suggest that all these relations are cases of movement.

Naturally, these movement relations are not identical. The varying locality conditions constraining these relations illustrate one prominent difference. But this does not affect their being

can always be factored as a conjunction (n-1) binary relations, each involving a distinguished element among the n. Thus although *who saw what when* could be seen as a relation between a scope position, *who*, *what* and *when*, it can be construed as three relations, each between a scope position and a wh-phrase. One possible irreducible case is the case of a plural pronoun bound by two independent quantifiers as in: Every girl told some boy that they (i.e. he and she) should leave.

¹⁷Rather than the usual c-command, m-command (as discussed in Sportiche, 1990). Roughly, for $x \neq y$, c-command(x,y) iff the first branching constituent (or its immediate projection) containing x contains y , m-command(x,y) iff the first phrasal constituent containing x contains y (see Aoun and Sportiche, 1981, and references therein).

movement processes, as the difference between A-movement and A-bar movement demonstrate. Some differences however do seem to bear on the question of how to treat these dependencies. Consider again the examples of dependencies listed above, still leaving agreement aside. Each is of the type D(x,y) where x (i-) commands y. This set can be subdivided in three subsets according to the categorial nature of x and y. X can be a phrase as in phrasal movement, scope (wh-movement), antecedent anaphor, polarity licensing (*None of them gives a damn..*). Or it can be a head as with clitics (see Sportiche, 1992, 1993 and references therein for extensive justification), polarity licensing (*He denies giving a damn..*), scope (*il ne regardera personne*),...). Similarly, Y can be a phrase (XP movement relation, subcategorization), or a head (head movement).

Thus we find homogeneous relations (head/head) or (phrase/phrase) and heterogeneous relations (head/phrase). We consider each type in turn.

2.2 On the Domains of Syntactic Dependencies

Postulating that all these syntactic dependencies are cases of movement derives both that they are binary relations and that they involve a command requirement. Some finer distinctions appear necessary as we discuss now, as different dependencies take different sets as domains and exhibit systematically different properties.

2.2.1 Homogeneous head/head Relations

Head/head relations are primarily exemplified by head movement constructions such as V to I (in French..), I to C (in Germanic..) , P to V (in English reanalysis, Dutch or Bantu...), V to V (in Romance restructuring or more generally "clause union" constructions..). These relations are extremely local, a locality reducible to antecedent government imposed by the ECP¹⁸ (see Koopman, 1984) and usually described in terms of Travis's (1984) Head Movement Constraint (HMC) which requires the trace of a head to be (i-)commanded by an antecedent without any barrier intervening, i.e. the trace of a head to be governed by an antecedent:

(\$N6) Head Movement Constraint
 the trace of a head must be governed by an antecedent of this head

¹⁸Throughout, I will assume a version of ECP stated in terms of Antecedent Government and Barrierhood. Part of this could be translated in an Economy approach in terms of "shortest steps" as Chomsky has recently suggested.

Head/head relations are also exemplified by s-selection (linked to theta assignment). Thus a verb may require of the lexical head of one of its argument that it be [+animate] or [+concrete]. S-selection as well is an extremely local relation (See Chomsky's (1965) strict locality). Apart from s-selection of its external argument by some predicate - to which we will return later - this locality condition requires an s-selector to (i-)command a head that it selects without any barrier intervening between them, i.e. the s-selector must head-govern its selectee.

(\$N7) S-selection
 S-selection requires head government

2.2.2 Homogeneous phrase/phrase Relations

XP/XP relations comprise a variety of different relations allowing apparently less local dependencies. NP-raising as in *John_i seems to be likely to have been seen t_i*, wh-movement as in *who_i do you think Mary saw t_i* or polarity item licensing as in *Nobody demands that you do anything*, illustrate the apparent unboundedness of these relations. Eventhough the movement dependencies are analyzed as a succession of small local steps, it is a kind of derivation that is not allowed for head movement. A head cannot move successive cyclically; At each step, it incorporates into the next head up (which may be silent) and the combination may move. In another words, a particular head may only move once:¹⁹

(\$N8) U [_{WP} [_W W+X] [_{XP} [_{X^e]]]}

Once X has incorporated into W, only W itself (excorporation) or W+X can move to the higher head U.

2.2.3 Heterogeneous X/XP relations

Heterogeneous relations split in two subsets: The first subset comprises the head complement relation such as is exemplified by c-selection. These relations, just as the head/head relations are extremely local and the locality restriction appears to be the same, namely head-government: a head may c-select a phrase iff it (i-)commands it and no barrier intervenes.

The second subset comprises exactly the same relations as are found in XP/XP relations: LF wh-movement (dependency between a [+Q] particle and a wh-phrase, polarity item licensing (e.g. *deny... anything*), expression of scope (e.g. *ne ... personne* - compare with expression of scope in terms of

¹⁹See Koopman (1993a) for a discussion of these questions (long distance head movement, excorporation..). See also Sportiche (1990, 1992, 1993) for the particular case of pronominal clitics.

movement, i.e. in terms of XP/XP relation) and exhibit fundamentally the same properties (for example, the locality of polarity item licensing is independent of whether the licenser is a head or a phrase).

This raises several questions. Is it accidental that binary relations be both heterogeneous in terms of their domain (a pair head/phrase) and heterogeneous as a set in terms of their properties? Secondly, why should some head/phrase relations exhibit a behavior similar to that of head/head relations, and the other head/phrase relations exhibit a behavior similar to that of phrase/phrase relations. Finally, why do phrase/phrase relations systematically appear to be expressible in terms of head/phrase relations (descriptively, these relations are the same: wh-structures, polarity licensing, scope assignment)? This immediately suggests that some head/phrase relations are covert head/head relations, and the other head/phrase relations are covert phrase/phrase relations and this is the line I am going to pursue.

3. Unifying Head/head Relations

3.1 Generalized Incorporation

Let us begin with head/head relations. It is easy to reduce strictly local head/phrase relations to cases of head/head relations. Take c-selection for example. It suffices to construe c-selection not as a relation between a head X and a phrasal category P but rather as a relation between X and the head of P. More generally, it suffices to construe the head complement relation not as a relation between a head H and a phrase P but between a head H and the head . Given the assumption that every category strictly conforms to the X-bar schema, there are exactly as many heads as there are phrases.

But this still leaves one question unanswered. Why is strict locality expressed either in terms of the Head Movement Constraint or in terms of Head Government. If indeed we are dealing with some unitary phenomena involving both locality (no intervening barrier) and also a hierarchical requirement (i-command), there should be a unitary account underlying head government and the HMC.

Expanding on Koopman's (1993a) proposal²⁰ who considerably extends the scope of incorporation rules and discusses it in much more details, we may derive a unitary account by eliminating Head Government altogether and replacing it by the Head Movement Constraint. This raises no direct problem as the configurations of head government are identical to the configurations of antecedent government by a head, apart from the involvement of movement. In order to achieve this result, I suggest that all cases of head/head dependencies are in fact cases of movement.

²⁰A similar suggestion was made by R. Kayne at the 1992 GLOW in Lisbon, and a more restricted version of it by N. Chomsky at the Irvine Lectures, Winter 1993.

Consider first cases of s-selection or c-selection by some head H. Let us adopt Stowell's (1981) idea of theta grid, augment it to include a notion of categorial grid in the following way:

A head H will c-select an XP by imposing the categorial feature [+x] and s-select its head by imposing some property [+p] iff the lexical representation of H contains a slot marked [+x,+p] that must literally be filled by movement of some [+p] head X into it by LF.

