

## The ‘low AUX’ hypothesis and the unique status of ‘BE’

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Nowadays, BE is the only verb<sup>1</sup> in English that can still function as **both** main verb (MV, hereafter) and auxiliary (AUX, hereafter) in **the same** clause cf. (1).

- (1)
- a. Julian is Welsh/a good teacher/in London,...
  - b. Julian is not Welsh/a good teacher/in London,...
  - c. Is Julian Welsh/a good teacher/in London? ...
  - d. Oh, yes, he is\_\_\_/ No, he isn't \_\_\_.
  - e. \*John does not be Welsh/a good teacher/in London,...
  - f. \*Does John be Welsh/a good teacher/in London?...
  - g. \*Oh, yes, he does \_\_\_ /\*No, he doesn't \_\_\_.

HAVE<sub>MV</sub> used to behave similarly in British English, but no longer does, cf. (2)

- (2)
- a. ?\*Have you the keys? / Do you have the keys? / Have you got the keys?
  - b. ?\*I haven't the keys. / I don't have the keys. /I haven't got the keys.
  - c. Have you got the keys? Yes, I do. /\*Yes, I have.

Neither do modals, ‘perfective’ HAVE (HAVE<sub>PERF</sub>, hereafter), ‘progressive’ BE (BE<sub>PROG</sub>, hereafter), or the ‘passive’ voice AUX (BE<sub>PASS</sub>, hereafter)<sup>2</sup> which are just AUX, never MVs. Strong evidence in this respect is that, leaving aside, as irrelevant here, tag-answers in which their selected VP complement is not phonetically realized at PF in virtue of Economy, but is ‘recoverable’ (i.e., interpreted) at LF, cf. (3), unless they are followed by a MV, the arguments of the clause receive no theta roles and become uninterpretable at LF, cf. (4).

- (3)
- a. Can he speak German? Yes, he can \_\_ .[< speak German]
  - b. Has Helen phoned? Yes, she has \_\_ .[< phoned]
  - c. Is Helen working in her office? Yes, she is \_\_ .[< working in her office]
  - d. Was he appointed professor? No, he was not \_\_ . [< appointed professor]
- (4)
- a. \*He can. (?)
  - b. \*She has. (?)
  - c. \*She is. (?)
  - d. \*No, she is not. (?)

As to DARE and NEED, they also correspond to (at least) two different homonyms each, one a MV, the other a modal AUX, with partly different morphological paradigms (e.g., they have -s in the 3<sup>rd</sup> person singular only when they function as MVs) and incompatible syntactic properties (i.e., DARE<sub>AUX</sub>, NEED<sub>AUX</sub> have the NICE properties,<sup>3</sup> whereas DARE<sub>MV</sub>, NEED<sub>MV</sub> do not). Yet, they must alternatively be one or the other; they cannot function in **both** capacities in the same clause.

Thus, BE<sup>4</sup> is unique in English, apparently the only case in which the opposition between MV and AUX is neutralized. This obviously raises a twofold question, i.e., 1) why is BE special? and 2) what syntactic structure allows it to behave in that hybrid way?

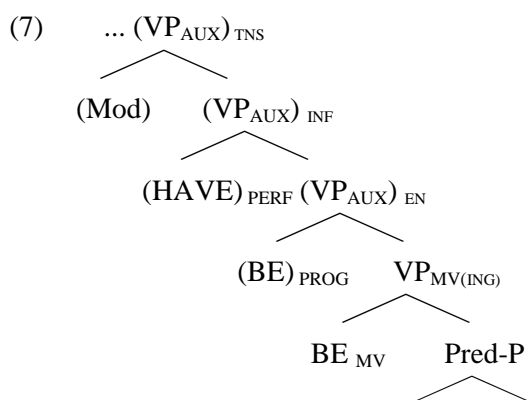
Let us start with 2), which is easier to answer: to the extent that BE is a MV, its initial insertion site must be as head of the VP, which is consistent with the fact that it may be preceded by one or more AUXs, i.e., modals, HAVE<sub>PERF</sub> or BE<sub>PROG</sub>, as in (5a). On the contrary, BE<sub>MV</sub> cannot be preceded by BE<sub>PASS</sub>, cf. (5c), but that hardly needs an explanation, since BE<sub>PASS</sub> selects dynamic transitive verbs, cf. (5b), and BE<sub>MV</sub> is neither dynamic nor transitive.

- (5) a. Helen may have been BE<sub>MV</sub>+ing difficult just to impress you.  
 b. Helen may have been BE<sub>PASS</sub>+ing followed by a sex maniac.  
 c. \*Helen may have BE<sub>PASS</sub>+en BE<sub>MV</sub>+en difficult just to impress you.

What **does** need explanation, however, is the incompatibility of BE<sub>MV</sub> with DO<sub>AUX</sub>, cf. (6a), since, in general, DO<sub>AUX</sub> selects and precedes MVs, cf. (6b), although never AUXs, cf. (6c,d). To the extent that, in principle, BE may be **both** a MV and an AUX **in the same clause**, thus, it is unclear what to expect as regards its compatibility/incompatibility with DO<sub>AUX</sub>. Yet, the empirical evidence is categorically clear: **any** BE is unacceptable after DO<sub>AUX</sub>, cf. (6a). In other words, BE behaves as an AUX, not as a MV, whenever DO<sub>AUX</sub> is active; if BE acted as a MV in such cases, it should be possible after DO<sub>AUX</sub>, since the latter selects infinitival main VPs/IPs and BE has the infinitival form that DO<sub>AUX</sub> selects elsewhere, as shown by its co-occurrence with a modal, as in (6e).

