

# A Syntax-Morphology Interface Analysis of VV-*leh* Constructions in Taiwanese Southern Min \*

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This paper investigates obligatory object shift (OS) and VV verbal reduplication in Taiwanese Southern Min (TSM) VV-*leh* constructions, and argues that OS in TSM activates the syntax-morphology interface computation of two types of aspect. I first provide the motivation for the two-tiered analysis of aspectual projections and argue that the VV-*leh* construction is interpreted as telic and perfective, syntactically encoded by IAsp<sup>0</sup> and OAsp<sup>0</sup>, respectively. The object NP is required to undergo cyclic movement to check [ $\pm$ TELIC] and [ $\pm$ IMPERFECTIVE] on IAsp<sup>0</sup> and OAsp<sup>0</sup> against its definiteness via the Spec-Head configuration to measure out an event and to view it perfectly as a whole. Following the framework of Distributed Morphology, I further argue that Op<sup>RED</sup> on OAsp<sup>0</sup> is active as a result of the valued [-IMPERFECTIVE] feature and triggers the morphology of reduplication. The proposed analysis also explicates several otherwise puzzling properties of TSM grammar.

Key words: verbal reduplication, Taiwanese Southern Min, object shift,  
Distributed Morphology, delimitative aspect

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\* I would like to acknowledge the financial support from the Ministry of Science and Technology, Taiwan, under the grant number MOST-108-2410-H-143-018-. I am grateful to two *JTLL* reviewers for their constructive and enlightening comments that shaped this paper into its current form. All remaining errors, conceptual or analytical, are my sole responsibility.

## 1. Setting the stage

This paper investigates the syntax of object shift (OS) and verbal reduplication in Taiwanese Southern Min (TSM) *VV-leh* constructions. The purpose of this paper is twofold. First, though TSM is generally considered to be a SVO language (Cheng 1997), as illustrated in (1a), the SOV word order can be derived in the context of verbal reduplication that constitutes a driving force for OS, as shown in (1b-c), where the object NP *tsheh* ‘book’ is required to undergo obligatory fronting when a dynamic verb like *thák* ‘read’ is reduplicated.

- (1) a. Asuat            teh            thák            tsheh.  
           Asuat            PROG        read            book  
           ‘Asuat is reading a/the book.’
- b. Asuat            [tsheh]<sub>1</sub>    thák-thák        t<sub>1</sub>    leh    tō    khi    khùn    ah.  
           Asuat            book        read-read            SFP    then go    sleep    SFP  
           ‘After reading the book for a while, Asuat went to sleep.’
- c. \*Asuat thák-thák        tsheh        leh    tō    khi    khùn    ah.  
           Asuat    read-read        book        SFP    then go    sleep    SFP  
           Intended ‘After reading the book for a while, Asuat went to sleep.’

OS has been a thorny but intriguing issue for modern syntactic theory, as the driving force for OS, a designated landing site and any interpretative effect OS induces have been the subjects of controversy.<sup>1</sup> Generally, OS can be investigated from three perspectives: OS is triggered for (i) information structural considerations, (ii) the checking purpose of the EPP, and (iii) the formation of prosodic structure at PF. To begin with, word order can be one of

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<sup>1</sup> A word of clarification is that object shift (OS) used in this paper is a descriptive term in the sense that the object NP leaves its canonical object position in the verbal domain. The interplay between OS and aspectual interpretations of the *VV-leh* construction will be discussed in the following sections.

the strategies to encode information structure (Kučerová and Neeleman 2012), suggesting that OS is activated due to information structural considerations, primarily couched in the cartographic approach to syntax (Rizzi 1997; Cinque 1999). Shyu (1995, 2001), for instance, argues that OS in Mandarin targeting a TP-internal position is triggered to satisfy the checking purpose of the strong [+FOC] feature. As visualized in (2b), the object NP *yú* ‘fish’ undergoes overt movement to [Spec, FP] to check the [+FOC] feature via the Spec-Head agreement (also see Tsai 1994, 2008b; Zhang 2000).

(2) Mandarin<sup>2</sup>

a. Zhāngsān [yú]<sub>1</sub> chī-le t<sub>1</sub>.

Zhangsan fish eat-ASP

‘Zhangsan ate FISH.’

b. [TP Sub [T' T<sup>0</sup> [FP Obj<sub>1</sub> [F' F<sup>0</sup> [VP [V' V<sup>0</sup> t<sub>1</sub>]]]]]]].



This view is further elaborated in Paul (2002, 2005), which claims that in Mandarin, TP has an articulated structure analyzed on a par with that of CP, including TopP and FocP, which host landing sites available for attracted elements (also Badan 2007; Hsu 2012). From a crosslinguistic perspective, with special reference to the focus marker of Aghem, Aboh (2007) maintains that *vP* also has an articulated left periphery that consists of TopP and FocP providing the landing sites for the shifted object NP. Thus, the object NP is permitted to

<sup>2</sup> Abbreviations used in this paper are as follows: 1SG: first person singular, 3SG: third person singular, ACC: accusative, ASP: aspect, CL: classifier, CM: causative marker, DEL: delimitative, FOC: focus marker, LNK: linker, MOD: modifier, NEG: negation, NOM: nominative, PM: phase marker, PFV: perfective, PROG: progress, RED: reduplicant, SFP: sentence-final particle, TOP: topic.

undergo feature-driven movement to a position dedicated to the encoding of information structural notions like topic and focus. Nonetheless, OS can be triggered not for information structural considerations. Chomsky (2001) analyzes OS as some element moving to [Spec,  $\nu$ P] to check the EPP feature to receive a matching semantic interpretation (i.e., specificity), according to which OS is interpretation-driven (see Svenonius (2000)). This line of reasoning is supported by Rackowski's (2002) phase-based analysis of OS in Tagalog, where the shifted object NP receives a specificity reading when undergoing overt movement to [Spec,  $\nu$ P]. Moreover, OS can serve as a prosodic operation. Building on Holmberg's (1986) observations about OS of weak pronouns, Erteschik-Shir and Josefsson (2018) contend that weak object pronouns in Mainland Scandinavian, which do not have a prosodic word status, undergo OS to get incorporated into the verb or the subject in order to qualify as prosodic words interpretable at the interface. This paper aims to offer another view that OS can be triggered for the syntax-morphology interface computation of aspect, in addition to the above views, by providing new OS and verbal reduplication data, while adding more refinement to prior analyses of OS in TSM, to show that OS plays a crucial role in encoding aspect at the syntax-morphology interface.

Though previous studies have made the observation like (1b-c) (Cheng 1997; Lu 1999; Lin Q-X. 2001; Chuang and Tai 2009, among others), little, if any, attention has been paid to a mechanism for activating OS. Based on our new observations, it is argued that OS is not an independent phenomenon. Instead, the shifted object NP needs to target two structural positions in their checking domains of aspect to compute the aspectual interpretation of the VV-*leh* construction. Second, we argue that the delimitative aspect (Yang 1991) in the VV-*leh* construction has to be decomposed into two aspectual construals: telicity and perfectivity. Translated along this line of thinking, (1b) says that there is a natural endpoint for the book-reading action (telic) whose boundedness value is

changed from minus to plus, giving rise to a short duration of the book-reading action, which is viewed as perfective and defined as a whole (Xiao and McEnery 2004). The above properties can be accounted for by a two-tiered analysis of aspectual projections responsible for the syntax-morphology interface computation of the VV-*leh* construction. Couched within the Minimalist Program (Chomsky 1995) and the framework of Distributed Morphology (DM) (Halle and Marantz 1993; Embick and Noyer 2001), this paper sets out to investigate the syntax and interpretative properties of verbal reduplication, obligatory OS and the delimitative aspect in the VV-*leh* construction in TSM like (1b). It will be argued that OS is triggered to check the [ $\pm$ TELIC] and [ $\pm$ IMPERFECTIVE] feature, the locus of inner aspect (IAspP) and outer aspect (OAspP), and this checking process in turn activates the RED(uplication) on OAsp<sup>0</sup> targeting the closest head element within its c-command domain for the morphology of reduplication. Analyzed within the framework of DM (Embick and Noyer 2001), verbal reduplication reflects the realization of the [-IMPERFECTIVE] feature on OAsp<sup>0</sup> via a post-syntactic operation *Lowering*. Granted the proposed analysis, IAspP in the *v*P layer interacts with OAspP situated in the IP layer through the operation of OS. The derivation of the VV-*leh* construction suggests that OS is triggered to check relevant features. From a typological perspective, TSM can be regarded as a language which employs OS to represent delimitation and telicity in syntax (Ritter and Rosen 2005).

This paper is structured as follows. We first develop the empirical basis in Section 2 and attempt to establish a link between OS, verbal reduplication and the delimitative aspect, followed by the review of previous accounts of OS and verbal reduplication in TSM in Section 3. Section 4 begins with assumptions necessary in framing the current analysis that aims to capture the syntax of OS with reference to a two-tiered system of aspectual projections in TSM and the aspectual morphology of verbal reduplication from the DM perspective. The

proposed analysis is able to explicate some otherwise puzzling properties of TSM verbal reduplication in a more principled manner. Section 5 concludes this work.

## 2. The empirical base

OS in TSM displays several distinct characteristics. First, it has been observed in TSM that OS is triggered when dynamic verbs like *tsiáh* ‘eat’ undergo reduplication, as shown in (3a-b).<sup>3,4</sup>

- (3) a. Lí [p̄ng]<sub>1</sub> tsiáh-tsiáh t<sub>1</sub> leh tō kuánn-kín khì siōng-khò.  
 you rice eat-eat SFP then quickly go up-class  
 ‘Eat your food for a while, and go to school as quickly as you can.’
- b. \*Lí tsiáh-tsiáh [p̄ng] leh tō kuánn-kín khì  
 you eat-eat rice SFP then quickly go  
 siōng-khò.  
 up-class

Second, OS in TSM is not triggered for information structural considerations. In other words, OS in verbal reduplication does not pertain to information structure but can be recast as grammatical obligatoriness. As in (4), the narrow-focus marked on the NP *house* in (4b) is not a felicitous response to the question (4a), as (4b) is only felicitous as a response to a question that

<sup>3</sup> We will define the aspectual interpretation induced by verbal reduplication in Section 2.2. At the moment, it is assumed that the reduplicated verb contributes to a delimitative reading in which the action denoted by the reduplicated verb lasts for a short period of time and will end eventually.

<sup>4</sup> A word of note is that *leh* is glossed as a sentence-final particle at the moment but it will be defended in Section 2.3 that *leh* is a delimitative aspect marker that gets incorporated into the VV complex, forming VV-*leh*, which suggests that *leh* has to be immediately adjacent to the VV complex.

encodes narrow focus *a house*. In contrast, the whole response in (4c), if focus-marked, is therefore a felicitous response to the question.<sup>5</sup> A similar contrast can be observed in (5a-b), where the whole expression with the shifted object NP (5b) is a felicitous response to the question (5a), showing that OS is not triggered for focus marking on a particular constituent.

(4) a: What happened?

b: # Sam bought [a house]<sub>F</sub>.

c. [Sam bought a house]<sub>F</sub>.

(5) a. Siánn-mih t̄ai-t̄sì lah?

what thing SFP

‘What happened?’

b. Asuat [NP sann]<sub>1</sub> siu-siu t<sub>1</sub> leh t̄o khi

Asuat clothes put.away-put.away SFP then go

khùn ah, lóng b̄o-tsih.

sleep SFP all NEG-fold

‘After putting away her clothes for a while, Asuat went to sleep directly and did not fold them.’

Moreover, the shifted object NP cannot be analyzed as a contrastive topic. Note that a contrastive topic is permitted in TSM, as illustrated in (6), where the object NP *hit-tiâu khòo* ‘that pair of pants’ undergoes fronting to serve as a contrastive topic, similar to OS in verbal reduplication on the surface. The shifted object in verbal reduplication, however, cannot be analyzed as a contrastive topic, as self-evident in (7), where the fronted NP *tsit-tiâu khòo* ‘this pair of pants’ cannot receive a contrastive topic reading in the context of verbal reduplication. Obviously, verbal reduplication fails to constitute the driving force

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<sup>5</sup> # means ‘incompleteness’ and ‘less acceptable’.

for the dislocation of the contrastive topic NP *hit-tiâu khò* ‘that pair of pants’.

- (6) Bûntshing [NP hit-tiâu khò] sé ah,  
 Buntshing that-CL pant wash SFP  
 [tsit-tiâu khò] iáu-buē sé.  
 this-CL pant yet-NEG wash.  
 ‘Buntshing has finished that pair of pants, and as for this pair, he hasn’t washed.’

- (7) \*Bûntshing [NP hit-tiâu khò] sé-sé leh,  
 Buntshing that-CL pant wash-wash SFP  
 [tsit-tiâu khò] iáu-buē.  
 this-CL pant yet-NEG  
 Intended ‘Buntshing has washed that pair of pants for a while, but not this pair.’

Crucially, a derived topic or focus NP can be reconstructed in its base-generation position. As shown in (8), the object NP can either stay *in-situ* in (8a) or move to a TP-internal topic in (8b) in Mandarin verbal reduplication (see Shyu 2001; Paul 2002; Tsai 2008a; Hsu 2012 for a thorough discussion about the TP-internal topic in Mandarin). This optionality is not permitted in TSM OS. (9a-b) illustrate that verbal reduplication in TSM forces obligatory OS, in contrast with the optional movement in (8a-b).

(8) Context: Two people are discussing which department store to visit first:

- a. Wǒmen xiān guàng-guàng [NP zhè-jīān],  
 we first visit-visit this-CL  
 zài qù nà-jīān.  
 then go that-CL  
 ‘We firstly visit this department store for a while, and then go to another



one later.’

- b. Wōmen [NP zhè-jīān]<sub>1</sub> xiān guàng-guàng t<sub>1</sub>,  
 we this-CL first visit-visit  
 zài qù nà-jīān.  
 then go that-CL

‘We firstly visit this department store for a while, and as for that department store, we will go to visit it later.’

- (9) a. \*Bûntshing sé-sé [NP hit-tiâu khòo] leh  
 Buntshing wash-wash that-CL pant SFP  
 tō khì khùn ah.  
 then go sleep SFP

Intended ‘Buntshing washed that pair of pants quickly for a while, and then went to sleep.’

- b. Bûntshing [NP hit-tiâu khòo]<sub>1</sub> sé-sé t<sub>1</sub> leh  
 Buntshing that-CL pant wash-wash SFP  
 tō khì khùn ah.  
 then go sleep SFP

‘Buntshing washed that pair of pants for a while, and then went to sleep.’

Granted that verbal reduplication seems to serve as the driving force for OS and OS is not triggered for informational structural considerations (such as topic, focus, etc.), an imperative question to ask is what triggers verbal reduplication. It has been claimed in the literature that verbal reduplication that triggers OS encodes certain aspectual construal in TSM. Yang (1991) indicates that VV verbal reduplication in TSM specifies the delimitative aspect of an action denoted by the verbal element, and the action lasts for a short period of time. It is pointed out in Tang (2000) that verbal reduplication can be used to express the tentative aspect of an action denoted by the verb. Lu (1999) claims that verbal

reduplication in TSM denotes the attemptive aspect or tentative aspect and is usually followed by the sentence-final particle *leh* or a clausal complement. Hung (2015) concludes that reduplication does not apply to verbs that denote an ongoing activity, as shown in (10). In addition, Cheng (1997) observes that an event denoted by reduplicated dynamic verbs in the VV-*leh* construction is resistant to manner adverbs denoting slowness but compatible with manner adverbs with the description of quickness, as demonstrated in (11a-b). Cheng (1997) explains that this type of verbal reduplication (VV-*leh*) is used to characterize the quickness of an event that lasts for a while.

(10) In            tī-leh        tsiáh-(\*tsiáh)    p̄ng.  
           they        now        eat-eat        rice  
           Intended ‘They are having meals.’

(11) a. \*Lí    [sio tē]    liâu-liâu-á    lim-lim        leh tō    thang-hó  
           you    hot tea    slowly        drink-drink    SFP    then ready  
           tshut-m̄ng    siōng-pan.  
           out-door    work  
           Intended ‘Drink the hot tea slowly for a while, and get ready to work.’

b. Lí    [sio tē]        kuánn-kín    lim-lim        leh  
           you    hot tea        hurriedly    drink-drink    SFP  
           tō    thang-hó    tshut-m̄ng    siōng-pan.  
           then    ready        out-door    work  
           ‘Drink the hot tea hurriedly for a while, and get ready to work.’

