

# From D to T – determiner incorporation and the creation of tense.

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Investigating the *shi-de* cleft construction in northern dialects of Mandarin Chinese, this paper argues for the novel ongoing creation of (past) tense from the incorporation of a D<sup>0</sup> determiner element (*de*) into the verb, such a process resembling the earlier creation of perfective aspect from incorporation of the element *liao/-le* into the verb. As D<sup>0</sup> and T<sup>0</sup> are both elements which add reference to their complements, it is suggested that the category switch from D<sup>0</sup> to T<sup>0</sup> is actually rather natural and that the referential properties of nominal definiteness are simply re-interpreted in the verbal domain as temporal definiteness. The underlying reason for the re-analysis is shown to be the pragmatic strengthening of a generalised conversational implicature associated with the *shi-de* construction, and assisted by both the weak selectional properties of the copula *shi* and the mixed N/V properties of clausal nominalisations. The analysis proposed is able to resolve certain apparent contradictions in the patterning of *shi-de* forms relating to the positioning and interpretation of *wh*-adjuncts, adverbs and object DPs, and results in the conclusion that speakers actually still maintain a dual analysis of *de* as either a D<sup>0</sup> or a T<sup>0</sup> depending on the temporal orientation of the *shi-de* form.

## 1. Introduction

This paper sets out to investigate the syntactic and categorial status of the element *de* found in clause-final position in Mandarin Chinese cleft-type sentences such as (1), and also attempts to account for the alternation found in northern dialects where the object optionally appears positioned after *de* as in (2):

- 1)    wo shi zuotian   mai piao de  
      I   BE yesterday buy ticket DE  
      ‘It was yesterday that I bought the ticket.’
  
- 2)    wo shi zuotian   mai de   piao  
      I   BE yesterday buy DE   ticket  
      ‘It was yesterday that I bought the ticket.’

Structures such as (1) have been the subject of a number of pieces of research in recent years, e.g. Chiu (1993), Huang (1982), Shi (1994) among many others. There and elsewhere it is commonly noted that *shi-de* sentences consistently give rise to interpretations parallel to English clefts with the focused element always immediately following the copula *shi* and frequently being an adverb or PP referring to the time or place where some event has occurred, as for example in (3):<sup>1</sup>

- 3)    ta shi zai Zhongguo xue   Yingwen de  
      he BE in China   study English   DE  
      ‘It was in China that he studied English.’

Most research on the *shi-de* construction has centred itself on the focus properties of such sentences and has attempted to offer accounts of how the focus interpretation may be syntactically encoded. In general this has led to a concentration on the function of *shi* and various suggestions that LF movement of the focus may be involved.<sup>2</sup> Comparatively little attention has however been given to the role and status of the element *de* in the construction, possibly due to the fact that *de* may sometimes seem to be optional in its occurrence, and to date there has not been any serious discussion of the alternation illustrated in (1) and (2). This apparently optional occurrence of the object either before or after *de* is puzzling as there is no obvious interpretative difference triggering the alternation and purely optional, unmotivated movement should not be available under current Minimalist assumptions (furthermore pure “scrambling” is otherwise not present in Chinese). This paper suggests that a study of the role played by *de* and the alternation found in examples such as (1) and (2) leads to a better understanding of the *shi-de* construction and the interesting conclusion that *de* is currently undergoing a significant re-analysis. It is argued that *de* is changing category from a nominal D<sup>0</sup> element to a verbal T<sup>0</sup> morpheme encoding past tense, and that the reason for such a shift is in large part the increase of a past time conversational implicature strongly present in *shi-de* forms. It is noted that although new past tense elements generally arise from the grammaticalisation of perfective aspectual verbs, the novel conversion process argued for with *de* from D to T reflects a second natural path of change in which the definite reference-fixing property of a D<sup>0</sup>-element simply becomes re-interpreted in the locus of temporal reference and definiteness, the T<sup>0</sup> position. Pointing out how such a re-analysis is triggered and aided by the conspiracy of a number of factors, the paper presents a variety of evidence suggesting that *de* is actually still ambiguous and currently may instantiate either a T<sup>0</sup> or a D<sup>0</sup> head depending on certain aspects of the structure it occurs in. Speakers therefore maintain a dual analysis of *de*, this accounting for various differences in patterning attested in *shi-de* forms.

The organisation of the paper is as follows. Section 2 first presents evidence in favour of a nominalisation analysis of *shi-de* structures but then indicates that problems for such an analysis are raised by phenomena relating to the interpretation of adverbs and the positioning of *wh*-adjuncts and object DPs. Section 3 then investigates what possible accounts might be given for the object alternation in (1) and (2) and argues that the only plausible explanation of the wider patterning observed is that *de* is actually undergoing movement to the verb. Considering further the interpretation of *shi-de* forms and their interaction with object positioning, it is proposed that *de* is being re-analysed as a past tense element, raising as a clitic to the verb from a T<sup>0</sup> position. Section 3 also indicates how various functional aspects of the construction assist in the re-analysis process. Section 4 then re-considers non-past interpretations in *shi-de* sentences and argues that *de* currently maintains a dual status as both a T<sup>0</sup> and a D<sup>0</sup> element in different structures, this having direct effects on a number of syntactic phenomena. Finally the paper is closed in section 5 with reflections on the correspondence relation between DPs and clauses and the encoding of referentiality in both domains.

## 2. Previous approaches to *de*

In earlier works on the *shi-de* construction there have essentially been two basic approaches to *de* occurring in clause-final position. The first, present primarily in

earlier works such as Paris (1979) and Kitagawa & Ross (1982) assumes that *de* is used in such constructions to form the *nominalization* of some clausal constituent/VP.<sup>3</sup> In more recent studies such as Chiu (1993) and Shi (1994), the status and role of *de* in the construction is largely ignored, and *de* is simply classified as a ‘particle’. Shi (1994) in particular argues that (this) *de* should not be analyzed as a nominalizer for a number of reasons. First of all, it is pointed out that while the *de* which occurs in headless complex NPs such as (4) cannot be omitted, the *de* which is regularly found in *shi*-focus sentences sometimes can be left out, suggesting that that what follows *shi* in fact may not be a genuine nominalization:

- 4) ta baba shi [zhong di ] \*(de)  
 he father BE sow field DE  
 ‘His father is a farmer (one who sows the fields). (Shi 1994)
- 5) wo shi gen ta qu  
 I BE with he go  
 ‘I *am* going with him.’

Secondly, Shi suggests that the sequence following *shi* does not behave syntactically like an NP. Shi argues that relative clauses in object position constitute islands for extraction operations such as topicalization as in (6). Topicalization out of a string occurring after *shi* however appears to be fine and to contrast with topicalization from the relative clause structure, indicating that the post-*shi* sequence is not a nominalization with a structure similar to that in (6):

- 6) \*Li You<sub>i</sub> , wo hai mei you jianguo [NP [IP gan sha t<sub>i</sub> ] de]  
 Li You I still not-yet have meet-Asp dare kill DE  
 Intended: ‘I still haven’t met any man who dares to kill Li You.’ (Shi 1994)
- 7) Wang Xiaojie<sub>i</sub> , wo qunian shi [ jianguo t<sub>i</sub> de]  
 Wang Miss I last year shi meet-Asp DE  
 ‘It is seeing Miss Wang that I did last year.’ (Shi 1994)

The strength of these arguments is not entirely clear, though. Concerning the apparent ‘optionality’ of *de* in certain *shi*-focus forms, it is possible that all that might be concluded from the existence of sentences such as (5) is that *shi* may optionally select for either an NP (when *de* is present) or a VP when it is not, just as English *be* selects for either a VP or an NP complement; the alternation found does not in itself disprove any nominalization function of *de* when *de* is present. Secondly, concerning the ‘extraction’ contrasts in (6) and (7), Shi’s judgement that (6) is unacceptable is questioned by a range of informants who suggest that (6) and similar examples are actually well-formed, this seeming to nullify the results of the attempted comparison. It is also possible that neither structure actually results from any movement operation and extraction and that the ‘gap’ position in both structures may in fact simply contain a base-generated object *pro*.

Cross-dialectal evidence within Chinese would furthermore seem to clearly favour the former ‘nominalization’ approach to *de* over other imaginable possibilities. In Mandarin, there are a number of elements having the same pronunciation as *de* - relative clause *de* (4,6), possessor/genitive *de* (8), potential *de* (9), descriptive-clause *de* (10), and ‘extent’-clause *de* (11). These elements have a variety of different

syntactic properties and do not all derive from the same source. Given this existence of multiple different *de*'s, it might not be unreasonable to entertain the possibility that the clause-final *de* in *shi*-focus sentences is indeed simply yet another discrete type of *de* unconnected to the more nominal-oriented occurrences, and hence that clause-final *de* is not a nominalizer as it might seem to be in (4):

- |     |  |     |  |
|-----|--|-----|--|
| 8)  | ta de shu<br>he DE book<br>'his book'                                | 9)  | kan-de-jian<br>look-DE-meet<br>'is able to see'  |
| 10) | ta zou de hen kuai<br>he walk DE very fast<br>'He walked very fast.' | 11) | ta qi ma qi de hen lei<br>he ride horse ride DE very tired<br>'He rode a horse until he was very tired.' |

However, a survey of non-Mandarin Chinese dialects/languages interestingly reveals that the morphemes all pronounced as *de* in (4-11) in Mandarin are consistently split up and grouped in a different way. In Cantonese, Taiwanese and Shanghainese, the morphemes corresponding to *de* in (4, 6, 7, 8) all have a single pronunciation, whereas those corresponding to *de* in (9, 10, 11) have different pronunciations, as illustrated below in Cantonese:

- |     |   |     |  |
|-----|---|-----|--|
| 12) | kui hai tingyat maai sue <u>ge</u><br>he BE yesterday buy book GE<br>'It was yesterday he bought a book.' | 13) | kui mai <u>ge</u> sue<br>he buy GE book<br>'the book that he bought'   |
| 14) | kui ge sue<br>he GE book<br>'his book'  | 15) | maai-dak-hei<br>buy-DAK-lift<br>'be able to buy'   |
| 16) | kui ja che ja <u>dak</u> ho faai<br>he drive car drive DAK very fast<br>'He drove very fast.'             | 17) | kui duk sue duk <u>do</u> ho gwooi<br>he read book read until very tired<br>'He studied until he got tired.' |

Across all of Cantonese, Shanghainese and Taiwanese, it is found that the morpheme occurring in the cleft-focus equivalent to Mandarin *shi-de* has the same pronunciation as the element used in relative clauses and possessor structures, and is different from the morpheme occurring in potential verb constructions, the descriptive verb construction and extent clauses. This would seem to indicate that it is indeed correct to group clause-final *de* together with the nominalizer *de* found in headless relatives such as (4) and consequently the suggestion that clause-final *de* is a nominalizing element may well be justified.