For example, the verb *witness* takes as internal argument a NP²¹ (c-selection) whose denotation can be construed as an “event” (s-selection), call this property [+event]. These requirements will be instantiated as follows:

(\$N9) [v witness [[+N, -V, +event]]] [DP D [NP N]]

Lexical encoding of this sort can be further elaborated. For example, the Theta Criterion can be reformulated as stating that (i) unincorporated (argument) heads at LF are deviant. This would replace: every argument must have a theta role; (ii) a head with unfilled slots at LF will be interpreted as an unsaturated predicate (and default rules might apply to fill this slot..). This would replace: every theta role is assigned to one argument. Note that we do not need a uniqueness requirement - replacing "one" by "one and only one" - because of the impossibility of moving two items into the same position or from the impossibility for heads to move twice.

Still further elaborating the internal structure of the lexical representation of the verb, we may encode the hierarchy of arguments that predicates takes (external, internal1, internal2...) and enforce a particular hierarchy of syntactic realization of these arguments (we need to specify further principles in which these lexical slots can be filled). To give a concrete example, consider the transitive verb *pour*.

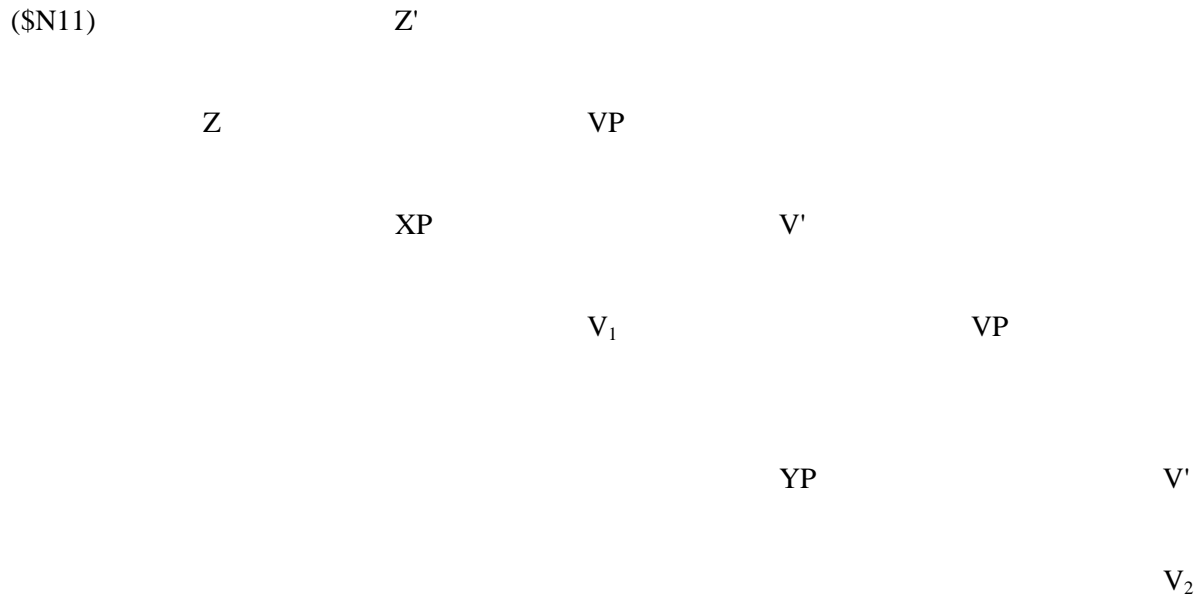
²¹Some important questions are left unaddressed here. The complement is really a DP but I would claim that this is a derived property. C-selection is of an argumental category (it gets a theta role) whose lexical content is nominal, i.e. NP (nouns are predicative categories). D's make NPs into arguments. Thus the conjunctive requirement nominal and argument will force the projection of a DP (See Stowell, 1989, 1991 for discussion of these questions). On why the N of a DP may incorporate into its selecting V, see Koopman, 1993b, who suggests that the NP raises to [spec,DP] first, whence incorporation takes place.

SKETCH OF A REDUCTIONIST PROGRAM

Assume it imposes the complex of s- and c-selection [+p] on its external argument and the complex [+q] on its internal argument. Then, it will have the following lexical representation:²²

$$\begin{aligned} (\$N10) \quad \text{pour}(_, _) &= P(_, Q(_)) \\ &\quad | \quad | \\ &\quad [+p] \quad [+q] \end{aligned}$$

and enter in the following syntactic representation (modified from Larson's (1988) proposal):²³



This representation will be well formed iff P contains a [+q] head that can (and then must) incorporate into the [+q] slot of the V, and XP contains a [+p] head that can (and then must) incorporate into the [+p] slot of the V. Given that incorporation is movement, hence upward only, it means that the verb must

²²This internal structure completely follows form the internal structure of the verb *pour*: Because it may be very roughly analyzed as the conflated verbal category *cause-to-flow (like a liquid)*, it is actually a sequence of two verbs each with its own subject..

²³Actually, a biclausal structure if the proposals referred to in footnote 6 are taken into account.

move from V_2 to V_1 to allow the first incorporation and then from V_2 to some higher head Z to allow for the second incorporation, i.e. that of the external argument.²⁴

One important result emerging from Baker's (1988) work on incorporation was that agglutinative languages could be reduced to underlying analytic languages by invoking analytic underlying structures and attributing the observed compounding to a syntactic process of incorporation. The difference between agglutinative languages and analytic languages can be reevaluated given the central role processes of incorporation are postulated to play in general and in particular to license selection for it makes all languages are uniformly agglutinative at LF.

3.2 Some Cases and Some Problems

3.2.1 C-selection/Incorporation/S-selection Asymmetries

If c-selection, s-selection are cases of incorporation, we expect all three to behave in the same way. In some areas they apparently do not. Although all arguments of a predicate are by definition s-selected by it, the external argument is neither c-selected (see Chomsky, 1965, Carter, 1976) by its predicate nor can it incorporate into it (Baker, 1988). I have no explanation to offer for these facts (if indeed they are facts) nor do I know of any however these various notions are construed.

In the case of c-selection, it is easy to stipulate the answer in any number of ways. The usual way has been to require that c-selection is only of i-commanded or sister material at D-structure. Such a description can also be stated on lexical representations in the present approach (the external argument slot is not categorially specified).

The case of incorporation is trickier, and I only have speculations to offer. Incorporation of the external argument is required, we claim, by LF. Baker (1988) or more recently Hale and Keyser (1991) contend that overt incorporation of an external argument is impossible (although some care is needed, viz. subject pronoun incorporation in VSO languages). Although, this impossibility is typically attributed to lack of antecedent government because the incorporee is higher than the verb in which it incorporates, it is in fact unclear how exactly this is supposed to work. This is because the relevant asymmetries are not present at LF, sometimes not even at S-structure as say in cases the verb raises higher than the subject. Possibly, if indeed the generalization is correct, external argument are not lexical arguments of predicate at all, i.e. would be neither c- nor s-selected. Their licensing then would have to be done differently (e.g. spec/head).

²⁴If external argument must incorporate, but cf. discussion below, the necessary existence of the higher head Z entails that every predicative category (i.e. lexical category A, V, N, and perhaps P) must be complement of some functional category.