These studies pay careful attention to the aspectual properties of verbal reduplication but they do not address (i) the role of OS, (ii) the interplay between verbal reduplication and aspectual interpretations and (iii) the obligatory presence of *leh* after the reduplicated verb. In the following sub-sections, we

provide a characterization of the VV-*leh* construction in TSM by drawing on new OS and verbal reduplication data in TSM to show that the interpretative properties of the shifted object have a direct bearing on the aspectual properties of the VV-*leh* construction.

Before proceeding to the following discussion, it is worth taking a moment to discuss some complicating properties inherent in the VV-*leh* construction, which can be interpreted as incompleteness effects (Tsai 2008b). As shown in (12a-b), the VV-*leh* construction sounds incomplete, though verbal reduplication triggers OS in (12a) or the addition of the particle *leh* in (12b) rarely improves the incompleteness effects. In contrast, the addition of a continuation clause (*then*-clause) in (12c) repairs the effects.

- (12) a. #Asîng [NP tsheh] thák-thák.  
 Asing book read-read  
 Intended ‘Asing read the book for a while.’
- b. #Asîng [NP tsheh] thák-thák leh.  
 Asing book read-read SFP  
 Intended ‘Asing read the book for a while.’
- c. Asîng [NP tsheh] thák-thák \*(lèh) tō khì  
 Asing book read-read SFP then go  
 khuànn tiānsī ah.  
 watch TV SFP  
 ‘After reading the book(s) for a while, Asing went to watch TV.’

Though the interplay of the incompleteness effects observed in the VV-*leh* construction is not well understood at the moment, I suggest that the strategy in (12c) to repair the incompleteness effects can explain distinct aspectual properties of the VV-*leh* construction. As will become apparent in Section 4.1, the VV-*leh* construction is construed as involving telicity and perfectivity,

interpreted under which (12c) has an interpretation that the reading action denoted by the reduplicated verb *thák-thák* lasts for a while, which implies an endpoint eventually, once its duration ends (telicity). Given the endpoint, the reading activity will end with the return to the initial state, which renders perfectivity of the reading action. The encoding of perfectivity is demonstrated by the addition of the continuation clause: that is, as in (12c), after the book-reading event comes to end, the TV-watching event thus follows, showing that the latter occurs only after the former is wrapped up as a complete event (see Flier 1985: 41). Given the complicated interpretative properties mentioned above, to keep the scope of the discussion at a manageable level, this paper is primarily concerned with the syntactic structure and the aspectual properties of the VV-*leh* construction and leaves the incompleteness effects for another occasion.

## 2.1 Interpretative properties of the shifted object

As discussed in Krifka (1986, 1989, and subsequent work), the semantics of nominal arguments is able to affect the telic (bounded) and atelic (unbounded) interpretation of VPs (also see Czardybon and Fleischhauer (2014) for a detailed discussion). More generally, a range of studies have argued that the direct object is tied to a set of related aspectual notions, including telicity and delimitative (Ritter & Rosen 2005). Here for concreteness, the incremental theme argument of incremental theme verbs, such as *eat*, bears directly on the telicity of the predication. As shown in (13a), as the theme arguments *an apple* and *the apple* have a quantized reference, when they are selected by the verb *ate*, the whole predication is viewed as telic. In contrast, as the theme arguments, like the bare plural noun *apples* in (13b) and the mass noun *soup* in (13c), have a cumulative reference, the whole predication is interpreted as atelic. The telicity contrast between (13a) and (13b-c) can be indicated by the interpretation of the time-span adverbial *in ten minutes*.

- (13) a. Mary ate an/the apple in ten minutes. [telic]  
 b. Mary ate apples (\*in ten minutes). [atelic]  
 c. Mary ate soup (\*in ten minutes). [atelic]

This line of thinking is revealed in the VV-*leh* construction. It is observed that the shifted object in the VV-*leh* construction is interpreted as either generic, specific or definite. As shown in (14a), the shifted NP *hit-pún tsheh* ‘that book’ is a definite NP referring to the book known to the speaker and the hearer. Moreover, the same NP in (14b) can be generic or definite. Similarly, (14c) allows two readings: a definite reading (14c.i) says that the two books (i.e., *Pride and Prejudice* and *To the Light House*) are known to the speaker and the hearer, while a specific reading (14c.ii) says that there are some two books which are not known to the speaker and the hearer.

- (14) a. Asîng [NP hit-pún tsheh] thák-thák leh tō khi  
 Asing that-CL book read-read SFP then go  
 khuànn tiānsī ah.  
 watch TV SFP  
 ‘Asing had read that book for a while, and then went to watch TV.’
- b. Asîng [NP tsheh] thák-thák leh tō khi khuànn tiānsī  
 Asing book read-read SFP then go watch TV  
 ah.  
 SFP  
 i. Generic reading: ‘Asing had read books for a while, and went to watch TV.’  
 ii. Definite reading: ‘Asing had read the book(s) for a while, and went to watch TV.’
- c. Asîng [n̄ng-pún tsheh] thák-thák leh tō khi  
 Asing two-CL book read-read SFP then go

khuànn      tiānsī      ah.  
 watch      TV      SFP

- i. Definite reading: ‘Asing had read the two books (i.e., *Pride and Prejudice* and *To the Light House*) for a while, and went to watch TV.’
- ii. Specific reading: ‘Asing had read some two books for a while, and went to watch TV.’

Another way to confirm the definite reading of the shifted object NP in (14b) is to employ the ‘Hey, wait a minute’ test for the presupposition of the object NP (von Stechow 2004). For example, if Speaker A utters (14b) and (14c), they can be replied with (15a) and (15b) by the hearer, respectively, because the shifted objects in (14b-c) have been presupposed in the context. The felicitous responses (15a-b) are taken to show that the shifted objects in (14b-c) are already presupposed and thus definite.

(15) a. In response to (14b)

Tán-tsit-ē,      guá      m̄n-tsay-iánn      Asîng      ū      thák  
 wait.a.minute      I      NEG-know      Asing      have      read  
 tsheh.  
 book

‘Wait a minute! I didn’t know that Asing had read the books.’

b. In response to (14c)

Tán-tsit-ē,      guá      m̄n-tsay-iánn      Asîng      ū      thák  
 wait.a.minute      I      NEG-know      Asing      have      read  
 hit      sann-pún      tsheh.  
 that      three-CL      book

‘Wait a minute! I didn’t know that Asing had the three books.’

Cheng (1997) observes a similar restriction on the shifted object NP in verbal reduplication. As in (16a-c), the NP *sann-pún tsheh* ‘three books’ in (16a) has a non-specific reading when in the object position, but it cannot stay in-situ when the verb *thák* is reduplicated in (16b). (16c) shows that the object NP needs to undergo OS and can have two readings, depending upon whether the books are known to the speaker and the hearer in (16c-i) or unknown to the speaker and the hearer in (16c-ii) (also see (14c)).<sup>6</sup>

- (16) a. Asîng      thák            [sann-pún      tsheh].  
           Asing      read            three-CL      book  
           ‘Asing reads three books’
- b. \*Asîng      thák-thák      [sann-pún      tsheh]      leh    tō    khì  
           Asing      read-read      three-CL      book      SFP    then go  
           khuànn      tiānsī      ah.  
           watch      TV            SFP  
           Intended ‘After reading the three books for a while, Asing went to watch TV.’
- c. Asîng      [sann-pún      tsheh]      thák-thák      leh    tō    khì  
           Asing      three-CL      book      read-read      SFP    then go  
           khuànn      tiānsī      ah.  
           watch      TV            SFP
- i. Definite reading: ‘After reading the three books (i.e., *Wuthering Heights*, *Pride and Prejudice* and *To the Light House*) for a while, Asing went to watch TV.’
- ii. Specific reading: ‘After reading some three books for a while, Asing went to watch TV.’

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<sup>6</sup> I am grateful to the reviewer for sharing the judgement with me.

It should be noted here that both the generic reading and the definite reading of the shifted object NP can be considered definite. As argued by Ojeda's (1991), there are two types of definiteness. That is, a definite noun phrase can be either a definite description or a definite kind. Take (17a-b) for example. The definite NP *the computer* is interpreted as a definite description in (17a), a statement about an individual computer, or as a definite generic in (17b), a statement about computers in general. Thus, when the shifted NP appears bare like (14b), both the definite and the generic reading are permitted, but when preceded by the classifier phrase in (14c), the shifted NP is definite or specific.

(17) (Ojeda 1991: 367)

- a. Turning repaired the computer.
- b. Turning invented the computer.

Given the above discussion, two types of definite reading of the shifted NP *kua* 'song' in (18) is therefore explained, as (18) can pass the *wait a minute* test in (19). The definite description reading in (19a) can be obtained in the context that *Asing* agreed to sing two songs at the request of the people in the immediate context, after he sang two songs (i.e., Song A and B) and the speaker questions the existence of the particular two songs (Song A and B) *Asing* sang. In contrast, the definite kind reading in (19b) arises from the speaker's question about the existence of the two songs in general *Asing* sang.

(18) Thiann-kóng    Asîng            khì tshuē    in, in    tō    tsio            Asîng  
 hear                Asing            go find      they they then invite    Asing  
 tshiùnn    kua        kap        lim        sio-tsiú.  
 sing        song        and        drink     wine  
 Kiat-kó    Asîng            kua tshiùnn-tshiùnn    leh tō    tsáu        ah.  
 result     Asing            song sing-sing                SFP then leave        SFP



‘It was heard that Asing went to find them, and they invited Asing to sing songs and drink together. But Asing left after singing the songs for a while.’

- (19) Tán-tsit-ē, guá m̄-tsai-iánn Asîng ū tshiùnn tsit  
 wait.a.minute I NEG-know Asing have sing this  
 n̄ng-siú kua.  
 two-CL song

- a. Definite description reading: ‘Wait a minute! I didn’t know that Asing sang these two songs (Song A and B).’  
 b. Definite kind reading: ‘Wait a minute! I didn’t know that Asing sang the two songs.’

If this line of reasoning is on the right track, another similar counterexample can be explained accordingly, as in (20). Likewise, assuming that Asing picked three books and finished reading them before watching TV, and the three books are presupposed and hence denote a definite description reading (the three individual books, such as *Wuthering Heights*, *Pride and Prejudice* and *To the Light House*) in (20a). In contrast, if Asing’s mother simply refers to any three books from a bookshelf to be read by Asing without specifying any particular individual books, then a definite kind reading arises in (20b).<sup>7</sup> As will be detailed in Section 4.1, the VV-*leh* construction like (20) has a telic reading which results from the definiteness of the shifted object providing boundedness for the event.

- (20) Context: Asing’s mother told him, ‘You can’t watch TV unless you pick three books from a bookshelf and finish reading them.’

Asîng sann-pún tsheh thák-thák leh tō khì khuànn  
 Asing three-CL book read-read SFP then go watch

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<sup>7</sup> I am grateful to the reviewer for urging me to clarify the possible definite readings in (20).

tiān-sī ah.

TV SFP

- a. Definite description reading: ‘After Asing finished reading the three books (*Wuthering Heights*, *Pride and Prejudice* and *To the Light House*), he went to watch TV.’
- b. Definite kind reading: ‘After Asing finished reading the three books, he went to watch TV.’

Moreover, a note of importance is that verbal reduplication is allowed to occur in two environments. First, as shown in (21a), verbal reduplication takes place despite the absence of the overt object NP in TSM. Second, unergative verbs like *khàu* ‘cry’ in (21b) can undergo reduplication in the absence of OS.<sup>8,9</sup>

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<sup>8</sup> It is worth our attention to one example which lacks the object NP in (i), where the unergative verb *tsáu* ‘run’ does not select an object argument, making it unclear how OS feeds the derivation of a delimitative reading permitted in verbal reduplication here. It should be noted that TSM displays the unselectiveness of the object (Lin T-H. 2001), as shown in (ii), where the location noun *ūn-tōng-tiānn* ‘track field’ can serve as the direct object of the verb *tsáu* ‘run’ but it is not a thematic object of the verb *tsáu* ‘run’. (ii) does not have the delimitative reading in which the running event lasts for a while and will terminate eventually. In this light, the location noun in (i) can be an instance of OS to derive the delimitative reading in (i). To keep the discussion at a manageable level, I will leave this issue for another occasion.

(i) Kású lí tsin bôliâu, khì **ūn-tōng-tiānn** tsáu-tsáu leh.  
 if you very bored go track.field run-run SFP  
 ‘If you are very bored now, you can go to the track field to run for a while.’

(ii) Asing khì tsáu **ūn-tōng-tiānn** ah.  
 Asing go run track.field SFP  
 ‘Asing goes to run on the track field.’

<sup>9</sup> A word of reminder is that this paper does not claim that variants of OS permitted in TSM are predicted to have a direct bearing on verbal reduplication. For instance, OS in (i) can be accounted for in two ways. First, the object NP undergoes OS due to the postverbal constraint (Lee 2007, 2008), case (Tang et al. 1997; Feng 2014), the clausal-final restriction (Lin 2002).

- (21) a. Asîng ē-poo (sái) làu-làu leh tō  
 Asing afternoon excrement drop-drop SFP then  
 khì khuànn ising ah.  
 go see doctor SFP  
 ‘Asing had had diarrhea for a while this afternoon, and then went to see the doctor.’
- b. Asîng khàu-khàu leh tō khùn ah.  
 Asing cry-cry SFP then sleep SFP  
 ‘Asing had cried for a while, and then slept.’

To make the discussion at a manageable level in this paper and avoid further complications surrounding the examples like (21a-b), we will focus on the TSM VV-*leh* construction that involves the overt object NP in verbal reduplication. Meanwhile, though two types of definite reading are available for the shifted NP object, I will regard the two types as definiteness in general and leave the detailed semantic computation of the two types for another occasion.

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See Table 3 for the overview. Obviously, the definiteness of the shifted object is not relevant here. Second, according to some native speakers of TSM, a sense of incompleteness arises from (i), if it is not followed by another clause in (ii). In this light, the shifted object NP *tsit-pún tshéh* ‘one book’ can be analyzed as a contrastive topic that excludes a set of alternatives like *n̄ng-pún tshéh* ‘two books’ in (ii). Thus, the shifted object NP under discussion is an information structural construal, different from the shifted object NP we discuss in this paper. OS in (i-ii) is not of concern to us in this paper.

- (i) #I [tsit-pún tshéh]<sub>1</sub> thák-liáu t<sub>1</sub> ah.  
 he one-CL book read-finish SFP  
 ‘He finished reading a book.’
- (ii) m̄-sī [n̄ng-pún tshéh] (thák-liáu t<sub>1</sub> ah).  
 not two-CL book read-finish SFP

## 2.2 Verbal reduplication and delimitative aspect in Taiwanese Southern Min

Li and Thompson (1981) claim that verbs with the [+DYNAMIC] or [-RESULT] feature can undergo reduplication. Cheng (1997) categorizes verbs in TSM into four types in terms of two aspectual features, [ $\pm$ VOLITIONAL] and [ $\pm$ DURABLE], as illustrated in Table 1. Cheng (1997) adds that verbal reduplication in TSM denotes a long or short duration of the process, which explains the fact that verbs in Type D are allowed to undergo reduplication. Xiao and McEnery (2004) point out that reduplication, when applying to [-DURATIVE] verbs, reduces the iteration frequency of events, while it reduces the duration of events when applying to [+DURATIVE].

**Table 1. Cheng's (1997) classification of TSM verbs**

Type	[ $\pm$ VOLITIONAL]	[ $\pm$ DURABLE]	Reduplication	Example
A.	+	-	✗	<i>lâi</i> 'come', <i>kàu</i> 'arrive'
B.	+	+	✓	<i>tsuè</i> 'do', <i>tsiàh</i> 'eat'
C.	-	+	✗	<i>hó</i> 'good'
D.	-	-	✓	<i>sí</i> 'die'

Based on Van Valin's (2005) verb class system, Chuang (2007) provides a survey of verbs in TSM that can undergo reduplication, as summarized in Table 2.

**Table 2. Summary of verbs in TSM which can(not) be reduplicated**

	[±STATE]	[±DYNAMIC]	[±TELIC]	[±PUNCTUAL]	Reduplication
A. State	+	–	–	–	✓/✗
B. Activity	–	+	–	–	✓
C. Achievement	–	–	+	+	✓: monosyllabic ✗: disyllabic
D. Semelfactive	–	±	–	+	✓: monosyllabic/ ✗: disyllabic
E. Active accomplishment	–	+	+	–	✓

Though Chuang's (2007) classification is primarily defined at the morphological level rather than at the clausal level, our observations show that verbal reduplication is affected by OS and telicity, however. It is worth taking the moment to reexamine some of Chuang's findings in Table 2.

