

Against ‘dummy DO’: The ‘low DO_{AUX}’ hypothesis¹

ABSTRACT

This paper challenges the prevailing view that so-called ‘dummy DO’ is a syntactically and semantically empty object inserted at/near Tense or an empty formative/syllable added in Morphology/PF as a ‘last resort’ to make the ‘stranded’ tense suffix pronounceable. It argues, instead, that it is the overt exponent of an existential quantifier ($\exists e$) required to bind the ‘e’ variable of all events and that it functions as a default auxiliary verb in an obligatory ‘low Aux’ position immediately above the lowest IP. ‘Low Aux’ is alternatively occupied by ‘predicative’ BE, which acts as a complementary existential quantifier over states ($\exists s$). The fact that the ‘e/s’ variable of each IP is unique forces the quantifier-variable relation to be strictly local in this case. As a consequence, other auxiliaries cannot intervene between DO_{AUX}/BE_{PRED} and the lowest IP, and never follow either at PF. Both DO_{AUX} and BE_{PRED} may raise from ‘low Aux’ attracted by Force when higher auxiliaries do not block their ascent, and if they do they eventually carry tense and agreement. However, whereas other auxiliaries must always be spelt out, DO_{AUX} is phonetically null by default and becomes overt only when Polarity, Force or Focus have marked values. Overt DO_{AUX}, thus, is always tensed, but what triggers its externalization is not the tense affix, which can always ‘hop’ onto the main verb below. Since DO_{AUX} cannot become overt with auxiliaries above, it seems incompatible with them, but is necessarily present whenever the lowest IP has an ‘e’ variable. When DO_{AUX} is not overt it cannot carry inflections either, and whatever inflection is immediately above, in T or in an Infl head selected by a higher auxiliary, skips it and is realized on the main verb. Main verbs cannot raise beyond the lowest IP in English, even if no auxiliaries are visible above, but only because covert DO_{AUX} blocks their ascent. In V raising languages, on the contrary, including earlier English, there is no DO_{AUX}-like auxiliary, but $\exists e$ is still a necessary constituent of the semantic structure of propositions, which forces V itself to raise into ‘low Aux’ and, if higher auxiliaries do not prevent it, further up into Force and Focus. Although accounting for covert DO_{AUX} in subject-focus and ‘indirect questions’ requires some stipulations, as in all extant theories, the present solution removes a flagrant semantics-syntax mismatch, explains the apparent incompatibility between DO_{AUX} and other auxiliaries, accounts for the V *in situ* constraint of current English, and avoids many generally overlooked conceptual flaws of the ‘dummy DO’ account.

1. INTRODUCTION

What we now generally call ‘dummy DO’² had traditionally been considered by English grammarians an auxiliary verb, DO_{AUX}, hereafter, obscurely related to the homonymous main verb(s), the verb DO + (SO/IT/THAT) used as a pro-predicate (cf. Quirk et al. 1985: 874-9, Huddleston & Pullum 2002: 1523-35), ‘spurious’ DO (cf. Schütze 2004), and the hybrid DO of imperatives (cf. Chomsky 1955: 302, 553-5, Katz & Postal 1964: 74-77, Stockwell, Schachter & Partee 1973: 660ff., Emonds 1976:

213 fn. 11, Culicover 1976: 151-2, etc.). Chomsky (1955), however, analysed it as a 'dummy', and, as TGG gained importance in the field, the term became standard in English grammar at large and the 'dumminess' of this type of DO is now assumed as a matter of course in practically all alternative approaches, including theoretically eclectic reference works like Quirk & al. (1985: 103, 133) or Huddleston & Pullum (2002: 93).

Although TGG has altered beyond recognition since then, Chomsky's 'dummy DO' account has remained essentially unchanged and almost unchallenged for over fifty years. Lasnik (1999: 179), who reviewed the matter from a minimalist perspective, writes: "As far as I can tell, the best statement of DO-Support is still something like the one in LSLT", and in Lasnik (2000: 201 fn. 17) he concludes that "Chomsky's earliest proposal is essentially correct and cannot be improved upon in any significant respect". If anything, recent Chomskian analyses (e.g., Bobaljik 1995: 59-74; Chomsky 1999: 30-1; Lasnik 2000: 191-4; Radford 2004: 174, Husband 2006) often go even further as to the emptiness of 'dummy DO', completely denying it syntactic status and claiming that it is just an empty morph or even a mere syllable inserted at Morphology or PF, respectively, as a 'last resort' to make the stranded tense affix pronounceable.

There is no denying that, from the point of view of descriptive adequacy, the early 'dummy DO' solution was 'a clever trick'. Indeed, 'dummy DO' interacted optimally with 'c' (now T), the rest of Chomsky's 'Aux analysis', and the early transformational rules, and even then had the last resort flavour it has in recent accounts, which explains why it has been adapted so smoothly, first to GB and P&P, and now to minimalist work. However, Chomsky's account was stipulative, as Ross (1969) and Culicover (1976) observed, and its current successors are liable to even more serious objections. It is high time, therefore, to reconsider whether 'dummy DO' is such an optimal and definitive solution to the problems raised by the peculiar distribution of auxiliary DO as its supporters claim.

This paper argues that it is not. Section 2 will show what the problems are, especially within a P&P/minimalist framework, but also from any linguist's perspective, and section 3 will explain how they can be avoided, with further simplifications elsewhere, if so-called 'dummy DO' is inserted 'early' (that is, in the syntax) and appears 'low' (immediately above the lowest IP-VP complex) as a default auxiliary verb required by all eventive IPs. As argued below, the 'Low DO_{AUX} Hypothesis' (LDAH, hereafter) is not only conceptually and empirically preferable, but also well-motivated on

semantic grounds, since DO_{AUX} arguably has an elusive, but non-trivial, semantic function as the PF reflex of the existential quantifier that must be assumed in the LF of sentences, as Davidson (1967) and Parsons (1990) claimed.

2. WHY THE ‘DUMMY DO’ THEORY IS INADEQUATE

According to the standard view in generative grammar since Chomsky (1955: 421, 439, 445-8; 1957: 39, 62-5), slightly refined to fit the semantic assumptions of the Standard Theory in Klima (1964), Katz & Postal (1964: 73ff.), and Chomsky (1965: 107ff.), so called ‘dummy DO’ is a semantically empty tense-carrier introduced as a last resort when the main verb cannot be tensed³ and no other potential tense-carrier is available. Since tense cannot remain an unattached affix at Morphology and is by itself unpronounceable at PF, ‘dummy DO’ has always had a last resort character, even before the homonymous minimalist principle was explicitly formulated: if a derivation contains a finite T but no possible tense-carrier, either it gets one from ‘outside’ (= Last Resort) or it will end up ill-formed. The initial ‘dummy DO’ account rested on the assumption that tense (‘c’, at the time) is an independent syntactic element that may get ‘stranded’, an innovative aspect of Chomsky’s (1955) analysis of the English clause that has remained virtually unchallenged ever since. Another is that ‘dummy DO’ is directly attached to the tense suffix/feature complex stranded in T (or to the corresponding PHON features, in later versions of the theory).⁴ Indeed, if stranding can be justified and ‘dummy DO’ is introduced only when tense gets stranded, the ungrammaticality of (1) and (2) follows, along with that of the respective emphatic and interrogative expressions and most of the distribution of ‘dummy DO’ in main clauses.⁵

- (1) a. *Tom does (not) may come.
 b. *Tom does (not) have come.
 c. *Tom does (not) be coming.
 d. *Tom does (not) be promoted.
- (2) a. *Tom may (not) do come.

- b. *Tom has (not) done come.
- c. *Tom is (not) doing come.
- d. *Tom is (not) done come.

Recent versions of the ‘dummy DO’ account presumably obtain the same predictions as Chomsky’s initial one, although the matter seems so obvious by now that scholars usually no longer bother to offer explicit derivations. The main innovation is that since Halle & Marantz (1993), at least, ‘dummy DO’ is often no longer considered a syntactic category, but an empty morph, or a mere syllable added ‘late’, in Morphology or in PF. Whether it is inserted in Morphology or in PF, however, is an important detail on which there is some ambiguity. In Lasnik’s own account, for example, DO-Support is Morphology (or the syntax-morphology interface), cf. Lasnik (2000: 191-4), since it is subject to a condition of linear adjacency (Bobaljik 1995: 59-74) irrelevant to syntax in the narrow sense. Yet, elsewhere Lasnik also writes that ‘dummy DO’ is just a syllable that saves the tense suffix from violating PF principles, cf. Lasnik (2000: 105, 193). Be that as it may, such an analysis is representative of recent Chomskian wisdom on the matter and a favourite in current minimalist textbooks (cf. e.g. Radford 2004: 174-178).

Yet, from a conceptual point of view, certain aspects of the initial ‘dummy DO’ account and the associated rule of DO-Support were problematic from the start, as Ross (1969) and Culicover (1976: 107-8) observed,⁶ and the problems remain, only aggravated, in later versions thereof. Note that for the ‘dummy DO’ solution to work as intended it is necessary to make all the stipulations listed in (3), none of them particularly plausible:

- (3) a) DO is a ‘dummy’.
- b) It can be inserted only in/next to T, or preceding the PHON reflex of T at PF.
- c) Negation is under the scope of T.
- d) Negation (among other categories) prevents the attachment/licensing of the T features.
- e) ‘Dummy DO’ is **just** a ‘tense-carrier’ and only stranded tense triggers Do-Support.
- f) ‘Dummy DO’ is not inserted if the derivation contains auxiliaries in **any** inflectional form.

Stipulation a), to start with, dismisses the fact that 'dummy DO' is not like other would-be dummies. Observe that 'dummy IT' and 'dummy THERE' still have category, agreement and Case attributes with relevant syntactic consequences, e.g., THERE is an NP and a subject, cf. Williams (1994: 137; 2006: 648-50), Hazout (2004; 2008) and the 'dummy' preposition OF licenses Case in its complement. Thus, *bona fide* dummies remain syntactically relevant even if their SEM[antic] field is empty. Only 'dummy DO', by assumption, has **no** syntactic properties whatsoever, i.e., no morphological status (root, stem, affix), no category, and, of course, no SEM content: it is nothing but a chunk of PHON[etic] information. This makes it unique among dummies and among lexical items, in general, which are 'signs' with PHON, SYN[tactic] and SEM properties (leaving PRO and trace aside in what concerns PHON content). Thus, if 'dummy DO' is a lexical item, it is a deeply exceptional one, and, if it is not, its presence in derivations violates Chomsky's (1992; 1995) Inclusiveness condition. In the latter case it follows that 'dummy DO' must be inserted in an exceptional way, in violation of general principles. Observe that DO-Support cannot operate subject to Economy, since a category-less and meaningless object cannot select, be selected, or be attracted by any head, and therefore no feature can plausibly be satisfied by such an operation. Of course, in P&P and minimalist theory 'phonology is different', cf. Bromberger & Halle (1989), but if all the PF rules need is a syllabic core to make the PHON content of T pronounceable, the simplest vowel (say, 'schwa') will suffice. Inserting as much PHON material as PHON (DO) for that purpose arguably violates Economy.

Of course, 'dummy DO' is unlikely to be what the standard analysis claims for still other less theory-bound and empirically more robust reasons. One is that, if it were only a category-less morph or a syllable, the inflectional alternation it manifests under contraction with NOT and as a consequence of person and tense choices (Ablaut) would be unjustifiable. Ablaut is a typical inflectional pattern of early Indo-European roots, particularly those of old verbs like the ancestors of English DO, but the items that undergo Ablaut have morphological, syntactic, and semantic properties (i.e., they are roots or affixes, belong to specific categories, select or are selected, and have meaning). Irregular inflection arises in the morphological component of the Lexicon, not in PF, and it is not a purely phonetic process, although it has PF consequences. Also, the 'dummy DO' theory has chosen to ignore the fact that third person singular agreement, a regular process, applies to 'dummy DO'

precisely as it does to all verb stems (Ablaut aside). The rules of inflection, in sum, operate on lexical items with category and other features. Category-less formatives and syllables, on the contrary, do not inflect, and non-verbal stems certainly do not inflect for tense and agreement. How, then, can DOES and DID be well-formed **unless** ‘dummy DO’ is a verb stem?

The ‘dummy DO’ theory also leaves crucial syntactic selection facts unexplained. In particular, why it must be followed by a bare infinitive, cf. (4), is a mystery if ‘dummy DO’ is just a morph or a syllable, since such entities should not select at all.

- (4) a. He did not forget/*to forget/*forgotten/*forgetting you.
 b. He *díd* forget/*to forget/*forgotten/*forgetting you.
 c. Did he forget/*to forget/*forgotten/*forgetting you?

Note that, under the ‘last resort’ view of ‘dummy DO’ and stipulation 3e) above, in (4) the infinitival inflection feature of the correct form FORGET cannot be selected by any other head but DO, since other auxiliaries must be absent by definition and neither T nor Polarity selects a bare infinitive: T(/the tense suffix) selects an uninflected V **stem**, but not an inflected V/VP, and Polarity (assuming, for argument’s sake, that it is inserted under TP) apparently has no inflectional selection features. Note that its most typical exponent, NOT, can be followed by verbs with any inflection whatsoever (depending on the auxiliary that precedes in each case), cf. (5).

- (5) a. He will not forget/*forgets/*forgetting/*forgotten you.
 b. He has not forgotten/*forgetting/*forget/*forgets you.
 c. He is not forgetting/*forget/*forgets/*forgotten you.
 d. He is not forgotten/*forget/*forgets.

Significantly, if the clause is non-finite, NOT may be followed by a participle or by a TO-infinitive, cf. (6a), but **not** by a bare infinitive, cf. (6b). Of the auxiliary verbs, only a core modal (i.e., all but OUGHT) and ‘dummy DO’ can precede bare infinitives.

- (6) a. Not telling / to tell / (told,) this story is even more dangerous.
 b. *Not tell the story is even more dangerous.

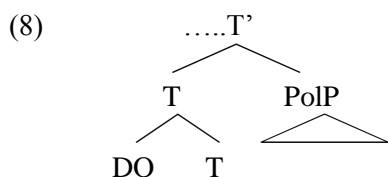
Of course, core modals precede bare infinitives because they select them,⁷ a well-known fact, but why an empty morph or a syllable should have such a property is a mystery, or something unbelievably exceptional. The logical assumption to make is that ‘dummy DO’ is itself either another core modal, as Culicover (1976) and Chomsky (1991: 139) claimed, or another kind of auxiliary verb with similar selection properties. As a matter of fact, only the second hypothesis is correct: although ‘dummy DO’ seems to alternate with finite modals, only the latter can be followed by aspectual auxiliaries, which strongly suggests a category difference. There are semantic ones, too (e.g., modals do not entail existential claims, whereas DO_{AUX} does), but what matters here is that an empty morph or syllable specified as obligatorily preceding, but not selecting, a bare infinitive is simply unthinkable. If selection and inflection facts are to be made sense of, ‘dummy DO’ must be an auxiliary verb and must be inserted, not in PF, but in syntax, as Lasnik himself concedes in Lasnik et al. (2005: 73).

An even stronger syntactic argument against the ‘dummy DO’ theory is that the resulting tensed forms of DO have the ‘NICE’ properties, i.e., they precede negation, undergo Subject Auxiliary Inversion [= SAI, hereafter], allow contraction, and license VP ellipsis, and such properties cannot derive from tense, since, in Modern English, tensed main verbs do **not** have them. Where do they come from, then, if DO is just a category-less syllable and is not **yet** in the derivation when negative and interrogative structures are built? Recent PF versions of the ‘dummy DO’ theory leave this important detail unexplained, but the explanation is obvious: ‘dummy DO’ must be an auxiliary verb, and it has the NICE properties because all auxiliaries have them when they happen to land in certain structural positions.

Stipulation b) is also rather implausible, as no other syllable must occur only preceding the PF reflex of anything else, but, anyway, if a syllable must support the PHON content of T when finite, it should also do so when the stranded affix is participial or passive, and yet ‘dummy DO’ never surfaces in non-finite form, cf. (7). Thus, the extremely restricted distribution of the presumed morph or syllable, i.e., in/at T in narrow syntax, or preceding PHON (T) at PF, but nowhere else, should be explained, rather than stipulated (= Culicover’s objection).

- (7) a. *Doing not go was a mistake. / Not going was a mistake.
 b. *Done not decide to marry, he just disappeared. / Not decided to marry, he just disappeared.

