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### Relativization and DP Structure in Late Archaic Chinese

Late Archaic Chinese employed two morphemes in the formation of subject relative clauses. *Zhi* 之 acted as the linking element in headed relative clauses, while *zhe* 者 formed headless relatives. The main claim of this paper is that the two morphemes, ZHI and ZHE, occupy different positions in the noun phrase structure. Primary evidence comes from the fact that the two could co-occur, indicating that are not in complementary distribution and must be located in different structural positions. Supporting evidence is provided by the fact that the two had different functions. For instance, ZHI could select a possessor, while ZHE could not. I further show that ZHI occupied a higher structural position than ZHE. The analysis I propose is that ZHI is the head of the full DP projection, selecting possessors and marking definiteness. ZHE is located in a lower determiner position, *n*, whose main function is to mark specificity. This paper further suggests that although the morphemes ZHI and ZHE were subsequently lost or replaced through diachronic change, the distinct positions and functions are retained in some modern Sinitic varieties.

KEYWORDS: Late Archaic Chinese, relative clause, DP structure

#### 1. Introduction

In Modern Mandarin, both headed and headless relative clauses are formed by placing the functional morpheme *de* 的 after the modifying clause. In headed relatives, the head NP follows DE.

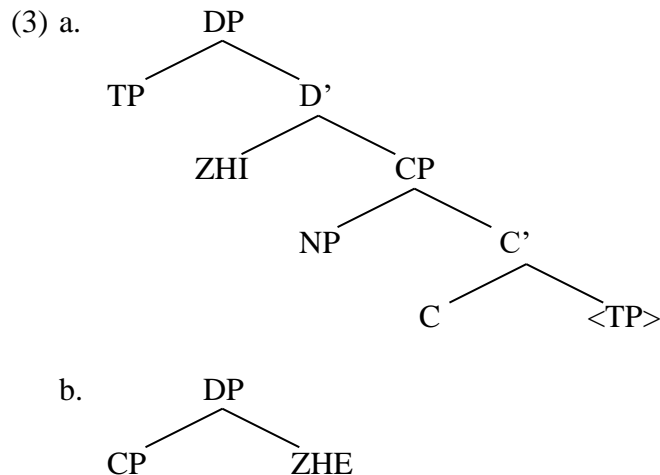
- (1) a. [[Zai nabian kan shu] **de** ren] shi xuesheng.  
           at there read book DE person COP student  
           ‘The person reading a book over there is a student.’  
       b. [Kan zazhi] **de**] shi laoshi.  
           read magazine DE COP teacher  
           ‘The one reading a magazine is a teacher.’

In contrast to this, Late Archaic Chinese of the 5<sup>th</sup> to 3<sup>rd</sup> Centuries BCE exhibited an asymmetry between headed and headless relative clauses. The linking element in headed relatives was *zhi* 之, while headless relatives were followed by *zhe* 者.

- (2) a. 豈若從避世之士哉。 (Analects, Weizi)  
       qi ruo cong [[bi shi] **zhi** shi] zai.  
       how like follow escape world ZHI scholar EXCL  
       ‘How could that compare to following a scholar who escapes from the world?’

- b. 夫執輿者為誰？ (Analects, Weizi)  
 [Fu [zhi yu] zhe] wei shei?  
 DEM control carriage ZHE COP who  
 ‘Who is the one driving the carriage?’