I leave this as unresolved, simply making the following programmatic remarks. First, there is no evidence that external arguments do not incorporate at LF. I am led to postulate that they do, although I need to explain why they do not do it overtly. Notice that, given the decompositional analysis of non monadic predicates (e.g. *kill*) implicit in Larson's proposal and reanalyzed here as involving a conflation of several monadic predicates (*cause to die*) - in fact several clauses- the notion that external arguments cannot incorporate appears highly dubious as the direct object of *kill* is indeed the external argument of *die* and may, as direct object of *kill*, in principle incorporate to *kill*. The problem then becomes why the highest argument of a V (whether conflated or not) cannot incorporate to V overtly. An obvious difference is the following: for incorporation of some argument of into this V to take place, the Verb must raise to a position higher than this argument (to guarantee i-command). Consider the structure in (§11): the nominal head of YP may incorporate into V if V_1 raises to V_2 and this is done without category change (V to V raising). In fact, with conflated verbs, it is arguable that it is the same V. To incorporate the nominal head of XP however, this raising must be, by definition to a non V category F (presumably a functional category). We may argue that the target slot within V is no longer available given the derived internal structure $[_F F + V]$.²⁵ At LF however, categorial distinction may be irrelevant and $[_F F + V]$ is indistinguishable from $[v V + V]$ allowing the required incorporation.

3.2.2 Postposed or Preposed Arguments

If internal arguments must incorporate to their selector at LF, what happens when these arguments appear moved leftward or rightward. Some head part of this argument (the head noun for DPs), we claim, must incorporate into its selector. How can this be reconciled with the overt movement that arguments may undergo, to positions not governed by the relevant selector. The usual reconstruction option is plausible but not general enough. It would work for movement to A-bar position (left or right) but not for cases of A-movement such as raising to subject, as A-movement does not display the typical

²⁵Recall that I in fact take conflated verbs to literally comprise two (or more) verbs and that each must project a full clausal structure. This means that in *kill = cause to die*, a full clause, i.e. functional projections such as T, C... should intervene between the two verbs. Because however incorporation of *die* to *cause* is obviously selected and overt, these functional projections must count as non intervening, i.e. as defective. If for some reason the F of the text was defective, we would, for the same reason expect external argument incorporation to be possible. I would argue that this is exactly what happens in agentive nominalizations, e.g. *killer=one who kills*, which I would take to be exactly a relative clause with a defective clausal structure and an incorporated agent (see Potter, 1994, for relevant discussion of related Navajo and Cherokee facts).

binding effects associated with reconstruction. Chomsky (1992) offers a construal of movement rules as a copying process (plus PF deletion) - in effect an enriched version of Burzio's 1986 "layered trace" proposal - that provides a way to reconcile movement of a phrase with incorporation of a subpart of it into its selecting predicate. Traces are full copies of the moved phrases. Incorporation of the relevant subpart into its selector can take place exactly as if movement had not taken place.

3.2.3 Silent Complementizers

The previous proposal suggests an approach to a couple of puzzles concerning the distribution of silent complementizers in English. Complementizer "deletion" is allowed only in complement contexts:

- (\$N12)
- a. *(That) Mary left bothered Lewis
 - b. Mary said (that) Lewis was too fat

The central generalization concerning their distribution can be phrased as follows (Kayne, 1984 or Stowell, 1981):

(\$N13) Silent Cs can occur only in head governed contexts.

Stowell (1981) naturally attributed this restriction to the Chomsky's (1981) ECP, requiring of silent categories to be head governed by an appropriate head (a proper governor, here a head). Such an approach is especially desirable since a silent *that* seems to be allowed precisely in the C projections that allow an intermediate trace of wh-movement: *that* may be omitted only in complement position of bridge verbs. The problem, with this approach, apparent throughout in Chomsky (1986) is that the ECP only applies to traces (i.e. actually involves antecedent government), not to silent categories in general, e.g. *pro*. But an omitted *that* appears to be the C equivalent of *pro* rather than trace.

This problem can be circumvented within the present approach. Consider a *that*-headed argument clause. Its complementizer *that*, expressing the tensed and declarative status of the embedded clause is selected by some higher predicate. It will have to incorporate into this predicate by LF. Suppose we look at a missing complementizer not as a silent allomorph of *that* but as the trace of a silent allomorph of *that* which has incorporated in the overt syntax into its selector.²⁶ Silent *that* will occur precisely in contexts in which it can overtly incorporate into its selector in the syntax. It follows that it can only be in contexts in which they are head governed by their selector, or to put it equivalently, in contexts in which this

²⁶Note that recoverability of this silent complementizer is obviously satisfied.

incorporation leads to a proper configuration of antecedent government of the trace of silent *that* by its incorporated antecedent. In terms of the list in (§1), the difference between *that* and silent *that* is that the latter would have to be lexically designated as a bound morpheme requiring overt incorporation. This extends to cases of clauses complement of prepositions such as *before [C t] John left* which select the silent option of the complementizer.²⁷

As H. Koopman (p.c.) suggests this approach can provide the beginning of a reason as to why only certain classes of verbs allow silent Cs. Manner of speaking verbs like *whisper* do not allow silent Cs but verbs like *say* do. Capitalizing on the idea of conflation (lexical decomposition), suppose that a verb like *whisper* is in fact a conflated verb+manner adverbial combination, i.e. is syntactically projected as two projections *say* for concreteness here an adverb heading an AdvP taking as complement a V heading a VP:²⁸ To license its internal structure, the verb *whisper*= *softly speak* will have to appear in the ADV slot binding a silent V in the V slot: [_{AdvP} [[_{adv} softly-speak_i [_{VP} [_{t_i}]]]]]. This makes overt incorporation of the complementizer impossible as the verb *whisper* is separated from C by an intervening head (the silent V).²⁹ Verbs like *say* lacking this internal structure allow overt C incorporation.³⁰

4. Unifying Phrase/phrase Relations

4.1 Generalized Spec/Head Licensing

Let us turn now to XP/XP relations and non strictly local relation of the form X/XP (e.g. polarity licensing). As discussed earlier, it is desirable to reduce them all to the same type of relation in order to explain why they are both binary relations and require the command requirement. There is no a priori bias in favor of unifying all these relations under the movement banner, except that coming from the

²⁷Below we will see another cases of silent C with similar properties. Unfortunately, the distribution of the silent infinitive complementizer which is not subject to restriction (§13) (viz. *I tried [ce] to win / [ce] to win is easy*) prevents generalizing the bound morpheme status of silent heads.

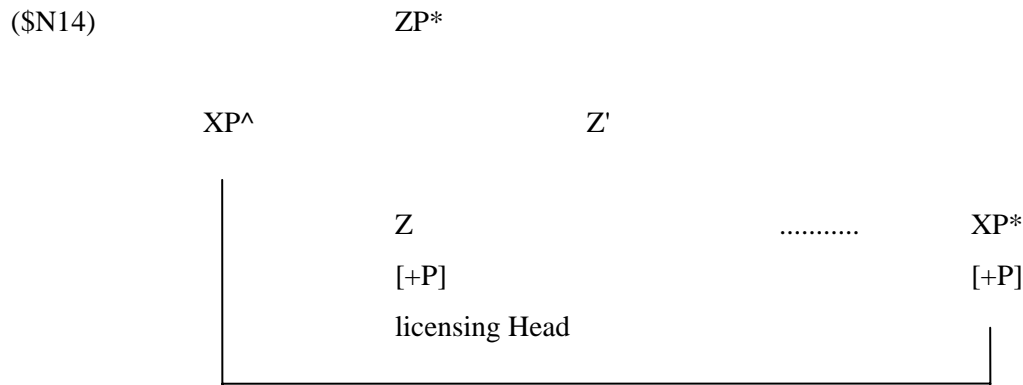
²⁸This approach to adverbial adjuncts is discussed and justified in Sportiche, 1993a. See below section 4.3. for a quick summary.

²⁹If covert incorporation is blocked as well, the *that*-clause complement of *whisper* will have to be treated as "extraposed".