First, Chuang (2007) does not consider the semantics of reduplication forms. For instance, in the case of state verbs, reduplication gives rise to the degree reading like 'sort of', as in (22b). This line of thinking also applies to the end state of *sí* 'die' in (23).<sup>10,11</sup> In sharp contrast, reduplication triggers the

<sup>10</sup> One may come up with an example (i) to argue that even the verb *sí* 'die' can be the target of verbal reduplication to derive a VV-*leh* construction. Nevertheless, there are two complications surrounding (i). First, the frequentative adverb *tsit-ē* 'once' (Cinque 1999) does not necessarily modify the dying event denoted by the reduplicated verb *sí-sí* [die-die]. To three informants of TSM I consulted, (i) prefers to have the extent reading 'Asing was hit by a car once to a certain extent that he died', suggesting that the adverb *tsit-ē* modifies the verb *lòng* 'hit'. As shown in (ii), the adverb *tsit-ē* modifies the extent of anger that gives rise to the speaker's inability to say a word. (iii) further shows that the resultative complement *sàng pēnn-īn* '(be) sent to the hospital' can follow *tsit-ē*. If these lines of analysis are correct, the verbal compound *sí-sí-khì* in (i) can be regarded as a clausal complement modifying the hitting event. Second, given the resultative complement analysis, the state of being dead is

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attenuated by the reduplicated verb *sí-sí* used by the speaker to soften his/her tone in expressing this event. As noted in Lau (2021), VV-*leh* can be distinguished from VV-X in that the former expresses the sense of trying to perform an action while the latter has an attenuating function. Granted the distinction, another similar example in (iv) can be accounted for accordingly; it has the reading of ‘sort of’. As examples (i-iv) are not of our immediate concern, we will leave them aside for future research.

(i) Asîng      hōo tshia      lònŋ      tsit-ē      sí-sí-khì.  
 Asing      HOO car      hit      once      die-die-go  
 ‘Asing was hit by a/the car and killed at once.’

(ii) Khì      tsit-ē      bē kóng-uē.  
 angry      once      NEG speak  
 ‘...angry to a certain extent that he barely says a word.’

(iii) Asîng      hōo tshia      lònŋ      tsit-ē      [sàng      pēnn-în].  
 Asing      HOO car      hit      once      send      hospital  
 ‘Asing was hit by a/the car to a certain extent that he was sent to the hospital.’

(iv) khuànn      khí-lâi      sí-sí.  
 look      like      die-die  
 ‘It looked weak and without strength.’

<sup>11</sup> A reviewer provides an interesting example in (i) and wonders why an achievement verb *sí*, after being reduplicated, forms a unit with a delimitative aspect *leh*. I suggest that there are some complications that need to be addressed in the first place. First, according to Cheng’s (1997) classification as well as Chuang’s (2007), the verb *sí* ‘die’ can be the target of verbal reduplication. Second, whether *leh* in (i) can be analyzed as a delimitative marker needs careful examination, as it lacks the delimitative reading (i.e., the dying state/event that lasts for a while and ends eventually). Rather, *leh* in (i) is not a delimitative aspect marker but a marker that expresses the speaker’s negative assertion that serves to reject the hearer’s presupposition (Chen 1989; Li 1999). Here for concreteness, (i) is felicitous in the context the hearer intends the speaker to commit an action which the speaker is unwilling to accomplish. If this line of thought is on the right track, *leh* may not be a delimitative aspect marker but a CP-level marker whose presence is sensitive to discursal factors. I am grateful to the reviewer for sharing this example with me and leave it for another occasion.

delimitative reading, when applying to activity verbs, semelfactive verbs like *sàu* ‘cough’ in (24a), and active accomplishment verbs like *tshiam* ‘sign’ (25). One shared property of these three classes of verbs is [+DYNAMIC]. Second, Chuang (2007) points out that the trisyllabic verb *phah-khatshiùnn* ‘sneeze’ in (24b) is not acceptable in verbal reduplication. Nonetheless, I argue that there are two problems with this analysis. On the one hand, it might be misleading to analyze *phah khatshiùnn* as a trisyllabic verb, and instead, it consists of two parts, the light verb *phah* ‘do’ and the object NP *khatshiùnn* ‘sneeze’, tantamount to ‘doing the sneezing’. In this sense, the verb is monosyllabic. On the other hand, Chuang (2007) does not investigate verbal reduplication at the clausal level. As the verb *phah* is reduplicated and the object NP *khatshiùnn* undergoes obligatory OS, the resulting sentence (24c) is perfectly grammatical. Third, one similar problem is carried over to the way Chuang (2007) analyzes active accomplishment verbs like *tshiam-miâ* ‘sign the name’, which represents an instance of V-O compounds. Granted these complications, it is revealed that reduplication is head-sensitive in the way that reduplication only targets verbal heads. As shown in (25), the verb *tshiam* ‘sign’ is reduplicated, and the object NP *miâ* ‘name’ undergoes obligatory OS. Moreover, it has been observed in Section 2.1 that the definiteness affects the telicity of verbs. This line of reasoning is supported by the fact that the bare nominal *miâ* ‘name’ has to be interpreted as definite (i.e., his name) in (25).

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- (i) Guá kui-khì      sí-sí      leh.  
       I    directly    die-die    LEH  
       ‘I die directly.’  
       ‘It would be better just for me to die.’

## (22) State verbs

- a. *ài* 'love' → \**ài-ài*  
 b. *uai* 'crooked' → *uai-uai* 'sort of crooked'

## (23) Achievement verbs

- sí* 'die' → *sí-sí*

## (24) Semelfactive verbs

- a. *Asíng sàu-sàu leh tō hó ah, bián huânló.*  
 Asing cough-cough SFP then well SFP NEG worry  
 'After having coughed for a while, Asing's condition became much better.  
 Don't worry.'

- b. *phah khatshiùnn → \*khatshiùnn phah-phah.*  
 do sneeze sneeze do-do

- c. *Asíng [khatshiùnn]<sub>1</sub> phah-phah t<sub>1</sub> leh tō hó ah, bián huânló.*  
 Asing sneeze do-do SFP then well SFP NEG  
 worry  
 'Asing became well after having done the sneezing for a while. Don't worry about him.'

(25) Active accomplishment verb: *tshiam-miâ* → *miâ tshiam-tshiam*

- Asíng [miâ]<sub>1</sub> tshiam-tshiam t<sub>1</sub> leh tō tshut-mîng.*  
 Asing name sign-sign SFP then out-door  
 'Asing had signed his name for a while, and then went out.'

The conclusion we converged on from the above discussion is that verbs with the [+DYNAMIC] feature in TSM, which encompass activity verbs, semelfactive verbs, and active accomplish verbs, can be reduplicated. This generalization fares well with Li & Thompson's (1981) study that dynamic verbs



can be reduplicated. Though the current discussion has pinned down the types of verbs that can be the targets of verbal reduplication and shown that verbs with the [+DYNAMIC] feature in TSM, after being reduplicated, denote a short duration of the action that lasts for a while and will end eventually, this aspectual property is accounted for differently in the literature. Previous studies have claimed that AA verbal reduplication in TSM is associated with aspectual properties such as the delimitative aspect in Yang (1991), the attemptive aspect in Lu (1999), the tentative aspect in Chappell (1989) and Tang (2000), with no consensus reached. Little is known about the core meaning of these types of aspect, however.

Xiao and McEnery (2004) examine different aspectual readings resulting from reduplicated verbs in Mandarin, including delimitativeness, tentativeness, slightness, casualness and milder requests, and argue that delimitativeness is the core meaning, while the other meanings are merely the extensions of delimitativeness constrained by certain contextual elements. Xiao and McEnery (2004) add refinement to the characterization of the delimitative aspect: it encodes a short duration (i.e., transitoriness) and/or a low iteration frequency. A note of importance is that tentativeness is the extended meaning of delimitativeness that is constrained by the contextual criteria in (26).

(26) **Criteria for tentativeness** (Xiao and McEnery 2004: 152)

- a. The reduplicated verb must be a volitional verb;
- b. The subject of the sentence must be animate;
- c. The sentence must convey a future event, especially imperatives.

Here for concreteness, (26a-b) say that the tentative reading is derived from a reduplicated volitional verb that takes an animate subject. Nevertheless, Xiao and McEnery (2004) indicate that though the criteria in (26a-b) are satisfied,

reduplicated verbs do not necessarily carry tentativeness, as evident in (27).<sup>12</sup>

(27) Mandarin (Xiao and McEnery 2004: 153)

Wo dao Beijing chuchai, shunbian lai kan-kan  
 I come Beijing for.business by.the.way come look-look  
 nimen.  
 you  
 ‘I am on a business trip to Beijing and drop in on you.’

Given the above discussion, we follow Xiao and McEnery’s (2004) proposal in arguing that the delimitative aspect represents the core meaning of reduplicated verbs in the context of *VV-leh* verbal reduplication in TSM,

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<sup>12</sup> A word of clarification is that some native speakers of Mandarin reported that *kan* ‘see’ in (27) is encoded by tentativeness. I suggest that it is likely that to many speakers of Mandarin, *kan* is reanalyzed as a tentative aspect occurring in the sentence-final position or attached to the verbal complex, as shown in (i). Tang and Shi (2021) maintains that *kan* does not encode the tentativeness itself and the tentativeness one may obtain arises from the delimitative aspect encoded by verbal reduplication. Tang and Shi (2021) have convincingly argued that if *kan* is a tentative aspect, it is predicted that *kan* can be compatible with the resultative complement *buyilehu* ‘so happily’ in (ii). Thus, this line of thought fares well with Xiao and McEnery’s (2004) view that tentativeness is an extended notion of delimitativeness. As the reduplicated verbal complex followed by *kan* ‘see’ does not exist in TSM and (27) is intended to illustrate the absence of tentativeness in verbal reduplication in Mandarin, I will leave this issue for another occasion.

(i) Mandarin

Ni zai gen ta tan-tan-kan.  
 you again to he RED-talk-see  
 ‘You can try to talk to him (about some matter).’

(ii) \*Zhangsan wan-de buyilehu-kan.

Zhangsan play-EXT happily-see  
 Intended ‘Zhangsan played to a certain extent that he had a great time!’

according to which the action denoted by the reduplicated lasts for a while, rather than the tentative aspect.<sup>13</sup>

### 2.3 The delimitative aspect *leh*

Section 2.2 has argued that verbal reduplication induces the delimitative aspect, and there is another piece of evidence to support this view. Cheng (1997), Lu (1999) and Chuang and Tai (2009) have pointed out that VV verbal reduplication forms in the context of OS cannot stand alone, unless they are accompanied by the particle *leh*. Particularly, the absence of *leh* makes the verbal reduplication form in (28a) sound degraded, though (28a) contains a continuation clause. We argue that the degraded grammaticality in (28a) cannot be ascribed to the so-called incompleteness effects observed in Tsai (2008b), as the addition of a continuation clause (event subordination) as a repair strategy in (28a) still fails to repair the degraded grammaticality. (28b) proves that both the insertion of *leh* and the *then*-continuation clause in the VV-*leh* construction suffice to improve the degraded grammaticality of (28a).

(28) a. #Lí	tshài	tsú-tsó	[tō	khì	tsiah
you	vegetable	cook-cook	then	go	eat
	p̄ng].				
rice					

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<sup>13</sup> It is admitted that the delimitative and the tentative aspect share some aspectual properties. For example, they are claimed to denote a short duration of the action denoted by the reduplicated verb. Nonetheless, the delimitative aspect specifies that the duration only lasts for a certain amount of time, suggesting that the duration eventually comes to end, while the tentative aspect lacks this property. Without getting involved in terminological complications surrounding the definition of the delimitative aspect and the tentative aspect, I follow Xiao and McEnery's (2004) view that the tentative aspect is an extension of the delimitative aspect and consider the delimitative aspect to be the core meaning of telicity in the VV-*leh* construction.

Bad when intended ‘After having cooked for a while, you went to have your meal.’

b. Lí	tshài	tsú-tsú	leh	tō	thang-hó	khì
you	vegetable	cook-cook	SFP	then	ready	go
tsiáh	p̄ng					
eat	rice					

‘Go to do the cooking quickly for a while, and then get ready to have your meals.’

Though analyzed as a sentence-final particle in the literature, *leh* is genuinely a delimitative aspect whose presence is required in the VV-*leh* construction. In Chappell (2019), *leh* in the V-*leh* pattern is argued to be a durative aspect. Chen (1989) argues that one of the functions of *leh* is a delimitative aspect denoting ‘doing for a short period of time.’ Hsieh and Hsiao (to appear) also support this view.<sup>14</sup>

In this paper, I follow Chen (1989) in analyzing *leh* as a delimitative aspect. It is further argued in this paper that *leh* is neither a sentence-final particle nor an utterance-final particle. First, (29a-b) have shown that *leh* can be followed, rather than preceded, by a CP-level mood particle *lah* expressing the speaker’s unpleasantness or unwillingness. The co-occurrence of the two types of particles is allowed. Second, the object NP cannot be situated between the VV complex and *leh*, as shown in (30b).<sup>15</sup>

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<sup>14</sup> It should be noted that there are variants of *leh* in TSM whose meanings (mood and interrogative) and pragmatic (assertive) and discourse functions display a high degree of heterogeneity. The detailed discussion about its meanings and functions certainly goes beyond the scope of the current paper. The interested reader is referred to Lau (2017) and Hsieh & Hsiao (to appear).

<sup>15</sup> As noted by one reviewer, the contrast between (30a-b) does not prove that *leh* must be immediately adjacent to the VV complex but confirms the necessity of OS. Similar lines of thought are also pursued by Teng (1995) and Cheng (1997), which point out that no

- (29) a. Lí tshài kín tsú-tsú leh lah!  
 you vegetable hurriedly cook-cook SFP SFP  
 ‘(You) go to do the cooking quickly for a while.’
- b. \*Lí tshài kín tsú-tsú lah leh.  
 you vegetable hurriedly cook-cook SFP SFP
- (30) a. \*Asuat tsiáh-tsiáh p̄ng leh tsiah tshut-m̄ng ah.  
 Asuat eat-eat rice SFP then out-door SFP  
 Intended ‘Asuat had eaten the rice for a while and then left.’
- b. Asuat p̄ng tsiáh-tsiáh leh tsiah tshut-m̄ng ah.  
 Asuat rice eat-eat SFP then out-door SFP  
 ‘Asuat had eaten the rice for a while and then left.’

As will be presented in Section 4.1, it is proposed in the VV-*leh* construction that *leh* is the phonetic realization of the delimitative aspect projecting inner aspect (IAspP) in the vP layer and gets incorporated into the verb through head movement. This proposal can account for the adjacency restriction in (30a-b).

## 2.4 Summary

In this section, I have shown that the output of a reduplicated verb with the [+DYNAMIC] feature conveys the delimitative aspect, and the definiteness of the shifted object NP has a direct bearing on the telicity of the reduplicated verb. Moreover, Chuang’s (2007) survey of verbal reduplication is rather insightful,

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intervening material is permitted between a verb and a phase marker (like *liáu*) in resultative constructions in (33a-c) to prove that the verb form a constituent with the phase marker. I agree to the reviewer’s comment, as the contrast (30a-b) can be accounted for by either OS or the adjacency restriction. I am grateful to the reviewer for leading my attention to this alternative analysis.

though confronted with the noted analytical and conceptual problems. We suggest that the survey offers two core implications for a structural analysis to be proposed in this paper. First, reduplication is head-sensitive in the way that it targets only head elements like verbs. In this light, apparent verbal compounds like *phah khatshiùnn* ‘do the sneezing’ and *tshiam-miâ* ‘sign your name’ are comprised of the semifactive verb *phah* and the object NP *khatshiùnn* ‘sneeze’, and the active accomplishment verb *tshiam* and the object NP *miâ*. That reduplication is sensitive to head elements has been reported in many languages (see Embick and Noyer 2001). For instance, as argued by Huang (1991), the A-not-A operator under INFL<sup>0</sup> targets the closest X<sup>0</sup> in Mandarin for A-not-A morphological formation. A similar line of thinking is also taken by Tseng (2010) in analyzing a variety of reduplication patterns in Mandarin by postulating a reduplication morpheme under Asp<sup>0</sup>. Second, the above discussion suffices to show that in TSM, OS is a crucial operation used to derive the VV-*leh* construction. In this view, analyzing verbal reduplication patterns at the word/morphological level heavily simplifies morpho-syntactic mechanisms underlying reduplication affected by OS and the delimitative aspect. Furthermore, it has been shown that *leh* in the VV-*leh* construction is the delimitative aspect marker and attaches to the VV complex. It is worth mentioning that the shifted object NP is allowed to occur in two positions, as illustrated in (31a-b): the shifted object does not necessarily target one structural position. Though our initial observations have indicated that OS is not triggered for information structural considerations, it is not clear whether the two landing sites in (31a-b) point to the same structural positions, and whether these derived structural positions are situated in a particular checking domain (CP, TP, vP, ApplP, etc.).