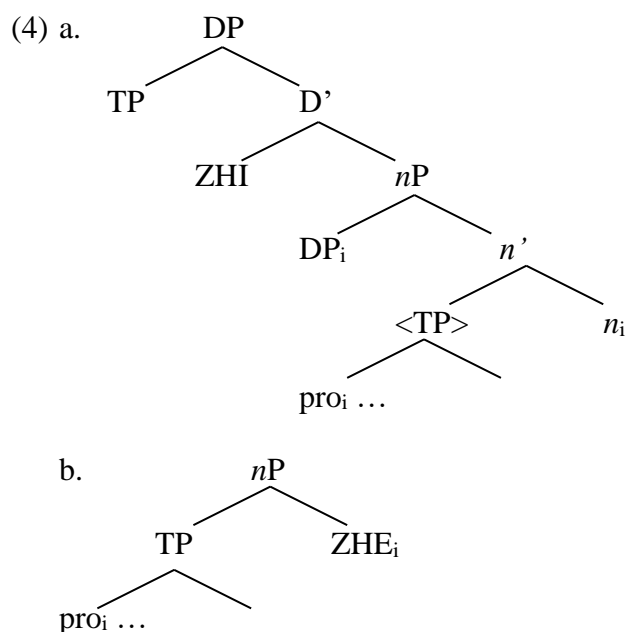
Given the fact that the two functions are performed by a single morpheme in Modern Mandarin, coupled with the phonetic similarity between ZHI and ZHE, one might arrive at the hypothesis that ZHI and ZHE are in complementary distribution and are different spell-outs of the same functional head, depending on other structural factors. Following Kayne (1994) and the application of this approach to Chinese by Wu (2000), Simpson (2001), and Simpson and Wu (2002), we could propose that both ZHI and ZHE are spell-outs of a feature bundle in D which selects a CP relative clause. The head NP in the relative clause moves to [Spec, CP], and the remnant TP then fronts to [Spec, DP], leaving the head nominal stranded below D. Following this, vocabulary insertion in the Morphological Component (in the theory of Distributed Morphology as proposed by Halle and Marantz 1993, Harley and Noyer 1999, and others) determines whether D is spelled out as “zhi” or “zhe”. Specifically, “zhi” is inserted for D if both the specifier and complement contain overt material. “Zhe” is inserted if only one of these is filled.



In this paper, I reject the approach in (3), arguing instead that ZHI and ZHE occupy different positions within DP rather than being in complementary distribution. Only ZHI is located in D, while ZHE occupies a lower determiner position *n* (Aldridge 2009). *n* selects the relative clause, which is a TP (and not a CP). This analysis captures the fact that relative clauses in Archaic Chinese were not finite CPs but nominalizations. In other words, they were mixed projections in the sense of Abney (1987), Borsley and Kornfilt (2000), Baker (2005, 2011), Grohmann and Panagiotidis (2009), and others, with a nominal layer consisting of DP and *n*P dominating the TP.<sup>1</sup> Both the relative clause and the head nominal are merged within this projection. *n* acts

<sup>1</sup> The reader is referred to Aldridge (2013) for in-depth discussion and analysis of Archaic Chinese relative clauses as nominalizations.

as the operator binding the gap position in the clause.<sup>2</sup> Consequently, *nP* is the locus of relativization. If an external head appears, this DP is merged in the specifier of *nP* and can provide external reference for the operator. ZHI occupies the head of DP. In a headed relative clause, the TP is fronted to [Spec, DP]. After the structure is sent to the Morphological Component for vocabulary insertion, the *n* head is spelled out as “zhe” if its complement position contains overt material, i.e. if TP has not fronted. Otherwise, *n* will be spelled out as null.



The analysis in (4) makes a number of predictions which distinguish it from (3). I demonstrate in section 2 that these predictions are indeed borne out. First, since ZHI and ZHE are instantiations of different feature bundles, they have distinct functions. Secondly, since ZHI and ZHE do not occupy the same position, they are not in complementary distribution and are able to co-occur. Finally, I also present evidence that ZHI is located in a structurally more prominent position than ZHE. In section 3, I discuss diachronic changes and offer evidence for the preservation of the two positions within DP in some modern varieties of Chinese.

## 2. Differences between ZHI and ZHE

In this section, I show that ZHI and ZHE have different functions and occupy different positions. I also offer evidence that ZHI occupies the structurally higher D position.

### 2.1. Functional Difference between ZHI and ZHE

In this subsection, I show that ZHI and ZHE have different functions. Specifically, ZHI was used to mark possession, but this was not possible for ZHE. In (5) ZHI

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<sup>2</sup> See Basilico (1996) for a similar proposal in which a determiner acts the binding for the variable position within a relative clause.

appears between the possessor and possessum. There are no examples of the sort shown in (5c) in Late Archaic Chinese in which ZHE is immediately preceded by a possessor.

