

Syntactic change and the cartography of syntactic structures

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1. Introduction

1.1 Theoretical context: Cartographic and parametric views of syntax

The strong cartographic approach to syntax (Cinque and Rizzi 2008, *inter alia*) holds that “if some language provides evidence for [...] a particular functional head [...], then that head [...] must be present in every other language, whether the language offers overt evidence for it or not” (Cinque and Rizzi 2008: 45). This is a strong claim about the universality of functional structure. But it is not an easy claim to test: to falsify it, one must show not just that a particular language shows no sign of a projection XP known to exist in another language, but that the first language *cannot* be analyzed as containing XP.

A widely-used alternative is the hypothesis that languages can differ, within certain limits, in how they group formal features into syntactic projections. This position follows from Chomsky's (2000: 100) assumption that each language selects a subset [F] of the universal set of formal features, making a one-time assembly of the elements of [F] into a lexicon. As Cowper (2005) points out, intrinsic semantic entailments between features restrict both how they combine into lexical items, and what selectional requirements the resulting lexical items will have. A feature that semantically entails another feature will either be bundled on the same head as the entailed feature, or will head a projection that selects the entailed feature's projection as its complement.

Bobaljik and Thráinsson (1998) present one type of evidence for a parametric approach: several correlated typological properties of Germanic languages follow from differences in the number of projections in the INFL system. In this paper, we provide a diachronic perspective on the same question, showing that a cluster of surface syntactic changes that took place in English around the end of the 18th century can all be understood as resulting from a single structural change in which features of voice and aspect, previously bundled on a single head, split into two separate projections. We argue that under the strong cartographic approach, no similarly elegant account of these changes is available.

1.2 The surface changes to be accounted for

Until the late 18th century, the usual way of expressing the progressive form of a passive event was a construction which Visser (1973) calls the **passival**. Although morphologically identical to an active progressive, the passival was passive in meaning, with the surface subject being construed as the internal argument of the verb, as in (1).¹

- (1) ☾ Whereas a Brass Foundery is now building at Woolwich. . .
(*London Gazette*, 10 July 1716, quoted in OED s.v. *brass*)

Around the end of the 18th century, the passival came to be replaced by the modern progressive passive construction illustrated in (2), which had previously been ungrammatical:

- (2) ☽ . . . like a fellow whose uttermost upper grinder is being torn out. . .
(R. Southey, letter of 9 Oct. 1795, quoted in OED s.v. *be*)

The progressive passive was for some time an object of scorn for many prescriptive grammarians, who viewed its two consecutive instances of auxiliary *be* as ungainly and pleonastic. The following passage, in which March (1870: 465) (quoted in Visser 1973) defends the traditional passival construction against a possible charge of ambiguity, is typical:

Upon the whole, then, we may say, that the construction ‘the house is building’ is sustained by the authority of usage, and by many analogies in the English and cognate languages. Nor is it objectionable as an equivocal phrase, because it is very seldom used when the subject is of such a nature that it can be the agent, and always with a context, or under circumstances which show that the participle must be taken in a passive sense. To reject it, therefore, is to violate the laws of language by an arbitrary change; and, in this particular case, the proposed substitute [‘is being built’] is at war with the genius of the English tongue.

Ultimately, the progressive passive prevailed, and the passival is no longer productive in Present-Day English. Many English verbs participate in causative–inchoative alternations, and thus have intransitive uses that resemble the passival, as in (3), but unlike true passival constructions such as (4), these do not allow an agent to be expressed in a *by*-phrase.

- (3) a. Callahan is breaking the wineglasses.
b. The wineglasses are breaking (*by Callahan).
- (4) Our Garden is putting in order, by a Man who bears a remarkably good Character. . .
(J. Austen, letter of 8 Feb. 1807, quoted in Denison 1998)

¹We use the symbol ☾, a waning moon, to indicate a construction whose use was declining, and ☽, a waxing moon, to mark constructions that were becoming more prevalent.