- (31) a. LÍ<sub>[NP</sub> hit-uánn ôá-mīsuànn]      tsiáh-tsiáh      t<sub>1</sub>    leh    la.  
           you      that-CL    oyster-noodle      eat-eat                          DEL    SFP

‘Eat the oyster noodles for a while as quickly as possible.’

- b. [NP Hit-uánn ôá-mīsuánn], lí tsiáh-tsiáh leh la.  
 that-CL oyster-noodle you eat-eat DEL SFP

Before proceeding, it is worth our while to discuss variants of verbal reduplication that seem to counterexemplify the generalizations made above. As illustrated in (32a-b), the indefinite object can undergo optional OS. It seems that the object NP does not undergo OS while the verb is reduplicated in (32a). Nonetheless, it should be clarified that (32a-b) are not the genuine instances of the VV-*leh* construction of immediate concern. That is to say, the reduplicated verb *tshiùnn-tshiùnn* ‘sing’ does not encode the delimitative aspect but a higher degree of liveliness or intensity (Tang 1988; Arcodia et al. 2012, among others).<sup>16</sup> Thus, it follows that OS is forbidden in (32a-b); that is, OS is not triggered in the liveliness/intensity enhancing context. The crucial generalization we attempt to make from Section 2 is that OS is triggered in verbal reduplication and the VV complex is required to bear the delimitative aspect *leh*. We will not further discuss the patterns like (32a-b) in the current paper and leave them for another occasion.<sup>17</sup>

- (32) a. Lí sī-án-tsuánn tshiùnn-tshiùnn hiah-nī tsuē tiâu (kua)?  
 you why sing-sing so many CL song  
 ‘Why did you sing so many songs?’  
 b. Lí sī-án-tsuánn [kua]<sub>1</sub> tshiùnn-tshiùnn hiahnī tsuē  
 you why song sing-sing so many

<sup>16</sup> Note that the VV complex in the VV-*leh* construction can be formally distinguished from the VV complex in (32a-b) in two regards: (i) (32a-b) denote a higher degree of liveliness or intensity of the action and (ii) the presence of *leh* is forbidden.

<sup>17</sup> For the reader interested in verbal reduplication in the absence of OS, s/he is referred to Lau (2021) for the structural analysis of evaluative verb reduplicative constructions in TSM.

tiâu t<sub>1</sub>?

CL

### 3. Previous studies

This section reviews previous analyses of OS in TSM, verbal reduplication and the landing sites for the shifted object NP.

#### 3.1 The syntax of object shift in Taiwanese Southern Min and its landing site

Previous works on OS in TSM are concerned with verbal complexes that constitute a driving environment for OS. Teng (1995) and Cheng (1997) observe that when a verb is followed by a phase marker *liáu*, which specifies the phase of an activity denoted by the verb rather than the result, forming a phasal complex, the object NP undergoes obligatory OS, as shown in (33a-b).<sup>18</sup> It is noted that the shifted object can target two structural positions in (33a-b). The ungrammaticality of (33c) is ascribed to the constraint that the phase marker *liáu* is an affix that must be attached to a preceding verb, banning the insertion of the object NP between *iōng* and *liáu*.

(33) The object undergoes obligatory object shift, when the verb is followed by the phase marker

- |        |                       |     |           |                |      |
|--------|-----------------------|-----|-----------|----------------|------|
| a. [NP | Tsinn] <sub>1</sub> , | lí  | iōng-liáu | t <sub>1</sub> | buē? |
|        | money                 | you | use-PM    |                | NEG  |

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<sup>18</sup> Intriguingly, Cheng (1997) observes that due to the influence of Mandarin, OS seems to be optional for young speakers of TSM, when the verb is followed by the phase markers like *uân* ‘finish’ or *hó* ‘complete’. In stark contrast, OS in the context of verbal reduplication is obligatory. Crucially, setting aside the alleged judgement variation regarding OS triggered in the presence of the phase markers, the contrast between OS triggered in verbal reduplication and the in-situ object in verbal reduplication reported in this paper still exists.



‘Have you used up the money?’

- b. Lí<sub>[NP tsínn]</sub><sub>1</sub> iōng-liáu t<sub>1</sub> buē?  
 you money use-PM NEG
- c. \*Lí iōng [NP tsínn] liáu buē?  
 you use money PM NEG

Later, Lin (2002) points out that OS is found in two types of verbal complexes, as illustrated in (34a-b), and proposes that OS is triggered to meet the postverbal constraint in which no object is allowed after the phase marker *liáu* and the directional complement *tshutkhì* ‘out’.<sup>19</sup>

(34) OS in two types of complex in TSM

a. Phasal complexes in TSM

- Guá [hit-pún tsheh] khuànn-liáu a.  
 I that-CL book read-PM ASP  
 ‘I finished reading that book.’

b. Directional complexes in TSM

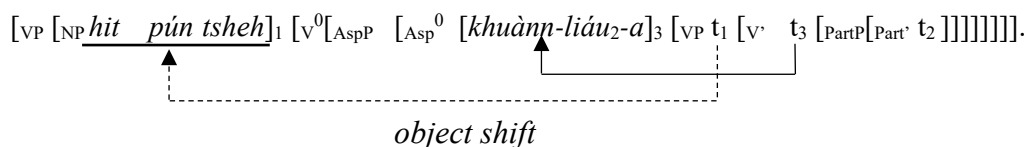
- Guá [hit-tui pùnsò] sàu tshutkhì a.  
 I that-CL garbage sweep out ASP  
 ‘I killed that spider.’ (Lin 2002: 309; glosses are mine)

(35) illustrates the derivation of (34a): after the particle *liáu* gets incorporated into the verbal element *khuànn* ‘read’ and the aspectual head *a* undergoes lowering to attach to the V-PART complex, the resulting verbal complex undergoes head movement to Asp<sup>0</sup> to assign case to the object NP *hit pún tsheh* ‘that book’. To satisfy the constraint in TSM that phase particles must

<sup>19</sup> Note that Lin (2012) argues for another similar constraint to account for this adjacency restriction: that is, no object NP is allowed after trisyllabic verbs, an independent constraint in TSM (see Lin 2012: 34).

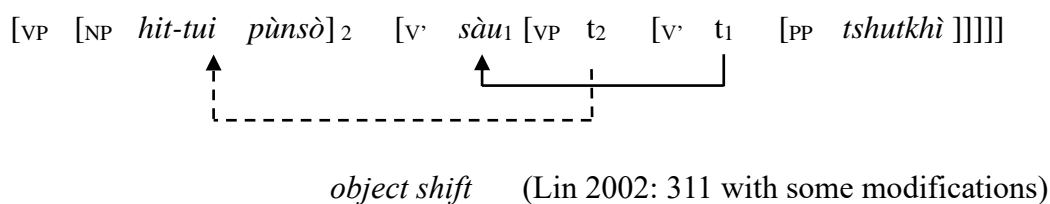
occur in the clause-final position, the case-assigned object NP must undergo OS to a VP-level position in a last resort manner.

(35) Lin's proposed underlying structure of the phasal complex in (34a)



Likewise, as depicted in (36), the verb *sàu* undergoes head movement to a higher V<sup>0</sup> to case-assign the object NP from left to right, followed by the object NP undergoing optional fronting to adjoin to a VP to get emphasized. One complication surrounding directional complexes is that as shown in (37), the object NP is forced to undergo OS because the verb *sàu* has to be immediately adjacent to the causative *hō*.

(36) Lin's proposed underlying structure of the directional complex in (34b)



(37) Lí [hit-tui pùnsò]<sub>1</sub> ài sàu t<sub>1</sub> hōo tshutkhì.

you that-CL garbage must sweep CAUSE out

‘You must sweep that pile of garbage out.’

Interpreted along the line of Lin's analysis, OS is motivated to satisfy certain adjacency constraints in TSM in a last resort manner, including the clausal-final restriction on phase particles and directional complements, and the immediate adjacency between a verbal element and the causative marker *hōo*.

Lee (2008) investigates the syntactic distributions of preverbal objects in TSM and concludes that OS is triggered when a verb is followed by phase markers like *hó*, *uân* and *liáu*. Lee argues that OS is subject to the postverbal constraint—a verb can be only followed by one type of complement at one time (Travis 1984; Li 1990; Tang 1990). OS takes place to repair ill-formed structures that result from the violation of the postverbal constraint, as evidenced by the contrast in (38a-b).

- (38) a. \*Asuat lim liáu [NP tsuí] ah.  
 Asuat drink PM water ASP  
 Intended: ‘Asuat finished drinking water.’
- b. Asuat [NP tsuí]<sub>1</sub> lim liáu t<sub>1</sub> ah.  
 Asuat water drink PM ASP  
 ‘Asuat finished drinking water.’

Different from the above works, Wang and Wu (2014) is the first study on the syntax of TSM that relates OS to the aspectual construal, arguing that OS is correlated with the predicate’s telicity attributed by markers of the inner aspect like *hó* ‘well’ and *uân* ‘complete’. As visualized in (39b), the object NP of the telic event is forced to undergo raising to [Spec, AspP] to check the EPP feature and establish a Spec-Head agreement with Asp<sup>0</sup> to check the [+TELIC] feature.

- (39) a. I [NP p̄ng ]<sub>1</sub> ũ tsiáh-uân t<sub>1</sub>.  
 he rice ASP eat-complete  
 ‘He has finished eating the rice.’
- b. [AspP NP<sub>1</sub> [Asp<sup>0</sup> [+TELIC]/[EPP] [vP [v<sup>0</sup> [VP [v<sup>0</sup> t<sub>1</sub>]]]]]]
- 

Both Lien (1995) and Tang (2005) maintain that obligatory OS pertains to

the degree of grammaticalization in the sense that in TSM, the verb and its following phase marker have not formed a compound verb and the verb itself is unable to select the object NP, giving rise to obligatory OS.

Table 3 summarizes the driving environments for OS and its landing sites proposed in the literature, though OS is not investigated in the context of verbal reduplication. It is worth noting that though Lin (2002) and Lee (2008) do not pin down a designated position to which the shifted object NP moves, they agree that the shifted object NP targets a structural position above the  $vP$ . This view fares well with Wang and Wu's (2014) analysis of OS, where the shifted object NP targets [Spec, AspP] above  $vP$ . Moreover, Wang and Wu's (2014) study is different from the other studies in that the definiteness of the shifted object NP affects the telicity of the predicate. This view is further elaborated in Wang and Wu (2020) that the object needs to enter the checking domain of inner aspect (InAsp) in order to measure out an event as telic in the context of verbs immediately followed by phase markers.

**Table 3. Summary of the driving contexts for OS and the landing sites for the shifted object**

	<b>Driving environment for OS</b>	<b>Landing site</b>
Lien (1995), Tang (2005)	The inability of the verb complex <i>V-phase marker</i> to select the object NP.	N./A.
Tang et al. (1997), Feng (2014)	Case-driven (the insertion of the phase marker blocks the verb from assigning case to the object NP from left to right)	A non-core argument position in the IP/above the VP
Lin (2002)	The clause-final restriction (i.e., the phase particle has to be in the clausal-final position)	$\nu$ P (the upper VP shell in her term)
Lee (2007, 2008)	Postverbal constraint: a verb cannot take two complements at one time	above negation and modal verbs
Wang and Wu (2014, 2020)	The direct object NP undergoes OS to check the EPP on $\text{Asp}^0$ and establishes a Spec-Head agreement with $\text{Asp}^0$ [+TELIC].	[Spec, AspP] above $\nu$ P

Despite the existing analyses laid out above, there are several complications to be solved. First, the previous works are concerned with OS that is triggered by verbal complexes, and hence, OS triggered by verbal reduplication falls outside the scope of their investigation. It is not clear why verbal reduplication triggers OS. Second, verbal reduplication, in addition to triggering OS, takes part in aspectual computation of the event, as discussed in Section 2. Third, from a conceptual perspective, the postverbal constraints proposed in Lin (2002) and Lee (2007, 2008) are defined at the descriptive level without explaining whether

they are encoded as syntactic operations or are simply syntactic filters. Thus, there is ample reason to believe that OS in verbal reduplication is not driven for case (Tang et al. 1997, Feng 2014) or to repair certain grammaticality constraints (Lin 2002; Lee 2008), and the interpretative properties of the shifted object pertain to the telicity of reduplicated verbs (Wang and Wu 2014). It is hypothesized that OS in TSM is triggered to check aspectual features in overt syntax, as argued in Su (2012), and the semantics of the shifted object bears directly on the telicity and perfectivity of the event.

### 3.2 Verbal reduplication and VV-*leh* constructions

As pointed out in Teng (1995) and Cheng (1997), the verbal complex in TSM that involves a verb and a phase marker *liáu* constitutes a driving context for OS, as shown in (33a-c). Nonetheless, this driving context is not independently motivated. Several studies have argued that phase markers are telic markers like *uân* ‘finish’ and *liáu* ‘complete’ in TSM. Tang (2005) indicates that phase makers provide an endpoint of the event/action. Yang (2014) claims that *liáu* and *uân* are telic markers that denote the completeness of an activity or the termination of an event. From a comparative perspective, this property is not unique to TSM. Of three types of predicate-complement compounds, the phase complement like *wán* in Mandarin serves the role of denoting an endpoint for an action. Smith (1991) proposes that the occurrence of the phase complement turns an atelic event into a telic one. Guan (2003) shares a similar proposal in the way that the phase complement *wán* denotes the termination of a continuous activity. Su (2012) argues that a completive reading can be induced by a perfective telic predicate with the morpheme *wán*. Crucially, it is agreed in TSM that verbal reduplication serves one of the morphosyntactic means to encode some types of aspect.

Though Lin (2002) investigates OS in the context of phasal complexes and

directional complexes, we observe that the aspectual construal induced by phasal complexes is actually in complementary distribution with verbal reduplication, suggesting that the event can be aspectually marked by either a phase marker or verbal reduplication. Our observation is that verbal reduplication is similar to the phasal complex in several regards. First, given that phasal complexes and verbal reduplication are able to trigger OS in (40a-b), the co-existence of the two constructions induces the ungrammaticality of (40c). This can be taken to suggest that (i) OS cannot be enforced in two similar syntactic constructions, or (ii) either construction alone, in (40a) or (40b), is able to anchor the aspectual anchoring of the event and the overlapped aspectual anchoring is forbidden, as evident in (40c).

- (40) a. Asuat      m̀nghkiānn      khuán-hó      tō      tshut-m̀ng      ah.  
          Asuat      thing            pack-well      then out-door      SFP  
          ‘After having packed her stuff, Asuat set off.’
- b. Asuat      m̀nghkiānn      khuán-khuán leh tō      tshut-m̀ng      ah.  
          Asuat      thing            pack-pack      SFP then out-door      SFP  
          ‘After having packed her stuff for a while, Asuat set off.’
- c. \*Asuat      m̀nghkiānn      khuán-khuán-hó leh tō      tshut-m̀ng  
          Asuat      thing            pack-pack-well      SFP then out-door  
          ah.  
          SFP

Second, it is shown that the object NP needs to undergo OS when situated in verbal reduplication and in the context of the phase marker *uân* ‘finish’. When the realis marker  $\bar{u}$  is used, the object NP can remain *in-situ*, as shown in (41a).<sup>20</sup> However, (41b) shows that the presence of  $\bar{u}$  is incompatible with verbal

<sup>20</sup> When a verb co-occurs with  $\bar{u}$ , the event denoted by the verb is realized but whether it is completed or not is not guaranteed (Tsao 1998).

reduplication, when the object NP *p̄ng* ‘rice’ is not shifted. Interestingly, when the verb *tsiáh* ‘eat’ is followed by the phase marker *uân* ‘finish’, the presence of *ū* is still not compatible with the phasal complex in (41c), unless the object NP is fronted in (42a). The similar pattern is attested for verbal reduplication in (42b). (41b-c) and (42a-b) are taken to demonstrate that *ū* does not constitute the driving force for OS, but either the phase marker (42a) or verbal reduplication (42b) can trigger OS.

