

# On the re-analysis of nominalizers in Chinese, Japanese and Korean.

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## 1. Introduction

Grammaticalization is commonly assumed to be a process of categorial re-analysis in which a lexical descriptive element turns into a morpheme with a predominantly functional role. Frequently this process would seem to convert a lexical head into a member of the particular functional structure dominating that head, as for example when verbs with clear descriptive content become re-analyzed as aspectual or modal verbs occurring in functional heads projected over the VP. In this sense grammaticalization may be taken to be the result of a combination of movement and re-analysis – movement of a morpheme from a lexical head position to a higher functional head position and then eventual re-analysis of the morpheme as being base-generated in the latter functional head. Such a view of grammaticalization is proposed in Simpson (1998) and Wu (in preparation) and naturally proceeds in a simple upwards or “vertical” direction in a tree following the path of movement (e.g. lexical verbs frequently re-analyze as instantiations of the higher modal-aspectual functional heads projected over VP). In Simpson & Wu (1998) it is suggested that grammaticalization may also occur in an essentially “horizontal” direction and that a Chinese nominalizer of type  $D^0$  (*de*) is currently undergoing re-analysis as a new instantiation of a clausal head (past tense/ $T^0$ ); such a change does not result from any upwards movement but from the horizontal re-analysis of a functional element in the nominal domain as a functional element in the clausal domain. In this paper I would like to suggest that this basic type of horizontal re-analysis argued for in Simpson & Wu (1998) which re-categorizes nominalizers as clausal functional heads is actually quite widespread as a phenomenon in Chinese, Japanese and Korean and possibly significant as a general areal feature of such languages. Due to differences in the surface typological properties of Chinese, Japanese and Korean it will be shown that the hypothetical re-analysis process is interestingly revealed by different types of evidence, and that there is also indication of certain cross-linguistic variation in the way that the nominal elements become re-analyzed in the clausal functional structure. As a result, the phenomenon is one which both intriguingly unites Chinese, Japanese and Korean cutting across their typological differences, and one which also clearly gives rise to certain parametric variation in its actual realization.

The paper is essentially structured into two main sections focussing on re-analysis phenomena in matrix and subordinate clause types. Section 2 first concentrates on the re-analysis of nominalizers in matrix clauses when these occur with copula elements. The section begins with a review of Simpson & Wu’s (1998) arguments for the re-analysis of Chinese *de* and then suggests that similar re-analysis is occurring in structures in Japanese and Korean in a way which in fact also reveals more about the underlying change in Chinese. Section 3 then turns to subordinate clause contexts and argues for the re-analysis of nominalizing elements in relative clauses in Japanese and Korean; the hypothesis of such changes is suggested to allow for a broader insight into the potential nominal structure of relative clauses and how genitive case may be licensed

on the subjects of relative clauses. The paper is closed with a consideration of certain other nominalizer re-analysis phenomena and speculations on why it is that the re-analysis of nominal functional elements as clausal functional heads should actually be so commonly found. Throughout the paper the attempt is made to show that there is much to be gained from comparative work contrasting Chinese with Japanese and Korean, and that despite apparent dissimilarities among these languages the various typological differences found can actually be used to good advantage in the study of a single phenomenon.

## 2. The re-analysis of nominalizers embedded under copulas

### 2.1. Chinese *de*

Simpson & Wu (1998) examines the syntax of the so-called “*shi-de* construction” in Mandarin Chinese, forms such as (1) in which the copula *shi* precedes a VP-type clausal constituent and the particle *de* occurs in sentence-final position:

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

As indicated in the gloss, *shi-de* sentences have an interpretation similar to English cleft-sentences and highlight a focused constituent immediately following the copula against a strongly presupposed background represented by the residue of the sentence. Commonly there is undeniable contextual information leading to the appropriate use of *shi-de* forms, and *shi-de* sentences are often used as explanations of some apparent state, the focussed element functioning to clarify or add some additional information relating to the presupposed background event/contextually apparent state (see here de Francis 1963, Chao 1968, Kitagawa & Ross 1982 among others).

The strong presupposition which results from use of the *shi-de* construction is essentially like a speaker’s guarantee of the occurrence of the background event. Rather naturally this strongly favours past time interpretations and example (2) below only permits a past time interpretation. In example (3) where *de* is present only a past time interpretation is again possible, and when it is omitted only a non-past future oriented meaning is available:

- (2)     wo shi zuo qi-che qu Beijing de  
           I    BE sit    train go Beijing DE  
           ‘It was by train that I went to Beijing.’
- (3)     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*: ‘Its with Zhangsan that I’m going to Beijing.’

Despite the heavy preference for a past time interpretation, it is however possible to over-ride this with the use of future time adverbials and modal elements such as *hui* or

*cai-yao* ‘will’ as in (4), in which case the interpretation is that there is a strong guarantee that the event will take place:

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

Syntactically, in Paris (1979), Li & Thompson (1981) and other works it has been assumed that the element *de* both here and in other relative clause structures is a nominalizer, and that *shi-de* forms therefore critically incorporate nominalizations of a clausal/VP constituent.<sup>1</sup> Li & Thompson (1981, p.587) write that: “The *shi..de* construction is a special sentence type in which a nominalization is used. Structurally, it consists of a subject followed by the copula verb *shi* ‘be’ followed by a nominalization.” In Kitagawa & Ross (1982) it is additionally suggested that a null PRO element occurs following the *de* of *shi-de* constructions; such a proposal accords well with the observation that *de* elsewhere always precedes a nominal element (modified by the clause introduced by *de*), and is argued by Kitagawa & Ross to be the syntactic encoding of the strong link to context present in *shi-de* forms - the PRO is suggested to be anaphorically controlled by some element contextually present in the discourse.<sup>2</sup> Simpson & Wu (1998) furthermore show that there is overt morphological evidence in Burmese in support of such a general possibility; in structures fully equivalent to *shi-de* forms in Burmese there is indeed a lexically overt dummy head-noun present in such structures. *Shi-de* forms might therefore reasonably be concluded to have a structure in which the copula *shi* embeds a CNP-type clausal nominalization headed by some null contextually controlled NP element largely as suggested in Kitagawa & Ross.

Despite the clear naturalness of such an analysis, Simpson & Wu (1998) suggest that there are reasons to believe that *shi-de* structures and *de* in particular are currently undergoing re-analysis away from an original nominalization base. Specifically it is noted that if the sequence following *shi* were to be a CNP-type nominalization one would not expect for certain patterns common in *shi-de* forms to be possible. First of all it is found that *wh*-adjuncts freely occur between the copula and *de* and so inside what might seem to be a CNP, as illustrated in (5):

- (5) ni shi [<sub>DP</sub>[zenme/weishenme lai]-de]  
 you BE how/why come DE  
 ‘How/why did you come?’

*Wh*-adjuncts such as *weishenme* ‘why’ and *zenme* manner ‘how’ normally cannot occur in CNPs however, as seen in (6) and (7):

- (6) \*<sub>[DP</sub>[ta zenme lai] -de shuofa] bu hao?  
 he how come DE claim not good
- (7) \*ta shi [<sub>[DP</sub> weishenme lai] -de ren]?  
 he BE why come DE person

Secondly, adverbs such as *zuotian* ‘yesterday’ may occur external to the posited nominalization in *shi-de* forms and yet still refer to the event inside the CNP, as in (8):

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

This is also unexpected as adverbials normally seem unable to refer into DPs. In (9) for example, ‘yesterday’ cannot refer to the time of Bill’s betraying Sue:

- (9)      Yesterday John discussed [<sub>DP</sub> Bill’s betrayal of Sue]

Thirdly, in addition to the regular positioning of the object of the main verb preceding *de* as in (10), northern dialects of Mandarin allow for the apparently optional positioning of the object following *de* as seen in (11). If *shi-de* forms embed CNPs, it is unexpected that the object of the verb inside the CNP should be able to rightwardly extract out of such an island constituent:

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

Assuming that *shi-de* forms originated as nominalizations embedded by the copula *shi* but have since undergone some kind of re-analysis into structures with properties different from CNPs, Simpson & Wu focus on the object alternation in (10/11) above as a potential clue to the underlying synchronic structure of *shi-de* sentences. (10) and (11) are represented schematically in (12), with the (a) form being found in all dialects of Mandarin and the (b) pattern occurring predominantly in northern areas (in addition to the (a) form):

- (12)      a.          V - Ob - *de*  
           b.          V - *de* - Ob

Assuming that the more restricted (b) form is somehow derived from the fully common (a)-type sequence, it might seem that there are two obvious ways of relating (a) to (b). The first of these would be to suggest that the object moves rightwards over the nominalizer *de*, the second that the nominalizer *de* itself moves leftwards over the object. Although one might initially be tempted to suppose that the (b) forms result from rightward object-movement similar to Heavy NP Shift (HNPS), this possibility is actually rather problematic to maintain. First of all there is the noted problem that rightward extraction out of a CNP-type island might be expected to violate Subjacency,

and secondly, rightward-movement is commonly associated with some kind of focus and stress, as in (13):

- (13) John gave  $t_i$  to Mary [everything he possessed]<sub>i</sub>/\* $t_i$

In Chinese however, the object actually cannot be focused following *de* as the focus always immediately follows the copula. As simply part of the pre-supposed background information, it is therefore rather odd to imagine that the object might be subject to a particular stylistic rightward movement. Furthermore it is found that when the object is heavy, as for example a clause, the clearly stated preference is actually for the object to precede *de* and not to occur in final position, this then being completely the opposite to classic HNPS type patterns.

