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# On the DP/NP Analysis of Mandarin Chinese and its Implications

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# On the DP/NP Analysis of Mandarin Chinese and its Implications

## **Abstract**

In this paper, I examine the nominal structure in Mandarin Chinese (MC). Specifically, I discuss the issue of whether the DP projection is always present in syntax (the Universal DP Hypothesis) or the existence of DP may be dependent on languages (the DP/NP Parameter). Based on a test established in Despic (2009), I examine the relevant data in MC and argue that, contrary to the claim traditionally held in the literature, DP does not exist in MC. Using tests from binding paradigm, it is further shown that classifiers do head their own projections in MC, as previously argued in the literature. Similar examination is also applied to Japanese to show that Japanese behaves alike with MC in two respects. First, DP does not exist in Japanese, either. Second, classifiers are also heading their projection, not merely adjoined to NPs. Lastly, as a result of the paradigm, I discuss some of the consequences on the nature of classifiers and argue that, while classifiers in MC and Japanese are enclitics and need a preceding host, classifiers in Cantonese are free morphemes and can occur alone by themselves.

# On the DP/NP Analysis of Mandarin Chinese and its Implications

Hsu-Te Johnny Cheng<sup>\*</sup>

## 1 Introduction

Traditionally, a phrase such as *the book* in English has been analyzed as a Noun Phrase (NP), with the determiner *the* occupying the specifier position of the NP, as in (1).

- (1) [<sub>NP</sub> the [<sub>N'</sub> book]]

Since Fukui (1986) and Abney (1987), it has been assumed that determiners such as *the* also head their own projections and take the NP as their complements. Under this assumption, the phrase *the book* is not an NP, but a Determiner Phrase (DP). The structure is shown in (2).

- (2) [<sub>DP</sub> the [<sub>NP</sub> book]]

Moreover, it has been assumed that the DP projection is present in every language (the Universal DP Hypothesis). The fact that some languages (such as Mandarin Chinese) do not have an (overt) DP projection is attributed to a difference in phonology, i.e., a phonologically null D. The difference between English and Mandarin Chinese is illustrated in (3).

- (3) a. [<sub>DP</sub> **the** [<sub>NP</sub> book [<sub>CP</sub> that John bought yesterday]]]  
b. [<sub>DP</sub> **D** [<sub>NP</sub> [<sub>CP</sub> Zhangsan zuotian mai de] shu]]  
Zhangsan yesterday buy DE book  
'the book that Zhangsan bought yesterday'

The goal of this paper is to provide facts from Mandarin Chinese (MC), based on a paradigm from Despić (2009), and argue that the above assumption/hypothesis is incorrect. In other words, it will be argued that not every language has the DP projection (either phonologically overt or null). In some languages, nominals may have the DP projection, but, in others, they may only have the NP projection (disregarding other functional projections). Following the convention, this is termed the DP/NP parameter.

The organization of the paper is as follows. In Section 2, I review Despić's (2009) paradigm and arguments in Serbo-Croatian (SC) for the lack of DP in SC. In Section 3, I examine binding facts in MC and argue that DP does not exist in MC either. I further explore constructions with additional classifiers (CL) and argue that CL does head its own projection in MC. In Section 4, I examine Japanese data and claim that Japanese shows the same pattern as MC, thus also arguing against DP in Japanese. In Section 5, I investigate the implication of the current paradigm/theory on the nature of the classifier phrase (CLP). Section 6 concludes the whole paper.

## 2 The Paradigm in Despić 2009

It is argued in Despić 2009 that the binding facts in different languages plus Kayne's (1994) Antisymmetry theory may provide a window to the existence/absence of DP. Consider the following sentences.

- (4) a. His friend considers John highly intelligent.  
b. John's friend considers him highly intelligent.  
c. [<sub>DP</sub> possessor [<sub>D'</sub> D [<sub>NP</sub> N]]]

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Under the traditional analysis, the grammaticality of (4a–b) can be captured straightforwardly, under the assumption that the possessor (*his* in (4a) and *John's* in (4b)) occupies [Spec, DP] position, as shown in the structure in (4c). The possessors thus cannot c-command out of DP from [Spec, DP] position. The nominal *John* in (4a) and *him* in (4b) are free from being c-commanded by the possessor. The sentences are grammatical with no Condition C or B violation, respectively.