Another change in English, contemporaneous with the decline of the passival and the rise of the progressive passive but less obviously related to them, was the final decline of the *be*-perfect. The *be*-perfect had coexisted with the *have*-perfect since Old English; by the 18th century, it was used only in unaccusatives, as in (5).

- (5) \llcorner ... he informs me his son is set out. . .
 (O. Goldsmith, *She stoops to conquer* I.i, 1773, quoted in OED s.v. *be*)

After the late 18th century, though, the *be*-perfect was replaced by the *have*-perfect in unaccusatives as well; echoes of it survive only with a very limited range of participles (notably *gone* and *done*), and these are arguably adjectival rather than perfect.

We claim in the following sections that all three changes—the decline of the passival and the *be*-perfect, and the rise of the progressive passive—resulted from one structural change: Voice and Aspect, previously bundled on a single head, split into separate projections, as schematized in Figure 1. This account crucially relies on the assumption that different languages, or in this case different stages of the same language, may group features into projections in different ways, *contra* the strictest version of the cartographic approach.

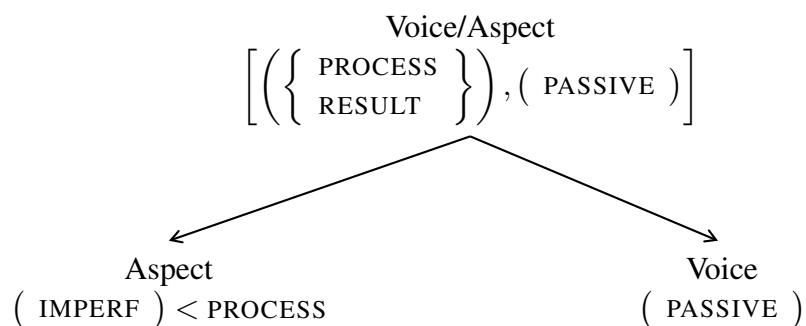


Figure 1: The separation of Voice and Aspect

2. The situation before the split

Before this split took place, Voice and Aspect shared a single head, which we call VAsp. Three privative features were associated with this head: the voice features PASSIVE and the aspectual features PROCESS and RESULT. At most one of the two aspectual features could appear on any given instance of VAsp. The three-way aspectual contrast (unmarked vs. PROCESS vs. RESULT) combined with the two-way voice contrast (unmarked active vs. PASSIVE) to produce six possible instantiations of the VAsp head, which were as follows:

2.1 Active and passive clauses with [RESULT]

When VAsp was specified only with [RESULT], the clause was a resultative *be*-perfect such as (6). The feature [RESULT] was morphologically spelled out by *-en*. Following Cowper

(2010), we assume that in all of the structures discussed here, the auxiliary *be* is inserted to spell out a T head, and carries no features of its own.

- (6) I am come as 3e bade me.
'I have come as you asked me.'
(J. Mirk, *Festial*, a. 1415, quoted in McFadden and Alexiadou 2010)

McFadden and Alexiadou (2006, 2010) argue that the *be*-perfect was a resultative, not a true perfect, parallel to the resultative perfect with *have* in (7), used with transitive verbs.

- (7) þa þa ge hiene gebundenne hæfdon
then when you him bound had
'then when you {had bound him/had him in the state of being bound}'
(Alfred's translation of Orosius, ca. 893, quoted in Traugott 1992)

They show that by the late 18th century, the true (temporal) perfect with *have* occurred with the full range of verbs, while the resultative *be*-perfect was used only with unaccusatives. The distinctness of the resultative *be*-perfect and the temporal *have*-perfect can be seen in the fact that they could be combined, as in (8).

- (8) He has been come over about ten days.
(J. Swift, *Journal to Stella*, 1710–13, quoted in Rissanen 1999)

When VAsp bore both [RESULT] and [PASSIVE], the clause took exactly the same morphological form as with the resultative *be*-perfect. Since only unaccusative verbs can appear in the resultative *be*-perfect, the only overt difference between the two constructions was the possibility of a by-phrase specifying the external argument in the passive, as shown in (9).