It therefore seems more likely that it is the nominalizer *de* which undergoes movement in the (b)-type forms. Striking confirmation that this is in fact what is taking place is found when one looks at double object constructions and the position of *de*. As shown below schematically in (14) and with an example in (15), it is possible for *de* to precede both indirect object and direct object:

- (14) NP shi Adv/PP V *de* IO DO

- (15) 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 patterning would seem to indicate that it really is *de* which is changing position and not the direct object – here *de* is seen to shift leftward over both the direct object and the indirect object.<sup>3</sup> If this is indeed right, then it would appear that *de* is targeting the verb and arguably moving to attach itself as an enclitic on the verb (*de* being clearly an enclitic element in all its occurrences). Assuming this to be so, the question arises why this should be happening. Significantly a similar kind of movement is in fact diachronically attested elsewhere in Chinese. The sentence-final verb *liao* ‘to finish’ historically developed into a perfective aspect morpheme and in doing so re-positioned itself over the object of a verb attaching to the verb as an enclitic/suffix *-le*, this schematically illustrated in (16):

- (16) V Object *liao* →  
 V-*le*/*liao* Object

It therefore could be reasonably argued that *de* from being originally a nominalizer in northern dialects of Mandarin *en route* to becoming a verbal suffix in a way similar to *le*. This naturally leads one to ask what kind of verb-related properties might be responsible for triggering such a re-analysis. Here Simpson & Wu point to the strong preference for past time interpretations found with the *shi-de* construction noted in (2) and (3) above. Such an association with past time reference is actually so strong that although the occurrence of *de* might sometimes seem optional, when a past time adverb such as

*zuotian* ‘yesterday’ occurs with the copula *shi* as in (17) *de* may absolutely not be omitted:

- (17)   wo shi zuotian   qu Beijing \*(de)  
           I   BE yesterday go Beijing   DE

Simpson & Wu therefore argue that the most natural assumption to make is that *de* is currently undergoing re-analysis from being a nominalizer to instantiate the verbal category of (past) tense, and that this consequently explains its movement to encliticize to the verb.

There is also interesting additional support for such an analysis. Above it was noted that the preference for a past time interpretation in *shi-de* sentences essentially might seem to have the strength of a generalized conversational implicature; as a simple implicature it can be over-ridden with future adverbs and modals as in example (4) and a non-past reading is available. Significantly, Simpson & Wu observe that such a non-past interpretation is actually NOT possible in the (b) type forms when *de* precedes the object and is right-adjacent to the verb, even when future adverbs and modals are in fact present as in (18). This is exactly what one would expect if the [V-*de* object] order is indeed the surface reflection of re-analysis of *de* as past tense; instantiating past tense, *de* as a suffix/enclitic on the verb is quite incompatible with a future-type reading:<sup>4</sup>

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

Consequently there is good evidence that the element *de* has undergone re-analysis from being a nominalizer to become a new tense morpheme. Such a change explains not only the re-positioning of *de* and the clear effects this has on interpretation, it will also account for the earlier-noted fact that *wh*-adjuncts may occur embedded to the right of the copula *shi* and that adverbs to the left of *shi* may be interpreted as modifying the main verb – from being a CNP island configuration *shi-de* forms have been re-interpreted as simple (past) tensed clauses which are not islands for *wh*-adjuncts and adverbial construal.

Concerning the categorial status of *de*, Simpson and Wu note that nominalizers are essentially functional elements which convert a verbal/adjectival constituent into one with nominal properties. Assuming nominal constituents to be DPs, this is then basically taken to suggest that nominalizers are either D<sup>0</sup> elements or some other lower head in the functional structure of a DP. In Chinese for a variety of reasons Simpson & Wu suggest that the nominalizer *de* is indeed a D<sup>0</sup>, this reflecting not only its current functional role but also its likely early D<sup>0</sup> origin as a demonstrative pronounced as *zhi*, as in (19):<sup>5</sup>

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

The change in modern day Mandarin *shi-de* structures is therefore suggested to be a case of horizontal re-analysis taking place between the functional structure of a DP and the

functional structure of a clause. The  $D^0$  head *de* in a DP becomes re-categorized as instantiating the  $T^0$  head of a clausal constituent. Rather than there being upwards grammaticalization in the functional structure projected by a single lexical VP/NP, here the direction of re-analysis interestingly proceeds in a horizontal manner, an element in the referential locus of the DP ( $D^0$ ) being re-interpreted as instantiating the (temporal) referential locus of the clause ( $T^0$ ).

## 2.2. Japanese *no*

Turning now to Japanese, one finds that there are sentence types with copulas and nominalized clauses which appear to correspond very closely to *shi-de* structures in Chinese. These are referred to in Kuno (1973) as the “explanatory *no desu*” construction and consist in the combination of a clause followed by the element *no* and the copula *desu* as in (20). Example (21) shows that *no* is elsewhere clearly a clausal nominalizer and occurs followed by case-markers indicating that it converts a clause into a DP:

- (20) Taroo-wa kinoo kita no desu  
 Taroo-TOP yesterday came NO BE  
 ‘I came yesterday/It was yesterday that I came.’
- (21) Taroo-ga tsuita no-o shitte imasu ka  
 Taroo-NOM arrived NO-ACC knowing be Q  
 ‘Did you know that Taroo has arrived?’

The use of the explanatory *no desu* construction would also appear to be highly similar to that of the *shi-de* construction; *no desu* forms are commonly used to explain certain apparent circumstances and a situation or event whose truth is presupposed knowledge shared by both speaker and hearer, adding in explanation which may often be a time or place clarification. Kuno (1968) characterizes *no desu* and *no desu ka* (*no desu* based questions) in the following way:

“*No desu* gives some explanation for what the speaker has said or done or the state he is in. *No desu ka* asks for the hearer’s explanation for what the speaker has heard or observed.” (p.232)

Noting the syntactic and semantic similarity between *shi-de* sentences and explanatory *no desu* forms, and that *no desu* forms: “...always refer to something in the context or speech situation and are only appropriate when there is something in the context for the speaker to refer to.” (p.35), Kitagawa & Ross suggest that there is a null PRO element present in *no desu* structures anaphorically referring to some contextually salient entity, essentially just as in *shi-de* sentences. Japanese *no desu* forms are then basically conceived of as CNPs as in Chinese.

In the light of what has been argued for in Simpson & Wu (1998) with regard to *de* in *shi-de* forms, one might however wonder again about the synchronic status of *no* in the *no desu* construction and ask whether it really is a nominalizer embedded in a PRO-headed CNP type structure, or whether it perhaps might also have undergone some kind of re-analysis similar to *de*. Due to the verb-final word-order in Japanese, if there were to be any re-analysis of *no* into the verbal-clausal functional domain one would not

expect to find the type of evidence present in Chinese where the nominalizer *de* moves over the object to attach to the verb; in Japanese the element *no* already is adjacent to the verb and so re-analysis into the verbal functional structure should actually be quite easy in this respect. There are however two other clues which suggest that *no* might indeed have undergone the same fate as Chinese *de* and been re-analyzed in the verbal functional domain. The first of these, not so significant in isolation, is that *no* in *no desu* sentences optionally permits contraction and loss of its vowel nucleus as seen in example (22):

- (22) kinoo            kita-n/no desu    yo  
 yesterday    came-NO BE      EMPH  
 'I/he came yesterday.'

Although Osaka dialects of Japanese may permit this kind of contraction with other more clearly nominal uses of *no* such as pseudo-cleft sentences, standard Tokyo Japanese does not, and *no* must occur in its full form in nominalization structures such as (23):

- (23) [Taroo-ga Mary-to kekkon shita]-no-o/\*n-o shitte imasu ka  
 Taroo-NOM Mary-with marry did NO ACC knowing be Q  
 'Did you know that Taroo got married to Mary?'

This might therefore seem to indicate that *no* in these *no desu* sentences is not the same as the nominalizer occurring in other forms. Stronger confirmation of this suspicion comes from evidence which is not available in Chinese and patterns of nominative/genitive *ga/no* case conversion. In relative clauses and simple clausal nominalizations genitive case is available as an optional colloquial alternative to nominative *ga*, as shown in example (24):

- (24) Taroo-no/-ga        kekkon-shita no-o    shitte iru?  
 Taroo-GEN/-NOM    got-married NO-ACC    knowing-be  
 'Did you know that Taroo got married?'

The occurrence of genitive case here is natural if the clause final *no* is indeed a nominalizer providing the genitive case licensed in all DPs. Supposing now that the element *no* in *no desu* structures were to be the same nominalizing element as that in nominalizations such as (24), it is clearly expected that *ga/no* conversion should also be available in such structures. However, contra such an expectation it is found that *no* in *no desu* sentences in fact does not license genitive case on the subject of the embedded clause, as seen in (25):

- (25) \*Watashi-no kinoo    kita no desu  
 I-GEN        yesterday came NO BE  
 intended: 'I came yesterday.'