The pattern observed in Cantonese, Shanghainese, Taiwanese and Mandarin is also interestingly repeated in other neighbouring non-Sinitic languages adding further support to the nominalizer hypothesis for clause-final *de*. In Japanese and Burmese a single morpheme is used to nominalize clauses as arguments, to encode a possessor relation, to create relative clause structures, and significantly also results in interpretations parallel to those in the *shi-de* construction when occurring clause-finally with a copula.<sup>4</sup> This is illustrated with Japanese *no* in (18-21):

- 18) Taroo-ga tsuita no-o shitte imasu ka

Taroo-Nom arrived NO-Acc knowing be Q  
'Did you know that Taroo has arrived?'

19) Taroo no hon  
Taroo NO hon  
'Taroo's book'

20) ohana motteru no wanwa<sup>5</sup>  
flower holding-be NO doggie  
'the doggie (which is) holding the flower' Murasugi (1998)

21) (kare-wa) kinoo kita no desu  
he-Top yesterday came NO BE  
'It was yesterday that he came.'

The fact that this same grouping re-occurs again in other genetically-unrelated languages cannot be sheer co-incidence and strongly supports the idea that there is indeed a strong connection between the *de* used as a relativizer/nominalizer and the *de* occurring in the *shi-de* construction. The nominalizing function of *no* in Japanese and *taa* in Burmese is also particularly clear; in both languages these elements equivalent to Mandarin *de* are followed by case-markers, as in (18) above and Burmese (22) below:

22) [thuu-ga yauq-taa]-ko thi the laa?  
he-Nom arrive-TAA-Acc know Mood Q  
'Did you know that he has arrived?'

In Japanese, the copula *desu/da* may also not occur with a verb/VP unless there is also a nominalizing *no* present indicating that *no* really would appear to nominalize the clause in *shi-de*-equivalent structures.

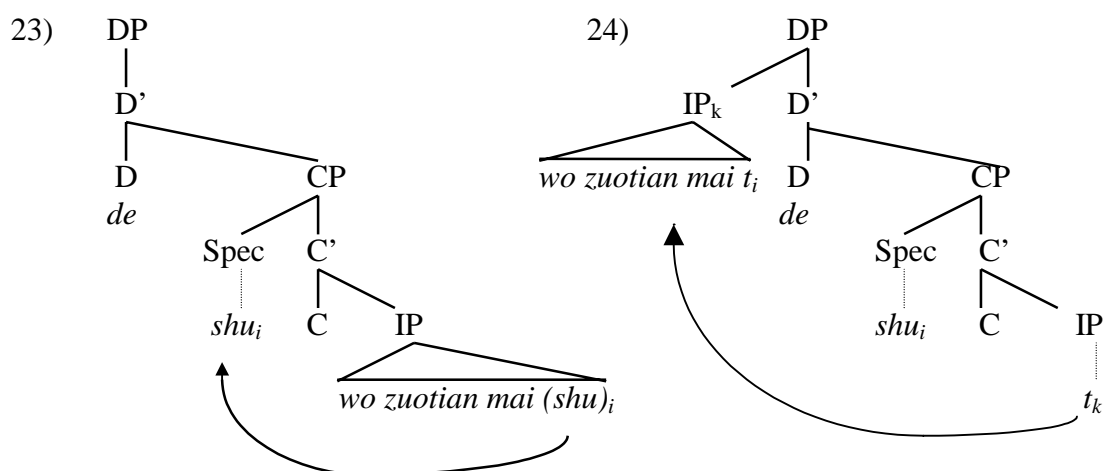
If cross-linguistic evidence together with patterns found in non-Mandarin dialects does then seem to indicate that *de* in the *shi-de* construction is a nominalizing morpheme, one next needs to ask what it means to label some element a 'nominalizer', as such a term does not refer to any type of clear syntactic category in itself, and along with the term 'particle' appears to be formally rather vague. It is also unclear whether the term nominalization refers to a *lexical* process of category conversion (in which case a nominalizer would not necessarily have any syntactic category, or would possibly just have nominal features) or whether the process of nominalization is a *syntactic* one (in which case *de* should have some syntactic category and tree representation). In Paris (1979) *de* is simply inserted under a Nominalizer node; in Kitagawa & Ross (1982) it is not assigned any syntactic category, and in Fu (1994) *de* is similarly left unlabelled and generally not dominated by any discrete syntactic node. Simpson (1997) and (1998a) re-examines in some depth the syntactic status of relative clause *de*, noun-complement clause-*de* and genitive-possessor-*de* and it is argued that:

- a) *de* in all these cases is a *determiner* instantiating the D position
- b) *de* selects a *rightward* CP clausal complement, in line with the general direction of complement selection in head-initial Chinese/in line with Kayne's

(1994) LCA.<sup>6</sup>

- c) (following Kayne 1994) in relative clauses the relativized noun/NP raises to SpecCP and then the IP remnant raises higher to SpecDP
- d) the motivation underlying this latter movement is suggested to be that *de* is an enclitic determiner parallel to the enclitic determiners found in Romanian, Swedish, Buginese and Mokilese, triggering IP-movement to its Spec position for phonological support.

The derivation of a simple structure such as: *wo zuotian mai de shu* ‘the book I bought yesterday’ would then be as indicated below:



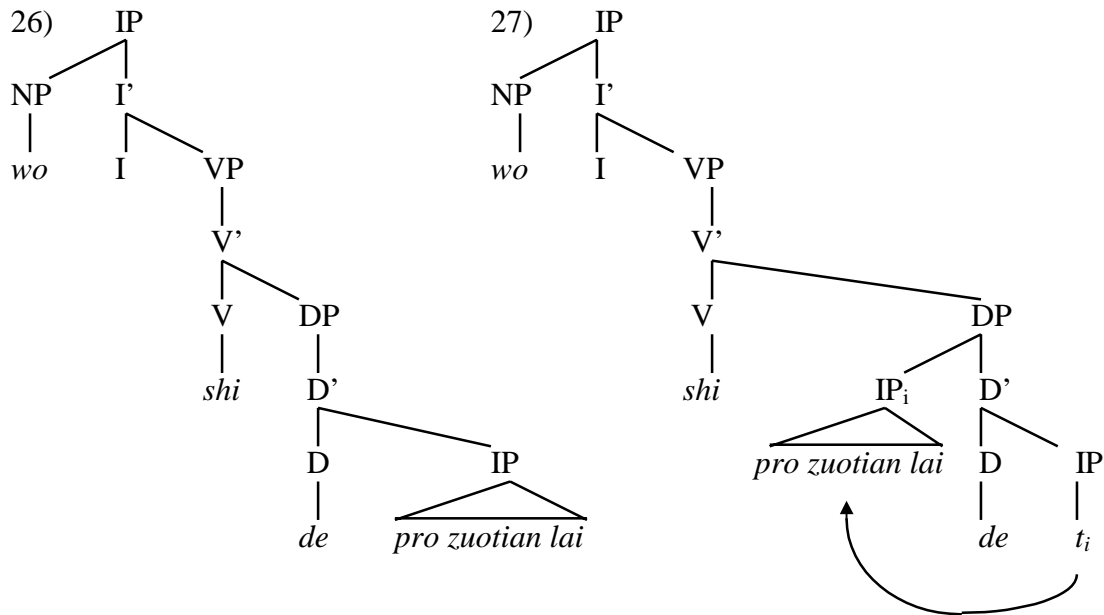
Reasons for analyzing *de* as a determiner are partly historical, partly related to various cross-linguistic patterns observed and partly theory-internal. First of all, *de* is commonly taken to be derived from the earlier element *zhi* which has been noted to have had a demonstrative function as in (25) (among certain other nominal-related functions; see Pulleyblank 1995):

- 25) zhi er chong you he zhi  
 these two worm again what know  
 ‘And what do these two worms know?’ (Zhuang 1.10)

Demonstratives are generally taken to be D-type elements and frequently develop into determiners due to a loss in their deictic force. Simpson (1997) suggests that *de* is a determiner descended from this early demonstrative and that its present lack of definiteness specification has resulted from a classic process of ‘definiteness-bleaching’ wherein determiners and demonstratives over long periods of time frequently lose their original definiteness value and take on certain other functions. Secondly, it is observed that a number of languages (e.g. Lhakota, Diegueno, Tzeltal) do indeed make use of clear determiners rather than complementizers to build relative clause structures, hence that the analysis suggested for Chinese is in fact elsewhere widely attested. Third, if one attempts to analyze relative clauses in Chinese in terms of Kayne’s more restrictive (1994) theory of relativization, it becomes quickly apparent that the element *de* can in fact only be analyzed as a determiner in  $D^0$  and cannot be taken to occur in  $C^0$  (i.e. it cannot be analyzed as a relativizing

‘complementizer’). Finally, among other arguments, the suggestion that *de* is a determiner allows for a natural formalization of the notion nominalizer - *de* as a  $D^0$  selects a CP clausal complement and projects the nominal-argument category DP.<sup>7</sup>

Returning now to *shi-de* forms, if clause-final *de* in the *shi-de* construction is in fact the same element as *de* in relative clauses as suggested by the patterns observed, one might assume that this occurrence of *de* should also be analyzed as an instantiation of  $D^0$  with a similar underlying syntax. In such a view, *de* might then be taken to select a rightward clausal complement and trigger raising of this clause to SpecDP for reasons similar to those underlying the derivation of relative clause structures. This possibility is illustrated in (26) and (27):



However, while such an analysis receives support from all of what has been noted thus far, there are in fact other independent reasons for thinking that it cannot be entirely correct and that there are additional complications which need to be accounted for. On further inspection, one finds that there is a variety of evidence which can be suggested to go against analyzing string following *shi* as a DP. The first of this is that an adverb occurring to the left of *shi*, and hence by analysis external to the DP, may modify the event depicted by the verb inside the nominalized clause to the right of *shi*:

- 28) zuotian wo shi [<sub>DP</sub>[ lai mai che]-de]  
 yesterday I BE come buy car DE  
 ‘Yesterday I came to buy the car.’