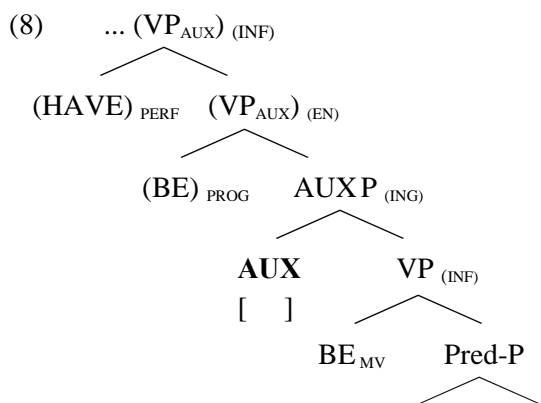
- (6) a. \*Helen did (not) BE<sub>MV</sub> difficult just to impress you.  
 b. Helen did (not) phone me.  
 c. \*Helen did not have phoned me.  
 d. \*Helen did not be working in her office.  
 e. Helen may be difficult to live with.

Summarizing so far: irrelevant matters aside, the fragment of clause structure involved in the analysis of the data under discussion is (7), where “...” represents the hierarchical sequence Force/C > Polarity > Tense, in that order.<sup>5</sup> As shown in (7), when the main VP is headed by BE<sub>MV</sub>, English allows up to two aspectual and a modal AUX **or** just DO<sub>AUX</sub> above it, but **not both**, which needs an independent explanation. As to the local syntax of BE<sub>MV</sub>, following Bowers (1993; 2001), I will assume that predicational<sup>6</sup> BE<sub>MV</sub> selects an IP-like Predication Phrase (Pred-P, hereafter) whose head contains AGR<sub>SUBJ</sub> features and selects an AP, NP, DP, PP, etc. expressing descriptive predicates, as in (1a-c). Whether AUXs directly select VP<sub>(AUX)</sub>s (i.e., VPs possibly dominating other AUXs) or IPs with suitable inflections in I, as in e.g. Chomsky (1995) or Haegeman & Guéron (1999), is immaterial for current purposes.<sup>7</sup> To shorten tree representations somewhat, I adopt the former view, but nothing crucial to the account of BE proposed here hinges on that choice. Thus, the reader is free to insert an appropriate IP<sub>X</sub> subtree (with <sub>X</sub> ranging over {INF, EN, ING, PASS}<sup>8</sup>) between each AUX and the VP that follows.



Granted (7), when  $BE_{MV}$  is tensed, either it ascends to Tense (the traditional assumption) or the features in Tense must be realized on it, but in either case no AUXs may occur between the initial insertion site of  $BE_{MV}$  and Tense. Under the standard (raising) account,  $BE_{MV}$  would not be allowed to reach Tense across intervening M,  $HAVE_{PERF}$  or  $BE_{PROG}$ , the highest of which should raise instead, since Economy - Shortest Movement, or the Head Movement Constraint (HMC, hereafter) - would thereby be violated; alternatively, if so-called ‘Affix Hopping’ entails no syntactic movement, just the realization of inflectional features on the next lower potential affix carrier and  $BE_{MV}$  stays under its VP, either  $BE_{MV}$  is also the closest verb under Tense (i.e., no AUX intervenes) or, again, granted Economy - in this case the Minimal Search aspect thereof - it cannot be tensed, since a closer one will. Since  $BE_{MV}$  **does** sometimes appear tensed, obviously, no AUX may precede it in such circumstances, but, leaving that aside, there is compelling evidence that  $BE_{MV}$  must furthermore leave its VP and ascend into Tense and beyond for independent reasons, for it surfaces preceding VP-external adverbs (cf. *Julian is usually/always very considerate*), negation (a marked value of Polarity), cf. (1b), and even the subject, when it undergoes Subject-Auxiliary Inversion (SAI, hereafter), cf. (1c). But, of course, this is completely **unexpected** if BE is a MV, since MVs no longer ascend beyond negation or undergo SAI in English, cf. Pollock (1989: 385ff) and Chomsky (1993: 198) for two (different) semantically based standard explanations, and Escribano (2009b) for a non-standard but far less stipulative structural one.

Thus, BE creates an interesting paradox: a) since it may appear on its own, it must be a MV, for AUXs cannot surface unaccompanied by MVs, cf. (4), and therefore it must be initially inserted as head of its VP; b) yet, even in those cases, it must also be an AUX at some stage, or it would not be allowed to raise into Tense, etc., as it does; but, c) by definition  $BE_{MV}$  cannot be an AUX while it is heading the main VP. The paradox, however, can be naturally solved if between the main VP and the lowest visible AUX compatible with  $BE_{MV}$ , i.e.,  $BE_{PROG}$ , as in (5a), there is an **additional** AUX into which  $BE_{MV}$  may raise and first achieve AUX status before ascending any further as only auxiliary verbs can do in current English. The additional structure required is AUXP in (8).



That low AUX cannot be ‘passive’, ‘progressive’, ‘perfective’, or ‘modal’, since a tensed  $BE_{MV}$  may appear only when no such categories dominate it, and, of course, has none of such features; hence, the ‘low’ AUX must be a new kind of auxiliary, but what kind?

In Escribano (2009b), I claimed a) that the AUX of (8) is the ‘unmarked’ or default auxiliary, ( $AUX_{DEF}$ , hereafter) in opposition to the optional ones encoding marked (i.e., passive) voice ( $BE_{PASS}$ ), marked aspect ( $HAVE_{PERF}$ ,  $BE_{PROG}$ ), or marked modality ( $MAY$ ,  $MUST$ , etc); b) that UG forces every clause to contain such an  $AUX_{DEF}$ , cf. e.g. Akmajian, Steele & Wasow (1979), since it contributes an **existential quantifier over events/states** that is essential to any ‘propositional content’; and c) that  $AUX_{DEF}$  is typically filled by  $DO_{AUX}$ , which eventually becomes overt or not subject to Economy: roughly, if  $DO_{AUX}$  must carry tense features (i.e., if there is no higher AUX closer to Tense), it must be

overt; otherwise, SEM(DO<sub>AUX</sub>) remains necessary at LF, but PHON(DO<sub>AUX</sub>) is superfluous at PF, and, granted Economy, must be inhibited, cf. Escribano (2009b).