A simple explanation of this fact can be suggested to be that *no* has indeed lost its earlier nominalizer status in synchronic *no desu* forms and like *de* in the *shi-de* construction has been re-analyzed from the nominal functional structure to instantiate a functional head in the verbal-clausal domain. No longer being a nominalizer and converting a clause into a DP constituent, genitive case is simply no longer available for any subject of that clause.<sup>6</sup>

Assuming that the loss of genitive-case and the possibility of reduction of the vowel nucleus do indicate re-analysis of *no* as suggested, a natural question which arises is whether the re-analysis and re-categorization process is really fully parallel to what was argued for in Chinese. Here the immediate answer is that it cannot in fact be exactly the same as in Chinese, and that the differences found with *no* in Japanese may actually suggest that there is more to the re-analysis process in Chinese than originally assumed.

Critically in Japanese it is found that the verb preceding *no* does already carry a tense specification, which may be either past or non-past. Consequently it cannot be the case that *no* is undergoing re-analysis as an instantiation of past tense as suggested for *de* in Chinese. In (22) above it is seen that the verb stem *ki-* carries the past tense suffix *-ta* in addition to *no* and that *no* can therefore not be re-analyzing as past. This is further confirmed by examples such as (26) where the verb is in a non-past form and the future-oriented adverb ensures that there is no past time reading:

- (26) (boku-wa) ashita                    iku no desu  
 (I-TOP) tomorrow                    go NO BE  
 'I'm going tomorrow.'

One therefore needs to reflect again upon the hypothetical re-analysis of *no*. If it is indeed true that *no* has undergone re-analysis into the verbal functional structure, it cannot be as past tense but must instead instantiate some other clausal head. If *no* furthermore occurs as a verbal suffix attached outside the tense suffix as seen in (22) and (26), Mirror Principle type ordering effects in suffix sequences would suggest that *no* corresponds to a functional head which is structurally higher than tense/T<sup>0</sup>.<sup>7</sup>

Here I believe it is useful to recall the effect on interpretation that the use of *no* results in in the *no desu* construction. As with *shi-de* forms, *no desu* sentences essentially provide some explanation (new information) of a contextually salient background situation or event (a strongly presupposed event/situation), and *no desu* forms are only appropriate when the speaker is fully committed to the truth of the background pre-supposition. This is particularly clear when the new information/explanation is just a sub-part of the clause preceding *no*, as for example in (20) where the speaker asserts that his obvious arrival took place on the preceding day. In this sense *no desu* forms may be characterized as a mechanism with which the speaker explicitly strengthens his/her commitment to the truth of a presupposition shared by speaker and hearer, allowing for the new information/explanation to be clearly highlighted against this background. Such an aspect of the interpretation of *no desu* forms then indicates that *no* is arguably associated with the notion of evidentiality – a speaker may only appropriately use a *no desu* form if he/she has strong/undeniable evidence available that the background presupposition/event is indeed true. Aoki (1986) in fact refers to *no* as an evidential marker, noting a slightly different use of *no desu*

forms and stating that: “An evidential *no*, or more informal *n*, may be used to state that the speaker is convinced that for some reason what is ordinarily directly unknowable is nevertheless true.” (p.228). Aoki points out that sentences such as (27) are felt to be quite unacceptable without the addition of *no desu/da* as one can normally not know that another person is feeling hot inside:

- (27) kare-wa atsui \*(no da)  
 he-TOP hot NO BE  
 ‘(I know that) he is hot.’

Assuming evidentiality to be a sub-type of epistemic mood, it can therefore be suggested that in Japanese *no* has been re-analyzed not as past tense but as an instantiation of the head of a higher MoodP dominating tense/TP and representing speaker assertion of the truth of a statement. Such a proposal is represented in (28) below:

- (28)
- 
- ```

  graph TD
    MoodP --- TP
    MoodP --- no
    TP --- T
  
```

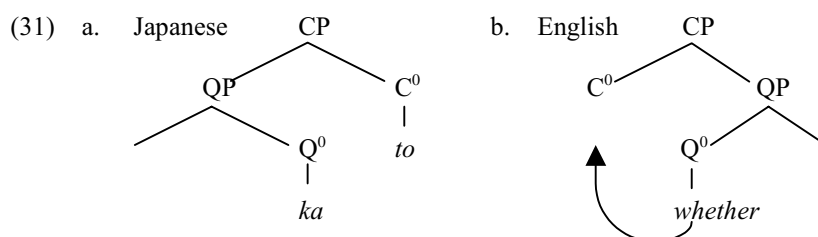
If the above is plausible, it may now lead to a natural reassessment of the re-analysis of Chinese *de*. As the use of *de* would basically seem to cause the same type of interpretation that occurs with Japanese *no*, namely speaker commitment to the truth of a commonly held background presupposition, it might be suggested that *de* has undergone re-analysis not only as an instantiation of a  $T^0$  tense head, but also as a marker of evidentiality like Japanese *no*. This would effectively be equivalent to assuming that *de* is actually re-analyzed as instantiating two distinct functional heads, (past) tense and (epistemic) mood/evidentiality.

The possibility that a single functional morpheme might in fact correspond to more than a single functional head position is neither odd nor particularly novel (see e.g. Koopman 1996), especially when it is assumed that movement may relate a single morpheme to two (or more) functional heads. Here a brief comparison of the C-system in Japanese and English can be used as an example illustrating the general idea. In Japanese (and many other languages) one finds the co-occurrence of both overt Q-morphemes (*ka/ka-doo-ka*) and embedding complementizers (*to* ‘that’ under verbs of communication and thought), whereas in English only a single embedding Q-morpheme occurs in indirect yes/no questions ‘whether’:

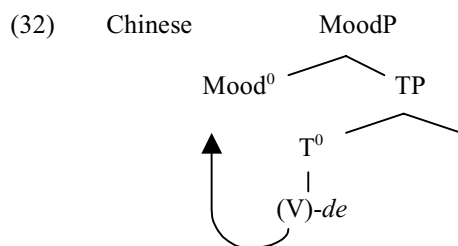
- (29) Taroo-wa [Mary-ga kuru (ka-doo-)ka] to kikimashita.  
 TAROO-TOP Mary-NOM come Q C asked  
 ‘Taroo asked whether Mary was coming.’  
 literally: ‘Taroo asked that whether Mary was coming.’

- (30) John asked (\*that) whether Mary was coming.

If the evidence in Japanese indicates that there are in fact at least two distinct complementizer positions present in the C-systems of languages (a lower Q-position and a higher simple embedding complementizer position), then one might expect that these two positions would also be present in languages such as English. As English has however only a single overt morpheme ‘whether’ where Japanese has two, it could be suggested that English ‘whether’ functions both as a Q-marker and an embedding complementizer. Supposing such a dual role might result from ‘whether’ being related to both C-positions via movement, (31a/b) then can be suggested to represent the relevant difference between Japanese and English, with ‘whether’ raising from Q<sup>0</sup> to C<sup>0</sup> at some point in the derivation:



Given now that Chinese *de* in the *shi-de* construction arguably both has the interpretation of a past tense morpheme and also results in the evidentiality type reading found with Japanese *no*, it can be suggested that when *de* is re-analyzed in the verbal functional structure it actually fulfils the roles of both tense/T<sup>0</sup> and evidentiality/Mood<sup>0</sup>. At some point in the derivation, *de* as a suffix can then be suggested to be licensed/checked against both T<sup>0</sup> and Mood<sup>0</sup> as in (32):



Aside from being supported by a consideration of Japanese *no*, such a more sophisticated analysis of the re-categorization of Chinese *de* has the advantage that it is also able to explain certain restrictions on the distribution of *de*. Supposing that *de* were indeed to have been re-analyzed as a simple new instantiation of past tense, one would expect that it should in principle be able to occur in all environments where a past time/tense interpretation is possible. This turns out not to be true however, and whereas *de* is perfectly acceptable in matrix and other embedded clauses, it may not occur in relative clause structures, as shown in (33):

- (33) \**[zuotian mai de che]-de nei-ge-ren jiushi wo gege*  
 yesterday buy DE car DE that-CL-person be I brother  
 intended: ‘That person who bought the car yesterday is my brother.’

The unacceptability of structures such as (33) can be explained if it is assumed that the MoodP which licenses interpretations of evidentiality is simply not projected inside relative clause structures and that the evidential function of *de* can therefore not be licensed (formally its evidential ‘features’ remain unchecked). Functionally the absence of the relevant MoodP from relative clauses would be quite understandable as in many languages subordinate structures such as relative clauses do not support the full range of propositional attitude projections available in other non-embedded environments.

