The Relation between Tense and Aspect: The Emergence of the T system[*]

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Abstract

The purpose of this study is to make clear the differences between tense and aspect and to show that T(ense), a functional category, which heads a phrasal projection in the clause structure comes to human languages later than aspect, both historically and in first language acquisition. That is, I suggest that there is a correlation between processes of first language acquisition and diachronic language change. This correlation is supported by current theoretical assumptions about functional categories, specifically TP. In the absence of TP, the task of temporal interpretation can be taken care of by alternative devices such as temporal adverbials, aspect, and so on.

1 Introduction

The purpose of this study is to discuss the differences between tense and aspect and to show that T is a syntactic device introduced phylogenetically and ontogenetically late into human languages. In order to do this, a comparison with aspect is inevitable, since if the standard Indo-Europeanist assumption that tense developed from aspect is on the right lines, the presence of aspect in earlier languages may suggest the existence of a kind of temporal functional projection in a given languages. However, I argue that tense and aspect are conceptually different and they developed independently. Furthermore, there is divergence of view about the grammatical status of aspect . I follow the position that aspect does not project in the structure as a functional category in adult Present-day English (PE). Hence, the presence of aspect in earlier languages, which has been attested, does not constitute evidence for a temporal functional projection. I suggest that T, a grammatical functional category, which heads a phrasal projection in the clause structure comes to human languages later than aspect, both historically and in first language acquisition. Accordingly, I suggest that there is a correlation between

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processes of first language acquisition and diachronic language change. This correlation is supported by current theoretical assumptions.

First, I establish that T in current languages plays an important syntactic role as a functional category, as well as denoting the semantic distinctions of time (past, present, and future).

Next, I will make clear the differences between tense and aspect and show that these differences are rooted in human cognition. Then, I will observe that semantic distinctions of time can be expressed without a syntactic TP, by alternative devices. In fact, in earlier languages like Ancient Greek, which had no TP, temporal particles functioned to give a temporal interpretation. In earlier languages like Proto-Indo-European, neither aspect nor tense projected in the clause structure as syntactic categories. They were simply semantic features. I argue, against the standard assumption, that tense has not developed from the Proto-Indo-European aspect system. Indo-Europeanists like Lehmann (1974, 146, 187, 190, etc.) claim that the inherited Proto-Indo-European aspectual forms were adapted for a tense system in descendent languages. However, tense and aspect are conceptually different, as discussed below, although they are interrelated.

I conclude that, based on the syntactic evidence, Old English (OE) had no TP and that TP has developed from temporal features in the history of English. The absence of TP and the subsequent emergence of TP is also observed in first language acquisition in English. This suggests that there is a correlation between the process of language acquisition and diachronic language change.

I would like to point out that there is a inevitable relation between diachrony and acquisition. No one can deny the "developmental aspect" of language acquisition: some constructions appear earlier than others, and some elements are not observed at all at a certain stage of acquisition, etc., that is, the development of child language has a diachronic dimension as well. Hence, an explanation of the diachronic change of language should be sensitive to the development of child language. I propose that the theory of language should account for the diachronic change of language as well as the development of child language. Accordingly, Universal Grammar (UG) should accommodate historical facts as well as language acquisition facts. If my hypothesis is on the right lines, then, the same mechanism is working in both domain: first language acquisition and diachronic change. If child language is an I-language, and the mechanisms working in child language follow from UG, it means that the mechanisms working in diachronic change are also part of UG, and hence, diachronic change is another instantiation of I-language. Then, UG is proved to be powerful enough to accommodate both diachrony and synchrony. The linguistic capability or knowledge which is ontogenetically realized, i.e. realized in a single person, is genetically

transmitted across generation. So the realization of linguistic knowledge is ontogenetic, but it is transmitted phylogenetically.

Before turning to the relation between tense and aspect, a few background assumptions are necessary. First, my general position is that functional features are different from functional categories. Hence, the dissociation of functional categories from functional features is necessary. When I argue that earlier languages like OE had no tense, it means that OE did not have a syntactic functional projection, TP; it does not mean that OE had no temporal features or no devices to give a temporal interpretation to a VP. It is one thing that languages have features; it is another that those features project a syntactic category. Features do not project automatically into syntactic categories and maximal projections (cf. Gelderen1993: 2). So, the absence of functional categories does not necessarily entail the absence of the associated features and conversely, the presence of features does not always suggest the presence of the related functional category. Accordingly, T is a grammatical functional category, so it should be distinguished from the notion of time, or semantic distinctions of time like past or present.

Secondly, in the framework of functional category maturation, which claims that functional categories lack in earlier languages and they emerge at certain stages of development, I make the following claim: language variation both synchronically and diachronically is due to differences in the degree to which functional features are codified as grammatical categories, i.e. whether functional features remain as features over time in a given language, or, whether they are upgraded to functional categories which have their own projection and if so, which features are upgraded. The typical instantiation of the latter is the development of functional categories in the history of English, in which temporal features were upgraded to a functional category, as observed below.

In the Government and Binding framework, the temporal projection is IP, a fused projection of Agreement and Tense. In the Minimalist framework, the Agr projection is abandoned, although the idea is still under reformulation. Following Thráinsson (1996), my position is that some languages have fused AgrSP and TP, i.e. IP, while others have TP separate from AgrSP. It is beyond the scope of this paper to decide whether PE has a fused IP or not. I leave this issue open, and I use the term "TP" in this paper.