Generally it is found however, that adverbs external to DPs cannot quantify into DPs or modify events depicted internal to a DP. Consequently in (28) it is not possible to understand ‘yesterday’ as referring to the time when Bill betrayed Sue, only to the time of John’s discussion:

- 29) Yesterday John discussed [Bill’s betrayal of Sue]

Secondly, it is found that *wh*-adjuncts such as *zenme* ‘how’ and *weishenme* ‘why’ are freely able to occur in the sequence following *shi* as shown in (30/31). Again, this is unexpected if this sequence is effectively the equivalent of a Complex NP, as CNPs do *not* allow such *wh*-adjuncts to occur inside them (32/33/34):

- 30) ni shi [<sub>DP?</sub>[zenme lai]-de]  
 you BE how come DE  
 ‘How did you come?’
- 31) ni shi [<sub>DP?</sub>[weishenme lai]-de]  
 you BE why come DE  
 ‘Why did you come?’
- 32) \*(ni shuo) [<sub>DP</sub> Deng Xiao Ping weishenme piping Meiguo]-de xiaoxi] bu hao?  
 you say Deng Xiao Ping why criticise USA DE news not good
- 33) \* [<sub>DP</sub>[ta zenme lai]-de shuofa] bu hao?  
 he how come DE claim not good
- 34) \*ta shi [[<sub>DP</sub> weishenme lai]-de ren]?  
 he BE why come DE person

Furthermore, it is actually possible to position these *wh*-adjuncts external to the posited DP-string following *shi* and for them to refer to the event depicted by the verb inside the ‘DP’, as in (35). This is not at all possible with genuine CNPs as (36) shows which is unacceptable if *weishenme* refers to Mary’s going to Beijing:

- 35) weishenme ni shi [<sub>DP?</sub>[zuotian lai]-de]?  
 why you BE yesterday come DE  
 ‘Why did you come yesterday?’
- 36) \*weishenme<sub>i</sub> Zhangsan bu zhidao [<sub>DP</sub> [Mali t<sub>i</sub> qu Beijing]-de xiaoxi]  
 why Zhangsan not know Mali go Beijing DE news

Such a patterning is unexplained if one assumes that *shi* selects for a CNP in the *shi-de* construction and indicates that the DP analysis needs re-examination.<sup>8</sup>

A third problem for the DP hypothesis concerns the alternate positioning of the object of the lexical verb relative to *de* found in northern dialects, as in examples (1) and (2) repeated below:

- 1) wo shi zuotian mai piao de  
 I BE yesterday buy ticket DE  
 ‘It was yesterday that I bought the ticket.’
- 2) wo shi zuotian mai de piao  
 I BE yesterday buy DE ticket  
 ‘It was yesterday that I bought the ticket.’

If the string following *de* is indeed a CNP, then extraction and rightward movement of the object out of this constituent in (2) is expected to give rise to a subadjacency violation, yet sentences such as (2) are fine.

Therefore, despite the initial rather plausible idea that the post-*shi* string in the *shi-de* construction is a nominalization structure, it now might seem that such an account may not in fact be tenable. In section 3 we re-investigate the syntax of *shi-de* structures, this time paying particular attention to the object positioning phenomena noted above and argue that the patterning found leads to the conclusion that the *shi-de* construction is currently undergoing certain syntactic re-analysis. This reanalysis process is then suggested to be directly responsible for the apparent contradictions in behaviour which have here been observed, namely the fact that cross-linguistic evidence strongly indicates that the *shi-de* construction incorporates a nominalized clause, yet the posited nominalization does not seem to pattern in ways which would be expected of such a structure.

### 3.0. Object positions, *de* and the interpretation of *shi-de* structures

In order to approach the question of how the object comes to be optionally positioned after *de*, we will in fact begin with a fuller characterization of the meaning of the *shi-de* construction so as to make more precise what we believe is the structure of the original nominalization form

#### 3.1. Focus and presupposition in *shi-de* sentences

As noted frequently in the literature, the *shi-de* construction is in many ways equivalent to cleft sentences in English, with a clearly focussed constituent (linearly following *shi*) set off against the background of a strongly presupposed event. Just as in English cleft structures it is presupposed that the event described in the relative clause following a clefted NP/PP must have taken place, so too *shi-de* forms bring with them a similar ‘guarantee’ that some particular event occurred. This property of clefts can be illustrated by a comparison of regular *wh*-questions formed on subjects or objects and parallel *wh*-clefts. As seen in (37), the former can generally be answered with ‘no-one’ or ‘nothing’, so denying the occurrence of any event of the type described by the predicate. However, *wh*-clefts do not readily allow such answer-types as they are used when the speaker has very strong reason to believe that the action of the predicate did indeed take place, and elects to use a *wh*-cleft to elicit further clarification of some related information (e.g. the identity of the subject/object/place/time of action), this shown in (38):

37) Q: What did you buy?  
A: Nothing.

Q: Who helped you when you were there?  
A: No-one did.

38) Q: What was it that you bought?  
A: ??Nothing.

- Q: Who was it that helped you when you were there?  
 A: ??No-one.

Similarly *shi-de* forms are selected when the speaker is highlighting one piece of new information against the background of a strongly presupposed event. For example (39) might typically be used when the hearer sees that the speaker has a new umbrella and comments that it looks good or simply just inspects it without saying anything; the speaker then responds with the information that the buying event which clearly resulted in the speaker having the umbrella took place on the previous day:

- 39) wo shi zuotian mai de  
 I BE yesterday buy DE  
 ‘It was *yesterday* that I bought (it)/I bought (it) *yesterday*.’

The focus and new information in a *shi-de* sentence is most frequently an adverb/PP referring to place or time. Less commonly (but still perfectly acceptable in an appropriate context) the subject, the VP or just the object in the VP may be the focus:

- 40) shi wo mai de  
 BE I buy DE  
 ‘It was me who bought it.’

- 41) wo shi lai mai piao de  
 I BE come buy ticket DE  
 ‘Its that I’ve come to buy a ticket.’

- 42) wo shi lai mai *piao* de  
 I BE come buy ticket DE  
 ‘Its a ticket that I’ve come to buy.’

The more frequent occurrence of time/place PP/adverbs as the focus is simply due to the fact that it more common to know that a particular event took place but possibly lack the information about where or when it took place than to know that an event took place but not to know the identity of the participants (and hence focus them as the new information). Most uncommon of all is to find just the verb being focussed, it being very difficult to imagine a situation where one knows that an event took place, who the protagonists were and where/when it took place but not know the type of action that linked all of this up; hence the oddity of (43):<sup>9</sup>

- 43) ?zuotian ta shi da wo de  
 yesterday he BE hit me DE  
 ‘Yesterday it was hitting that he did to me.’

This important strongly presuppositional property associated with *shi-de*/cleft sentences is also found in certain nominalizations in English, which heavily imply or guarantee the occurrence of a particular event. Most frequently this ‘guarantee’ gives rise to a past time interpretation; in (44) the events represented by the nominalizations are most naturally understood to have taken place in the past:

- 44) The panel will discuss the destruction of the village/the killing of the hostages.

However, this past time interpretation would only seem to be a default interpretation, and may be over-ridden with the use of adjectives such as ‘planned’, ‘scheduled’ etc which function to guarantee the occurrence of the event in the future:

- 45) The panel will discuss tomorrow’s ??(planned) killing of the hostages.  
46) They’re talking about tomorrow’s ??(scheduled) destruction of the bridge.

With *shi-de* sentences one also tends to find a strong tendency to interpret the event described by the predicate as having taken place in the past. For example, (47) only seems to allow for a past time interpretation:

- 47) wo shi zuo qi-che qu Beijing de  
I BE sit train go Beijing DE  
‘It was by train that I went to Beijing.’

However, as with English nominalizations, the past time interpretation is again only a default which can in fact be over-ridden with the use of modals and adverbs as in (48):

- 48) wo shi mingtian ??\*(hui) qu Beijing de  
I BE tomorrow will go Beijing DE  
‘It’s tomorrow that I’m going to Beijing.’

The force of the modal *hui* effectively serves to guarantee that the event will indeed take place, a necessary condition for the use of a *shi-de* form.

The fact that *shi-de* forms may only be used when both speaker and hearer know that a specific event has taken place (or will take place) essentially means that something in *shi-de* forms in a sense functions to make the event *definite* (i.e. the event has the property of being unique and commonly identified = presupposed, and is either definite in the past or definite in the future). An important question to be answered in connection with this is which particular part of the *shi-de* construction is actually responsible for the definiteness-like interpretation?

An initial suggestion might be that it is the element *de* which gives rise to the definiteness/guarantee effect, *de* having already been identified as a determiner in  $D^0$ . However, elsewhere in other environments such as relative clause structures the determiner *de* is *not* found to give rise to any necessary definiteness readings and an NP with a *de*-headed relative clause may indeed be interpreted as fully indefinite. The conclusion is therefore that *de* itself does not have any inherent definiteness specification and hence cannot be solely responsible for the occurrence of such an interpretation when found in *shi-de* sentences. Below we would like to suggest that it is rather *de* in combination with some other element which critically results in the definiteness interpretation.