Claim b) above, the crucial hypothesis in that work (and this, too) is meant to fill a puzzling gap in our understanding of the semantics-syntax correspondence at clause-level, i.e., that nothing in clause syntax seems to correspond to the quantifier over events/states that prominently appears in the well-motivated sentential LFs in Davidson (1980[1967]), Parsons (1990) and all subsequent work. According to Parsons, in particular, the LF of sentences like (9) is, in slightly simplified form, (10), where ‘e/s’ are 3rd. order variables standing for an event/state, respectively, SUBJ might be replaced by a thematic role label like AG(ent) or EXP(eriencer) in the examples of (9), and tense, as well as the complexities of aspect, are left out for simplicity’s sake as irrelevant to the issue at hand.

- (9) a. Julian kisses Karen.  
 b. Julian is Welsh.  
 c. Julian is not Welsh.
- (10) a.  $\exists e$  [KISSING(e) & SUBJ(e, Julian) & OBJECT(e, Karen)]  
 b.  $\exists s$  [BEING WELSH(s) & SUBJ(s, Julian)]<sup>9</sup>  
 c.  $\neg \exists s$  [BEING WELSH(s) & SUBJ(s, Julian)]

Under late P&P/Minimalist accounts of clause syntax, typically based on the (VP) Internal Subject Hypothesis (see Sportiche 1988; McCloskey 1997), the part of the LF formulae inside [...] in (10) corresponds in syntax to a thematically saturated VP, but something syntactic should correspond to the quantifier  $\exists e$ . According to claim b), the obligatory AUX<sub>DEF</sub> of (8) has exactly that role.

The force of the AUX<sub>DEF</sub> hypothesis comes from the consistent and mutually supporting explanatory accounts it yields of the idiosyncratic behavior of **both** BE and auxiliary DO. The ‘low DO<sub>AUX</sub>’ analysis in Escribano (2009b), which is meant to compete with the standard ‘high’ ‘DO<sub>DUMMY</sub>’ one, has far-reaching (and very nice) consequences at all levels, e.g., it immediately explains **without stipulation**<sup>10</sup> why when a clause contains visible AUXs at all it has either DO<sub>AUX</sub> **or** marked AUXs, but **never both**, i.e., it **explains** why overt DO<sub>AUX</sub> necessarily excludes all other AUX heads (and *vice-versa*). The reasoning involved is straightforward: a) it follows from the clause structure assumed in P&P/Minimalist Grammar, e.g., (7) *supra*, and from Economy (Shortest Movement, particularly HMC, if movement is involved, or Minimal Search, otherwise) that DO<sub>AUX</sub> can never reach/inherit Tense features if there is a higher AUX in the clause; and b) it follows from another core aspect of Economy (i.e., Minimal Action, or ‘compute as little as possible’) that if a phonologically null version of DO<sub>AUX</sub> suffices at PF, PHON(DO<sub>AUX</sub>) will not be activated, cf. Escribano (2009b) for details.

Since DO<sub>AUX</sub> **also** excludes BE<sub>MV</sub>, cf. (1e), (6a), etc., but not any other MV, cf. *Helen did (/did not) phone me*, the obvious explanatory hypothesis is that BE<sub>MV</sub> must **compete** with DO<sub>AUX</sub> for the new obligatory AUX<sub>DEF</sub> position in (8), but why should that happen? Why can’t BE<sub>MV</sub> stay inside its VP and let underlying DO<sub>AUX</sub> raise to Tense, etc. and proceed until PF if required?

That leads us straight into the first, and more difficult, question above, i.e., the role of BE, as well as that of DO<sub>AUX</sub> as natural fillers of AUX<sub>DEF</sub>. As to DO<sub>AUX</sub>, in Escribano (2009b) I claimed that, syntactically, it is essentially a pro-verb, the traditional view (cf. Pollock 1989: 399-400); in particular, it is a weaker variant of the pro-verb DO<sub>MV</sub> (‘British’ DO), ultimately related to semantically richer (‘active’) DO homonyms like those in the DO SO/IT/THAT constructions.<sup>11</sup> What distinguishes DO<sub>AUX</sub> from its homonymous relatives is that it has lost all traces of ‘activeness’, but not ‘dynamicity’ (in a broad sense, cf. fn 21), so that SEM(DO<sub>AUX</sub>) is nowadays a component of **all** English MVs (with **one** exception, BE<sub>MV</sub>). This allows DO<sub>AUX</sub> to ‘stand for’ any MV (but BE<sub>MV</sub>), just as pronouns (e.g., *he, she, it, them*, etc.), essentially underspecified DPs, can, if Economy requires it, replace full DPs with non-distinct values for the attributes [Person: ], [Gender: ], [Number: ], and [Case: ].<sup>12</sup>

Indeed, DO<sub>AUX</sub>, acting as a ‘proxy’ for main VPs, functions as the ‘operand’ that Polarity (and Force) demand<sup>13</sup> whenever no higher (‘marked’) AUX is available, although it is visible at PF only when Polarity and/or Force have ‘marked’ values (negative or indeterminate, in the case of Polarity; interrogative or emphatic, in that of Force, cf. Escibano 2009b). In such circumstances, the obligatory underlying DO<sub>AUX</sub> raises from AUX<sub>DEF</sub> into Polarity and Force *via* Tense, and must, therefore, also be tensed, or the tense features at T will remain unlicensed (which explains why DO<sub>AUX</sub> is always finite without stipulating defectiveness, which is rather questionable). When Polarity/Force are unmarked, underlying DO<sub>AUX</sub> must still raise, but need not be overt at PF, and, in virtue of Economy, it is not, which also disables it as a possible tense-carrier and forces the MV to carry tense itself. Those, of course, are the ‘Affix-Hopping’ contexts, cf. Escibano (2009b) for further details.