- (41) a. Asuat *ū*            *tsiáh*    *p̄ng*    *ah*.  
 Asuat    REAL    eat        rice        SFP  
 ‘He has eaten the rice, (but has not finished eating it).’
- b. \*Asuat    *ū*            *tsiáh-tsiáh*    *p̄ng*    *leh*.  
 Asuat        REAL    eat-eat        rice        SFP  
 Intended ‘Asuat has eaten the rice for a while.’
- c. \*Asuat    *ū*            *tsiáh-uân*    *p̄ng*    *ah*.  
 Asuat        REAL    eat-finish    rice        SFP  
 Bad when intended ‘Asuat has eaten the rice, (but has not finished eating it).’
- (42) a. Asuat            [<sub>NP</sub> *p̄ng*]<sub>1</sub>            *ū*            *tsiáh-uân*    *t*<sub>1</sub>    *ah*.  
 Asuat                rice                    REAL    eat-finish                    SFP.  
 ‘Asuat has finished eating the rice.’
- b. Asuat [<sub>NP</sub> *p̄ng*]<sub>1</sub>    *ū*            *tsiáh-tsiáh*    *t*<sub>1</sub>    *leh*  
 Asuat        rice        REAL    eat-eat                    SFP  
*tsiáh*        *tshut-m̄ng*    *siōng-pan*.  
 then        out-door        work  
 ‘Asuat has eaten the rice for a while and then left for work.’

Third, as argued in Wang and Wu (2014), the phasal complex denotes a telic



event, and can be modified by a time-frame adverb, which specifies how long it takes for the endpoint to come, as shown in (43a). As expected, (43b) shows that the phasal complex *siá-uân* cannot be modified by a durative phrase, due to the telicity of the predicate. The contrast in (42a-b) is also observed in verbal reduplication, as evident in (44a-b).<sup>21</sup>

- (43) a. *Asîng tsáplī-hun lāi [NP kongkhò]<sub>I</sub> (tō) siá-uân t<sub>1</sub>*  
 Asing twelve-minute in homework then write-finish  
 ah.  
 SFP  
 ‘Asing finished doing the homework in twelve minutes.’  
 [telic/completive]
- b. \**Asîng [NP kongkhò]<sub>I</sub> siá-uân t<sub>1</sub>*  
 Asing homework write-finish  
 íking tsáplī-hun ah.  
 already twelve-minute SFP  
 Bad when intended ‘Asîng finished doing the homework for twelve minutes.’

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<sup>21</sup> One complication is that (44b) can be repaired by the insertion of the verbal element *kuè* ‘pass’, which also applies to (43b). At the moment, the argument structure of *kuè* is not fully understood and its syntactic integration into the VV-*leh* construction, though worth further investigation, may go beyond the scope of the current paper. I will leave (i) for further research, as our crucial observations are not affected.

- (i) *Asîng [NP kongkhò]<sub>I</sub> siá-siá t<sub>1</sub> leh íking kuè tsáplī-hun*  
 Asing homework write-write SFP already pass twelve-minute  
 ah.  
 SFP  
 ‘It has been twelve minutes after Asing has done his homework for a while.’

- (44) a. *Asîng tsáplī-hun lāi [kongkhò]<sub>1</sub> siá-siá t<sub>1</sub> leh tō*  
 Asing twelve-minute in homework write-write SFP then  
*tshut-mîg ah.*  
 out-door SFP  
 ‘After having done the homework for a while in twelve minutes, Asing went out.’
- b. \**Asîng [kongkhò]<sub>1</sub> siá-siá leh t<sub>1</sub>*  
 Asing homework write-write SFP  
*íking tsáplī-hun ah.*  
 already twelve-minute SFP  
 Bad when intended ‘Asing had done the homework for a while for twelve minutes.’

Table 4 presents a summary of the similarities and differences between phasal complexes and verbal reduplication. An immediate question is whether the two constructions should be analyzed similarly.<sup>22</sup>

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<sup>22</sup> One reviewer points out that OS is also triggered by *V-leh* complexes, as self-evident in (i.a-b), which do not involve verbal reduplication, and wonders whether the presence of *leh* can constitute the driving force for OS. I agree to the reviewer’s observation but it is worth mentioning that OS can be triggered in various verbal complexes, as *VV-leh* complexes, phasal and directional complexes, and *V-leh* complexes, among others.

- (i) a. *I sann thêh-leh tō tshut-mîg ah.*  
 he clothes take-LEH then leave-door SFP  
 ‘He carried the clothes and left.’  
 ‘When he left, he was still carrying the clothes.’
- b. \**I thêh-leh sann tō tshut-mîg ah.*  
 he take-LEH clothes then leave-door SFP  
 Intended ‘He carried the clothes and left.’

However, there are two complications that may undermine this analysis. First, the analysis of *leh* as an OS-triggering category ignores the fact that OS is also found in phasal complexes

**Table 4. Summary of the properties between the phasal complex and verbal reduplication**

	Phasal complexes	Verbal reduplication
Object shift	✓	✓
Compatibility with the perfective aspect $\bar{u}$	✓	✓
Time-frame adverbs	✓	✓
Durative adverbs	✗	✗

The shared properties by phasal complexes and verbal reduplication suggest two means to mark the telicity of an event denoted by verbs in TSM. For concreteness, granted that OS is triggered in these two constructions, one urgent question is what type of aspect each construction induces. Previous analyses of phasal complements in TSM, including Tang et al. (1997), Lin (2002), Lee

and directional complexes that do not involve *leh* (Lin 2002). Instead, OS, as a syntactic operation, is not confined to a particular category. As argued by Wang and Wu (2020), OS in TSM is a grammatical operation that is activated when a verb needs to compute aspectual interpretations of its eventuality. From a typological perspective, Ritter and Rosen (2005: 22) propose that the arguments of a clause can be re-organized by means of OS in order to satisfy the discourse needs (i.e., Mandarin) or the delimitativeness or telicity (i.e., TSM). This line of thinking is more advantageous, as OS is observed in different TSM constructions, such as VV-*leh* complexes, phasal complexes, directional complexes and V-*leh* complexes, which all pertain to the encoding of aspectuality. (A detailed discussion about the role of OS from a crosslinguistic perspective is provided in Section 4.2). Second, let us assume that *leh* could contribute to the driving force for OS. Nevertheless, an immediate question arises as to whether every category of *leh* behaves similarly. For instance, *leh* in (i.a) is a continuative aspect marker (Lien 2015), different from *leh* in the VV-*leh* construction which encodes the delimitative aspect. The view that OS is triggered in the presence of *leh* is in need of further examination. I am grateful to the reviewer for leading my attention to this analysis and will leave it for another occasion.

(2008), and Feng (2014), are preoccupied with the syntactic derivation of phasal complexes in overt syntax and the driving force for OS, but do not pay attention to the aspectual construal induced by OS. This work attempts to fill the gap. Moreover, the above discussion has noted that both phasal complexes and verbal reduplication in TSM are able to encode telicity, but what remains to be answered is whether they share the similar syntactic representation of telicity.

## 4. The proposal

In this section, we spell out two major assumptions that frame the current analysis of the TSM VV-*leh* construction. We further show how the proposed analysis can be motivated to account for the noted properties presented in Section 2 and is generalized to other grammatical properties of the VV-*leh* construction.

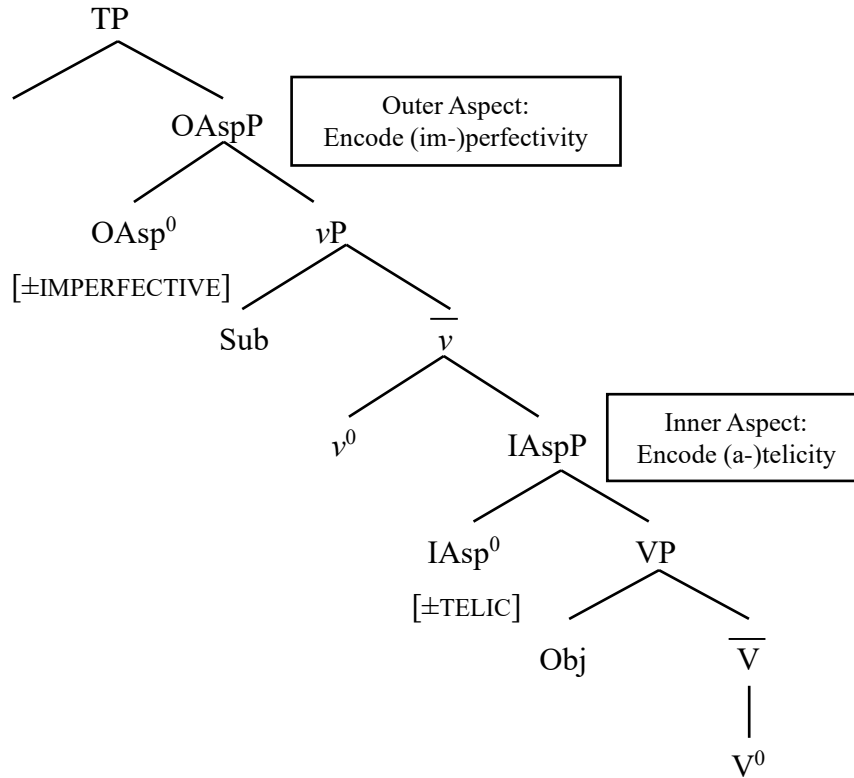
### 4.1 Two-tiered analysis of aspectual projections

As discussed earlier in Section 2, the output of a reduplicated dynamic verb conveys the delimitative reading and the definiteness of the shifted object affects the telicity of an event denoted by the reduplicated verb. Meanwhile, we have argued that the delimitative aspect is a type of telic aspect in Section 2.3 and its overt realization is *leh*. One question arises as to how these aspectual properties are syntactically represented.

We first motivate a two-tiered analysis of aspectual projections, primarily couched in Su (2012) and Travis (2010), as visualized in (45) (also see Tenny 2000; Liao 2004 for a similar proposal). The two-tiered aspectual structure illustrates that situation (or lexical aspect) is computed at inner aspect (IAspP) inside  $\nu$ P, whilst viewpoint aspect (or grammatical aspect) is represented at outer aspect (OAspP). Particularly, telicity is encoded by IAsp<sup>0</sup> above VP (irrelevant structural details are left aside here). Though the event denoted by the verb is

generally an activity and does not bear an endpoint, IAsp<sup>0</sup>, whose quantification force contributes to the meaning of reduced duration, assigns a quantity to the activity and presents a closed situation (Yang and Wei 2017).

(45) Su (2012: 60, slightly modified)



Following Wang and Wu’s (2014) analysis of OS in TSM verbal complexes, we formulate a hypothesis that the shifted object NP moves to [Spec, IAspP] to check the [±TELIC] feature and measure out an event via the Spec-Head Agreement (Wang and Wu 2020), as schematized in (46), where the definite object NP at [Spec, IAspP] values the telicity of the verb against its definiteness, very much in line with Borer’s (2005) account that the telicity value is determined by the element in the Spec position. Moreover, as argued in Section 2.3, *leh* is the phonetic realization of the delimitative aspect under the inner

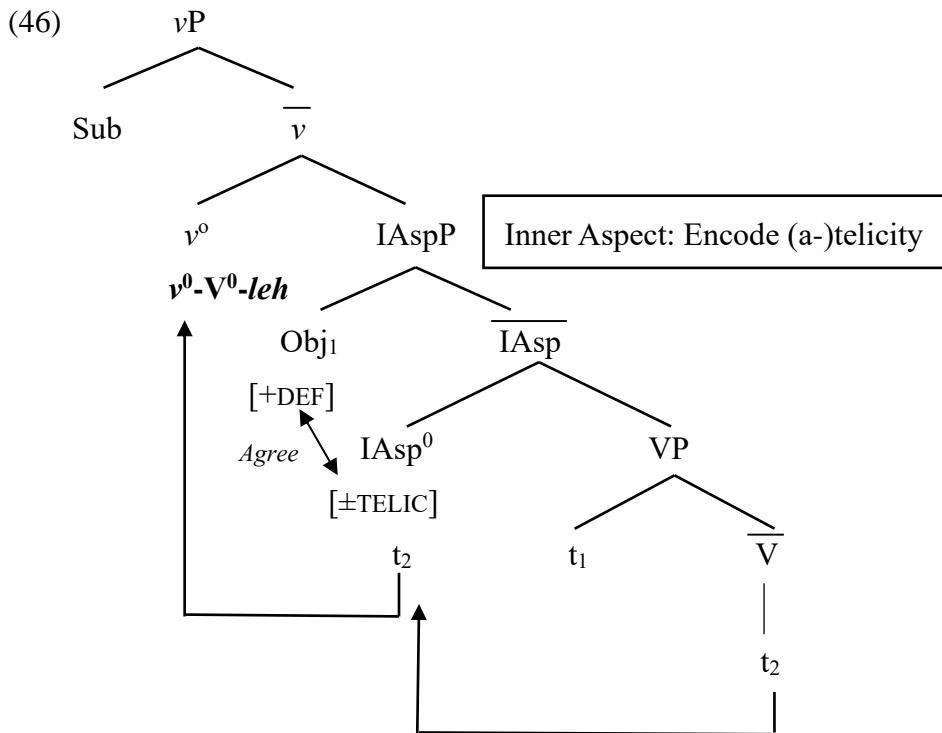
aspect (IAsp<sup>0</sup>).<sup>23</sup> To motivate the structure in (46), one additional assumption is needed here. We follow the phrase structure theory proposed in Lin T.-H. (2001) for the argument structure of TSM in assuming that (i) the subject and the object are base-generated at [Spec, *v*P] and [Spec, VP], respectively and (ii) a verb is merged to V<sup>0</sup> and is required to head-move to light verbs (*v*<sup>0</sup>) to compose eventualities in overt syntax and to satisfy the need for Event Identification. Under the assumptions, a verb starts from V<sup>0</sup> and eventuates at the highest *v*<sup>0</sup> via head movement to ensure that eventualities are composed in overt syntax. Thus, the verb (V<sup>0</sup>) is required to head-move through IAsp<sup>0</sup> to *v*<sup>0</sup> stepwise to obey the Head Movement Constraint (Travis 1984). Thus, V<sup>0</sup>-to-*v*<sup>0</sup> movement is not specific to the VV-*leh* construction but is assumed to be a grammatical operation to compose eventualities in TSM syntax.<sup>24</sup> Granted the structure in (46), the restriction on the forbidden presence of an object between the VV complex and the delimitative marker *leh* is thus explained, as they have formed a complex via head movement.<sup>25</sup>

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<sup>23</sup> In the following discussion, *leh* is glossed as DEL(IMATIVE).

<sup>24</sup> In the current work, I will adopt Chomsky's (2001) Probe-Goal framework of Agree without committing myself to controversial issues surrounding Agree in the literature. The minimal assumption from this framework I take here is that when a head (Probe) with an unvalued feature enters into a derivation, it probes down into its search domain (i.e., c-command domain) to target an XP (Goal) which has a matching feature in order to have the unvalued features on the Probe valued by the Goal. This downward probing operation is recast as the Probe-Goal Agree relation.

<sup>25</sup> The operation of reduplication will be refined in Section 4.2.



The structure in (46), however, does not suffice to account for two observed facts. First, the landing site of the shifted object NP is above  $vP$  (Lee 2007, 2008; Wang and Wu 2014). Second, the shifted object NP precedes the reduplicated verb, given that verbs in TSM eventuate at  $v^0$ . Therefore, it is obvious that the shifted object NP must undergo successive movement out of  $vP$  to a higher position.

To motivate the aspectual structure in (46), we further argue that the definite object NP moves further to value the  $[\pm IMPERFECTIVE]$  feature on  $OAsp^0$ .<sup>26</sup> To

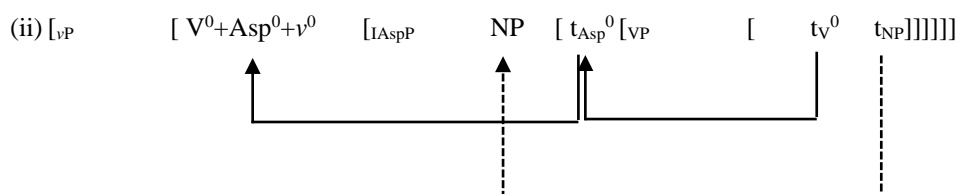
<sup>26</sup> One reviewer comments that the bare VP in TSM has a default perfect reading, according to Tsao (1998), and if  $IAsp^0$  encodes  $[+PERFECT]$ , it is not clear why OS is not triggered in (i).