³⁰See Koopman, 1993a, for discussion of other such cases. As for the other generalization explored by Kayne (op.cit) and Stowell (op.cit), i.e. that verbs allow silent complementizers in tense complements iff they are bridge verbs, it is tempting to relate it also to C incorporation: CPs would be opaque for extraction unless the C can incorporate to its selecting verb.

discussion of the previous sections: regarding head distribution, movement does seem to be a primitive. Why then introduce any other if we can avoid it? Many of the relations here might be argued to resemble each other because some sort of scope taking is involved (e.g. wh-movement, negative quantifier licensing, polarity item licensing..). However, a generalized scope approach does not seem to extend to cases of A-movement (subject or object raising..) in any plausible way. It is precisely because movement is a formal relationship that we have the (dangerous) freedom to make it encompass everything, as we are not immediately to interpretation.

Assuming then that they should be reduced to movement, an immediate difficulty is that it is not immediately obvious how to make head/phrase relations into phrase/phrase relations or vice versa. The structural relations involved, although they all involve command, do not do it in quite the same way. Thus in a head/phrase relation H/ P, the phrasal projection of H contains P. In a phrase/phrase relation XP/ P, neither contain the other. In order to achieve this unification, I would like to suggest that all of these relations actually involve 3 terms: two phrasal positions and a head. To instantiate this general idea in a way that also captures the i-command requirement, let us postulate the following approach: in each case, the relevant property (wh, quantificational, polarity, specificity for clitics, anaphoricity, Case, Number, being quantifier over by *only*,..) must be licensed in the same way: the XP bearing the property P in question can only be licensed in an appropriate subject predicate relationship with the proper predicate. To put it in contemporary terms, the element carrying the syntactic property P (i.e. a lexical property with syntactic reflexes)³¹ in question must, in order for P to be properly licensed, be in a specifier head relationship with a head of the P sort, i.e. whose only content is the property P. In other words, for each relevant property P, a configuration of the following sort must obtain:



³¹for example being a Q is a syntactic property: it is coded lexically but has syntactic i.e. structural relational consequences: scope.

In order to insure this state of affairs, we postulate:

(\$N15) Generalized Licensing Criterion

Syntactic properties must be licensed in Spec/Head configurations.

Movement is the means by which the licensing spec/head relationship is realized in case the phrase to license is not generated in the appropriate position. This in general is going to be the case. The existence of movement is a reflection of another (unexplained) linguistic property, namely that a word or a phrase does not express an atomic (syntactically relevant) property but rather a concatenation of atomic properties, each of which has to be satisfied under the GLC. Note that, under this view, movement cannot be optional. It is a driven process. If it can apply - because some property needs licensing - it must (whether covertly or overtly).

A uniform analysis of these dependencies must still leave room to explain their difference of appearance and their difference of properties. Concerning the first one, it is easy to see that the variation is a function of which of the three heads involved in this ternary relation³² is phonologically realized (this is congruent with our earlier discussion of parametric variation):

(\$N16) In the ternary relation (XP[^], H⁰, XP*)

Each of them may be overt or covert

The two types we have been discussing (phrase, phrase) vs. (head/phrase) correspond to which of XP[^] in [spec,HP] and H⁰ is overt respectively. But the typology is actually richer as we may have cases where all three are overt: if both XP[^] and XP* are overt, it does not look as a movement relation (as e.g. in *who saw what*), but we would argue it is. If furthermore H⁰ is overt³³, we will have an overt ternary relation. With XP[^] in [spec,HP] overt and XP* covert, we have a usual movement relation. With XP[^] covert and XP* overt, we will have a covert movement relation.

³²I use this term descriptively here. There are actually two binary relations: a spec/head relation and a movement dependency.

³³We return later to apparent restrictions concerning cooccurrence of H and its specifier as e.g. in cases of wh-movement and doubly filled COMPs.

Other properties differentiating these dependencies will have to capitalize on particulars of each dependency as is standardly assumed:

- (\\$N17)
- a. Movement is overt or covert
 - b. The properties of XP[^] and XP* (A/A-bar position, Case/Caseless..)
 - c. Lexical properties of the moving item itself

The contribution of the first two factors are clear. The third might play a crucial role in determining the appropriate locality domains. Thus, the binding domain for English anaphors (e.g. *himself*) is narrower than the binding domain of long distance anaphors (e.g. Chinese *ziji* or Japanese *zibun*). Neither of these domain is identical to the domain over which a relation between the French negative quantifier *personne* and its scope position marked by *ne* is allowed. Still none of these is identical to the domain over which wh-movement is allowed. Rather than attributing these differences to anaphoric binding relations not being movement relations, we have to attribute them to differences in the internal structures and properties of the moving items. For example the internal structure and properties of lexical anaphors is different from that of wh-phrases; anaphors differ from each other - e.g. "self" in Chinese vs. X-self (in English). The anaphorizing item may also differ - e.g. self in Chinese or English vs. "same" in French). Consequently the kind of "interveners" these movement relations will be sensitive to will differ as well.

4.2 Elimination of Adjunction

In this section, I briefly outline without arguments some assumptions which I defend elsewhere but which I will use later on. I propose in Sportiche (1993a) that syntactic adjunction is not an available option. Neither is adjunction under movement (all movements are substitution into the spec position of some projection along the lines of the GLC) and there are no (base generated) adjuncts either such as Adverbs, Adjectives, PPs, extraposed clauses... The aspect of this proposal relevant to what follows is the latter, namely the treatment of adverbs and adjectives. Informally speaking, I will assume that Adverbs and Adjectives all are dominated by a projection whose head takes the modifiee of the adverb or the adjective as argument, i.e. as complement (or sometimes as specifier). The general intuition is that adjectives and adverbs bear the same kind of relation to their modifiee that determiners bear to their Noun phrases or predicates to their arguments.

A constituent such as *the book* is since Abney (1987) analyzed as having the head/complement structure:

- (\\$N18) a. [DP [D' [D the] [NP book]]]

- b. [DP [DP the] [D' [D e] [NP book]]]

Although the structural skeleton of determiner phrases that this assumes is well motivated, the particular distribution of the lexical material within it indicated in (\$18a) is not which is Abney's (1987) is not obviously correct and might have to be modified by (\$18b).³⁴ Adverbs and adjectives, I propose, should be treated exactly the same way. this is illustrated in the following structures (where for each case it must be decided which of the two options is the correct one and what the identity of the complement is):

- (\$N19) a. John will stupidly answer: ... [ADVP [ADV' [ADV stupidly] [VP answer]]]
 b. John will answer stupidly: ...[ADVP [VP answer] [ADV' [ADV stupidly]]]]
 c. A proud mother: ... [AP [A' [A proud] [NP mother]]]³⁵
 d. A mother proud of her son [AP [NP mother] [A' [A proud] [DP of her son]]]
 e. John always buy books: ... [ADVP [ADV' [ADV always] [XP buy books]]]
 f. John always buys books: ...[ADVP [ADVP always] [ADV' [ADV e] [XP buy books]]]

As final remark on this topic, I also assume that the adjunct status of adjuncts is directly encoded by stipulating that these "adjunct" projection are totally transparent to government. In other words, government (hence head movement) may behave exactly as if the entire projection was absent.

4.3 The Program

In the next section, we will turn to what motivates this approach in one individual case. In the case of the typical A-movement dependencies this approach just recapitulate the currently adopted positions. Thus, NP-movement in the case of VP internal subject raising, object raising, Passive.. are motivated by Case licensing i.e. is a tripartite relation between the moving phrase, the Case licensing head - the appropriate AGR projection - and the landing site - the specifier of that AGRP. It straightforwardly extends to "theta" assignment" if we adopt a slightly modified version of Larson's (1987) VP shell proposal by requiring all arguments of a verb, and more generally of a predicate P to be generated as

³⁴The first one is probably correct for French *le livre*, while the second one has some plausibility for the English case of *the book*.

