

GRAMMATICALIZATION AS STRUCTURE ELIMINATION*

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1. Introduction

In this paper, a novel way is proposed to define substantive categories and functional categories in natural languages. It will be argued that these two types of categories are derivative notions. A category is regarded as a ‘substantive category’ or a ‘functional category’ inasmuch as it appears in a certain syntactic structure. The substantive category versus functional category distinction is relational instead of being based on properties inherent to them. Based on these assumptions, grammaticalization is analyzed as a process of deriving functional categories from substantive categories, which is a result of successive elimination of projections in bottom-up manner. The claim of structure elimination can be supported by evidence from the diachronic change of *de* in Chinese.

* Some ideas in this paper were originally presented at the 28th Annual Meeting of the Linguistic Association of the Southwest held at University of Texas at San Antonio (October 1999). I should thank the audiences for their input. Notice that the analyses are very preliminary. Comments and criticisms are appreciated.

2. Substantive vs. functional

Lexical items in natural languages can be divided into two major types, namely ‘substantive’ (or ‘lexical’) categories and ‘functional’ categories. It has been pointed out in the literature that a significant distinction between substantive categories and functional categories is that substantive categories have so-called ‘descriptive content’ that functional categories lack (Fukui 1986, Abney 1987). The so-called ‘descriptive content’ is a phrase’s link to the world. Along these lines, substantive categories are supposed to constitute the basic units of expression and thought whereas the basic role of functional categories is to mark grammatical or relational features and to connect syntactic constituents via some purely syntactic relationship.

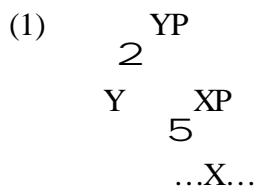
Under the Minimalist Program advocated by Chomsky (1995), features are primitive notions. A category is a collection of features, including categorial features, grammatical features, and semantic features. As for phonological features, I assume that they are not included in a category in the lexicon. They will be inserted at the terminal nodes in the phonological component, along the lines in Distributed Morphology (Halle and Marantz 1993).

What is important in the present discussion is that there are no additional features that label whether a category is substantive or functional.¹ I propose that the categorial status of lexical items is determined structurally. Under the theory of extended projection, Grimshaw (1991) points out that a category is functional by virtue of its relationship to a substantive category. Extended heads are substantive whereas extended projections are

¹ Contrary to Fukui (1995), I assume that features that distinguish functional categories from lexical categories, such as [\pm F] and [\pm L], do not exist.

functional. Along these lines, I assume that a category is regarded as a ‘substantive category’ or a ‘functional category’ only in a certain structure in which it appears.² In other words, the ‘substantive category’ versus ‘functional category’ distinction is relational instead of being based on properties inherent to them.

Suppose that we have two categories X and Y, where X is the root. We can determine whether they are substantive or functional only when they are in a structure. Let us assume that Y is the extended projection of the extended head X in the configuration in (1). Y is not just a functional category; it is the functional category for X.



Under the present approach, the categorial status of lexical items is a relativized notion, which will be determined structurally. To define the categorial status of lexical items, let us take the statement in (2) to be correct.

² According to Chomsky (2000), a language selects a subset [F] of a universal feature set F offered by Universal Grammar and assembles features from [F] into a lexicon Lex. I conjecture that Lex may have some structure, along the lines in Hale and Keyser (1993), and grammaticalization actually takes place in Lex.

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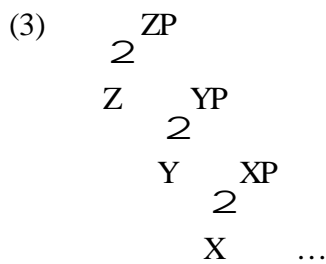
(2) *Substantive categories vs. functional categories*

A category that is immediately dominated by less extended projections is more ‘functional’ than a category that is immediately dominated by more extended projections.

According to (2), whether a lexical item is substantive or functional depends on the structure it appears in. Under the present proposal, it will be hard to define the categorial status of a lexical item without a structure.

Let us consider the configuration in (1). As Y in (1) is not dominated by any projections in the structure, given the definition in (2), Y is regarded as a functional category for X.

Let us now consider the scenario in (3), in which both Y and Z are extended projections of X.



By definition, both Z and Y are functional categories. Are there any differences between them? The functional category Z in (3) is dominated by no extended projections whereas Y in (3) is dominated by an extended projection, namely Z. Z should be more

functional than Y. If we compare the two different Y's in (1) and (3), we may say that Y in (1) should be more functional than that in (3), given the definition in (2).

In the next section, we will see how the ideas proposed here may shed some light on the theory of grammaticalization.