- (i) I    lim        tê,    guá    lim        tsuí.  
       he    drink    tea    I    drink    water  
       ‘He drank tea and I drank water.’

add some refinement to the current discussion, it is argued that the VV-*leh* verbal reduplication not only encodes the delimitative aspect but also perfectivity. One complication is that the postulation of *leh* as a telic marker seems to be in contrast with the aspectual interpretation of verbal reduplication that denotes the duration of an action that lasts for a while, which seems to suggest an atelic event. As argued in Xiao and McEnery (2004), verbal reduplication can change the boundedness value of a telic event from minus to plus, giving rise to the duration of an action lasting for a while but ending at some point. Also, we suggest that in the VV-*leh* construction, the telic event is perceived perfectly to be a whole. Flier (1985: 41) claims that delimitatives refer to a perfectivized situation restricted to a subjectively short period of time. Christensen (1994) adds that the delimitative aspect in certain contexts indicates perfectivity, and Dai (1997) shares a similar view that the delimitative aspect is a sub-category of the perfective aspect, similar to Yang and Wei's (2017) account that telicity also

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Admittedly, I am agnostic about why the default perfect reading is necessarily triggered by OS. Nevertheless, I suggest that there are two lines of thought one may pursue. First, consistent with the proposed analysis in this paper, the surface object NP *tê* 'tea' does move to [Spec, IAspP] in overt syntax to value the [ $\pm$ PERFECT] feature on IAsp<sup>0</sup> as [+PERFECT], as visualized in (ii), where the verb eventuating at  $v^0$  precedes the object NP on the surface.



The second view is to postulate that the sentence-final position (=VP) is a default position where the [ $\pm$ PERFECT] feature can be in-situ valued, similar to the informational focus realized on the sentence-final position (=VP) in Mandarin, which is a default structural position for sentence stress in Mandarin (Xu 2004). Nonetheless, the two lines of thought may suffer the burden of proof at the moment. I am grateful to the reviewer for leading my attention to (i) but will leave them for further research.



entails the perfective interpretation. Smith (1997) maintains that the delimitative aspect substantiated by verbal reduplication is a lexical perfective aspect.

Despite the different accounts proposed in the above studies, one consensus reached is that the delimitative aspect involves both viewpoint aspect and situation aspect. The encoding of telicity and perfectivity in the VV-*leh* construction is described as follows: the former provides an endpoint for the event denoted by the reduplicated verb, which lasts for a while but will come to end when the duration ends, while the latter defines the event as a whole event relativized to another event. Take (12c), repeated in (47), for example. The book-reading event lasts for a while and will end eventually, characterized as a telic event, while the continuation clause following the book-reading event indicates that the book-reading event is perfectivized as a whole event such that the TV-watching event occurs subsequently, indicating the speaker's choice to view the book-reading event as bound relative to the TV-watching one.

- (47) Asîng [NP tsheh] thák-thák leh tō khi khuànn tiānsī ah.  
 Asing book read-read DEL then go watch TV SFP  
 'After reading the book for a while, Asing went to watch TV.'

We propose that the landing site of the shifted object and the interpretative properties of the VV-*leh* construction are able to shed light on the above complications with reference to the height of interpretation. (48a) illustrates that the shifted object NP *uánn* 'dish' can be placed before or after the frequency adverb *tiānnitiānn* 'often', which is licensed by the habitual aspect projecting AspP above *v*P. In (48b) the shifted object NP *hit-pún tsheh* 'that book' can be sandwiched between the negative deontic modal *m̄-thang* and the reduplicated verb. (48a-b) are taken to attest to the structural position for the shifted object NP above *v*P.

(48) a. **Shifted object** > **AspP<sup>FREQUENTATIVE</sup>** > **(Shifted object)** > **vP**

Asíng [NP uánn] tiānniānn([NP uánn]) sé-sé leh  
 Asing dish often dish wash-wash DEL  
 tō khì khùn ah.  
 then go sleep SFP

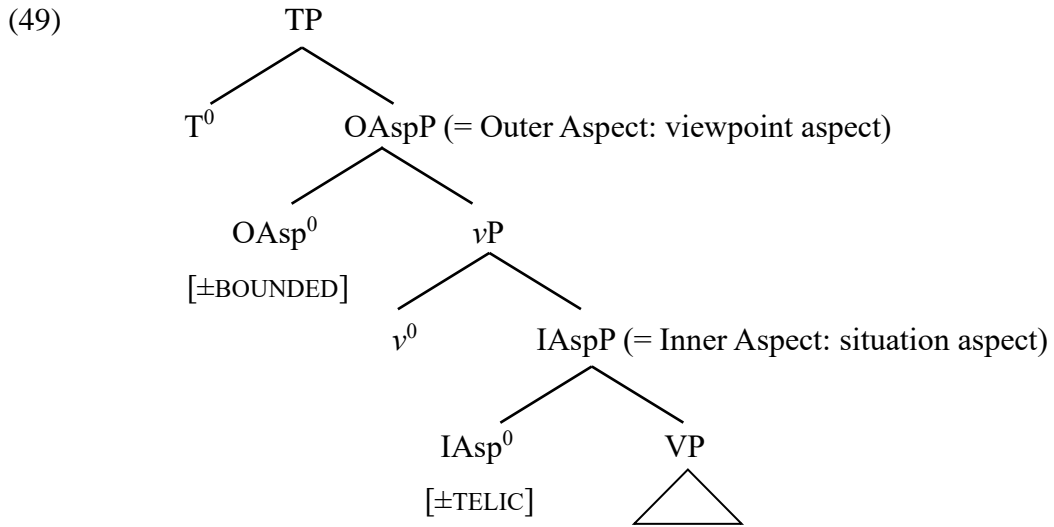
Intended ‘After having often washed the dishes for a while, Asing went to sleep.’

b. **ModP<sup>DEONTIC</sup>** > **Shifted object** > **vP**

Lí m̄-thang [hit-pún tsheh] khuànn-khuànn leh,  
 you NEG-MOD that-CL book read-read DEL  
 tō bē-kì-tit hîng tôo-su-kuán.  
 then NEG-remember return library

‘You should not read that book for a while, and then you forget to return it to the library.’

Previous syntactic analyses of aspect have proposed that two types of aspect, viewpoint and situation, are syntactically encoded (see Travis 2010 for a comprehensive discussion). Slabakova (2001), for instance, proposes that each aspectual projection has a binary feature, [ $\pm$ BOUNDED] and [ $\pm$ TELIC] along the clausal structure. Su (2009) differs from Slabakova’s (2001) system in using [ $\pm$ IMPERFECTIVE] for OAspP.



Second, as illustrated in (44) and repeated in (50), the delimitative aspect is compatible with the frame PP *tsáplī-hun lāi* ‘in twelve minutes’, rather than the durative PP *íking tsáplī-hun* ‘for twelve minutes’. The aspectual interpretation of (50a) is that there is a well-defined temporal span of twelve minutes (perfective) which matches the span of the homework-doing event which lasts for a while and will end eventually (telicity).

- (50) a. *Asíng tsáplī-hun lāi* [NP *kongkhò*]<sub>1</sub> *siá-siá* t<sub>1</sub> *leh*  
 Asing twelve-minute in homework write-write DEL  
*tō tshut-mîg ah.*  
 then out-door SFP  
 ‘After having done the homework for a while in twelve minutes, Asing went out.’
- b. \**Asíng* [NP *kongkhò*]<sub>1</sub> *siá-siá* t<sub>1</sub> *íking tsáplī-hun*  
 Asing homework write-write already twelve-minute  
 ah.  
 SFP  
 Bad when intended ‘Asing has done the homework for a while for twelve

minutes.’

The analysis of treating the *VV-leh* construction as consisting of the delimitative aspect (lexical aspect) and perfectivity (viewpoint aspect) receives support from Filip’s (2012) account of three aspectually relevant concepts in one way or another in all taxonomies of lexical aspect and across various frameworks, as illustrated in Table 5. What is noteworthy is that telicity can be characterized by three features. Take (51) for example. First, the delimitative aspect describes the reading action denoted by the reduplicated verb *thák-thák* that lasts for a while, implying an endpoint in the action, once its duration ends. Second, the change is entailed by the transition from the beginning of the reading action to the end of it. Third, the reading activity will end with the return to the initial state, which again suggests perfectivity of the reading action.

- (51) Asîng [hit-pún tsheh] thák-thák leh tō khi khuànn tiānsī  
 Asing that-CL book read-read DEL then go watch TV  
 ah.  
 SFP  
 ‘Asing had read that book for a while, and then went to watch TV.’

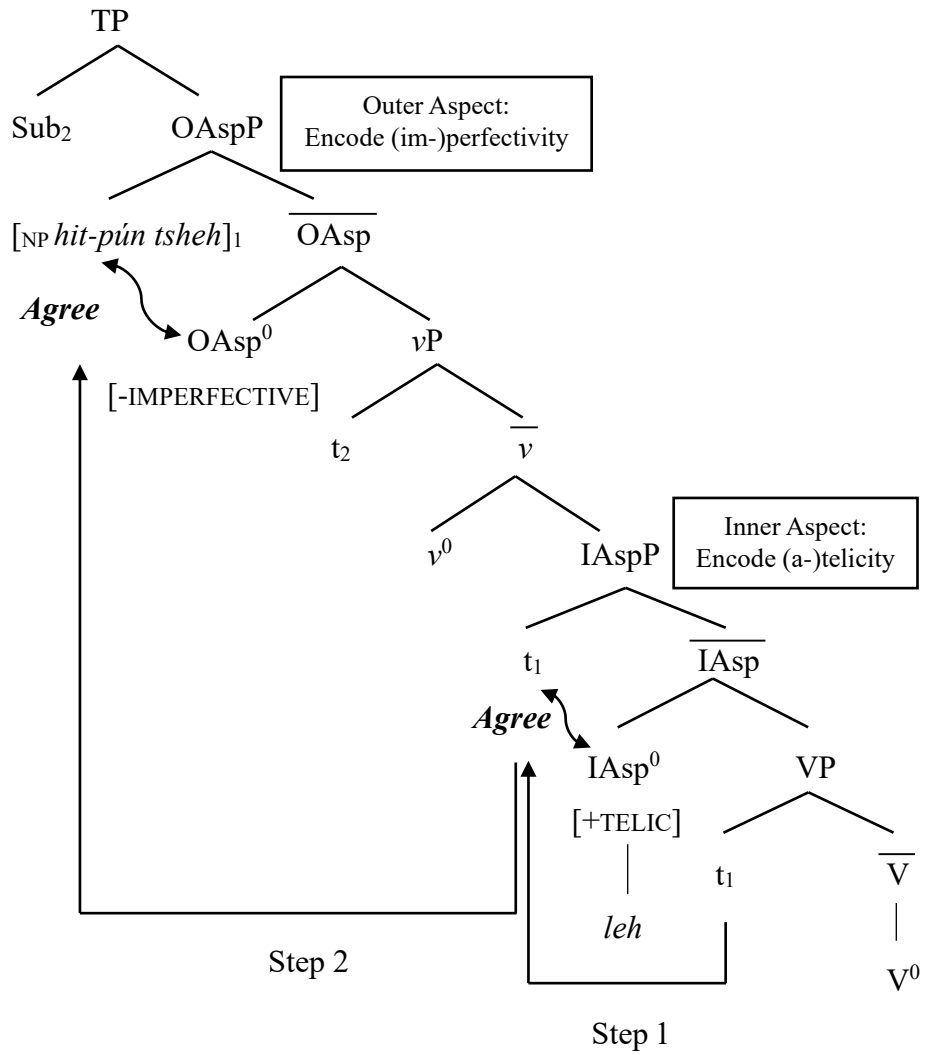
**Table 5. Taxonomies of lexical aspect across different frameworks (Filip 2012: 728)**

		Change	End/Boundary	Temporal Event
<b>Atelic</b>	state	–	–	+
	process	+	–	+
<b>Telic</b>	event protracted	+	+	+
	momentaneous	+	+	–

To account for the aspectual properties of the *VV-leh* construction, we

adopt but adapt Su's (2012) idea that the  $[\pm\text{IMPERFECTIVE}]$  on  $\text{OAsp}^0$  is valued by a XP in its Spec position. (52) schematizes the VV-*leh* construction (51): when the shifted object NP moves to  $[\text{Spec}, \text{IAspP}]$  and its definiteness values  $\text{IAsp}^0$  as  $[\text{+TELIC}]$  via the Spec-Head agreement to measure out the event as telic, and moves further to  $[\text{Spec}, \text{OAspP}]$  and  $\text{OAsp}^0$  is valued as  $[-\text{IMPERFECTIVE}]$ .

(52) The successive movement of the object NP



The proposed analysis of the VV-*leh* construction in (52) merits the observations in Section 2. First, as shown in (48a-v), the shifted object NP targets a structural position above *v*P, which is captured by the current analysis in which the shifted object NP eventuates at [Spec, OAspP]. Second, it has been observed that the definiteness of the shifted object NP affects the telicity of the event denoted by the reduplicated verb, and analyzed along the line of (52), the shifted object NP has to value [ $\pm$ TELIC] on IAsp<sup>0</sup> as [+TELIC] and [ $\pm$ IMPERFECTIVE] on OAsp<sup>0</sup> as [-IMPERFECTIVE] through the Spec-Head configuration. Furthermore, though [Spec, OAspP] provides a landing site for the shifted object NP over the course of a syntactic derivation, the shifted object NP is allowed to undergo subsequent movement. For instance, (53) demonstrates that the shifted object NP *hitpúntsheh* ‘that book’ moves to a higher position above the evaluative adverb *kìngjiân* ‘unexpectedly’ in the CP periphery.<sup>27,28</sup>

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<sup>27</sup> We follow Tsai’s (2015a, 2015b) topic-prominence system in assuming that a topic position merges above EvalP in the CP periphery.

<sup>28</sup> As the alert reader might notice, (i) shows that the shifted object *uánn* ‘dish’ seems to be dislocated to a position lower than the subject-oriented *gōnggōngá* ‘foolishly’, which does not support our generalization that the landing site for the shifted object is above *v*P (that is, [Spec, OAspP]). Nonetheless, two complications surround. The distribution of the adverb *gōnggōngá*. On the one hand, similar adverbial expressions like *gōnggōngá* and *foolishly* can be evaluative adverbs that express the speaker’s evaluation of the proposition. Analyzed along the lines of cartographic syntax, *gōnggōngá* is merged to [Spec, EvalP] in the CP periphery, and it follows that the shifted object targets a position lower than EvalP. On the other hand, Cinque (2006) points out that a group of adverbs such as *foolishly* or *probably* are able to merge to more than one position, which holds true for the placement of in *gōnggōngá* in (ii-iii). Hence, the adverb *gōnggōngá* in (i) is not a reliable adverb to test the landing site of the shifted object. We will set this issue aside.

- (53) [NP Hit-pún tsheh] Asîng kîngjiân thák-thák leh  
 that-CL book Asing unexpectedly read-read DEL  
 tō phiann tī toh-tíng, iā bô siu-hó.  
 then leave at table-on too NEG arrange-good  
 ‘It is unexpected that as for that book, Asing had read it for a while, and left  
 it on the table without putting it in the right place.’

We have argued in this section that the shifted object NP is driven to undergo successive movement to [Spec, IAspP] and [Spec, OAspP] to value [ $\pm$ TELIC] on IAsp<sup>0</sup> and [ $\pm$ IMPERFECTIVE] on OAsp<sup>0</sup> against its definiteness via the Spec-Head configuration, and contributes to a completive reading in the sense of Su (2009, 2012). In the next section, it will be argued that as OAsp<sup>0</sup> is valued as [-IMPERFECTIVE], this valuation triggers reduplication, as a post-syntactic operation, which targets the closest head element.

- (i) Subject > *foolish* > the shifted object

Asîng gōnggōngá uánn sé-sé leh tō tsáu ah  
 Asing foolishly dish wash-wash SFP then leave SFP  
 (tsînn long mo thêh).  
 money all NEG take  
 ‘Asing washed the dishes stupidly for a while and then left (without getting his salary).’