Consequently it can be seen that the cross-linguistic comparative analysis of *de* and *no* is instructive in many ways. First of all, given the SVO word order of Chinese combined with the clause-final position of *de* as a nominalizer one finds particularly clear evidence that *de* in “situational/explanatory” copula-related structures is undergoing re-analysis, *de* overtly re-positioning itself right-adjacent to the verb as a new verbal suffix. As the re-positioning furthermore clearly correlates with a forced past time interpretation, it is rather simple to conclude that *de* is indeed becoming a new past tense morpheme. In Japanese due to the SOV head-final nature of the language, such kind of clear re-positioning evidence is not available as a clue to any re-analysis of *no* in structures with interpretations similar to *shi-de* forms. The conclusion that *de* is undergoing a significant change in Chinese does however prompt one to look for other possible indications of re-analysis with *no*, and interestingly one finds that there is evidence from case-marking phenomena (and nucleus reduction) that *no* may indeed be undergoing re-analysis as a new clausal head in a way quite similar to Chinese *de*. Due to the lack of a contrastive case system and an equivalent of *ga/no* conversion in Chinese such case-related evidence of change would clearly not be available as a clue to the re-analysis of *de*. The occurrence of such evidence in Japanese does however arguably add support to the general idea that nominalizers such as *de* may indeed be re-analyzing as functional heads in the clausal domain, and also shows how the contrastive typological properties of Chinese and Japanese can in fact be useful in the analysis of a single phenomenon. Finally, an examination of the potential change in Japanese was shown to lead to a significant re-assessment of the change argued for in Chinese and suggest that the re-analysis in Chinese may actually have been more complex than originally imagined. Such a re-appraisal of the change with *de* as instantiating both tense/T<sup>0</sup> and Mood<sup>0</sup> then allowed for an explanation of restrictions on its distribution which would otherwise remain unaccounted for in a simple equation of *de* with past tense.

### 2.3. Korean *kes*

I now turn briefly to Korean and the element *kes*. The role of *kes* as an element used in the nominalization of clauses similar to Japanese *no* in sentences (23/24) is illustrated in examples (34) and (35) below:<sup>8</sup>

- (34) na-nun [ku-ka o-ass-ta-nun]-kes-ul molla-ess-ta  
 I-TOP he-NOM came KES-ACC did.not.know  
 ‘I didn’t know that he came.’

- (35) [totuk-i ton-ul hunchin]- kes-un eyki lopute ta  
 robber-NOM money-ACC stole KES-TOP here from BE  
 'Its from here that the robber stole the money.'

Although *kes* does not occur in any fully parallel analogue to the Chinese *shi-de* and Japanese *no desu* construction, there does exist a construction making use of *kes* and the copula which interestingly seems to show signs of re-analysis and the incorporation of nominal *kes* into the verbal functional structure in a way somewhat similar to *de* and *no*. This is illustrated in example (36):

- (36) Yong-guk-ulo ttona-ss-ul-ke-eyo  
 England-to left-IRR-KES-BE  
 'He must have left for England.'

The use of such a construction is not the same as the *shi-de* or *no desu* patterns but it does nevertheless clearly relate to evidentiality and speaker commitment to the truth of a situation, introducing a probable future or a probable past (see King & Yeon 1997). Syntactically it is formed with a verb which may carry past tense or appear bare added to the irrealis marker *-(u)l*, the element *kes* and the copula in some speech level form, i.e. plain, polite or formal style:

- (37) mek-ul-ke-eyo/ke-mnida  
 eat-IRR-KES-BE/KES-BE  
 'He will (probably) eat.'

While it is clear that a sub-part of this construction historically was the element *kes* pronounced [kʰs] or [kʰʰ] (depending on the type of following vowel), in the contemporary speech of most speakers, this element is now regularly pronounced in a reduced form as [kʰ] without the final sibilant [s/ʰ] and a full form pronunciation with [s/ʰ] is rejected.<sup>9</sup> Such obligatory reduction of the coda of the original element then allows for the plausible speculation that *kes* has undergone re-analysis when it occurs with the copula in this modal type construction and is no longer a simple nominalizer element. A natural assumption in the light of what has been seen with Chinese *de* and Japanese *no* and one which might seem to coincide with speaker's intuitions is that *kes* here has been incorporated into the verbal string and in so doing has ceased to function specifically as a nominalizing type/nominal element. While it may be conceded that there is still certain evidence of the bi-clausal origin of the construction with honorific agreement occurring on the lexical verb rather than on the copula, as seen in (38), this does not in fact imply that *kes* necessarily retains its earlier nominalizer status:

- (38) naektai-lul mae-shi-l-ke-eyo  
 tie-ACC wear-HON-IRR-KES-BE  
 'He will (probably) wear a tie.'

Instead, it might seem likely that this construction is another instance where one of the *de/no/kes* nominalizer type paradigm co-occurring with a copula is on the way to switching from a nominal-functional status to incorporation into the verbal functional domain and a connection to the notion of epistemic modality and speaker perspective. If this is indeed so, Korean might in fact now also be able to add to our understanding of the patterning in Chinese and in Japanese and possibly suggest that it is not just a bare nominalizing element such as *de* or *no* in isolation which is responsible for the particular epistemic interpretation attested. In Korean it is rather clearly the addition of the irrealis morpheme *-(u)l* which critically results in the relatively decreased strength of evidentiality and the prediction-type reading in examples such as (36-38). Assuming this to be correct and a general property of evidential nominalizer + copula constructions, it potentially adds credence to earlier suggestions noted in Kitagawa & Ross (1982) and Simpson & Wu (1998) that *de* originally receives its evidential force **indirectly** from a contextually salient entity binding an empty nominal PRO head selected by *de* and that it is consequently not *de* in isolation which results in the guarantee-type interpretation.<sup>10</sup>

### 3. The re-analysis of nominalizers in relative clauses

Section 2 considered the interaction of nominalizers with copulas in constructions encoding evidentiality and epistemic modality. Rather strong evidence was presented indicating that the Chinese D<sup>0</sup> element *de* is re-analyzing into the verbal functional domain as tense and mood, and there were also hints that Japanese *no* and possibly also Korean *kes* may well have met with similar fates. I would now like to suggest that this basic path of horizontal nominalizer re-analysis from the functional structure of a DP into the functional structure of a clause is a process which has also occurred in relative clause structures in Japanese and Korean and that nominalizers present in such environments as D<sup>0</sup> elements have been re-categorized as instantiations of higher clausal functional heads. Such changes can be argued to be revealed in the changing patterns of the licensing of genitive-case relative clause subjects as discussed in Whitman (1998), and lead to the assumption that there are two distinct potential sources of genitive case in languages with nominalized DP relative clauses. Before starting in to consider the relevant data, I would like to acknowledge that the spirit of certain of the general conclusions reached in this section coincides in part with a suggestion made in Whitman (1998) that the loss of genitive-marking is connected to the status of a relative clause as a nominalization. How such a general idea is technically interpreted and the focus of interest will nevertheless be noted to be rather different from Whitman's interesting account.

In Japanese it is well-known that subjects in relative clauses may appear in either nominative or genitive case, as in (39), this being commonly referred to as *ga/no* conversion:

- (39) Taroo-ga/-no      katta   hon  
       Taroo-NOM/-GEN   bought   book  
       'the book that Taroo bought'

A similar alternation exists also in Korean, but appears to be subject to more restrictions than in Japanese. Various linguists such as Yoon (1991) and Sohn (1997) have noted

that in modern Korean the only subject DPs which can be marked with genitive case in relative clauses are those which essentially bear a potential possessor-type relation with the head-noun, or a relation in which there is a very close association between the subject and the head-noun, as for example in (40):<sup>11</sup>

- (40) na -uy sal-te-n kohyang  
 I -GEN live-RET-N hometown  
 ‘the hometown where I used to live (“my old hometown”)’

Yoon (1991) notes that (41) below is perfectly acceptable with the verb *ip-ta* ‘wear’ but not with the verb *po-ta* ‘see’ as only ‘wearing’ satisfies the close association-type relation:

- (41) [John-uy ip-nun/\*po-n] os  
 John-GEN wear-N/see-N clothes  
 ‘the clothes that John wore/\*saw’

(42) from Sohn (1997) is similarly argued to be unacceptable because there is no possession type relation existing between the head-noun *salam-tul* ‘persons’ and the genitive-marked NP *ku-umak-uy* ‘that music’ (i.e. the music does not possess the people):

- (42) [ku-umak-i/-\*-uy kamdongsikhi-n] salam-tul  
 that music-NOM/-GEN move-N person-PL  
 ‘the people who the music moved.’

Whitman’s (1998) research into middle Korean however shows that this kind of restriction on genitive subjects might appear to be just a property of modern Korean. In middle Korean the relation between a genitive subject and the relative clause head-noun seems to be thematically unconstrained, in the same way that it is unconstrained in modern Japanese and a subject need not stand in a possessor-type relation with the relative clause head-noun to be marked with genitive Case. (42) below is an example Whitman gives from middle Korean which would not be acceptable in present-day speech:

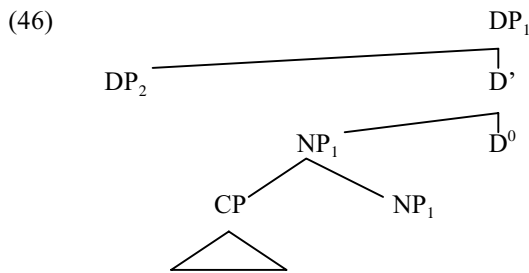
- (43) I pali-y ey s mwolGay lul [na-y tot ni-n-o-n] stoh]-ey skol-a-la  
 this bowl in-GEN sand-ACC I GEN go-PR.MOD.AD place-GEN spread-IMP  
 ‘Spread this sand in the places where I go.’ (Sekpo sangcel, 24:9b)

In addition to the thematic “possessor” restriction in modern Korean, it is also not possible for a genitive subject in modern Korean relative clauses to be preceded by an adverb such as *ecey* ‘yesterday’ which refers to the action of the relative clause, as in (44). This is in sharp contrast to modern Japanese where a sentential adverb may indeed precede a genitive subject, as shown in (45):

- (44) [ecey John-i/\*John-uy sa-n]-chayk (Sohn 1997)  
 yesterday John-NOM/John-GEN buy-N book  
 ‘the book that John bought yesterday.’