As soon as the preceding inflectional and syntactic facts are acknowledged, stipulation b) causes another serious problem: if DO is directly attached to T (or inserted in the V stem slot selected by the tense suffix), it might at best satisfy the selection feature of the suffix, but **not its own**. Under standard assumptions (say, Merge), the resulting syntactic object {DO, T} should project as a T, and DO, like all non-heads, should become invisible to further computation and unable to subsequently take any complement of its own. Observe that under the standard bottom-up Merge-based algorithm and the Extension Condition, by the time DO can be attached to T, T' has already been built and what follows T (Polarity Phrase, in standard accounts) is its complement, cf. (8). There is, thus, no way in which DO can take the infinitival IP complement it selects if it is directly attached to T.



How, then, can the selection feature of DO remain systematically unsatisfied? But, of course, it does **not** remain unsatisfied, as shown, cf. (4). Hence, although auxiliary DO surely lands in T at some stage, it must first have the chance to satisfy its own selection feature by taking an appropriate bare infinitival IP complement, and that must happen below T. In fact, it must happen below all modal heads, as well, as modals are obligatorily finite in English and cannot be the complements of any auxiliary verb, including auxiliary DO.

Furthermore, if DO is inserted at T, its incompatibility with all other **following** auxiliaries, cf. (1), becomes inexplicable, for a TP may contain them. Admittedly, since Standard English modals are nowadays obligatorily finite and only one finite verb is permissible *per* clause,⁸ a modal will always be ungrammatical after a finite auxiliary DO. The same would apply if DO_{AUX} were itself a modal, but why should DO in T (or Mod) also exclude **lower** auxiliary HAVE and BE or ‘passive BE’ when they are inflected according to what DO requires, as in (1b-d)? The standard answer is that such cases

cannot arise, by definition, since ‘dummy DO’ is inserted only when **no** other auxiliaries are available, but why **can’t** they be available? Essentially, this is the problem already discussed with respect to tensed main verbs in note 3. Once the dummy status of DO and its insertion site are challenged, and on reasonable grounds, that new stipulation must itself be replaced with a proper explanation.

Stipulation c) is also conceptually and factually suspicious. On strictly conceptual grounds, since clausal negation is a propositional function and propositions contain descriptions of events **with** an event-time specification, exactly the opposite is to be expected. However, the relative scope of negation and T in syntax remains moot, cf. Zanuttini (1997: 216, 236-7; 2001), and for three reasons: 1) because which syntactic projections are ‘propositional’ and what sense of ‘proposition’ is relevant to internalist linguistics, is still unclear;⁹ 2) because main clauses contain **at least** two T-like heads (inherent event time vs. utterance time, cf. Reichenbach 1947: 287-98), one below and the other (apparently) above negation (in English, but not e.g. in French or Spanish); and 3) because the highest T is inherently relational,¹⁰ which leaves T within the scope of negation even if one of its elements (T heads) is merged, or has raised, above negation. Hence, the position of the English tensed auxiliary at PF with respect to negation is misleading. In genetically related languages, negation (e.g., NON in Latin or Italian, NO in Spanish, NE in French and earlier English, etc.) precedes, and, granted Kayne’s Linear Co-occurrence Axiom, must also asymmetrically c-command tensed verbs (auxiliary or not). In English, on the contrary, tensed auxiliaries precede negation at PF, but there is evidence suggesting that, even in English, **all** T heads are **under** negation: tense is the focus of negation in (9), and NOT precedes and must structurally be higher than subjunctives, cf. (10), and the non-finite I correlates of T (-ING and TO) in (11).¹¹

- (9) a. He did, but does not, smoke.
 b. He does, but did not, smoke.

(10) Oncologists recommend that patients **not** be informed until it is inevitable.

- (11) a. **Not to** accompany her seemed rude.
 b. She wants me to accompany her, but I prefer **not to**.

c. **Not having** applied for the job, I can hardly expect to get it.

Obviously, since, at PF, English tensed auxiliaries precede NOT, **some** verb-hosting head must exist above negation, but it need not be T. Under syntactic assumptions popular in the mid 1980s (cf. Baker 1985; 1988), the surface order of tense and agreement suffixes in languages where they remain distinguishable (e.g., Old English, German) suggested that the functional head in which tensed auxiliaries become visible in declarative clauses is Agr_S, not T, cf. Ouhalla (1990), Belletti (1990), Chomsky (1991), Radford (1997), Haegeman & Guéron (1999).¹² If so, T need not be higher than negation and negation need not obstruct verb raising to T or cause the stranding of the tense suffix, which calls the ‘dummy DO’ account into question. Other possibilities are Predication (cf. Bowers 1993; 2001), Finiteness (Rizzi 1997), Force (as claimed here), or Comp. Under any of those analyses, ‘dummy DO’ should not exist **as a last resort tense-carrier**, although it might still be needed for **other** reasons.

Stipulation d) is technically dubious, as well as rather imprecise. Why negation should interfere with the attachment/licensing of tense in English, but not in other languages (including earlier English), why it should do so only when T is finite (cf. 4), and why only with main verbs, but not with auxiliaries, is mysterious, particularly if NOT is phrasal. Whether it is, as assumed here,¹³ or not is still moot, cf. Zanuttini (2001: 524-9), but for current purposes it hardly matters: if it is a head (cf. e.g. Pollock 1989; Ouhalla 1990; Laka 1994; Potsdam 1997) it should interfere with **all** V raising, whereas, if it is a phrase, it should not interfere with **any**.¹⁴ The fact that in contemporary English only auxiliaries can raise above negation led Pollock and Chomsky to propose rather baroque solutions in this respect,¹⁵ but before following their course it is worth while reconsidering whether T must indeed be structurally higher than negation (i.e., stipulation c). If the opposite holds, negation will not interfere with any V raising to T whether it is a head or a phrase, and either ‘dummy DO’ is not a last resort tense-carrier at all or it flagrantly violates Economy. On the other hand, tense stranding, and consequently ‘dummy DO’, occur also in non-negative contexts, which shows that **other** categories also interfere with the attachment of tense, but what they are (emphasis? interrogative force?) and why they do is also unclear, since e.g. intervening adverbs do not. Significantly, the other factors obviously involved in the appearance of ‘dummy DO’ at PF are all associated with choices in Force/Comp (cf.

Bresnan 1972; Zanuttini 1997; 2001; Benincà & Poletto 2004, Jäger 2006), both structurally higher than T and unable to obstruct V-to-T raising (or affix lowering, for that matter).

Stipulation e) is obviously meant to support/be supported by the preceding ones. According to the standard doctrine, the only function of ‘dummy DO’ is that of a last resort tense-carrier, but although ‘dummy DO’ is invariably tensed in the attested forms, that characterization is dubious, because it rests on tense being stranded, which in its turn depends on its being ‘higher’ than negation and on the latter’s capacity to interfere with the attachment of tense features, i.e., stipulations c) and d) just discussed. However, to the extent that ‘dummy DO’ can be triggered by features at Force/Comp, Focus (cf. Rizzi 1997), some other projection above IP (cf. Grimshaw 1997), Mood (cf. Schütze 2004), or Polarity (Roberts 1998), its characterization as a mere tense-carrier is too dependent on an analytical artefact of Chomsky’s (1955) Aux analysis (stranding) and on a parochial fact (the overt position of tensed auxiliaries and negation in English), rather than on a plausible hypothesis about the scope of negation and T at UG.

Finally, stipulation f) is a ‘global constraint’ that blocks DO-support if **any** auxiliary in **any** form has already been inserted. Yet, if derivations result from Merge and grow bottom-up subject to the Extension Condition, as assumed in minimalist theory (cf. Chomsky 1992, 1995 and subsequent work), nothing short of an *ad hoc* prohibition can have that effect. Since auxiliaries may be selected in non-finite form and not be eligible to license tense features anyway, if one or more non-finite ones are inserted, T will remain unlicensed and ‘dummy DO’ will still be called for to save the derivation. Obviously, that will generate ungrammatical sequences of ‘dummy DO’ and non-finite auxiliaries like (1), but only an additional global stipulation like f) can avoid that unwanted result. Making ‘dummy DO’ a last resort *per se* will not, since, under Last Resort, ‘dummy DO’ is ‘locally’ needed whenever tense is stranded, and tense will get stranded, even if lower auxiliaries are chosen, whenever they are not inserted in finite form. This argument applies whether verbs enter derivations with all their inflections on, as in Chomsky (1995), or acquire their inflectional values in context, as in Chomsky (1999) and subsequent work. In the latter case nothing should block the insertion of an appropriate I head to assign to the auxiliary below whatever inflectional features it needs.

If DO is not a last resort tense-carrier, after all, but a *bona fide* auxiliary verb, as the inflectional evidence, its selection preferences, and its NICE properties indicate, and if it is not inserted at T, but

lower, as all the facts above suggest, why it is always tensed and incompatible with **higher** auxiliaries, cf. (2), also needs explanation, since auxiliaries, with some restrictions, may co-occur (cf. *He may have been being blackmailed*). Why, then, should DO_{AUX} also be unable to follow modals, auxiliary HAVE, BE, or 'passive' BE? The 'dummy DO' theory, again, simply avoids the problem by circular stipulations: 'dummy DO' is obligatorily tensed because it is allowed nowhere but at T, and auxiliaries do not occur above T because T is attached higher than auxiliaries. But, of course, once the insertion of 'dummy DO' directly at T is shown to be untenable, those two facts also remain to be explained.

In general, whether restrictions on the co-occurrence of auxiliaries follow from the semantic, selection, and inflectional properties of auxiliaries themselves or from the UG-determined geometry of the structures in which they must fit is moot. Those may be the two sides of the same coin, but that hardly dispels the essential uncertainty as to what has caused what. According to a lexicalist explanatory strategy, the restricted distribution of DO_{AUX} follows from an irreducible fact: like modals, it cannot appear in non-finite form because it no longer has such forms, and it never follows other auxiliaries (or any other verb, for that matter) because they all happen to select non-finite forms. Yet, the defectiveness-based explanation is easier to accept in the case of English modals than in that of DO_{AUX}. Significantly, whereas DARE or NEED have no third person singular inflection when they function as auxiliaries, 'dummy DO' has exactly the same forms as the main verb DO, from which it unquestionably derives, cf. Denison (1993: 255-74) for a useful summary of the facts. Of course, supporters of the 'dummy DO' theory tend to deny the historical connection between 'dummy DO' and main verb DO, but there are significant exceptions. According to Pollock (1989: 399-400), for example, 'dummy DO' is parallel to main verb uses of DO as a substitute, Grimshaw (1997: 386-8) claims that there is just one verb DO and that 'dummy DO' is simply the main verb DO when its lexical-conceptual structure remains unparsed, and there are similar pronouncements in e.g., Stroïk (2001: 363), Embick & Noyer (2001: 586) and Haddican (2007: 545-6). If so, there is no reason why DO_{AUX} should be intrinsically unable to have the non-finite forms its relative main verb DO has. More 'neutral' scholars like Quirk & al. (1985: 132-5) speak of one and the same verb in two uses, and Denison (1993: 281) or Huddleston & Pullum (2002: 75, 85), for example, do not consider DO_{AUX} defective at all.

Defectiveness-based explanations, in any case, are to be taken with a pinch of salt, in general, because defectiveness may itself be the consequence, rather than the cause, of overt syntactic distribution, i.e., a verb may never appear with a certain inflection because syntactic or semantic obstacles of various kinds conspire to prevent it from reaching the only position in which that inflection can be licensed by an appropriate head. Thus, according to the sound methodological principle of allowing exceptions only at the lowest possible level of generalization, in generative grammar the preferred strategy has always been to look for explanations first in the structure that UG imposes, and only then, if necessary, let lexical idiosyncrasies account for exceptions. If that strategy is adopted in this case, too, before assuming that DO_{AUX} has turned defective in post-mediaeval times it is wise to look for more principled explanations, and there is a very simple and compelling one, as shown in section 3.3 below.

In sum, if DO is just an *ad hoc* formative or a mere phonological chunk inserted as a last resort precisely preceding tense when the latter is stranded, then, with the help of several mutually-supporting stipulations, it is found where it is expected and with no auxiliaries around, but such an account entails positing an exceptional object inserted in an exceptional way, violates Inclusiveness and/or Economy, implies using a ‘global’ version of Last Resort instead of a ‘local’ one, fails to explain the inflectional features, complementation preferences, and NICE properties of DO, and merely stipulates its radical incompatibility with other auxiliaries. Thus, the ‘dummy DO’ solution is far from optimal, after all, even as an engineering trick, it is conceptually objectionable on theory-internal grounds, and it is empirically inadequate, as it ignores robust inflectional and syntactic evidence suggesting that ‘dummy DO’ is an auxiliary verb. Reinstating ‘dummy DO’ as DO_{AUX}, on the contrary, immediately explains why it has Ablaut, carries tense and agreement, selects bare infinitives and has NICE properties, which removes its exceptional character and the associated violations of Economy. What remains to be explained is why DO_{AUX} occurs only where it does and what exactly it is doing there. Bearing in mind the preceding discussion, section 3 below offers a new account of its function and distribution that maintains rigid versions of key principles like Selection, Satisfaction and Economy and avoids the conceptual deficiencies of the ‘dummy DO’ solutions.

3. AN ALTERNATIVE: THE ‘LOW DO_{AUX}’ HYPOTHESIS

3.1. *Introduction*

Broadly speaking, the ‘low DO_{AUX} hypothesis’ (LDAH, hereafter) fits into a P&P/minimalist theory of English grammar and may be read as an alternative solution to one of its long-standing problems, but an effort has been made to make it relevant to a wider readership. The empirical facts it addresses, obviously, must be explained whatever theoretical framework is adopted, its argumentation, as that of the preceding critique of ‘dummy DO’ accounts, rests on well-established methodological values (i.e., consistency, simplicity) that should appeal to linguists generally, the deliberately broad concepts of Economy, Selection, Satisfaction, and other technical devices it assumes should be common ground to all ‘generative’ approaches, and its main claim, the semantic role it attributes to DO_{AUX} as an existential quantifier over events, fills an important gap in the semantics-syntax correspondence and is a theory-neutral innovation compatible with any approach that takes that correspondence seriously.

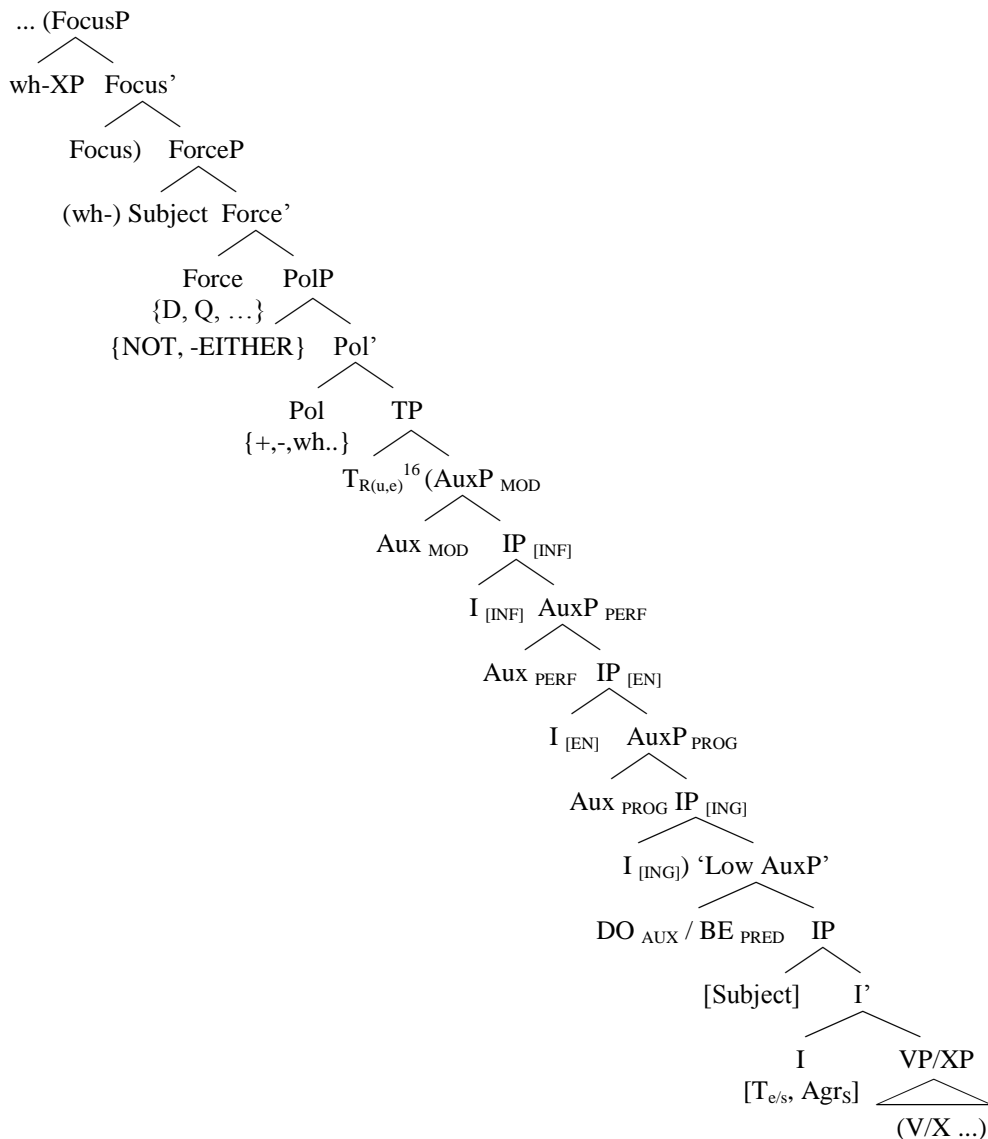
3.2. *Clause structure and preliminary overview*

As a matter of fact, rather slight changes in the structure usually attributed to English clauses in P&P/minimalist textbooks like Haegeman & Guéron (1999), Radford (2004) or Lasnik et al. (2005) suffice to integrate the alternative view of DO_{AUX} proposed here, dispense with the problematic ‘dummy DO’ analysis, and obtain a satisfactory account of the facts. For the reader’s benefit, the clause structure assumed in this paper is represented, with some irrelevant simplifications, in (12) and a quick overview of the main features of the analysis follows directly in order to help readers bear with me until the proposal is fully specified in sections 3.3 and 3.4 below.