³⁵Abney (1987) suggests this structure for certain adjective-noun combinations.

specifiers and only specifiers of layered phrasal projections of this predicate P as illustrated in (§11). In this case the ternary relation reduces to a binary relation as XP^* and XP^{\wedge} are identical.

We will therefore primarily concentrate on A-bar movement. I will illustrate this approach here with the well known example - and we will conclude archetypal case - of wh-questions, discuss its syntax, modify some existing proposals concerning it (mostly Rizzi's 1991) and draw some consequences about characteristic properties of such dependencies.

5. Questions

The GLC is inspired by Rizzi's (1991) update of May's (1985) wh-criterion which takes into account Chomsky's (1986) generalized X-bar proposal extending the X-bar schema to all projections:³⁶

(§N20) Wh-criterion or Q-criterion:

At LF

A [+wh] head must be in a spec/head relationship with a [+wh] XP

A [+wh] XP must be in a spec/head relationship with a [+wh] head

The underlying motivation for this proposal is the syntactic attribution of scope to wh-quantifiers: the scope of a wh-question phrase is syntactically marked by the presence of a [+Q] head. It is directly motivated by the syntax of wh-questions in English-like languages. In the present approach, it is simply motivated by the need for the wh-property to be properly licensed by an appropriate head. Since there is no principled motivation why the scope of wh-question words should be what it is observed to be, a primitive motivation in terms of scope is no better a priori than a syntactic licensing motivation, although a posteriori, the two should obviously interact (moving wh-phrases has consequences for their scope properties). This proposal encodes in a simple manner a number of assumptions concerning the functioning of wh-question quantification and the nature of LF representations. It “derives” the existence of wh-movement. It makes all languages essentially identical at LF, regardless of whether wh-movement is overt or not. Furthermore, modulo minimal assumptions concerning the difference between selected clauses and unselected clauses, it derives the existence of V or I to C movement in wh-questions. Departing from Rizzi's proposal, I will suppose that the [+wh] feature always is a property of certain Cs

³⁶Throughout here, I will suppose that [+wh] or [+Q] is an optional property of certain Complementizers but nothing essential turns on this. As Bhatt and Yoon (1991) discuss, the subordinating function must be distinguished from the clause typing function. English or French conflates the two in C. It is thus likely that +Q is a property of an independent "declarative/interrogative" head.

indicating the question property. Remember however that the locus of a property and the locus of its realization in overt syntax are not necessarily the same (*past* may be generated on a V in the V slot head of VP even though it is a property of the head T of TP).

5.1 English Questions

I will suppose without discussion a particular organization of the English auxiliary system. First, I will suppose that every verb (including modals, see Sportiche, 1993a, for justifications) is generated in a V slot. Secondly, I will suppose that main verbs may not overtly raise to T unlike auxiliary verbs which may (possibly because, as we interpret Pollock, 1990, in terms of a clause structure containing AGRo below T, they cannot even reach AGRo) and must when tensed. Following Chomsky, 1992, I assume that in English and more generally (given the existence of suppletion), Tense features are generated on V in the V slot of VP.

5.1.1 Wh-questions

Let us begin with embedded wh-questions.

(SN21) Mary asks [+Q you should see who]

By LF, both the wh-criterion and Recoverability must be satisfied: first, *who* must raise to [spec,CP]; second [+Q] must be recoverable. In English, the first requirement must in fact be met at S-structure, i.e. the wh-element moves overtly (when there is only one; if there are several wh-elements, only one must and may move). I know of no proposed explanation as to why this is so.³⁷ English does not have an overt [+Q] Complementizer. What happens to the [+Q] C property? Suppose that the English [+Q] is a covert bound morpheme, and more precisely a morphological affix or a syntactic clitic, i.e. requires morphological or syntactic incorporation. As such, it must incorporate into some other category. This incorporation must be into the verb *ask* itself, which, in its lexical representation contains an open clausal slot specified [+Q]: as I have earlier suggested following Koopman (1993a), this movement is the way selection is always satisfied. This is then similar to what happens with silent instances of the complementizer *that*. Note that the presence of this silent [+Q] C is recoverable as the Q feature is realized on [spec,CP]. Since the verb *ask* or the verb *know* allow both declarative and interrogative complements, the presence of +Q is contingent. One of +Q/-Q may be recoverable as the unmarked option. Since silent *that* can be covert without any visible reflex, it must be construed as the unmarked

³⁷Chomsky (1992) suggests that wh-movement is always overt.

option. Hence +Q must be visible. Complement clauses of certain verbs like *wonder* require a +Q setting. But they behave exactly like complement clauses of verbs like *know*, *ask*. We must therefore take contingent (or optional) as meaning paradigmatically contingent (or optional) i.e. contingent in general, even though it may be necessary for particular choices of lexical items.

The main clause case is more complicated. Here I will extensively rely on some of Chomsky's (1991) Economy ideas. The first part of the account of (§21) would apply unchanged: the wh-word must raise in the syntax. The bound morpheme status of the [+Q] C cannot be handled the same way. The option available in embedded clauses is excluded, since there is nothing to incorporate the [+Q] C upwards to (I am going to ignore intermediate heads such as AGRs, AGRo, limiting the discussion to C, T and V):

- (§N22)
- a. [+Q Mary should teach what] --> What should Mary teach
 - b. [+Q Mary taught what] --> What did Mary teach

Consider first (§22a). The tense morphology is generated on the verb *should* which raises to T overtly to license its T features (say +T). How is the bound morpheme status of +Q licensed? One way would be to generate +Q on T. I would like to exclude this possibility by invoking a principle of Paradigmatic Uniformity (PA). If +Q could in general be generated on T, causing overt T to C in main clauses, we would expect overt T to C in embedded clauses as well (at least with non subject wh-phrases given the lack of overt T to C in subject questions, viz. *who left*). Because of Paradigmatic Uniformity, I will assume - for the moment - that it never can. So, +Q is generated in C in main clauses, and its bound morpheme status requires that T raise to C overtly. This derivation violates Chomsky's (1992) Principle of Greed which requires movement to be motivated solely by properties of the moving item, i.e. for the purpose of licensing one of its own properties. Here T to C is triggered by C, not by T. I suggest to interpret Greed as an Economy Principle: it can be violated as a last resort.³⁸

Consider next (§22b). By Paradigmatic Uniformity, the tense features +T must be generated on V (as simple declaratives show). If they are, +Q could not be licensed at all since, for whatever reason, non auxiliary verbs cannot overtly raise to T, a fortiori not higher. No well formed output is predicted possible. However, English has a dummy verb *do* that it can generate +T on. So +T is generated on *do*.

³⁸The alternative, closer to Rizzi's (1991) proposal would generate the +Q feature on T - much as Tense may be generated on the verb in VP in English, as Chomsky (1992) suggests. Raising of T+Q to C would then not violate Greed. But this violates PA.

Do being an auxiliary verb may raise to C, and raising to C is required to license the bound morpheme +Q in C.