- (45) [kinoo Hanako no katta] hon-wa Bottyan desu (Nakai 1990)  
 yesterday Hanako-GEN bought book-TOP Bottyan BE  
 ‘The book which Hanako bought yesterday is Botchan.’

These two facts might seem to point to the same conclusion and suggest that the genitive Case possible with relative clause “subjects” in modern Korean is assigned by the  $D^0$  head selecting the relative clause head  $NP_1$  in a simple structure such as (46). In (46)  $DP_2$  is the possessor-specifier of  $DP_1$ , and the CP is the relative clause:



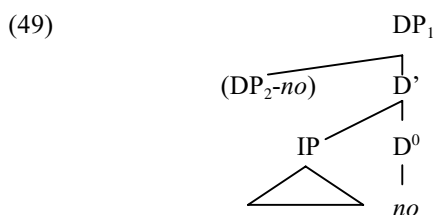
This will straightforwardly account for the restriction that the genitive “subject”  $DP_2$  must precede any sentential adverb which is part of the CP relative clause and also allow for a natural understanding of the possessor-type thematic restriction on  $DP_2$  - the genitive Case assigned here is licensed by the  $D^0$  selecting for the head-noun/ $NP_1$  and restricts the case-assignee to precisely those standard genitive possessor-type relations which could also be licensed in the full absence of the relative clause (i.e. a genitive-marked “subject” will be acceptable only when the same DP could also stand in a genitive relation to the relative clause head-noun without the relative clause being present). In (46) it may be assumed that the genitive “subject”  $DP_2$  controls a real *pro* subject inside CP.<sup>12</sup>

Previously however, this relation of the genitive DP to the relative clause head-noun/ $NP$  appears to have been unrestricted, and it is clearly unrestricted in modern Japanese, so a natural question now is to ask how the un/restricted distinction between modern Korean and middle Korean/modern Japanese should be captured. One possible route of explanation I believe is to pursue the connection between gerund-type nominalizations and the occurrence of genitive subjects in relative clauses. It is well-known that nominalizations of certain types cross-linguistically license thematically-unrestricted genitive subjects. This is seen in English gerunds and Korean type III gerund nominalizations and also in a number of nominalizations formed with *no* in Japanese, as for example in (47) and (48), (47) being a simple clausal nominalization, (48) a pseudo-cleft type structure also formed with the element *no* and allowing for optional genitive case on the subject in place of nominative:

- (47) Hanako-ga [Taroo-no tsuita]-no-o mita  
 Hanako-NOM Taroo-GEN arrived NO-ACC saw  
 ‘Hanako saw Taroo arrive.’

- (48) [Taroo-no katta]-no-wa hon desu  
 Taroo-GEN bought-NO-TOP book BE  
 ‘What Taroo bought was a book.’

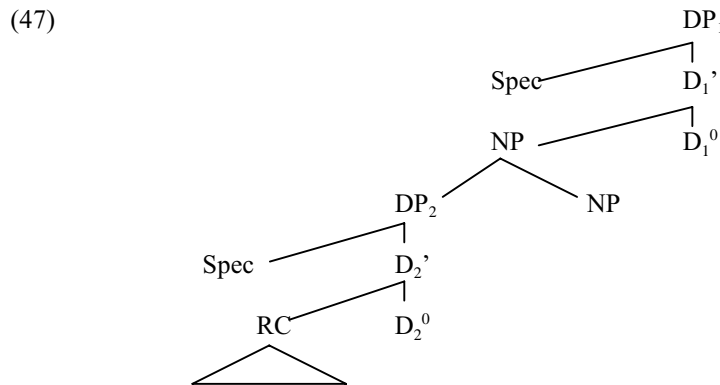
Supposing one assumes that the nominalizer *no* here is a functional head of type  $D^0$  just as Chinese *de* is, it can be suggested that the subjects in (47) and (48) have their genitive case licensed/checked directly in SpecDP by *no* (either overtly or at LF; in either case it may be assumed that the genitive case-marker *no* is attached to the subject DP as an inflectional suffix in the lexicon, in line with current Minimalist views). Because there is no “head” N(P) in such pure nominalizations, there will be no possessor-like semantic restrictions on genitive subjects and genitive subjects will be thematically-unrestricted, as noted. (49) is an approximation of the underlying structure assumed for nominalizations such as (47) above (the brackets around the genitive-marked subject  $DP_2$  are intended to indicate that the occurrence of  $DP_2$  in SpecDP<sub>1</sub> checking its genitive case has not been here determined to be overt or covert):



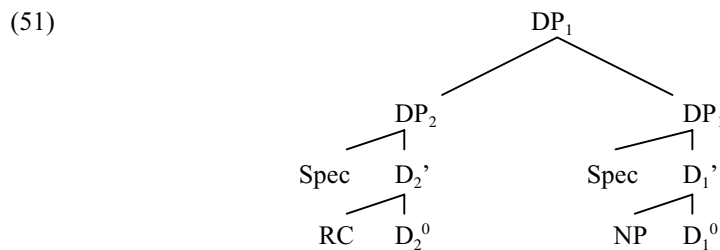
The critical lack of any thematic restriction on the genitive subject  $DP_2$  in such structures contrasts with the genitive case which is licensed by  $D^0$  when  $D^0$  selects for a noun/NP with clear semantic content in relative clause structures such as (46). There the occurrence of the head-noun/NP results in the possessor-like restriction on a DP licensed genitive case in SpecDP; in nominalization structures such as (49) there simply is no NP present to impose similar restrictions.<sup>13</sup> The important point to bear in mind then is that bare-nominalizers such as *no* having no intrinsic semantic content can be taken not to semantically/thematically constrain the type of DP assigned genitive Case in SpecDP, whereas the genitive case assigned/checked in a SpecDP projected over a semantically contentful head-noun/NP in relative clauses naturally will impose such restrictions.

Above it was noted that Korean and Japanese are both languages which currently have, or previously had thematically unrestricted genitive subjects in relative clauses. A further piece of information which can now be used to help explain the genitive-case marking patterns is the observation that Korean and Japanese are also both languages which either currently have, or previously had some kind of special “adnominal” morphology on verbs in relative clauses (this meaning that verbs appear in relative clauses with suffixes which do not occur in other non-embedded clauses). Importantly now Whitman (1998) points out that various Korean linguists such as Lee (1961) and Hong (1990) have argued that the adnominal morphology present on verbs in relative clauses in Korean should in fact be analyzed as being the addition of nominalizers to the verb.<sup>14</sup> If this is correct, it can be suggested that the (relative) clauses to which such

nominalizers are attached in final position are clausal nominalizations and therefore significantly expected to license their own thematically unrestricted genitive subjects. Assuming as before that nominalizers are nominal functional heads which are either  $D^0$  elements or otherwise part of an extended functional structure which projects up to a DP (with the associated genitive case being licensed/checked in SpecDP), this basically leads to the conclusion that relative clause structures in some languages in fact involve a DP nominalized clause embedded within a DP rather than there being just a simple CP relative clause. (50) below is one hypothetical representation of such a structure, with  $D_2^0$  assumed to be the head-position containing the relevant nominalizer, NP the head-noun/NP, and RC the relative clause:



An alternative might be to assume some kind of simple juxtaposition structure as in (51) possibly similar to the structure of correlatives in languages such as Gujarati:<sup>15</sup>



Indeed, in old English there seems to be evidence that relative clauses in certain languages may start out as the juxtaposition of two DPs. In example (52) both the relative clause noun-head and the relative clause are case-marked with genitive case assigned by the matrix verb, indicating that they are actually both DPs (with some kind of case-sharing effect):

- (52) Hi adulfon gehwylcne dael paes wrytgeardes paes pe paer aer undolfen was they dug each part that.GEN garden.GEN that.GEN C there before not-dug was 'They dug every part of the garden that had been left undug before.'

lit. ‘..of that garden, that one left undug.’  
(c.1050, Gregory’s dialogues)

In either analysis (50) or (51), the nominalized relative clause  $DP_2$  will significantly license its own genitive Case in  $SpecDP_2$  quite independently of the head-noun/NP and the possessor-type genitive Case licensed in  $SpecDP_1$ . Consequently such genitive Case will not be thematically constrained and there will not be any restrictions on the type of subject carrying such genitive Case. In fact, in nominalized relative clause constructions of the type schematized above, there will actually be two independent sources of genitive Case – one made available by the  $D_1^0$  regularly projected over the head noun/NP, and a second provided by the nominalization of the relative clause with the nominalizer assumed to be located in  $D_2^0$ . These two independent genitive Cases can be called “outer restricted genitive Case” and “inner unrestricted genitive Case” respectively.