Note that structure (12) is deliberately conservative as to category labels (cf. note 2), standard two-tiered X-bar structure, binary branching, just one complement and one specifier per shell, initially VP-internal subject, etc. Bottom-up, it consists of a) a thematically complete main VP or XP; b) a first IP that establishes the core ‘predication’ (cf. Bowers 1993; 2001); c) the obligatory default ‘low AuxP’ containing DO_{AUX} or BE_{PRED}; d) optional Ross-style Aux-iteration, with each ‘marked’ Aux (subscripted as Mod[al], Perf[ective], or Prog[ressive]) selecting an inflectionally appropriate

infinitival or participial IP (cf. Chomsky 1995: 350-1); e) T[ense] under Pol[arity] (cf. Zanuttini 1997, 2001 and the discussion of (9-11) above); f) a ‘left periphery’ like that of Rizzi (1997), although, for reasons discussed below, in (12) his Fin[iteness] is Force and our FocusP is built only ‘on demand’. C[omp], therefore, no longer contains [Force] properties: it is a mere type-shifting ‘subordinator’ absent from root clauses, but structure above FocusP is irrelevant to the LDAH and will be ignored.

(12) [Slightly simplified] structure of English root clauses



The relative position of Tense and Polarity issue aside, the non-standard features of (12) on which the LDAH depends are, in bottom-up order: a) the obligatory insertion of DO_{AUX} (or BE_{PRED}) in ‘Low Aux’ as **default** auxiliaries, the key claim of the paper, cf. section 3.3; b) the distinction of additional marked values of Polarity, cf. section 3.4; and c) the choice of Force and Spec ForceP,

respectively, as the final landing sites of finite auxiliaries and subjects in declarative clauses and subject-focus questions, cf. section 3.4.

Movement applies to (12) subject to Economy, as in standard P&P/minimalist accounts, and one of the consequences, the Head Movement Constraint (HMC, hereafter), plays a crucial role in the explanation of the phenomena under discussion here.

As regards head movement, the key fact is that Force (T, Fin, in alternative accounts) attracts the highest verb,¹⁷ which in (12) is always an Aux, necessarily overt when ‘marked’ (i.e., a modal, HAVE or BE),¹⁸ or, as will be claimed here, overt only if marked Polarity, Force or Focus require it, in the case of the ‘unmarked’ DO_{AUX}, which is covert by default, cf. section 3.4. If the clause does not contain marked auxiliaries, what lands in Force is DO_{AUX}. If it is overt, it will carry tense; if not, it will not be eligible to carry any overt inflection and the tense affix will ‘hop’ onto the main verb, the closest potential tense-carrier. Since at least the default auxiliary DO_{AUX} (alternatively, BE_{PRED}) must be present in every clause (cf. section 3.3), only auxiliaries are allowed to raise. As shown below, structure (12) and the HMC have the nice effect of blocking all raising of main verbs (or any non-verbal category that may head XP).

The second relevant head movement fact is that the highest auxiliary has to raise further (= SAI) when Force is interrogative¹⁹ unless the [WH: +] feature that must license interrogative Force is in the subject, cf. *Who phoned* (vs. e.g. *When did you phone?*). According to Rizzi (1997) and, in an OT framework, Grimshaw (1997), in *Who phoned* the auxiliary need not raise beyond Fin (V, in Grimshaw) because the relevant features can be locally matched in the subject’s canonical landing site (Spec FinP, for Rizzi; Spec VP or Spec IP, depending on whether the clause contains a marked auxiliary, for Grimshaw), whereas a [WH: +] feature in a non-subject must be checked in Spec FocusP (or in an unlabelled projection above IP, in Grimshaw), which triggers the raising of the auxiliary in Fin/I into Focus (= SAI). For such accounts to work, however, Fin (/I, V) must contain an ‘interrogative’ feature that can ‘bind’/‘agree with’ the [WH: +] feature of the subject, as Rizzi admits (1997: 317), but ‘interrogative’ is obviously a Force-related property. Why should Fin or I (not to mention V) contain a Force property unless Fin is, in fact, Force? Structure (12), therefore, has Force where Rizzi has Fin.

As regards subject movement, nothing special is assumed here except that, correspondingly, it is Force, not Fin (/T), that attracts the subject into its specifier (= the Extended Projection Principle; EPP, hereafter). If Force is interrogative and the subject contains [WH: +], Force can be licensed by the subject directly in Spec ForceP. If the [WH: +] carrier is a non-subject, in contrast, further structure must be built, i.e., FocusP in (12). This solution preserves the advantages of Rizzi’s and Grimshaw’s analyses, but avoids their dubious association of Force properties with Fin/I or V. It also entails, however, that the [FOC: +] feature of *who* is ‘checked’ in Spec ForceP, whereas that of a non-subject must be checked in Spec FocusP, but, if this duality is a problem for the present analysis, so it is for Rizzi’s (1997) and Grimshaw’s (1997).

What is here proposed to justify it is a distinction between ‘default’ and ‘marked’ questioning and focusing strategies. Since [WH: +] or [FOC: +] in the subject require neither further structure-building nor additional movement, they arguably are the ‘unmarked’ choices for the licensing of interrogative force and unmarked focus, respectively, both features of Force. On the contrary, questioning (or focusing) a non-subject entails building FocusP, longer wh/XP movement (into Spec FocusP), and additional V raising into Focus (= SAI), and to that extent constitute ‘marked’ choices. As argued in section 3.4, this difference affects the distribution of DO_{AUX}: under unmarked focus, DO_{AUX} need not, and therefore cannot, be overt (cf. **Who did phone?*).

In what concerns ‘yes/no questions’, the present account essentially returns to Katz & Postal (1964) and treats them as marked-focus ‘wh questions’ whose [WH: +] carrier happens to be the specifier of Polarity (i.e., WHETHER, when overt). Yes/no questions trigger the construction of FocusP, since, like all marked [WH: +] operators, WHETHER must raise into Spec FocusP. What is special about it is that it has a phonetically null alternant chosen by default whenever an overt head reaches Focus, as explained in section 3.4. In so-called ‘indirect yes/no questions’, on the contrary, no head lands in Focus and WHETHER must be overt (unless IF selects and licenses the ‘indirect question’ from Comp, an aspect not discussed in this paper).

As to the fact that so-called ‘indirect questions’ (Ulster English and other non-standard dialects aside) do not trigger SAI even if their [WH: +] operator is a non-subject, it will be assumed here that they do not contain interrogative Force, i.e., they are not real questions, which explains why they do not require answers. Like real questions, however, ‘indirect questions’ require a FocusP to allow

marked focus operators to check their [FOC: +] features in its specifier, but, as explained in section 3.4, a) the auxiliary need not, and therefore cannot, raise to Focus, and b) the absence of marked Force allows DO_{AUX} to remain in its default phonetically null form.

This is just a quick overview of the broader picture into which the LDAH is intended to fit. It has been anticipated here to help readers and minimise reference to background in sections 3.3 and 3.4, where the details that matter to the LDAH in the strict sense are more carefully specified.

3.3. *DO_{AUX} as the overt exponent of an existential quantifier over events*

Most of the syntactic and semantic assumptions that underlie the LDAH, rather than being new, just reinstate well-established properties of DO_{AUX} that the ‘dummy DO’ theory has failed to acknowledge. As argued at length in section 2, so-called ‘dummy DO’ is not just an empty formative or an arbitrary syllable, but a full lexical item with well-defined properties at all levels: a) it has a phonetic matrix that may or may not be spelt out, cf. section 3.4; b) it has syntactic category and subcategory attributes valued [CAT: V] and [AUX: +], respectively; c) it is, morphologically speaking, a V stem requiring tense and agreement inflection, irregular in this case (Ablaut); d) it syntactically selects the infinitival IP that contains the main verb and the core predication; and, more controversially, e) it semantically selects an ‘event’ and has a subtle, but non-trivial semantic value (roughly: ‘occur’) that enables it to function as the existential quantifier needed to bind the ‘e’ variable of its IP complement. The fact that all main verbs that can follow DO_{AUX} entail an existential predicate ‘occur’ is consistent with that assumption. On the other hand, the fact that DO_{AUX} is obligatory (since the ‘e’ variable must be bound) and occurs in (12) as the Aux directly above the core predication converts it into the default core predication proxy, cf. Pollock (1989: 399-400). Of those lexical properties, category, selection, morphological status and inflection have already been justified in the detailed critique of ‘dummy DO’ theories developed in section 2. Only the semantic properties of DO_{AUX} need careful justification, since perhaps everybody else’s view is that this type of DO is semantically empty. What follows, therefore, is the gist of the LDAH.

The source of the generalized belief in the semantic emptiness of DO_{AUX} is that, if English clauses like (13a, b) are compared with e.g. their exact Spanish or French equivalents in (14a, b) and (15a, b), respectively, DO_{AUX} seems to contribute no meaning at all. Since, furthermore, it has no

visible counterparts in those (and most) languages, generative scholars have found it reasonable, following Chomsky (1991), to consider it no more than a low-level lexical idiosyncrasy of English.

(13) a. John smokes.

b. John does not smoke.

(14) a. Juan fuma.

b. Juan no fuma.

(15) a. Jean fume.

b. Jean ne fume pas.

However, in recent times, possible analogues of ‘dummy DO’ have been postulated in certain dialects of Romance (e.g., Monnese, cf. Benincà & Poletto 2004; Sicilian, cf. Mauro Mirto 2009), German (cf. Schütze 2004; Bader & Schmid 2006), Dutch (cf. Hulk & Cornips 2005), Danish (cf. Houser et al. 2006), Old Norse (cf. Viðarsson 2008), Old Irish (cf. Newton 2006), and even typologically remote languages like Korean (cf. Yang 1994; Hagstrom 1996), Japanese (cf. Aoyagi 1998) or Basque (cf. Haddican 2006). None of the lexical items considered has exactly the same properties as DO_{AUX}, though, but the fact that they play similar roles in the strategies such languages deploy to handle syntactic processes parallel to those in which English DO_{AUX} is involved suggests that DO_{AUX} and similar verbs are more than minor language-particular idiosyncrasies.

Indeed, if the present analysis is on the right track, DO_{AUX} is the English representative of a UG primitive, an existential quantifier over events, and languages differ only in whether they have lexicalized it (e.g., Modern English) or not (e.g., Earlier English, Spanish, French, Italian). In the latter case, the existential quantifier must still figure as a component of the semantic specification of states of affairs, which, assuming for the sake of argument Parsons’ (1980) Davidsonian approach, must be at least (16) (where ‘e/s’ stand for ‘event’ and ‘state’, respectively, P specifies the type of event/state involved, and ‘&...’ represents argument structure, possibly including subordinate events).

(16) $[\exists e/s [P (e/s)] \&\dots]$

Since languages with DO_{AUX}-like auxiliaries remain a small minority, it is reasonable to assume that such auxiliaries constitute a marked UG option. Furthermore, in such languages overt realization of the DO_{AUX}-like auxiliary may, in its turn, develop into a marked option. Arguably, this is what has happened in English: when DO_{AUX} first became recognizable as such, it appeared even in non-negative, non-interrogative, and (apparently) non-emphatic contexts (cf. Denison 1993, Roberts 1993), but it soon became restricted to the ‘marked’ (negative, interrogative, emphatic, elliptical...) contexts where it is found nowadays (‘spurious DO’ aside). Or, rather, its overt forms did, as DO_{AUX} must be present even when not spelt out. Straightforward evidence that this is so comes from its otherwise unexpected appearance in the tags of sentences like *John smokes, doesn’t he?*, under the traditional assumption that the tag contains a copy of the highest auxiliary of the antecedent clause. An elegant way to account for such facts is to assume that DO_{AUX} has both overt (i.e., marked) and covert (i.e., default) versions.²⁰ What needs to be explained is why each must occur only in certain circumstances.

But, first, what evidence is there that DO_{AUX} is semantically relevant, in spite of appearances when only simple paradigms like (13)-(15) are considered? One of the key assumptions of Chomskian generative grammar is that overt form and the syntactic-semantic representations internally computed differ substantially. Thus, even if in examples like (13)-(15) nothing semantic **seems** to be in bi-unique correspondence with the phonetic representation of DO_{AUX}, it still does **not** follow that DO_{AUX} is just a PF entity or an empty syntactic dummy. The reason is simple: our grasp of internal syntax and the PHON<>SEM correspondence is still too poor, particularly at clause level.

This paper argues, on the contrary, that the semantic role of DO_{AUX} is not even deeply hidden, but deducible enough from the simplest representations of English semantic structure that can claim to be moderately adequate (i.e., predicate logic enriched with events, times, and higher-order existential, aspectual and modal predicates).

As early as 1967, Davidson offered compelling evidence that the LF of action sentences must contain an invisible higher-order ‘event’ argument represented by a variable ‘e’ and bound by the restricted existential quantifier $\exists e$. At the time, Davidson just added ‘e’ to the argument structure of verbs, which disguised the special status of the new argument, but in Parsons’ (1990) re-elaboration of

the Davidsonian approach the ‘e’ variable is no longer another argument of the verb, but a sort of ‘substrate’: an argument of all the predicates that define the semantic roles of participants, and thereby the event as a whole. Thus, the minimal Logical Forms (LF, hereafter) of e.g. *John invited Mary* and *John did not invite Mary* are, in Parsons’ terms, (17a) and (17b), respectively.

- (17) a. $\exists e$ [Inviting (e) & Agent (e, John) & Theme (e, Mary) & Time (e, t < now)]
 b. $\neg \exists e$ [Inviting (e) & Agent (e, John) & Theme (e, Mary) & Time (e, t < now)]

Correspondingly, ‘states’ are built by conjunction of predicates over a ‘state’ variable ‘s’ also bound by an appropriate restricted quantifier, ‘ $\exists s$ ’. Hence, Parsons’ minimal LFs for stative sentences like *Bill is in love* and *Bill is not in love* are, respectively, (18a) and (18b).