- (9) On[e] paine is lesned by an others anguish. . .
(W. Shakespeare, *Romeo and Juliet*, I.ii.45, ca. 1591–95)

2.2 Active and passive clauses with [PROCESS]

A VAsp bearing only [PROCESS] gave the active progressive, spelled out by *-ing*, as in (10).

- (10) As you are fishing, chaw a little white or brown bread. . .
(I. Walton, *The Compleat Angler*, 1653–76, quoted in Rissanen 1999)

As in resultative clauses, the addition of [PASSIVE] to a VAsp specified as [PROCESS] made no difference to the overt morphology. In this case, we derive the passival, also spelled out by *-ing*, as illustrated in (4), repeated in (11). Here, the difference between the active and the passive is more salient than with resultative clauses, since the active progressive may appear with transitive and unergative verbs, and the passival can take an agentive by-phrase.

- (11) Our Garden is putting in order, by a Man who bears a remarkably good Character. . .
(J. Austen, letter of 8 Feb. 1807, quoted in Denison 1998)

2.3 Active and passive clauses with no marked aspectual features

A VAsp head with no marked features at all gives the plain active, as in (12).

- (12) I saw the man today.
 (W. Shakespeare, *All's Well that Ends Well* V.iii.234, quoted in Rissanen 1999)

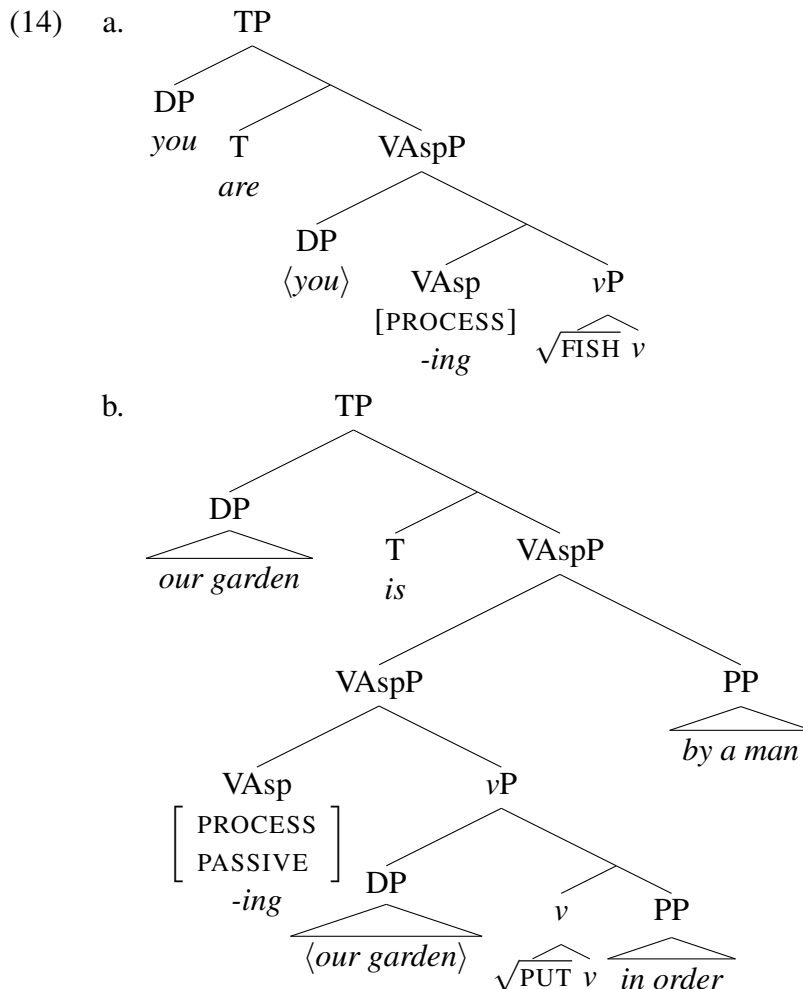
Finally, as predicted by this account, there is a passive construction morphologically identical to (12); i.e., a clause whose VAsp head bears only [PASSIVE], shown in (13).