3. Grammaticalization

What is 'grammaticalization'? Hopper and Traugott (1993) point out that grammaticalization focuses on how grammatical forms and constructions arise and the processes whereby items become more grammatical through time. Bybee, Perkins, and Pagliuca (1994) point out that grammaticalization is a process in which 'grammatical morphemes develop gradually out of lexical morphemes or combinations of lexical morphemes with lexical or grammatical morphemes'. Lehmann (1995) points out that grammaticalization is a process in which 'something becomes or is made grammatical'. It may 'shift an item from a less grammatical to a more grammatical status'.

According to these linguists, grammaticalization is a process of forming 'grammatical items'. Using the distinction between substantive and functional categories, grammaticalization could be regarded as a process deriving functional categories from substantive categories (Roberts and Roussou 1999).

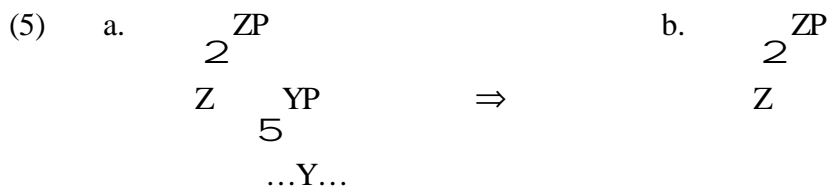
In terms of syntax, how can a substantive category undergo a historical change to a functional category? Based on the definition of substantive versus functional categories

given in (2), I propose a theory of grammaticalization, as stated in (4). ‘Elimination’ described in (4) should be a diachronic process.³

(4) *Grammaticalization as structure elimination*

Grammaticalization is a process in which projections are eliminated from the structure in bottom-up manner.

In grammaticalization, it is more substantive or less functional elements that are removed. According to the statement in (2), categories immediately dominated by extended projections are always less functional than their extended projections. In other words, in grammaticalization, the dominated categories will have the ‘first priority’ to be removed in the structure. The elements at the bottom will be less stable. To see how (4) works, let us consider the derivation in (5).



Suppose that in (5) ZP is an extended projection of the extended head Y. After grammaticalization, the dominated projection, namely YP, is eliminated. Originally, Y was the root in (5a). After elimination, Z now becomes the root of the structure in (5b).

³ Why such an operation took place historically could be due to some extraneous factors. Do economy principles play a role in the process of elimination? Whether the language faculty is subject to some empirical conditions in language change is beyond the scope of this paper. See Chomsky (2000) for an interesting speculation on this issue.

- (6) Ta de-le tou-jiang.
he gain-Perf first-prize
'He won the first prize.'

Such a usage of the verbal *de* can be traced back to archaic Chinese, which is documented in the oracle bone inscriptions and the bronze inscriptions, i.e. the eighth century B.C. or earlier. (7) is taken from the bronze inscriptions, in which *de* was used as a verb.

(7) Nai fu de.

so not acquire

‘... therefore [someone] cannot gain [something].’

(Yue 1984)

In addition to the lexical meaning of *de*, it could be used as a functional category in archaic Chinese. It has been observed in the literature that *de* was used as a modal when it preceded a verb. (8) is an example from *Zuo Zhuan*, which was written during the period of Warring States from the fifth century B.C. to the third century B.C. In (8) *de* was preceding the verb *you* ‘have’ and it was interpreted as a modal. According to the observation by Liu (1998), the modal usage of *de* first emerged during the period of Spring and Autumn, i.e. the eighth century B.C. Sun (1996) points out that about 31% of *de*’s appeared in the ‘*de* V’ sequence and functioned as a modal auxiliary in *Mengzi* (300 B.C.).

(8) Jin, Chu wu xin. Wo yan de you xin?

Jin Chu not trust I how can have trust

‘Since the two countries Jin and Chu have lost their credit, how can I keep my

(Liu 1998)

Although the modal interpretation of *de* was still preserved in the Eastern Han Dynasty, i.e. the first century A.D., the word order was different. For example, (9) is

from a book called *Lun Heng* written in the Eastern Han Dynasty. The noticeable difference is that the modal *de* was following the main verb *ji* ‘beat’.

(9) Yi ren ji de.

one person beat can

‘One person can beat [the drum].’

(Yue 1984)

Interestingly, the direct object may precede the modal *de* when *de* was negated. For example, in (10) *shou* ‘hand’ was the object of the verb *yao* ‘move’ and the modal *de* was negated by *bu* ‘not’.

(10) ... shi qie yao shou bu de.

cause concubine move hand not can

‘[Someone] caused his concubine not to be able to move her hand.’

(Yue 1984)

Since the Tang Dynasty, i.e. the seventh century, verbal and adjectival elements could follow the postverbal modal *de*, for instance, (11) which is from a Tang poem. Such a usage is still preserved in modern Chinese. (11) is still intelligible to speakers of modern Chinese.