When a structure was first suggested for *shi-de* sentences in (26/27), we automatically assigned a form in which *de* as a determiner was taken to select for a CP complement, in line with the analysis of relative clauses shown in (23/24). However, one might in fact entertain the possibility that there is more to the structure than set out in (26/27). Specifically, one might wonder whether such structures are really fully ‘headless’ or whether they might actually contain a phonetically null noun

selecting for the CP clause like other CNPs such as: ‘the fact that...’, ‘the news that..’, ‘the claim that...’ etc. Given the strong attachment to *context* which *shi-de* sentences have often been noted to have, there is indeed an obvious hypothetical candidate for a head-noun here - one with a meaning something like ‘situation’, i.e. ‘the situation (such) that...’ instantiating a direct link to the context. This strong connection with the discourse context commented on by Chao (1968), DeFrancis (1963) and others is essentially a function of the fact that *shi-de* sentences classically provide an explanation of something whose truth is fully accepted and known by both speaker and hearer, and one extremely common way for a new proposition to be accepted as fully true by speaker and hearer is where there is contextually undeniable evidence for it (as e.g. in (39) where both speaker and hearer are visually aware of the new umbrella bought by the speaker who then uses a *shi-de* form to explain when he/she bought it). A similar suggestion that *shi-de* forms may indeed be headed by a null noun with a context-related meaning such as ‘situation’ is indeed also made in Kitagawa & Ross (1982), and significantly can be shown to be further supported by certain overt evidence from the wider cross-linguistic paradigm.

Neighbouring Burmese is a language which not only has fully parallel *shi-de*-type structures but also provides explicit information on the morphological make-up of such forms. First of all, in its relative clauses, Burmese is found to use an element *teh* which is the direct equivalent of Mandarin *de* and arguably again of category D<sup>0</sup>.<sup>10</sup> Similar to Mandarin *de* though, *teh* does not encode any definiteness value of its own. Considering now equivalents to the *shi-de* construction, significantly one finds that it is *not* in fact (just) *teh* which appears, but a composite form pronounced as *taa*:

- 49)   dii-nee weh taa   paa  
       today buy TAA Pol  
       ‘It was today that I bought it.’

This element *taa* also occurs as a clear nominalizer of factive clauses and may then get marked by nominative or accusative case (as in example (22)), indicating its nominalizing nature beyond any doubt. Importantly *taa* can be analyzed as consisting of two separate parts, the first of which is *teh*, and the second part an element *haa* which elsewhere occurs as a dummy noun in the complex demonstrative form *daa* meaning ‘this one’. *Daa* itself is the optional collapsing of *dii haa*, where *dii* is a demonstrative adjective meaning ‘this’:

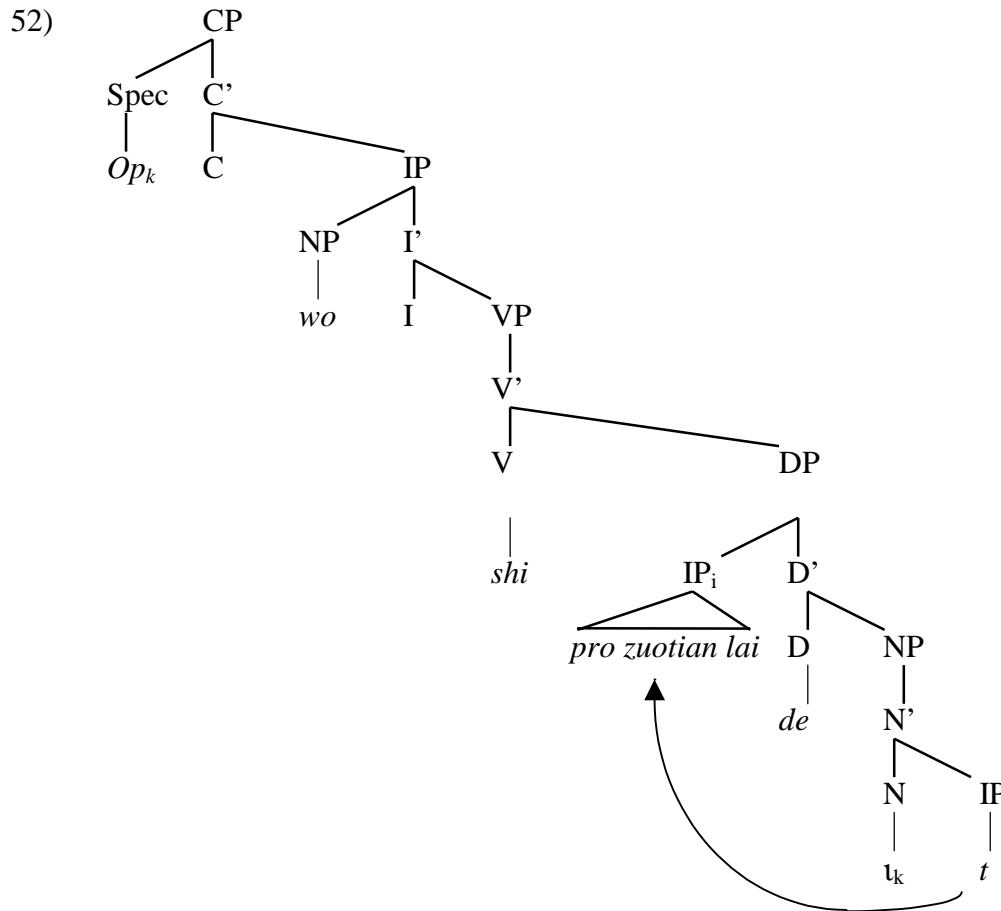
- 50)   dii haa ‘this (one)’ | daa ‘this (one)’

- 51)   teh + haa | taa = ‘de’ in *shi-de* equivalents such as (49)

Given the observation that relative clauses formed with bare *teh* may be indefinite in reference, but Burmese *shi-de* equivalents formed with *teh + haa* necessarily give rise to the same definiteness-type interpretation found in Chinese *shi-de* forms, it would seem that it is critically the addition of the dummy noun *haa* which results in the definiteness reading. The definiteness interpretation may be suggested to arise via binding of *haa* by a discourse operator located in SpecCP, *haa* being a ‘situation’ type N-head tied to the discourse situation much as suggested in Kitagawa & Ross.

This evidence that the equivalent to *de* in Burmese *shi-de* constructions is morphologically complex now allows one to suggest that a parallel but phonetically-null discourse-related head-noun may in fact also be present in Mandarin *shi-de* forms

bound by a discourse operator in SpecCP, and that a more correct representation of the nominalization hypothesis should therefore be as in (52) below:



This more articulated structure in (52) is arguably better able to account for those aspects of the interpretation of *shi-de* forms just noted. It does however still remain a nominalization structure and as such appears to leave unexplained the patterns noted earlier which militate against a CNP structure, i.e. *wh*-adjunct positioning, adverbial construal and object placement. We therefore now return to focus on the problem of the object/*de* interaction in order to show how this will allow for a resolution of the contradictions observed and lead to the conclusion that the structure in (52) is currently undergoing a significant re-analysis.

### 3.2. Object/verb ordering in *shi-de* constructions

Considering the alternation found in (1) and (2) schematically simplified in (53), there might seem to be three ways of analyzing the positioning of the object relative to *de*:

- 53) a. V - Ob - de  
 b. V - de - Ob

Given that the order in (a) is found in all Chinese dialects, while that in (b) is rather more restricted, it is a fairly natural assumption to make that the ordering in (b) should somehow be derived from the more basic order (a).

A first fairly obvious possible way of relating (b) to (a) is to suggest that the object in (a)-type forms may undergo movement over the verb to the clause-final surface position found in (b)-type forms. Simple reflection reveals however that such a possibility is unlikely to be right, for a number of reasons. Rightward object extraposition of this kind is cross-linguistically observed to occur predominantly when an object is either heavy or focussed, as e.g. in heavy NP shift in English or finite clausal extraposition in Hindi and German in traditional analyses:

54) John gave  $t_i$  to Mary [everything he possessed]<sub>i</sub>/\* $it_i$

55) Er hat  $t_i$  gesagt, [dass er heute kommen w $\eta$ rde]<sub>i</sub>  
 he has said that he today come would  
 'He said that he would come today.'

In *shi-de* constructions when the object occurs following *de*, it is however neither necessarily heavy nor focussed; on the contrary, a post-*de* object by definition may *not* in fact be focussed as the focus must always immediately follow *shi*. Furthermore a post-*de* object will by preference actually be light rather than heavy for the following rather simple reason - if the focus is the element immediately following *shi*, then a post-*de* object will be part of the presupposition and so necessarily old information; as such, it will normally be represented by a simple bare NP rather a long descriptive form of the type which might naturally occur when an NP is introduced for the first time as new information. Informants furthermore indicate that when the object is a clausal complement and necessarily somewhat heavy, they in fact prefer for it to be placed before *de* as in (56) rather than 'extraposed' as in (57), although a post-*de* positioning is not said to be ungrammatical:<sup>11</sup>

56) ta shi zuotian shuo [ta bu xihuan Mali] de  
 he BE yesterday say he not like Mali DE  
 'It was yesterday that he said that he didn't like Mary.'

57) ta shi zuotian shuo de [ta bu xihuan Mali]  
 he BE yesterday say DE he not like Mali  
 'It was yesterday that he said that he didn't like Mary.'

If there is then no object-movement over *de* and the object therefore remains *in situ*, a second possibility to account for the order in (53b) is to posit that the verb is moving leftwards to adjoin to *de* in some higher functional head. Such an approach would necessarily require assuming quite a different base structure from that suggested in the 'CNP'-tree (52) and *de* would have to be base-generated higher than the verb to its left. Here an immediate problem arises concerning the type of functional head that *de* would be instantiating and its position in the clausal structure. *De* seems to be critically involved in guaranteeing the truth of the event depicted by the VP (i.e. the strong presupposition in *shi-de* forms), and is therefore somewhat like an evidential morpheme guaranteeing the truth of a proposition. This being so, the functional head hosting *de* should in fact be very high in the clause in the area where other epistemic elements occur and certainly not low down below time, place and VP-adverbs where it is indeed found:

58) ta shi zai xuexiao xue de Yingwen

he BE in school study DE English  
'It was in school that he studied English.'

