

## RESEARCH

## Microparameters and language variation

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Due to issues with macroparameters, much work has turned to identifying microparameters (generally feature specifications in the Lexicon). This line of research often focuses on the comparison of dialects or comparison among the varieties of closely related language families. Baker (2008) questions the sufficiency of focusing on such microparametric syntax. This paper shows that even within the varieties of a single language family (Chinese), the reliance on lexical feature specifications (microparameter) could miss opportunities for discovering more fundamental and principled factors underlying cross-linguistic differences. Indeed, some of such differences analyzed in terms of microparameters should be re-considered from the prosodic perspective. Our focus will be on a number of microparameters proposed by Huang (2014) as converging to an analyticity vs. syntheticity macroparameter, building on differences among diachronic and synchronic varieties in the Chinese language family. This paper shows that the relevant empirical claims are not confirmed when a broader range of data is investigated. Importantly, the analyses proposed in terms of microparameters mask more adequate accounts for the differences, with prosodic variation playing a role.

**Keywords:** Microparameter; Analyticity macroparameter; Prosody; Chinese languages

How to adequately describe and account for language variation has been a central issue in linguistic research. In the framework of Principles and Parameters (Chomsky 1981), efforts were focused on identifying parameters accommodating clusters of differences across languages. The null subject parameter, connecting the availability of null subjects and others such as extraction possibilities, agreement, etc., was an influential example (Rizzi 1982; Jaeggli & Safir 1989; among many others). Unfortunately, such large-scale clustering of cross-linguistic variation turned out to be more ideal than reality (Gilligan 1987; Newmeyer 2004; Boeckx 2014; Paul 2015). Accordingly, attention has been shifted to smaller-scale differences, i.e. moving from the search for macroparameters to the identification of microparameters. For microparameters, triggers have generally been attributed to feature specifications of lexical items, specifically functional heads. This is the line of research led by Borer (1984) and Chomsky (1995), basing on the “Borer-Chomsky conjecture” as termed by Baker (2008).

Nonetheless, the shift to identifying microparameters raised questions about the status of macroparameters, as noted in Kayne (2005; 2013), Baker (2008), Gianollo et al. (2008), Holmberg (2010), Roberts & Holmberg (2010), Huang (2014), Huang & Roberts (2017), Roberts (2017), among others. The special “Parameter” issue of *Linguistic Analysis* (41: 3–4) raised fundamental issues on the role of parameters in capturing cross-linguistic variation. There have been different views on the status of macro and microparameters (grammatical and lexical). One among them is to take microparameters as the core and to search for as-many-as-possible microparameters that seem to converge to an overarching macroparameter. That is, a macroparameter is the converging product of the clustering of

properties describable in terms of microparameters. Much effort in this line of research is on the comparison of dialects within a language family or among the varieties of closely related language families.

A different view is articulated in Baker (2008), which compares microparametric and macroparametric syntax and shows that there can be variation in the grammar proper (macroparameter). That is, there are some parameters within the statements of the general principles that shape natural language syntax—the so-called “grammatical parameters”, because they concern principles of grammar that cannot be localized in the lexicon per se, in contrast to “lexical parameters” or microparameters, presupposed by the Borer-Chomsky conjecture—all parameters of variation are attributable to differences in the features of particular items (e.g., the functional heads) in the lexicon. Baker notes that the parameters of a more or less macroparametric sort he presented in the paper were discovered by comparing Bantu languages with Indo-European languages, which probably would not have been achieved if we focus on microcomparative syntax.

This work addresses issues regarding microparametric syntax and shows that going beyond lexical parameters is needed for more adequate descriptions of linguistic variation and better understanding of the nature of variation. Indeed, some differences captured in terms of microparameters (lexical feature specifications) should be reanalyzed from the perspective of prosody and discourse. These non-lexical, non-grammatical factors should be seriously pursued for a more adequate description of parametrization. Particularly, the role of prosody has been recognized, and various phenomena once treated in exclusively syntactic terms have been reanalyzed in terms of the syntax-phonology interface (see, e.g., Feng 1995; 2007; 2016; 2017; Zubizarreta 1998; 2016; Bošković 2001; 2011; Kandybowicz 2006; 2009; An 2007a; b; Agbayani & Golston 2010; Agbayani et al. 2010; Richards 2010; Bennett et al. 2013; Féry & Ishihara 2016: Part IV). Such a conception of parametrization will be shown to provide a more accurate account for differences even among the varieties within a single language family.

Our focus will be on a number of microparameters proposed as converging to an “analyticity macroparameter”, built on differences among varieties within the Chinese language family, as in Huang (2014) (also discussed in Tang 2006)—diachronic and synchronic varieties in the Chinese language family such as Old Chinese,<sup>1</sup> modern Mandarin Chinese, and other modern varieties differ in a significant number of constructions. These differing properties converge to a macroparameter of analyticity vs. syntheticity. Modern Mandarin can be classified as a highly analytic language, Old Chinese as a language of significant synthesis (which is more like modern English), and some other varieties in the modern Chinese language family representing varying degrees of analyticity. In the theory according to which microparameters are attributed to the presence or absence of particular triggering heads, with the Probe-Goal mechanism of Chomsky (2000 et seq.), a head with a [+EPP] or [+strong] feature leads to movement and synthesis, while [−EPP] or [−strong] heads preserve analyticity by leaving elements separated in situ.

The empirical basis of this work will be built on the observed contrasts within Chinese listed in Huang (2014: Section 7) (other relevant references to be cited in the respective sections). The three cases in (1) will be the foci.

- (1)
  - a. the presence/absence of the numeral ‘one’ in noun phrases with classifiers
  - b. the construction [*dao* ‘to’ + location + *qu* ‘go’] vs. [*qu* ‘go’ + location]
  - c. the order of [verb + definite object] vs. [definite object + verb]

<sup>1</sup> Old Chinese is used as equivalent to Late Archaic Chinese, dated 500 BC to 200 AD, in Huang (2014: 27).

Huang suggests that these cases support the following generalization: Cantonese, Mandarin and Taiwanese Southern Min (TSM) differ in seemingly small ways, yet the smaller differences are clustered into an overarching systematic difference—TSM is more analytic than Mandarin, which in turn is more analytic than Cantonese. That is, these languages demonstrate different degrees of analyticity, with TSM being of the highest degree of analyticity: TSM > Mandarin > Cantonese.

We will show that in fact, the distinction among these languages is not as clear-cut as presented and can be better understood in other ways than what has been proposed. Our theoretical claim is that when an account couched in the above-mentioned microparametric research program is mainly built on the specification of the strength of features (strong vs. weak features) on certain lexical items (lexical parameter), there could be missed opportunities to gain a deeper understanding of relevant issues. In terms of the linguistic comparison at hand, the microparametric account proposed masks the more fundamental motivations for cross-linguistic variation. We can gain better insight by going beyond lexical feature specification; through independently-supported principles, we can account for relevant linguistic phenomena in a systematic manner. It will also be shown that prosodic properties can be different among these varieties of the same tonal Chinese language family, the effects of which are manifested in important grammatical differences. In this sense, prosodic properties of specific languages play an important role in capturing cross-linguistic variation.

This paper is organized as follows. Section 1 describes the data for the three cases in Chinese languages and the proposed microparameters. Section 2 to 4 show that the data and subsequent theoretical accounts discussed in the literature for each of the three cases are not confirmed by a broader investigation of the relevant constructions. Instead, we show that the more adequate empirical generalizations can be accounted for if we consider prosodic properties and independently-needed constraints of the languages in question. Importantly, there is no need for the use of strong/weak features specified for particular lexical items; i.e., lexical parameters are not supported by the relevant empirical generalizations.

## 1 Three microparameters for the macro analyticity parameter

This section summarizes the main data and analyses in Huang (2014: Section 7; also see Liu 2001; Tang 2006), leading to the claim that TSM is more analytic than Mandarin, which in turn is more analytic than Cantonese.

### 1.1 Case 1: The presence/absence of ‘one’

As well-noted in the literature, ‘one’ in noun phrases of the form [‘one’ + Cl(assifier) + NP] in Chinese can be deleted (in the non-technical sense, i.e., missing), but different varieties of the Chinese language family contrast in the possibility of ‘one’-deletion (Lü 1944; Chao 1968; Li 1998; Cheng & Sybesma 1999; Jiang 2012; Huang 2014; Li & Feng 2015; 2018). Cantonese quite freely allows a ‘one’-less [Cl + NP] – a bare classifier phrase. A bare classifier phrase in this language can be interpreted as definite or indefinite, depending on discourse contexts and syntactic positions.

#### (2) *Cantonese*

- a. Ngo soeng maai [bun syu] (lei taai).  
I want buy CL book come read  
‘I want to buy a book (to read).’
- b. [Zek gau] zungji sek juk.  
CL dog like eat meat  
‘The dog likes to eat meat.’

- c. Ngo zungji tong [zek gau] waan.  
I like with CL dog play  
'I like to play with a/the dog.'

In contrast, Mandarin does not allow a bare classifier phrase [Cl-NP] to be interpreted as definite, and an indefinite [Cl-NP] is impossible in the subject position.

(3) *Mandarin*

- a. Wo xiang mai [e ben shu] song-gei ta.  
I want buy CL book give-to he  
'I would like to buy a book to give to him.'
- b. Ta ba [e ge hao pengyou] gei dezui le.  
ta BA CL good friend give offend SFP  
'He got a good friend offended.'
- c. \*[e Ge hao pengyou] zou le.  
CL good friend leave SFP  
'Intended: A/The good friend left.'

TSM appears to be the strictest: it does not seem to allow 'one'-deletion.

(4) *TSM*

- a. Gua xiunnbe be [\*(tsit) pun tsheh] lai khuann.<sup>2</sup>  
I want buy (one) CL book come read  
'I would like to buy a book to read.'
- b. I ka [\*(tsit) pun tsheh] phangkinn khi a.  
he BA one CL book lose away SFP  
'He lost a book.'
- c. [\*(Tsit) tsia kau-a] tsautshukhi a.  
one CL dog-PAR run.out.away SFP  
'A dog ran away.'

To capture the contrast, Huang (2014: 38) proposes the null numeral 'one' microparameter in (5). The differences among these three languages are to be derived from the feature strength of the numeral head 'one'.

(5) The null numeral 'one' microparameter:

- a. In Mandarin, [<sub>one</sub> e] is [-strong], triggering Agree with Cl.  
b. In Cantonese, [<sub>one</sub> e] is [+strong], triggering Move of Cl.  
c. In TSM, [<sub>Num</sub> one] is lexical and hence [-strong].