- (5) a. 文王之囿方七十里。 (Mencius, Liang Hui Wang 2)  
 [DP Wen wang **zhi** [NP you]] fang qishi li.  
 Wen king ZHI park square 70 neighborhood  
 ‘King Wen’s park was as big as 70 neighborhoods (70 square li).’
- b. 枉道而事人，何必去父母之邦。 (Analects, Weizi)  
 Wang dao er shi ren,  
 bend principle CONJ serve person  
 he bi qu [DP fumu **zhi** [NP bang]]?  
 what need leave parents ZHI land  
 ‘If (I) bent my principles to do my duty, then what need would there be to leave the land of my parents?’
- c. \*文王者  
 Wen wang zhe  
 Wen king ZHE  
 ‘King Wen’s’

The lack of possessor constructions involving ZHE cannot be attributed to an inability of ZHE to select a nominal complement. Much of the basis for Aldridge’s (2009) claim that ZHE, like ZHI, is a type of determiner comes from the fact that it could in fact select a nominal complement, typically an NP (or NumP).

- (6) a. 願君去此三子者也。 (Hanfeizi 36)  
 Yuan jun qu [DP ci [nP [NP san zi] **zhe**]] ye.  
 desire lord dismiss this 3 man ZHE NMLZ  
 ‘(I) hope your lordship will dismiss these three men.’
- b. 良人者所仰望而終身也。 (Mencius, Lilou 2)  
 [nP [NP liangren] **zhe**] suo yangwang er zhongshen ye.  
 husband ZHE REL look.up.to CONJ lifelong COP  
 ‘A husband is someone we should look up to our entire lives.’

The function of ZHE when it selected a nominal complement was not to bind a syntactic gap to form a relative clause. Rather, ZHE was the semantic binder for the variable introduced by the predicate NP, a role analogous to that attributed to determiners in the DP hypothesis of Szabolcsi (1983), Abney (1987), Longobardi (1994), and many others. Aldridge (2009) proposes that the specific function of ZHE as a determiner is the role of individuation, which Cheng and Sybesma (1999) attribute to classifiers in Modern Mandarin. Consequently, ZHE did not select a possessor because this DP is a saturated category and did not supply a variable which could be bound by ZHE.

In sum, only ZHI was used to mark possessors, while ZHE lacked this function. This lack of overlap in function suggests that ZHI and ZHE were not different phonetic realizations of the same feature bundle. Rather, ZHI and ZHE occupied different structural positions as different morphosyntactic feature bundles.

## 2.2. Co-occurrence of ZHI and ZHE

In this subsection, I show that ZHI and ZHE could co-occur, indicating that the two morphemes were not in complementary distribution and had to have occupied different structural positions. First, the examples in (7) show that a headless relative clause formed with ZHE can be possessed. The possessor is marked with ZHI.

- (7) a. 晉之從政者新，未能行令。 (Zuozhan, Xuan 12)  
 [DP Jin **zhi** [<sub>nP</sub> [TP cong zheng] **zhe**]] xin  
 Jin ZHI exercise power ZHE new  
 wei neng xing ling  
 not.yet can execute order  
 ‘The commander of the Jin (forces) is new; (he) is not able to have his orders carried out.’
- b. 王之為都者，臣知五人焉。 (Mencius, Gongsun Chou 2)  
 [DP Wang **zhi** [<sub>nP</sub> [NP wei du] **zhe**]]  
 king ZHI govern province ZHE  
 chen zhi wu ren yan.  
 I know 5 person therein  
 ‘Of your majesty’s provincial governors, I know five.’

Temporal and locative constituents can also fill the possessor position, occurring to the left of the linker ZHI. ZHE again follows the clause.

- (8) a. 守先王之道以待後之學者。 (Mencius, Teng Wen Gong 2)  
 shou xian wang zhi dao  
 observe ancientking ZHI principle  
 yi dai [<sub>DP</sub> hou **zhi** [<sub>nP</sub> [TP xue] **zhe**]]  
 C await future ZHI study ZHE  
 ‘(He) observes the principles of the ancient kings in order to await future scholars.’
- b. 夫傳兩喜兩怒之言，天下之難者也。 (Zhuangzi, Renjianshi)  
 Fu chuan liang xi liang nu zhi yan,  
 DEM transmit both joy both anger ZHI word  
 [<sub>DP</sub> tianxia **zhi** [<sub>nP</sub> [TP nan] **zhe**]] ye.  
 world ZHI difficult ZHE COP  
 ‘Transmitting words or joy and anger from both sides is one of the most difficult things in the world.’