- (ii) *foolish* > Subject > the shifted object

Gōnggōngá, Asîng uánn sé-sé leh tō tsáu ah (tsînn  
 foolishly Asing dish wash-wash SFP then leave SFP money  
 long mo thêh).  
 all NEG take

- (iii) Subject > the shifted object > *foolish*

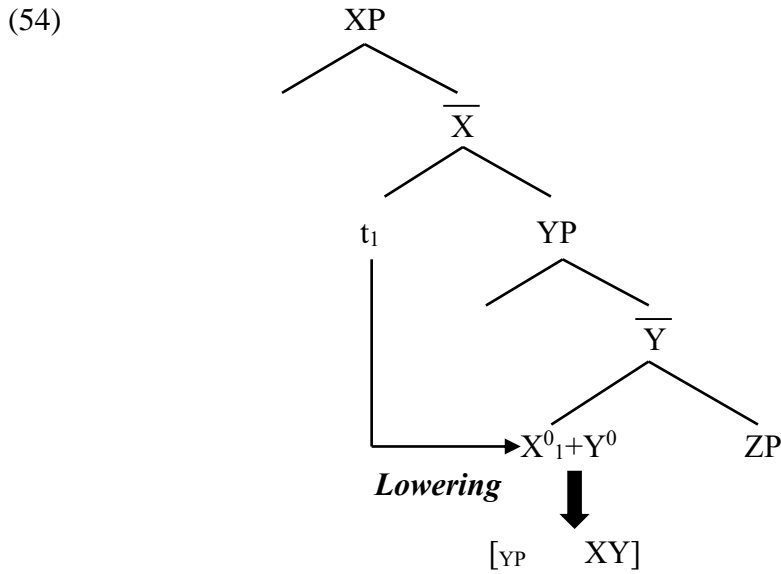
Asîng uánn gōnggōngá sé-sé leh tō tsáu ah (tsînn  
 Asing dish foolishly wash-wash SFP then leave SFP money  
 long mo thêh).  
 all NEG take

## 4.2 Aspectual morphology: Verbal reduplication

As reported in previous studies, verbal reduplication in Chinese languages like Mandarin (Xiao & McEnery 2004; Wang and Wu 2014, 2019) and TSM (Yang 1991; Lu 1999; Chappell 1989; Tang 2000; Cheng 1997, among others) contribute to certain aspectual effects. One question to answer in this section is what triggers reduplication of a verb and how perfectivity is morphologically encoded by the reduplicated verb.

We argue that verbal reduplication results from a post-syntactic operation that occurs after narrow syntax. In tandem with the syntax-morphology interface, we situate reduplication within the architecture for PF operations. We adopt Embick and Noyer's (2001) theory of movement operations allowed to occur in the PF component, within the framework of Distributed Morphology (DM) (Halle and Marantz 1993, 1994), which posits that morphology is part of the mapping from the output of a syntactic derivation to the input to phonology. Further, we assume that verbs are the syntactic heads which can be the targets of aspectual reduplication. We particularly follow Embick and Noyer's (2001) one of the mechanisms, *Lowering*, to be the means of deriving verbal reduplication. *Lowering* is a non-local morphological operation in the sense that it involves head-to-head movement and the two heads are not necessarily adjacent to each other. As visualized in (54),  $X^0$  undergoes *Lowering* to adjoin to  $Y^0$  and they are phonologically spelled out as an intact constituent XY. As a post-syntactic operation, *Lowering* operates on the output of syntax in which all syntactic operations in narrow syntax have occurred.



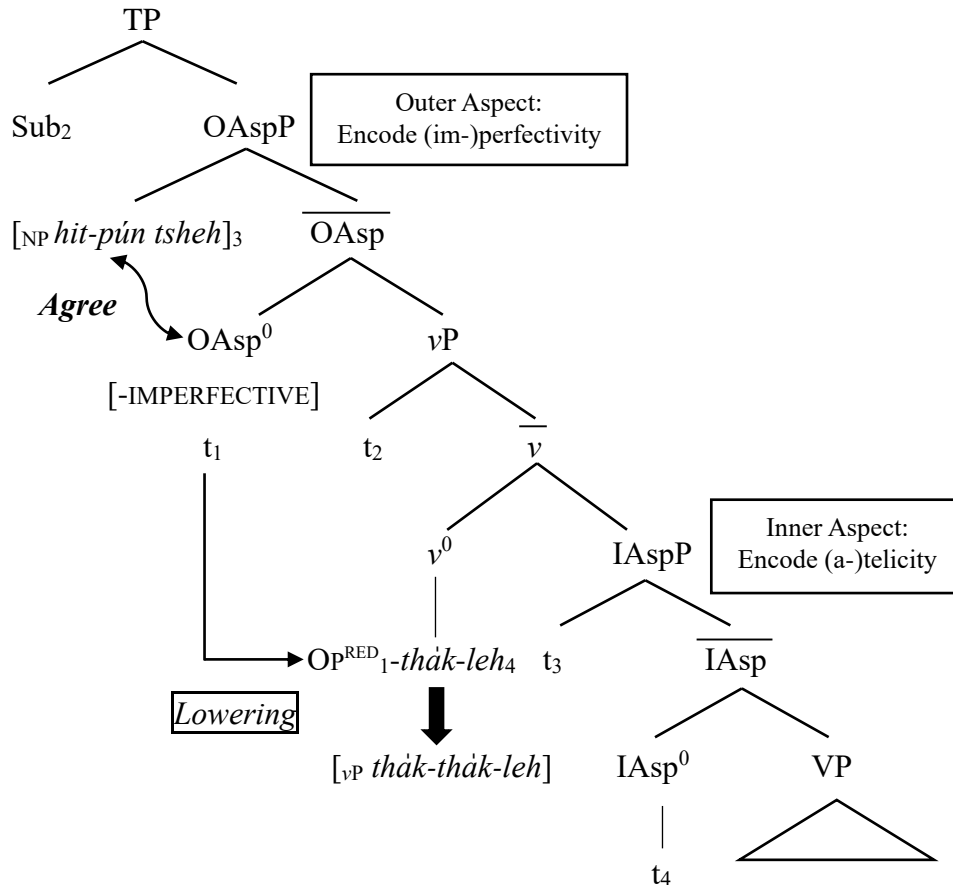


Following Embick and Noyer's (2001) framework of DM, we propose that after the  $[\pm\text{IMPERFECTIVE}]$  feature on  $\text{OAsp}^0$  is valued as  $[-\text{IMPERFECTIVE}]$  by the definiteness of the shifted object NP, the reduplication operator ( $\text{Op}^{\text{RED}}$ ) on  $\text{OAsp}^0$  is active after narrow syntax and targets its closest head for the morphology of reduplication (see Wang and Wu (2019) for a similar treatment for Mandarin verbal reduplication).<sup>29</sup> As visualized in (55), the verb *thák* 'read' undergoes head movement to  $\text{IAsp}^0$  to get incorporated into *leh* to derive a verbal complex *thák-leh*, and the verbal complex eventuates at  $v^0$ . As the derivation unfolds, the  $\text{Op}^{\text{RED}}$  undergoes *Lowering* to adjoin to the closest verbal head *thák*

<sup>29</sup> DM has been a plausible morphosyntactic analysis of reduplication, as it is able to capture not only the structural operations within a word-internal structure but also the word formation which reflects the order in which the associated syntactic operations apply (*The Mirror Principle* in Baker (1985)). It is argued in this paper that OS is an overt syntactic operation defined at the clausal level that has a morphological effect on the output of the verb through reduplication. In this light, DM can be motivated to account for the morphosyntactic reflex of verbal reduplication as a result of the checking process between the shifted object NP and  $\text{OAsp}^0$  in the Spec-Head configuration.

to form a complex  $Op^{RED}$ -*thák-leh*, which is spelled out as a morphological word *thákthákleh* at PF.

(55) The proposed derivation of the reduplicated verb *thákthák* in (51)



To motivate the analysis in (55), we need to discuss one complication in the first place. It has been shown that the  $Op^{RED}$  only triggers reduplication of the verb *thák* while excluding the delimitative aspect *leh*. If the verbal head gets incorporated into the delimitative aspect head via head movement to form an intact syntactic unit, it is rather puzzling why the  $Op^{RED}$  is able to target the verbal head only in this syntactic unit, as self-evident in (56a-c), where only (56a) is permitted.

- (56) a. <sup>OK</sup>[[*thák*]<sub>RED</sub>-*thák-leh*]  
 b. \*<sup>OK</sup>[[*leh*]<sub>RED</sub>-*thák-leh*]  
 c. \*<sup>OK</sup>[*thák-leh*-[*leh*]<sub>RED</sub>]

It is admitted that we are agnostic about this complication. Nonetheless, we postulate that reduplication is sensitive to the internal morphological structure of the input to reduplication. Namely, only the base in a morphologically complex word can be reduplicated. As schematized in (57a-c), after *Lowering* takes place and targets the closest head element in (57a), and the Op<sup>RED</sup> is only sensitive to the base (V<sup>0</sup>) and triggers a copy of it at PF, under the post-syntactic approach (Embick and Noyer 2001).<sup>30</sup>

- (57) a. [Op<sup>RED</sup>[[V<sup>0</sup>-IAsp<sup>0</sup>-v<sup>0</sup>]]] (Complex head–Output of syntax)  
 b. [RED[[*thák*]-*leh*]] (Lexical insertion–Linearization)  
 c. [*thák* [[*thák*]-*leh*]] (Phonological content of RED computed by copying from the base)

The lines of thinking pursued here can be supported by the verbal complex *khuán-khuán-hōo-hó* in (58), which consists of the reduplicated phrase, the causative head *hōo*, and the descriptive complement *hó*. Assuming that the verbal complex is formed in narrow syntax, only the verbal element *khuán* serves the target of reduplication.<sup>31,32</sup>

<sup>30</sup> Note that *Lowering* is a non-local operation in a sense that it is permitted to target one of the heads within its c-command domain. Nonetheless, for some reason, the Op<sup>RED</sup> does not target the IAsp<sup>0</sup> *leh* but the verb *thák* ‘read’ in (57). As will be discussed in Section 4.2, it is found that when the Op<sup>RED</sup> targets the v<sup>0</sup> complex, the V-*leh* V-*leh* pattern is derived.

<sup>31</sup> (i) may be a counterexample at first blush, given that the reduplicated verbal complex *khuán-khuán-hōo-hó* is expected to bear *leh* in the VV-*leh* construction. It is noted that Cheng (1997) observes that reduplicated verbs in TSM can be followed by phase complements (i.e., *leh*, *hó* and *uân*) describing the degree to which an action is carried out. In general, one guiding hypothesis is that *leh*, *hó* and *uân* can be treated as heads of inner aspect encoding

telicity, and it follows that verbal reduplication in (i) can be compatible with *hó*. It is admitted that aspectual interpretations of *leh*, *hó* and *uân* are different. However, as this paper focuses on VV-*leh*, I will leave the other two in verbal reduplication for future research. The interested reader is referred to Wang (2010) for a structural analysis of resultative constructions in TSM involving phase complements.

- (i) Asuat      m̀ngkhiãnn      khuán-khuán-hōo-hó      tō      tshut-m̀ng      ah.  
 Asuat      thing      pack-pack-CAUSE-well      then      out-door      SFP  
 ‘After having finished packing her luggage for a while, Asuat set off.’

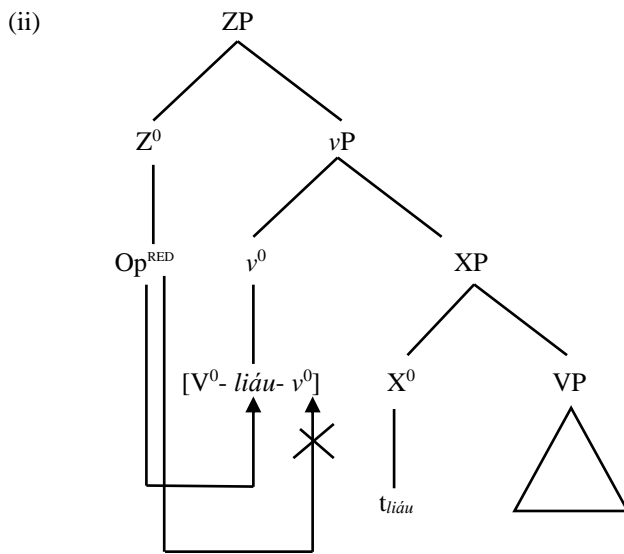
<sup>32</sup> Another interesting pattern, as noted by a reviewer, is that *liáu* in TSM resultative constructions (see Lu 2003; Li 2006) can be reduplicated, as in *tsiáh-liáu-liáu* ‘eat all and leave nothing’, *khuànn-liáu-liáu* ‘read all and leave nothing’, and *thau-thèh-liáu-liáu* ‘steal all and leave nothing’. At the moment, I am not sure whether *liáu* can be analyzed as an inner aspect, as this analysis has to be taken with a grain of salt. As noted in Wang (2010), typical aspect markers cannot be interrupted by a negator when they are attached to verbs. As shown in (i.b), the experiential aspect marker *kuè* cannot be preceded by the negator *bô*, while in (i.a), the negator is allowed to occur between the phase marker *liáu* and the verb *tsiá* ‘eat’. The contrast is taken to indicate that *liáu* behaves differently from the canonical aspect marker *kuè*.

- (i) a. Asuat      hit-uánn      p̄ng      tsiáh      **bô**      liáu.  
 Asuat      that-CL      rice      eat      NEG      finish  
 ‘Asuat is unable to finish eating that bowl of rice.’      (based on Teng 1995: 12)
- b. \*Asuat      ū      khì      **bô**      kuè      Tâi-pak.  
 Asuat      REAL      go      NEG      EXP      Taipei  
 Intended ‘Asuat has been to Taipei.’

However, though the V-*liáu-liáu* pattern is different from the VV-*leh* pattern, it can still be subsumed within *Lowering*, with some category-specific rules that constrain reduplication in TSM. Due to the non-local property of *Lowering*, the Op<sup>RED</sup> is permitted to target any head, as shown in the hypothetical structure (ii), where the functional category of *liáu* and *v*<sup>0</sup> are the potential targets of reduplication triggered by the Op<sup>RED</sup>. Nevertheless, it is not clear why only the functional category of *liáu* is targeted to derive non-verbal reduplication. I am grateful to the reviewer for drawing my attention to this pattern of non-verbal reduplication but will leave it for another occasion.

- (58) Asuat m̀nghkiänn **khuán-khuán**-hōo-hó tō tshut-m̀ng ah.  
 Asuat thing pack-pack-CM-well then out-door SFP  
 ‘After having finished packing her luggage for a while, Asuat set off.’

Four pieces of evidence are in order here to support the post-syntactic operation *Lowering* in question. First, *vP* fronting is not permitted in the verbal reduplication context, as shown in (59a-b). The ungrammaticality of (59b) shows that *vP* fronting cannot take place after *Lowering* occurs, as all the syntactic operations like *vP* fronting are required to occur before post-syntactic operations.<sup>33</sup> In sharp contrast, the grammaticality of (59a) is captured because there is no syntactic operation occurring after *Lowering*. Second, *vP* fronting is perfectly compatible with sentences which do not involve post-syntactic operations, like *Lowering* in point, as evident in (60).



<sup>33</sup> Admittedly, there is another possibility to account for the ungrammaticality of (59b) by arguing that the *vP* chunk has been spelt out before *Lowering* takes place in the next phase, and the *vP* is rendered opaque to further syntactic operations.

(59) a. Bûntshing lāisann phák-phák-leh tō khì tsiáh-p̄ng ah.  
 Buntshing underwear hang-hang-DEL then go eat-rice SFP  
 ‘After having hanged his underwear out to dry for a while, Bûntshing went to have a meal.’

b. \*<sub>[VP</sub> Phák-phák]<sub>1</sub>, Bûntshing lāisann t<sub>1</sub> leh tō khì  
 hang-hang Bûntshing underwear DEL then go  
 tsiáh-p̄ng ah.  
 eat-rice SFP

(60) [Phák lāisann]<sub>1</sub>, Bûntshing siōnghó sī ka-kī guānì  
 hang underwear Buntshing best FOC self willing  
 t<sub>1</sub> èh.  
 SFP

Intended ‘It is impossible that as for hanging his underwear out to dry, Buntshing is willing to do it himself.’