- (13) One desperate greefe cures with an others languish.
 (W. Shakespeare, *Romeo and Juliet*, I.ii.47, ca. 1591–95, quoted in Rissanen 1999)

The descriptive grammars call this the ‘intransitive for passive’; under the proposed analysis, it is simply an aspectually unmarked counterpart to the passival.

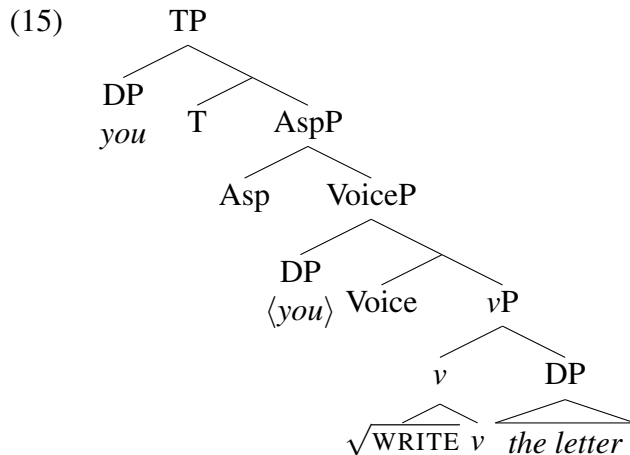
2.4 Structures

The structures in (14) correspond to the active progressive and passival examples in (10) and (11) above, with *-ing* spelling out the feature [PROCESS] in each case.



3. After the change

As depicted in Figure 1, in the late 18th Century the mapping of formal features to syntactic projections changed, with Aspect and Voice projecting separately. The Aspect head now projected above Voice, as in (15).



Notice that since Aspect projects above Voice, Aspect now has scope over the external argument in the specifier of VoiceP. Aspect is thus ‘outer’ (viewpoint) aspect (in the sense of Smith 1991). The feature that was [PROCESS], and which is still spelled out with *-ing*, now encodes imperfective viewpoint aspect rather than processual ‘inner’ aspect. In addition, Voice is now syntactically independent of Aspect, and the marked voice feature, [PASSIVE], is spelled out with the *-en* that formerly realized [RESULT].

The separation of Aspect and Voice into two syntactic projections had significant consequences for the range of constructions the language exhibits. First, the passival and the ‘intransitive for passive’ can no longer be constructed, because [PASSIVE] has its own morphological exponent, *-en*. Any clause containing this feature will thus necessarily have a passive participle spelling it out. Second, the progressive passive is now possible, because Aspect and Voice project separately. Each head can thus have its own morphological exponent, as happens in the progressive passive. Third, there is no longer any way to construct the *be*-perfect, because there is no longer a resultative inner aspect head. The structure most closely resembling the resultative *be*-perfect is the so-called adjectival passive construction.

Finally, and perhaps most tellingly, there is no longer a neutral viewpoint aspect. With Aspect projecting above Voice, and having only one marked feature [PROCESS], the stage is set for a binary system of viewpoint aspect. There is a single contrast in Aspect, between the unmarked form and the marked value of [IMPERFECTIVE], which is spelled out by *-ing*, and was formerly part of VAsp. Unmarked Aspect is therefore contrastively unmarked, and is interpreted as contrastively not imperfective. This gives rise to the Present-Day English system, in which the plain tense forms are interpreted as perfective. This change has not, to our knowledge, previously been connected to the loss of the passival and the rise of the progressive passive, but it follows automatically from the account presented here, and is borne out by the data. Before the late 18th Century, the simple present tense was unmarked as to perfectivity, as shown in (16).