The external position of the possessors in (8) is emphasized by the contrast with examples like (9), in which a temporal modifier appears inside the relative clause and lacks genitive marking by ZHI. This results in a low scope interpretation for the adverb.

- (9) 天之將喪斯文也，後死者不得與於斯文也。 (Analects, Zihan)  
 Tian zhi jiang sang si wen ye  
 Heaven Gen will extinguish this culture NMLZ  
 [<sub>nP</sub> [<sub>TP</sub> hou si] zhe] bu de yu yu si wen ye.  
 later die ZHE not can be with this culture COP  
 ‘If Heaven intends to extinguish this culture, then those who will die later will not be able to have contact with it.’

(10) shows a construction which was common in Late Archaic Chinese but which is lacking in Modern Mandarin. The head nominal appears to the left of the clause. The linker ZHI intervenes between it and the clause, and ZHE follows the relative clause. On the analysis proposed in (4), the head NP moves from its base position in [Spec, *nP*] to [Spec, DP]. TP remains in the complement position of *nP*. This construction has distinctive interpretative characteristics which I discuss in the next subsection.

- (10) 馬之死者已過半矣。 (Zhuangzi, Mati)  
 [DP ma zhi [<sub>nP</sub> [<sub>TP</sub> si] zhe]] yi guo ban yi.  
 horse ZHI die ZHE ASP surpass half ASP  
 ‘The horses which have died are more than half.’

To summarize the discussion so far, ZHE and ZHI can co-occur within a single DP, indicating that they occupy different structural positions and cannot be analyzed as being in complementary distribution vying for a single position. One final point to be made in this subsection is that the co-occurrence of ZHI and ZHE should not be analyzed as instances of recursion, ZHE and ZHI each occupying a different DP head. This is clear from the fact observed in section 2.1 that ZHI and ZHE have different functions. The next subsection provides further evidence for the distinction between the semantic contributions of ZHI and ZHE.

### 2.3. ZHI > ZHE (Information Structure)

This subsection presents evidence for the proposal that ZHI occupies a higher position in DP than ZHE. The evidence for this claim comes from information structure. What I show in this section is that ZHI is associated with definite or generic interpretations, while ZHE expresses only specificity. First, returning to the postnominal relative clause introduced in (10) in the preceding subsection, this type of relative clause is used when the head nominal refers to a discourse topic. (11) shows part of the preceding discourse for this example. In the text, a horse trainer is describing his training program, specifically describing his treatment of the horses he trains. It is clear from the discourse that *ma* ‘horse’ is the topic of the discussion.

- (11) 我善治馬 ... 飢之，渴之，馳之 ...  
 Wo shan zhi ma ... ji zhi, ke zhi, chi zhi ...  
 I well train horse starve 3.OBJ thirst 3.OBJ run 3.OBJ

馬之死者已過半矣。 (Zhuangzi, Mati)  
 [DP ma **zhi** [<sub>nP</sub> [TP si] **zhe**]] yi guo ban yi.  
 horse ZHI die ZHE ASP surpass half ASP  
 ‘I am good at training horses...I starve them, deprive them of water, run them...the horses which have died are more than half.’

In contrast to constructions like (11), relative clauses of the type in (12) do not refer to topics but rather occur at the beginning of the discourse. The relative clauses in (12) are another type of postnominal relative. However, no ZHI appears; the clause simply follows head nominal without any linking morpheme. On the analysis proposed in (4), the head NP remains in its base position in [Spec, *nP*].

- (12) a. 吾有司死者，三十三人。 (Mencius, Liang Hui Wang 2)  
 [<sub>nP</sub> [Wu yousi] [<sub>n'</sub> [TP si] **zhe**]] san-shi-san ren  
 my officer die ZHE 33 person  
 ‘I lost 33 officers.’ (lit. ‘My officers who died were 33.’)  
 b. 臣弑其君者有之。 (Mencius, Teng Wen Gong 2)  
 [<sub>nP</sub> chen [<sub>n'</sub> [TP shi qi jun] **zhe**]] you zhi.  
 minister assassinate his lord ZHE exist this  
 ‘There are ministers who assassinate their lords.’