2 Tense

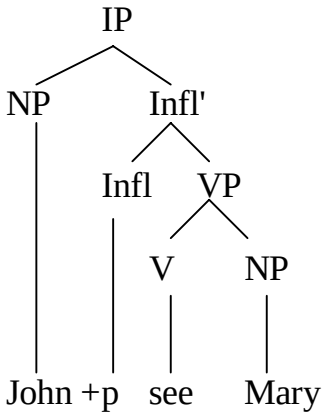
2.1 A temporal argument

Following Higginbotham (1985) and Enç (1987), I adopt a theory of tense which treats tense on a par with nominals, such that verbs as well as nominals have an open position

in them. A simple non has an open place in it, which is a referential argument in the thematic grid (or argument structure) of the noun. This referential argument corresponds to the "reference" (or referentiality) of that category. We call it R(eferential) role. For a NP to be an argument, this position must be bound either by theta-marking (by case morphology) or by a syntactic theta-binding (by a determiner D). Likewise, a verb has one more argument. This is the position E(vent) of the thematic grid of the verb. The position E, or the E-role corresponds to the "hidden" argument place for events or situations. For example, the thematic grid of the verb *see* is shown as < 1, 2, E>. The position 1 and 2 will be the thematic positions filled e.g. by *John* and *Mary*, that is, the usual thematic roles like Agent or Theme. For a proposition to be interpretable at LF, the position E, which I call the temporal argument of VP, must be bound, as a tense specification is necessary for a proposition to be truth-evaluable (Higginbotham 1985: 554ff.). The phrase marker (2) of the sentence (1) is the following:

(1) John saw Mary.

(2)

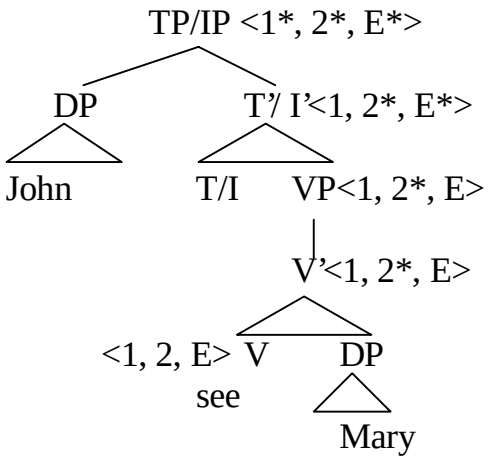


The sentence (1)[1] is well-formed and true if and only if *John saw Mary*. In (2) *+p* denotes the past-tense formative. Thus, every verb has an E-role which must be bound in some way in order to obtain a well-formed semantics.

Hence, tense is treated like another referential argument, which must be bound for reasons of interpretation and semantic well-formedness. In the case of VPs in PE, I assume that the binder of this E position is a syntactic functional category Tense or Infl. The position E of the thematic grid of the verb is discharged at the point where VP meets Tense/Infl, where Tense/Infl is located as shown below:

[1] Following Higginbotham (1985), I use the term "Infl" here.

(3)



The asterisk in the angle brackets indicates that the position closes or is discharged.

2.2 Two different functions of TP

When we talk about tense, we should be sensitive to two different functions of TP in Present-day languages: one a device to give a temporal interpretation to a VP, as shown above, the other a syntactic function. The former function of T is to give a semantic temporal location to the event role in VP, and thereby to make possible the assignment of a truth-value to the proposition by specifying its truth conditions in the world. However, this function of TP/IP is not the whole story. Although tense is often defined as the grammaticalisation of temporal location (location in time) or distinctions of time (past, present); in a language like PE, T plays a more important role as a grammatical functional category, rather than merely signifying the semantic distinctions of time. That is, the T system of PE is not restricted to indicating semantic distinctions of time location. For example, in the Minimalist Program, the subject requirement known as the Extended Projection Principle is attributed to the presence of TP. Besides the subject requirement, syntactic phenomena dependent on the category T are the following: *do*-support, modal auxiliaries, and auxiliary *have*. I will return to them later.

I claim that the function of temporal interpretation comes first, and the syntactic phenomena caused by the TP are secondary, i.e. come later, as a result of the establishment of a syntactic category TP/IP. Hence, syntactic phenomena related to TP are not observed before the emergence of TP in English.

The task of temporal interpretation, however, can be taken care of by alternative devices in languages without TP. There are many other devices to bind the E-role of a VP: temporal adverbials, aspect, etc. Hence, When I say that Tense came to human

languages later, it means that the syntactic functional tense projection, TP, emerged later in the known history of recorded human languages.

3 Tense versus aspect

3.0 There has been terminological and conceptual confusion between the interrelated notions tense and aspect. Let us attempt to make the differences between them clear.

3.1 Deictic versus non-deictic

Tense is deictic while aspect is not deictic. In order to judge whether the proposition represented by a sentence (4) is true or false, you need to know who the speaker is, where it is uttered, and when it is uttered:

(4) I was in the garden last Thursday.

Person, time and place are deictic elements, sensitive to the context of utterance, while aspect is not deictic. The truth of a proposition is not affected by whether you express it in (5a)or (5b), although the two are aspectually different:

(5) a. Thatcher treats her Cabinet colleagues like children.
b. Thatcher is treating her Cabinet colleagues like children.