Consequently, this possibility would also not seem to be likely as a solution.

A third way of viewing the V-*de*-Ob order is to suggest that, if neither the object nor the verb undergoes movement, then possibly it is *de* itself which is the element changing its position, moving leftwards from a base-generated clause-final position. Such a possibility has the immediate advantage of according far better with the base structure proposed in (52) - *de* would simply be analyzed as moving leftwards from the regular D<sup>0</sup> position. Given the clear enclitic properties that *de* is commonly noted to have, this hypothetical movement could also quite naturally be suggested to be an instance of cliticization occurring.

Considering the possibility that the V-*de*-Ob order may be the result of some cliticization process, two plausible variants of a clitic-hypothesis might be entertained. The first of these would be to attempt to apply Klavans (1982, 1985) ideas on cliticization to the *shi-de* pattern and suggest that the *de*-Ob sequencing actually results from various non-movement principles governing clitic-placement. Klavans suggests that phrasal clitic placement is ultimately determined by binary choices relating to three particular parameters, two syntactic and one phonological. The first (syntactic) parameter is that a clitic will be specified as attaching either to the right or to the left of a certain domain. The second is that the clitic must also be specified as attaching either to the left or to the right of the peripheral constituent in the relevant domain. Finally, the clitic has to be specified for whether it is phonologically an enclitic or a proclitic. Classic P2 clitics (for example) will then be specified as having the sentence as their general domain, as being placed in the left of this domain, and as attaching to the right of the first=peripheral constituent of this domain (also as being enclitic to this element), as in (59):

59) [S XP-clitic .....]

Such a system predicts that there should also be clitics which are specified for the sentence as their domain, but attach to the right of this domain, either to the right of the peripheral element of the sentence, or inside and to the left of the peripheral element of the sentence. Such a cluster of parameter settings is precisely what would be necessary to account for the distribution of *de* taken as a sentence-level domain clitic. In standard *shi-de* forms *de* would be specified as S-final and as attaching to the right of the peripheral=final element in S, i.e. the object, as in (60). Where *de* occurs preceding the object in northern dialects, one could suggest that the value of the second parameter is changing from 'attach to the right of the peripheral element' to 'attach to the left of the peripheral element.' resulting in (61):<sup>12</sup>

60) [S NP shi Adv/PP V Ob]-de

61) [S NP shi Adv/PP V de-Ob]

A similar hypothetical ambiguity accompanying the same basic parameter values is suggested by Klavans to be present in an Australian language, Nganhcara. In Nganhcara it is found that a dative pronoun clitic *ngu* 'to him' either attaches to the very end of a sentence (its specified domain + rightward syntactic attachment to the final element in this domain) as in (62), or the clitic attaches inside this domain

preceding the last=peripheral element of the sentence, as in (63). Furthermore, *ngu* is phonologically an enclitic just like S-final *de*, so that the distribution of *ngu* and *de* really appears to be strikingly similar:

- 62) [s nhila pama-ng nhingu pukpe-wu ku-a wa]-ngu  
 he-Nom man-Erg him-Dat child-Dat dog give-him.Dat  
 ‘The man gave the dog to the child.’
- 63) [s nhila pama-ng nhingu pukpe-wu ku-a-ngu wa]  
 he-Nom man-Erg him-Dat child-Dat dog him.Dat give  
 ‘The man gave the dog to the child.’<sup>13</sup>

Despite its ability to capture the data and patterning of *de* (and *ngu*) however, there are reasons to be somewhat sceptical of a Klavans’-type approach both here for *de* and also possibly in general. First of all, although Klavans’ first two parameters are referred to as ‘syntactic’, clitic placement in such an account actually appears to be rather blind to syntax and it is not at all clear what underlies the relevant parameter choices, nor is it obvious what might allow them to change (i.e. it is not clear why *de* should be able to switch from attaching ‘syntactically’ to the right of the peripheral element in its domain to attaching to its left, especially when this syntactic ‘attachment’ is quite independent from its phonological attachment as an enclitic). Secondly, Klavans’ system predicts the existence of a number of logically possible combinations of the various parameter settings, yet some of these are very difficult to find actual examples of in human language; in particular (despite the example given from Nghanhcara) the settings necessary to account for *de* are virtually unattested elsewhere, clearly making such a treatment less attractive as a solution. Thirdly, it will presently be shown that *de*-placement is not in fact blind to the internal syntax of the sentence, and importantly, that *de* is also not necessarily attaching inside the peripheral-final element in S (i.e. the object), ultimately making a Klavans’-type approach pretty untenable.

A second alternate clitic-based approach to the *de*/Ob alternation would be to assume that *de* does indeed undergo movement for cliticization purposes, and then try to motivate this cliticization process in a more natural manner than in Klavans’ theory, identifying a specific host for the clitic and reasons for why the clitic might target such a host. Critically such a movement approach to *de* will first need to establish exactly where *de* might be raising to and whether this movement is also really to be described as simply raising of *de* over the object. Here we will now suggest that the correct generalization resulting from a consideration of further data is that *de* is in fact significantly moving to cliticise to the verb in *shi-de* sentences and that this is precisely the reason why it ends up linearly preceding the object. Not only is it evident from simple forms such as (2) repeated below that when the object is in final position *de* indeed occurs adjacent to the verb and is phonologically dependent on it (i.e. it is not possible for there to be any intonational pause between the verb and *de*), this suggesting that *de* is enclitic on the verb, but double object constructions (DOCs) provide strong evidence in favour of a verb-cliticization hypothesis:

- 2) wo shi zuotian mai de piao  
 I BE yesterday buy DE ticket  
 ‘It was yesterday that I bought the ticket.’

The full patterning found with DOCs is extremely interesting and characterized by the interaction of a number of complex constraints, including restrictions reflecting the relative referentiality of direct and indirect objects. In a later section we return to consider how certain aspects of the wider paradigm of variation with DOCs interact with the analysis developed here. At this point however, we would just like to note that it is indeed significantly possible for the order in (64) to occur, with *de* preceding both direct object and indirect object, as in (65):

64) NP shi Adv/PP V de IO DO

65) wo shi zuotian gei de tamen san-ben-shu  
 I BE yesterday give DE they 3.CL.book  
 ‘It was yesterday that I gave them three books.’

This importantly shows both that *de* is actually not attaching as second-to-last element in the sentence contra a Klavans’ type view – here it occurs preceding two sentence-final elements – and that it is incorrect to describe the general V-*de*-Ob patterning as simply resulting from movement of the object over *de* as here *two* elements are found following *de*, not just the object. Rather, it would seem that (65) provides strong support for the view that it is *de* which undergoes movement from a clause-final base-generated position to attach itself specifically to the verb.

Such a hypothetical process of cliticization to the verb from a final position following the object of the verb has an interesting and well-documented precedent in Mandarin Chinese which now can be taken to add further plausibility to the *de*-cliticization approach. Many researchers (e.g. Cao 1987, Li & Shi 1997, Shi 1989, Wu 1998 among others) have noted that historically the perfective aspect suffix verbal *-le* developed from a clause-final full verb *liao* ‘to finish’. Originally *liao* occurred following the object of the descriptive verb as schematized in (66a). Later it underwent reduction and attached itself arguably as a clitic (and later still as a suffix) to the right of the verb and so now occurs between the verb and its object as in (66b).<sup>14</sup> Such a path of development is precisely what is suggested to be taking place in essence with S-final *de* – from an original clause-final position, *de* becomes attracted to the verb and in cliticizing to the verb moves over the intervening direct object as in (67):

66) a. V Ob liao later →  
 b. V-le<sub>i</sub> Ob t<sub>i</sub>

67) a. V Ob de in northern dialects now (optionally) →  
 b. V-de<sub>i</sub> Ob t<sub>i</sub>

Consequently, if it is indeed correct that *de* is targetting the verb in particular, one now needs to ask why this should be happening and what kind of verb-related clitic *de* could plausibly be. The patterning would seem to suggest that some type of re-analysis is critically occurring, as it would be clearly odd to posit that *de* as a determiner/D<sup>0</sup> is being attracted to the verb - determiners are nominal-oriented elements and generally do not occur incorporated into verbal clusters. Furthermore when clitics target a single host-type (rather than just a position and any category filling that position), they are characteristically close to the point at which they may develop further and be re-analyzed as morphological affixes. As this would then

seem to suggest that *de* may indeed be en route to becoming a new verbal suffix, one needs to reflect upon the type of verbal inflection that *de* might be turning into. In the case of *liao/-le* becoming a verbal suffix, it is clear that *-le* now instantiates the natural verbal category of (perfective) aspect. Here with *de* we would like to suggest that there is also a natural and obvious verbal category which *de* can be argued to be re-analyzing into and which will explain its attraction to the verb. Specifically, we would like to suggest that *de* is currently undergoing re-analysis from category D to category T and is in the process of becoming a **past tense morpheme**. Such a proposal which will allow for a principled account of *de*'s apparent attraction to the verb is supported by a range of evidence and argumentation, both syntactic and functional, and is also rendered plausible when certain general processes of language change are taken into consideration.

First of all, patterns noted earlier showed that (a) there is clearly a favoured past time interpretation in *shi-de* constructions in general, and (b) that *de* is in fact often found to be necessary for a past time interpretation. For example, in (68) if *de* is present, then only a past time interpretation is possible, whereas when *de* is not included a past time interpretation is actually not available:

- 68)   wo shi gen Zhangsan qu Beijing (de)  
       I   BE with Zhangsan go Beijing (DE)  
       with *de*: It was with Zhangsan that I went to Beijing.  
       without *de*: It's with Zhangsan that I'm going to Beijing.