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- (16) a. What do you read, my Lord?
(W. Shakespeare, *Hamlet* II.ii.190, ca. 1604, quoted in Visser 1973)
- b. Eubulus seems to intimate that Things go well.
(R. Steele, *Spectator* I, no. 49, 1711, quoted in Visser 1973)
- c. What do you laugh for, Mrs. Jervis?
(S. Richardson, *Pamela* I, p. 66, 1741, quoted in Visser 1973)

In each of these examples, an aspectually unmarked verb is used to describe an event ongoing at speech time. This is entirely to be expected if there was no grammatical distinction between perfective and viewpoint aspect, as we claim. In contrast, in Present-Day English, the simple present cannot be used to refer to an event ongoing at speech time. The sentences in (16) would now be rendered as in (17), with obligatorily marked imperfective aspect.

- (17) a. What are you reading, my Lord?
- b. Eubulus seems to intimate that things are going well.
- c. Why are you laughing, Mrs. Jervis?

Eventive sentences in the simple present now receive a habitual, scheduled, or reportive reading, as in (18) (Cowper 1998).

- (18) a. His Lordship reads the newspaper every day.
- b. Eubulus goes to London next week.
- c. Mrs. Jervis walks into the room, sees the children, and laughs despite herself.

Under this view, a single syntactic change was the cause of three major shifts in the surface grammar of English: the loss of a fairly rich system of internal aspect, the rise of a binary system of outer aspect, and the advent of a morphologically marked passive construction.

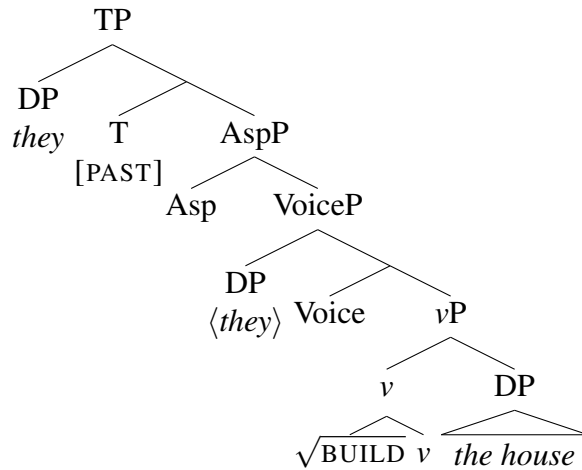
4. Theoretical implications

The analysis outlined above depends on the assumption that different languages, or different stages of the same language, may differ in how they group features into heads. This assumption is available under the parametric approach to syntactic structure, but not under the strong cartographic approach articulated by Cinque and Rizzi (2008).

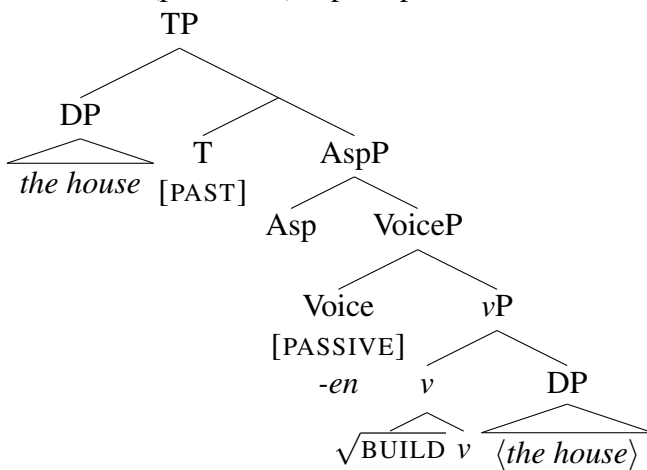
4.1 A parametric account

The parametric approach allows for a simple and unified account of the changes described above in terms of the diachronic unbundling of Aspect and Voice. There are now two possible instantiations of the Aspect head, and two possible instantiations of the Voice head, giving four surface constructions.