(Smith 1989: 108)

3.2 Grammatical status

Not only have aspect and tense been confusingly used, there are also debates about their grammatical status. There is not much disagreement with the claim that tense in PE constitutes a functional category, whether TP is an independent category separated from AgrP or a fused IP category as Thráinsson (1996) asserts. However, concerning aspect, there is divergence of view. Although Ouhalla (1991) asserts that aspect is an independent syntactic functional category, I argue that aspect does not project in the structure as a functional category in adult PE. Supportive evidence for this claim comes from data in first language acquisition, which show that children acquire aspect earlier than the functional category, T. According to maturation theory, early child grammars lack functional categories including Tense (Radford 1990, Tsimpli 1996). For example, child utterances (around 20 months) lack inflected verb forms such as *+s*, indicating a third person singular present tense form, or *+d* indicating a past tense form.

However, data from several languages show that child grammars contain aspectual information at this prefunctional stage. This suggests that aspect is not a functional category. Tsimpli (1996), examining early child acquisition data cross-linguistically (Modern Greek, German, French, Irish, Spanish and English), concludes that aspectual distinctions are operative at the prefunctional stage, while tense distinctions are missing. Aspect morphemes attached to the verb stem like the *-ing* affix are not the result of syntactic affixation, but of a morphological rule. I assume that aspect is one of the semantic features of the verb.

I would also like to point out the lack of independent evidence for the presence of an aspect projection in current adult languages. Given the assumption that functional projections and features dissociate, the only reliable evidence for the presence of an aspectual projection is the syntactic effects caused by it. As far as my knowledge is concerned, there is no independent syntactic evidence for the presence of an aspect projection, compared with a number of pieces of syntactic evidence for the presence of TP. The only syntactic evidence suggested by Gelderen (1993, 181) is the position of the quantifier *all*, which is alleged to be left in Spec AspP positions as in *They may not have all been reading a book.* However, this position of all can be explained without positing an aspectual projection. As is suggested recently by Borer and Schmitt (cited by Jamal Ouhalla, personal communication), if evidence for AgrO can count as evidence for AspP, since AspP and AgrO are the same category, it may be still possible to advocate the presence of AspP. However, in order to this, they must prove that AspP and AgrO are the same category. I take the position that aspect does not project in the clause structure.

3.3 Additional piece of evidence

There is one more piece of evidence for aspect not being a functional category. Aspect, which is present as a semantic feature before the emergence of TP phylogenetically and ontogenetically, perhaps belongs to a substantive category, which is part of the mental lexicon. The distinction between lexical (substantives) and functional categories is assumed to be deeply seated in human cognition. Substantive categories such as verbs, nouns and adjectives, which are defined in terms of the feature matrix [+/- N, +/- V], are supposed to have fixed properties across language and hence are not liable to parametric variation. They are said to correspond to conceptual entries in the mental lexicon which is not a proper subpart of the language module, but belongs to the central cognitive systems. This conceptual lexicon reflects mental properties which are not purely linguistic, and which do not need to refer to language-specific differences in the syntax proper. Hence, this mental lexicon is not contained in the language module. If we

assume that aspect is part of the mental lexicon, it is easily explained why aspectual distinctions are operative both in earlier languages and at the prefunctional stage cross-linguistically as we shall see later. By contrast, it is not clear that functional categories including Tense have a conceptual counterpart in the mental lexicon. They are assumed to have no such fixed properties across languages, and hence, are subject to variation. They belong to the language module proper (see Fodor 1983, Sperber and Wilson 1986, Smith and Tsimpli, 1995, Tsimpli 1996).

4 Temporal Interpretation without TP

When I argue that some languages are assumed to have no TP, I must answer the question: how are semantic distinctions of time expressed in those languages? Or more precisely, how is the E-role in a VP bound in languages without TP? Given the assumption in the Introduction, that is, the dissociation of functional projection from features, and the two different roles of the Tense Projection in PE, I claim that temporal interpretation or the binding of the E-role in earlier languages was based on other devices, such as aspect, temporal adverbials or temporal affixes on verb stems, as discussed below.

The role of temporal adverbials in temporal interpretation has been long recognized among researchers. For example, Kiparsky (1968: 44) says that tenses in the Indo-European languages derive historically from adverbs. He argues that in the case of early Indo-European languages there are good reason to regard tenses as adverbial constituents. Kiparsky further points out that treating earlier Indo-European tenses as adverbs is "hardly a novel or very controversial" suggestion. There is syntactic evidence to show that temporal adverbials in both Indo-European languages and PE have some syntactic effect. Look at the following sentence:

(6) a. *He came formerly earlier.
b. *He came some time ago previously. (Kiparsky 1968: 47)

There is a restriction on the co-occurrence of more than one general adverb of past time. He further observes that "the augment *e*-, which denotes past tense in some Indo-European languages, quite transparently originates as an adverb or a particle" and the "suffix *-i*, which characterizes the primary non past tenses" has been widely regarded since the latter half of the nineteenth century as having originated as an adverbial element.