- (18) a. $\exists s$ [Being-in-Love (s) & Experiencer (s, b) & Time (s, t = now)]
 b. $\neg \exists s$ [Being-in-Love (s) & Experiencer (s, b) & Time (s, t = now)]

Since negation denies the occurrence/existence of an event/state (at a specific [interval of] time $t_{e/s}$), but **not** the event/state itself, cf. Frege (1919: 122-3), it must take scope over the existential quantifiers, which, in their turn, must take scope over the corresponding events/states, with their inherent time specifications, as in (17)-(18). Thus, in present terms, Parsons’ LFs minimally require a partial syntactic structure [... (NOT) [‘low Aux’ [_{IP} $t_{e/s}$]]]. Note, however, that the value of the Time predicates in (17)-(18) is minimally defined as a relation between the time of the event/state ($t_{e/s}$) and the time of utterance ($t_u = \text{‘now’}$), and may involve further parameters if the proposition contains aspectual or modal predicates with their own IP complements (and T-like heads), cf. note 16. Since the relation $R(t_{e/s} \dots t_u)$ is expressed in syntax by tense choices at the highest T head, under present assumptions LFs like (17)-(18) actually motivate a partial syntactic structure [(NOT) [_{T_R(u...e)} ... [‘low Aux’ [_{IP} $t_{e/s}$]]]], where ‘...’ stands for possibly occurring ‘marked’ auxiliaries with their IP complements, as in (12).

Obviously, Parsons’ ‘flat’ conjunctive formulae ignore the elaborate binary-branching structures that Merge-based syntactic theory postulates inside clauses, and, to the extent that the latter are well-

motivated (e.g., by syntactic constituency tests), are clearly insufficient to capture strict compositionality, but they may serve as a starting point at least insofar as they represent the right truth-conditions and show how major clause constituents contribute to them. Assuming their adequacy, if only in that restricted sense, observe that nearly everything in them can be plausibly correlated with a constituent of the respective syntactic representations usually assumed. Anybody’s syntactic structure of (17a), for example, will certainly contain a verb (*invite*), a subject (*John*) with the role of Agent, a complement (*Mary*) with the role of Theme, and a Tense resolved as *-ed*, whereas that of its negative counterpart, (17b), will contain all that plus a negative Polarity marker (*not*). As to ‘e’, which represents the event as a whole, it has been associated with thematically saturated VPs, but, bearing in mind that linguistically construed events entail a subject-predicate perspective, it can perhaps more plausibly be associated with the IPs directly above them. Assuming so, the meaning-form correspondence is reasonably close in the direction SEM/LF > SYN (although not *vice versa*), but with an interesting exception: nothing syntactic seems to encode the existential quantifiers $\exists e$ and $\exists s$; and yet, there is no doubt that *John invited Mary* and *Bill is in love* assert the ‘existence’ (in the case of events, ‘occurrence’) of an inviting event and a state of loving, respectively. Of course, under P&P or minimalist assumptions, syntactic elements may be invisible **at PF**, but how can $\exists e$ and $\exists s$ correspond to **nothing** in the internal **syntactic** representation?

If, as Chomsky (2009: 386) insists, SEM and PHON developed for different purposes and ‘have nothing to do with each other’, that mismatch is not impossible, of course, but the minimalist view of internal syntax as an optimal computational device calls for a fairly close (ideally bi-unique) correspondence between the respective entities of form and meaning, and, if so, something should exist, at least in internal syntax, to justify the existential implications of sentences like *John invited Mary*. Obviously, the computational component of I-Language might syncategorematically add the quantifiers, but it is not supposed to (by Chomsky’s Inclusiveness condition). Since, on the other hand, all other quantifiers (e.g., *some*, *all*, *no*) have lexical realizations, the null hypothesis surely is that $\exists e$ and $\exists s$ are not different and correspond to still unidentified lexical items.

Pursuing that intuition, the LDAH claims that what lexicalizes $\exists e$ in Modern English is DO_{AUX}, an existential predicate roughly equivalent to ‘occur’ that selects ‘events’. Correspondingly, what

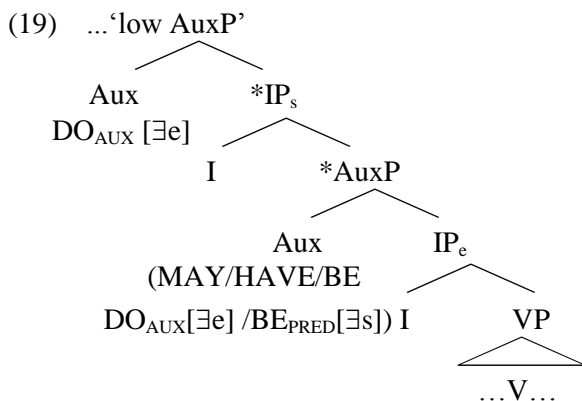
lexicalizes \exists s is BE_{PRED}, another existential predicate, roughly equivalent to ‘be the case’, that selects ‘states’. Both occur in ‘low Aux’, which now appears as a general existential operator. Syntactically, DO_{AUX} selects infinitival IPs containing VPs, whereas BE_{PRED} selects non-infinitival IPs containing non-verbal predicates (APs, PPs, etc.). The IP complements of BE_{PRED} seem to be headed by a subtype of I, perhaps Bowers’ (1993; 2001) ‘Predication’, that selects any XP except VP. Events and states as here defined, therefore, are complementary; they jointly exhaust possible ‘states of affairs’, just as their syntactic counterparts, verbal and non-verbal predications, exhaust possible predications.²¹ The same complementariness holds of the two existential quantifiers and, of course, of their syntactic counterparts DO_{AUX} and BE_{PRED}. This paper’s key claim, then, is that DO_{AUX} and BE_{PRED} act as existential quantifiers over events and states, respectively, and occur in complementary distribution in ‘low Aux’, although in earlier English, as in other V raising languages, DO_{AUX} was not yet available and it was the verb itself that conveyed the quantificational function of \exists e as it raised from VP into ‘low Aux’ and further.²²

The main difference between DO_{AUX} and BE_{PRED}, selection and age aside, is that DO_{AUX} shows overtly only when it raises from ‘low Aux’, never *in situ* (observe that it does not surface after marked auxiliaries), whereas BE_{PRED} must be overt whether it raises or not and, consequently, is visible after marked auxiliaries. The latter has occasionally been an argument in support of BE_{PRED} as a main verb, but the present analysis entails that there is no such main verb. BE_{PRED} is just another, older, default auxiliary. This hypothesis seems preferable to assuming that BE_{PRED} is inserted as a main verb and subsequently raises into ‘low Aux’. That would arguably explain why BE_{PRED} is necessarily overt, but would also make it the only Modern English main verb that preserves quantificational force and must function successively as main verb and auxiliary in the same derivation, two exceptional features. Under present assumptions, on the contrary, apart from its default nature, BE_{PRED} is like all other auxiliaries: all may have NICE properties if they land high enough, and all but DO_{AUX} must be overt (ellipsis aside), cf. section 3.4.

The syntax-based account of event and state quantification that emerges from the LDAH differs from standard treatments of quantification in an important respect, though. Whereas in the latter quantifiers may have other quantifiers in their scope, all variables are accessible to all quantifiers (provided they are in their scope), and, in the case of natural language semantics, quantifier-variable

relations must simply obey biuniqueness to prevent vacuous quantification, in the LDAH account *e/s* variables are **not** accessible to quantifiers (and *vice versa*) unless quantifier and variable are sisters. This is so because natural language structures must be binary-branching, DO_{AUX}/BE_{PRED} must have exactly one IP complement each, and that complement must carry a **unique** *e/s* variable. The reason for the latter is that the *e/s* variable is **the** variable of **the whole IP**, no matter what its internal structure may be and how many variables of other types (e.g., NP variables) it may contain; an IP cannot simultaneously be an event **and** a state (two events, etc.) any more than an NP can carry two individual variables. An event or state (an IP) may, of course, have internal structure (e.g., ‘accomplishments’ and ‘achievements’ contain sub-events, IPs often contain other IPs), but only the higher IP is ‘visible’ and counts for the purposes of selection by DO_{AUX} or BE_{PRED}, and, only its ‘*e*’ or ‘*s*’ variable is accessible to (and bound by) the respective quantifiers. That excludes other quantifiers or variables between $\exists e/\exists s$ and the variables they bind.

The strict locality that selection and binary-branching syntax impose on DO_{AUX}/ $\exists e$ and the complement/variable it selects/binds (IP/*e*), along with the stative meanings of marked auxiliaries (cf. note 15), have the effect of banning the latter between DO_{AUX} and its IP. Observe that, if any other auxiliary intervened, as in (19), a) the higher IP would be a ‘state’ and fail to satisfy the selection requirements of DO_{AUX}; b) the ‘*s*’ variable would remain unbound; c) $[\exists e]$ would not have a local ‘*e*’ variable to bind; and d) the ‘*e*’ variable of the lower IP would also remain unbound unless the lower auxiliary happened to be a second DO_{AUX}. In that case, selection would be satisfied within the lower AuxP and ‘*e*’ would be bound by the lower $[\exists e]$ quantifier, but a) the higher one would still not have an ‘*e*’ variable to bind; b) the ‘*s*’ variable of the higher IP would still remain unbound, and, of course, c) selection would be violated in the higher AuxP. Finally, if the lower Aux happened to be BE_{PRED}, a) selection requirements would be violated in both AuxPs; b) both quantifiers would be vacuous; and c) both variables would remain unbound.



This entails that the default DO_{AUX} must be inserted ‘low’, under other auxiliaries if present, not ‘high’, as assumed in most extant ‘dummy DO’ accounts reviewed in section 2. Rather than a ‘last resort’, therefore, DO_{AUX} is properly a ‘first resort’, i.e., it is the default auxiliary²³ that Modern English has developed to embody the existential quantifier that must bind the variables of all its eventive predications. Clauses may additionally contain ‘marked’ auxiliaries, but, these, if present, are attached **above** DO_{AUX}, as in (12).

In sum: quantification over events and states, contrary to quantification over individuals, is not only ‘biunique’, but also necessarily ‘local’: the existential quantifier DO_{AUX}/ BE_{PRED} and the IP that carries the ‘e/s’ variable must be **sisters**, which explains why all other auxiliaries are banned between DO_{AUX} (or BE_{PRED}) and their IP. Inflectional selection by itself, on the contrary, does not, as auxiliary HAVE and BE have infinitival forms that meet the selection requirements of DO_{AUX}.

The obligatory presence of DO_{AUX} in ‘low Aux’ has a second, and very nice, consequence: it explains **in structural terms**, without the need for lexical stipulations about the strength of Agr or the thematic structure of verbs and auxiliaries (cf. Pollock 1989; Chomsky 1991), why current English main verbs must remain inside their IP-VP complex, whereas earlier English and current Spanish, French, Italian, or German ones raise if necessary. Simply: if the existential quantifier is independently lexicalized and occurs in ‘low Aux’, the HMC (i.e., ultimately, Economy) will automatically block the ascent of the main verb below. Only DO_{AUX} will be close enough to be attracted by higher functional categories. Granted (12), in principle the main verb is never the closest potential inflectional carrier, either, since DO_{AUX} may be overt, cf. section 3.4. On the contrary, if ∃e is not independently lexicalized, presumably the default UG case, in the absence of auxiliaries the main verb is not obstructed by any such higher head and is allowed (in fact, forced) to raise *via* Tense into Polarity and

Force/Focus, as in German, French, Spanish, Italian and other V raising languages, including earlier English.²⁴

3.4. Overt and covert DO_{AUX}

If what has been claimed in section 3.3 is correct, DO_{AUX} has nothing to do with, and cannot be triggered by, a stranded tense affix, since it is required much lower, as a default auxiliary in ‘low Aux’, and even when higher auxiliaries can rescue the ‘stranded’ tense affix anyway. Although it always carries tense when overt, this is because tense invariably surfaces on the closest overt potential tense-carrier it c-commands, which, granted structure (12), in the absence of higher auxiliaries happens to be DO_{AUX} **if overt** and the main verb otherwise. The remaining issue, therefore, is what forces DO_{AUX} to be overt in certain cases if by default it is not.

The claim of the LDAH in this respect is simple: DO_{AUX}, like other lexical items (e.g., *that*, *for*, *whether*, *of*, etc.), has a Boolean syntactic attribute [PF: ±] whose default value is [PF: -] (= null at PF), it is inserted into ‘low Aux’ in its default form, and it remains so whenever higher auxiliaries prevent its ascent. When no higher auxiliaries exist, however, DO_{AUX} is attracted by Force, and in the course of its ascent must land in heads (Polarity, Force itself, and Focus, in SAI cases) whose features may be marked and must, in that case, be licensed by an overt head (or specifier). This is what sometimes causes the default [PF: -] value of DO_{AUX} to change to [PF: +] and eventually makes DO_{AUX} overt. Since derivations grow bottom-up, the re-evaluation of [PF: -] may occur as DO_{AUX} reaches marked Polarity, marked Force, or marked Focus. If it takes place in marked Polarity (e.g., in negations, emphatic statements, and ‘polar’ questions), the Principle of Uniformity of Chains enforces the re-evaluation of [PF: -] in the lower copy of DO_{AUX} (in ‘low Aux’) and makes the change [PF: -] > [PF: +] irreversible when DO_{AUX} lands in higher heads, even if these have unmarked features and do not by themselves require the marked [PF: +] variant. In other words, once the DO_{AUX} chain becomes [PF: +] at one of its links, that change cannot be undone, so DO_{AUX} ascends carrying its marked [PF: +] value and behaves as an overt head. Correspondingly, if the re-evaluation of [PF: -] occurs only at the top (e.g., in marked Focus, as in non-subject *wh*-questions with unmarked Polarity, cf. *infra*), the principle of Uniformity of Chains automatically updates the value of [PF: -] in the lower copies of DO_{AUX} in Force, Polarity, Tense, and ‘low Aux’, again, even if such categories have unmarked values

and do not by themselves trigger an overt DO_{AUX}. Assuming that an independent PF principle allows only the highest/foremost copy to be spelt out, re-evaluation and Uniformity have no PF effects on the lower copies, but they determine whether tense and agreement are eventually realized on DO_{AUX} or the main verb.

Note that, since Tense is here assumed to be **under** Polarity, if Uniformity did not enforce the unification of the value of [PF:], an overt copy of DO_{AUX} in Polarity or higher would be too high to block Affix Hopping. The copy of DO_{AUX} in ‘low Aux’, the only one in the scope of Tense, would still be specified as [PF: -], i.e., covert, and nothing would prevent tense-agreement from becoming attached to the main verb, which would leave the higher (and overt) copy of DO_{AUX} uninflected and yield deviant outputs like (20).

- (20) a. *He do not speaks German.
 b. *Do he speaks German.
 c. *Which dialect of German do he speaks?
 d. *Who do not speaks German?

On the contrary, assuming the principle of Uniformity of Chains, if any link of the DO_{AUX} chain is [PF: +], all must be, which makes DO_{AUX} overt and a potential inflection-carrier. Tense and agreement features must still syntactically attach themselves to the only copy in the scope of Tense (that in ‘low Aux’), by ‘Affix Hopping’, but Uniformity will subsequently enforce inflectional unification in all the higher copies, too, and tense and agreement features will eventually surface attached to whichever copy of DO_{AUX} is spelt out (i.e., the highest one, by assumption). Thus, if DO_{AUX} is overt, it is always tensed, but this does not entail that it is inflectionally defective.

If higher auxiliaries occur, of course, DO_{AUX} will be structurally unable to raise from ‘low Aux’ (by HMC) and will have no reason to do so, since it will not be close enough to Force to be attracted. In that case, it will remain in ‘low Aux’ in its default form, will not be visible at PF, and will not be eligible to carry overt verbal inflections. Whatever verbal inflection occurs in the I head selected by the marked auxiliary immediately above will then search for the closest potential carrier in its scope, skip the ineligible covert DO_{AUX}, and attach itself to the stem of the main verb, which is necessarily

overt and category-wise a legitimate tense and agreement carrier; there is no other choice, as the infinitival I head of the IP selected by DO_{AUX} is itself neither a V stem nor phonetically overt.²⁵

If no marked auxiliaries occur, the closest inflectional head above ‘low Aux’ will be T. The inflectional features of T will then ‘search’ for the closest potential tense-carrier T c-commands, and, unless the lowest copy of DO_{AUX} has been re-valued as [PF: +], will attach themselves to the stem of the main verb. In contrast, if the copy of DO_{AUX} in ‘low Aux’ is specified as [PF: +], DO_{AUX} will receive the affixes and appear overtly in finite form, as described. Note, however, that DO_{AUX} remains syntactically visible even in its default form, and must still raise (attracted by Force) while Affix Hopping makes the tense features descend onto the main verb. Thus, in e.g. *He phoned* or *Who phoned?* Force contains a covert copy of DO_{AUX}.