Assuming this much will now allow for a relatively simple explanation of the historical change in Korean. In middle Korean relative clause genitive subjects appear to have been thematically-unrestricted and so can be suggested to have been licensed as inner unrestricted genitives by the putative  $D_2^0$  nominalizer of the relative clause (the adnominal morphology on the verb in final position in the relative clause). Turning to modern Korean, one finds that relative clause genitive subjects are now thematically restricted, indicating (under present assumptions) that only an outer genitive can be licensed by the  $D_1^0$  head projected in the functional structure immediately dominating the relative clause noun-head. However, special adnominal morphology is still strongly present on the verb, and as such morphology has been assumed to instantiate a  $D^0$  nominalizer, it might well be expected to license a thematically unrestricted inner genitive subject, contra observation. A way of accounting for this apparent contradiction without abandoning the basic mode of explanation is now to suggest that there has been a critical re-analysis of the same basic type as that suggested earlier in Chinese and Japanese, and that a  $D^0$  nominalizer (here the adnominal morphology) has again significantly undergone a category shift from the nominal domain into the higher functional structure projected by the verb. Undergoing re-analysis out of the nominal domain the unrestricted genitive case which is licensed by the gerund-like nominalization-structure and the  $D_2^0$  head automatically disappears and “subject” DPs may only be assigned the outer restricted genitive licensed by  $D_1^0$  in the nominal functional structure dominating the relative clause noun-head.

If this is indeed what has possibly occurred in Korean relative clauses, the next question which arises is how genitive subjects are licensed in modern Japanese relative clauses. As noted earlier, Japanese also used to have special adnominal morphology in its relative clauses, verbs appearing in the attributive form with suffixes which contrasted with the conclusive forms of other clauses. This system of opposition is well-documented as having later got restructured into a general tense system which then did not manifest any difference between matrix and subordinate clauses (see e.g. Shibatani 1996, Takeuchi 1998). If one now supposes that the older attributive adnominal forms were possibly just like middle Korean adnominal suffixes and therefore by hypothesis  $D^0$  nominalizers, the re-organization of the attributive forms into a tense system would then actually constitute another good case of a nominalizer being re-analyzed as a tense-form, precisely as suggested for the  $D^0$ -to- $T^0$  conversion in contemporary Chinese. If this is so

however, one now needs to try to understand how thematically unrestricted genitive case continues to be available for subjects of relative clauses in Japanese. If the earlier D<sup>0</sup> nominalizer (the attributive adnominal suffix) which would have licensed an inner unrestricted genitive has undergone re-analysis as tense, one might not expect to find unrestricted genitive subjects occurring in relative clauses, as these are otherwise only licensed in clear nominalizations such as (47). Here I would like to suggest that there are actually two potential explanations for the continued persistence of unrestricted genitive subjects.

The first of these is to suggest that the re-analysis of clause-final D<sup>0</sup> nominalizers into tense-morphemes is actually a process which is still only optional in Japanese relative clause structures. In the case of the suffixal ending of non-past verb-forms, this morphology essentially corresponds to the original adnominal attributive suffixes (modern non-past tense forms deriving from the earlier attributive endings in the re-organisation to a full system of tense); consequently it can be suggested that the original attributive nominalizer ending may simply remain un-reanalyzed, and as a D<sup>0</sup> continue to license (unrestricted) genitive Case. As for the past tense forms found in relative clauses, a similar account may also be given. The re-organization of both attributive and conclusive forms into a global tense system essentially resulted in the creation of a tense position/T<sup>0</sup>/TP in relative clauses. Non-past tense forms resulted from the re-analysis of attributive adnominal suffixes and past tense forms resulted from the re-analysis of conclusive aspectual suffixes. Both tense forms can critically be taken to have been re-analyzed into a position which was previously instantiated by a D<sup>0</sup> nominalizer. In the case of the conclusive suffixes which became re-analyzed as past tense, it can now be suggested that this re-analysis into the T<sup>0</sup> position as tense is also possibly still optional in relative clauses and that what appears to be past tense in relative clauses is actually still the older un-reanalyzed aspectual suffix. If the past tense suffix is in fact actually an aspectual suffix, it can consequently be assumed that no T<sup>0</sup>/tense position is necessarily projected and instead this position may be instantiated as a D<sup>0</sup> head occupied by a phonetically null nominalizer. Reason to believe that there may not have been necessary re-analysis into a full tense system inside relative clauses is the interesting fact that the “past tense” morpheme in relative clauses in fact need not always result in a past time meaning and can instead correspond simply to perfective/completive aspect which is fully compatible with a future reading, as seen in (53) from Nakamura (1994):

- (53) [ashita ichiban hayaku kita] hito-ni kore-o ageru  
 tomorrow most early came person-DAT this-ACC give  
 ‘I will give this to the person who comes (*lit.* came) first tomorrow.’

This future-oriented interpretation of the past tense morpheme is restricted to relative clauses and therefore suggests that re-analysis of attributive and conclusive forms as tense may still be optional in this environment. Supposing this to be so, it can therefore be maintained that the earlier D<sup>0</sup> nominalizer position hypothesized to exist in relative clauses has not in fact been necessarily re-analyzed as a T<sup>0</sup>/tense head and is consequently still potentially present to license unrestricted genitive Case.

A second possible way of accounting for the unrestricted genitive Case available for Japanese relative clause subjects might be to suggest that when the posited attributive

form nominalizer became re-analyzed into the tense system, the nominalizer position might not have simply disappeared but instead may have been retained and occupied by a new null nominalizer element. Elsewhere where the attributive form was re-analyzed and its hypothetical nominalizer status was lost, a new overt nominalizer was in fact inserted in a renewal process common in language development. Horie (1993) compares the classical Japanese example in (54) with its adnominal verb-form and no apparent nominalizer with a modern Japanese equivalent with *no* in (55). When the adnominal suffix became reinterpreted as non-past tense, the new nominalizing element *no* is seen to be added in:

- (54) [te tataka-ba yamabiko-no **kotauru**] ito urusai  
 hand clap-as echo-GEN **answer.ADN** very annoying  
 ‘It is very annoying that there is an echo when he claps his hands.’  
 (Genji monogatari, 11thC)
- (55) [te-o tatau-to kodama-ga **kotaeru**]-no-wa taihen huyukai-da  
 hand-ACC clap when echo-NOM **answer NO**-TOP very annoying be

In fact it is hard to see how the verb-form in (54) can actually be labelled as having “adnominal” morphology as it does not appear to precede any kind of nominal; the most natural explanation for the genitive subject in (54) would seem to be that the adnominal morphology is indeed a nominalizer attached to the clause and that when this becomes re-analyzed as a tense morpheme, *no* is inserted to replace it. Consequently, if there is indeed productive replacement of certain nominalizers which have undergone re-analysis with new nominalizing elements, it would not be unreasonable to speculate that a null nominalizer might have been introduced into relative clauses following re-analysis of the attributive “nominalizers” and it is this D<sup>0</sup> element which is basically responsible for the possibility of unrestricted genitive subjects.<sup>16</sup>

Ultimately then it can be argued that the differing patterns of genitive case licensing in earlier and contemporary forms of Japanese and Korean can be given a rather natural account if it is assumed both that unrestricted genitive Case is assigned by D<sup>0</sup> nominalizing elements and that such heads may over time be re-analyzed as instantiations of heads in the higher clausal functional structure, just as has arguably occurred with nominalizers in copula constructions.<sup>17</sup> In the case of Japanese at least, it has been speculated that if the adnominal endings found on verbs in classical Japanese are assumed to have been clause-peripheral D<sup>0</sup> nominalizers (as in Korean), then their clear re-analysis into tense elements would also constitute another interesting case of the D-to-T conversion phenomenon reported in Chinese. Before concluding this section now, I would like to stay just a little longer on this theme of D-to-T conversion and briefly present one last CNP type case in Japanese where there might again seem to be evidence of such a D-to-T re-analysis.