It is also widely accepted that the earlier Indo-European languages originally had no grammatical category to express tense (cf. Kuryłowicz: 1964, Lehmann: 1974). The

verbal system of Proto-Indo-European was based on aspect, with a basic contrast between imperfective and perfective. This contrast was indicated by means of endings (*m, s, t,* versus *x, th, ø*). Use of the perfective indicates that the action is assumed to be completed and, as a consequence, imperfective commonly indicates incomplete action. This contrast in aspect by means of affixes on verbs is clearly reflected in the following Vedic example (Lehmann1974: 107):

(7) kuvíd asya védat
certainly it he-will-understand
'he will understand it certainly' (Rigveda 2.35.2)

In contrast with the perfective form *veda*, 'I know', which denotes a state resulting from completed action, this form *vedat* by means of its affix *-t* clearly indicates the imperfective meaning. As well as aspect, temporal particles functioned to give a temporal interpretation. Sanskrit and Ancient Greek have preserved patterns in which particles indicate the time of the action of the verb as in the example (8) from Lehmann (1974: 139):

(8) hòs eide tá t' eónta tá t' essómena
who knew those Ptc. being those Ptc. will-be
pró t' eónta
before Ptc. Being (Iliad I.70.)
'Who knew the things happening now, those that will happen and those that have happened.'

In (8) the past time is indicated by a particle *pró*.

In such earlier languages as Proto-Indo-Euroean, I assume that neither aspect nor tense projected in the clause structure as a syntactic category. They were simply morpho-semantic features. However, whereas the non-deictic category of aspect had a separate form to express its function in the verbal system in Proto-Indo-European, deictic time distinctions were not always realized as such. They were just implied or expressed by temporal adverbials. Later, for example, in the OE period, a deictic temporal feature began to be realized morphologically, for example, as a temporal affix on the verb. However, at that time, these features were still properties of the verb. Although aspect still remains as a semantic feature in PE, time distinctions later extended from the VP into a higher position in the clause structure. They constitute a category of the whole clause syntactically, and head their own projection. In other words, temporal features on verbs are upgraded to constitute a functional category Tense. Thanks to this projection

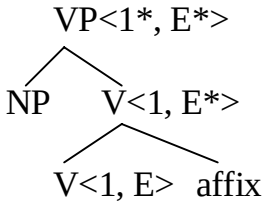
in the clause structure, many syntactic phenomena have emerged in PE, as we shall see in the next section. What follows from this claim is that the function of temporal interpretation comes first, and the syntactic phenomena caused by the TP are secondary, i.e. came later, as a result of the establishment of a syntactic category TP/IP. Hence, those syntactic phenomena related to TP are not observed before the emergence of TP in English, as we see next.

5 The emergence of TP in English

5.1 How was the E position in OE bound?

Now, let us turn to the question how the E-position was bound in OE. In OE, temporal distinctions were expressed by temporal affixes on verbs in collaboration with temporal adverbials. That is, morphology on verb stems could bind the E-position in a VP. Time distinctions were expressed morphologically, that is, there was a paradigm of verb such as *ic eom = I am, ic wæs = I was, ic cepe = I keep,* or *ic cepte = I kept*. The two tense forms covered a wide range of temporal relationships. The configuration of the binding by temporal affixes on verbs is illustrated below:

(9)



I argue that the temporal affixes placed on verbal stems, had no syntactic repercussions. The evidence that these affixes were only morphological realization of temporal features of verbs and did not suggest the presence of a Tense category, which is a category of a whole clause comes from the fact that syntactic phenomena depending on a Tense category: the subject requirement, do-support, modal auxiliaries, etc. were not observed in English at that time.

5.2 The syntactic effects of TP

In adult PE, tensed clauses have the status of TPs, maximal projection of a functional head T, which carries tense and agreement features, if I takes the position of a fused IP for PE. The following syntactic effects are observed in PE because of TP:

(a) *do*-support: Tense and agreement features carried by T must actually be discharged or realized onto a verbal stem. If the modal auxiliaries are base-generated under T, those features are realized on the modal in T. If T/I can be underlyingly empty and a nonmodal auxiliary verb (perfective *have*, progressive *be*) is in the head V of VP, this nonmodal auxiliary verb moves out of VP into an empty head T position in TP. It can acquire the tense/agreement features of TP there. If I can be underlyingly empty and there is no nonmodal auxiliary verb in VP, T features are discharged on the head of (nonauxiliary) V of VP. However, if the negative particle *not* occurs, for instance, this becomes a barrier preventing the T/I-features from being discharged onto the head V. Therefore, the following sentence is ungrammatical:
(10) *John not wrote it.

In such a case, the dummy auxiliary *do* is inserted in T in order to provide a verbal stem for the tense/agreement features to be discharged onto. This is referred to as *do*-support.

Likewise, an interrogative or emphatic sentence which contains no auxiliary requires the use of the dummy auxiliary *do*.

(b) modal auxiliaries: The auxiliaries *will*, *shall*, *can*, *may* or *must*, the so-called modal auxiliaries, are assumed to be base-generated under the T/I node in PE, and have formal syntactic properties (the "nice" properties[2]) which distinguish them from lexical verbs. The modal auxiliaries as well as the dummy *do* can undergo inversion in questions; they are directly negated by a following *not*; they occur in tags, etc. Since PE lexical verbs do not leave the VP, they do not permit inversion, and cannot be directly negated by inserted *not*, as is explained above.