The mechanical side of the alternation between covert and overt DO_{AUX}, therefore, is relatively simple. What remains to be specified is what features of Polarity, Force, and Focus enforce the re-evaluation of [PF: -] and how their interactions, along with lexical factors and the presence/absence of overt specifiers, determine whether DO_{AUX} is eventually spelt out or not.

The core contexts in which DO_{AUX} is overt in Modern English, i.e., negative, interrogative, and so-called ‘emphatic’ clauses lacking optional auxiliaries, intuitively have a feature in common: they all correspond to marked values of Polarity, Force and, less obviously, Focus, cf. section 3.2. Thus, whereas unmarked (positive) Polarity by itself never triggers overt DO_{AUX},²⁶ negative Polarity, the obvious marked Polarity option, invariably does. As to Force, the unmarked (declarative) option (again, by itself²⁷) never triggers overt DO_{AUX}, but interrogative Force invariably does unless the question focuses on the subject (cf. *Who phoned?*), an exception discussed below. Finally, under the analysis briefly anticipated in section 3.2., in root questions, unmarked Focus on the subject never triggers overt DO_{AUX} unless Polarity is also marked (cf. **Who did phone?* vs. *Who did not phone?*), whereas Focus on any non-subject invariably does (cf. **Why/*When you phoned?*).

Thus, the correlation between marked Polarity, Force or Focus and overt DO_{AUX} is strong enough, although long-standing uncertainties as to the specification of Force (e.g., in subordinate clauses) and the fact that marked Polarity, Force and Focus may co-occur cause indeterminacy as to what the specific triggering factor or constellation of factors is in each case. As elsewhere in this paper, I start from traditional assumptions (e.g., Katz & Postal 1964; Chomsky 1977) and introduce

changes only as required to make the LDAH fit into a coherent whole consistent with current principles.

In ‘emphatic’ clauses like (21a), for example, where overt DO_{AUX} is mandatory, it is unclear whether the trigger is marked Polarity, marked Force, or a combination of those. In the earliest TG work, Chomsky (1955: 446-48) proposed to account for them by means of a transformation introducing a special heavy stress morpheme ‘Ac(cent)’, which, just as negation, and in alternation with it, cleverly destroyed the environment to which Affix Hopping could apply, leaving tense unattached and triggering DO-Support. A parallel analysis appears in Klima (1964: 257), where a ‘particle’ explicitly labelled EMPH[asis] is optionally introduced, still in alternation with negation, to host SO or heavy stress and let either trigger DO-Support, and in Emonds (1976: 206 fn. 5).

- (21) a. He díd phone.
 b. He didn’t phone.
 c. ?He díd’n’t phone.
 d. *He did phone.
 e. He phoned.
 f. Hé phoned/He phóned!

To the extent that (21c) be impossible, making negation and ‘accent’ or ‘emphasis’ alternative values of the same category is an elegant solution, but what category that is (Polarity? Force?) remains unclear. Significantly, Chomsky (1957: 65) renamed ‘Ac’ (= ‘accent’) ‘A’ to suggest that the function of heavy stress on the auxiliary is ‘assertion’, the unmarked value of Force, but he must have meant ‘assertion of a certain polarity value’, since ‘assertion’ *per se* does not trigger overt DO_{AUX}, cf. (21d, e), and is compatible with negation, cf. (21b).

As to Klima’s and Emonds’ analyses, if EMPH is interpreted as a marked choice in Force, there is no reason why it should be incompatible with negation, either, and (21c) should be well-formed. However, emphasis is not any more likely to be the trigger of overt DO_{AUX} in (21a) than assertion, since, when it falls on the subject or the verb, DO_{AUX} is not overt, cf. (21f). It is, thus, preferable to assume that what triggers an overt DO_{AUX} in (21a), but not in (21d-f), is an additional marked choice

of Polarity, ‘contrastive-positive’, which, as expected, alternates with the obvious marked choice (i.e., negative) and the unmarked one (positive). That the additional marked Polarity value is not simply positive Polarity when it becomes the focus of ‘emphatic’ Force follows from the fact that questions may contain stressed DO_{AUX} (e.g., *Who díd phone, then?*). Since Force cannot be doubly specified as interrogative and emphatic, contrastive-positive Polarity clearly does not entail emphatic Force. It follows that Polarity must be a non-Boolean attribute.

A similar analytical doubt arises as to whether the source of overt DO_{AUX} in ‘polar’ questions is interrogative Force or a further marked choice of Polarity. If the trigger were simply marked Force, overt DO_{AUX} should occur in **all** questions lacking other auxiliaries, but this is not the case, as subject-focus questions do not have it, cf. (22).

- (22) a. Who phoned?
 b. *Who did phone?

If the trigger of overt DO_{AUX} in ‘polar’ questions is marked Polarity, on the other hand, overt DO_{AUX} is not expected to occur in subject-focus questions like (22), where Polarity is positive (the phoning event is assumed to have occurred), but is in ‘polar’ questions (where Polarity would be ‘indeterminate’, by assumption a further marked choice), and in non-polar questions containing other marked Polarity choices, i.e., negative or ‘contrastive positive’, as in (23a) and (23b), respectively. That prediction seems to be confirmed.

- (23) a. Who didn’t phone? (cf. *Who not phoned?)
 b. Who díd phone? (cf. *Who phoned?)

Under such an analysis, marked Polarity is involved as a trigger of overt DO_{AUX} in all polar questions, as well as in assertions with negative and contrastive-positive Polarity. However, marked Polarity cannot be what causes the overt DO_{AUX} in non-polar questions like (24), where Polarity must again be positive (since the phoning event is presupposed), as it is in (22). If, in view of (22), marked Force is also discarded, the trigger of overt DO_{AUX} in cases like (24) must be some other factor.

(24) Why did you phone? (cf. *Why you phoned?)

The obvious candidate is marked Focus. As anticipated in section 3.2, focus on the subject plausibly functions as the unmarked option, since it entails neither further structure-building (it is licensed in Force) nor additional movement. In contrast, focus on any other constituent, including Polarity, entails the building of FocusP and movement (SAI), which suggests a marked option. Assuming so, it is possible to capture in a single statement the intuitively correct generalization as regards the distribution of overt DO_{AUX} in questions: overt DO_{AUX} is necessary when questions have marked Focus, i.e., unless they focus on (= the [FOC: +] feature is in) the subject. That generalization captures the absence of DO_{AUX} in (22) and its presence in all other questions, including polar ones, which, as Katz & Postal (1964) argued, contain marked Focus on what would now be the specifier of Polarity, a non-subject constituent.

Since both (22) and (24) still contain not only marked Focus but also interrogative Force, the question now arises whether marked Focus is a sufficient condition to trigger overt DO_{AUX}. The fact that so-called ‘indirect questions’ like (25a) do not have overt DO_{AUX} unless their Polarity is also marked, as in (25b, c), suggests that it is not. Since root questions like (24) and ‘indirect questions’ like (25a) alike contain a marked Focus choice, the difference between them in what concerns overt/covert DO_{AUX} is plausibly due to the fact that ‘indirect questions’ do **not** have interrogative Force, whatever their Force value is.

- (25) a. I wonder why you phoned (cf. *I wonder why you did phone).
 b. I wonder why you did not phone (cf. *I wonder why you not phoned).
 c. I wonder why you *díd* phone (cf. (25a), without ‘contrastive-positive Polarity).

In sum, there are reasons to assume that Polarity has an unmarked value, positive, and at least **three** marked ones: negative, contrastive-positive, and indeterminate.²⁸ In [Attribute: value] format, they will be represented here as [POL: +], [POL: -], [POL: !], and [POL: wh], respectively, to maintain the notation of convenience already used in (12). Positive, negative, and ‘contrastive-positive’ Polarity

have straightforward consequences for the choice of overt/covert versions of DO_{AUX}: if Polarity is positive, its specifier is null, Polarity itself need not be checked by an overt head, and DO_{AUX} remains in its default [PF: -] version when it lands in it, although it may become [PF: +] higher up if Force and Focus also contain marked values, as in (25); if Polarity is negative, on the contrary, its specifier will be non-null (NOT), Polarity itself will need to be licensed by an overt auxiliary, and the [PF: -] attribute of DO_{AUX} will consequently be re-valued as [PF: +] when DO_{AUX} lands in it; if Polarity is contrastive-positive, it will contain something similar to Chomsky’s ‘Ac’ eventually realized as heavy stress at PF, but heavy stress obviously requires a phonetically non-null head, and, again, the [PF: -] attribute of DO_{AUX} must be re-valued when the default auxiliary lands in Polarity.

When Polarity is indeterminate, [POL: wh], in contrast, its correlation with overt DO_{AUX} is less straightforward, but, if the present analysis is correct, only because lexical idiosyncrasies and Force-related factors intervene. Polarity is indeterminate in ‘polar questions’, where the [WH: +] variable happens to occur in the specifier of Polarity, whose overt form is *WHETHER* in that case. Since, under present assumptions, focus on the specifier of Polarity is a marked choice, it is expected to trigger the building of FocusP, and it does. On the other hand, since ‘indeterminate’ is a marked value, Polarity itself is expected to force DO_{AUX} to be overt if no other auxiliaries occur, and it does, but only when additional factors intervene. Straightforward evidence that FocusP is built in such circumstances comes from two separate facts, i.e., that *WHETHER* surfaces before the subject in so-called ‘indirect’ questions like (26a) and that SAI occurs in root ones like (26b). On the contrary, the second prediction is not entirely fulfilled, as DO_{AUX} is overt in root questions like (26b) but not in ‘indirect’ ones like (26a). Furthermore, unexpectedly, ‘indeterminate’ Polarity never causes both SAI and the fronting of *WHETHER*, cf. (26c), another fact to be explained.

- (26) a. I wonder whether he phoned.
 b. Did he phone?
 c. *Whether did he phone?

Since, under present assumptions, the differences of (26a-c) are not attributable to different choices in Polarity (indeterminate in all cases) nor to different choices of Focus (on Polarity in all

cases), the null hypothesis is that the relevant factor is a difference in Force, which is surely ‘marked’ in root questions, but arguably not so in ‘indirect’ ones, if only in view of the fact that indirect questions fail to trigger answers. If that is correct, in (26b), to start with, DO_{AUX} has raised into Focus and must appear overtly because [Force: Q] would otherwise remain unlicensed. Recall that in subject-focus questions like (22) marked Force is licensed by the subject in Spec ForceP and Polarity is unmarked, which allows DO_{AUX} to remain in its default [PF: -] form. In (26b), on the contrary, Polarity is indeterminate and, by assumption, should by itself force DO_{AUX} to become overt, but, in addition, *he* does **not** carry a [WH: +] feature, whereas (interrogative) Force must be licensed by some [WH: +]-carrying XP in Spec FocusP, assuming (12). As to the [WH: +]-carrying XP licenser, the obvious candidate is *WHETHER*, which does contain not only an [WH: +] but also an unlicensed [FOC: +] feature that forces it to raise into Spec FocusP anyway, as in (26a). Once in Spec FocusP, *WHETHER* can license its focus feature and [Force: Q], but only if the latter is made locally available in the head of Focus P by the raising of the [Force: Q]-carrying DO_{AUX} from Force into Focus, as in (26b).

That *WHETHER* is involved in all polar questions is an old intuition due to Katz & Postal (1964) and tacitly accepted ever since, and its appearance in ‘indirect’ questions like (26a) is entirely expected: it makes ‘polar’ questions parallel to all others, an obvious simplification. Why, then, is *WHETHER* not visible in (26b) and impossible in (26c)? It is at this point that lexical idiosyncrasies, Force-related factors, and the nature of the specifiers involved intervene.

Apparently, in Modern English polar questions, the landing of an overt auxiliary and a *wh*-specifier *WHETHER* in FocusP suffices not only to check [Force: Q] and [FOC: +], but also to enable *WHETHER* to remain in its default [PF: -] version. Of course, an item can only stay in its [PF: -] version if it has one, and other *wh*-items do not have them, but *WHETHER*, it is claimed here, like DO_{AUX}, does have a [PF: -] version. With an overt auxiliary in Focus and *WHETHER* in Spec FocusP, all the relevant features involved (i.e., marked Polarity, Force and Focus) are satisfied. A [PF: +] head must still be overt in Focus to license indeterminate Polarity and marked Force, so DO_{AUX} must be [PF: +] and be eventually spelt out, but the specifier itself need not be overt unless it has still other functions. Since *WHETHER* has now clearly lost the further contrastive meaning of ‘is it not the case that...?’ that it had in OE, cf. Traugott (1972: 73), it plausibly has no other function. If so, when an overt head shows in Focus, *WHETHER* need not (and therefore cannot) be overt. That would explain

the contrast between (26b) and (26c) and the non-co-occurrence of overt **WHETHER** with an overt auxiliary in the latter. In so-called ‘indirect questions’ like (26a), in contrast, marked interrogative Force is absent, the [WH: +] feature of **WHETHER** plays no role in the licensing of Force, and DO_{AUX} need not raise into Focus to license [Force: Q], but the [FOC: +] feature of **WHETHER** must still be licensed in Spec FocusP, and **WHETHER** must raise and become [PF: +].

What is unexpected is the fact that indirect polar questions like (26a) should not still require an overt DO_{AUX} on account of their indeterminate Polarity. This makes indirect polar questions parallel to subject-focus ones like (22). In (22), however, Polarity is unmarked, the marked feature that found satisfaction in an alternative way to overt DO_{AUX} was [Force: Q], and it was claimed that it allowed DO_{AUX} to remain in its [PF: -] version because the subject itself was a [WH: +]-carrier and because DO_{AUX} has such a default [PF: -] version. Observe that in the same context marked auxiliaries do not have default [PF: -] versions and must be overt, cf. *Who will phone? Who has phoned?* In ‘indirect polar questions’, however, Force has some other value than [Force: Q], and it is indeterminate Polarity, [POL: wh], that must be licensed by some other means than an overt DO_{AUX}. What this paper suggests in that respect is that, in the absence of interrogative Force, the [WH: +] features of ‘indirect questions’, including [POL: wh], are not ‘strong’ and need not be licensed by an overt head, although they must still be licensed by an overt [WH: +]-carrying Polarity specifier. In ‘indirect polar questions’ that is, of course, **WHETHER**, which, as a consequence, must appear in its [PF: +] version in (26a). In contrast, the head landing in marked Polarity may remain in its [PF: -] version if it has one. If that head is DO_{AUX}, thus, it need not become overt, either in Polarity, or in Force or Focus, and it does not, cf. (26a). Marked auxiliaries, of course, lack [PF: -] versions and must be overt in Force even in ‘indirect polar questions’, cf. (27).

(27) I wonder whether he has/is come/coming/*I wonder whether he come/coming.

In sum, the strength/weakness of the [WH: +] feature of the specifier of Polarity depends on whether Force is itself ‘marked’ or not. In real polar questions, it is, and DO_{AUX} must be overt from Polarity upwards, which allows **WHETHER** to stay in its default form. In so-called ‘indirect polar

questions’, in contrast, Force is not marked, the [WH: +] of *WHETHER* does not need to be checked by an overt head, and DO_{AUX} remains in its default form, but *WHETHER* must be overt.

This analysis extends naturally to non-polar direct and indirect questions. In direct questions, with marked Force specified as [Force: Q], the [WH: +] features on the *wh*-XPs are ‘strong’, the highest XP containing one such feature (unless it is the subject, as shown) must raise to Spec FocusP, the auxiliary must raise further from Force into Focus to license [Force: Q] against the strong [WH: +] of its specifier, and this makes DO_{AUX} be re-valued [PF: +] and become overt. In contrast, non-polar ‘indirect questions’ also require a [WH: +]-carrying XP in their Spec FocusP (where the specifier’s [FOC: +] feature must still be licensed), but in the absence of marked [Force: Q] and a strong [WH: +] in Spec FocusP no overt head is needed in Focus, and there is no SAI. DO_{AUX} may still be overt in non-polar ‘indirect questions’, but only in Force, not in Focus, and only if Polarity has some other marked value and has previously triggered it itself, cf. (28).

- (28) a. She wonders why I do not drive/*why I not drive.
 b. She wonders why I dó drive/*why I do drive.