What about BE, then? As stated, there is an ‘exception’ to DO<sub>AUX</sub>’s capacity to act as a proxy for MVs, and it is, unsurprisingly, BE (or the several homonymous verbs that share PHON(BE), cf. fn 4,6 and Escibano 2009a). The reason is that SEM(DO<sub>AUX</sub>), impoverished as it is, is **not** a component of SEM(BE) in any of the homonymous BE lexemes, either MV or AUX ones. Actually, there is no other verb in English that can act as a ‘pro-verb’ for BE, because the core type of BE is **semantically simple**, i.e., an ‘atom’ and, by definition, can have no ‘subsets’. Since pro-forms are essentially subsets of the full XP categories they replace (ignoring their idiosyncratic PHON matrices), BE **cannot** have a pro-form. It follows that whenever the syntactic context requires a proxy (i.e., whenever there is no AUX above BE<sub>MV</sub>), either BE<sub>MV</sub> itself acts as its own proxy and lands in Tense, Polarity, Force and Focus (in SAI cases), or no other English verb will. This is what triggers the exceptional ascension of BE<sub>MV</sub> from its VP into AUX and higher; no other MV is so attracted, because all have a more ‘economic’ pro-form available to raise in their stead, i.e., DO<sub>AUX</sub> sitting right above them in AUX<sub>DEF</sub> and blocking their own ascension. Since BE<sub>MV</sub> does not contain SEM(DO<sub>AUX</sub>), DO<sub>AUX</sub> cannot stand for it (cf. Pollock 1989: 400), and has no other pro-verb, it must raise itself when a proxy is needed (i.e., whenever there is no AUX above).

This hypothesis would seem to be wrong for e.g. the BE<sub>MV</sub> that expresses identity (BE<sub>ID</sub>, hereafter), rather than predication. Indeed, in e.g. (11a) *is* must roughly mean ‘is identical to’, and cannot be atomic, since it contrasts with ‘is distinct from’, ‘is similar to’, etc. Yet, BE<sub>ID</sub> has no proxy, either, and behaves in the same hybrid MV + AUX way as ‘predicational’ BE<sub>MV</sub> (BE<sub>PRED</sub>, hereafter), cf. (11b,c). Must we conclude, then, that BE<sub>PRED</sub> is not unique, after all, and that the MV/Aux opposition is neutralized for e.g. BE<sub>ID</sub> as well? Apparently, this is unavoidable, since they fail the zeugma test, cf. (12)<sup>14</sup> and therefore treating them as variants of the same BE<sub>MV</sub> is out of the question.

- (11) a. Ernest is the president / The president is Ernest.  
 b. Ernest is not the president.  
 c. Is Ernest the president?

- (12) a. \*Ernest is the president and Welsh.  
 b. \*Ernest is the president and Julian \_ Welsh.

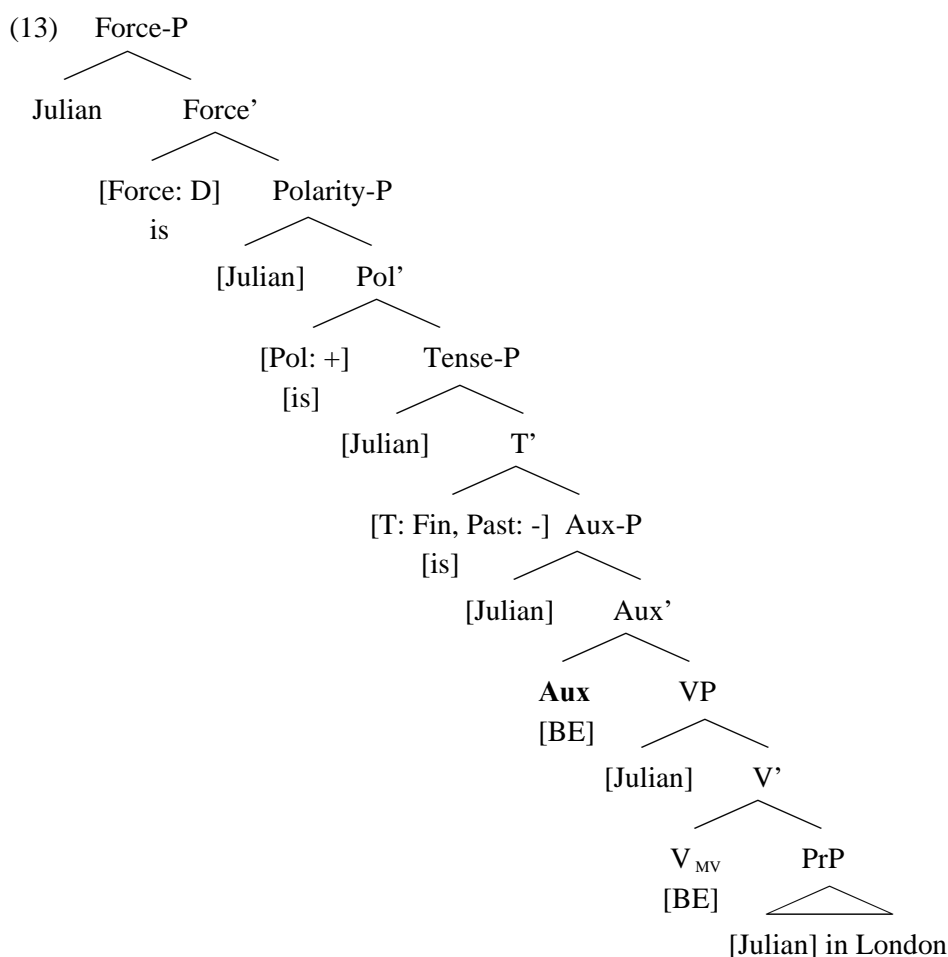
Observe that such duplication of statement would only be a minor analytic drawback, anyway, since no syntactic feature need be privative of just one lexical item, but, as a matter of fact, there is a plausible better alternative, i.e., to reduce BE<sub>ID</sub> to BE<sub>PRED</sub> plus a hidden identity predicate.<sup>15</sup> Under that analysis, only BE<sub>PRED</sub> is atomic; BE<sub>ID</sub> (similarly, existential, and locative BE<sub>MV</sub>) are not, but their semantic core is still BE<sub>PRED</sub>, not DO<sub>AUX</sub>, and, as expected, their only possible proxy is BE<sub>PRED</sub> itself.