- (11) Wu ren hua de cheng.
no person draw can finish
'Nobody can finish drawing.'
(Yue 1984)

Yue (1984) observes that *de* was used to indicate the completion of the event in the Eastern Han Dynasty. For example, in (12) *de* indicated that the event of blossoming was done.

- (12) ... kai de fang zhi bu shi hua.
blossom finish just know not be flower
'[The peony] was shown that it was not a flower after blossoming.'
(Yue 1984)

In modern Chinese *de* can function as a morpheme that introduces a resultative clause. Yue (1984) argues that such a usage developed from the meaning of completion of *de*, which emerged in the Northern and Southern Dynasties, i.e. the fifth century to sixth century, and was widely used in the Tang Dynasty. For example, (13) is from a poem written in the Tang Dynasty, in which *de* indicated that the event of smelting was done.

- (13) Lian de li xin cheng si hui.
 smelt result depart heart become dead ash
 ‘To smelt oneself such that parted hearts become dead ash.’
 (Yue 1984)

The counterpart of the Mandarin Chinese *de* in spoken Cantonese is *dak*. What is interesting is that *dak* in Cantonese has a focus reading that Mandarin lacks (Lee 1995, Tang 2002). For example, the postverbal *dak* in (14) denotes a focus reading, similar to the interpretation of *only* in English. The counterpart of (14) in Mandarin Chinese will be unacceptable, as shown in (15).

- (14) Keoi tai dak saam-bun syu. (Cantonese)
 he read only three-Cl book
 ‘He read only three books.’

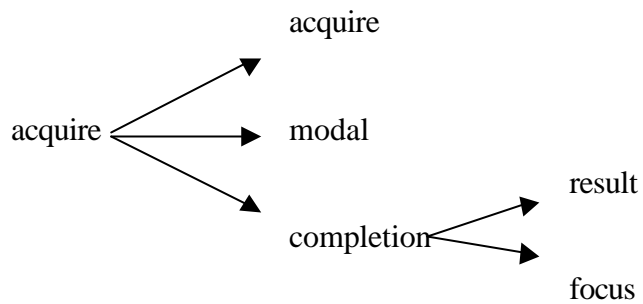
- (15) *Ta kan de san-ben shu. (Mandarin)
 he read DE three-Cl book

I suspect that the focus element *dak* in Cantonese could have been derived from the *de* that had the meaning of completion. The supporting evidence comes from the distribution of the focus *dak* and its interpretations in modern Cantonese. Let us consider the following examples, in which *dak* apparently may follow the predicates that denote accomplishments (= (16)), achievements (= (17)), ‘activities’ (= (18)), and ‘states’ (= (19)).

predicate in (19) cannot be modified by *hou* ‘very’, as in (20), the adjectival predicate in (19) indicates a change of state and the eventuality should not be analyzed as a state. The generalization seems to be that the focus *dak* requires the predicate to indicate a change of state, more specifically, a bounded event. In other words, *dak* conveys a meaning of completion in Cantonese. On a par with the resultative marker, I assume that the focus element *dak* inherited the meaning of completion from *de* historically.

- (20) *Do faa hou hung dak loeng jat.
 Cl flower very red only two day
 ‘The flower was very red for two days.’

Our discussion of the various usages of *de* in Mandarin Chinese and its counterpart in Cantonese and the path of their historical change can be summarized in (21). Let us assume that the verbal usage of *de*, i.e. the one having the meaning of ‘to acquire’, was the original, from which various meanings were derived in grammaticalization. The meanings of ‘modal’ and ‘result’ are still preserved in modern Mandarin while the ‘focus’ usage of *de* can only be found in Cantonese.

(21) *Grammaticalization of de in Chinese*

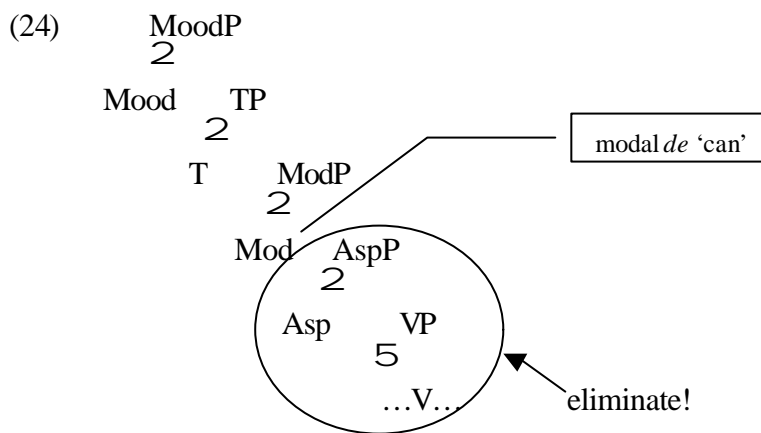
How to link up all these interpretations of *de* in Chinese? In the next section, I will argue that grammaticalization of *de* can be accounted for by the claim that grammaticalization is a process of eliminating syntactic projections.