(c) *have* auxiliary: In PE adult grammars, have which is used in perfect constructions, is raised out of the VP in which it is base-generated into the TP overtly. According to Chomsky (1995: 198), *have* is semantically a very "light verb" and it is used as a placeholder, or more precisely, is used to carry tense.

(d) subject requirement: The Extended Projection Principle (EPP), that is, every clause must have a subject position is due in Government and Binding Theory to the presence of a functional category Infl. The subject requirement is, in fact, the result of the syntactic saturation of obligatory functional features (see Radford 1990: 236): nominative case assigned by Infl must be syntactically discharged onto an appropriate

[2] In Huddleston (1976) NICE is an acronym for Negation, Inversion, Code and Emphasis. The last two elements in "NICE" can alternatively be interpreted as Contracted/Clitic and Ellipsis.

constituent syntactically projected into the clause structure. In this sense, the subject requirement is a case requirement due to a functional category.

In the Minimalist Program the EPP is reduced to the effect of the strong D-feature of T. T has a strong uninterpretable D-feature that does not enter into interpretation at LF and must be deleted. Some category must be raised to check this feature. So, the subject DP is raised into the [Spec, TP] position and both D-features of T and the subject are checked and deleted. However the technical details are worked out, the presence of a functional category, T or I, is responsible for the subject requirement.

There is opposition to the argument that the subject requirement be ascribed to the presence of TP. Although the Mainland Scandinavian languages have the subject requirement, it is suggested that they do not display the other syntactic evidence for TP: no V-to-I movement, no modals and no *do*-support. Although I do not go into all the details here, a closer look at them may give a different view of these facts. Concerning verb movement, V moves to I only if V is an auxiliary in PE finite clauses, yet, no one object to the presence of I/T in PE.

It is true that the Mainland Scandinavian languages have no modal auxiliaries established as such, but they have modal verbs, which show properties intermediate between those of lexical verbs and modal auxiliaries. I limit my discussion to Danish here. Unlike English modals, Danish modals have four main forms, infinitive, present, past and past participle, but they lack a present participial form, although lexical verbs in Danish do have a present participial form and there are no inflections for person. Except for *kunne* 'can', which can be used as a main verb in the sense of 'know', they do not take a direct object, although they can take a directional adverbial:

(11) a. De kan russisk.
theyknow Russian
'They know Russian.'
b. Jeg vil hjem
I want home
'I want to go home.'

Since Danish modals have an infinitive form, it is syntactically possible for two modals to occur, that is, one modal can follow another. However, in practice, there are quite heavy restrictions: only *skulle* 'shall' and *kunne* can normally appear as the second modal element. (See Allan, Holmes, and Lundskær-Nielsen (1995) for more details.)

Although *do*-support is attested only in PE, we may take notice of a near *do*-support phenomena involving *gør* 'do' in Danish. In an answer to yes/no questions, using *gør* with a pro-object *det* is almost the norm:

(12) a. Taler du japansk? (Question)
Speak you Japanese
'Do you speak Japanese?'
b. Ja, det *gør* jeg. (Answer)
Yes it do I
'Yes, I do.'
c. Nej det *gør* jeg ikke (Answer)
No it do I not
'No, I don't.'

Furthermore, VP can be fronted separately from tensed gør:

(13) a. Spise og sove *gør* de fra morgen til aften
eat and sleep do they from morning until night
'They do (present tense) eat and sleep from morning until night.'
b. Tage position, aabent og umiddelbart, gjorde han ikke
take position openly and directly did he not
'He did not take a position openly and directly.'
c. Danse gjorde hun og danse måtte hun
dance did she and dance must she
'She did dance and she had to dance.'

Although these examples suggest the presence of a Tense node, they are not decisive since questions are made by inverting a main verb and a subject, as is shown in (12). All in all, it is not implausible to conclude that all those facts suggest that a Danish functional category T is in the process of establishment as such.

5.3 The absence of TP in OE

On the assumption of the dissociation of features from projections, the only reliable evidence for the non-presence of TP in OE is the absence of the kind of syntactic effects of TP, which have been discussed above. For completeness it would be necessary to show that there are no syntactic effects of a putative TP in OE. I restrict myself here to demonstrating that there are no parallels to phenomena which do occur in PE, and I

leave finding other possible examples as a challenge for the reader. I know of no plausible instances.

(a') Lack of *do*-support: As is well known, *do*-support did not occur in earlier English. Negative sentences were formed by inserting negative particles before or after finite full verbs and direct questions were formed by inverting subjects and finite full verbs as in Modern German. No examples of *do*-support were attested in OE at all. A few examples were attested in Middle English (ME), but it was not established as such until early Modern English:

(14) Canst þu temian hig
know you tame them
'Do you know how to tame them?' (Ælfric's Colloquy 31/129)

(15) he ne held itnoght
he not held itnot
'he did not hold it' (Minor Poems 36)

(b') Lack of modals: In PE modals like *can*, *may*, *will*, *shall* and *must* constitute a class different from lexical verbs syntactically, semantically, and morphologically. These modals derived from lexical main verbs. Warner (1993: 92) says that the OE ancestors of PE modals already appeared in constructions which can sometimes be translated using modern auxiliaries. Accordingly they had at least some notional points of contact with their modern congeners, but their grammar was clearly much closer to that of non-auxiliary verbs. Pre-modals such as **sculan*, *willan*, *magan*, and *cunnan* were simply verbs in OE (cf. Lightfoot: 1979 , Roberts: 1985). Although Mitchell (1985) uses the label "modal auxiliary" for some OE verbs, the application of the term auxiliary to OE is problematic. The use of this term has traditionally been dependent on semantic equivalence, but modals in PE have formal syntactic properties which distinguished them from lexical verbs. There is strong syntactic evidence to show that the ancestors of modals were lexical verbs.