Questions ‘focusing’ on the subject of the clause, like (22), are exceptional, as stated, in that they do not trigger either the construction of FocusP or the overt realization of DO_{AUX}. The former has already been explained: recall that FocusP is built only ‘on demand’, to lodge marked foci when a focused XP must land in a specifier above Spec ForceP. Of course, that is not necessary when [WH: +] occurs in the subject, which raises into Spec ForceP, its natural landing site, and directly licenses Force there, whatever its value, as well as its own (unmarked) [FOC: +] feature. The only difference between ‘real’ subject questions and indirect ones is that Force is Q and the [WH: +] feature(s) ‘strong’ in the former, but not in the latter. If marked auxiliaries are involved, no difference arises: lacking covert versions, they must appear overtly in both cases, cf. (29a, b).

- (29) a. Who can (/has/is) come (/coming)? I wonder who can (/has/is) come (/coming).
 b. *Who _ come/coming? *I wonder who _ come/coming.

Granted the difference in Force, the default auxiliary DO_{AUX}, in contrast, should be covert in indirect questions and overt in root ones, but, unexpectedly, it is not covert in either, cf. (30), unless this is independently required by earlier marked choices in Polarity, i.e., contrastive-positive or negative, respectively, as in (31). Otherwise, DO_{AUX} remains in its default form and the result is Affix Hopping: Tense surfaces on the main verb, cf. (30b). So why can DO_{AUX} remain covert in (30b), where Force is interrogative and the subject contains a ‘strong’ [WH: +] attribute?

- (30) a. *Who did phone me this morning?
 b. Who phoned me this morning?

- (31) a. Who did phone me?
 b. Who did not phone me?

In one respect, this seems to be the inverse of the WHETHER case discussed above: with WHETHER, a marked Focus choice, the head raising into Focus had to be overt when Force was marked, whereas WHETHER itself could remain in its default [PF: -] form; in this case it is the specifier that must be overt, whereas the head can, and must, be covert **if** it has a covert variant, the case of DO_{AUX}. Note, however, that since English is a non-pro-drop language, subjects must be overt anyway. This entails that [Force: Q] will obligatorily have an overt specifier carrying the required [WH: +] variable and a [FOC: +] feature. Since, as argued above, focus on the subject is the unmarked interrogative/focusing strategy, all the relevant Force and (unmarked) Focus features are directly licensed by the obligatorily overt WHO landing in Spec ForceP. Just as the overt auxiliary in Focus made an overt WHETHER redundant in polar questions, an overt WHO in Spec ForceP makes the overt auxiliary unnecessary in subject-focus ones, whether direct or ‘indirect’: if the auxiliary happens to have a default [PF: -] variant, Economy selects it. Since only DO_{AUX} satisfies that condition, all other auxiliaries must be overt, but DO_{AUX} need not, and is not.

What precedes, largely an adaptation of classical TG analyses like Katz & Postal (1964), Klima (1964), etc., to a contemporary framework, accounts for the distribution of overt and covert variants of

DO_{AUX} in all the core cases assuming that tags and cases of VP ellipsis (cf. e.g., Lobeck 1995) have marked Polarity, marked Force, or both, cf. (32).

- (32) a. He phoned, didn't he?
 b. He didn't phone, did he?
 c. He promised to phone and he did.
 d. He promised to phone, but he didn't.

As to the DO forms that may surface in imperative clauses, they do not belong to DO_{AUX}, but to a different lexical item, ‘imperative DO’ (DO_{IMP}, hereafter), as has often been observed in the generative literature, cf. e.g. Culicover (1976: 151-2), and even in major reference grammars, cf. Quirk et al. (1985: 833). Of course, in certain respects DO_{AUX} and DO_{IMP} behave alike, e.g., both are triggered by marked Polarity/Force, both land in Focus when Force is marked, and both have marked and default variants, cf. (33), but in other respects they differ considerably.

- (33) a. Dó wait for me! (Do)Wait for me!
 b. Don't wait for me! /*Not wait for me/ *Dó not wait for me!

For example, whereas DO_{AUX} can precede all eventive IPs, agentive or not, DO_{IMP} co-occurs only with agentive ones, cf. (34).

- (34) *Dó/Don't like jazz!/have headaches!/weigh less than I!/find a Rolex in the street!

Also, and crucially, DO_{IMP} may marginally co-occur with auxiliary HAVE, BE, and passive BE, cf. (35), which is incompatible with the preceding account of DO_{AUX} in non-imperative cases.

- (35) a. Don't (you) have finished before I come back!
 b. Don't (you) be working when our friends home!
 c. Don't (you) be dressed by Armani to apply for a teaching job!

d. (Dó) be dressed by 8.30!

Since DO_{IMP} may surface above the subject, in Focus, cf. (35), it also follows (from the HMC) that, contrary to DO_{AUX}, it cannot be initially inserted under auxiliary HAVE or BE. It must be inserted above them, but still under finite T, since imperatives allow nominative subjects and must be finite. That apparently leaves only one choice, i.e., DO_{IMP} must be a modal or another modal-like Aux, as claimed in much early TG work (cf. Chomsky 1955: 302, 553-5; Katz & Postal 1964: 74-7; Stockwell, Schachter & Partee 1973: 660ff.; Emonds 1976: 213 fn. 11; Culicover 1976: 151-2, etc.). Such a conclusion is weakly supported by the fact that modal WILL shows overtly in imperative tags, cf. *Dó leave my notebook alone, will you?*, which suggests that DO_{IMP} and modal WILL are related, perhaps as two variants of a single lexical item, although the matter will not be further explored here.

3.5. Summary

Although the explicit coverage of details and special cases that precedes may give the impression of great complexity, the categories and properties invoked are empirically well-established, phrases emerge smoothly from lexical properties (category, selection), ‘satisfaction’, and Economy, the analysis of negation, questions, emphasis, etc., broadly revives in a P&P/minimalist framework insightful ideas due to Klima (1964) and Katz & Postal (1964), the ‘low DO_{AUX}’ hypothesis is an updated and semantically better grounded version of the DO-Replacement *cum* DO-Deletion analysis of Emonds (1976) or Culicover (1976) and of similar insights in Pollock (1989), and the structure proposed in (12) differs only in insignificant ways from those offered as broad consensus views in standard textbook analyses like Haegeman & Guéron (1999) or Lasnik, Uriagereka & Boeckx (2005). And yet, whereas the ‘dummy DO’ account must resort to stipulations like (3a-f) and relax even high-level principles like Selection, Satisfaction and Economy, the LDAH derives the facts from plausible lexical items, avoids such stipulations, and does not have to relax high-level principles.

Among its many attractive consequences, perhaps the following bear special mention:

First, if DO_{AUX} is the only auxiliary in a sentence but is not specified as [PF: +]) and eventually spelt out, the main verb **must** carry the T features (= Affix Lowering), as no other **overt** verbal head intervenes between T and it.

Second, in English, the main verb is **never** allowed to leave its IP-VP complex even if no overt auxiliaries prevent it, since it would violate the HMC (< Shortest Movement, Economy) if it did across the intervening covert DO_{AUX}. In such cases it is DO_{AUX} that ascends to Force. That explains in **structural** terms, rather than by Pollock’s or Chomsky’s lexical stipulations, why English main verbs cannot ascend. It follows that in languages lacking an equivalent of DO_{AUX} absence of marked auxiliaries leaves main verbs free to raise, and they do.

Third, the fact that overt DO_{AUX} is always finite reduces to the circumstance that, if it is spelt out, it must have been marked as [PF: +] on landing in marked Polarity/Force/Focus and, granted structure (12), must have reached such categories *via* T. DO_{AUX} cannot be attracted by Force unless it is the closest Aux, and, given structure (12), if it is closest to Force it must also be closest to T. This is the true side of the last resort tense-carrier account, but things do not happen because tense is ‘stranded’, an artefact of Chomsky’s initial Aux analysis. It follows that it is unnecessary to consider DO_{AUX} defective, because when it is overt there cannot be a closer head than T to license any other inflectional form. The fact that DO_{AUX} never surfaces in non-finite forms, then, also has a structural explanation, rather than a ‘last resort’ or a defectiveness-based one. Non-finite inflections are assigned to verb stems by inflectional heads selected by marked auxiliaries necessarily **above** ‘low Aux’. If they are there, DO_{AUX} can never become the closest potential target of Force, nor the closest potential tense-carrier, it cannot raise from ‘low Aux’, and stays in its default [PF: -] form, which disables it as a potential carrier of **any** inflection. The corresponding non-finite inflection (infinitival, -ING, or participial, depending on which marked auxiliary is immediately above) will then show, across the intervening covert DO_{AUX}, on the next V down, the main verb.

Finally, the inexplicable radical incompatibility between DO_{AUX} and marked auxiliaries is now elegantly explained in structural terms without further stipulation: the structure of the English clause in (12) is such that, granted the HMC, DO_{AUX} can get specified as [PF: +] and become overt only if no higher auxiliary blocks its ascent from ‘low’ Aux’ into Polarity, Force, and possibly Focus, which necessarily bans all other auxiliaries between ‘low Aux’ and Force/Focus, i.e., anywhere preceding DO_{AUX} at PF. On the other hand, since DO_{AUX} functions as a quantifier over events and must locally bind the ‘e’ variable of its IP complement, no other auxiliaries may intervene between DO_{AUX} and the

main verb, either. These two consequences of the LDAH fully explain why DO_{AUX} is incompatible with any other auxiliaries anywhere in the clause.²⁹

Parallel reasoning applies to auxiliary BE_{PRED}. If it can raise from ‘low Aux’ attracted by Force (i.e., if no higher auxiliaries block its ascent), it will necessarily land in Force (or Focus, in SAI cases) and have the NICE properties, but, to reach Force/Focus, granted (12) and the HMC, it will have to raise *via* T and so be finite. Since BE_{PRED} is the complementary existential quantifier over states and must locally bind an ‘s’ variable, it also bans all auxiliaries between ‘low Aux’ and its IP complement. Since it sits in the default, and obligatory, ‘low Aux’, the heads of the nonverbal predicates under its IP complement can never raise, in their turn, without violating the HMC. The crucial difference between DO_{AUX} and BE_{PRED} is that the latter has no [PF: -] version and must be spelt out whether it raises or not (although it can still be muted at PF when special factors intervene, e.g., block language, cf. *Brown in trouble*, etc.). If there are marked auxiliaries above, BE_{PRED} will stay in ‘low Aux’, but, contrary to DO_{AUX}, it will be overt and show at PF with whatever inflection the head immediately above it determines. That explains why BE_{PRED} has a full paradigm, whereas DO_{AUX} seems defective, although, if the LDAH is correct, defectiveness need not be invoked in either case.

4. CONCLUSIONS

In sum, the ‘low DO_{AUX}’ hypothesis is preferable to the standard ‘dummy DO’ one for at least the following conceptual, empirical, and technical reasons:

1) It need not treat ‘dummy DO’ as an exceptional formative or a mere syllable, which preserves Inclusiveness in a strong form: DO_{AUX} is an ordinary lexical item subject to general syntactic and semantic principles. This immediately removes several other inadequacies of the ‘dummy DO’ account, i.e., 2), 3), 4), 6), and 7).

2) DO_{AUX} has morpho-syntactic and semantic properties that can satisfy the selection features of the tense suffix, whereas a dummy formative or a mere syllable does not, and cannot.

3) Hence, the attachment of DO_{AUX} and tense follows from Satisfaction and Economy (the selection features of the tense suffix are satisfied by the operation), whereas there is no reason to expect a dummy or a syllable to be so attached to tense/its features.

4) So-called 'dummy DO' is inflected as a verb because it is a verb (i.e., by rule), whereas a category-less formative or a syllable should not be inflected at all.

5) The 'low Aux' analysis need not stipulate that DO_{AUX} is defective: if overt, DO_{AUX} must be tensed or T will remain unattached. DO_{AUX} appears in finite form because it is the closest verb to a finite T (i.e., by rule), according to the optimal principle that inflectional values are assigned by certain heads to the corresponding unvalued attributes of the closest overt potential carriers they c-command (by Satisfaction and Minimal Search < Economy).

6) DO_{AUX} has the NICE properties because it is an auxiliary and all auxiliaries have them when they can raise into Force/Focus (i.e., by rule), whereas a dummy or a syllable should not have them, even if attached to tense, as tense itself does not have them either: a tensed main verb does not inherit NICE properties from tense. The reason, of course, is that V raising into Force/Focus is necessary and the intervening covert DO_{AUX} prevents it.

7) The fact that so-called 'dummy DO' is invariably followed by a bare infinitive ceases to be a mystery: DO_{AUX} is followed by an infinitival IP because that is what it selects, i.e., by (lexical) rule; the 'dummy DO' theory, on the contrary, must ignore this fact or stipulate it, since dummies/syllables should not select anything at all.

8) The alternation of tensed DO_{AUX} and tensed main verbs in finite clauses without other auxiliaries now follows from principle: the main verb will be tensed unless marked values in Polarity, Force, or Focus make DO_{AUX} overt and available as a closer potential carrier of the T features.

9) What prevents English main verbs from raising from their VPs into Force (or Focus, in SAI cases) leaving adverbs and negation below is not their intrinsic lexical properties (e.g., their theta grid), nor the presumed weakness of English Agr, as claimed e.g. by Pollock (1989) and Chomsky (1991), but a) a robust structural reason, i.e., that the obligatory, although often invisible, DO_{AUX} in 'low Aux' stands in their way as much as all other auxiliaries do (i.e., by rule: the HMC); and b) Economy: main verbs need not leave their VP when DO_{AUX} is not overt because (lacking marked auxiliaries) tense can reach them *in situ* anyway (= 'Affix Hopping').

10) The fact that DO_{AUX} never precedes other auxiliaries no longer has to be stipulated by making it a 'last resort' and simply forbidding lower auxiliaries by brute force. DO_{AUX} never precedes other auxiliaries because it cannot ascend from 'low Aux' across them if they are present (i.e., by rule:

the HMC). An auxiliary following DO_{AUX} at PF would, therefore, have to be attached between DO_{AUX} and the main IP-VP, but that is impossible by assumption if the quantifier in ‘low Aux’ must locally bind the ‘e’ variable of its IP complement, as argued. Correspondingly, the fact that DO_{AUX} apparently never follows any auxiliary, either, need no longer be derived by stipulating that it is inserted only at T or that it is defective and cannot satisfy the selection requirements of other auxiliaries. DO_{AUX} **does** co-occur with (and then follows) higher auxiliaries, but cannot be spelt out when it does: any auxiliary preceding DO_{AUX} at PF must have been higher than ‘low Aux’ in narrow syntax (otherwise its raising across DO_{AUX} will have violated HMC) and must have prevented DO_{AUX} from being attracted to marked Polarity/Force, specified as [PF: +], and spelt out.

Interestingly, such results (and others, e.g., an explanation of the unique status of BE_{PRED}) are obtained here at a very low cost. Leaving aside the absence of SAI effects in subordinate clauses and default subject-focus wh-questions, which requires delicate feature engineering in Force and Focus under any account so far proposed, the cost basically reduces to: a) reinstating so-called ‘dummy DO’ as a full lexical item, DO_{AUX}, which is no cost, since it explains inflectional, selection, and syntactic facts that the ‘dummy DO’ theory leaves unexplained; b) assuming that DO_{AUX} means ‘occur’ and functions as an existential quantifier over events, which is no cost either, as that assumption fills an important gap in the regularity of the syntax-semantics correspondence that should be filled anyway; and c) assuming that DO_{AUX} is covert by default and that what triggers its externalisation at PF is not the stranding of the tense suffix, an analytical artefact, but the choice of marked values in Polarity and Force that we know are involved, since DO_{AUX} occurs only in negations, questions, and emphatic sentences. Everything else follows from broad principles like Satisfaction and Economy, which, under those or equivalent names, are indispensable in P&P and minimalist syntax, if not in grammatical theory at large.