5. Structure elimination

Let us assume with Cinque (1999) that some functional projections, such as Mood, Tense, Modality (Mod), and Aspect (Asp), exist in every full clause. All these functional categories are considered to be extended projections of verbs. (22) is a partial representation of a clause.

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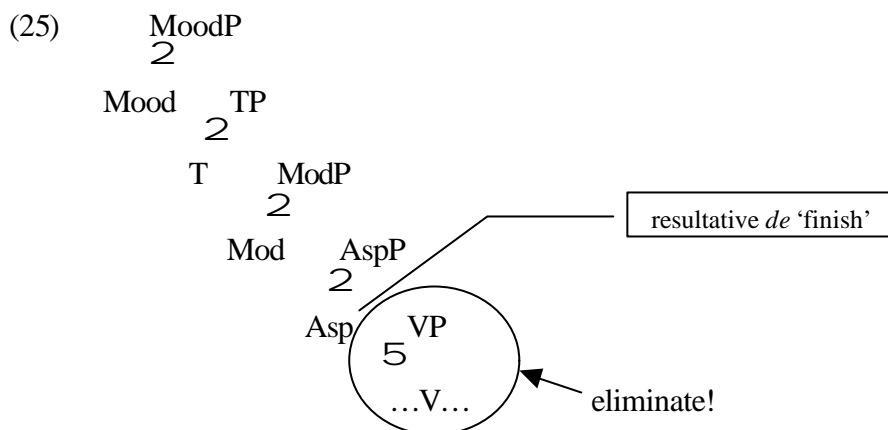
Suppose that (24) is derived from (22) by eliminating two projections, i.e. AspP and VP that are dominated by ModP.⁴ After grammaticalization, Mod became the root of the structure. If Mod in (24) is overtly realized as *de*, it should be interpreted as a modal. Changing from (22) to (24) took place in the fifth century B.C. to the third century B.C. in old Chinese.



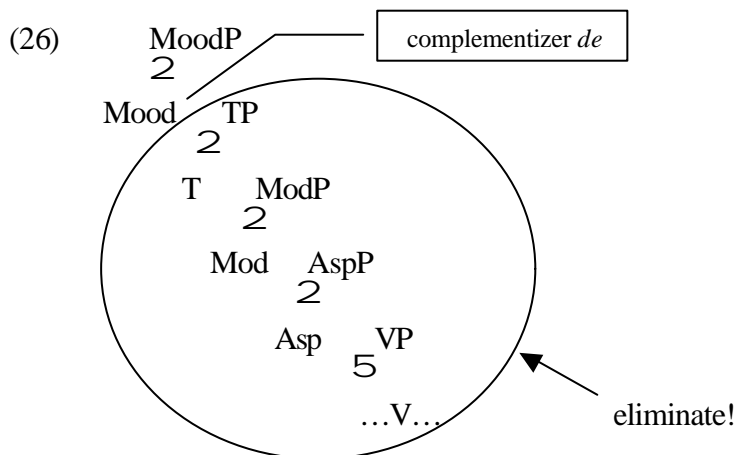
Deriving the meaning of completion from the verbal *de* in the Eastern Han Dynasty could be regarded as a process in which one dominated projection was eliminated in the structure, i.e. that (25) was derived from (22). If Asp is overtly realized as *de*, it will denote the completive aspect.⁵

⁴ I assume that such elimination took place historically and its output is preserved in the lexicon. When the modal *de* is drawn from the lexicon in modern Mandarin, the AspP and VP that were originally dominated by ModP should not be there.

⁵ The postverbal focus *dak* in Cantonese may keep the completive meaning and some focus features are added in the derivation.



According to Yue-Hashimoto (1971), Huang (1982) and C.-C. J. Tang (1990) the postverbal morpheme *de* in modern Chinese that introduces a resultative clause is regarded as a complementizer. In Cinque's story, the complementizer could be regarded as part of the mood system. Along these lines, I assume that the postverbal resultative marker *de* was derived by eliminating all the dominated projections, as in (26).



If Mood in (26) is realized as *de*, it is dominated by no extended projections. According to the definition given in (2), Mood in (26) should be the most functional

element among all the categories we have seen. It is not surprising to see that such a usage is almost the ‘final’ stage of grammaticalization of *de* in Chinese.

6. Concluding remarks

Following the spirit of the Minimalist Program, this paper assumes that categories such as substantive categories and functional categories are derivative notions. Substantive categories and functional categories should be defined structurally. It is suggested that a category that is dominated by less extended projections is more ‘functional’ than a category that is dominated by more extended projections. Along these lines, grammaticalization is regarded as a process in which projections are eliminated in bottom-up manner. Under the present proposal, grammaticalization of *de* in Chinese can be captured and its various interpretations can be correlated.

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