(5a) and (5b) state that both Mandarin and Cantonese have a null Numeral head [<sub>one</sub> e] in the extended nominal projection. The difference between these two languages lies in the strong feature lexically specified for [<sub>one</sub> e] in Cantonese versus the weak feature for [<sub>one</sub> e] in Mandarin. A strong feature needs to be checked; it requires Cl to move to Num (and subsequent movement to D for the definite interpretation) in Cantonese. A weak feature does not require movement; it triggers Agree. The absence of movement means the null Num in Mandarin remains empty, which limits the distribution, such as sensitivity to the Empty Category Principle, as in Li's (1998) account for determiner and number phrases,

<sup>2</sup> The Romanization symbols of Huang's TSM examples have been adjusted to conform with those used in the other examples in this paper, which follow the system used in the online dictionary <https://itaigi.tw>.

capturing the fact that Mandarin only allows bare classifier phrases in the object position. TSM contrasts with Mandarin and Cantonese in requiring a non-null lexical Num head. A lexical Num must be specified as having a weak feature, unable to trigger movement.

### 1.2 Case 2: The construction [*dao* 'to' + location + *qu* 'go'] vs. [*qu* 'go' + location]

It has been noted in Lamarre (2009; 2017) that there is a north-south contrast among Chinese languages in the ways of expressing motion to a destination.<sup>3</sup> According to Lamarre, (6a) and (6b) are possible in the northern part of China (the morphemes *dao* and *qu* are Mandarin); only (6b) in the southern part (including Cantonese and TSM). The contrast in the availability of (6b) has been attributed to the influence from the Altaic languages North of China (Hashimoto 1986).

#### (6) *Mandarin*

- a. [*dao* 'to' + location + *qu* 'go']  
 Wo *dao* gongyuan *qu*.  
 I to park go  
 'I go to the park.'
- b. [*qu* 'go' + location]  
 Wo *qu* gongyuan.  
 I go park  
 'I go to the park.'

Huang takes the two forms as indications of different degrees of analyticity. According to him, (6a) represents the analytic form, and (6b), the synthetic form. The synthetic form is obtained when a light null predicate higher than the V is present and triggers movement of *qu* 'go'. The higher light null predicate bearing a strong feature triggers the movement of 'go' in Cantonese. When *dao* is present in place of the light null predicate, the lexical item must bear a weak feature and therefore does not trigger the movement of 'go'. Mandarin allows both (6a) and (6b). Cantonese requires the form in (6b). An earlier stage of Mandarin of the Ming-Qing period (1368–1911) allows only option (6a). Therefore, the ranking of relative analyticity in (7) is proposed: movement of the motion verb to a higher light predicate is blocked (analytic), optional, or required (synthetic) (Huang 2014: 40).

- (7) Ranking of relative analyticity according to the use of (6a) and (6b):<sup>4</sup>  
 Ming-Qing Mandarin (1368–1911) > Modern Mandarin > Cantonese

### 1.3 Case 3: Definite object in preverbal vs. postverbal position

The third case as evidence for a microparameter converging with others to an analyticity macroparameter is based on the observation that the position of a definite object seems to differ in these varieties of the Chinese language family. Liu (2001) classifies Chinese languages into the strong SVO type represented by Cantonese, the mild SVO type as in Mandarin, and the weak SVO represented by Wu and Min. Some characteristics of the strong SVO type (Cantonese) are:<sup>5</sup>

<sup>3</sup> The discussion regarding this case in the rest of the paper applies to 'come' as well. We follow the literature and only use 'go' in the examples.

<sup>4</sup> The dates for the Ming-Qing period are added by us.

<sup>5</sup> Liu (2001) also suggests that a strong SVO language like Cantonese has the comparative standard appearing after the adjective: subject + adjective + *guo* 'pass' + comparative standard. However, the so-called weak SVO language like Taiwanese Southern Min allows this form as well. We will not discuss this further.

- (8) a. under-development of the disposal *ba* construction;  
 b. the location phrase following the motion verb, as in (6b).

On the other hand, Huang focuses on the distribution of definite objects. He marks the following contrasts (Huang 2014: 39):

- (9) *Cantonese*  
 a. Ngo m jungyi [bun syu].  
    I not like CL book  
    ‘I don’t like this book.’  
 b.?? Ngo [bun syu] m jungyi.  
    I CL book not like
- (10) *Mandarin*  
 a. Wo bu xihuan [zhe ben shu].  
    I not like this CL book  
    ‘I don’t like this book.’  
 b. Wo [zhe ben shu] bu xihuan.  
    I this CL book not like  
    ‘I don’t like this book.’
- (11) *TSM*  
 a. ??Gua khuann bo [tsit pun tsheh].  
    I read not this CL book  
    ‘I can’t read this book.’  
 b. Gua [tsit pun tsheh] khuann bo.  
    I this CL book read not  
    ‘I can’t read this book.’

Based on the differences illustrated in (9)–(11), Huang proposes that the ordering contrasts are the results of verb raising having applied or not. Assuming that an indefinite object is base-generated in the complement of verb position, but a definite object is base-generated in the Specifier of VP position (Huang 1991; 1994; Cheng et al. 1997), V-movement obligatorily applies and crosses a definite object in Cantonese, creating the required [V + definite object] word order. Such a V-movement process is optional in Mandarin, allowing a definite object before or after the verb. The movement is blocked in TSM, resulting in the only possible [definite object + V] word order. As an indefinite object occupies the complement position of V, V-movement does not affect the order between a verb and an indefinite object. A verb precedes an indefinite object.

V-movement is triggered by a strong feature in a higher head. The obligatory head-movement derives a more synthetic construction, and the absence of movement, a more analytic one. The analyticity ranking, therefore, is TSM > Mandarin > Cantonese, with TSM being the most analytic (Huang 2014: 38–39).

In brief, the three cases above are all analyzed in terms of the presence or absence of movement, which hinges on a strong or weak feature on a higher functional head. These cases, illustrating the working of three microparameters, converge to the generalization that Cantonese is less analytic than Mandarin, which in turn is less analytic than TSM—an analyticity macroparameter (but note that TSM was not included in the discussion of Case 2).

### 1.4 Discussion

A legitimate question that arises from the above account is why certain lexical items in specific languages are specified as having strong or weak features such that movement is triggered or blocked. Are such lexical feature specifications just restating observed facts? In addition, empirical questions can be raised. Consider Case 2 first. Recall that Lamarre's north-south distinction puts TSM in the same southern group as Cantonese. This means TSM should be just like Cantonese in regard to the ranking of relative analyticity. Accordingly, TSM should be ranked differently in relation to Cantonese and Mandarin in Case 2 vs. Case 1 and 3. One might argue that this is exactly the advantage of taking microparameter as primary and macroparameter as the derived, converging product. Some microparameters in the same languages may simply take opposite values. Accordingly, a lexical item is specified as having a strong or weak feature.

Nonetheless, this would mean that the value of a microparameter is arbitrary, and it would not be expected that microparameters would converge to a unifying macroparameter. The beauty of deriving a macroparameter from the clustering of microparameters would seem to be just accidental, haphazard. Moreover, one might ask how learners acquire the knowledge of which lexical items being specified as having what features so that they know when a specific trigger exists, requiring what operation to take place. If evidence comes from the construction(s) in question, then, we are just restating the fact. There need to be other clues, and such clues might turn out to be the real motivation for the observed behavior, rendering the arbitrary feature specifications on lexical items unnecessary.

The following sections provide evidence to demonstrate that this is indeed the case. We will show that some of the empirical generalizations presented above are called into question when a wider range of data is considered. The more adequate empirical generalizations will instead support our analysis to be proposed for the three cases described in section 1.1 to 1.3, which will take into account the effect of prosody and does not rely on lexical specifications of strong and weak features. The implication of our analysis is that prosodic properties can vary even among languages of the same tonal Chinese language family and they can affect grammatical behavior, as argued for in Li (2013) and Li & Feng (2015). The study of cross-linguistic variation, some seemingly of grammatical nature and having been accounted for in grammatical terms, as well as the search for parameters, can benefit from the inclusion of prosody.

## 2 'One'-deletion and prosody

The goal of this section is to show that the presence or absence of 'one' in Cantonese, Mandarin, and TSM cannot be adequately captured by the microparameter proposed in (5) empirically or analytically. There is no need to specify strong or weak features for certain lexical items. Instead, both the variation in whether a null Numeral head is base-generated, and the prosodic characteristics of these languages need to be considered to accommodate generalizations that are more complex than those stated in (5).

In section 2.1, we show that phonological conditions more adequately account for the distribution of [Cl-N] in Mandarin. Section 2.2 further argues that the relevant phonological factors capture the contrast between Mandarin and TSM and correctly predict that proper phonological conditions can license 'one'-deletion even in TSM. Section 2.3 reduces the contrast between Cantonese and Mandarin/TSM to the availability of a base-generated null numeral head in Cantonese but not in Mandarin or TSM.

## 2.1 [Cl-N] in Mandarin

The approaches to accounting for the distribution and interpretation of bare classifier phrases [Cl-N] in Mandarin Chinese are mainly of two lines: (i) ['one'-Cl-N] and [Cl-N] are different in syntax, and there is no derivational relation between the two, and (ii) the two have the same syntactic form; [Cl-N] is the result of the phonological operation of deleting *yi* 'one' in ['one'-Cl-N]). We briefly review the two approaches and show why we adopt the analysis of deleting *yi* 'one' phonologically.

Cheng & Sybesma (1999) and Li & Bisang (2012) argue against the 'one'-deletion analysis. They claim that ['one'-Cl-N] and [Cl-N] have different interpretations: ['one'-Cl-N] can be either specific or nonspecific, while [Cl-N] receives only the nonspecific interpretation. However, Jiang (2012: 193–205) shows that their examples and arguments do not hold. Essentially, [Cl-N] in Mandarin can be interpreted as either nonspecific or specific, just like ['one'-Cl-N] when the quantity-denoting *yi* 'one' is phonologically weak (expressed as "one<sub>weak</sub>"). That is, [Cl-N] is equivalent to [one<sub>weak</sub>-Cl-N] in Mandarin.

Her et al. (2015) argue for the base-generation of a null numeral YI 'one', a lexical item without phonological form. With the assumption of an empty category YI 'one' in the Lexicon, [Cl-N] is [YI-Cl-N] in syntax. This analysis faces the question of when to select the null YI head over a lexical numeral head; that is, how to specify the conditions under which the null YI cannot enter a Numeration and a lexical *yi* 'one' must be selected. Their proposal is based on the distribution of the null YI. They require the classifier in [YI-Cl-N] to be cliticized to a host. The Cl must be one mora; and the host (e.g., verb-aspect) is limited to three moras. A full-tone syllable in Mandarin is heavy and bears two moras, while a neutral-toned syllable is light and has one mora. Therefore, the null YI is allowed when the verb is monosyllabic with a neutral-toned aspectual suffix like *le* or *zhe*, but not with a full-toned suffix *guo*; it is also not allowed when the classifier is bisyllabic like *gongjin* 'kilogram'.