However, under Kayne's (1994) Linear Correspondence Axiom (LCA) and his definition of c-command, as given in (5) below, the grammaticality of (4a,b) is unexpected. In Kayne's theory, specifiers are adjuncts/adjoined to their sisters. The possessor (*his* in (4a) and *John's* in (4b)) thus can c-command out of the adjoined phrase and bind *John* and *him* in (4a–b), respectively. However, the sentences are grammatical and do not have the predicted Condition C and B violations.

- (5) a. X c-commands Y iff X and Y are categories, X excludes Y and every category that dominates X dominates Y.  
 b. X excludes Y if no segment of X dominates Y. (Kayne 1994:16)

To accommodate (4a,b), Kayne (1994) thus proposes that, rather than (4c), possessive nominals should have the structure as in (6) below, in which the possessor is located in the specifier position of the Poss(essive) Phrase, which in turn is dominated by (the null) DP. This extra layer of projection (DP) thus blocks the c-commanding domain of *his* in (4a) and *John's* in (4b). Therefore, there is no Condition C or B violation.

- (6) [DP [D' D [PossP John [Poss' 's [NP friend]]]]]

Under the so-called Universal DP Hypothesis, it is predicted that the DP is always present in syntax and the corresponding sentences of (4a,b) should be grammatical in every language, since there is always an extra layer of DP that can block the c-commanding domain of the possessor. However, Despić (2009) found that this prediction is not borne out. The corresponding sentences of (4a,b) are ungrammatical in SC (with co-reference), as shown in (7).

- (7) a. \*Njegov<sub>1</sub> otac smatra Marko<sub>1</sub> veoma pametnim.  
 His father<sub>NOM</sub> consider Marko<sub>ACC</sub> very smart  
 'His<sub>1</sub> father considers Marko<sub>1</sub> highly intelligent.'  
 b. \*Markov<sub>1</sub> otac smatra njega<sub>1</sub> veoma pametnim.  
 Marko's father<sub>NOM</sub> consider him<sub>ACC</sub> very smart  
 'Marko<sub>1</sub>'s father considers him<sub>1</sub> highly intelligent.'

The ungrammaticality of (7a–b) shows that the possessor does c-command out of the possessor phrase and binds the R-expression and the pronoun in (7a–b) respectively, resulting in Condition C and B violations. Despić (2009) takes this as evidence that there is not an additional DP layer above the PossP in SC, arguing against the Universal DP Hypothesis.

Despić (2009) further notes that it is not the case that DP only co-occurs with certain words (say, demonstratives such as *that*), since the following sentence in (8) is still ungrammatical (with co-reference). This shows that in SC there is no DP above the highest nominal projection even when demonstratives occur. Otherwise, the c-commanding domain will be blocked and the sentence should be grammatical, contrary to fact.

- (8) \*[NP Ovaj [N' njegov<sub>1</sub> [N' drug]]] smatra Marko<sub>1</sub> pametnim.  
 this his friend<sub>NOM</sub> consider Marko<sub>ACC</sub> smart  
 'This friend of his<sub>1</sub> considers Marko<sub>1</sub> smart.'

In this section, I gave a brief summary of Despić's (2009) argument against the Universal DP Hypothesis based on binding facts from SC. In the next section, I will apply his argument and reasoning to examine MC data.

### 3 The Facts in Mandarin Chinese

Having examined Despić's (2009) argument against the existence of DP in SC, in this section I will apply his argument and examine the data in MC. Just like SC, MC also does not have an overt determiner. However, various proposals have been proposed in the literature arguing for the existence of D in MC (Tang 1990, Li 1998, 1999, Simpson 2001, Saito et al. 2008 (SLM), among others. See Lin 1997 for a different view). The paradigm in Despić 2009 thus provides us with a useful way to examine the DP/NP status of a given language. The corresponding core data of (4a–b) from MC is given in (9) below.