The rest is straightforward: Granted structure (8) and the HMC, of course BE<sub>MV</sub>-Raising is allowed only if the low AUX<sub>DEF</sub> is **not** filled by underlying DO<sub>AUX</sub>. Therefore, AUX<sub>DEF</sub> in (8) must have at least two alternative values, marked and unmarked. Its ‘marked’ value is underlying DO<sub>AUX</sub>

(eventually overt or not); the ‘unmarked’ one is the **existential quantifier over events/states**  $\exists e/s$  represented as [ ] in (8), which has no independent PHON matrix.

Thus, by occupying  $AUX_{DEF}$ , in different ways,  $DO_{AUX}$  and  $BE_{PRED}$  ‘inherit’ the quantificational force of  $AUX_{DEF}$  and exceptionally end up in ‘complementary’ distribution, but only because  $BE_{PRED}$  is the simplest MV in English and cannot have any pro-form but itself. When  $AUX_{DEF}$  is marked,  $DO_{AUX}$  may stand for any main VP but one headed by  $BE_{MV}$ ; when  $AUX_{DEF}$  is unmarked,  $DO_{AUX}$  is impossible in it and correspondingly only  $BE_{PRED}$  may occur as head of the selected VP. In such circumstances, if no higher (marked) AUX is available,  $BE_{PRED}$  must act as the operand of Force and Polarity and is attracted, first into  $AUX_{DEF}$  and subsequently into higher heads (Tense, Polarity) until it lands in Force or higher (in SAI contexts). Being the closest verb to Tense,  $BE_{PRED}$  also has to be finite (like  $DO_{AUX}$ ), or the features at Tense will not be ‘checked’/satisfied/assigned (depending on implementations irrelevant here). That is what makes  $BE_{PRED}$  eventually visible above/before VP-external adverbials, negative Polarity, or even the subject in e.g. (1a-c) above. Of course,  $BE_{AUX}$  also raises out of its corresponding ‘voice’ or ‘aspect’ heads and precedes adverbials, negation, etc., when no higher AUX blocks its ascent.

For the sake of exemplification, a declarative clause (= [Force: D]) with unmarked Polarity ([Pol: +]) like *Julian is in London*, thus, is derived as in (13), where [Julian] is a ‘trace’ of ‘Julian’, [is] of [is] and [BE], the internal structure of Pred-P is abbreviated, and irrelevant details are omitted:



Although both  $DO_{AUX}$  and  $BE_{PRED}$  are semantically ‘light’, the former a general-purpose VP proxy, the latter the simplest possible verb and its own proxy, there is an important difference, i.e., that whereas  $DO_{AUX}$  has a phonologically null variant,  $BE_{PRED}$  has only phonologically non-null forms.<sup>16</sup> Thus, at PF BE is always overt, whereas  $DO_{AUX}$  is null by default (granted Economy) unless marked

Force or Polarity determine otherwise. This may seem puzzling at first: if  $DO_{AUX}$  reflects the ‘marked’ option for  $AUX_{DEF}$  and  $BE_{PRED}$  the unmarked one, why is it not the latter that may be left out at PF?

This fact is functionally well justified, though:  $DO_{AUX}$  is just a proxy for a MV that **remains overt** at PF, whereas  $BE_{PRED}$  is the MV that has itself ascended *via* AUX leaving nothing pronounceable behind; dropping  $PHON(DO_{AUX})$ , hence, does no harm unless marked Polarity/Force require it, but dropping  $PHON(BE_{PRED})$  at PF leaves the MV chain unexpressed and the inflectional features of Tense without an overt carrier, which is not allowed in English (ignoring block language and other special registers).

Of course, in Latin (Russian, etc.), clauses like (14) are well-formed, but, stylistic factors aside (i.e., such cases might be similar in status to current English block language examples like *Obama in Guantanamo, Markets out of control*, etc.), the absence of a ‘copula’ in them might be just a relatively unimportant PF fact, since *est, sunt*, etc. are, nevertheless, ‘understood’, which entails that they are in the derivation and must be computed at LF.

- (14) a. Homo homini lupus.  
b. Omnia praeclara rara.

In English, anyway, expressions like (15) are ill-formed, and surely for multiple reasons.

- (15) \*Julian Welsh/in London/a good teacher.

A purely syntactic one is that, in the absence of a finite Tense, the (nominative) Case of *Julian* is unlicensed and the clause violates the Case Filter, but there is at least a semantic reason, too, i.e., that a non-finite declarative clause cannot be associated to any specific time interval and therefore fails to describe any specific ‘world’. In such circumstances, even if Force is declarative, the clause cannot have a truth-value, i.e., it is not propositional (in the required non-Fregean sense, cf. *infra*). Since declarative clauses **must** be propositional to be interpretable at LF, cf. Chomsky (1999; 2001), cases like (15) are out on semantic grounds, too.

That in many languages (including English)  $BE_{PRED}$  enables N(P)s, A(P)s, etc. to function as suppletive predicates whenever lexical gaps occur in the V category, cf. (16a), is, of course, a well-established view, and quite right as far as it goes. In cases like (16b), for example,  $BE_{PRED}$  is functionally equivalent to a nominal or adjectival ‘auxiliary’, and, being verbal, can crucially carry the tense specification that root clauses need and non-verbal predicates cannot externalize, since the tense suffix selects (can be instantiated on, etc.; implementation is irrelevant) only verb stems.<sup>17</sup>

- (16) a. John \*athletes/\*soldiers/\*talls, etc.  
b. John is an athlete/a soldier/tall, etc.

However, that traditional view tends to convert  $BE_{PRED}$  into a semantically trivial element, and for the same reason that  $DO_{AUX}$  is usually treated as a ‘dummy’, i.e., that truth-conditionally speaking neither of them seems to contribute any tangible meaning (that is, if tense is treated as a separate syntactic/semantic category with wider scope than what its accidental attachment to verbs suggests).<sup>18</sup> As explained,  $BE_{PRED}$  is semantically even simpler than other types of  $BE_{MV}$ , e.g.,  $BE_{EX}$ , or  $BE_{ID}$ , both reducible to  $BE_{PRED}$  and too ‘rich’ to replace it in a predication context, cf. (1a) vs. (17a) or (17b).<sup>19</sup>

- (17) a. \*Julian exists (as) Welsh/a good teacher/in London.  
b. \*Julian is identical to a good teacher.