This proposal is stated in terms of the phonological property of the host. However, the mora count of a Verb-Aspect string is the product of phonological spell-out based on a syntactic derivation. Theoretically, this kind of information should not be available at the stage of selecting lexical items. In other words, the selection of a lexical *yi* 'one' or a null YI must look ahead to the derivation and spell-out. This unnatural stipulation does not occur in the 'one'-deletion analysis, according to which the condition on deletion considers the phonological environment. This could be phrased in terms of mora counts of the host as proposed in Her et al. 2015 (also cf. the phonological condition proposed by Li & Feng 2015).

The proponents of the analysis of phonologically deleting 'one' take [one<sub>weak</sub>-Cl-N] and [Cl-N] to have the same interpretation and the same syntactic structure (Lü 1944; Li 1998; Jiang 2012; Li & Feng 2015). More precisely, as noted in Lü (1944), *yi* 'one' cannot be deleted when it is emphasized (noted as "one<sub>strong</sub>") in the following ways: (i) in sentences with negation meaning 'not a single'; (ii) in sentences when 'one' is focused; (iii) in *dou*-sentences where ['one'-Cl-N] emphasizes 'a whole Cl-N'; (iv) in sentences where the nominal phrase containing ['one'-Cl-N] is the contrastive focus. Across all these four cases, the numeral *yi* 'one' receives the focus or quantity reading (Li 1998; 2012), illustrated by the examples below (Lü 1944: 166–167; Jiang 2012: 186–187).

- (12) a. Ta zai zher mei you [\**(yi)*-ge renshi de ren].  
 he at here not have one-CL know DE person  
 'He does not know a single person here.'
- b. Jiaoshi-li zhi you [\**(yi)*-ge ren].  
 classroom-inside only have one-CL person  
 'There is only one person in the classroom.'



- c. Ta ba [\*<sub>(yi)</sub>-pan rou] dou chi le.  
 he BA one-plate(CL) meat all eat PERF  
 literally: ‘He ate one plate of meat, all (meat on the plate).’  
 ‘He finished the whole plate of meat.’
- d. Wo mai le [\*<sub>(yi)</sub>-ben zazhi] he wu-ben shu.  
 I buy PERF one-CL magazine and five-CL book  
 ‘I bought one magazine and five books.’

We adopt a DP structure for argument noun phrases in all languages, including the many varieties of Chinese, which are classifier languages allowing bare nouns in argument positions (Li 1998; 1999; Simpson 2001; Borer 2005). Li (1998; 1999) correlates a lexically filled determiner (D) with a definite or quantificational interpretation. A D can be occupied by a demonstrative or a quantifier in Chinese, deriving a definite DP or a QP.<sup>6</sup> It can also be empty. When it is empty, it can take an N as its complement and an N can be raised to D, deriving the definite interpretation for a bare noun phrase in Mandarin. It can also take a Numeral Phrase as its complement, allowing a lexical Num to be raised to D, yielding a quantificational phrase (Diesing 1992).

The four cases in (12) have a strong *yi* ‘one’, which cannot be weakened because of the focus or contrastive interpretation. A strong ‘one’ is not weak phonologically and cannot be deleted (see works such as Merchant 2001 for the phonological condition on ellipsis). “One<sub>strong</sub>” can be raised to D, deriving a QP. On the other hand, the Numeral head need not undergo movement to D. It stays in the Num head, and the D is empty, resulting in an indefinite reading. “One<sub>weak</sub>” can be deleted at the P(honological) F(orm) when the relevant phonological condition is met.

Li & Feng (2015) propose detailed conditions on the phonological deletion of ‘one’—it is the result of de-stressing *yi* ‘one’, making *yi* ‘one’ lose its tone and its vowel weakened. In addition, there must be a stressed syllable following ‘one’, normally the noun, creating a clear weak-strong contrast. Moreover, deletion applies only with certain types of classifiers and in a more casual register of speech. Formal registers disallow such a deletion.

As an illustration, a classifier such as *shan* (a less-common counting word for doors and windows) is more difficult for ‘one’-deletion than the more casual and more frequently-used generic classifier *ge*, as in (13a) and (13a’) below. (13b) and (13b’) show that the more formal (13b), as indicated by the use of the more formal verb *buhuo* instead of *zhua* for ‘arrest’, does not allow ‘one’-deletion, even though *yi* ‘one’ is in the typical *yi* ‘one’ deletion context—the postverbal object position. The contrast between (13c) and (13c’) further illustrates the importance of the phonological context: the second object of the verb allows *yi* ‘one’ deletion only when the first object is light phonologically.

(13) *Mandarin*

- a. Ta kai-le ??<sub>(yi)</sub>-shan chuanghu.  
 he open-PERF one-CL window  
 ‘He opened a window.’
- a’. Ta kai-le <sub>(yi)</sub>-ge chuanghu.  
 he open-PERF one-CL window  
 ‘He opened a window.’
- b. Zuotian jingcha buhuo-le \*<sub>(yi)</sub>-ge xiaotou.  
 yesterday police arrest-PERF one-CL thief  
 ‘Yesterday, the police arrested a thief.’

<sup>6</sup> We take a demonstrative to occupy the D position in Chinese and a QP as a DP because in this language a demonstrative always expresses definiteness and a quantifier such as ‘every’, ‘some’ does not occur with a demonstrative.

- b'. Zuotian jingcha zhua-le (yi)-ge xiaotou.  
yesterday police arrest-PERF one-CL thief  
'Yesterday, the police arrested a thief.'
- c. Ni yinggai xian gei xiaohair \*(yi)-kuai tang.  
you should first give child one-CL candy  
'You should give the child a piece of candy first.'
- c'. Ni yinggai xian gei ta (yi)-kuai tang.  
you should first give he one-CL candy  
'You should give him a piece of candy first.'

The mono-syllabic object *ta* 'he' in (13c') must be destressed when *yi* 'one' is deleted. If it is replaced by the bisyllabic *tamen* 'they', deletion of *yi* 'one' again becomes difficult, unless the bisyllabic *tamen* is pronounced fast and contracted as monosyllabic *tam*.

Further note that the N following the Cl must be present in the examples above to allow for 'one'-deletion (or, for some speakers, the classifier is pronounced more prominently). This indicates that deletion is possible only when it is supported by a following prosodically strong presence.

In brief, according to Li & Feng (2015), 'one'-deletion in Mandarin is the result of phonological deletion, subject to a number of factors, including phonological and stylistic ones. None of these are inherent properties of the lexical item 'one' or a null 'e' in the Numeral head; the context is the determining factor. Therefore, stating that Mandarin has a null Num [<sub>one</sub> e] having a [-strong] feature in the lexicon, triggering Agree (instead of Move), as in (5a), does not help us understand why 'one'-deletion is possible only in contexts defined by phonological factors.

## 2.2 The (un)availability of [Cl-N] in TSM

Phonological factors also capture the contrast between Mandarin and TSM in regard to 'one'-deletion. Research on Taiwan Mandarin shows that TSM heavily influences the prosody of Taiwan Mandarin.<sup>7</sup> It has been shown that stress is not as prominent in Taiwan Mandarin and TSM as in Beijing Mandarin. For instance, Shyu (2010) conducted experimental studies on speakers of Taiwan Mandarin and concluded that native Mandarin speakers from northern China tended to employ contrastive stress more often than Taiwan Mandarin speakers and that Taiwan Mandarin speakers did not associate stress with contrastive focus.

Another experimental study by Xu et al. (2012: 131) states that "Taiwan Mandarin seems to have lost PFC (post-focus compression) due to close contact with Taiwanese." The experimental results showed that there were clear differences in the manner of prosodically realizing focus between Taiwanese and Taiwan Mandarin on the one hand and Beijing Mandarin on the other. Acoustically, the main difference was in terms of the presence or absence of post-focus compression of F0 and of intensity: in Beijing Mandarin, F0 and intensity of post-focus words were substantially lowered, while in Taiwanese and Taiwan Mandarin, spoken by both monolingual and bilingual speakers, such postfocus compression is entirely absent.

Beijing Mandarin naturally de-stresses a syllable of bisyllabic words (generally the second syllable of bisyllabic words) and consistently shows clear weak-strong contrast in the syllables in phrases and sentences. On the other hand, TSM does not show such weak-strong contrast clearly. In TSM, every phrase or sentence consists of tone groups. Tone

<sup>7</sup> The Mandarin variety spoken in Taiwan is "Taiwan Mandarin" in this work. Beijing Mandarin is the Mandarin variety spoken in Beijing. "Mandarin" without modifiers is the standard variety spoken in Mainland China, which is largely based on Beijing Mandarin. Accordingly, Beijing Mandarin and Mandarin are used interchangeably when the distinction is not important.

grouping dictates whether or not tones undergo changes. A changed tone takes the value of another lexical tone. The tone change rule in TSM is that every syllable in a phrase takes the combination tone, except the final syllable.<sup>8</sup> The last syllable of a phrase has the isolation tone. Both combination and isolation tones are full lexical tones. The same tone value can appear in the position for the combination tone and the isolation tone. For instance, if a syllable has the isolation tone number 7, its combination tone is tone number 3. If the isolation tone number is 3, its corresponding combination tone is tone number 2. If the isolation tone number is 2, its combination tone is tone number 1, and so on. In other words, a mono-syllabic morpheme in TSM is pronounced in two different lexical tones, depending on whether it is the last syllable of a tone group. A multi-syllabic morpheme, when it ends a tone group, has its non-final syllables in the combination tone; the final syllable, the isolation tone. The important generalization is that every syllable within a tone group is pronounced with a regular lexical tone. There is no weakening of a syllable within a tone group.

In the context where ‘one’-deletion is typically found such as [verb + object], the verb and the object form a tone group.<sup>9</sup> Within this tone group, the verb takes the combination tone because it is not the final syllable of the tone group; cf. (14a). It is possible to pronounce the verb in the isolation tone; however, when this happens, every syllable of the object (the noun phrase) following the verb must appear in the weakened tone, the neutral tone, and does not belong to the tone group containing the verb or the following tone group, if there is one. In such a case, the object noun phrase must be short to avoid the sequence of too many neutral-toned syllables, such as when they are pronouns (which are monosyllabic) or just a monosyllabic Num followed by a monosyllabic Cl. The presence of a noun after Num-Cl, as in [Num-Cl-N], makes the sequence too heavy and renders it impossible to have the object noun phrase outside the tone group, all taking the neutral tone. In fact, when the object contains only a lexical noun, weakening is not possible even when it is monosyllabic.