- (9) a. \*Ta<sub>1</sub>-de pengyou renwei Akiu<sub>1</sub> hen congming.  
       he-gen friend think Akiu very smart  
       ‘His friend thinks Akiu is very smart.’  
   b. \*Akiu<sub>1</sub>-de zhaopian xiaodao-le ta<sub>1</sub>  
       Akiu-gen picture scare-asp he  
       ‘Akiu’s picture scared him.’  
   c. Akiu<sub>1</sub>-de pengyou renwei ta<sub>1</sub> hen congming.  
       Akiu-gen friend think he very smart  
       ‘Akiu’s friend thinks he is very smart.’

As shown above, (9a,b) in MC patterns with (7a–b) in SC (but differs from (4a–b) in English) in that they are also ungrammatical with co-reference between the pronoun and the R-expression. The ungrammaticality may be taken as indication that the possessor in (9a) and the R-expression in (9b) do c-command out of the possessor phrase and bind the pronoun and the proper name, resulting in Condition C and B violations, respectively. Just like the paradigm in SC, if there were an additional layer of DP above it, there should be no binding violations and (9a–b) should be grammatical with co-reference, contrary to fact. The same grammaticality judgment between (7a–b) and (9a,b) shows that there is no DP in MC either. (9c) is used as a control to show that it is really binding theory, not co-reference per se, that determines the grammaticality of a given sentence. When binding theory is not relevant, as in (9c), it is possible to have co-reference.

To use of the above example as evidence for the absence of DP in MC, it should be shown that binding theory works in the same way in MC as it does in English. In other words, the possibility that binding theory works differently in MC should be excluded. This is shown in (10) below. When the proper name and the pronouns are further embedded, such as in a complex NP, it is possible to have co-reference. (9c), together with (10a–b), show that binding theory works in the same way in MC as in English. It is the lack of the additional DP layer in MC that makes co-reference impossible, since it will induce violations of binding principles. Similarly, when the relevant pronouns are embedded under a Boolean (conjoined) phrase, as in (11a–b), co-reference is also possible. The Boolean phrase in (11) thus serves the same function as DP in English in that it will create an additional layer of projection and block the c-commanding domain.

- (10) a. [xihuan Akiu<sub>1</sub> de ren] ye xihuan ta<sub>1</sub>-de didi  
       like Akiu DE person also like he-gen brother  
       ‘The person who likes Akiu also likes his brother.’  
   b. [xihuan ta<sub>1</sub>-de didi de ren] ye xihuan Akiu<sub>1</sub>.  
       like he-gen brother DE person also like Akiu  
       ‘The person who likes his brother also likes Akiu.’  
   (11) a. ta-de mama he ta-de baba dou renwei Akiu hen congming  
       he-gen mother and he-gen father all think Akiu very smart  
       ‘His mother and his father all think that Akiu is very smart.’  
       b. [<sub>&P</sub> his mother [<sub>&</sub> and his father]]

Interestingly, when there is a classifier (plus numerals) in front of the relevant pronoun/proper name, the sentence is grammatical with co-reference, as shown in (12) and (13) below. The contrast between (9a–b) on the one hand and (12–13) on the other shows that classifiers in MC are performing the same function as determiners in English. In other words, they both create an addi-

tional layer of projection and can block the c-commanding domain of the relevant pronoun/proper name. Therefore, there will not be a condition B or C violation and the sentence is grammatical with co-reference. This thus provides an extra piece of evidence that classifiers in MC do head their own projections, a view that has been argued in Tang 1990, Cheng and Sybesma 1999, and Li 1999, among others.

- (12) You san-ge ta<sub>1</sub>-de pengyou renwei Akiu<sub>1</sub> hen congming.<sup>1</sup>  
 have 3-cl he-gen friend think Akiu very smart  
 ‘Three of his friends think that Akiu is very smart.’
- (13) You san-zhang Akiu<sub>1</sub>-de zhaopian xiaodao-le ta<sub>1</sub>  
 have 3-cl Akiu-gen picture scare-asp he  
 ‘Three of Akiu’s pictures scared him.’