The contrast between postnominal relatives with and without ZHI is brought home by the fact that only the latter can occur as the complement of the existential verb. Postnominal relatives without ZHI occur very frequently in classical texts in existential constructions in order to introduce referents into the discourse. The fact that ZHI never occurs between the head nominal and the clause can be accounted for by Milsark’s (1974) Definiteness Restriction on existential constructions. The presence of ZHI forces a definite interpretation for this DP, which is incompatible with the semantics of an existential construction. ZHE, on the other hand, since it is associated with individuation, or perhaps specificity, (but not necessarily with definiteness) occurs naturally in an existential construction.

- (13) a. 有一史後至者。 (Zhuangzi, Quqie)  
 You [<sub>nP</sub> [yi shi] [<sub>n'</sub> [TP hou zhi] **zhe**]].  
 exist one scribe later arrive ZHE  
 ‘There was one scribe who arrived late.’  
 b. 有人日攘其鄰之雞者。 (Mencius, Teng Wen Gong 2)  
 you [ren [[ri rang qi lin zhi ji] **zhe**]].  
 exist person daily steal 3.GEN neighbor GEN chicken ZHE  
 ‘There is someone who steals chickens from his neighbor every day.’

The fact that ZHI is associated with a definite or generic interpretation and ZHE with a specific interpretation can be accounted for in an articulated DP structure of the type proposed in (4) in section 1. Following Borer (2005), Jackendoff (1977), Lyons (1999), and others, I assume that strong or definite determiners occupy a higher position in DP than weak determiners or determiners expressing cardinality or individuation. Therefore, it is plausible to analyze ZHI as occupying a higher

structural position than ZHE. Specifically, ZHI can be analyzed as located in D and ZHE in *n*.

### 3. Diachronic Implications

In the preceding section, I argued that Late Archaic Chinese ZHI and ZHE had different functions and occupied different positions within the DP structure. In this section, I consider diachronic changes, principally the loss of ZHI, which resulted in the distinct functions of ZHI and ZHE being assumed by the single morpheme DE in Modern Standard Mandarin. However, I also provide evidence from other modern varieties of Chinese for the persistence of the two positions within DP formerly occupied by ZHI and ZHE. Consequently, although the Archaic Chinese morphemes have been lost or replaced over time, there is evidence that the basic structure of the Chinese nominal projection has remained unaltered since Archaic times.

#### 3.1. Early Changes from Archaic to Middle Chinese

In this subsection, I provide evidence for the loss of ZHI in early Middle Chinese.<sup>3</sup> First, (14) shows that ZHI ceased to be obligatory as a linking element in relative clauses and other modification structures. The following examples are taken from a Western Han text of approximately 100 BCE. Both are examples in which a modifier appears without the linking element ZHI between it and the head nominal.

- (15) a. 守者乃請出棄簣中死人。 (Shiji, Fan Ju)  
 Shou zhe nai qing chu qi  
 Guard ZHE then ask remove discard  
 [[ze zhong] \_\_\_\_\_ [si ren]].  
 mat in (ZHI) dead person  
 ‘The guard then asked to take out and discard the dead person that was in the mat.’
- b. 始嘗欲殺文公宦者履鞮知其謀。 (Shiji, Jin Shijia)  
 [[Shi chang yu sha Wen Gong] \_\_\_\_\_ huanzhe Lü Di]  
 beginning before want kill Wen lord (ZHI) eunuch Lü Di  
 zhi qi mo.  
 know 3.GEN plot  
 ‘The eunuch Lü Di, who wanted to kill the lord Wen in the beginning, knew of their plot.’

ZHI was lost in other contexts as well. As subject and object embedded clauses in Late Archaic Chinese were nominalized, the embedded subject was typically marked with genitive case, as shown in (15a). (15b) shows a similar sentence in a Western Han period (early Middle Chinese) historical chronicle. The Han example does not use genitive case for the embedded subject.

<sup>3</sup> I am in agreement with Wang (1958), Chou (1963), Peyraube (1988), and Shi (2002) that the significant grammatical discrepancies in evidence in the 2<sup>nd</sup> century BCE warrant designating a major period break corresponding with the beginning of the Han Dynasty. Shi (2002) is consistent with my position in identifying this break as marking the beginning of Middle Chinese.