José Luis González Escribano

Universidad de Oviedo

escr@uniovi.es

REFERENCES

- Akmajian, Adrian, Susan Steele & Thomas Wasow. 1979. The Category AUX in Universal Grammar. *Linguistic Inquiry* 10. 1-64.
- Aoyagi, Hiroto. 1998. *On the Nature of Particles in Japanese and Its Theoretical Implications*. Ph.D. dissertation, University of Southern California.
- Bader, Markus & Tanja Schmid. 2006. An OT-analysis of do-support in Modern German. Ms.
- Baker, C. L. 1991. The Syntax of English *not*: The Limits of Core Grammar. *Linguistic Inquiry* 22. 387-430.
- Baker, Mark. 1985. The Mirror Principle and Morphosyntactic Explanation. *Linguistic Inquiry* 16. 373-416.
- Baker, Mark. 1988. *Incorporation*. Chicago: University of Chicago Press.
- Battistella, Edwin. 1995. The Syntax of the Double Modal Construction. *Linguistica Atlantica* 21. 49-65.
- Belletti, Adriana. 1990. *Generalized Verb Movement*. Turin: Rosenberg & Sellier.
- Benincà, Paola & Cecilia Poletto. 2004. A Case of Do-Support in Romance. *Natural Language and Linguistic Theory* 22. 51-94.
- Biberauer, Theresa & Ian Roberts. 2010. Subjects, Tense and Verb Movement. In Theresa Biberauer, Anders Holmberg, Ian Roberts & Michelle Sheehan, eds., *Parametric Variation and Null Subjects in Minimalist Theory*. 263-302. Cambridge: Cambridge University Press.
- Bobaljik, Jonathan D. 1995. *Morphosyntax: The Syntax of Verbal Inflection*. Ph.D., Cambridge, MA: MIT [Distributed by *MIT Working Papers in Linguistics*].
- Bowers, John. 1993. The Syntax of Predication. *Linguistic Inquiry* 24. 591-656.
- Bowers, John. 2001. Predication. In Mark Baltin & Chris Collins, eds., *The Handbook of Contemporary Syntactic Theory*. 299-333. Oxford: Blackwell.
- Bresnan, Joan. 1972. *Theory of Complementation in English Syntax*. New York: Garland, 1979.
- Bromberger, Sylvain & Morris Halle. 1989. Why Phonology is Different. *Linguistic Inquiry* 20. 51-70.
- Brown, Keith. 1992. Double Modals in Hawick Scots. In Peter Trudgill & John K. Chambers, eds., *Dialects of English: Studies in Grammatical Variation*. 74-103. London: Longman.

- Bruening, Benjamin. 2008. Locative Inversion and Do-Support. Ms. University of Delaware.
- Chomsky, Noam. 1955. *The Logical Structure of Linguistic Theory*. New York: Plenum Press, 1975.
- Chomsky, Noam. 1957. *Syntactic Structures*. The Hague: Mouton.
- Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1977. On Wh Movement. In Peter W. Culicover, Thomas Wasow and Adrian Akmajian, eds., *Formal Syntax*. 71-132. New York: Academic Press.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1991. Some Notes on Economy of Derivation and Representation. In Robert Freidin, ed., *Principles and Parameters in Comparative Grammar*. 417-54. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1992. A Minimalist Program for Linguistic Theory. *MIT Occasional Papers in Linguistics* 1.
- Chomsky, Noam. 1995. Categories and transformations. In Noam Chomsky, *The Minimalist Program*. 219-394. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1999. Derivation by phase. *MIT Occasional Papers in Linguistics* 18.
- Chomsky, Noam. 2009. Concluding Remarks. In Piatelli-Palmarini, Massimo, Juan Uriagereka & Pello Salaburu, eds., *Of Minds and Language*. 379-401. Oxford: Oxford University Press.
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads*. Oxford: Oxford University Press.
- Culicover, Peter W. 1976. *Syntax*. New York: Academic Press.
- Culicover, Peter W. 2007. The Rise and Fall of Constructions and the History of English Do-Support. Unpublished Ms. [By courtesy of the author].
- Davidson, Donald. 1967. The Logical Form of Action Sentences. In Donald Davidson, *Essays on Actions and Events*. 105-22. Oxford: Oxford University Press, 1980.
- Denison, David. 1993. *English Historical Syntax*. London: Longman.
- Ellegård, Alvar. 1953. *The Auxiliary Do: The Establishment and Regulation of its Growth in English*. Gothenburg Studies in English 11. Stockholm: Almqvist & Wiksell.
- Embick, David & Rolf Noyer. 2001. Movement Operations after Syntax. *Linguistic Inquiry* 32. 555-95.
- Emonds, Joe. 1976. *A Transformational Approach to English Syntax*. New York: Academic Press.

- Frege, Gottlob. 1879. Begriffsschrift. English version in Geach and Black, eds. 1-20.
- Frege, Gottlob. 1919. Negation. In Geach & Black, eds. 117-35.
- Geach, Peter T. & Max Black, eds. 1952. *Translations from the Philosophical Writings of Gottlob Frege*. Oxford: Blackwell.
- Grimshaw, Jane. 1997. Projection, Heads and Optimality. *Linguistic Inquiry* 28. 373-422.
- Guasti, Maria Teresa & Luigi Rizzi. 2002. Agreement and Tense as Distinct Syntactic Positions. Evidence from Acquisition. In Guglielmo Cinque, ed., *Functional Structure in DP and IP. The Cartography of Syntactic Structures*, Volume 1. 167-94. Oxford: Oxford University Press.
- Haddican, Bill. 2006. On *egin*: Do-Support and Verb Focalization in Central and Western Basque. 29th Penn Linguistics Colloquium Paper.
- Haddican, Bill. 2007. The Structural Deficiency of Verbal Pro-Forms. *Linguistic Inquiry* 38. 539-47.
- Haegeman, Liliane & Jacqueline Guéron. 1999. *English Grammar. A Generative Perspective*. Oxford: Blackwell.
- Hagstrom, Paul. 1996. Do-support in Korean: Evidence for an Interpretive Morphology. Ms. MIT.
- Halle, Morris & Alex Marantz. 1993. Distributed Morphology and the Pieces of Inflection. In Ken Hale & Samuel J. Keyser, eds., *The view from Building 20: essays in linguistics in honour of Sylvain Bromberger*. 111-76. Cambridge, MA: MIT Press.
- Hazout, Ilan. 2004. The Syntax of Existential Constructions. *Linguistic Inquiry* 35. 393-430.
- Hazout, Ilan. 2008. On the Relation between Expletive *There* and its Associate: a Reply to Williams. *Linguistic Inquiry* 39. 117-27.
- Houser, Michael, Ange Strom-Weber & Maziar Tooservandani. 2006. Gøre-Support in Danish. Berkeley: University of California.
- Huddleston, Rodney & Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.
- Hulk, Aafke & Leonie Cornips. 2005. Differences and Similarities between Child L2 and (2)L1: DO-support in Child Dutch. Laurent Dekydsprotter et al. eds., *Proceedings of the 7th Generative Approaches to Second Language Acquisition Conference*. 163-77. Somerville, MA: Cascadilla Press.
- Husband, E. Matthew. 2006. Do Late Insertion: More Economical than Economy. LSA Paper.

- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.
- Jackendoff, Ray. 1977. *X-Bar Syntax. A Theory of Phrase Structure*. Cambridge, MA: MIT Press.
- Jäger, Andreas. 2006. *Typology of Periphrastic Do Constructions*. Bochum: Brockmeyer.
- Katz, Jerrold J. & Paul M. Postal. 1964. *An Integrated Theory of Linguistic Descriptions*. Cambridge, MA: MIT Press.
- Klima, Edward S. 1964. Negation in English. In Jerry Fodor & Jerrold J. Katz, eds., *The Structure of Language*. 246-323. N.J.: Prentice Hall.
- Laka, Itziar. 1994. *On the Syntax of Negation*. New York: Garland.
- Lasnik, Howard. 1999. Verbal Morphology: Syntactic Structures Meets the Minimalist Program. In Howard Lasnik, *Minimalist Analysis*. 97–119. Oxford: Blackwell.
- Lasnik, Howard. 2000. *Syntactic Structures Revisited. Contemporary Lectures on Classic Transformational Theory*. Cambridge, MA: MIT Press.
- Lasnik, Howard, Juan Uriagereka & Cedric Boeckx. 2005. *A Course in Minimalist Syntax*. Oxford: Blackwell Publishing.
- Lightfoot, David. 1974. The Diachronic Analysis of English Modals. In John M. Anderson & Charles Jones, eds., *Historical Linguistics*. 219–49. Amsterdam: North Holland.
- Lightfoot, David. 1979. *Principles of Diachronic Syntax*. Cambridge: Cambridge University Press.
- Lobeck, Anne. 1995. *Ellipsis. Functional Heads, Licensing & Identification*. Oxford & New York: Oxford University Press.
- Mauro Mirto, Ignazio. 2009. Do-Support in a Sicilian Variety, an Italian Pseudo-cleft, and the Packaging of Information. In Lunella Mereu, ed., *Information Structure and its Interfaces*. 153-68. Berlin: Walter de Gruyter.
- McCawley, John D. 1975. The Category Status of English Modals. *Foundations of Language* 12. 597-601.
- Miller, John. 1993. The Grammar of Scottish English. In James Milroy & Lesley Milroy, eds., *Real English: The Grammar of English Dialects of the British Isles*. 99–138. London: Longman.
- Montague, Richard. 1974. *Formal Philosophy*. New Haven: Yale University Press.
- Newton, Glenda. 2006. Affix Hopping and Do-Support in Old Irish. Ms. University of Pennsylvania.

- Ouhalla, Jamal. 1990. Sentential Negation, Relativised Minimality and the Aspectual Status of Auxiliaries. *The Linguistic Review* 7. 183-231.
- Parsons, Terence. 1990. *Events in the Semantics of English*. Cambridge, MA: MIT Press.
- Pollock, Jean Y. 1989. Verb Movement, Universal Grammar and the Structure of IP. *Linguistic Inquiry* 20. 365-424.
- Potsdam, Eric. 1997. NegP and Subjunctive Complements in English. *Linguistic Inquiry* 28. 533-41.
- Pullum, Geoffrey K. & David Wilson. 1977. Autonomous Syntax and the Analysis of Auxiliaries. *Language* 53. 741-88.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London: Longman.
- Radford, Andrew. 1997. *Syntactic Theory and the Structure of English*. Cambridge: Cambridge University Press.
- Radford, Andrew. 2004. *Minimalist Syntax. Exploring the Structure of English*. Cambridge: Cambridge University Press.
- Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. New York: Macmillan.
- Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In Liliane Haegeman, ed., *Elements of Grammar. Handbook of Generative Syntax*. 281-337. Dordrecht: Kluwer.
- Roberts, Ian. 1985. Agreement Parameters and the Development of English Modal Auxiliaries. *Natural Language and Linguistic Theory* 3. 21-58.
- Roberts, Ian. 1993. *Verbs and diachronic Syntax: A Comparative Study of English and French*. Dordrecht: Kluwer.
- Roberts, Ian. 1998. *Have/be Raising, Move F, and Procrastinate*. *Linguistic Inquiry* 29. 113-25.
- Ross, John R. 1969. Auxiliaries as Main Verbs. In William Todd., ed., *Studies in Philosophical Linguistics*. 77-102. Carbondale, Ill: Great Expectations Press.
- Schütze, Carson T. 2004. Synchronic and Diachronic Micro-variation in English *do*. *Lingua* 114. 495-516.
- Sportiche, Dominique. 1988. A Theory of Floating Quantifiers and its Corollaries for Constituent Structure. *Linguistic Inquiry* 19. 425-49.

- Stockwell, Robert P., Paul M. Schachter & Barbara H. Partee. 1973. *The Major Syntactic Structures of English*. New York: Holt.
- Stroïk, Thomas. 2001. On the Light Verb Hypothesis. *Linguistic Inquiry* 32. 362-9.
- Traugott, Elisabeth C. 1972. *The History of English Syntax*. New York: Holt, Rinehart and Winston.
- Viðarsson, Heimir Freyr. 2008. Do-Support in Old Norse. Paper presented at the Scandinavian Dialect Syntax Meeting 2008.
- Visser, Frederik T. 1963-1973. *An Historical Syntax of the English Language*. Leiden: E. J. Brill.
- Von Stechow, Kai & Sabine Iatridou. 2007. Anatomy of a Modal Construction. *Linguistic Inquiry* 38. 445-83.
- Williams, Edwin. 1994. *Thematic Structure*. Cambridge, Mass.: MIT Press.
- Williams, Edwin. 2006. The Subject-Predicate Theory of *There*. *Linguistic Inquiry* 37. 648-51.
- Yang, Dong Whee. 1994. Do-Support in the Minimalist Theory. Linguistic Society of Korea paper.
- Zagona, Karen. 1988. *Verb Phrase Syntax. A Parametric Study of English and Spanish*. Dordrecht: Kluwer.
- Zanuttini, Raffaella. 1997. Negation and Verb Movement. In Liliane Haegeman, ed., *The New Comparative Syntax*. 214-45. London: Longman.
- Zanuttini, Raffaella. 2001. Sentential Negation. In Mark Baltin & Chris Collins, eds., *The Handbook of Contemporary Syntactic Theory*. 511-35. Oxford: Blackwell.

-
- ¹ A preliminary version of this paper was presented to the Third International Conference on the Linguistics of Contemporary English, held in London in July 2009. The present one has benefited from generous revision by the editor of *TPS* and three anonymous referees to all of whom I express my deepest gratitude.
- ² In what follows lexical types (e.g., DO) will be capitalized and distinguished by subscripts, if necessary (e.g., DO_{AUX} = auxiliary DO; BE_{PRED} = predicative BE). The syntactic categories used are conservative and well established in TG, P&P and minimalist work, if not in syntactic theory at large. ‘XP’ abbreviates ‘X Phrase’, for X = Aux, V, N, A, etc., including standard functional heads like Force, Focus, Fin[iteness], T[ense], Agr[reement], Pol[arity], Mod[ality], Asp[ect], Pred[ication], and I[nflection]. Auxiliaries are generally labelled ‘Aux’ and distinguished as ‘modal’, ‘perfective’, and ‘progressive’, abbreviated as MOD, PERF and PROG subscripts in syntactic trees. The acronyms of a few technical terms of TG/P&P/minimalist syntax like ‘SAI’ (= Subject Auxiliary Inversion), ‘EPP’ (= Extended Projection Principle) and ‘HMC’ (= Head Movement Constraint) are expanded when first used in the text, as are a few other convenient abbreviations (e.g., ‘LDAH’ = Low DO_{AUX} Hypothesis). ‘PF’ and ‘LF’ stand for ‘Phonetic Form’ and ‘Logical Form’, respectively. ‘PHON’ and ‘SEM’ refer to phonetically and semantically relevant lexical content, respectively, or the corresponding interface representations, and ‘PHON (DO)’ stands for the phonetic content of DO. Finally, in the technical parts of the paper, features are represented in standard [Attribute: value] format, e.g., [POL: +] = positive polarity, [PF: -] = PF content not activated, etc.; [WH: +] and [FOC: +] are the interrogative and focus features of operators like WHO, WHERE, WHETHER, etc.
- ³ Of course, there is no principled way to prevent the verb from being tensed. Observe that if verbs enter derivations with all their inflections on, as claimed in e.g. Chomsky (1995), and the derivation proceeds bottom-up, as generally assumed in minimalist syntax, the construction of the main VP will precede that of the syntactic contexts (e.g., negation, emphasis, interrogative force) that condemn the derivation if the main verb has been selected in a tensed form. All the computational system can do is build the VP with the V selected, including tensed ones, and abort the derivation if any of the incompatible items is subsequently attached. Only a top-down strategy or a pre-lexical syntax generating a structured environment will supply the context-sensitivity needed to exclude the choice of tensed Vs when Polarity or Force are to be selected with marked values. The alternative bottom-up strategy is to insert verbs uninflected and let them adapt to the inflectional contexts required by higher functional categories, as in Chomsky (1999), but then there is no principled way to block Tense-lowering without generally blocking affix-lowering, which is still required to account for non-finite inflections in the optimal way.