If classifiers head their own projections (Classifier Phrase - CLP), then it is predicted that the sentence will be ungrammatical if the relevant binder appears in [Spec, CLP], or adjoined to CLP, in which case the binder can c-command out of CLP and bind the relevant pronoun/proper name, resulting in a binding principle violation. This prediction is indeed borne out, as shown in the ungrammaticality of (14) and (15) below.

- (14) \*Ta<sub>1</sub>-de san-ge pengyou renwei Akiu<sub>1</sub> hen congming  
 he-gen 3-cl friend think Akiu very smart  
 ‘His three friends think that Akiu is very smart.’
- (15) \*Akiu<sub>1</sub>-de san-zhang zhaopian xiaodao-le ta<sub>1</sub>  
 Akiu-gen 3-cl picture scare-asp he  
 ‘Akiu’s three pictures scared him.’

The ungrammaticality of (14) and (15) lends further support to the claim that there is no DP above the highest nominal projection in MC. If DP does exist in MC, (14) and (15) would have the structure in (16). This extra layer of DP should block the c-commanding domain of the relevant binder and the sentence should be grammatical with co-reference, contrary to fact. I take the examples presented above as supporting evidence that DP does not exist in MC.

- (16) [<sub>DP</sub> D [<sub>CLP</sub> his [<sub>CLP</sub> 3-cl [<sub>NP</sub> N]]]]

#### 4 The Implications on Japanese

Having discussed the paradigm in MC and used Despić’s (2009) paradigm as argument for the absence of DP in MC, in this section I will examine the paradigms in Japanese and discuss some of the implications on the theory. Two main questions will be asked. First, does Japanese pattern alike with MC and SC or with English? In other words, does Japanese have the DP projection? Can Japanese be used to further distinguish the Universal DP Hypothesis and the DP/NP Parameter? Second, do classifiers in Japanese also head their own projections or are they merely adjuncts (that are adjoined to some major phrase categories)? An investigation into these two questions can tell us more about the nominal structure in Japanese.

It has been proposed in the literature that DP also exists in Japanese (cf. SLM 2008, Watanabe 2008, among others). It is then expected that the binding paradigm in Japanese should pattern like English, but not like MC or SC. In other words, the counterpart of (4a,b) in Japanese should be grammatical. This prediction, however, is not borne out. The relevant examples in Japanese are provided in (17) below.

- (17) \*kare<sub>1</sub>-no tomodachi-ga [Taroo<sub>1</sub>-ga atama-ga ii to] omotteiru  
 he-gen friend-nom Taroo-nom head-nom good C think

<sup>1</sup>The existence of *you* ‘have’ in (12) and (13) is obligatory. It is not possible to just have numerals and classifiers without *you* ‘have’ in subject position in MC. There is a specificity requirement on subject in MC. The readers are referred to Tsai (2001) for some relevant discussion on the topic.

‘His<sub>1</sub> friends think that Taroo<sub>1</sub> is smart.’

As shown above, (17) is ungrammatical with co-reference between *kare* ‘he’ and *Taroo*, exhibiting similar behavior to the MC counterpart in (9a) and the SC counterpart in (7a). Following the reasoning above, the fact that (17) is ungrammatical suggests that there is no additional projection above *kare-no tomodachi* ‘his friend’ in Japanese to block the c-commanding domain of the pronoun *kare* ‘he.’ This lends support to the claim that DP does not exist in Japanese, arguing against the view held in SLM 2008 and Watanabe 2008, etc.

As for the status of the classifier in Japanese, it is claimed in SLM 2008 that classifiers in Japanese differ from those in MC in that classifiers in MC head their own projections while classifiers in Japanese are merely adjuncts that are adjoined to some XPs. It is then expected that the counterpart of (12) in Japanese should behave differently from that in MC since classifiers (and numerals) will be able to c-command from the adjoined position and bind the relevant bindee, causing a binding principle violation. This prediction, however, is not borne out either. The relevant example is shown in (18).

- (18) San-nin-no *kare*<sub>1</sub>-no tomodachi-ga [Taroo<sub>1</sub>-ga atama-ga ii to] omotteiru  
 3-cl-gen he-gen friend-nom Taroo-nom head-nom good C think  
 ‘Three of his friends think that Taroo is smart.’