- (15) a. 天下之無道也久矣。 (Analects, Bayi)  
 [Tianxia **zhi** wu dao ye] jiu yi.  
 world GEN not.have way NMLZ long PERF  
 ‘It is a long time since the world has been without the proper way.’
- b. 天下無道久矣。 (Shiji 47)  
 [Tianxia wu dao] jiu yi.  
 world not.have way long PERF  
 ‘It is a long time since the world has been without the proper way.’

As ZHI is lost from the language, ZHE can be found in functions previously performed only by ZHI. As Lü (1943), Feng (1991), and Jiang (1999) point out, ZHE can be found marking possessors in Middle Chinese texts.

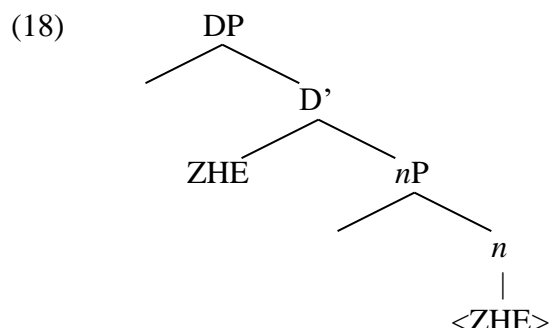
- (16) a. 聞弦者音 (Early Middle Chinese: *Zhanguoce*)  
 wen [xian **zhe** yin]  
 hear string ZHE sound  
 ‘hearing the sound of the string(s)’
- b. 南海所生，尤勝蜀者。 (Early Modern Chinese: *Guoshibu* 1.7)  
 Nanhai suo sheng, you sheng [shu **zhe**].  
 Nanhai REL produce more better Shu ZHE  
 ‘The ones produced in Nanhai far surpass those of Shu.’

The preceding evidence thus provides support for the conclusion put forth by Lü (1943), Ohta (1958), Cao (1986), Feng (1991), Jiang (1999), and others that ZHE was the morpheme replaced by DE in Middle Chinese and not ZHI. The graph 者 ZHE was eventually replaced by the phonetically similar 底 *di*. The following examples show DI with a possessor, modifier, and as the linker between a relative clause and the head nominal. In short, DI at this time has all the functions of Modern Mandarin DE.

- (17) a. 汝底 (10<sup>th</sup> century; *Zutangji*; from Jiang 1999:84)  
 ru di  
 you DE  
 ‘your’
- b. 虛底  
 xu di  
 empty DE  
 ‘empty one’
- c. 不辨生死底人  
 bu bian sheng si di ren  
 not discern live die DE person  
 ‘someone who could be dead or alive’

I propose that the loss of ZHI and its replacement by ZHE (DI/DE) took place in the following way. ZHI began to drop out of the language in early middle Chinese. ZHE

was able to take over the functions of ZHI because it could move to the D position, with the result that it came to be able to occupy either the *n* and D position. This change is thus an example of the type of grammaticalization resulting from head movement proposed by Roberts and Roussou (2003).



DI replaces ZHE in early modern Chinese, and DI becomes DE in Modern Mandarin. This leads to the conclusion that DE in Modern Mandarin can occupy either D or *n* depending on its function. Due to limitations of space, I will not further discuss Mandarin DE in this paper. Rather, I present evidence from other varieties of Chinese that both positions in the DP structure shown in (18) are maintained in modern Chinese.

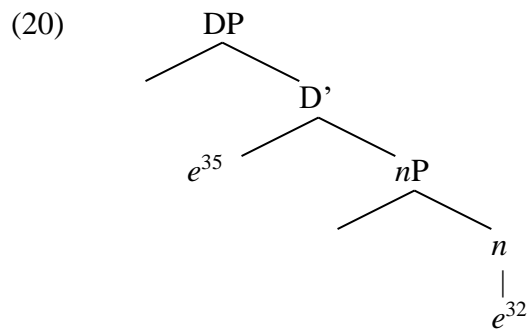
### 3.2. Different ‘DE’ in other Sinitic Languages

The proposal that two positions in DP participate in relative clause formation receives support from other varieties of Chinese. Yue-Hashimoto (1993) shows that the Liangcheng dialect of Hakka, for example, has two separate morphemes corresponding to Standard Mandarin DE:  $e^{35}$  and  $e^{32}$ . They differ in terms of tone,  $e^{35}$  having a mid falling tone and  $e^{32}$  a mid rising tone. The functions  $e^{35}$  and  $e^{32}$  are parallel to Archaic Chinese ZHI and ZHE, respectively.  $e^{35}$  occurs in a headed relative clause and  $e^{32}$  in a headless relative.