In fact, BE<sub>PRED</sub> is the quintessential state verb, ‘atomic’, and the simplest MV in the language. Since ‘states’, in general, are simpler than ‘dynamic’ events,<sup>20</sup> which, by definition, entail spontaneous or controlled ‘changes’ of state, BE<sub>PRED</sub> is also simpler than DO<sub>AUX</sub>, which still retains vestiges of ‘dynamicity’ in a broad sense (if not of ‘activeness’).<sup>21</sup> No wonder, then, that its semantic import be very ‘abstract’ or that it should happen to act as the obvious ‘copula’ in English.

According to logicians from Aristotle to the Port Royal Logic and much later, the ‘copula’ (= our BE<sub>PRED</sub>, in English) might well reduce to just our AUX<sub>DEF</sub> (= an existential quantifier), for they made no bones about analyzing **all** propositions into Subject, Predicate **and** ‘Copula’. Thus, (18a, b) were supposed to have the same logical form, S+C+P, although, from a grammarian’s viewpoint, that analysis of (18b) cannot but seem arbitrary, since C is not visible in it and *John teaches* is **not** even synonymous with *John is teaching*. But why should such an ‘abstract’ analysis appeal to logicians for over two thousand years? Can’t *teach* be directly predicated of *John*, as the overt structure suggests?

- (18) a. John is tall/in London/a teacher.  
b. John teaches (? = “John + is + teaching”).

Indeed, the (ultimately Fregean) view usually adopted by logicians nowadays is that *teaches* (etc.) are functions with denotations of type  $\langle e, t \rangle$  and *John* (etc.) denote individual entities (type  $e$ ), which, by straightforward functional application  $\langle e, t \rangle * e = t$  ( $[\lambda x. \text{teaches}(x)](\text{John}) = \text{John teaches}$ ), predicts that *John teaches* will be a proposition (type  $t$ ). This seems correct for the simplest sentences, but is a naïve surface-based analysis, ignores the higher-level regularities that have led Chomsky to postulate an AUX at UG, and, like all PSG-like surface analyses, leads to massive redundancy, cf. Chomsky (1975[1955]), although this has not been so clearly argued in semantics as it has in syntax.

Early logicians, however, did defend an ‘abstract’ S+C+P analysis even with no access to a UG-inspired abstract syntactic theory, and it is tempting to interpret their S+C+P analysis of (18b) as an anticipation of the NP+AUX+VP analysis in Chomsky (1955; 1965), Akmajian et al. (1979), etc. In particular, it is tempting to assume that what they understood by ‘copula’ is, at bottom, our AUX<sub>DEF</sub>, and that they saw the association of the copula with MVs like BE, *esse*, etc. as an irrelevant accident. In other words, fitting (18b) in their S+C+P straightjacket was a minor issue, because it is AUX<sub>DEF</sub>, i.e., the existential quantifier over events/states, not BE<sub>PRED</sub>, that really matters from a logical and semantic point of view.

Is BE<sub>PRED</sub>, then, like DO<sub>AUX</sub>, just a ‘dummy’? Textbook-level presentations, indeed, often analyze *tall* in (18a) as of type  $\langle e, t \rangle$ , a first-order predicate, and translate (18a) as T(j), just as (18b) is T'(j). This simplified LF, familiar from first-order predicate logic, entails that BE<sub>PRED</sub> is semantically null (i.e., not even present at LF) or that it is a function of type  $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ , i.e.,  $[\lambda P. \text{BE}_{\text{PRED}}(P)]$  with no LF consequences (i.e., the kind of analysis usually offered for ‘dummy’ DO). Of course, the surface distribution of *tall* is not quite that of a first-order predicate (e.g., it does not compose with referential NPs like *John*) cf. (19), but that problem is typically ignored by claiming that tense is necessary in propositional expressions and adjectives cannot instantiate it. If so, (19) is bad, at bottom, because it lacks tense, not for any category incompatibility between *tall* and *John*.

- (19) \*John tall

However, *tall* (as well as predicative PPs like *in London*, cf. *flats in London*, but not nominal predicates like *a good teacher*) is happy to compose with **common** (non-referential) N(P)s, which are themselves usually assumed to be of type  $\langle e, t \rangle$  (i.e., first-order predicates), into expanded NPs of the same type,  $\langle e, t \rangle$ . If so, *tall* is a function of type  $\langle \langle \langle e, t \rangle, \langle e, t \rangle \rangle \rangle$  ( $[\lambda P. \text{TALL}(P)]$ ), i.e., a second-order predicate, *in London* (in 18a) is ( $[\lambda P. \text{IN LONDON}(P)]$ ), and BE<sub>PRED</sub> must itself be a function of type  $\langle \langle \langle \langle e, t \rangle, \langle e, t \rangle \rangle, \langle e, t \rangle \rangle \rangle$ , i.e., a third-order predicate that composes with a second-order predicate to yield a first-order predicate, cf. discussion in Heim & Kratzer (1998).

This treatment of *tall*, and consequently BE<sub>PRED</sub>, however, depends on an analysis of common N(P)s as first-order predicates that is more convincing in Latin, cf. (14), or Spanish, cf. (20), than in English, where they cannot function as first-order predicates, cf. (21a), unless they are accompanied by a determiner (21b), plural (21c), or denote special jobs, as in (21d). On the other hand, *a good teacher* does not fit the basic rule for second-order predicates, since it cannot directly compose with a common N(P), cf. (22a) vs. (22b).

- (20) Juan es médico/maestro/ingeniero...
- (21) a. \*John is doctor/teacher/engineer,...  
 b. John is a doctor/a teacher/an engineer,...  
 c. John and Mary are doctors/teachers/engineers,...  
 d. John is Professor of Mathematics at UCL/CEO of Barclays Bank,....
- (22) a. \*girl a good teacher/\*a good teacher girl  
 b. (A) girl (who is) a good teacher.