As shown above, (18) is grammatical.<sup>2</sup> This indicates that the pronoun *kare* ‘he’ cannot bind the proper name *Taroo*, which in turn suggests that there is an additional layer of projection to block the c-commanding domain of the possessor. The grammaticality of (18) gives evidence to the claim that classifiers in Japanese behave just like those in MC in that they both head their own projections, a view different from the one in SLM 2008.

One supporting piece of evidence for the claim above comes from (19), in which the possessor and the classifiers (plus numerals) have changed their relevant order. (19) is just as bad as (14) in MC, which is ungrammatical with co-reference. Under the view that classifiers head projections and the possessor in [Spec, CLP] (or adjoined to CLP) can c-command out of this projection to bind *Taroo*, the ungrammaticality of (19) is expected and directly captured. However, if classifiers are merely adjuncts, the contrast between (18) and (19) remains unsolved. It is not clear why the relevant order between the classifier and the possessor will affect co-referential possibilities. I take this as supporting evidence that classifiers also head their own projections in Japanese.

- (19) ?\*Kare<sub>1</sub>-no san-nin-no tomodachi-ga [Taroo<sub>1</sub>-ga atama-ga ii to] omotteiru  
 he-gen 3-cl-gen friend-nom Taroo-nom head-nom good C think  
 ‘His three friends think that Taroo is smart.’

In this section, I reviewed the paradigm in Japanese and tried to examine two questions mentioned at the beginning of the section. It is concluded that (a) the binding paradigm in Japanese shows that DP does not exist in Japanese, and (b) classifiers in Japanese, like those in MC, are not merely adjuncts, but head their own projections.

## 5 The Implications on the Classifier Phrase

In this section, I will investigate how the paradigm/theory examined above will affect our understanding of the classifier system and the implication on the theory itself. For expository purposes, I will illustrate this with examples from MC. It is claimed that the analysis presented here will shed light on the nature of classifiers.

Consider once again the examples in (9a) and (12), repeated here as (20a–b), respectively.

- (20) a. \*Ta<sub>1</sub>-de pengyou renwei Akiu<sub>1</sub> hen congming.

<sup>2</sup>Some of my informants found (18) a little bit marginal with co-reference, but they also agree that there is a significant improvement in grammaticality between (17) and (18).

- he-gen friend think Akiu very smart  
 ‘His friend thinks Akiu is very smart.’  
 b. You san-ge ta<sub>1</sub>-de pengyou renwei Akiu<sub>1</sub> hen congming.  
 have 3-cl he-gen friend think Akiu very smart  
 ‘Three of his friends think that Akiu is very smart.’

Recall that (20a) is used to argue that there is no DP above the highest nominal projection in MC. This is why the pronoun can c-command out of the possessor phrase and bind *Akiu*, resulting in a Condition C violation. On the other hand, (20b) is used to argue that classifiers in MC do head their own projection and, thus, can block the c-commanding domain of the possessor. Therefore, the sentence in (20b) is grammatical with co-reference. Given the possibility of an extra layer of classifier phrase (CLP) in MC, one might wonder why this possibility is not available in (20). In other words, why can't (20a) have an empty CLP above the possessor phrase, as in the structure in (21), in which case the sentence will be grammatical, since this extra (null) CLP will block the c-commanding domain of the possessor.

(21) [<sub>CLP</sub> CL [<sub>POSSP</sub> his [<sub>NP</sub> friend]]]

I will argue that there is in fact no (null) CLP in (20a) for an independent reason: classifiers in MC are enclitics (suffixes), a clitic that must follow its host. I further propose that this is a PF requirement. In other words, classifiers in MC (being enclitics) should be attached to their preceding host via merger under PF adjacency. Since there is no other phonetically overt element before the possessor in (20a), there cannot be a classifier above the possessor. If there were, the classifier would have nothing to attach to, resulting in PF crash. The possibility of a null CLP in (20a) is thus excluded. Similarly, the contrast between (17) and (18) may be accounted for in the same fashion. In other words, classifiers in Japanese are also enclitics, the nature of which excludes the possibility of a null CLP in (17), hence the ungrammaticality.