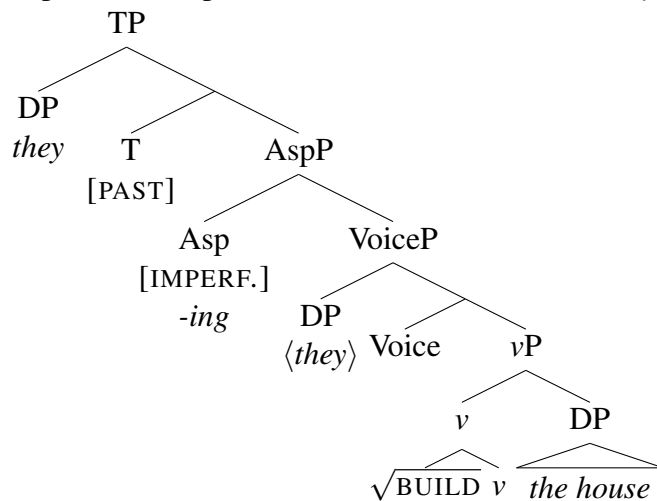
- (19) Unmarked (perfective) aspect, unmarked (active) voice: *They built the house.*



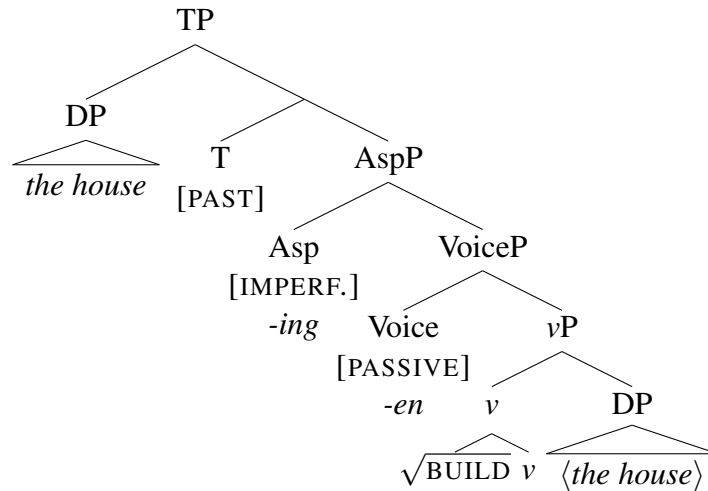
- (20) Unmarked (perfective) aspect, passive voice: *The house was built.*



- (21) Imperfective aspect, unmarked (active) voice: *They were building the house.*



- (22) Imperfective aspect, passive voice: *The house was being built.*



This account is possible only if universal grammar permits the features of Voice and Aspect to be either bundled on a single projection, as we claim they were in the earlier stage discussed above, or independently projected, as we claim they are in present-day English. This possibility is explicitly ruled out under the strong cartographic view.

4.2 A possible strong-cartographic account

Kayne (2005: 16) articulates the strong version of the cartographic hypothesis as follows:

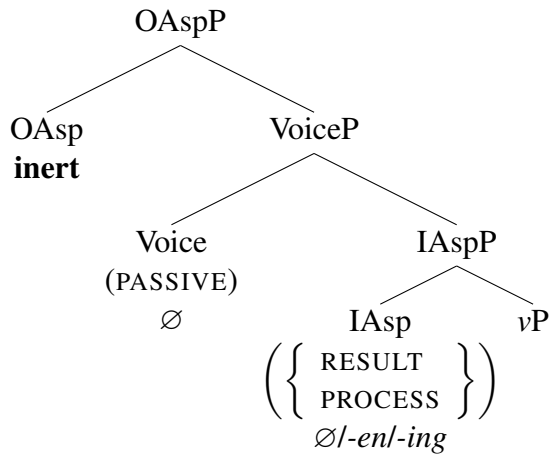
While it is logically possible that the absence of an overt functional element in language A corresponding to a functional element visible in language B could indicate that language A entirely lacks that functional element, there is a substantial tradition that has profitably taken the opposite position—namely that if language B visibly has some functional element, then all languages must have it, even if in some or many it fails to be pronounced at all.