A further complication arises in the case of subject wh-movement:

- (\$N23)
- a. [+Q [who taught calculus]]
 - b. [who +Q [should teach calculus]]

In either of the forms, PA forces +T to be generated on V. The bound morpheme nature of the [+Q] C should force some head to raise to C, but this is the structure of neither example in (\$23).³⁹ Why is this raising to C prevented? Koopman (1983) suggests a reason: she makes an analogy between the lack of raising to C in the present case with the obligatory absence of *that* in *Who do you think (*that) t left*. Her idea is that the trace is illicit (due to the ECP) if the C position is filled. Whichever implementation of this idea is the right one, this generalization applies to the present situation:

- (\$N24) * [who_i should_j [t_i t_j teach calculus]]

if +Q was in C, forcing T to C in the syntax as in (\$23a), a violating configuration would be created (at S-structure). This means we must relax Paradigmatic Uniformity. I suggest we weaken it by allowing violations of it as a Last Resort Strategy: in the absence of any alternative toward a well formed output, minimal departures from Paradigmatic Uniformity are allowed. In the present case, PA can be relaxed either w.r.t. the T features or w.r.t. the Q features yielding the two following minimal options: +Q may be generated on T+V in V instead of C, or +T may be generated in the T slot instead of the V slot, both violating PA. The second option is ruled out however because it still leaves +Q unbound (and raising to it is impossible as it would violate Koopman's generalization). The only option is to violate PA by generating +Q on whichever verb bears +T.

- (\$N25)
- a. [who [t taught_{V+T+Q} calculus]]
 - b. [who [t should_{V+T+Q} teach calculus]]

³⁹In the first case, this conclusion is supported since the tensed main verbs follow VP adverbs. In the second, it is for example by *have* contraction: (i) *John should have taught*, (ii) *John should've taught*, (iii) *Should John have taught*, (iv) **Should've John taught*, (v) *Should John 've taught*, (vi) *Who should have taught*, (vii) *Who should've taught*. If the modal had raised to C in (vii), we would expect contraction to be impossible as in (iv) or (v).

At LF, V+T+Q will raise successively to T then to C to license the +T and +Q morphemes it bears.

Let us recapitulate the ingredients we need:

We postulated that the English +Q morpheme is a bound morpheme and we introduced a principle of Paradigmatic Uniformity and we also mentioned Chomsky's principle of Greed. Greed may be violated when PA is not. PA can be violated as a last resort if no well formed output is derivable. This gives a ranking of strength among these principles:

1. Lexical properties (+Q is a bound morpheme) cannot be violated.
2. ECP (or whatever is responsible for that-t effects) cannot be violated.
3. PA can be violated to avoid violations of the previous two.
4. Greed may be violated to avoid violations of the previous three.

5.1.2 Yes-No Questions

Turn now to Yes/No questions. Given Larson's 1985 arguments that the disjunction(s) introduced by a Yes/No question marker in some clause can affect any clause from within which operator movement could have taken place to the Yes/No marker, we postulate, adopting his conclusions, that Yes/No question involve the movement of a (mostly covert) disjunctive or yes/no wh-operator to [spec,CP]. Postulating such an operator explains why wh-question and yes/no or disjunctive questions are incompatible. There is only one position: the yes/no operator and a wh-phrase cannot both overtly move to it.⁴⁰ Thus, in sentences like:

- (\$N26)
- a. Who did you see ?
 - b. What did Gloria write to Mary or Lewis?
 - c. Did Gloria write to Mary or Lewis?

Eventhough the first one exhibits both a preposed wh-word and subject/aux inversion, it cannot mean "who did you see or who did you not see". Similarly, the third sentence is ambiguous (and disambiguated by intonation). It may call for a yes/no answer or for a term of the alternative answer (it may then be paraphrased as "Did Gloria write to Mary or did Gloria write to Lewis"). The second sentence however

⁴⁰We return below to the question of why multiple questions with one of them moved and the other in-situ also is excluded.

cannot be a request for both what was written and which of Mary and Lewis it was written to (although, pragmatically, it may be answered this way).

Consider an indirect question. Assume *whether* is the wh disjunction operator as suggested by its resemblance with wh-either (see Kayne, 1991, for recent arguments). Then, the derivation of (\$27) below is not significantly different from the previous cases:

(\$N27) Mary asks [Q you should leave whether]

At LF, *whether* must have raised to the embedded [spec,CP] and the [+Q] C incorporated into the verb *ask*. Note that *whether* has the option of being silent in certain dialects.⁴¹ Incorporation of the Q morpheme into *ask* would leave it [+Q] value of the head C opaque. The [+Q] head must not incorporate into its selecting verb. The derivation invoked in (\$25) is not available either: if +Q was generated on V with LF raising to C, the question nature of the embedded clause would be opaque as well. The last option, since the Q morpheme is a syntactically bound morpheme, is for raising to C to take place overtly in a way similar to main clause subject/aux inversion, yielding:

(\$N28) Mary asks [[_{wh-operator} e]_k should_j [you t_j leave t_k]]

In main clauses, *whether* must be silent (in all dialects?), for unknown reasons (but cf. below). If it did not have to, we would presumably derive (\$29a). Otherwise, we must have raising to C exactly as in the previous case of non subject wh-movement yielding (\$29b):

(\$N29) a. [whether_k should_j you t_j leave t_k]
 b. [[_{wh-operator} e]_k should_j [you t_j leave t_k]]

Finally, consider a simple declarative such as *They (should) sleep*. Such a clause must contain a highest projection, headed by [-Q] indicating the declarative status of the clause. This we may assume is the default value and since it triggers no word order changes at all, is analyzed as a silent independent morpheme. Its recoverable character follows from its being the default setting.

⁴¹Because, in the paradigm of wh-question operators, it is the only one which can be silent without antecedent and is thus recoverable. Again the question of why it is this particular operator that can be silent arises.

5.2 French Questions

5.2.1 Questions with Word order Changes

French wh-questions and Yes/no questions fundamentally function like English questions:

- (N30) a. Quand Marie est partie/ Quand (Marie) est-elle partie/Quand est partie Marie
When Mary has left?/When (Mary) has-she left? /When has left Mary
- b. Lequel d'entre eux a mangé / Lequel d'entre eux a-t-il mangé
Which one of them has eaten / which one of them has-he eaten
- c. Il demande quand Mary est partie /*quand (Marie) est-elle partie/quand est partie Marie
He asks when Mary has left?/*when (Mary) has-she left? /when has left Mary
- d. (Marie) est-elle partie / Je demande si Marie est partie
Has Mary left/ I ask whether Mary left

As (\$30a) illustrates, matrix wh-questions all have a preposed wh-phrase⁴². The rest of the sentence may stay unaffected, may display Complex Inversion, Subject Clitic Inversion, or Stylistic Inversion. Stylistic Inversion appears to be a French specific (and poorly understood) construction properties of which are discussed in Kayne and Pollock (1978) and Kayne (1972) and which I will basically ignore here.

Complex Inversion or Subject Clitic Inversion are excluded in embedded questions. They have been traditionally analyzed as involving overt raising to C (cf. Kayne, 1984, Rizzi and Roberts, 1989). I analyze them in Sportiche (1993) as involving covert T to C only in main clauses. This is also true of yes-no questions. The Yes/No operator in French is always silent. In embedded yes/no question, the [+Q] property is spelled out on C as *si*. In main clauses, this +Q C is silent. Sportiche (1993) argues that French lacks overt raising to C altogether. In effect, then, French main clause yes/no questions behave like English subject wh-questions in which overt raising to C is prohibited. As in the case (\$25b), [+Q] must be generated on T (which is generated on the verb itself), and T to C applies covertly.