(14a) shows that the object obligatorily forms a tone group with the verb and no syllables in the tone group can take the neutral tone. The noun in the object can be empty; the Classifier then ends the tone group and takes the isolation tone, as in (14b). (14c) demonstrates the possibility of the short object [Num-Cl] outside the tone group containing the V. (14d) shows the impossibility of such tone grouping if the object is [Num-Cl-N]. Tone groups in these examples are indicated by curly brackets.

(14) *TSM*

- a. Every syllable in the tone group taking the regular lexical tone.  
 A-ing {xiunnbe be tsit-pun tsheh}.  
 A-ing want buy one-CL book  
 ‘A-ing would like to buy a book.’  
 (tone group, the entire VP; ‘buy’, combination tone; *tsheh* ‘book’, isolation tone)

<sup>8</sup> The use of terms “combination tone” vs. “isolation tone” is intended to be theoretically neutral, as opposed to the use of terms such as the basic/citation vs. changed/derived/sandhi tone. Other theoretically neutral sets of terms have been proposed by Meyers & Tsay (2008), who suggest to label the two alternate tone forms as “juncture tone” and “context tone”. According to them, “The tone alternations are between tones as they appear in juncture position (i.e. the right edge of a phonological constituent called a tone group) and in context position (elsewhere).” (50) The use of theoretically neutral terms is preferred due to the fact that even though some in the literature have proposed that tone sandhi rules change isolation tones to combination tones (see Chiu 1931 for a pioneering work), others have argued that the combination tone should be analyzed as the basic one and the isolation tone, the derived one (such as Hashimoto 1982, and others subsequently). Many thanks to Prof. Chinfa Lien for his help on these points. Also see Simpson (2014) for a more recent discussion of the tone sandhi rules.

<sup>9</sup> Because each noun phrase must form a separate tone group, it is possible that the verb does not form a tone group with the entire object. Instead, it forms a tone group with the first noun phrase inside the object noun phrase, such as the first conjunct of an object with two conjoined phrases.

- b. Every syllable in the tone group taking the regular lexical tone.  
 A-ing {xiunnbe be tsit-pun}.  
 A-ing want buy one-CL  
 ‘A-ing would like to buy one (book).’  
 (tone group, the entire VP; ‘buy’, combination tone; the Cl *pun*, isolation tone)
- c. [Num-Cl] (in bold) outside the tone group, both syllables taking the neutral tone  
 A-ing {xiunnbe be} **tsit-pun**.  
 A-ing want buy one-CL  
 ‘A-ing would like to buy one.’  
 (tone group ending with the V; ‘buy’, isolation tone)
- d. [Num-Cl-N] (in bold) outside the tone group, taking the neutral tone  
 (the neutral-toned sequence becomes too heavy to be acceptable.)  
 \*A-ing {xiunnbe be} **tsit-pun tshéh**.  
 A-ing want buy one-CL book  
 ‘A-ing would like to buy one.’  
 (tone group ending with the V; ‘buy’, isolation tone)

Further note that Num, Cl and N must not be separated into different tone groups. Num is a head taking Classifier Phrase as complement and Cl is a head taking N as complement [Num [Cl [N]]] (Li 1998; 1999). Neither Num nor Cl ends a phrase when an N follows; therefore, they cannot end a tone group unless the following N is null as in (14b). That means (14a), (14b), and (14c) are the only possibilities with [Num-Cl] in the postverbal position. In (14a) and (14b), every syllable takes the regular lexical tone and no weak-strong syllabic contrasts are present to make the deletion of ‘one’ possible. In (14c), even though the Num has a weakened neutral tone, the following syllable is also weak. There is no strong syllable following the weak ‘one’ to support the deletion of ‘one’. This amounts to saying that ‘one’ in TSM normally does not occur in a prosodically-defined weak-strong context to make its deletion possible. ‘One’-deletion has been observed to be impossible in TSM.

Nonetheless, we predict that if there is a context where a prosodic weak-strong contrast can be established, such as when the syllables following ‘one’ are stronger, making ‘one’ weaker by comparison, then ‘one’-deletion can be available in TSM. This is indeed the case. In limited contexts, a classifier can become more prominent, pronounced with a high-level pitch (regardless of its original lexical tone, which is not the norm of tone sandhi rules in TSM), when it is suffixed by an additional high-level-toned *-a* (casual speech expressing tentativeness, followed by another VP). In this specific context [‘one’-Cl-*a* + VP], both Cl and *-a* have the high level pitch and the combined bisyllabic Cl-*a* becomes long and high pitched, leading to prosodic prominence. In (15), the bisyllabic *te-a* is pronounced with a long high level pitch:

- (15) *TSM*  
 Li sinn thek **te-a** khi tsiah.  
 you first take CL go eat  
 ‘You take one and eat first.’

In this case, the long high level pitch for the bisyllabic [Cl-*a*] provides the prosodic strong presence that allows the preceding ‘one’ to become relatively weaker by comparison, thereby supporting ‘one’-deletion.

Recapitulating the contrast between Beijing Mandarin and TSM in ‘one’-deletion: both generate [‘one’-Cl-NP] syntactically. Phonological contexts are critical to the possibility of ‘one’-deletion. Prosodic weak-strong contrasts are prominent in Beijing Mandarin but

not so in TSM normally, contributing to their different behavior in regard to ‘one’-deletion. Importantly, it is inaccurate to say that ‘one’-deletion is always possible in Beijing Mandarin and always impossible in TSM. We showed that when the prosodic weak-strong contrast is not present in Beijing Mandarin, ‘one’-deletion is not possible, and that TSM allows ‘one’-deletion when the phonological condition is met. The context where ‘one’ appears determines the (un)acceptability of its deletion. The inherent lexical properties of ‘one’ do not play a role; and the lexical specification of a strong or weak feature for ‘one’ does not tell us when ‘one’ can be deleted.

### 2.3 [Cl-N] in Cantonese

Next, we turn to the contrast between Cantonese and Mandarin/TSM and propose that the only difference between the two groups lies in the conditions under which the Num can be empty. In Mandarin/TSM, Num can become empty only at PF as a result of phonological deletion. Cantonese can base-generate an empty Num (see Li 2014 for the need of deletion at PF as well as the base-generation of an empty element). Accordingly, Cantonese allows head movement through the empty Num, which is blocked in Mandarin/TSM due to the obligatory presence of a lexical Num creating a barrier for head movement (head movement constraint; Travis 1984: 131).

Cantonese bare classifier phrases receive different analyses in Wu & Bodomo (2009), Huang (2014), as opposed to Cheng & Sybesma (1999). The latter proposes that Cantonese noun phrases can simply be headed by the Classifier head; i.e., Num and D projections are not present for definite [Cl-N] phrases. When [Cl-N] phrases are indefinite, a Num projection is added to the Classifier Phrase. The added Num can be lexically realized, deriving numeral-classifier-noun, or be null and occur in limited contexts (object positions, not subject positions).

On the other hand, both Wu & Bodomo (2009) and Huang (2014) adopt full DP structures and allow Cl to move through Num to D to derive definite noun phrases. Indefinite noun phrases are those without a filled D. As mentioned in the analysis of Mandarin ‘one’-deletion in section 2.1, we adopt a consistent DP structure for noun phrases across languages. In Mandarin/TSM, a classifier cannot be raised to D across a numeral. A classifier requires the co-occurrence of a numeral syntactically, which can only become empty at PF via phonological deletion. In contrast, a Num can be base-generated empty in Cantonese, allowing a classifier to raise through Num to D, deriving a definite [Cl-N].<sup>10</sup>

Summarizing the discussion in section 2, we have described how ‘one’-deletion is conditioned by the context where it occurs. The context can be defined in terms of prosodic properties as in Mandarin/TSM. In addition, Cantonese can base-generate a null Num allowing Cl to move to D without violating the head movement constraint. Importantly, whether the Num is specified as having a strong or weak feature in a particular language as in (5) is not needed in our account. In fact, the specification of such features in specific languages makes wrong predictions on when ‘one’-deletion is possible, because it predicts that a language is expected to consistently allow or disallow ‘one’-deletion, regardless of the context where the noun phrase occurs.

### 3 Case 2: [*dao* ‘to’ + location + *qu* ‘go’] vs. [*qu* ‘go’ + location]

The second case for a microparameter converging to an analyticity macroparameter as presented in section 1.2 is the choice of (6a) or (6b), repeated in (16):

<sup>10</sup> Cantonese [Cl-N] expressions are restricted in where they can occur. See Lau (2018) for the contexts of [Cl-N] in Cantonese—mainly depending on the type of particles that occur after the verb.

- (16) a. [*dao* ‘to’ + location + *qu* ‘go’]  
 b. [‘go’ + location]

The ranking of relative analyticity according to the use of (6)/(16) is (7), repeated as (17):

- (17) Ming-Qing Mandarin (1368–1911) > Modern Mandarin > Cantonese

In this ranking, Modern Mandarin is more analytic than Cantonese, as in Case 1. However, the analyticity hierarchy established via Case 1 regarding TSM is not replicated in Case 2. Recall that the relevant analyticity hierarchy is TSM > Mandarin > Cantonese in Case 1. If the hierarchy were consistent across cases, we expect TSM to only use the pattern in (16a). Contrary to this expectation, TSM only uses (16b), just like Cantonese (the southern group, as in Lamarre 2008; 2017). The TSM counterpart of (16a) is not acceptable, but the counterpart of (16b) is:

- (18) *TSM*  
 a. \*Gua be kau hia khi.  
 I will arrive there go  
 b. Gua be khi hia.  
 I will go there  
 ‘I will go there.’

(18a) in TSM is unacceptable because the locative *kau* in TSM only has the verb use as ‘arrive’, as illustrated in (19); it does not have the preposition use as ‘to’.

- (19) *TSM*  
 a. I tangsi e khi/kau hia khuann i?  
 you when will go/arrive there see he  
 ‘When will you go/arrive there to see him?’  
 b. I (khi) kau in tau a.  
 he go arrive their home SFP  
 ‘He has (gone and) arrived at their home.’

By contrast, Mandarin has the preposition *dao* ‘to’, and the verb *dao*, meaning ‘arrive’ or ‘go’.

- (20) *Mandarin*  
 a. Wo dei dao youju qu ji xin.  
 I should to post.office go mail letter  
 ‘I have to go to the post office to mail a letter.’  
 b. Ta dao-le Beijing.  
 he arrive-PERF Beijing  
 ‘He arrived at Beijing.’  
 c. Ta dao-guo Beijing.  
 he go-EXP Beijing  
 ‘He has been to Beijing.’