Cinque and Rizzi (2008: 45) reiterate the position, saying that “[i]f some language provides evidence for the existence of a particular functional head (and projection), then that head (and projection) must be present in every other language, whether the language offers overt evidence for it or not.” In fact, they take an even stronger position, requiring that at Merge syntactic structures have a property which we can call triuniqueness: “one (morphosyntactic) property — one feature — one head” (Cinque and Rizzi 2008: 50).

Under this view, Voice and Aspect must always constitute separate syntactic projections. Since in the earlier stage, the aspectual features were below the external argument, they must have been features of what has been called Inner Aspect (Travis 2010). Outer Aspect must have been inert at that point, since there is no evidence at this earlier stage for a perfective-imperfective alternation. The suffixes *-ing* and *-en* were thus both associated

with inner aspect, with *-en* spelling out the feature RESULT and *-ing* spelling out the feature PROCESS. The situation at the earlier stage is thus as shown in (23).²

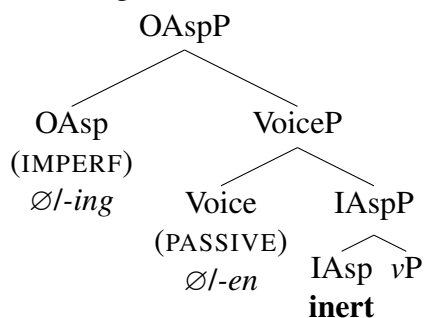
(23) Earlier stage:



Under this view, what changed in the late 18th century was not the syntactic structure *per se*. Rather, the behaviour of the heads changed, in terms of (a) whether they are semantically active and (b) how they are spelled out. Several potentially independent changes must have taken place at essentially the same time: Outer Aspect, inert at the earlier stage, became active at the later stage, with values of (marked) IMPERFECTIVE and (unmarked) PERFECTIVE. The suffix *-ing*, previously associated with PROCESS in Inner Aspect, came to spell out IMPERFECTIVE in Outer Aspect. The suffix *-en*, previously associated with RESULT in inner Aspect, came to spell out PASSIVE in Voice, which had previously lacked any overt exponence. Finally, the relatively rich system of Inner Aspect from the earlier stage became inert at the later stage.

All of these changes are required to produce the situation depicted in (24).

(24) Later stage:



The problem with this account is that, unlike the parametric approach, it makes no necessary connection among the various changes. *A priori*, there is no reason that when outer Aspect became active, it had to be spelled out by the marker used for PROCESS in

²For concreteness, we assume that under the cartographic approach, PASSIVE and (unmarked) ACTIVE would be treated as different values of a single feature VOICE, and that RESULT, PROCESS, and (unmarked) PLAIN would be treated as different values of a single feature INNERASPECT.

inner Aspect. Nor is there any obvious reason that inner Aspect should cease to be active at the same time. And it is far from obvious why *-en*, after having served as the exponent for RESULT for several hundred years, should, at exactly the same time, come to be used to spell out a feature on a completely different head.

All in all, the parametric account seems to have more explanatory value. The splitting of a single syntactic head with two morphological spellouts into two independent syntactic heads, each with a single morphological exponent, accounts for all of the superficially disparate changes in a straightforward fashion. However, it remains to be explained why the change took place at all.

We would like to suggest that one of the principles underlying the strong cartographic approach might be relevant to this question. Suppose that “one feature — one head” is an acquisition bias that influences diachronic change, rather than an absolute principle of syntactic structure? The separation of Voice and Aspect into two heads might thus be seen as due to such a bias.

However, there must also be a countervailing force restricting the learner from positing projections for which there is no evidence in the input. More work is required to see exactly how these two biases interact, and exactly what would constitute evidence for an independent projection as opposed to simply evidence for a given feature.

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