The claim that classifiers are enclitics in MC may be supported by the following examples. As shown in (22a–b), the phrases are ungrammatical/ill-formed without the demonstratives *zhe* ‘this’ in (22a) and the numeral *san* ‘three’ in (22b). This shows that classifiers are enclitics and need a preceding host.<sup>3</sup>

- (22) a. \*(Zhe) Zhi-gou hen keai                      b. \*(san)-nin-no gakusei-ga kita.  
           this CL-dog very cute                      three CL-gen student-nom came  
           ‘This dog was very cute’                      ‘Three students came.’

Given the nature of the classifiers in MC as enclitics, the structure in (21) is ruled out as a potential structure for (20a). The only option is for the null CLP to appear below the possessor phrase, as in the structure in (23). However, with this structure, the pronoun will be able to c-command out of the possessor phrase and bind the proper name. The ungrammaticality of (20a) is thus the result of the structure in (23) as the only available option.

(23) [<sub>POSSP</sub> his [<sub>CLP</sub> CL [<sub>NP</sub> friend]]]

It should be noted that not all classifiers are enclitics. Classifiers in Cantonese, for example, do not seem to be enclitics and do not need a preceding host to support their existence. They do not seem to be proclitics (prefixes), either, since they do not need a following host to support them. It thus seems that classifiers in Cantonese are more like free morphemes and can freely occur by themselves. The claim is supported by the examples in (24).

- (24) a. Zek gau gamjat dakbit tengwaa  
           CL dog today special obedient  
           ‘The dog is specially obedient today.’                      (Cheng and Sybesma 1999)

<sup>3</sup>The paradigm in Japanese shows exactly the same behavior in that classifiers without demonstratives or numerals are ill-formed.



- b. Shun ngo mai-zo sam bun  
 book I buy-asp three CL  
 ‘As for books, I bought two (of them).’

As shown in (24a), the classifier *zek* may be used together with the head noun to express definite interpretation. The sentence is perfectly grammatical in the absence of numerals. The fact that *zek* in Cantonese may appear sentence-initially suggests that it is not an enclitic. (24b), on the other hand, has a classifier *bun* in sentence-final position, suggesting that classifiers in Cantonese are not proclitics either, since they do not need an extra following element to support them. I take these as indications that classifiers in Cantonese may be more appropriately analyzed as free morphemes, which can stand alone.

Recall that the reason (21) is excluded as a possible structure for the sentence in (20a) is that classifiers in MC are enclitics. The lack of a preceding element before the classifier makes the structure in (21) untenable. However, if classifiers in Cantonese are free morphemes and can occur freely by themselves, it is predicted that (21) should be a possible structure for Cantonese and the counterpart of (20a) in Cantonese should behave differently from that in MC. Specifically, the possibility of a null CLP above the possessor phrase in the counterpart of (20a) in Cantonese should block the c-commanding domain of the pronoun. So there should be no condition C violation and the sentence in Cantonese should be grammatical with co-reference.

According to my informants, this prediction is only partially supported. While some people do feel that co-reference is possible between the counterpart sentence of (20a) in Cantonese, some people consider them ungrammatical, with the same grammaticality judgments as the MC sentence. It seems that there is some speaker variation and there is no solid consensus on the judgments. I consider this a potential problem for the theory and leave it for further investigation in the future.

## 6 Conclusion

In this paper, based on a paradigm established in Despić (2009), I examined data from MC and investigated whether MC can tell us something about the Universal DP Hypothesis and the DP/NP Parameter. I further discussed whether the paradigm can shed light on the nominal structure of Japanese. Moreover, an implication on the structure of classifier phrases is also discussed. The main conclusion of this paper may be summarized as in (25).

- (25) a. Using the binding tests from Despić 2009, I show that there is no DP above the highest nominal projections in both MC and Japanese, arguing against the Universal DP hypothesis and in favor of the DP/NP Parameter.  
 b. On the other hand, classifiers in both MC and Japanese behave similarly in that they both head their own projections and will block the c-commanding binding domain. They are not just adjuncts adjoined to NPs.  
 c. The binding facts suggest that classifiers in MC and Japanese are enclitics and need a preceding host. Classifiers in Cantonese, on the other hand, are free morphemes.

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