Now recall the pattern of Standard English:

- (i) In standard English, [+Q], a bound morpheme, is always generated in C, except when doing so yields violations of some principle.
- (ii) In embedded wh-questions, we both have a preposed wh-phrase and [+Q] C incorporation into a higher head. In main clauses, we both have a preposed wh-phrase and T to C to license the morphological requirement of the [+Q] C, Except when the wh-phrase is the subject. In that case, overt T to C is

⁴²With a complication concerning *que/what*. See Obenauer, 1976, 1977 for discussion.

disallowed. Instead, we must resort to generating [+Q] on T and raise T to C covertly. Yes/No questions work exactly like wh-questions except for the fact that the main clause Yes/no operator is silent. French then appears identical to English except for the fact that French *whether* is always silent, and French lacks overt T to C altogether.

5.2.2 Why are Main Clause *whether, si* silent

Why do we find main clause/embedded clause distinctions in the way yes/no is marked (viz. the French alternation \emptyset/si). A possible reason is the following: suppose, following Bhatt and Yoon (1991) that we distinguish the subordinating property of C from its clause typing property. They argue that in certain languages, these two properties are represented by different morphemes. The only way to construe this idea compatible with the general assumptions we make is to split CP in two, replacing it by a subordinating projection SP taking a clause typing projection TypeP as complement, and so universally. What they analyze as cases of conflation, e.g. a unique English CP headed by C, we must reanalyze as a case of two morphemes Type and S, morpholexically incorporated to each other.⁴³ So that the complementizer *that* is really morphologically complex (tensed declarative + subordination), is generated in TypeP and must raise to SP to check its subordinating feature. Suppose that French *si* is such a conflated head (subordination+Q). What would we expect to see in main clauses? Clauses seem to be unique in that they are the only constituents that may lawfully appear unembedded (in non elliptic contexts). It is not unreasonable then to expect that the subordination/non subordination of clauses be marked in some way, e.g. by the presence of SP.⁴⁴ A correlate of this is that main clauses should lack SP.

⁴³They propose that in languages with two morphemes, SP is adjoined to TypeP, although they leave open the possibility we suggest. For English type language, they assume because of the conflated head -and it is essential for their analysis of V2 - that there be one projection only: CP. If necessary, some of their result could be duplicated here by distinguishing languages incorporating Type to S (because of recoverability or morphological boundedness) from languages raising V (or more precisely V+T) to Type (for the same reasons).

⁴⁴This is why we would want SP to be higher than TypeP: TypePs would then be internally identical in main and embedded clauses, SP added on main clauses only. The alternative order is compatible with the test, even if conceptually less desirable. The data on the question is contradictory. The bi-morphemic languages Bhatt and Yoon discuss show the hierarchy S>Type. So does for example Spanish (viz. *pregunto que a quien hablaste* (*I ask that who you spoke to = I ask who you spoke to*) now analyzed with *que* in S and *a quien* in [spec,TypeP]). The Germanic languages seem to suggest otherwise. For example Dutch embedded questions allow the cooccurrence of three morphemes. Thus corresponding to the

If French *si* indeed is S+Q, it cannot appear in main clauses. We could then state that the unincorporated form of the +Q head of TypeP is a silent bound morpheme, like English's.⁴⁵

In what follows, I will continue using CP and C as shorthand.

5.2.3 Questions with no Word Order Change

Some (non-echo) questions have the same word order as statements: intonation yes/no questions as in:

(\$N31) Louis a mangé un oeuf?
 Did Lewis eat an egg?

Compared to statements, the only change is intonational: for example, in (\$31a) intonation rises at the end of the sentence unlike what happens in statements. Intonation plays a disambiguating or interpretive role in many constructions and in particular other kinds of questions which I will not discuss.⁴⁶

How should this kind of questions be treated? I want to outline a proposal consistent with the kind of restrictive assumptions made in the first section and with the overall organization of the various components of grammar.

First of all since intonation plays a role both in PF (obviously) and at LF (it provides the question property), it should be represented at S-structure (spell-out), i.e. syntactically.

How should be represented? The null hypothesis, it would seem, is that it should be represented exactly as it always is, i.e. as [+Q] in C. This is also the only one consistent with the restrictive assumptions we made in the first section: if the question/statement distinction is sometimes represented on the head of a designated functional category, then it universally always is. This would mean that one of the realizations of the French [+Q] head in main clauses has no segmental value but only a supra segmental value (equivalent to a tonal melody in tone languages) which manifests itself on the intonational melody. Two properties need to be explained. First this question intonation is in

underlined CP material *I wonder who John saw*, it is possible to have *wie of dat (who if that)*, i.e. a wh-phrase, a [+Q] complementizer and a "that" complementizer co-occurring. The presence of the wh-word leaves no room but to analyze *of* as the clause typing particle marking the question, which thus seems higher than the subordinating particle *that*.

⁴⁵The same analysis could be applied to English \emptyset /*whether* alternation if, unlike what we have supposed, *whether* also is the conflation of S+Q, an assumption otherwise consistent with our analysis.

⁴⁶For example, in situ normal wh-questions vs echo wh-questions (*Marie a vu qui/ Marie a vu QUI*), Wh-questions from wh-exclamatives (*Quel tableau il a peint/Quel tableau il a peint*)

complementary distribution with all the syntactic operations, such as Subject Clitic Inversion, diagnostic of a main clause question. Secondly and quite surprisingly, the intonational effect is a rising intonation at the end of the sentence whereas typically (care is needed here to avoid any parasitic contrastive focus), the [+Q] property trigger a High effect on the element bearing the [+Q] property or immediately preceding its syntactic position (thus: *Marie a t-ELLE mangé/Has Marie eaten, Avez-VOUS mangé/Have you eaten*, similarly *QUI a vu ce film/Who saw this movie, QUAND êtes-vous parti/When did you leave*).

If indeed, the syntactic structure of such a question is:

(\$N32) [CP [+Q] [IP Louis a mangé un oeuf]]

Rules of phonological interpretation of syntactic information will have to readjust the effects of the presence of the question morpheme by interpreting its effects sentence finally, that is away from its syntactic position. This raises the question of how exactly the syntax/phonology interface works. One of the present practices consisting in postulating rules of phonological interpretation sometimes rearranging syntactic structures seems a priori unacceptable.⁴⁷ Its unacceptable character is illustrated by imagining what it would mean if it were applied at other interfaces, e.g. the lexicon/syntax interface, or the syntax/interpretation interface. Keeping again to minimal assumptions, the strongest approach concerning syntax-to-phonology readjustments rules is that they do not exist at all: phonological rules simply interpret the syntactic and lexical information present in their input congruent with the structure of the phonological vocabulary. If the phonological rules in general are faithful to syntactic information, but in some cases credibly appear to rearrange it, taking phonological evidence seriously entails that the postulated syntactic structure is wrong. In the case at hand, we would have to either postulate that an intonational Q supra segmental morpheme is generated sentence finally or that it is generated in C but its phonological effects are shifted to the end of the sentence. Neither option is acceptable. I would like to suggest instead that the structure (\$32) is incorrect and that it should be replaced by (\$33):

(\$N33) [CP [IP Louis a mangé un oeuf]_i [+Q] [t_i]]

in which the entire IP has preposed to [spec,CP], i.e. to a position preceding the [+Q] morpheme. The obligatoriness of this preposing can be made to follow from the lexical stipulation that the suprasegmental

⁴⁷This is not to say that all of syntactic structure is relevant. For example, some syntactic information might simply be irrelevant, but then, systematically so, e.g. syntax provides for infinite embedding possibility.

version of the [+Q] morpheme is a leftward phonological clitic, i.e. needs material to its left. Since the question statement distinction is a property of the entire IP following it, the silent question operator usually moving to [spec,CP] (and sometimes lexicalized as *whether* in English) is an IP level modifier. Since the Q morpheme needs phonological material to its left, the only way to produce a well formed output is to pied pipe the entire IP as in (§33).