The Mandarin sentences in (20a) cannot be translated to TSM morpheme-by-morpheme. The following sentences are unacceptable in TSM with *kau*.

- (21) *TSM*  
 Gua ai khi/ \*kau iukiok khi kia phue.  
 I should go arrive post.office go mail letter  
 ‘I have to go to the post office to mail a letter.’

Two explanations are possible for the contrast above: (i) that *kau* in TSM locative expressions has not obtained the prepositional use, which is possible in Mandarin, or (ii) the southern languages (Cantonese, TSM) have not been influenced by the Altaic languages in the same way as the northern languages such as Mandarin, as Hashimoto (1986) suggested. Regardless of which option to adopt, the prediction is the same: (16a) should be a later development than (16b). However, Ming-Qing Mandarin has been stated as only using (16a), not (16b) (Huang 2014), in contrast to modern Mandarin, which allows both options.

Nonetheless, if we search the Ming-Qing texts, we actually did find instances of (16b). Some of examples of this type are given below.

- (22) *Mandarin* (from *Piaotongshi*, written in 14<sup>th</sup> c.)
- a. Qu na youming de huayuan li  
 go that famous DE garden inside  
 ‘Go into that famous garden’
  - b. Qu Jiaotou jiao ji ge da.qiang-de he bengong lai zhu qiang.  
 go Jiaotou ask several CL hit.wall.DE and worker come build wall  
 ‘Go to Jiaotou and ask several masons and workers to build a wall.’

- Mandarin* (from *Honglougeng*, written in 18<sup>th</sup> c.)
- c. Jiazhen xian qu yuanzhong zhihui.  
 Jiazhen first go garden give.notification  
 ‘Jiazhen first went to the garden to give notification.’

Accordingly, we conclude that the choice of the two forms in (16) cannot be evidence for a microparameter converging with others to the proposed analyticity macroparameter. Ming-Qing Mandarin allows both (16a) and (16b), just like modern Mandarin. Southern languages like Cantonese and TSM only use (16b).

In fact, if we follow the analysis proposed in section 1.2 for (16b), TSM should allow V-movement and that is exactly what has been proposed to capture the fact that this language, as in Mandarin, allows locative, temporal, and instrument expressions to serve as non-selected objects of verbs (Lin 2001), illustrated in (23).

- (23) *TSM*
- a. Gua be khui kosok-kongloo.  
 I will drive freeway  
 ‘I will drive (on) the freeway.’
  - b. Gua long kiann tua loo.  
 I always walk big road  
 ‘I always walk (on) big roads.’

According to Lin’s analysis for such non-selected or non-canonical objects, the main verb is raised to a higher projection headed by a light null verb licensing a locative or temporal or instrument phrase. That is, V-movement is operative in TSM and a postverbal object

can be definite or indefinite (see section 4.1). This raises questions regarding Case 3, which crucially relies on the absence of V-movement in TSM.

#### 4 Case 3: SVO<sub>def</sub> vs. SO<sub>def</sub>V

Recall that Case 3 assumes that a definite object is base-generated in the Spec of VP position; therefore, SOV is the base word order when the object is definite. The word order pattern in which a definite object (O<sub>def</sub>) follows the verb is derived by verb movement to a higher position crossing the base-generated O<sub>def</sub>. The proposed analyticity hierarchy says that TSM only has SO<sub>def</sub>V word order due to the absence of verb movement. In Mandarin, the possibilities of SO<sub>def</sub>V and SVO<sub>def</sub> are due to the optional application of verb movement. Cantonese only has SVO<sub>def</sub> because of its obligatory verb movement.

To understand these contrasts and the proposal, we first present in section 4.1 our own investigation of the relevant TSM data; the result is that SVO<sub>def</sub> order is attested from a variety of primary data sources. Therefore, SVO<sub>def</sub> cannot be ruled out grammatically. The ensuing question is whether SVO<sub>def</sub> is dis-preferred in TSM. In section 4.2, we discuss the cases with SO<sub>def</sub>V being allegedly preferred in TSM as reported in the literature. Our corpus investigation reveals that the SO<sub>def</sub>V pattern is in fact much less frequent than SVO<sub>def</sub>. Being definite is not the key factor that makes the SO<sub>def</sub>V order preferred in TSM; instead, SO<sub>def</sub>V constructions are the result of topicalizing or focalizing the object. SO<sub>def</sub>V does not represent a base-generated structure with the object in its base-generated position inside the lowest VP. Finally, in section 4.3, we suggest three factors that lead to the perceived different degrees of analyticity as described in Case 3 in section 1.3.

##### 4.1 TSM basic word order

Empirically TSM does not require nor favor the SO<sub>def</sub>V order. First, we note that the postverbal objects in the examples in (23) were glossed as definite or generic. In addition, similar sentences with morphologically-marked definite postverbal objects were readily accepted by native speakers we consulted:

- (24) TSM
- a. Gua be khui [hit-tiao kosok-kongloo].  
I will drive that-CL freeway  
'I will drive (on) that freeway.'
  - b. Gua long kiann [tsit-tiao tua loo].  
I always walk this-CL big road  
'I always walk (on) this big road.'

Moreover, corpus searches produced many instances of SVO<sub>def</sub> in TSM, illustrated below.<sup>11</sup>

- (25) TSM
- a. M-tsun li kong [tsit-khuan ue].  
not-allow you say this-kind word  
'You are not allowed to say this kind of words.'

<sup>11</sup> The TSM corpus examples are from Prof. Chinfa Lien's TSM corpus in TsingHua University, Hsinchu, Taiwan. Note that in Tang (2006) and Huang (2014), the TSM SVO<sub>def</sub> examples were not given asterisks\*. Question marks were used instead. For instance, Tang (2006: 3) have the acceptable SVO<sub>def</sub> in (i), and the SO<sub>def</sub>V example in (ii) was given only one question mark. The choice between SVO<sub>def</sub> and SO<sub>def</sub>V might involve preferences sensitive to contexts rather than reflecting an issue of (un)grammaticality.

(i) Ngo zungyi jyujinhok.  
I like linguistics

(ii) ?Ngo jyujinhok zungyi.  
I linguistics like  
'I like linguistics.'



- b. Gua u ti bio-lai ka i tiam [hit-e ting] a.  
I have at temple-inside for he light that-CL light SFP  
'I lighted that light for him at the temple.'
- c. Siang lai ka [gua] kuiki a?  
who come teach I rules SFP  
'Who comes to teach me rules?'
- d. Li e-tang sang [gua] tsit-hang mih-kiann.  
you can give I one-CL thing  
'You can give me one thing.'

The abundant occurrence of such examples means a definite object is not required to precede the verb in TSM.

If  $SO_{\text{def}}V$  is not required in TSM, is it a preferred word order? Number counts of different word orders clearly point to the conclusion that  $SO_{\text{def}}V$  order is not preferred at all. Despite the difficulty in finding searchable corpus data in TSM, we did find some suitable TSM texts and did manual counting. Our sample comes from the Taiwanese textbook compiled by Robert Cheng et al. (2000). The book is a compilation of writings, including essays, poems and prose pieces, by native TSM speakers (who were advocates for the Taiwanese language and Taiwanese studies). Lesson 1 contains sentences mostly of SV(O) word order. It is a more formal piece and we were not certain if registers would affect the choice of word order. Therefore, we decided to use Lesson 2 as an example, because Lesson 2 is more colloquial. We went through each clause in the piece and grouped them by their word order and types of verbs. The result is shown in Table 1.

Among the 154 clauses in the piece (a clause is defined as having a verbal or adjectival predicate), there are only seven instances of OV word order, copied below:

**Table 1:** Clause types and counts in the text of Lesson 2 by Robert Cheng et al. (2000).

Sentence type	Count
SOV	7
$SVO_{\text{DEF}}$	26
SV	28
Special VO construction	
'(not) have'	12
'be'	11
'(be) at'	11
'go(to)/arrive (at)'	5
'resemble'	7
clausal complement	14
Other SVOs*	33
Total	154

\* the 33 cases are SVO with indefinite or non-referential objects.

(26) TSM

- a. Gua na tsiong [tse kinggiam] kong ho ginna tiann, yin itting  
I if take this experience speak to children listen they surely  
himsiam lan-e singuah.  
envy our-DE life  
'If I say this to our children, they will surely envy our lives.'

- b. [Tua-bue ho hi] m-gam kaki tsiah, atsi theh khi ke-a  
big-CL good fish not-willing self eat big.sister take go street-PAR  
be, thang uann puann tau bi tnglai.  
sell so.that exchange half bucket rice return  
'A good big fish, (we) ourselves were reluctant to eat, big sister took to the street to sell, to exchange half a bucket of rice and return.'
- c. [Tsit-lui e taitsi] na xiunn e na tse.  
this-kind of thing more think will more much  
'This kind of things, the more (I) think, the more there were.'
- d. Kinajit tshintian pingiu lai [<sub>pp</sub> ka li] sio-si.  
today relative friend come with you mutual-bid.farewell  
'Today, relatives and friends came to bid farewell to you.'
- e. [<sub>pp</sub> Hiong apa] tshingkau  
to dad ask.for.help.politely  
'(I) am asking Dad for help.'
- f. Siunn be ka [apa] tshingkau.  
think want KA dad ask.for.help.politely  
'(I) want to ask Dad for help.'
- g. [Sam-kok] bo koh kong-lohkhi.  
Three-Kingdom not again speak-down  
'Three Kingdoms, (you) did not continue telling.'

(26b) and (26c) are topicalization cases, which could be OSV with the S deleted. They are not examples of SOV with O in the base-generated object position. (26d) to (26g) involve complex verbs that normally do not take postverbal objects, even in Mandarin (we will return to the issue of complex verbs and postverbal constituent constraints in section 4.3.2). (26a) is the only SOV case that allows an SVO option. However, this is similar to the *ba* construction in Mandarin, which takes a verbal object as the object of a preverbal “disposal” marker *tsiong* or *ka*. All of the cases above can naturally have Mandarin counterparts with identical word order.

For the other instances among the 154 clauses, 26 are SVO<sub>def</sub> and 28, SV clauses with one-argument verbs. There are 60 instances of special VO order cases which were not included in the SVO<sub>def</sub> count, because the alternative SOV is not as easily available (such as cases with verbs like ‘resemble’, ‘be’). This is to ensure the most conservative counting of SVO<sub>def</sub> word order being chosen over other options. The rest of the cases, 33 in all, are SVO with indefinite or non-referential objects.