Hence, in English, the facts fit only if Det (*a*, etc.) is itself treated as a purely grammatical formative without LF import in some cases, i.e., when it is not needed, as in (21c,d), or when the NP directly composes with BE<sub>PRED</sub>, as in (21b), but not in others, since it is necessary to explain (21a) and why *a good teacher* fails to directly compose with a common N(P) like *girl* in (22a). Yet, disposing with Det *a(n)* at one’s convenience is also a common expedient in elementary predicate logic and semantics textbooks.

Unfortunately, such snags aside, neither analysis by itself takes us any closer to the meaning of quintessential BE<sub>PRED</sub>. The theory developed in this paper, like that of DO<sub>AUX</sub> in Escribano (2009b), claims that **neither is just a dummy**, and a simple, but powerful, argument in this respect is that they are a) necessary outside PF, and b) not interchangeable,<sup>22</sup> which suggests that each must contain more than the existential quantifier over states/events they inherit from landing/being inserted in AUX<sub>DEF</sub>. If so, the <e, t> in (18a) must be *is tall/in London/a teacher*, as Parsons’ formulae entail, and whether *tall* etc. are first-order (P<sup>1</sup>) or second-order predicates (P<sup>2</sup>), the question is still what function F of type < P<sup>i</sup>, <e, t>> characterizes the semantic contribution of atomic BE<sub>PRED</sub>.

The problem is not theory-internal, but ‘substantive’, and fraught with daunting metaphysical difficulties, cf. Strawson (1973) or Davidson (2006) for relevant, if inconclusive, discussion, but need not be solved in a paper like this. For current purposes, it suffices to confirm that BE<sub>PRED</sub> has **some** content, even if negatively characterized with respect to other BE homonyms, e.g., through application of the zeugma tests, cf. Escribano (2009a). Clearly, as traditional logicians noted, since subject and predicate are of different ontological types (a particular and a universal, respectively), they cannot be composed through by BE<sub>ID</sub>, cf. (15b). Alternatively, once the UG-imposed existential quantification (= AUX<sub>DEF</sub>, the abstract ‘copula’), is factored out, the VP complement of AUX<sub>DEF</sub> must profile an ‘event’, or a ‘state’ BE<sub>PRED</sub>P, cf. Parsons’ LFs in (10b, c) above, not just a ‘property’ P (i.e., WELSH, TALL, IN LONDON), and BE<sub>PRED</sub>, in the case at hand, must still minimally mean ‘instantiates’ P (P = Universal) (under a realist metaphysics), or ‘is a member of’ (C = a class of entities),<sup>23</sup> where C may be understood extensionally, in approaches like Tarski’s, Quine’s or Davidson’s, or not (i.e., it may consist of entities of the ‘internalist’ L-World, the world as construed under the rules of I-Language, English, here). As both are **substantial** predicates (e.g., not interchangeable, nor even equivalent to e.g., BE<sub>EX</sub>, or BE<sub>LOC</sub>), metaphysical issues side, BE<sub>PRED</sub> cannot be semantically empty. QED.

The focus of this paper, however, has not been so much on the meaning of BE<sub>PRED</sub> as on the fact that its unique syntactic behavior, like that of DO<sub>AUX</sub>, can be elegantly explained, without stipulation, by positing a low AUX<sub>DEF</sub> with quantificational force, which supersedes the ‘copula’ of early logicians and ties up an important loose end in the correspondence between (e.g., Davidson’s or Parson’s) LFs and current P&P/minimalist representations of clause syntax.

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## Notes

<sup>1</sup> Of course, not all scholars grant BE verb status. Chomsky, for one, does not, cf. Chomsky (1975[1955]; 1965), but he cannot make it fit in the AUX area, either. In Chomsky (1965), for example, BE is part of VP, but is not a verb. Of course, under later X-BAR assumptions, if BE is in the VP it MUST be a V.

<sup>2</sup> The terminology used in this paper is as established and theory-independent as possible.

<sup>3</sup> ‘NICE’ is an acronym for Negation, Inversion, Code, and Emphasis, according to e.g. Quirk et al. (1985) or Huddleston & Pullum (2002), or Negation, Inversion, Contraction and Ellipsis, in other accounts. Thus, BE<sub>MV</sub>, like auxiliaries, precedes *not*, undergoes SAI, emphasises positive polarity, can be contracted with the subject/*not*, and is found before elided VPs, whereas other MVs have none of such properties.

<sup>4</sup> More accurately, the forms of main verb BE correspond to a set of homonymous lexemes with partly different properties in what concerns adicity, Case-licensing ability, and meaning, cf. Escribano (2009a), but this fact may be ignored here, since the syntactic behaviour under discussion is common to all homonyms.

<sup>5</sup> The relative scope of Polarity and T is debatable, cf. Zanuttini (2001). English surface structure suggests T > Pol if AGR<sub>SUBJ</sub> is dropped, as Chomsky (1995: 350ff) claims, but the verb-hosting head above Polarity may not be Tense, but Predication, cf. Bowers (1993; 2001), or Force, as claimed here, cf. Escribano (2009b) for details. Nevertheless, that is an independent issue irrelevant to the proposal developed here.

<sup>6</sup> As stated, BE<sub>MV</sub> is, in fact, a family of lexemes with different properties. ‘Identificational’ BE<sub>MV</sub>, for example, selects a definite DP, whereas ‘existential’ BE<sub>MV</sub> selects an indefinite one, cf. Escribano (2009a) and *infra*.

<sup>7</sup> It depends on how inflection is handled. If all verbal inflection is handled like tense and verbs enter derivations with all their inflections on, as assumed under ‘checking theory’ in Chomsky (1995), infinitival and participial VPs must be c-commanded by appropriate I heads (with values ranging over {INF, EN, ING, PASS}) into which verbs can raise in order to ‘check’ their features. Alternatively, if verbs (nouns, etc.) enter derivations with unvalued inflectional features and their values are selected by appropriate heads, auxiliaries may directly take VP complements and determine their inflectional values, as assumed in earlier non-Chomskian accounts and here. As a matter of fact, the second alternative works better (cf. Escribano 2009b), and has been adopted again in later work like Chomsky (1999; 2001).