This indicates that although the occurrence of *de* might seem to be 'optional', in fact if a past time interpretation is necessary, then *de* is obligatory with *shi*, as further illustrated in (69):

- 69)   wo shi zuotian   qu Beijing \*(de)  
       I   BE yesterday go Beijing   DE  
       'It was yesterday that I went to Beijing.'

We also noted that it is nevertheless still possible to over-ride the past time implicature arising with the use of *de* by adding the future modal *hui* 'will' or *cai yao* 'only then will' together with an adverb such as *mingtian* 'tomorrow':

- 70)   wo shi mingtian \*(hui/cai-yao)       qu Beijing de  
       I   BE tomorrow will/only-then-will go Beijing DE  
       'It is (only) tomorrow that I will go to Beijing.'

Now we are able to add a crucial new piece of evidence to the general patterning here. Interestingly and significantly it is found that when *de* precedes the object and is by hypothesis attaching to the verb as an enclitic en route to becoming a verbal suffix, it is no longer possible to use modals and adverbs to over-ride the past time implicature of such constructions any more and *only* a past time interpretation is possible in such a configuration:

- 71)   \*wo shi mingtian hui qu de Beijing  
       I   BE tomorrow will go DE Beijing

The patterning in (68) – (70) show that while a past time interpretation is strongly associated with the use of *de*, it still appears to have essentially the status of a generalized conversational implicature which can be over-ridden with appropriate means. When however *de* shows signs of really becoming a verbal element and is suggested to undergo reanalysis as an instantiation of (past) tense, moving to cliticize to the verb, at this point it seems that the past time conversational implicature has actually become standardized and strengthened to the extent that it is now part of the genuine meaning of (verbal enclitic) *de* and can therefore no longer be over-ridden. The suggested switch and reanalysis from a nominal-related element of type D to a verbal element encoding past tense is therefore strongly supported. It should also be noted that this kind of development and reanalysis via the strengthening over time of a conversational implicature is widely taken to be a common mode of syntactic and semantic change and one which underlies a significant amount of historical development (see in particular Hopper & Traugott 1997), hence a rather natural way to account for the changing patterns observed in *shi-de* forms.<sup>15</sup>

Functionally, there is also support for the proposed reanalysis and the posited changes can be argued to have been considerably aided by two particular characteristics of the *shi-de* construction. First of all, it is frequently possible and also common for the element *shi* to be dropped from *shi-de* forms, leaving only *de* and stress on the focussed element as indication of the focus structure:

- 72) wo jintian kan-jian ta de  
 I today see-meet he DE  
 ‘It was today that I saw him.’

Omitting *shi* has the functional result of decreasing the expectation that the sequence following on from the subject/topic might be a DP/nominal element (in contrast to sentences with *shi* where the presence of the copula might lead one to expect a following nominal form), and therefore leaves such strings and post-verbal *de* more open to other types of (re-)analysis. Secondly, we have noted that the *shi-de* construction commonly encodes a clear focus set off against a strongly presuppositional background very often consisting of the verb and its object. Consequently, if the object is indeed part of the presupposition and hence old information (the normal case), there will be a clear preference for representing it with a pronoun rather than a repetition of a full descriptive NP form, and as Chinese allows for null pronominal objects (*pro* or topic-operator-bound trace as in Huang 1984), then highly natural and frequently attested *shi-de* sentences may actually occur both without *shi* and without an overt object, as in (73), such forms being preferred to fully-specified examples like (74) (which nevertheless are grammatical, just a little awkward and possibly ‘over-specified’):

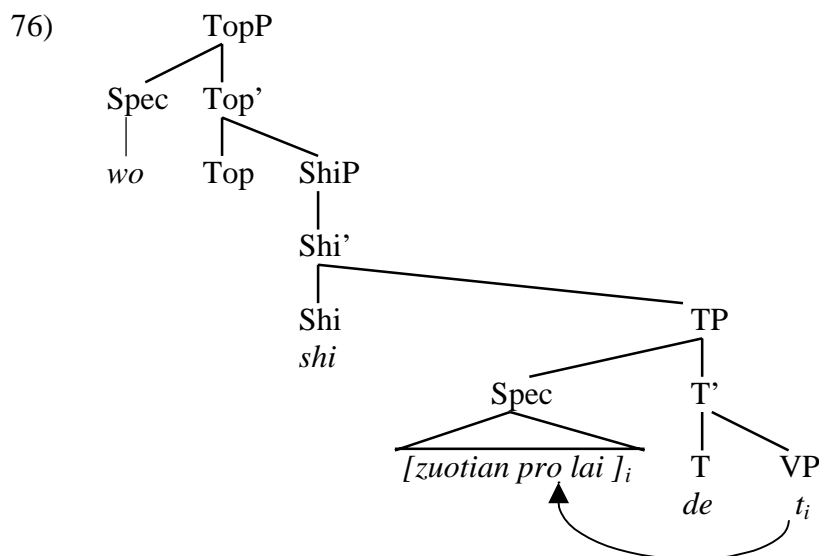
- 73) wo jintian mai-de  
 I today buy DE  
 ‘I bought it *today*.’
- 74) wo shi jintian mai nei-ben-shu de  
 I BE today buy that-CL-book DE  
 ‘I bought that book *today*.’

Alternatively, a presupposed/old object may naturally be placed in topic position as in (75):

- 75) nei-ben-shu wo jintian mai-de  
 that-CL-book I today buy DE  
 ‘That book I bought *today*.’

The clear result in ‘natural’ and commonly-heard forms such as (73) and (75) is then that the verb and *de* are heard adjacent to each other unseparated by any (overt) object, and that *shi* is optionally omitted. Such common verb-*de* adjacency (with *de* being enclitic on the verb) clearly is a considerable functional assist in the process of reanalyzing *de* as a verbal suffix/enclitic. Coupled with the noted absence of *shi* decreasing the overall expectation of a nominal structure and the strengthening of the past time implicature, it is ultimately not surprising that *de* should indeed become reanalyzed as a past tense morpheme.

From a syntactic point of view, we would like to suggest that when *de* is reanalyzed as a tense morpheme and an instantiation of past tense, it undergoes reanalysis in the original nominal syntactic structure in (52) from D<sup>0</sup> to a T<sup>0</sup> and that this essentially results in the structure in (76) in which *shi* now selects for a TP headed by *de*:



In (76), the predicate VP including a *pro* subject occurs raised to SpecTP and the pre-*shi* NP ‘I’ is taken to be base-generated in a topic position. Support for this aspect of the representation comes from the fact that the sequence following *shi* may actually contain a distinct overt subject:<sup>16</sup>

- 77) Lisi shi [Mali peng-huai ta-de-che]-de  
 Lisi BE Mary hit-break her-car DE  
 ‘It was Mary who smashed Lisi’s car.’

The projection headed by *shi* is simply labelled as ShiP following Chiu (1993).<sup>17</sup>

The conversion of *de* from D<sup>0</sup> to T<sup>0</sup> is largely attributed to the increase in strength of the past time conversational implicature. It is most probably also assisted by the fact that copula-type elements cross-linguistically seem to have a weakly-

selectional property which results in them tolerating a variety of complement types; in English for example the element ‘be’ occurs with NP, PP, AdjP and VP complements. In the case of *shi* such an inherent weakly-selectional property might allow for a new complement type TP to be accepted with relatively little difficulty. We would also like to speculate that a further covert syntactic process has possibly been instrumental in enabling the reanalysis of DP as TP. Specifically, we would like to suggest that as part of the process of reanalysis, the hypothesized dummy N<sup>0</sup> in the NP complement of *de* shown in (52) is incorporated and fused into the D<sup>0</sup> position resulting in a new simplex collapsed element which is just a simple T<sup>0</sup>. There are various reasons for wishing to make such an assumption. First of all, if the N<sup>0</sup>/nominal categorial features are effectively absorbed into D<sup>0</sup>, then D<sup>0</sup> will essentially be left with a bare VP complement; such a development should allow for a re-analysis of D<sup>0</sup> as T<sup>0</sup> to be made much more easily than if there remained a set of nominal features intervening between the ‘T<sup>0</sup>’ and the VP:

- 78) i. base-structure: [<sub>DP</sub> D [<sub>NP</sub> N [<sub>VP</sub> ]]]  
 ii. N-to-D fusion and pruning of the NP category: [<sub>DP</sub> D [<sub>VP</sub> ]]  
 iii. reanalysis of D as T with a VP complement: [<sub>TP</sub> T [<sub>VP</sub> ]]

Secondly, there is empirical evidence that an N-to-D incorporation/fusion process of exactly this type has occurred in *shi-de* equivalent forms in Burmese. As mentioned earlier, the Burmese equivalent to *de* in the *shi-de* construction is pronounced *taa* and is actually composed of two elements *teh* and *haa*. The first element *teh* occurs in relative clauses and is analyzed as a determiner without any definiteness specification, equivalent to *de* in Chinese relative clauses. The second element *haa* is a dummy noun which also occurs fused with the demonstrative *dii* ‘this’ in *daa* ‘this one/this’. However, whereas *haa* with the demonstrative element *dii* can optionally either occur fused with *dii* resulting in *daa* or be separate from the demonstrative as in *dii haa*, when the dummy noun *haa* occurs with *teh* in the equivalent to the *shi-de* construction it cannot be separated out into two discrete parts, i.e. the form *\*teh haa* is not possible and only the fused form *taa* occurs. This can be taken to indicate that the dummy noun and the determiner element have indeed collapsed into a single element and this is exactly what we would like to suggest also occurs as part of the reanalysis process in Chinese. We propose that the dummy noun in the base CNP structure shown in (52) collapses with and incorporates into the determiner *de* so that a rightward NP complement is no longer projected when D becomes reanalyzed as T (as in (76)).