Importantly, our investigation shows that, even with the most conservative counting, the cases of SVO far out-number the SOV ones, regardless of whether the object is definite or indefinite. In fact, we could not even find any examples in the entire piece demonstrating the word order subject-object-verb, except for the few cases with the disposal marker *tsiong* or *ka*. Therefore, we cannot claim that TSM favors the SO<sub>def</sub>V word order, not to mention requiring such an order.

#### 4.2 The SOV cases in TSM, Mandarin and Cantonese

Leaving the disposal construction till later, and expanding our discussion to include indefinite objects, we note that SOV cases are present in all the three languages in question. The acceptable SOV sentences all involve an object being topicalized or focalized, instead of being base-generated as a preverbal object due to absence of V-movement. This is evident from the properties of the object in SOV constructions. The first piece of evidence is

the fact that the preverbal object precedes negation, manner adverbs, and some modals.<sup>12</sup> The TSM examples in (27)–(29) and Mandarin (30)–(32) illustrate this point.

(27) *TSM*

- a. I [tsit-e mihkiann] ma bo kluanntioh. (object > adv/neg)  
 he this-CL thing also not see  
 ‘He, this thing, also did not see.’
- b. \*I ma bo [tsit-e mihkiann] kluanntioh. (\*adv/neg > object)  
 he also not this-CL thing see

(28) *TSM*

- a. I [hit-pun tsheh] tsin jintsin khuann. (object > manner)  
 he that-CL book very diligent read  
 ‘He, that book, read diligently.’
- b. \*I tsin jintsin [hi-pun tsheh] khuann. (\*manner > object)  
 he very diligent that-CL book read

(29) *TSM*

- a. I [tsit-e mihkiann] ingkai kluanntioh-a. (object > modal)  
 he this-CL thing can see-SFP  
 ‘He, this thing, should have seen.’
- b. \*I ingkai [tsit-e mihkiann] kluanntioh-a. (\*modal > object)  
 he should this-CL thing see-SFP

(30) *Mandarin*

- a. Ta [zhe-ge dongxi] ye mei kandao. (object > adv/neg)  
 he this-CL thing also not see  
 ‘He, this thing, also did not see.’
- b. \*Ta ye mei [zhe-ge dongxi] kandao. (\*adv/neg > object)  
 he also not this-CL thing see

(31) *Mandarin*

- a. Ta [na-ben shu] hen renzhende kan. (object > manner)  
 he that-CL book very diligently read  
 ‘He read that book diligently.’

<sup>12</sup> Some negation cases in TSM and Mandarin can have a broader scope, negating a presupposed proposition. For instance, if the speaker knows the hearer thinks he/she does not eat fruit, the following utterance is possible with the object following the higher negation (see Shyu 1995 and Paul 2015 for the multiple topic positions in a Chinese sentence, including pre and post-subject positions; also see Ernst & Wang 1995, and the above-mentioned for the post-subject position as (contrastive) focus).

- (i) A: *Why don't you eat the fruit?*  
 B: Wo mei (you) [shuiguo] bu chi.  
 I not have fruit not eat  
 ‘It is not the case that I don't eat fruit.’

Some higher adverbs and modals can occur before the topicalized/focalized object:

- (ii) Wo keneng [shuiguo] bu yinggai zai chi le.  
 I possible fruit not should again eat SFP  
 ‘For fruit, I possibly should not eat again.’
- (iii) Ren neng [shuiguo] yongyuan dou bu chi ma?  
 human.beings can fruit forever all not eat Q  
 ‘For fruit, can human beings not eat forever?’

TSM behaves exactly alike, and the sentences above can be translated to TSM directly.

- b. \*Ta hen renzhende [na-ben shu] kan. (\*manner > object)  
 he very diligently that-CL book read

(32) *Mandarin*

- a. Ta [zhe-ge dongxi] neng kandao. (object > modal)  
 he this-CL thing can see  
 ‘He, this thing, can see.’
- b. \*Ta neng [zhe-ge dongxi] kandao. (\*modal > object)  
 he can this-CL thing see

In addition, the fronted object of SOV constructions needs to be interpreted as a topic or focus (see the debate on whether the preposed object is a topic or focus or both as in Tsao 1990; Tsai 1994; Ernst & Wang 1995; Shyu 1995; 2014; Paul 2002; 2005; Lin 2012). This is especially clear in the case where the object is a human noun phrase. When two human noun phrases precede a verb, the first one is interpreted as a topicalized object and the second, the subject of the sentence, i.e., the OSV order. The SOV interpretation is possible only when there is a clear contrastive focus/topic interpretation on the object. This is the case in both Mandarin and TSM. In (33) and (34) below, the (b) examples clearly indicate contrastiveness by the use of two contrasting phrases.

(33) *TSM*

- a. [Ong-e, [Li-e [u kahi]]].  
 Wang-PAR Li-PAR have like  
 ‘Wang<sub>i</sub>, Li likes (him<sub>i</sub>).’ (OSV interpretation available)  
 \*‘Wang likes Li.’ (SOV interpretation unavailable)
- b. [Ong-e, [Li-e [u kahi]], [Lim-e [bo kahi]]].  
 Wang-PAR Li-PAR have like Lim-PAR not like  
 ‘Wang<sub>i</sub>, Li likes (him<sub>i</sub>); Lim does not like (him<sub>i</sub>).’ (OSV interpretation available)  
 ‘Wang likes Li, does not like Lim.’ (SOV interpretation available)

(34) *Mandarin*

- a. [Wangwu, [Lisi [hen xihuan]]].  
 Wangwu Lisi very like  
 ‘Wangwu<sub>i</sub>, Lisi likes (him<sub>i</sub>).’ (OSV interpretation available)  
 \*‘Wangwu likes Lisi.’ (SOV interpretation unavailable)
- b. [Wangwu, [Lisi [hen xihuan]], [Linliu [bu xihuan]]].  
 Wangwu Lisi very like Linliu not like  
 ‘Wangwu<sub>i</sub>, Lisi likes (him<sub>i</sub>); Linliu does not like (him<sub>i</sub>).’ (OSV interpretation available)  
 ‘Wangwu likes Lisi, does not like Linliu.’ (SOV interpretation available)

The two points above show that the object in SOV in TSM and Mandarin is outside a verb phrase, higher than negation, manner adverbs and some modals. The preverbal object is not in the base-generated verbal object position (i.e., Specifier of the VP at which objects receive theta-roles). The generalization is that SOV is the result of object raising to a projection higher than the verb phrase.

We should point out that Cantonese also allows SOV word order—the preposed object is a focus. In a popular Cantonese language website Cantolounge (<https://cantolounge.com/cantonese-word-order/>), example (35) was provided to show that Cantonese word order is flexible:

- (35) *Cantonese*  
 Keoi matdoun zongji, keoi cizi zeoi zongji.<sup>13</sup>  
 he nothing like he tissue most like  
 ‘He, nothing likes; he, tissues, most like (He likes nothing; he likes tissues the best).’

Additional SOV examples from Cantonese native speakers are:

- (36) *Cantonese*  
 a. Nei bin-bun syu m tai aa?  
 you which-CL book not read SFP  
 ‘Which book didn’t you read?’  
 b. Ngo (mai) ne-bun syu m tai lo.  
 I FOCUS this-CL book not read SFP  
 ‘I this book didn’t read.’

In brief, all the three languages allow SVO and SOV word order and the preverbal O of SOV is a topic or focus derived by topicalization or focus movement of the object to a position higher than the verb phrase. The relevant facts do not support a microparameter on the required, optional, or absent application of V-movement.

#### 4.3 The perceived contrast in Case 3

Nonetheless, there must be some rationale behind the claim in the literature that SOV is preferred or required in TSM in some cases, as described in section 1.3. Moreover, in the grammar section of Cheng et al. (2000: 367–399), we did find instances where TSM SOV sentences were translated to SVO in Mandarin. Among the 89 examples with TSM-Mandarin correspondences, two examples show such conversion (all the others have identical orders):

- (37) *TSM* (Cheng et al. 2000: 390, example (10))  
 a. Gua iking u ka i me a.  
 I already have KA he scold SFP  
 ‘I already scolded him.’  
 b. *Mandarin*  
 Wo yijing ma-guo ta le.  
 I already scold-EXP he SFP  
 ‘I already scolded him.’
- (38) *TSM* (Cheng et al. 2000: 374, example (24))  
 a. Gua tsit-tiunn phue be kia tshut-khi.  
 I this-CL letter will.not send out-go  
 ‘I will not send out this letter.’  
 b. *Mandarin*  
 Wo bu hui ji chu zhe-feng xin.  
 I not will send out this-CL letter  
 ‘I will not send out this letter.’

We discuss the cases illustrated in (37) and (38) in 4.3.1 and 4.3.2, respectively.

<sup>13</sup> The sentence is part 2 of lesson 7 at around 2:50 mark in the video. The repetition of the second subject was not liked by all the Cantonese native speakers that we consulted.

#### 4.3.1 The use of the disposal construction to create S + [Marker + O] +V

The contrast in (37) reflects the fact that the *ka* construction in TSM is less restrictive than the Mandarin *ba* construction (cf. Li 2006; 2017; Huang et al. 2009: Chapter 5). The following examples demonstrate this contrast. The TSM examples are from Lien's Tsing-Hua TSM corpus. Their corresponding *ba* sentences in Mandarin are not possible.

- (39) a. *TSM*  
 gua ka li ka  
 I KA you teach  
 'I teach you.'
- a'. *Mandarin*  
 \*wo ba ni jiao  
 I BA you teach
- b. *TSM*  
 ka li tshio  
 KA you laugh  
 'laugh at you'
- b'. *Mandarin*  
 \*ba ni xiao  
 BA you laugh
- c. *TSM*  
 ka li tshingkau  
 KA you ask.for.help.politely  
 '(politely) ask for your help'
- c'. *Mandarin*  
 \*ba ni qingjiao  
 BA you ask.for.help.politely
- d. *TSM*  
 ka i mng-a  
 KA he ask-SFP  
 'asked him'
- d'. *Mandarin*  
 \*ba ta wen-le  
 BA he ask-PERF
- e. *TSM*  
 lai ka li kuann-a<sup>14</sup> la  
 come KA you see-PERF SFP  
 'came to see you'
- e'. *Mandarin*  
 \*lai ba ni kan-le ya  
 come BA you see-PERF SFP

The much more liberal use of *ka* in TSM is due to its broader range of meanings. Cheng et al. (2000) note that *ka* could be derived from a number of sources. In addition to introducing the recipient of an action (patient), it can also occur with a goal, correspond-

<sup>14</sup> The TSM *-a* is the translation of the Mandarin perfective aspect marker *-le* occurring right after a V (glossed as PERF) or *-le* at the end of a sentence, a sentence-final particle (glossed as SFP) indicating change of state (an inchoative marker). Nonetheless, despite the fact that both cases of *-le* in Mandarin are translated to *-a* in TSM, the latter can only appear at the sentence-final position. That is, it cannot be followed by an object, like the perfective aspect marker V-*le* in Mandarin. Such an object must be null or preposed in TSM.

ing to Mandarin *xiang* ‘toward’ or *dui* ‘to’, or be used for a beneficiary, corresponding to Mandarin *wei/ti* ‘for’, such as *ka i tso gu tso be* ‘labor for him’. The wide range of uses of *ka* could contribute to the frequency of preverbal objects introduced by *ka* in TSM.