i. They could take a direct object and take a nonfinite form as in (16):

(16) Leofre ys us beon beswungen for lare
dearer is us be flogged for learning
þænne hit ne *cunnan*
than it not know (Ælfric's Colloquy 8)
(cf. Denison 1993: 309)

'It is more desirable for us to be flogged for learning than not know it.'

ii. There existed a perfect tense form like *had mowte*, although the oldest attested example is from the ME period:

(17) I wold haue be thens, yef I had *mowte*
I would have be thence, if I had been able
'I would have been thence, if I had been able to.' (The Assembly 1951)

iii. In standard PE one modal cannot follow another, though this was possible for their OE congeners (note that the Ormulum was written around 1200):

(18) þatt I *shall cunnenn* cwemenn Godd
that I shall know please God
'that I shall have the ability to please God' (Ormulum 2958)
(The gloss is from Denison 1993: 310.)

iv. They could take a present participle form like *maȝende*, later *mowing*:

(19) Quiens *maȝende*
queens competent (Ælfric Gram. (z) 251 (OED))

v. Although PE modals have no inflections for person or number, those verbs inflected according to their subject like *ic wille, þu wilt, we willaþ*.

(c') *Have: Have* as used in the PE perfect construction, derived from a full lexical verb meaning *possess*. There is agreement among the researchers of historical syntax that the origins of the perfect construction "have + past participle" developed from the construction illustrated in (17):

(20) Ic *hæbe/hæfde* hine gebundenne
I have/had him bound

In (20) *have* is a verb with the full lexical meaning possess. It is the head of its VP, and transitive. Its object is the NP *hine*, and *gebundenne* is the past participle of the verb *bindan*. However, as the ending *-ne* suggests, it was an adjectival participle, meaning 'in a state of being bound.' There is agreement between this adjectival participle and the preceding object *hine* in case, gender and number: accusative, masculine and singular. It

is clear from the non-adjacency of the main verb *have* and the participle, from the adjectival inflection on the participle and the agreement between it and a preceding object that this participle does not form a constituent with the main verb *have* but with the preceding object *hine*. This construction has the argument structure of the verb *have*, not of the past participle.

Later, the construction in which a past participle came after *have* developed. In the ME period, all adjectival inflections had disappeared apart from certain cases and the "have + past participle" construction was established. The process described here is a typical example of grammaticalization: *have* was grammaticalized as an auxiliary from a lexical main verb.

(d') subject requirement: We have observed above that the subject requirement in PE is due to a functional category. What follows from this is that languages without relevant functional categories should have no subject requirement. This is indeed the case with OE. Subjectless constructions, so-called impersonal constructions, were freely used from the OE to ME period. That is, verbs in earlier English had the potential for subjectless use. It should be noted that the term "impersonal construction" in the literature has often been used in an ambiguous way. The constructions with which we are mainly concerned here are subjectless constructions in which the verb has the third person singular form and, as in (21) there is no nominative NP controlling verb concord:

(21) Siððan him hingrode
afterwards him hungered
dative
'afterwards he hungered' (ÆlfricHom. I 166.12)

Many historical researchers have been deeply concerned with the "missing arguments" in impersonal constructions. In almost all the proposals, the missing arguments are analyzed as constituents syntactically projected in the form of an empty category of some sort: traces, pro, PRO, or null NPs. In Osawa (1996) I have shown that this attempt is problematic. I have proposed a fifth possibility that "subjects" in impersonal constructions were not missing in earlier English, but since early English is completely lexical-thematic in nature, they existed only in VPs which needed a nominative subject. That is, only arguments which are required by the meaning of the predicate have to be syntactically realized. If we consider the semantics of impersonal constructions, they express a situation in which a human being is unvolitionally/unself-controllably involved. There is no agent who is to receive the nominative case. The most typical example is provided by a weather verb like *snow* or *rain*.

(22) norþan sniwde
from the north snowed
'snow came from the north' (Seafarer 31)

There is neither agent nor experiencer in a situation where it rains or snows. As Fischer and van der Leek (1987) suggest, there is no participant involved in the situation. Hence, the only necessary constituent in the situation is the weather verb. The subject requirement is, as we have observed above, a nominative case requirement. Behind this was operating a morpho-semantic system, where morphological case is closely related to theta-roles (cf. Plank 1981, 1983). A NP constituent in OE carried one thematic role and then carried a case related to its theta-role. Hence if there is no argument which should carry nominative case, there is no subject position projected in the structure from the beginning. The change in the case system from being originally morpho-semantically-based to being structurally based, where case is assigned to a thematically unrelated argument, also played an important role in the establishment of the subject.