If such a view may be maintained, a significant result of the N-to-D incorporation process can be suggested to be that the definiteness specification of the discourse-topic-bound dummy noun is fully transferred into the D-position creating a new definite-referential complex D-element. When *de* is subsequently reanalyzed as instantiating T<sup>0</sup>, the definiteness value present in the complex/fused D<sup>0</sup> is then simply re-interpreted as providing reference in the temporal domain TP, i.e. tense. The hypothesized re-analysis of a determiner element as tense can therefore be seen to be rather natural - a D<sup>0</sup> element providing reference and definiteness in the nominal domain, later becomes reanalyzed in the locus of (temporal) definiteness and referentiality in the clausal domain T<sup>0</sup>, and then simply applies its basic referential properties in this new domain. Given the frequently suggested parallelisms in nominal and clausal structure, such a process of reanalysis between the referential heads of DP and TP might even be expected to occur when assisted by appropriate supporting conditions.

Here we should also point out and stress an important assumption made concerning the sequencing of reanalysis and its effects in *shi-de* constructions. In particular it needs to be made clear how the cliticization of *de* to the verb interacts with the reanalysis process. What we wish to assume is that the first critical stage in reanalysis is that *de* becomes re-interpreted as instantiating past tense, this due to the increase in the strength of the past time conversational implicature and the frequent linear adjacency between the lexical verb and *de*.<sup>18</sup> This leads to the original syntactic structure in (52) being reanalyzed as in (76). At this point *de* reanalyzed as past tense will follow the raised VP and encliticize to the right-side edge of the VP just as *de* as a D<sup>0</sup> element did. Significantly this means that *de* reanalyzed as past tense will at this stage also follow any object DP in the VP. Subsequent to this significant structural reanalysis which has no obvious result on the surface patterns found, we suggest that a later clearly visible effect of the underlying reanalysis is the encliticization of *de* to the verb found in northern dialects of Mandarin. This attraction to the verb reflects the general tendency found in language change that newly-created tense, aspect and mood elements are commonly repositioned with the main verbal complex. Formally it can simply be stated that the specified host for cliticization for *de* undergoes a realignment, *de* changing to target the verb rather than the VP (and possibly having a dual specification as either VP or its head V<sup>0</sup> for a time when this movement appears to be optional). What is important to stress here is that the raising of *de* over the object in the VP to attach to the verb is only a secondary later effect of the fundamental underlying reanalysis, and that *de* may indeed occur in final position following the object (in the VP) and still be assumed to have undergone reanalysis as T<sup>0</sup>/past tense as illustrated in (76). For many speakers of northern dialects, a surface manifestation of the D-to-T reanalysis will in fact be the raising of *de* to attach to the verb, and if *de* continues to develop as aspectual *liao/-le* did in the past, one may expect that the V-*de*-Object order will become standard in certain dialects. However, currently and for other speakers, we suggest that the underlying reanalysis in structure (76) may take place without this leading to *de*-to-V raising and V-*de*-Object sequences, though possibly the effects of the reanalysis can nevertheless be seen in other phenomena, as will be suggested in section 4.<sup>19</sup>

### 3.3. Movement of *de* or base-generation as a suffix?

Before concluding this section, we would briefly like to comment on a possible alternative to the view that *de* undergoes syntactic movement from a T<sup>0</sup>-position to cliticize to the verb. Following Chomsky's (1995) proposals that most of inflectional morphology is actually attached prior to lexical insertion, it could perhaps be suggested that *de* is in fact base-generated on the verb as a suffix rather than raised to the verb as a clitic. While such an idea is certainly plausible on first sight, further critical evidence from the wider patterning of double object constructions and the *shi-de* construction indicates that such a view cannot be upheld for *de* at this point in time (though it probably is true for verbal *-le*) and that *de* is indeed currently still a syntactic affix/clitic attached to the verb via movement.

Earlier it was noted that in addition to a possible S-final position, *de* can also occur attached to the verb in DOCs, hence both a *de*-final [V IO DO-*de*] sequence and a *de*-raised [V-*de*<sub>i</sub> IO DO t<sub>i</sub>] form as in (79) are permitted:

79) wo shi zuotian gei de tamen san-ben-shu [V-de IO DO]

I BE yesterday give DE they 3.CL.book  
 ‘It was yesterday that I gave them three books.’

However, as well as the patterning illustrated in (79), it is also possible for *de* to be found intervening between the indirect object and the direct object as in (80):

80) wo shi zuotian gei tamen de san-ben-shu [V IO-de DO]  
 I BE yesterday give they DE 3.CL.book  
 ‘It was yesterday that I gave them three books.’

This might initially seem to go against the V-attachment analysis developed above, as here *de* seems to be attaching to the indirect object not the verb. However, in addition to the clear fact that the order in (79) with *de* enclitic on the verb does show *de* to be targeting a verbal host, it is not implausible to assume that the order in (80) results from syntactic incorporation of the indirect object into the verb prior to *de* attachment. Elsewhere it has frequently been argued (e.g. Li 1990) that indirect object incorporation does (or may) take place in DOCs. If such an assumption is therefore otherwise justified, one can suggest that indirect object incorporation creates a complex verbal element which *de* may subsequently attach to as a verbal clitic. Such a patterning then constitutes rather strong evidence against any proposals of *de*-suffixation directly in the lexicon and no other approach would seem able to account for the fact that *de* can occur both finally, between the indirect object and direct object, and also attached directly to the verb.<sup>20</sup>

#### 4. *Wh*-adjuncts, adverbs and dual analyses

In this final section we would like to mention certain other consequences of the analysis proposed here. First of all, it was earlier noted that the occurrence and positioning of *wh*-adjuncts and adverbs in *shi-de* sentences seemed to provide evidence against a nominalization analysis of *shi-de* constructions. In particular we suggested that if the post-*shi* sequences in *shi-de* forms were CNPs, then it was odd that *wh*-adjuncts should be able to occur inside such structures and also that adverbs outside should be able to modify a predicate inside the CNP (examples (28, 30, 31, 35)). The account which has since been developed largely on the basis of the object-placement and temporal interpretation patterns now offers an immediate solution to the adverb and *wh*-adjunct problem. In the present account, what was once indeed a CNP structure has been effectively reanalyzed as a TP, as in (76). Given that TPs do not constitute islands for extraction and freely allow the occurrence of in situ *wh*-adjuncts having scope outside TP, the patterning found with *shi-de* forms is no longer surprising - *wh*-adjuncts are fully acceptable in the post-*shi* string as this is in fact a TP rather than a CNP, and adverbs occurring to the left of *shi* may similarly be understood to modify a predicate to the right of *shi* precisely because extraction from a post-*shi* TP is indeed permissible.<sup>21</sup> Note importantly that if the acceptability of adverbial construal from a pre-*shi* position and the occurrence of *wh*-adjuncts is indeed to be explained as being due to reanalysis of a CNP as a TP, then significantly past time *shi-de* structures in which *de* occurs S-finally following the object of the verb must also be assumed to have undergone reanalysis as TP. This is simply because the relevant adverbial and *wh*-adjunct patterns are also acceptable when *de* occurs linearly after the object of the verb and has not undergone any raising to

cliticize to the  $V^0$ . Consequently there is here interesting evidence that the underlying structural reanalysis of the DP/CNP as a TP in past time contexts takes place before leading to the more obvious surface reflex of *de*-to-V raising.

A second directly relevant point concerns those *shi..de* sentence forms which do *not* have past time interpretation, i.e. those where an ‘over-ride’ is able to force a future-type reading. The basic argumentation of the paper has been to suggest that while *shi-de* structures originated as CNPs with the structure and derivation indicated in (26/27), evidence relating to object placement and past time interpretation indicates that these structures have undergone reanalysis, with the element *de* being reanalyzed as a past tense morpheme. Critically we showed that the sequence *V-de-Ob* was only possible when there was a past time interpretation. An implication of this may then be that where *de* does not have a past time interpretation, it is not being analyzed as an instantiation of T and so remains an element of type D heading a CNP structure. If this is indeed so, one might then anticipate that the other properties relating to *wh*-adjuncts and adverb construal mentioned above might also pattern differently when *de* has a non-past interpretation, i.e. if non-past *de* is not reanalyzed as a T and the post-*shi* sequence therefore remains a CNP, one might expect for it to be difficult for such *shi-de* structures to contain *wh*-adjuncts and for adverbs to the left of *shi* to modify a predicate occurring between *shi* and *de*. Interestingly judgements offered by informants do seem to bear this out and while *wh*-adjuncts are perfectly acceptable in past-time *de* structures, they are not liked in non-past *shi-de* structures, as the contrast in (81) and (82) shows. Similarly, while adverbs to the left of *shi* in past-time *shi-de* forms may freely modify the predicate in the post-*shi* sequence, this is again poor with non-past *shi-de* forms as illustrated in (83) vs. (84) and (85):

- 81) ta shi weishenme qu Beijing de  
 he BE why go Beijing DE  
 ‘Why is it that he went to Beijing?’
- 82) \*ta shi weishenme/zenme hui qu Beijing de  
 he BE why/how will go Beijing DE
- 83) zuotian ta shi lai mai shu de  
 yesterday he BE come buy book DE  
 ‘Yesterday he came to buy a book.’
- 84) ?\*wo mei-tian dou shi hui qu Beijing de  
 I every-day all BE will go Beijing DE
- 85) (? )mingtian ta shi hui qu Beijing de  
 tomorrow he BE will go Beijing DE

The clear contrasts between such examples would then seem to indicate that *de* in non-past *shi-de* forms is indeed still a  $D^0$  heading a CNP and that speakers currently maintain a dual analysis of *shi-de* forms, one with *de* as an instantiation of  $T^0$  heading a past-tense TP, and a second with *de* remaining a  $D^0$  in a basic CNP structure, this providing further support for the general position that language change is indeed often the result of the subtle development of a single surface form into two rather different underlying analyses.<sup>22</sup>

As a last note, it can also be mentioned that when a future time reference is intended, there seems to be a notable preference for *shi* to occur with *de*; (86) below shows that a future time *de* form without *shi* is dispreferred:

- (40) ta ?(shi) mingtian cai hui qu mai shu de  
he BE tomorrow only will go buy book DE  
'It is only tomorrow that he will go and buy the book.'