<sup>8</sup> Such inflectional morphemes are used here with their standard values, i.e., those they had in American distributionalist morphosyntax of the 1940’s and 1950’s, which Chomsky (1975[1955]) adopted.

<sup>9</sup> Observe that the ‘state’ is **not** just WELSH (although *Welsh* is a stative adjective), but BEING WELSH.

<sup>10</sup> The standard ‘dummy DO’ theory stipulates the incompatibility of DO<sub>DUMMY</sub> with auxiliaries by declaring it a ‘last resort’ choice, thereby begging quite a few serious issues, cf. Escribano (2009b).

<sup>11</sup> Cf. Quirk et al. (1985: 874-879) or Huddleston & Pullum (2002: 1523-1535) on the differences among them.

<sup>12</sup> I will here assume the [ATTRIBUTE: VALUE] format and its logic as a standard, perspicuous, and coherent way to represent linguistic information. In mainstream P&P/Minimalist Grammar, as in most functional approaches, the [±F] format prevails, but they are equivalent (as far as the latter goes). The advantage of the [A: V] format is that it provides a more flexible way to encode non-Boolean features and recursion of complex [A: V] matrices, a characteristic exploited to great advantage in GPSG and HPSG.

<sup>13</sup> Recall that Polarity is a propositional function of type <t, t> and what is asserted, questioned, etc. by choosing appropriate values in Force is also a proposition (in the Fregean sense). Syntactically, the Fregean proposition is in AuxP, which contains a quantified predication (Pred-P), which in turn contains a thematically saturated VP, cf. Escribano (2009b).

<sup>14</sup> Much the same reasoning applies to ‘existential’ BE<sub>EX</sub>, which also has NICE properties, cf. *There is a single model, There is not a single model, Is there a single model?* etc.

<sup>15</sup> Correspondingly, ‘existential’ BE<sub>EX</sub> would reduce to BE<sub>PRED</sub> and a hidden locative predicate spelt out as *there* in English. For space reasons, however, BE<sub>EX</sub> will not be discussed here, as such discussion is not necessary to defend the present analysis; cf. Escribano (2009a).

<sup>16</sup> The same difference exists between the ‘unmarked’ DO<sub>AUX</sub> and ‘marked’ auxiliaries like HAVE<sub>PERF</sub>, BE<sub>PROG</sub> or Modals: If the latter are activated at all in a derivation, they always show at PF.

<sup>17</sup> Incidentally, one of the major unsolved problems of the standard ‘dummy’ DO theory is that it fails to explain how tense can be attached to a non-verbal formative or a mere syllable, cf. Escribano (2009b).

<sup>18</sup> Event time (as expressed relative to Speech Time by choices in Tense), of course, is truth-conditionally relevant: *Julian smoked* and *Julian smokes* are not semantically equivalent, cf. *Julian smoked, but no longer does* vs. *\*Julian smokes, but no longer does*. Actually, *contra* Chomsky (1995: 350ff), so is subject Agreement, since singularity/plurality have obvious semantic consequences on verbs, too, apart from their well-known effects on DP/NPs, i.e., the number of states of affairs referred to in each case is different. Thus, *Their daughter died* describes just a ‘dying’ event, whereas *Their daughters died* describes two or more.

<sup>19</sup> Actually, so-called BE<sub>MV</sub> covers still other lexemes richer than BE<sub>PRED</sub>. For example, ‘locative’ BE<sub>PRED</sub> is another homonymous different lexeme, in view of its behaviour under the zeugma tests, cf. *\*Julian is a teacher and in London, \*Julian is a teacher and Karen\_\_in London*, etc.; cf. Escribano (2009a).

<sup>20</sup> Recall that lexical semanticists ever since Ross’ (1969) have analyzed achievements, accomplishments and actions, respectively, in terms of formulae similar to BECOME(STATE), CAUSE(BECOME(STATE)) and DO(CAUSE(BECOME(STATE))), with the number of syntactic ‘tiers’ increasing as the semantic complexity of the verbs grows, cf. e.g. Pinker (1989), Jackendoff (1990), Rappaport Hovav & Levin (1998), Hale & Keyser (2002), etc.

<sup>21</sup> Since DO<sub>AUX</sub> can act as proxy for verbs like *see, like, cost, weigh, entail*, etc. usually classified as ‘stative’ (to the extent they cannot be used in the progressive form, etc.) DO<sub>AUX</sub> and BE<sub>PRED</sub> cannot be neatly characterized as the proxies of ‘event-describing’ and ‘state-describing’ VPs, respectively. However, *see, love*, etc. still describe processes that ‘happen’ in the mind of an ‘experiencer’, and *cost, weigh, entail*, etc. probably are prosopopeic, i.e., ultimately ‘dynamic’ in a metaphorical sense. Thus, the grammar and the conceptual system are slightly out of step at this point, the latter making more delicate and slightly different distinctions, but, under a suitably fine-grained view of ‘dynamicity’, DO<sub>AUX</sub> stands for ‘events’, whereas BE stands for ‘states’.

<sup>22</sup> It follows that so-called ‘dummy’ IT and THERE, also needed beyond PF (e.g., to satisfy ECP), categorically different (IT = CP; THERE = DP), with different AGR properties, and thus not interchangeable (cf. e.g. *\*There arose a great scandal* vs. *\*It arose a great scandal*), are not ‘dummies’, either. As a matter of fact, in Escribano (2009a) I have argued that *there* is an argument of BE<sub>EX</sub>.

<sup>23</sup> Correspondingly, in (18b) the universal (Fregean) ‘concept’ *teach* (type <e, t>) and the particular *John* (type e) must compose via an instantiation/class-membership relation, i.e., ‘John’ instantiates TEACH/is a member of the class denoted by *teach*. Alternatively, under a Fregean-Montagovian approach, TEACH (type <e, t>) may also be analyzed as a subset of the intension of JOHN (type <<e, t> t>, by Type-Raising), as in Montague (1973) and subsequent Generalized Quantifier Theory.