5.4 The emergence of TP

In the previous sections, I proved that there was no TP in OE, and TP plays an important role in a number of syntactic phenomena in PE. What caused the emergence of TP in English is a big issue and the space limit does not allow me to discuss it properly. Referring to a few factors which are supposed to contribute to the emergence of TP is enough for the present purpose. The demise of verb morphology did play some part in the emergence of TP; in particular, the gradual desuetude of the subjunctive mood, which was used to express wishes, commands, conditions, conjectures etc., and which was morphologically realized in OE, led to a much reduced system. The deterioration of verb morphology made it almost impossible to express modality by affixation except in very few cases, so some other devices became necessary. The emergence of a T-node made it possible to grammaticalize the lexical *have* as an auxiliary, and the lexical verbs as modal auxiliaries.

One more important factor is the development of hypotactic structure which has reached the stage of embedding. The point of my argument is that the necessity for a temporal interpretation triggered the structural i.e. syntactic realization of tense as a functional category. That is, in languages with embedding, structural requirement is necessary for temporal interpretation. For semantic well-formedness, the E-role must be associated with speech time. Unlike finite main clauses, embedded clauses do not have direct access to the speech time. Accordingly, the embedded tense must be linked to the

speech time and this linking can be effected only structurally, i.e. by the establishment of the functional projections CP and TP/IP in both main and embedded clauses. Assuming that earliest OE had no true embedding, no presence of a T-system in OE easily follows.

6 Child language acquisition

If we turn to early child English around the age of 20 months, most of the characteristics of OE mentioned above are shared with early child grammars: no modals, no *do*-support, no *have* auxiliary, and missing argument clauses have often been observed (cf. Radford 1990). Most relevant to this paper is the lack of a Tense category in early child language. First, T is the locus of the tense/agreement properties of finite verbs, and hence, child utterances lack inflected verb forms such as *+s*, indicating a third person singular present tense form, or *+d* indicating a past tense form. The verbs produced by young children are either uninflected base forms or gerund forms in *+ing*, or participial forms with *+en*:

(23) a. Hayley draw it/Me talk/Him gone.
b. Baby do it/Daddy coming. (Radford 1990: 148)

Thus child clauses have the status of VP, while their adult counterparts are TP:

(24) $[_{VP}\ [_{NP}$ Baby] $[_{V}$ do] it]

Secondly, as a result of the lack of a T/I-system, children have not mastered the morphosyntax of auxiliaries because these have no intrinsic semantic content, and their essential function is to receive the tense/agreement features of T. Thus, if there is no T/I- system, there is no need for the syntactic saturation of T-features which should be discharged onto the V stem. This is indeed the case. Neither the use of modal auxiliaries nor *do*-support is observed in early child utterances. Therefore, we expect a child negative clause to contain no auxiliary *do*, while the adult counterpart is ungrammatical as we have observed above:

(25) Man no go in there/Wayne not eat it. (Radford 1990: 152)

Research under the maturation theory shows that temporal specification in early child grammars involves aspectual rather than tense distinctions. Likewise, in the traditional literature early verbal forms at the prefunctional stage are said to exhibit distinctions between aspectual categories in a consistent way (cf. Tsimpli 1996, 50). Brown (1973)

points out that the *~ing* form in early child English is consistently used with non-stative verbs from the very beginning. According to Antinucci and Miller (1976), the distinction between stative and non-stative verbs is one of the earliest to appear in early child Italian. The stative/non-stative distinction belongs to situation type aspect according to Smith (1991). This suggests that aspect is not a functional category.

Stephany (1986: 379), examining data from Greek children, claims that perfective and imperfective verb stems are already formally distinguished at the prefunctional stage, as shown in the examples below:

(26) a. zoso katali (1 year and 7 months)
give-Perfective-1s spoon

b. valume musiki (1 year and 8 months)
put-Perf.-1p music

c. kopeles hoevune (1 year and 9 months)
girls dance-imperfective-3p

(These examples are cited from Tsimpli 1996: 55)

The examples in (26a&b) are marked for perfective aspect while the past tense prefix is not present. In the corresponding adult Greek speech, a modal/tense marker must be realised syntactically as the head of TP/IP. The example (26c) has imperfective aspectual specification. Examples like (26a&b) are abundantly observed in the corpus of Greek child data. It is concluded that overt Tense marking is absent from early child Greek grammars.

Tsimpli (1996: 47-88) examining early child acquisition data cross-linguistically (English, French, German, Spanish, Greek and Irish), concludes that aspectual distinctions are operative at the prefunctional stage, while tense distinctions are missing. As Tsimpli (1996) argues, the binding of the E-role is performed by aspect.

Some researchers like Wexler (1994) assert that early child grammars have TP/IP. In some languages, like French, children go through a stage of alternating between finite and non-finite verb forms in root (main) clauses; that is, they optionally produce Root Infinitives. The existence of this stage is alleged to provide support for the presence of a functional projection, InflP/TenseP, at the earliest stage. I will take up this phenomenon and show how this analysis is problematic.