This may be suggested to indicate again that where *de* occurs with non-past/future reference then the structure is one of a nominalization/CNP headed by *de*, and that as a nominal form it requires the copula *shi*.<sup>23</sup>

## 5. Concluding remarks

This paper set out to provide a full characterisation of the syntax of clause-final *de* and resolve a number of apparent contradictions shown to be present in the patterning of *shi-de* constructions. We began by showing that there is considerable cross-linguistic and cross-dialectal evidence to support the suggestion that *shi-de* forms incorporate a clausal nominalization selected by *shi*. We then went on to show that there is however a variety of other evidence which argues against assuming any CNP-type structure. Assuming an analysis of *de* as a determiner underspecified for definiteness and investigating the patterning of object placement in particular and its interaction with the temporal interpretation of the predicate in *shi-de* forms, we suggested that such structures are currently undergoing a process of syntactic reanalysis. It was argued that a past time conversational implicature part of the original nominal *shi-de* construction has become strengthened to the point that the determiner *de* has now become re-analyzed as an instantiation of (past) Tense/T<sup>0</sup>. This reanalysis was then suggested to explain the observation that *de* in past time interpretations appears to move over the direct object and cliticize to the verb, as well account for aspects of the positioning and occurrence of *wh*-adjuncts and adverbs in *shi-de* sentences. The paper also suggested that the reanalysis has in part resulted from a denominalisation process involving incorporation of a zero nominal head into the determiner in the original CNP form, morphological evidence from Burmese adding support to such a view. It was further argued that the reanalysis of a D<sup>0</sup>-head as a past tense morpheme in T<sup>0</sup> is moreover a natural developmental shift between functional heads which both serve to provide reference to their respective (NP and VP) complements, the definiteness value of the determiner + incorporated noun being simply re-interpreted as applying directly to the VP after re-analysis to result in temporal identification (in the past). Finally the paper provided evidence that many speakers may still maintain a nominalization analysis for non-past *shi-de* forms, implying that apparently identical linear strings may actually be assigned rather different underlying analyses.

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<sup>1</sup> Various other options are also attested, though not so frequently, e.g. focussing of a whole IP including its subject when *shi* precedes the subject, focussing of the entire VP, and focussing of the object (see the above-cited references for further details).

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<sup>2</sup> As for example in Chiu (1993) with LF movement of the focussed XP to Spec-ShiP, Huang (1982) with *shi* as an adverb undergoing LF raising together with the focus, and Shi (1994) for a similar LF-related idea.

<sup>3</sup> No formal description of the precise syntactic status of *de* is however provided in these works, nor is there explanation of how *de* comes to be VP-final rather than VP-initial, two issues which we consider presently.

<sup>4</sup> Burmese is actually a null copula language, so the element *taa* equivalent to Mandarin clause-final *de* is not actually accompanied by any overt copula. Also, in order to see the link between the clause-final/nominalization usage and genitive/possessor-marking, it is necessary to consider literary Burmese rather than just spoken Burmese. Further details on the internal morphological structure of Burmese *taa* follow later on.

<sup>5</sup> Note that example (20) comes from Japanese children's speech. The element *no* disappears from adult headed relative clauses though remains in headless relative clauses and also head-internal relative clauses. See Simpson 1998 and Murasugi 1998 for further details.

<sup>6</sup> Although it has sometimes been suggested that sentence-final question particles may occur in C in Chinese and that C would therefore be a head which selects its complement (IP) to its left, there are other reasons to believe that C is actually IP-initial in Chinese, e.g. the occurrence of elements such as *ruguo/yaoshi* 'if' in clause-initial position (see Wu (in preparation) for a variety of other relevant arguments). We therefore assume that Chinese is indeed a uniformly head-initial language.

<sup>7</sup> A variety of other arguments suggesting that *de* is an instantiation of D are provided in detail in Simpson (1997/1998). Adopting such an analysis is shown to allow for a simple explanation of the well-documented typological markedness of Chinese relative clauses and attribute this to the properties of a single lexical item – the enclitic property of *de*.

<sup>8</sup> These facts also hold true of Japanese – a *wh*-adjunct such as *naze* 'why' can freely occur in the equivalent to the *shi-de* construction as in (i), but may not occur in clauses otherwise nominalized by *no* as per (ii):

- i) Taroo-wa naze kita no desu ka?  
Taroo-Top why came NO BE Q  
'Why did Taroo come?'
- ii) \*[[Mary-ga John-to naze kekkon shita]-no-o] shitte imasu ka?  
Mary-Nom John-with why marry did NO Acc knowing be Q  
lit: \*'You know [that Mary married John why]?'

See Simpson (1998) for further investigation of Japanese *IP-no-desu* forms.

<sup>9</sup> In Japanese a consequence of the fact that there must normally be old-presupposed information linguistically present in similar *IP-no-desu* forms is that informants not provided with any particular content will automatically change nominative *-ga* marking on the subject of an *IP-no-desu* sentence to topic *-wa* marking in order to provide a link/piece of old information:

- i) Mary-??ga/-wa kinoo kita no desu  
Mary-Nom/-Top yesterday came NO BE  
'Mary came yesterday.'

However, *-ga*-marking on the subject could be acceptable in the following circumstance: the hearer arrives at the speaker's house and finds it incredibly untidy although the speaker is known to be a very tidy person. The speaker could utter (i) with nominative case if both speaker and hearer share the information that Mary is a very untidy person and likely to come visiting the speaker. In this case the entire IP preceding *no* will be new information and the old information will be the visual untidy state of the house.

<sup>10</sup> Note that in literary Burmese the element which performs the same relativizing function and which is found in the same structural position as *teh*/Chinese *de* still occurs today as a demonstrative in other contexts, strengthening the determiner/D<sup>0</sup> analysis of such elements (see Simpson 1998 for further discussion of this element *thii*).

<sup>11</sup> Also, if one attempts to follow the restrictions imposed by Kayne's (1994) Linear Correspondence Axiom, then rightward movement should not be permitted in any form, hence the *V-de*-object sequence must be taken to result from some other means than rightward extraposition.

<sup>12</sup> This parameter is *syntactic* attachment/relative placement. *De* would then also be phonologically specified as being an enclitic hence attaching phonologically to the verb.

<sup>13</sup> Because of the otherwise very free word order in Ngunhcara, almost any element can occur last in the sentence domain. Consequently *ngu* is not attaching to any particular host element, just a position.

<sup>14</sup> See Wu (1998) for excellent discussion of whether *liao* was actually reduced to *-le* before its repositioning before the object or after this re-analysis. If Wu is right and *liao* only underwent

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reduction to *-le* after repositioning, then the motivation for its repositioning must have been the frequently observed general tendency for new verbal auxiliary-type elements to cluster with the lexical verb which they modify, rather than any immediate cliticization requirements (see Harris & Campbell 1995 for relevant discussion of similar historical changes in other languages).

<sup>15</sup> A simple example of this given in Hopper and Traugott concerns the development of the English connective ‘since’ which originally encoded only a temporal relation between two clauses as in (i):

(i) ‘Since I started playing the lottery, I have won four times.’

Later on a *causal* relation between the two clauses became a common conversational implicature:

(ii) ‘Since Yeltsin came to power, there has been nothing but economic trouble.’

Currently ‘since’ may sometimes also be used with only a causal meaning simply because of the long-term strengthening of this implicature, as seen in (iii):

(iii) ‘Since you know about economics, can you give me a hand?’

A similar story underlies German *weil* ‘because’, which developed from a relative to the English noun ‘a while’ (German: *eine Weile*); however, unlike ‘since’, *weil* may now no longer be used with a temporal meaning and can only encode causality (see again Hopper & Traugott 1997).

<sup>16</sup> Chiu (1993) also places pre-*shi* elements in topic positions. SpecShiP is reserved for the focussed XP which is taken to move to this position at LF. It should be pointed out that the analysis of *de* developed here is indeed compatible with Chiu’s (1993) analysis of LF focus-movement or that in Huang (1982) and also that in Shi (1994). Following Simpson (1999) though where there is no discrete level of LF and no occurrences of LF movement, we will actually assume that the focus head Shi<sup>0</sup> simply binds the focused element in its *in situ* position much as a +wh+Q C<sup>0</sup> will bind *in situ wh*-elements (see Simpson 1999 for further general discussion).

<sup>17</sup> Note that Chiu (1993) also in fact suggests that *shi* as the head of ShiP selects for a tensed clause in a way similar to the structure proposed here, but interestingly on the basis of a quite different set of arguments.

<sup>18</sup> This reanalysis may in fact be preceded by the hypothetical N-to-D fusion described in the text.

<sup>19</sup> The suggestions here essentially are in line with traditional and more recent views that the ‘actualisation’ and surface manifestation of a structural reanalysis may only be perceived some time after the underlying change has taken place. See e.g. Harris & Campbell (1995), also Grewendorf & Sabel (1994) on the idea of ‘abstract incorporation’, i.e. delayed effects of reanalysis.

<sup>20</sup> In order to account for the possibility that *de* may occur either directly attached to the verb or to the V+IO complex, one may suggest that indirect object incorporation is optional in its occurrence, much in the way that Johnson (1991) and others have described the alternating orders of object and particle in English verb-particle constructions such as (i) and (ii) with similar proposals of optional incorporation to the verb:

i) I picked the book up.

ii) I picked up the book.

Certain restrictions on the acceptability of DOCs combined with *de* also relate to complex constraints on the relative definiteness values of direct and indirect object which for clear reasons of space we do not attempt to investigate here.

<sup>21</sup> Or alternatively, TPs are not opaque to adverbial modification from higher position whereas CNPs are.

<sup>22</sup> This again also strongly suggests that where *de* occurs with a past time interpretation following the object of the verb in S-final position it is indeed reanalyzed as a T<sup>0</sup> heading a TP and that the *de*-to-V surface reflex may only appear later on, as already argued.

<sup>23</sup> (86) is not classed as ungrammatical, but certainly awkward and rather unnatural without *shi*. Given that null copulas are sometimes licensed in Chinese, it may be that speakers might also tolerate a null copula here (and that is why the form without *shi* is not seen to be really unacceptable).

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