As mentioned earlier on and noted in Kitagawa & Ross (1982), the distribution of Chinese *de* and Japanese *no* is quite similar. One regular difference however concerns the occurrence of *no* and *de* following clausal constituents. In adult Japanese *no* occurs following a clause (a relative clause, nominalization, head-internal relative clause etc) only when there is no other head-noun following *no*. This contrasts with Chinese (and

children's Japanese, see Murasugi 1991) where *de* does co-occur with an overtly-realized relative clause head. Such differences lead Simpson & Wu (in preparation) to suggest that *no* is actually base-generated in  $N^0$  and then raised to  $D^0$ , whereas *de* is inserted directly into  $D^0$  and so allows a discrete instantiation of the  $N^0$  position. (56) below schematizes the patterns found:

|      |    |                |   |                       |              |
|------|----|----------------|---|-----------------------|--------------|
| (56) | a. | Chinese        | ✓ | [ <sub>clause</sub> ] | <i>de</i> ∅  |
|      |    |                | ✓ | [ <sub>clause</sub> ] | <i>de</i> NP |
|      | b. | adult Japanese | * | [ <sub>clause</sub> ] | <i>no</i> NP |
|      |    |                | ✓ | [ <sub>clause</sub> ] | <i>no</i> ∅  |
|      | c. | child Japanese | ✓ | [ <sub>clause</sub> ] | <i>no</i> NP |
|      |    |                | ✓ | [ <sub>clause</sub> ] | <i>no</i> ∅  |

One apparent counter-example to this generalization over adult Japanese however is constituted by forms such as (57) and (58) where *no* is legitimately followed by an overt head-noun in an appositive CNP type structure, these examples being first noted in Kitagawa & Ross (1982):

(57) [kane-o haratte]-no-ageku  
 money-ACC paying-NO consequence  
 'the consequence of having paid money'

(58) [kare-ga kureba]-no-hanashi  
 he-NOM come-if NO talk  
 'the talk which would become relevant if he came'

Interestingly, as pointed out in Murasugi (1991), what consistently characterizes these examples is that the verb in the CNP is un-tensed, i.e. not in any regular past or non-past tense-form. It can therefore be suggested that the generalization in (56b) about nominalizer *no* actually is correct, and that the exceptional patterning in (57/58) in fact results from *no* having undergone re-analysis into  $T^0$  when  $T^0$  is not occupied by a regular tense morpheme. Such a re-analysis would then be very similar both to the conversion of Chinese *de* into tense and the hypothesized re-analysis of Japanese ( $D^0$ ) attributive nominalizers into tense.

An interesting related case is found elsewhere in relative clauses in Hebrew. Siloni (1995) notes that the Hebrew definite determiner *ha* occurs in relative clauses in a position preceding the VP as in (59). Significantly this is only possible in participial relative clause structures where there is no overt instantiation of tense:

(59) 'ish **ha**-kore 'iton ba-rexov  
 man **the** reading newspaper in-the street  
 'a man reading a newspaper in the street'

In order to explain this distributional constraint, it can be suggested that the D<sup>0</sup> determiner like other cases of D<sup>0</sup> nominalizer elements examined here is actually re-analyzed into the verbal functional structure and specifically into the tense position, hence being incompatible with anything but a tenseless participial complement. What is perhaps different between the Japanese and Hebrew cases in (57-59) and the D-to-T conversion of Chinese *de* is that in the former instances and particularly Hebrew, the nominalizer/determiners do not bring with them into the tense position any of the referentiality they might be associated with in the nominal system. Thus whereas the discourse-operator determined referentiality of Chinese D<sup>0</sup>-nominalizer *de* is re-interpreted as past tense, the definiteness present in Hebrew *ha* is quite absent in its use in participial relatives and Siloni describes such relatives as having an ‘understood tense (which) is determined externally by the context’. The same can be said of the Japanese example (57) (and possibly also (58)). What the introduction of the nominal functional elements into T<sup>0</sup> seems to do in these cases is simply to provide an element in T<sup>0</sup> which can be anaphorically controlled by some higher tense operator, much as English *to* is also controlled in English infinitival clauses.<sup>18</sup>

#### 4. Summary

The aim of this paper has been to suggest that nominalizers occurring in Chinese, Japanese and Korean (and possibly other languages) frequently undergo categorial re-analysis and grammaticalize in a horizontal direction from a role in the functional structure of a DP to instantiate some functional head in the clausal functional structure projected above VP. The particular view of nominalizers assumed here is that these purely functional elements may be either D<sup>0</sup> heads directly embedding a clause and outputting a DP constituent (essentially like determiners in Spanish, see footnote 5), or possibly some lower functional head which naturally projects up to a DP. Considering the two principal environments of copula constructions and relative clauses, it was observed that Japanese, Korean and Chinese provide a variety of evidence indicating re-analysis, and that the re-categorization of nominalizers as instantiations of clausal functional heads would arguably seem to be surprisingly common.

Having concluded that there is indeed such frequent re-analysis of this general type, it is natural at this point to speculate on why this might be so. Here I would like to suggest the frequency of the change in fact can largely be attributed to the particular types of copula and relative clause environment where the nominalizers occur and to the roles played by the nominalizers in the structure. One important functional role of nominalizers is to embed a constituent of a certain type in a larger structure; in the case of a clausal nominalization, a nominalizer allows the clause to occur as the nominal argument of an embedding predicate. Considering this role and its interaction with copulas and relative clause structures, it can first of all be noted that copula-type verbs are typically found to be weakly-selective elements in the sense that they often accept a variety of category types as complements (e.g. DPs, AdjPs, VPs, PPs etc) and do not just tolerate nominal arguments. One can therefore imagine that in copula constructions the pressure for a nominalized clause to remain a DP rather than some other categorial type is markedly less than in other environments where a verb directly selects for only nominal arguments.<sup>19</sup> This combined with the fact that a nominalized clause is already largely clausal in its internal structure should naturally make the possibility of

nominalizer re-analysis as clausal heads significantly easier than in other constructions. The situation is similar in relative clause environments. Relative clauses are commonly assumed to be optional modifiers adjoined to NPs and hence clearly not selected by any element; consequently there is no pressure by any selecting head for a relative clause to necessarily remain as a DP rather than switch to some other categorial type (i.e. with re-analysis of the embedding nominalizer as a clausal head). Again as in copula environments this lack of a rigid selection relation might naturally be expected to make the potential re-analysis of nominalizers more easily available in relative clauses.<sup>20</sup>

The re-analysis of nominalizers as clausal types is arguably also assisted by the fact that when such morphemes originally function as nominalizers they may often have no obvious **inherent** meaning. In the case of *de* and *no* in copula environments, essentially following Kitagawa & Ross (1982), it was assumed that the strong evidentiality interpretation which use of these elements results in is one which is basically inherited via the association of *de/no* with some discourse operator (and mediated by the binding of a PRO selected by *de/no*). With the occurrence of Japanese *no* in T<sup>0</sup> in examples such as (57) and (58), its interpretation was again taken to be determined by some secondary element, namely a higher c-commanding +finite T<sup>0</sup>. Consequently, if the interpretation associated with such nominalizer elements is perhaps frequently due to anaphoric control by some secondary element and nominalizers are without inherently fixed semantic values, one might expect that this lack of inherent meaning would naturally allow for categorial re-analysis. Nominalizers simply being heads whose semantic content (if any) is determined from an outside source, if the controlling operator source were to change, this should directly result in a different type of interpretation of the nominalizer and quite possibly a re-orientation of the inherited meaning from being of a nominal character to an interpretation associated more with clausal functional heads.

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<sup>1</sup> Concerning relative clauses Li & Thompson (1981, p.116) state the following: "A relative clause is simply a nominalized clause placed in front of a noun to modify it." and assume that *de* is the nominalizer of the (relative) clause.

<sup>2</sup> Kitagawa & Ross refer to Chao (1968) as suggesting that *shi-de* sentences may often be translated with phrases such as "such is the case" or "this kind of situation" as in (i):

(i) Ta shi zuotian qu de  
 he BE yesterday go DE  
 'It's the case that he went yesterday.'

They suggest that this may be taken to indicate that there is indeed a phonologically null PRO equivalent to the noun 'case/situation' present following *de*.

<sup>3</sup> The alternative is to assume that both direct object and indirect object move rightwards, which seems rather unlikely. Rightwards object-shift has never before been attested to occur with both direct and indirect object at the same time.

<sup>4</sup> When *de* occurs sentence-finally and a non-past time reading is possible with adverbs and modals, it is assumed that *de* is still a nominalizer. Simpson & Wu thus take *de* in sentence-final position to have a potentially ambiguous status, either occurring as a nominalizer or as past tense. When *de* attaches to the verb, it is however unambiguous and only past tense.

<sup>5</sup> It is clear that D<sup>0</sup> determiners fulfil the role of nominalizing clauses in other languages. The example below is from Spanish, the simple determiner *el* 'the' functioning to nominalize the following clause:

- (i) [DP el [CP que Juan haya ganado el concurso]] garantiza nuestro triunfo  
 the that Juan has won the competition guarantees our triumph  
 ‘That Juan has won the competition guarantees our victory.’

<sup>6</sup> Kitagawa & Ross attempt to suggest that the lack of genitive *no* in *no desu* forms results from Bedell’s early (1972) account of *ga/no* conversion. Following Bedell they assume that genitive marking occurs when a subject NP from within a relative clause is raised outside of the relative clause and receives the genitive case licensed by the relative clause head-noun. In the case of *no desu* sentences, they claim that raising of a subject out of a PRO-headed relative clause would result in an illegitimate structure in which PRO is forced to bind the trace of the raised subject and that *ga/no* conversion is therefore impossible in *no desu* sentences. Because the same considerations should however result in illegitimate structures in regular relative clauses and the relative clause head-noun having to bind the trace of a raised subject, it is also predicted that *ga/no* conversion should not even occur in simple relative clauses. As this is clearly false, such an attempted account of the lack of *ga/no* conversion cannot be maintained.

<sup>7</sup> That is, cross-linguistically it is found that suffixes closer to the verbal stem consistently relate to functional heads which are lower than those licensing outer suffixes, see here Baker (1985).