According to observations by Pierce (1989), French children from around 20 months to 30 months produced both finite and non-finite forms of lexical verbs in main clauses and these forms had systematically different distributions with respect to the negative morpheme pas. Finite verb forms preceded pas, but if the verb was non-finite, it

followed pas. Some examples of children's utterances from Pierce (1989) are given below:

(27) [-finite] verbs

a.	pas	manger	la	poupée
	not	eat	the	doll
b.	pas	tomber	bébé	
	not	fall	baby	

(28) [+finite] verbs

a.	marche	pas		
	walks	not		
b.	est	pas	mort	
	is	not	dead	
c.	Patsy	est	pas	là-bas
	Patsy	is	not	there

(Cited from Wexler 1994: 309-310)

Wexler argues that these examples clearly indicate that French speaking children at this stage know the finite and non-finite distinction and know that [+finite] verb forms must move to an appropriate functional projection above *pas*, i.e. to Infl/Tense. As in adult French grammars, Tense must be bound to a verb in early child French. By contrast, a non-finite verb form does not have to move since a non-finite inflection does not have to be bound. On the basis of the French data, Wexler concludes (op.cit. 311-312):

(29) There is an early optional infinitive stage in which
   a. finite and non-finite forms are in free variation, and
   b. the finite forms have moved to their correct position

In terms of the child's grammar he concludes:

(30) There is an early ("optional infinitive") stage in which the child
   a. knows the possibility of head (in particular V) movement
   b. knows that head movement is forced in the finite case (i.e. knows the stray morpheme filter[3] and its application to Tense)

[3] The stray morpheme filter means that Tense must be bound to a verb, since it has the lexical feature of a bound morpheme. A non-finite inflection does not have to be bound.

c. knows the Principle of Economy which implies that infinitival verbs do not move, and yet
d. does not know that non-finite verbs cannot appear as main verbs

As Wexler admits, the optional infinitive stage is a surprising state of affairs. The child knows quite abstract principles such as (30a-c), yet does not know that non-finite verbs are disallowed as main verbs. There is no plausible answer given to the question, however: why do children who know the [+/-finite] distinction since their grammars have Infl/Tense projection, not know the rule which disallows non-finite verbs as main verbs. The fact is, children use more non-inflected forms in contexts where adults use finite verbs. However, Wexler exploits the data as evidence for the presence of Infl/Tense in early child grammars.

If children have acquired TP/IP and know quite abstract rules like (30a-c), why do they not know the rule that disallows non-finite verbs in main clauses? The fact is, as Tsimpli (1996) proposes, that children do not acquire the syntactic rule, but just produce one set of optional inflected forms as whole. How to analyse the difference between the examples (27) and (28) is a separate issue, and I leave this to future research. Here I limit myself to suggesting the following. As is proposed by Lightbown (1977) *-er* endings in French are orally indistinguishable from participial forms. Hence, it is not impossible to analyze these examples in (27) as past participles, which refer to a completed event. Then, these apparent infinitival forms may be past participles and, as many researchers point out, children treat the past participle as an adjective. They are the examples in which a clause is negated by positioning an invariable negative particle before the predicate phrase. Hence, these examples cannot constitute evidence for the presence of Infl/Tense. The apparent present tense forms in (28) may express a different aspectual meaning from (27). In adult French the marking of aspectual and tense features is morphologically merged in the same inflectional affixes. So, the interpretation of the affix concerned in early child French is not easy. I suggest that children make use of the two forms referring to an aspectual distinction.

Furthermore, there is a more general problem of optionality. Given Economy of Derivation (Chomsky 1991, 1992), Universal Grammar does not allow optional processes. Hence, the optionality of children's verbal forms, which are not accepted in adult grammars, is a real problem.

In this section I have observed that early child English lacks a functional category T/I and its associated features, which are also lacking in OE. This parallelism between first language acquisition and diachronic language development strongly suggests that there is correlation between phylogeny and ontogeny in language. That is, the same mechanism, functional category "maturation", is working in both of them. Functional

category maturation suggests a unidirectionality of language development both ontogenetically and phylogenetically. Functional category maturation means that more tasks go to or are encoded in the syntax, that is, both developments target syntax.

7 Conclusion

Based on the evidence in the previous sections, I conclude that TP has developed from temporal features in the history of English. The emergence of TP is one instantiation of the grammaticalization of semantic features. As a functional category, TP determines many syntactic phenomena such as the subject requirement, *do*-support, the presence of modal auxiliaries, etc. So, before the emergence of a functional category Tense, the above mentioned syntactic phenomena are not observed in a given language.

In earlier languages, like Proto-Indo-European, neither aspect nor tense projected in the clause structure as syntactic categories. They were simply semantic features. However, whereas the non-deictic category of aspect had a separate form to express its function in the verbal system, deictic time distinctions did not. They were just implied or could be expressed by temporal adverbials. Aspect (perfective or imperfective) still remains as a semantic feature in PE, while a deictic temporal feature gradually became a functional category. Although the idea that earlier Indo-European languages lacked a tense system is not new, there has been some confusion involved in the view. For example, it has been asserted that tense has developed from the aspect system. However, as we have observed above, tense is distinct from aspect, although they are interrelated. Tense is deictic, while aspect is non-deictic and hence aspectual differences do not affect the truth of a proposition. Furthermore, the distinction between tense and aspect is assumed to be deeply seated in human cognition. Tense, as a functional category, belongs to the language module, while aspect perhaps belongs to a substantive category, which is part of the mental lexicon. Hence, assuming that tense has developed from aspect, means that there is a transition from A to B, which is qualitatively different from A. No principled explanation for this transition has been provided. Tense had not developed from aspect. The two categories developed independently.

In this paper, I have attempted to disentangle the confusion that existed between tense and aspect, and this familiar idea has been recast in line with current theoretical assumptions. Finally, this paper strongly supports the traditional correlation between processes of language acquisition and diachronic language change.

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