- (19) a. 燒 (lau<sup>33</sup> lau<sup>33</sup>)  $e^{35}$  粥  
 steaming.hot DE1 rice.gruel  
 “steaming hot rice gruel”  
 b. 燒 (lau<sup>33</sup> lau<sup>33</sup>)  $e^{32}$   
 steaming.hot DE2  
 “steaming hot one”

(Yue-Hashimoto 1993:229)

The existence of two phonetically distinct morphemes in Liangcheng Hakka with functions corresponding the ZHI and ZHE is very suggestive that the articulated DP structure of Late Archaic Chinese persists in modern varieties. Liangcheng Hakka  $e^{35}$  can be analyzed as occupying the D position of Archaic Chinese ZHI, while  $e^{32}$  is in the *n* position of ZHE.



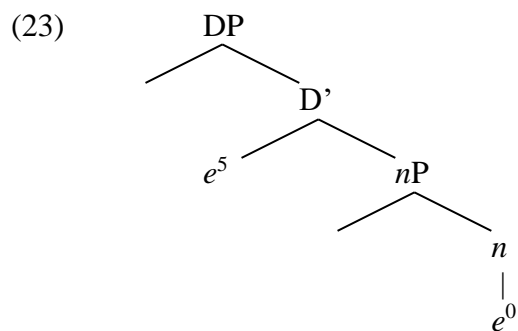
Li (2012) discusses a similar pair in Taiwan Southern Min. As in Liangcheng Hakka, the morpheme corresponding to Mandarin DE is *e* but pronounced with a different tone depending on its function and environment. When *e* is preceded by a possessor, its base tone is 5 (low-rising), though it is pronounced with tone 7 (mid-level) according to the rules of Taiwanese tone sandhi if it is followed by an overt possessum.

- (21) hit-e haksing e<sup>5</sup> (pio-a)  
 that-CL student E watch  
 ‘that student’s (watch)’ (Li 2012:20)

When *e* is preceded by an adjectival or clausal modifier, its base tone is 5 (pronounced as tone 7 if it is followed by overt material). If it is not followed by overt material, the base (and pronounced) tone is the neutral tone.

- (22) a. kui e<sup>5</sup> pio-a  
 expensive E watch  
 ‘expensive watch’  
 b. kui e<sup>0</sup>  
 expensive E  
 ‘expensive one’ (Li 2012:21)

Thus, Taiwanese seems to be in even closer alignment with Late Archaic Chinese. Tone 5 *e* has the both the functions of ZHI, acting as genitive marker and as linker between modifier and head NP. I propose that *e*<sup>5</sup> occupies the D position. Neutral tone *e* behaves as ZHE, following modifiers but not possessors and never preceding overt material. I propose that it occupies the *n* position.



#### 4. Conclusion

This paper has argued for an articulated DP structure for both Late Archaic Chinese and modern Sinitic varieties. In Late Archaic Chinese, ZHI was the head of DP, the highest functional position in the nominal projection. It could select a possessor or serve as the linking element between a modifier and modified NP. ZHE was located lower on the DP spine, specifically heading a *n*P projection. The main function of ZHE was to bind a variable, either syntactically to form a relative clause or semantically to make a nominal specific.

In Middle Chinese, ZHI was lost from the language and replaced by ZHE. This replacement was the result of head movement from *n* to the empty D position. The graph for ZHE was eventually replaced by a phonetically similar graph which was in turn replaced in Modern Mandarin by DE 的. Modern Mandarin DE performs the functions of both ZHI and ZHE. But more direct evidence for the persistence of both the D and *n* positions in modern Chinese DP structure can be found in other Sinitic varieties which employ separate morphemes whose functions mirror those of Archaic Chinese ZHI and ZHE.