<sup>8</sup> In addition to its occurrence in (34) and (35), *kes* also occurs in many other environments where Chinese *de* and Japanese *no* are found. As in Japanese, *kes* occurs in head-internal relative clauses (i), children’s (externally-headed) relative clauses (ii) and pseudo-clefts (iii) (data here is taken from Whitman, Lee & Lust 1991):

- (i) kuriko [appa ssu-nun]-ke ankyeng-un..  
 then papa wear-ing KES glasses-TOP  
 ‘And the glasses that papa wears.’
- (ii) [chayk pily-e ka-n]- kes nayil kac-ko o-kyess-upni-ta  
 book borrow go-PAST KES tomorrow bring-ing come-FUT-POL-DEC  
 ‘I will bring back the book that I borrowed tomorrow.’
- (iii) [nae-ka mekko-iss-nun]-kes  
 I-NOM eat-ing be KES  
 ‘what I am eating’

This is similar to the occurrence of Chinese *de* in adult (externally-headed) relative clauses, pseudo-clefts, and children’s internally-headed relative clauses (Chiu 1998).

<sup>9</sup> King & Yeon (1997, p.253) maintain that for some speakers *kes* may still optionally be pronounced in its full form as in (i). Other speakers strongly reject pronunciation of the final [s/□] sibilant:

- (i) %mek-ul-kes-ieyo/kes-immida  
 eat-IRR-KES-BE  
 ‘He will (probably) eat.’

<sup>10</sup> Such indirect evidential force is then later taken to become an inherent part of the meaning of *de* when it is re-analyzed as tense/mood. This would then parallel a hypothetical collapsing of Korean *-(u)l* and *kes* as a single epistemic marker after re-analysis in the verbal functional structure.

<sup>11</sup> Note that much of the Korean data here comes from sources quoted in Whitman (1998).

<sup>12</sup> Whitman (1998) rejects the possibility of a base-generated structure such as (43) and suggests instead that the genitive DP is “re-structured” from inside the relative clause to the possessor/SpecDP position. This is done primarily for two reasons. First of all it is noted that structures in which a genitive possessor DP precedes a relative clause with an overt subject are degraded:

- (i) \*?John-uy [Mary-ka pilli-n] chayk  
 John-GEN Mary-NOM borrow-AND book  
 intended: ‘John’s book that Mary borrowed.’

Secondly, if a *pro* subject were to be possible in the relative clause controlled by a preceding DP possessor, it is argued that one might expect that examples such as (41) with the verb *po-ta* ‘wear’ would be acceptable contra what is observed. Without going in to detail here, in the first case I believe it might be possible to suggest that the apparent unacceptability may be due to phonological reasons and that there is a preference for heavier/longer modifying constituents to precede shorter modifying elements in DPs. This is certainly true in parallel structures in Chinese (as noted in Tsao 1997). When the subject of the relative clause is overt, this makes it heavier than the preceding genitive expression and so sequences such as (i) may be felt to be unbalanced. When the subject is hypothetically a *pro* however as in (46), the relative clause may not be heavier than the possessor DP and so the possessor occurs more naturally preceding the relative clause. In the second case (41), I believe that there may be a simple semantic problem here; the English translation of (41) is

very odd in the intended meaning: ??‘John’s clothes that he saw’. A similar case in Whitman (1998) also indicated as bad in Korean for the same reason translates into English as: ??‘John’s noodles that he ate’ again semantically very strange. If such examples are therefore unacceptable for inherent semantic reasons, they do not constitute arguments specifically against a base-generated structure such as (46) with a *pro* subject.

<sup>13</sup> In Simpson & Wu (in preparation), it is actually suggested that the Japanese nominalizer *no* functions both as an  $N^0$  and a  $D^0$ , being base-generated as a semantically empty noun in  $N^0$  and then raising up to  $D^0$ . This contrasts with Chinese *de* which is taken to be base-generated directly in  $D^0$ , and allows for an explanation of certain differences in the distribution of *de* and *no* in nominal constructions. Here it may be noted that even if *no* is an  $N^0$  (as well as a  $D^0$ ), because it has no semantic content it imposes no semantic restrictions on a genitive subject DP.

<sup>14</sup> In modern Korean the hypothetical nominalizers are commonly collapsed together with tense in complex morphological forms; Whitman (1995) however shows that if one adds a retrospective mood morpheme it becomes possible to separate the relative clause verb-form into its stem, tense, mood and a distinct element *-n* as in (i); *-n* therefore corresponds to the suggested clausal nominalizer:

- (i) [Chelswu-ka ecey *pro* manna-ass -te -n]-salam  
Chelswu-NOM yesterday meet-PAST-RET-N person  
‘the person Chelswu met yesterday’ (Whitman 1995)

<sup>15</sup> In structures such as (48) the first DP may be assumed to contain a *pro* co-referring with DP<sub>i</sub>, this resulting in the relative-clause type interpretation.

<sup>16</sup> On the topic of empty nominalizers and genitive subjects, it can be noted that classical Chinese seems to have permitted genitive subjects both in relative clauses and in simple nominalizations, but in neither case is there any overt nominalizing morpheme; it must therefore be concluded that the nominalizing morpheme is phonetically null. This is illustrated in (i) and (ii) from Pulleyblank (1995):

- (i) [Wang-zhi suo sha]-zhe  
king-GEN SUO kill-those  
‘those whom the king killed’  
(ii) [Wang-zhi lai]  
king-GEN come  
‘the coming of the king/the king’s coming’

<sup>17</sup> As noted in the beginning of this section, Whitman (1998) also suggests that there is an important connection between the loss of adnominal morphology and the change in patterns of genitive-marked subjects, and following other researchers, Whitman also assumes that the adnominal suffixes in Korean and Japanese were indeed nominalizers. However, in the actual account Whitman develops, no real connection is ultimately made between the presence/absence of nominalizers and the possibility of genitive Case. Specifically, because modern Japanese relative clauses are seen to show no signs of overt nominalizers and the earlier adnominal morphology on the verb appears to have been lost, an analysis of the unrestricted genitive Case possible in such environments is given in which no nominalizing element occurs in the structure and nominalizers hence have no role in licensing this unrestricted genitive Case. As such an analysis is suggested to apply also to middle Korean and the unrestricted genitive Case found in that period, it is clear that the diachronic loss of unrestricted genitive Case in Korean is actually not formally connected to any change in the change of status of adnominal morphology/nominalizers. Put in other words, a general mechanism for the licensing of unrestricted genitive is posited which is fully independent of any nominalizer/adnominal morphology (in order to allow for modern Japanese where adnominal morphology has been lost but unrestricted genitive Case still occurs); taking this to be the mechanism which licensed unrestricted genitive in middle Korean, the loss of such a mechanism (and unrestricted genitive) must therefore actually be assumed to be formally independent of any changes in the status of nominalizers/adnominal morphology. The present approach, by way of contrast, sees the role of nominalizers as central in the licensing of genitive case and as instantiating (or projecting further functional structure up to)  $D^0$  heads. When such nominalizers hypothetically undergo re-analysis as instantiations of clausal heads, the ability to license genitive Case is then automatically and naturally lost. Furthermore, in modern Japanese to account for unrestricted genitive Case it was argued that the re-analysis of adnominal morphology is actually not complete, and nominalizing elements are in fact suggested to still be present in such structures. Consequently, although the analysis here might seem to agree with certain initial suggestions in Whitman (1998) that the change in relative clause genitive Case-licensing relates to the change in status of adnominal morphology/nominalizers, further examination reveals important differences in the interpretation of such a hypothesis. While the present account closely pursues the relevance of nominalizer re-analysis to the genitive paradigm and argues that it reflects a wider paradigm of nominalizer change,

Whitman's intriguing analysis ultimately shifts its focus to a development of a wider "anticipatory spellout" theory and in the end no longer makes clear how the re-analysis of nominalizers and the loss of genitive Case actually would be related.

<sup>18</sup> Having assumed that Chinese *de* and Japanese *no* were originally interpreted as being anaphorically linked to an element in the discourse (via a PRO element), it would seem that these cases are in fact rather similar, and the nominalizers simply provide elements which may be optionally bound and controlled by some other temporal/discourse operator (in other cases of course the same morphemes may simply serve as semantically empty embedding elements either in the nominal or clausal domain). The difference among those nominalizers which are associated with a certain interpretation would reduce to whether the operator-binding is syntactically effected (as with Japanese *no* and Hebrew *ha* in T<sup>0</sup> being bound by a higher +finite T<sup>0</sup>), or whether the binding becomes grammaticalized as part of the necessary meaning of the morpheme (as with Chinese *de* coming to instantiate past tense).

<sup>19</sup> Note in this regard too that copulas often do not assign any overt Case to their complements whereas other verb-types do. Consequently nominalized complements of copulas are not so clearly signalled as nominal categories, this facilitating re-analysis as simple clausal elements.

<sup>20</sup> If a Kaynean analysis of relative clauses is adopted where there is selection relation between a D<sup>0</sup> head and the relative clause, it can be suggested that the obvious optionality of relative clause modification must somehow make this a weaker selectional relation than in other head-argument pairings.

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