⁴ Actually, that is the best known, but not the only insertion site proposed in the by now immense literature on the matter. It is impossible to do justice to it in a journal paper, but, broadly speaking, analyses can be grouped into two large categories depending on whether they adjoin/insert DO ‘high’, i.e., above negation (typically at/under T, but also under Agr, Modality, and even Comp) or ‘low’, below negation (usually above AspPs, but in some cases also under Agr, vP, or VP). Among the former are the pioneering analyses in Chomsky (1955; 1957), Klima (1964), and Chomsky (1965), already cited, and those in Jackendoff (1972; 1977), Emonds (1976), Culicover (1976), Akmajian, Steele & Wasow (1979), Chomsky (1981; 1986), Zagana (1988), Chomsky (1991; 1992; 1995), Bobaljik (1995), Grimshaw (1997), Haegeman & Guéron (1999: 529-530), Lasnik (1999; 2000), Embick & Noyer (2001), Guasti & Rizzi (2002: 182), Radford (2004), and Schütze (2004), a representative, but surely non-exhaustive list. As stated, ‘high’ usually means at T, but Culicover (1976: 107-8) treats DO as an underlying modal, Emonds (1976: 217) and recently Culicover (2007: 32) treat it as a default Aux deleted when HAVE or BE occur (a revival of the DO-Insertion *cum* DO-Deletion analysis), Chomsky (1986: 73) and Zagana (1988: 95, 99) inserted DO at Agr, Chomsky (1991: 139, 164 fn. 20) again inserted it in the slot of modals, Grimshaw (1997: 382) in I and C (in SAI contexts), Haegeman & Guéron (1999: 528) directly in Focus (in questions), Embick & Noyer (2001: 586) in a ‘v’ slot preceding T, Schütze (2004) under a modal head, but one above, rather than below T, etc. There are still other differences within this group of analyses (e.g., whether DO is a head or a specifier, as in Akmajian, Steele & Wasow 1979), but they cannot be discussed here. Among the comparatively few analyses that introduce DO ‘low’, Pollock (1989: 399-400) inserts it in Agr, Baker (1991: 397) generates it as the head of a ‘special purpose’ VP with a smaller VP complement inside (see also Bruening 2008 for a more recent similar claim), Roberts (1998: 116 fn. 2, 120ff) suggests that DO be inserted somewhere between VP and NegP, but does not say exactly where, and, of course, Ross (1969), McCawley (1975), and Pullum & Wilson (1977) treated DO, like all auxiliaries, as a main verb selecting a sentential complement (the ‘main verb analysis’). On the whole, then, although alternatives have been explored, Chomsky’s initial proposal to attach ‘dummy DO’ high has never been really superseded by any other.

⁵ To predict its absence in subordinate clauses or even in main questions like *Who says so?* (cf. **Who does say so? *Does who say so?*), on the contrary, requires further stipulations not always clearly specified in the literature, but the difficulty arises under all extant analyses and is marginal to the main issue of this paper, although, for completeness’ sake, a solution will be offered in section 3.4.

⁶ In his discussion of the respective merits and shortcomings of DO-Deletion vs. DO-Support, Culicover writes: “*Do*-Support, on the other hand, treats the insertion of *do* into environments that normally contain

modals as an accidental phenomenon <...>. In contrast to the *Do*-deletion analysis, it does not provide any explanation as to why *do* should appear precisely in this position and not in any other position in the sentence <...>. The *Do*-deletion analysis provides an explanation <...> as to why it is that *do* appears precisely in this position <...>. *Do* acts like a modal precisely because it *is* a modal in underlying structure. The *Do*-Support analysis does not provide an explanation of this sort.” In this paper, Culicover’s claim that ‘dummy DO’ is an underlying modal will not be assumed, since that would leave the problem of co-occurrence between DO and aspectual auxiliaries unsolved, but his critique of the ‘dummy DO’ solution is justified.

- ⁷ Actually, in a P&P/minimalist framework, this is a simplification. If all inflection is to be uniformly handled the way tense is, infinitives and participles will also have inflectional features to ‘check’ and appropriate I heads will be needed above to license them, cf. Chomsky (1995: 350-1). The real complements of auxiliaries will under such assumptions be covert IPs with selected I heads (-INF, -EN, -ING, -PASS, or the corresponding features), whereas the VPs visible after auxiliaries will actually be the complements of such I heads. Semantically, that hypothesis simplifies the ontology, and, syntactically, it allows the Extended Projection Principle to apply inside all IPs, which accounts for cyclic subject raising and Q-float (cf. Sportiche 1988) in clauses containing several auxiliaries.
- ⁸ This is a low-level idiosyncrasy of English, though. Nothing deep bans the co-occurrence of modal concepts, cf. Cinque (1999). English modal verbs, in particular, had full inflection and used to co-occur in earlier stages (cf. Ellegård 1953; Visser 1963-1973; Traugott 1972; Lightfoot 1974; 1979, Roberts 1993 and the convenient summary in Denison 1993: 292-339), they still do in Scots and certain varieties of American English (cf. Brown 1992; Battistella 1995; Miller 1993), and they unquestionably have non-defective co-occurring counterparts in closely related languages. For example, **You should can translate this text* is perfect in German (cf. *Du solltest dieses Text übersetzen können*) or Spanish (cf. *Deberías/tendrías que poder traducir este texto*).
- ⁹ Chomsky (1999: 9; 2001: 5, 11, 25) considers vP and CP (but not TP) as ‘propositional’, but vP apparently contains too little, since it has no Polarity specification, whereas CP may contain too much (e.g., modality and marked Force features incompatible with type ‘t’ status).
- ¹⁰ The value of overt tense is determined by the relation between (at least) two time values, inherent event time and utterance time, cf. Reichenbach (1947: 287-98). Event time is an aspect of the propositional ‘content’ and must be under the scope of Polarity. Utterance time is not and might not be, but cf. section 3.3.
- ¹¹ The interpretation of English modals under negation offers only inconclusive evidence in this respect, as the only modal position visible at PF must host modal concepts with different scope properties. In general, if a

modal has both epistemic and deontic interpretations, when it is epistemic it takes scope over negation, whereas when it is deontic it does not. According to Von Stechow & Iatridou (2007: 469), *MAY* behaves in this way, and *MIGHT*, with only epistemic readings, always has scope over negation. This suggests a partial hierarchy ... Epistemic Modal > Deontic Modal ..., as Cinque (1999) notes, and the existence of multiple modal heads at UG, possibly both above and below Polarity, but all extant English modals are tensed and must alternatively share the only slot where tense can be licensed, which hides their scope properties. To make the issue even murkier, etymologically related modals like English *MUST* and German *MÜSSEN* behave differently under negation, cf. Roberts (1998: 115) and Von Stechow & Iatridou (2007: 450-1).

- ¹² Chomsky (1995) claims that Agr_S should be dropped, and subsequent minimalist work typically has only T or Finiteness (and C) to host tensed auxiliaries at the top of the clause, but Agr_S or an equivalent functional head (e.g., Bowers’ Predication) cannot be dispensed with unless vP itself establishes subject-predicate structure. In English, this is clearest when *BE* is followed by a nominal predicate, as in *Ben should have been a teacher/*teachers*, where *Ben* must locally agree with *a teacher* before raising.
- ¹³ Observe that *NOT* can be conjoined with phrasal *WHETHER*, which in its turn can be conjoined with other *wh*-XPs, cf. *Whether or not he is interested, I don’t know; I don’t know whether or in what conditions he will be interested*, etc.
- ¹⁴ Baker (1991: 414) observes that any verb (auxiliary or not) raising out of NegP into T should void the NegP barrier and leave its own trace antecedent-governed and at peace with the Empty Category Principle. If so, NegP should not obstruct any verb raising at all.
- ¹⁵ Standard analyses in terms of DO-Support have long struggled with a crucial problem that Roberts (1985; 1998), Pollock (1989), and Chomsky (1991; 1992; 1999) explored, i.e., what enables tensed auxiliaries to overtly raise across negation whereas tensed main verbs must stay in their VPs and wait for DO-Support to rescue their derivations? Since overt V raising is available at UG and in genetically related languages like German, French, Italian, Spanish, etc., as in earlier English, the situation in contemporary English is exceptional and must result from low-level lexical differences and minor parameter-setting. A popular hypothesis, initially due to Roberts (1985) apparently, and developed in Pollock (1989: 385ff), is that auxiliaries can raise overtly because they lack thematic content. Correspondingly, what would prevent main verbs from raising is their theta grid, which would become invisible if the verb adjoined to the ‘opaque’ Agr of current English, but not if it adjoins to the ‘transparent’ (= inflectionally richer) Agr of Romance, German, etc. In more radical versions of essentially the same idea, auxiliaries are claimed to have **no** semantic content at all (i.e., to be invisible at LF) (cf. Chomsky 1991; 1992; 1999), or to consist entirely of formal features, cf.

Roberts (1998), or to be just inflections. The latter claims, however, are clearly unacceptable, as auxiliaries do contribute interpretable information to LF/SEM, cf. e.g. Roberts (1998: 116) and Parsons (1990, chapters 9-12), but even Pollock’s weaker one is either false or just a matter of terminology: granted the meaning of auxiliaries (e.g., ‘possible’, ‘necessary’, ‘permissible’, ‘in progress’, ‘finished’) their arguments cannot be Agents or Experiencers, but they may well have no less relevant semantic roles like Event or State. As to why they must raise **overtly**, one view is that, being semantically empty, unless they do they become invisible after Spell Out and can no longer check the V feature of T (Chomsky 1991). Alternatively, according to Roberts (1998), they must raise overtly because even weak V features must be checked before Spell Out. On the contrary, so the story goes, main verbs cannot raise overtly because they have thematic structure that cannot be computed if they land into a weak Agr (cf. Pollock 1989; Chomsky 1991), or because English T has a weak V feature that need not be checked until LF, so English verbs need not raise until LF and do not. In OE (German, etc.), in contrast, T has a strong V feature and must be checked before Spell Out. Such intricate stories must invariably be taken *cum grano salis*, though, for their conceptual coherence is questionable. For example, as to Pollock’s, why should an English weak Agr hide the theta grid of verbs and not that of other predicates (nouns, adjectives)? Baker cites evidence to the contrary (1991: 419-420). And, as to Chomsky’s, how can main verbs raise to an opaque Agr **even at LF**, where their theta-grids **must** be visible? If weak Agr does not make the verbs’ theta grids invisible at LF, where they matter, it is unclear why it should have any blocking effect before Spell Out, where they do not. Chomsky’s argument, of course, rests on the claim that Agr is irrelevant at LF and can be deleted, which removes the invisibility obstacle, but Agr is arguably not irrelevant at LF. For one thing, it may signal the cardinality of events, but, even if it does not, since verbs have to raise into Agr at LF, a subsequently deleted Agr will necessarily destroy a link of the verb’s chain, whose integrity is presumably **not** superfluous at LF. The present analysis will offer an alternative and simpler structural explanation: English main verbs cannot raise because they are never close enough to their attractors, as a covert DO_{AUX} intervenes (i.e., V raising is blocked by HMC, and, ultimately, by Economy, cf. section 3.3).

¹⁶ All events/states exist at, and can be predicated of, a specific time/time interval, cf. Montague (1974). In English, inherent event/state time ($t_{e/s}$) must be roughly located on the time dimension as past, simultaneous, or future with respect to utterance-time (t_u). Hence, at least two times/time intervals and two T-like heads are necessarily involved in a clause (and more if the clause contains optional auxiliaries), cf. Reichenbach (1947: 287-98) and Chomsky (1995: 350-1). The **relation** between the two time-intervals $R(t_{e/s}, t_u)$ (i.e., ‘ $t_{e/s}$ precedes, follows, or overlaps with t_u ’) is obligatorily expressed by inflection choices at the highest T, hence

the label $T_{R(U,E)}$ in (12). The inherent time of events/states, on the contrary, is itself not directly expressed, but should be syntactically represented. In (12), to avoid excessive cluttering, it has been omitted in the intermediate IPs, but represented by T_E in the lowest IP. Whether it is a separate head or just a feature of I is immaterial here.

- ¹⁷ By way of ‘functional’ explanation to a seemingly arbitrary ‘feature-checking’ requirement, verbs (auxiliary or not) are attracted by Force (via Tense and Polarity) presumably because they function as **proxies** for the predications they head, to which Tense, Polarity, and Force must ultimately apply. Only the head (hence, the highest verb) can act as a proxy of the respective XP. In English, in the absence of marked auxiliaries, the ‘proxy’ is the default ‘low Aux’, either DO_{AUX}, cf. Pollock (1989: 399-400), or BE_{PRED}.
- ¹⁸ Present ‘subjunctive’ cases like *The executive board insists that the CEO (not) be readmitted* seem to contradict the claim that the highest auxiliary, passive BE in the example, must raise attracted by Force. However, the fact that subjunctives license nominative subjects suggests that they are the complements of a covert finite modal auxiliary that has indeed landed in Force, although the matter will not be explored here.
- ¹⁹ Other SAI cases (e.g., Neg-Preposing, So-Preposing, counterfactuals) discussed e.g. by Emonds (1976), Rizzi (1997) and Grimshaw (1997) will be ignored here for reasons of space. They all involve auxiliary raising into Focus (/a head immediately above TP/FinP) triggered by marked Force or Focus features.
- ²⁰ To assume that DO_{AUX} has a default phonetically null variant is nothing exotic, cf. the early DO- Replacement-*cum*-DO-Deletion analyses by Emonds (1976), Culicover (1976), Jackendoff (1977), or Akmajian, Steele & Wasow (1979), as well as Pollock (1989) and Biberauer & Roberts (2010), among many others. In general, categories have attributes with marked and unmarked values, and, in virtue of Economy, unmarked choices may sometimes be assumed by default and need no PF expression in certain contexts. This design feature of I-Language applies to DO_{AUX} as to other categories of English and other languages. In English, obvious candidates include complementizers and most inflections. If UG does determine fixed functional hierarchies for the clause, DP, etc. as Cinque’s cartographic programme assumes, virtually all functional heads must have default phonetically null variants.
- ²¹ Observe that this dichotomy is syntactically based: predications are classified according to their co-occurrence with DO_{AUX} or BE_{PRED}. The resulting ‘events’ and ‘states’ overlap to a great extent with ‘dynamic’ and ‘stative’ verbs/predications, of course, but the two classifications do not yield completely coextensive partitions. In particular, IPs containing ‘stative’ verbs like *love, hate, fear, cost, entail*, etc. count here as ‘events’, since they co-occur with DO_{AUX}, rather than BE_{PRED}.

-
- ²² Significantly, traditional logicians assumed BE_{PRED} to be a necessary component of **all** predications (events or states), an ‘abstract’ analysis from a linguist’s viewpoint, but also a straightforward way to capture their existential dimension: ultimately a logically possible situation is necessarily construed as being (or not being) the case, cf. Frege (1879: 4, 8) on ‘is (not) a fact’ as ‘the common predicate of all judgments’. The absence, in most languages, of overt auxiliaries like DO_{AUX} functioning as selective existential quantifiers over events may have facilitated that abstract analysis.
- ²³ Halle & Marantz (1993) consider ‘dummy DO’ the unmarked verb and the preferred minimal choice to satisfy the selection of the tense suffix, and similar ideas appear in Grimshaw (1997) and in Distributed Morphology supporters like Embick & Noyer (2001: 586). More recently, Culicover (2007: 32) also considers ‘dummy DO’ as the default auxiliary, but does not make such a status follow from ‘deeper’ (e.g., semantic) properties.
- ²⁴ The necessary presence of BE_{PRED} in ‘low Aux’, along with the HMC, has parallel blocking effects on the ascent of the non-verbal heads of stative XPs (i.e., A, N, P, etc.). Like main verbs, A, N, etc. are allowed to ascend only as far as the I immediately above, where they presumably agree with their subjects and constitute the core predication. This is relevant if the UG principle is that heads of any category are attracted by Force, along with their subjects. If so, in languages with BE_{PRED}-like auxiliaries, nonverbal Xs will not ascend, either.
- ²⁵ As one of the referees observes, though, it is still necessary to assume that infinitival I becomes syntactically invisible when DO_{AUX} remains in its [PF: -] form, or its presence will not allow any higher inflection to be realized on the main verb anyway. Alternatively, a last resort principle must be added to allow a phonetically null verbal inflection to be ‘overwritten’ by a non-null one. Since at present I see no compelling reasons to settle the matter one way or the other, I leave this issue open.
- ²⁶ Of course, overt DO_{AUX} may still occur in a positive polarity clause when Force/Focus is marked, as in non-polar, non-subject-focus wh-questions, e.g., *Why did you phone?*
- ²⁷ Obviously, declarative clauses must contain overt DO_{AUX} if their Polarity is marked, e.g., negative.
- ²⁸ One of the referees asks about the value of Polarity in negative questions like *Didn’t he phone?* In view of the approach adopted in the case of ‘contrastive positive’ Polarity, the existence of a fourth value, ‘interrogative-negative’ (admittedly, for lack of a better term), cannot be discarded, but the matter is unclear and will not be settled here. That value, whatever it is, is surely marked and will trigger an overt DO_{AUX}, as desired.

- ²⁹ Only an auxiliary inserted above Force could co-occur with a following DO_{AUX} under present assumptions. However, since all English auxiliaries contribute to ‘propositional content’, they must be in the scope of Force (and Polarity). Consequently, the incompatibility between DO_{AUX} and other auxiliaries is absolute.