Cantonese also has the disposal *zoeng* construction. However, it is more restricted than the Mandarin *ba* construction. Yip & Matthews (2001: 61) note that *jeung* (*zoeng*) retains a sense of displacement, and in colloquial usage at least, is most typically used when the object of the sentence is literally moved from one place to another.<sup>15</sup>

- (40) *Cantonese* (Yip & Matthews 2001: 61)  
 Ngohdeih jeung(zoeng) di gauh gasi bun jau.  
 we JEUNG ZOENG CL old furniture move away  
 ‘We are moving the old furniture away.’

Without the displacement meaning, colloquial Cantonese generally does not use the disposal construction. The order of SVO or O(S)V is used:

- (41) *Mandarin*  
 a. Ba deng guan-diao  
 BA light turn-drop  
 ‘turn off the light’  
*Cantonese*  
 b. Sik-jo dang.  
 turn-off light  
 ‘turn off the light’  
 c. \*Jeung[Zoeng] dang sik-jo.  
 JEUNG ZOENG light turn-off

In brief, the so-called disposal construction behaves differently in the three languages in question. TSM is more liberal because the morpheme *ka* has a broad range of interpretation (developed from a number of different sources). Cantonese is most restricted because the morpheme *jeung* (*zoeng*) retains a sense of displacement. Note that TSM and Mandarin also have the morpheme similar to Cantonese *jeung*: *tsiong* in TSM and *jiang* in Mandarin. These morphemes have more limited distribution than *ka* in TSM or *ba* in Mandarin. Cantonese does not have the counterpart of *ka/ba*.

#### 4.3.2 Verb compounding and object preposing

The case in (38) involves a verb immediately followed by a directional complement *ji-chu* ‘send out’.<sup>16</sup> The unacceptability of such a construction in TSM can be understood in light

<sup>15</sup> Yip & Matthews (2001: 63) note that High Cantonese is less restrictive and allows the *jeung* [*zoeng*] construction for sentences not involving physical displacement of an object, such as ‘Why do you treat friends as foes?’ or ‘You should not complicate the problems’. This is “perhaps under the influence of Mandarin and written Chinese where *ba* would be used in such cases.”

The Cantonese *zoeng* corresponds to *tsiong* in TSM, which is also more marked and less frequently used than the widely-used *ka*. We therefore can understand the difference between Cantonese and TSM disposal constructions as TSM having an additional morpheme *ka*, which had a different historical origin from *tsiong*. Similarly, Mandarin also has the cognate *jiang*, which is also much less used and more formal than the typical disposal *ba*. That is, Mandarin, like TSM, has two morphemes for the disposal construction, with *jiang* more restricted, although its *ba* is not identical to *ka* in TSM.

<sup>16</sup> There are other possibilities in Mandarin involving “directional complements”, illustrated by [*ji-chu* + object (O) + *lai/qu*] ‘send-out + O + come/go = send O out towards or away from me’ or [*ji* + O + *chu-lai/qu*] ‘send O out towards or away from me’. We only focus on the cases with [V + directional complement + O] in this work, as our concern is the contrast in acceptability of an object appearing after the V plus a directional complement between Mandarin and TSM or within the languages. (Note that the TSM counterpart of the Mandarin [*ji* + O + *chu-lai/qu*] ‘send O out towards or away from me’] is acceptable.)

of the proposal in the literature about the relative paucity in TSM of compounding (making two units into one) a verb with its postverbal non-object complement, such as an aspect marker (*kue*, literally meaning ‘pass’, functioning as an experiential aspect marker; and *-a* meaning ‘completion’<sup>17</sup>), a phasal marker (*liao*, *sua*, *wan*, meaning ‘completion’<sup>18</sup>), a resultative complement (such as ‘drink-**drunk**’, ‘cook-**mushy**’), a potential complement (such as ‘cook-**(un)able**-mushy’), and a directional complement (such as ‘send-**out-go/come**’). Teng (1995) notes that these non-object complements are verbs themselves. The verb complex is  $[V_1 + V_2]$ , two separate verbs, which can be followed by their own complements respectively. An important point made in his paper is that most verb complexes  $[V_1 + V_2]$  in Taiwanese do not form compounds (functioning as a single V syntactically). The non-compounding nature of verb complexes in Taiwanese can be demonstrated by the fact that a verb complex can be separated by prepositions, adverbs and objects.

(42) *TSM* (Teng 1995: 373–374)

- a. Li-e miann, ai sia ho tshengtsho.  
you-DE name must write PREP clear  
‘Your name, (you) should write (it) clearly.’
- b. Tshia li sai kha tshut-khi.  
car you drive more out-go  
‘Drive the car farther out.’
- c. Gua tsahng long tshue i bo.  
I yesterday all find he not.have  
‘I could not find him all day yesterday.’

These cases do not have counterparts in Mandarin, showing that the  $[V_1 + V_2]$  complex is not two separate verb phrases in Mandarin:

(43) *Mandarin*

- a. \*Ni-de mingzi, dei xie gei ta qingchu.  
you-DE name must write PREP it clear  
‘Your name, (you) should write (it) clearly.’

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In addition, we do not distinguish verbs being compounded (formed by two units of equal status) or complex verb formation (formed by two units not of similar status). (See Paul 2008 for the complexity of the so-called serial verb constructions and issues with directional complements.) What is important for us is whether two elements (V and an immediately adjacent element) behave as a single V (compounded or complex V) syntactically. The relation between the two elements inside the V does not matter in this work. Nor does it matter in this work if the compounding or complex verb formation process occurs in the Lexicon or via movement in syntax, as long as the process has occurred when the postverbal constituent constraint is considered, as elaborated later in the text.

<sup>17</sup> This completion marker *-a* is a sentence-final particle; we do not expect an object to occur after *-a*. Being a sentence-final particle, it takes the neutral tone and does not function as a verb. We will not discuss this case further.

<sup>18</sup> *Wan*, *liao*, *sua*, all roughly meaning ‘finish’ in TSM, and the corresponding *wan/guang* in Mandarin, have been termed as “phasal markers” in the Chinese literature (see, for instance, Pang 2014 for discussion of such markers). They are different from aspect markers such as the Mandarin perfective marker *-le*, because the two can co-occur, as in the Mandarin example below:

- (i) Ta xie-wan-le xin le.  
he write-finish-PERF letter SFP  
‘He finished writing letters.’

They are also different from the resultative complement because the latter generally is predicated of the object of the verb or sometimes the subject of the sentence (such as the examples in the text ‘drink-drunk’, ‘cook-mushy’). In the example above, it is not the letter *xin* that is *wan*. (\**xin wan (le)* is unacceptable). Rather, it is the writing that is done.



- b. \*Chezi ni kai bijiao chuqu.  
car you drive more out-go  
'Drive the car farther out.'
- c. \*Wo zuotian dou zhao ta bu-dao.  
I yesterday all find he not-arrive  
'I could not find him all day yesterday.'

In brief, Teng's claim is that verb complexes [ $V_1 + V_2$ ] in Mandarin generally form compounds, but not in TSM. A correlating difference between TSM and Mandarin is that an object can follow the verb complex in Mandarin but not in TSM.

Nonetheless, Teng also notes that the generalization about non-compounding and the subsequent non-occurrence of objects following the verb complex does not always hold in TSM. Counterexamples abound. He gave the counterexamples in (44) showing the possibility of compounding and objects following the compounded verb in TSM.

(44) *TSM*

- a. Thouhui thai-si jitsapsi-e Taiuan lang.  
Bandit kill-die 24-CL Taiwan person  
'Bandits killed 24 people.'
- b. I long-phai Ong Kausiu-e tiannao.  
he cause-break Wang Professor-DE computer  
'He wrecked Professor Wang's computer.'
- c. Hakseng tshe bo Ong Kausiu.  
student look-NEG Wang Professor  
'The students could not find Professor Wang.'
- d. I kam siunn-e-kau hia?  
you Q think-can-particle that  
'Will he possibly think of that?'

(44a) and (44b) are instances containing resultative complements; (44c) and (44d), potential complements. In addition, some speakers found the following examples in (45) acceptable. They include all the cases that contain a postverbal non-object complement—those involving aspect markers, phasal markers, resultative complements, directional complements, and potential complements. All of these categories have instances allowing compounding and objects following such compounded verbs.

(45) *TSM*

- a. Tan gun [tsiah-pa pn] li tsa lai, ho bo?  
wait we eat-full meal you then come good Q  
'Come after we finish the meal, OK?'
- b. Gua kam u kholing [khuann-be-khi inn hit-ke lang]?  
I Q have possibility see-not.can-up they that-CL people  
'Is it possible that I look down on them?'
- c. I u panhuat tsit-huntsing [tsia-wan/tiau tsit-liap tua-liap pau-a].  
he has way one-minute eat-finish one-CL big-CL bao-PAR  
'He can finish eating a big bao in one minute.'
- d. Gua [siunn-tioh tsit-e panhuat] a.  
I think-hold one-CL solution SFP  
'I thought of a solution.'

- e. Li kam u [siunn-tshulai siannmih panhuat]?  
 you Q have think-out what solution  
 ‘Did you think of some solution?’
- f. Gua sing [tshua i liplai], lan tsialai tsau.  
 I first bring he in we then leave  
 ‘Let me bring him in first, then we leave.’
- g. I kam u kholing [tsiah-kue gubah]?  
 he Q have possible eat-EXP beef  
 ‘Is it possible that he has eaten beef (before)?’
- h. I u [tshue-tioh hit-pun tshéh] bo?  
 he have look.for-hold that-CL book Q  
 ‘Did he succeed in finding that book?’