This structure explains some odd features of this intonation yes/no question. In simple clauses, it derives the complementarity noted above between other phenomena involving T to C (such as Subject Clitic Inversion) and this intonational pattern since the material that would potentially raise from T to C (Recall that T to C occurs only at LF in French) is already higher than the C. It also explains why these intonation yes/no questions, although they have the interpretive properties of questions lack their syntactic properties. For example, polarity items are not licensed in intonation yes/no questions. Thus the polarity item *qui ce soit* (*whoever*) can occur as a bare object only polarity environments, e.g. commanded by some negative item or by [+Q]. It cannot appear in an intonation question for lack of appropriate command:

- (§N34)
- a. * il a vu qui que ce soit (statement)
he saw anybody
 - b. a-t-il vu qui que ce soit/ il n'a pas vu qui que ce soit
has he seen anybody / he has not seen anybody
 - c. * il a vu qui que ce soit (question)
has he seen anybody

Licensing by a commanding Yes/No operator in [spec,CP] at S-structure is required and this configuration is not met in (§34c) as the operator is embedded inside the preposed IP.⁴⁸

5.2.4 Multiple questions

Consider multiple questions:

⁴⁸Left unexplained so far is why pied piping must be of the largest IP viz *[[(*que*) *Il a mangé*]_i [*il a dit* (*que*) *t_i*]. We might take advantage of Bhatt and Yoon's conflation idea: complementizers like *que* conflate Type and S. Pied Piping a lower IP, in fact a lower TypeP, would carry the trace of *que* (raised to S) higher than its antecedent. This kind of situation is not allowed (It would be the equivalent of passivizing a DP whose N head has incorporated to V).

(N35) Who saw what

Given the requirements imposed by the Wh-Criterion, both wh-operators must be in a spec/head relationship with the same [+Q] head (since there is only one such head). Since the wh property of both wh-operator properties must be licensed by a unique head, we must postulate the existence of a process reducing these two phrases to one. One way this rule may be functioning would be by reducing these two operators to one i.e. to create a binary wh-quantifier out of two unary quantifiers so that there would be one relevant wh-property to spec/head license. Call this Absorption. Semantically, this might seem gratuitous because the wh-question operators are idempotent (i.e. have the property $x^2=x$) although it could be taken to explain why we get the pair-list reading (i.e. we cannot answer *who* and *what* independently as in *who saw something and what was seen*). The same phenomenon is observed in negative constructions (negative concord) with a clear case of non idempotent operators (negation). Although the treatment we have sketched above is the standard treatment for multiple questions, some of its properties are unclear. First of all, Chomsky (1992) has advanced some arguments for wanting to conclude that wh-movement should universally be overt. But many languages including English and French, which tolerate multiple questions clearly exhibit both moved wh-phrases and wh-in-situ at the same time. How is this to be reconciled with the requirement that wh-movement be obligatorily overt? One possibility could be to claim that the +Q property of C is strong in Chomsky's (1992) sense and thus requires an wh-operator in [spec,CP] in overt syntax. Secondly, the precise mechanism by which absorption takes place is most unclear: it is a definitional property of syntactic positions that they can contain only one item at the time. Yet, in the case of the standard account of multiple questions, we want several wh-phrases to occupy exactly the same [spec,CP] at LF at the same time. This suggests an alternative treatment along the following lines that takes advantage of the approach to wh-movement to Japanese or Chinese wh-questions advocated by Aoun&Li (1993), Watanabe (1991) or Lisa Cheng. Current analyses of DPs headed by English *who*, *what* or French *qui* assume that the wh-word is itself the question operator. A word like *who* seems to stand both for the question operator and for its range (here [+human]). We may instead, claim that the wh-operator in French or English is always covert and that the wh-words are wh-polarity items ([+human] nouns as *who*, [-human] nouns as *what*, determiners as *which* ...) that must occur in the scope of these wh-operators. The structure of a wh-phrase would then be: [wh-operator [who]]. In a sentence with a unique wh-phrase, this wh-phrase must move to [spec,CP]. When there are two, only one of them can contain a wh-operator (otherwise there is no possibility to satisfy the GLC) and it must move to [spec,CP]. The other one must then be parasitic on the first one (i.e. exactly like a parasitic gap). The structure of a sentence like (N35) would then be:

(36) [DP Wh-op_j [who]]_i [ti saw [DP [pg e] [what]]]

where movement of the wh-operator must pied pipe (in English but not with, say, French *combien*) the entire DP. Languages in which wh-words always are wh-operators themselves (possibly conflated with the head noun or some other category) would then simply not allow multiple questions (Italian might be such a case- see Rizzi, 1982).

5.3 Diagnostic Properties

This analysis of wh-constructions evidences a number of properties which we expect to see recur elsewhere and which we can use as diagnostic for the idea that something like the configuration mandated by the GLC is indeed met:

1. Wh-questions words (now including the yes/no operators) are related to a particular, designated and fixed position in the syntactic structure of a sentence.
2. It is a relation between a head ([+Q] C) and a ([+wh]) XP which must be spec/head at LF. Because this relationship is established by movement: the specifier of the [+Q] C, hence apparently the [+Q] C itself is in a possible movement relationship (i.e. subject to islandhood...) with the wh-XP.
3. Doubly filled Comp effects may be found (which we can now analyze as a prohibition against filling both the specifier and the head position of any projection at the same time: call this the Doubly Filled Projection Prohibition.)
4. Absorption effects are observed.
5. The specifier of this [+Q] head is an A-bar position (as exemplified by its licensing parasitic gaps)

5.4 Further and Future Extensions

I discuss elsewhere how this general approach extends to Clitic constructions (Sportiche, 1992, 1993) and to negative constructions (Sportiche, 1993b). I hope to extend it in future work to a number of other syntactic constructions: anaphoric binding dependencies (binding of anaphors and hopefully pronominal binding), scopal and other properties of non-wh non negative quantifiers (see Stowell and Beghelli, 1994), Focus,.... The general proposal we put forth allows very little analytical leeway but I try to push it as far as I can. In each instance, it forces postulating a designated projection to fulfill the role of ZP* in

(§14). In the case of non-wh non negative quantifiers, the way to take the analogy with wh-questions is straightforward and leads to postulate designated “Q” projections for each type of these quantifiers with concomitant movement etc.. In the case of anaphor binding, it leads to postulating designated positions - spec of ReflexiveP - that anaphors have to move to be properly licensed etc.. The general idea is clear. It will lead to fairly abstract analyses of individual lexical items of the kind postulated by Klima (1964) in the case of Negative polarity items. It will also lead to the view that the same property expressed in different sites of a single clause cannot be a property licensed in situ. Take for example the case of Focus. In a simple French clause, it may be marked prosodically in situ but felicitously only on one constituent at a time. This uniqueness suggests immediately that the Focus property is associated with a particular unique position. We are then lead to postulate the existence of a Focus Phrase with a Focus head, the morphemic content of which is responsible for the prosodic effect, and movement of the focused constituent to the specifier position of this phrase.

The abstractness price we pay for this kind of unification is reduced in some cases by the overt similarity found in some languages between constructions that are treated differently in English or French. Extremely significant in this respect is the work of Li (1992), showing that Chinese wh-words (wh-one), polarity items (any-one) and existential quantifiers (some-one) are one and the same word, the interpretive import of which is contextually determined by the kind of elements in the scope of which they are found. It should come as no surprise that they should have closely related syntactic functioning, as we propose.

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