#### References

- Abney, Steven Paul. 1987. The English noun phrase in its sentential aspect. Doctoral dissertation, Massachusetts Institute of Technology.
- Aldridge, Edith. 2009. Old Chinese determiner *Zhe*. In *Historical Syntax and Linguistic Theory*, ed. Paola Crisma, Giuseppe Longobardi, 233-248. Oxford University Press.
- Aldridge, Edith. 2013. Object relative clauses in Archaic Chinese. *Canadian Journal of Linguistics* 58.2:239-265.
- Baker, Mark C. 2005. On gerunds and the theory of categories. Ms., Rutgers University.
- Baker, Mark C. 2011. Degrees of nominalization: Clause-like constituents in Sakha. *Lingua* 121:1164-1193.
- Basilico, David. 1996. Head position and internally headed relative clauses. *Language* 72.3: 498-532.
- Borer, Hagit. 2005. *In Name Only*. Oxford University Press.
- Borsley, Robert and Jaklin Kornfilt. 2000. Mixed extended projections. In *Syntax and Semantics, vol. 32: The Nature and Function of Syntactic Categories*, ed. Robert Borsley, 101-131. New York: Academic Press.
- Cao, Guang Shun. 1986. *Zutangji* zhong de 'di' ('di'), 'que' ('liao'), 'zhu' [ 'di', 'que', 'zhu' in the *Zutangji*. *Zhongguo Yuwen* 1986.3:192-202.
- Cheng, Lisa L.-S. and Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30.4:509-542.
- Feng, Chun Tian. 1991. *Jindai Hanyu Yufa Wenti Yanjiu* [Research on Early Modern Chinese Grammar]. Shandong Jiaoyu [Shandong Education] Publishers.
- Grohmann, Kleanthes and E. Phoevos Panagiotidis. 2009. Mixed projections: Categorical switches and prolific domains. *Linguistic Analysis* 35:141-161.
- Halle, Moris and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The View from Building 20: Essays in Linguistics in Honor of*

- Sylvain Bromberger, ed. Kenneth Hale and Samuel Keyser, 111-176. Cambridge, MA: MIT Press.
- Harley, Heidi and Rolf Noyer. 1999. Distributed Morphology. *Glott International* 4.4:3-9.
- Jackendoff, Ray. 1977. *X' Syntax: A Study in of Phrase Structure*. Cambridge, MA: MIT Press.
- Jiang, Lansheng. 1999. Chusuoci de lingge yongfa yu jiegou zhuci 'di' de youlai [Possessor marking by a locative and the origin of the grammatical particle 'di']. *Zhongguo Yuwen* 1999:83-93.
- Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- Li, Yen-hui Audrey. 2012. *de* in Mandarin  $\Leftrightarrow$  *e* in Taiwanese. *Studies in Chinese Linguistics* 33.1:17-40.
- Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25.4:609-665.
- Lü, Shuxiang. 1943. Lun *di*<sub>3</sub>, *di*<sub>4</sub> zhi bian ji *di*<sub>3</sub>-zi de youlai [On the differences between *di*<sub>3</sub> and *di*<sub>4</sub> and the origin of *d*<sub>3</sub>]. Reprinted *Hanyu Yufa Lunwenji* [Papers on Chinese Grammar], 51-58. Beijing: Kexue Chubanshe, 1955.
- Lyons, Christopher 1999. *Definiteness*. Cambridge University Press.
- Milsark, G. 1974. Existential sentences in English. Doctoral dissertation, Massachusetts Institute of Technology.
- Ohta, Tatsuo. 1958. *Chugokogo Rekishi Bunpo* [Chinese Historical Grammar]. Tokyo: Konan Shoin.
- Roberts, Ian and Anna Roussou. 2003. *Syntactic Change: A Minimalist Approach to Grammaticalization*. Cambridge University Press.
- Simpson, Andrew. 2001. Definiteness agreement and the Chinese DP. *Language and Linguistics* 2.1:125-156.
- Simpson, Andrew and Zoe Wu. 2002. Agreement, shells, and focus. *Language* 78.2:287-313.
- Szabolcsi, Anna. 1983. The possessor that ran away from home. *The Linguistic Review* 3:89-102.
- Wu, Zoe. 2000. Grammaticalization and the development of functional categories in Mandarin. Doctoral dissertation, University of Southern California.
- Yue-Hashimoto, Anne. 1993. *Comparative Chinese Dialect Grammar: Handbook for Investigators*. Paris: Centre de Recherches Linguistiques sur l'Asie Orientale.