Note that even in Mandarin, not all verb complexes can form compounds and accept objects following the complex verb. Some native speakers consulted found the contrasts in (46):

(46) *Mandarin*

- a. ??Ta yao [ji-chu-qu zhe-feng xin].  
 he will mail-exit-go this-CL letter  
 ‘He will mail out this letter’
- b. Ta yao [ji-chu zhe-feng xin].  
 he will mail-exit this-CL letter  
 ‘He will mail out this letter’

Following Teng (1995), we may conclude that TSM has less compounding of verb complexes, forcing the object not to occur after  $[V_1 + V_2]$  when compounding does not take place. The non-occurrence of such a postverbal object when compounding does not take place reflects the generalization in Chinese that an object of a verb in the postverbal position must be adjacent to the verb (see Li 1985 and 1990 for a Case adjacency account). When compounding (or complex verb formation, see note 16) takes place, the sequence of  $[V_1 + V_2]$  becomes a single V and the postverbal object is adjacent to this V. In contrast, if compounding (or complex verb formation) does not occur, the object of  $V_1$  is not adjacent to it due to the intervening  $V_2$ . This captures the contrast illustrated in (38).

However, we cannot claim that compounding always does or does not take place in a language. TSM allows some compounding and Mandarin does not like some compounding, as demonstrated above. Differences in judgments among native speakers on such data are often found, indicating that it varies with individual speakers whether or not compounding occurred. In addition, the same  $V_1$  in the verb complex  $[V_1 + V_2]$  can be compounded in some cases but not in others, such as (46a) vs. (46b), with the same  $V_1$ , *ji* ‘mail’. The bisyllabic  $V_2$  *chu-qu* ‘exit.go’ is harder to form a compound with *ji* ‘mail’ than the monosyllabic *chu* ‘exit’. In this sense, we cannot claim that some instances of  $V_1$  (*ji* ‘mail’ in this case) carry a strong feature to trigger movement of  $V_2$  to combine with  $V_1$ .

On the other hand, a minimal pair in (46) is revealing in that it is in line with the claim argued for by Feng in his 1995 dissertation and his many subsequent works that prosodic considerations, including syllable numbers, play a role in compounding in Chinese. Along this line, we may find a clue to answering the question of why TSM has less compounding than Mandarin. Recall that the contrast between Mandarin and TSM in the possibility of ‘one’-deletion discussed in section 2.2 is due to the relative absence of syllabic

weak-strong contrasts in TSM, as compared with Mandarin. We may follow this account and claim that the prominence of syllabic weak-strong contrasts in Mandarin makes compounding easier in this language and the relative absence of the prosodic contrast makes compounding harder in TSM.<sup>19</sup>

#### 4.3.3 Different strategies to mark focus and topic

Another factor that might have contributed to the perception that TSM is more SOV than Mandarin or Cantonese lies in how topic and focus are expressed in these languages. Topic and focus can be marked with different strategies: word order change, use of morphological markers, prosodic variation (weak-strong contrast), etc. The relative absence of prosodic weak-strong contrasts in TSM indicates that prosodic variation is not an effective strategy to mark topic or focus in this language. Recall that Shyu's (2010) experimental study showed that Taiwan Mandarin speakers, affected by TSM, did not associate stress with contrastive focus (section 2.2). To express an object as a topic or focus, changing word order becomes a more prominent strategy. As a definite noun phrase tends to be a topic, it is not surprising that a definite object is preposed more frequently. Preposing an object can also mark it as a (contrastive) focus. In other words, the prosodic properties of TSM make movement a more prominent strategy to mark an object as a topic or focus.

In short, as mentioned in section 2.2, the prosodic properties of TSM are mainly tone grouping with each syllable taking a lexical tone. Weakening of a tone is not available in a tone group. Such tone grouping is absent and weak-strong prosodic contrasts are more prominent in Mandarin. Word order change becomes a more important strategy to express discourse notions such as topic and focus in TSM. Nonetheless, a cautionary note is that, despite these "impressions", our numbers from the corpus investigation still show that TSM is dominantly SVO.

As for Cantonese, it is claimed that object preposing is not preferred in general as illustrated in (9): the perception that Cantonese is strongly SVO, compared with Mandarin as mildly SVO, and TSM, weakly SVO (Liu 2001). "Perception" is used because, grammatically, these three languages all allow the SOV word order as demonstrated in section 4.2. It is only the restrictions on certain constructions that differ in these languages. As mentioned in section 4.3.1, the so-called disposal construction (more accurately, the varieties of constructions containing the morpheme *ka*) is most freely used in TSM; it is subject to more restrictions in Mandarin, and even more restrictions in Cantonese (see note 15). For the preposed object constructions, all these languages allow OV (without the subject) and native speakers of the three languages all accept OV constructions easily. The SOV pattern (with an overt subject preceding the preposed object) seems to be more difficult in Cantonese, but not impossible, as demonstrated by examples in (35) and (36).

Cantonese does use the SOV construction with a fronted object corresponding to [Subject + *lian* 'even' + object + *dou* 'all' + VP] in Mandarin to overtly mark the object as focus. What is interesting is that Cantonese native speakers seem to dis-prefer the use of an overt subject followed by a fronted object without focus markings. That is, Cantonese does not seem to just front an object to the post-subject position as readily as Mandarin or TSM. We consulted some Cantonese native speakers on what they would do to focus an object; the response was that focus markers could be used.<sup>20</sup> We speculate that this has to do with the abundance of markers following verbs, at the sentence-final position, or other

<sup>19</sup> Carine Yiu in her presentation at the Harvard-Yenjing Workshop on Word Order in Chinese in April 2019 suggests that Cantonese and Mandarin have different prosodic properties, which is responsible for the greater variety and length of postverbal constituents in Cantonese than in Mandarin.

<sup>20</sup> Stress could also be used in Cantonese, and possibly in TSM, although not prominently. See Chen et al. (2016) about the relative lack of studies distinguishing different types of focus and information newness, which potentially are realized in different ways.

positions in Cantonese (see (36)), to express focus, viewpoints, attitudes, etc. Cantonese is marked for the richness of such suffixes and particles.

In contrast, TSM, despite having similar numbers of tones as in Cantonese, only has a similar number of sentence-final particles as in the fewer-toned Mandarin (see Feng 2015 and Tang 2018 for the relation between tones and sentence-final particles).<sup>21</sup> It has even fewer verbal suffixes than Mandarin.<sup>22</sup> Logically, the object focusing function can be encoded by prosody, word order change, and morphological marking such as affixes, particles. Mandarin uses prosody prominently and also word order variation to assign different discourse functions to objects. TSM primarily depends on word order variation for the function because of its relative insignificance of prosodic weak-strong contrasts, compared to Mandarin, and its relatively smaller number of verbal suffixes, particles, etc. (verbal suffixes compared to Mandarin and Cantonese, particles compared to Cantonese). Cantonese seems to rely more on morphological marking such as verbal suffixes and particles.

## 5 Conclusion

This work reviewed the facts and arguments of the three cases of microparameter claimed to converge to an analyticity macroparameter distinguishing Cantonese, Mandarin (modern and the earlier Ming-Qing Mandarin), and TSM. We showed that empirically, the generalizations were not always confirmed, such as the un-predicted possibility of ‘one’-deletion in TSM as well as the impossibility of ‘one’-deletion in Mandarin in certain contexts in case 1, the un-predicted impossibility of *dao* + location + ‘go’ in TSM in case 2, and the dominant word order of SVO in TSM, together with the possibility of SOV in Cantonese in Case 3, as demonstrated by the results of our corpus investigation and consultation with native speakers.

Analytically, the empirical generalizations regarding case 1 suggest that ‘one’-deletion should be the result of PF-deletion in Mandarin and TSM and the base-generation of a null Numeral head in Cantonese. Mandarin and TSM are to be distinguished by their different prosodic characteristics affecting the PF-deletion of ‘one’. The second case has to do with the grammatical category of the locative morpheme *dao*—whether or not it can function as a preposition ‘to’ in addition to a verb ‘arrive’.

As for Case 3, we showed that the “perceived variation” in word order (SVO vs. SOV) cannot be the result of obligatory, optional, or absent movement of a verb across a definite object in its base-generated Spec of VP position. Even TSM, which should not have  $SVO_{def}$  according to the microparameter proposal described in section 1.3, still shows predominantly  $SVO_{def}$  word order in the available data by native TSM speakers. Accordingly, we claim that all these three languages have SVO as the basic and dominant word order. Word order change to SOV only takes place to encode discourse notions such as (contrastive) topic and focus. The perceived variation in the prominence of SOV order can be related to the restrictions on the disposal construction and the different prominence of discourse particles and prosodic properties of these languages.

We thus conclude that it is important to look beyond feature specifications in the Lexicon to capture cross-linguistic variation. Importantly, considering the prosodic effects on Case 1 and 3, we argued that the relevant linguistic variation should not be captured

<sup>21</sup> Tang (2018) notes that SFPs are derived from afterthoughts and afterthoughts are very productive in Cantonese (Tang does not distinguish afterthoughts from right dislocation). Due to the insignificant weak-strong contrasts in TSM, it has few instances of Right-dislocation, as Right-dislocation involving the de-stressing of the right-dislocated part (Chao 1968; Wei & Li 2018).

<sup>22</sup> The scarcity of aspectual suffixes attached to verbs in TSM is not surprising considering the requirement of its tone grouping rules that a verb should form a tone group with the following constituent in the VP. None of the syllables within a tone group are weakened to take the neutral tone. Suffixes generally are grammaticalized from lexical items and take the neutral tone.

in terms of movement possibilities or feature specifications on lexical items triggering movement or not. The apparent grammatical variation can be better understood prosodically. Prosody can play a role in parametrizing languages (Feng 1995; 2007; 2016; 2017; Zubizarreta 1998; 2016; Bošković 2001; 2011; Kandybowicz 2006; 2009; An 2007a; b; Agbayani & Golston 2010; Agbayani et al. 2010; Richards 2010; Bennett et al. 2013; Féry and Ishihara 2016: Part IV). Our conclusion also echoes Baker's concern over an exclusive pursuit of microparametric syntax to account for cross-linguistic differences, and further shows that, even within a language family, which is often the focus of a microparametric approach, analyses based on lexical feature specification could miss opportunities for better understanding of the factors underlying linguistic variation.

## Abbreviations

BA = the marker in the so-called executive or disposal *ba* construction in Mandarin (see section 4.3.1), KA = the marker in the *ka* construction in TSM, CL = classifier, DE = the marker *de* in noun phrases denoting a modification relation, Q = question particle, EXP = the experiential aspect marker, NEG = negation, PREP = preposition, PERF = perfective aspect, SFP = sentence-final particle (including the sentence-final *le* as an inchoative or aspectual marker), FOCUS = the morpheme indicating focus, PAR = the *-a* particle used in casual speech in TSM, JEUNG/ZOENG = the Cantonese morpheme used in place of *ba* in *ba* construction.

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## Competing interests

The authors have no competing interests to declare.

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