Second, *Lowering*, though proposed to be a post-syntactic operation, is still subject to some locality conditions. (61a-b) demonstrate that verbal reduplication can be compatible with the *hōo* construction (Cheng et al. 1999), where the reduplicated verb *khuán-khuán* ‘pack’ is followed by the causative element *hōo* and the descriptive complement *hó* ‘good’. Similarly, when the verb *khuán* is reduplicated, the object NP *hīnglí* ‘luggage’ undergoes OS in (61a). In contrast, though the object NP is shifted, the reduplication of *hōo* in (61b) induces ungrammaticality.<sup>34, 35</sup>

<sup>34</sup> If *Lowering* indeed occurs in the VV-*leh* construction, it is not clear how to account for the example in (i), where the shifted object NP and the verbal complex seems to be not within the domain of OAspP.

- (61) a. Bûntshing [hînglí] íking khuán-khuán [hōo hó] ah,  
 Buntshing luggage already pack-pack CM good SFP  
 thang-hó tsúnpī tshut-mîg.  
 in.order.to ready out-door  
 ‘Buntshing had already finished packing his luggage for a while, and was ready to go out.’

- 
- (i) [sann sé-sé-leh]<sub>1</sub>, Bûntshing t<sub>1</sub> tō khì tsiáh pñg ah.  
 clothes wash-wash-DEL Buntshing then go eat rice SFP  
 ‘After doing the laundry for a while, Buntshing went to have his meal.’

I suggest that (i) does not serve as a counterexample to the proposed analysis in (55). There is one potential analysis of (i), instead. That is, (i) is treated as having a bi-clausal structure, with the subject in the first clause (CP<sub>1</sub>) being a *pro* co-referential with the overt subject in the second clause (CP<sub>2</sub>), as visualized in (ii), where two CPs are conjoined by XP to form a bi-clausal structure. If this analysis is adopted, the first clause (CP<sub>1</sub>) has a complete structure as in (55). Nonetheless, I will not pursue this analysis here, as it causes more postulations that require further consideration and may suffer the burden of proof at the moment. I will leave it aside for the time being.

- (ii) [XP<sub>[CP<sub>1</sub> pro<sub>1</sub> sann<sub>3</sub> sé-sé-leh t<sub>3</sub>] [CP<sub>2</sub> Bûntshing<sub>1</sub> tō khì tsiáh  
 clothes wash-wash-DEL Buntshing then go eat  
 pñg ah]].  
 rice SFP</sub>

<sup>35</sup> One complication to be added here is that in (61a) *leh* is not allowed to occur. One guiding hypothesis I pursue is that the *hōo* construction seems to serve the role of rendering the luggage-packing event as telic, which explains the absence of the overt category of IAsp<sup>0</sup> *leh* in (62). At the moment, I am unable to claim that the construction (61a) can be analyzed as a sub-type of the VV-*leh* construction, as it requires a detailed structural analysis of the *hōo* construction in the first place. Instead, the point here is to show that when there are two potential verbal categories like *khuán* and *hōo*, it is the former one that is targeted by the Op<sup>RED</sup> for verbal reduplication. I am particularly grateful to the reviewer for drawing my attention to these issues and leave these issues for further research.

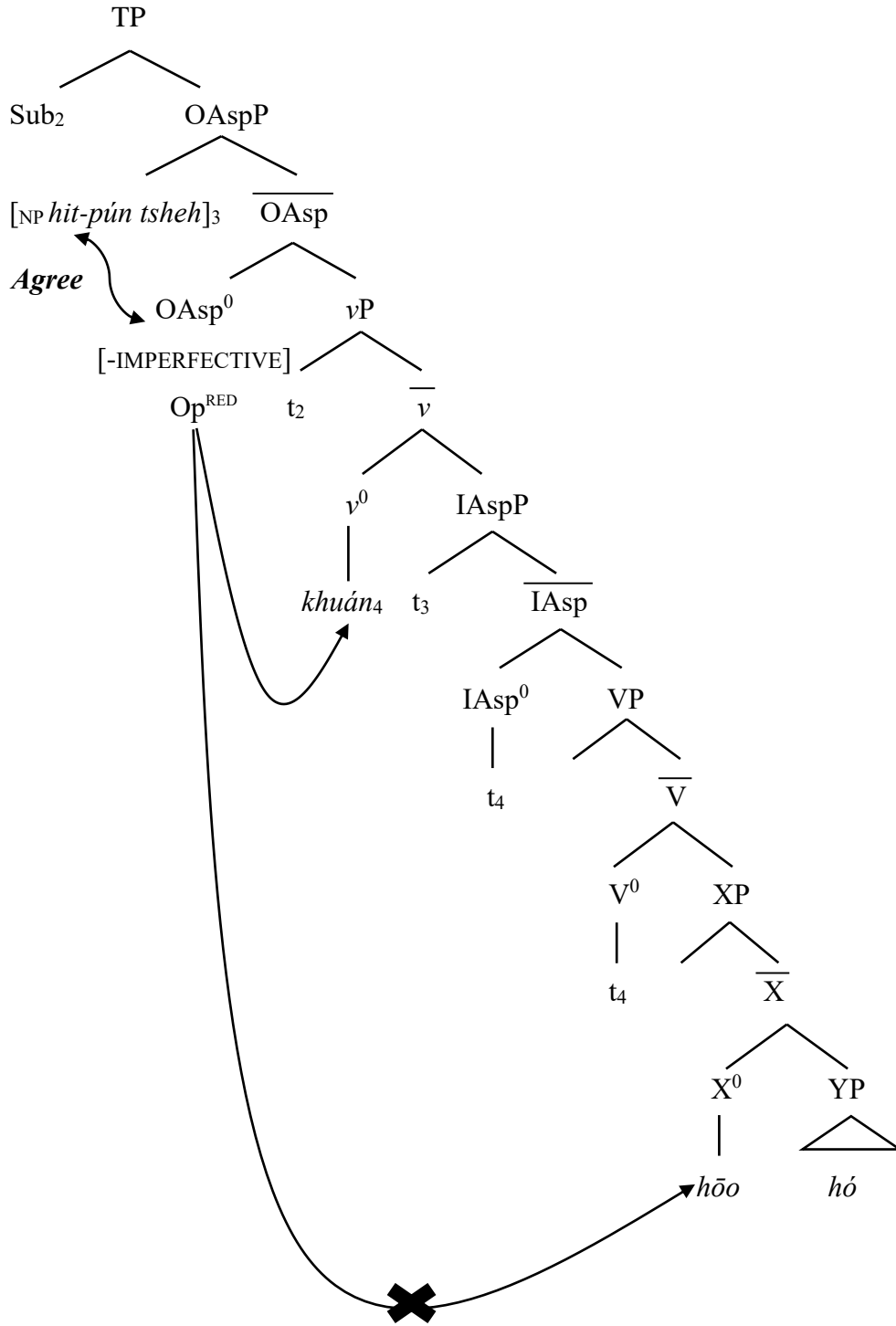
b. \*Bûntshing [hînglí] khuán [hōo-hōo] hó ah,  
 Buntshing luggage prepare HŌO-HŌO good SFP  
 thang-hó tsúnpī tshut-mîg.  
 in.order.to ready out-door

Bad when intended ‘Buntshing had packed his luggage for a while, and was ready to go out.’

Let us assume that the causative marker *hōo* is a syntactic head visible to syntactic operations. (61b), however, shows that *hōo* is resistant to verbal reduplication, taken to prove that *hōo* is not targeted by the  $Op^{RED}$ . Given the analysis we have advanced so far, as visualized in (62), we suggest that (61b) can be accounted for straightforwardly: though  $v^0$  and  $X^0$  are within the c-command of the  $Op^{RED}$ ,  $v^0$  is the closest head element rather than  $X^0$ , according to the locality conditions on post-syntactic readjustments of morphological words (Embick and Noyer 2001). Analyzed along this line of thinking,  $v^0$  has to stand in an immediate local relation with  $OAsp^0$ .



(62) The hypothetical structure of (61a)



Furthermore, the analysis in (55) can be motivated to account for the reduplication of the semelfactive verb *phah-khatshiunn* ‘do the sneezing’ and the active accomplishment verb *tshiam-miâ* ‘sign the name’, which are arguably V-O compounds in Section 3.2. As illustrated in (63a-b), the verbs can be reduplicated and their object NPs undergo OS.

- (63) a. Bûntshing [NP khatshiunn]<sub>1</sub> phah-phah-leh t<sub>1</sub> tō ittit  
 Buntshing sneeze do-do-DEL then continually  
 lâu bák-sái.  
 flow tear  
 ‘After having done the sneezing for a while, Buntshing kept tearing.’
- b. Asîng [NP miâ]<sub>1</sub> tshiam-tshiam-leh t<sub>1</sub> tō lîkhui ah.  
 Asing name sign-sign-DEL then leave SFP  
 ‘After having signed his name for a while, Asing left.’

It is noted that the proposed analysis is able to account for two otherwise interesting phenomena which have not been accounted for. For example, Chuang and Tai (2009) observe that reduplicated verbs in TSM cannot be negated, as shown in (64). Interpreted under the current analysis, the ungrammaticality of (64) can be ascribed to intervention effects induced by the Op<sup>RED</sup> moving across the negator *bô* while targeting the verbal head *siâ*, constrained by relativized minimality entertained in Rizzi (2004), as schematized in (65).<sup>36,37</sup>

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<sup>36</sup> It is not clear why the negated modal *m̄-thang* in (i) does not serve as an intervener for *Lowering* of the Op<sup>RED</sup>, given that the negator *bô* in (64) serves as an intervener for *Lowering*. It should be first clarified that *m̄-thang* is used in negative imperatives in TSM, showing that the speaker does not permit the hearer to perform an action such that the former maintains dominance over the latter in a given context (Lien 2014). To give a structural analysis of *m̄-thang* goes beyond the scope of this paper, as there can be complications surrounding the syntax of *m̄* in TSM (see Lin 2004). For instance, Lin (2004) argues for one negator *m̄* in TSM, in contrast to Li (1971), and two kinds of *m̄* on the surface are derived differently—one is a

negator denoting ‘not’ attaching to some exceptional verbs (i.e., *m̄-tsai-iánn* ‘do not know’) in the lexicon, while the other is an underlying *m̄*-modal, with the modal being covert (i.e., *i m̄ lâi* ‘He does not want to come’) in the overt syntax. Despite so, there is ample reason to argue that the designated position of OAspP is lower than that of the negated modal *m̄-thang* (let us assume that *m̄* and *thang* form a unit through either lexicalization or head movement). As illustrated in (ii), the time-span adverb *tsáplī-hun lâi* ‘in twelve minutes’, which is licensed within the domain of OAspP (Su 2012), occurs lower than the negated modal. If this line of thinking is on the right track, the Op<sup>RED</sup> starting from OAsp<sup>0</sup> does not move across *m̄-thang* (presumably Neg<sup>0</sup> or Modal<sup>0</sup>) when undergoing *Lowering*, as OAsp<sup>0</sup> is lower than Neg<sup>0</sup> or Modal<sup>0</sup>. Notice that the object *kong-khò* ‘assignment’ in (ii) is permitted to move to a higher position. Thus, it is not necessary that it eventuates at [Spec, OAspP]. Another more straightforward account is that the functional element *m̄-thang* is situated in the CP domain (e.g., SAP (Speas and Tenny 2003), which represents the syntactic representation of illocutionary force associated with imperatives), as suggested in Lien (2014) for the negative imperative use of *m̄-thang*. I will leave the structural analysis of *m̄-thang* for future research.

- (i) Asîng kong-khò **m̄-thang** tshìn-tshái siá-siá-leh tō tsáu khi khùn.  
 Asing assignment NEG-modal casually write-write-DEL then run go sleep  
 ‘Asing should not just finish the homework in whatever way he wants for a while and then goes to bed’
- (ii) a. Asîng kong-khò **m̄-thang** tsáplī-hun lâi tshìn-tshái siá-siá-leh  
 Asing assignment NEG-modal twelve-minutes in casually write-write-DEL  
 tō tsáu khi khùn.  
 then run go sleep  
 ‘Asing should not just finish the homework in whatever way he wants for a while and then goes to bed.’
- b. \*Asîng kong-khò tsáplī-hun lâi **m̄-thang** tshìn-tshái siá-siá-leh  
 Asing assignment twelve-minutes in NEG-modal casually write-write-DEL  
 tō tsáu khi khùn.  
 then run go sleep  
 Intended ‘Asing should not just finish the homework in whatever way he wants for a while and then goes to bed.’

<sup>37</sup> It is noted that the ungrammaticality of (64) can be repaired by the insertion of the adverb *kín* ‘quickly’ by assumption, as shown in (i). However, I suggest that there are two complications

(64) Asîng kong-khò (\*bô) siá-siá-leh tō khì khùn  
 Asing assignment NEG write-write-DEL then go sleep  
 ah.

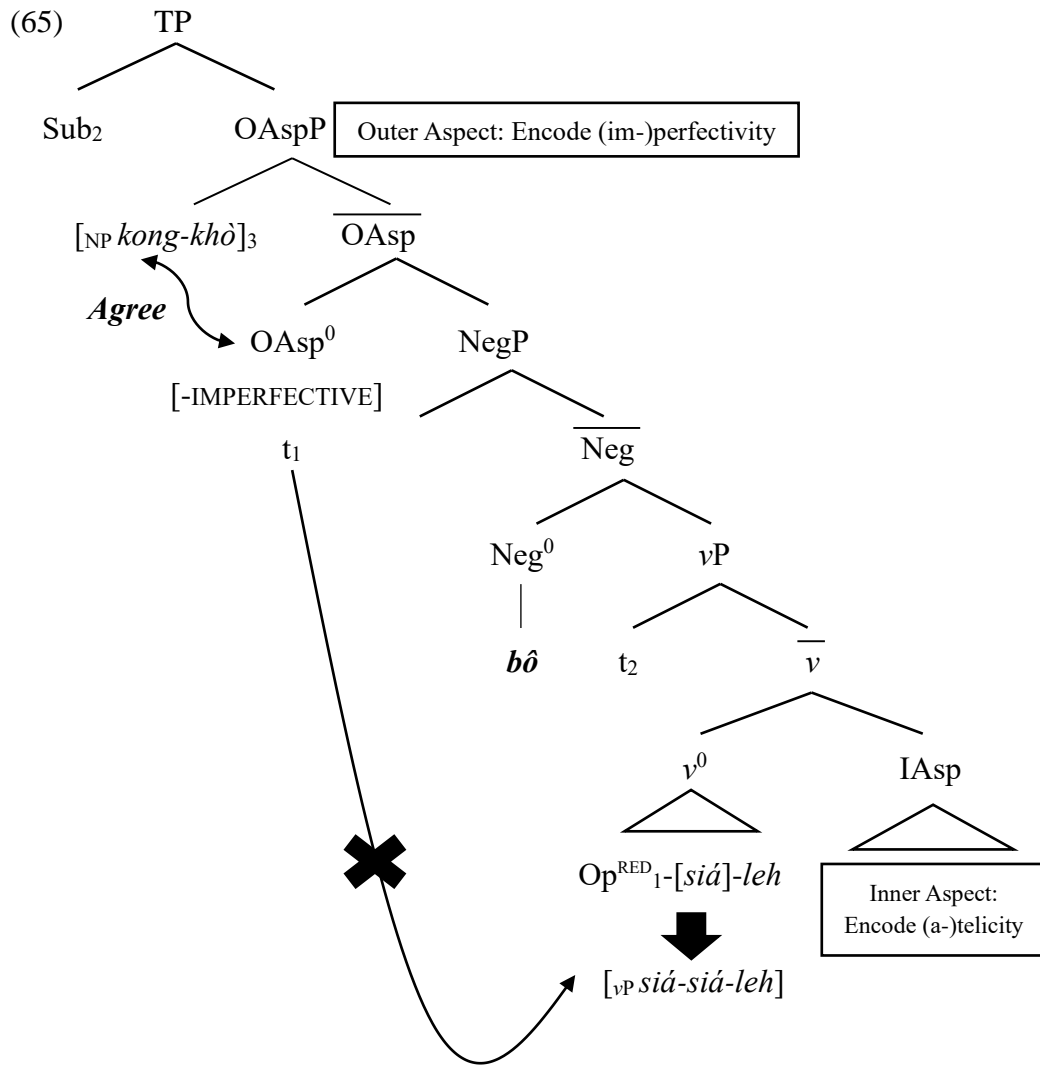
SFP

Intended ‘After Asing had not done his homework assignment for a while, he went to bed.’

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here. First, according to the analysis in (65), if *bô* is a functional head, the intervention effect is predicted to arise. However, it is not clear whether *bô* and *kín* ‘quickly’ form a constituent or not. If they form a constituent, is the constituent formed in syntax or the lexicon. Lin (2004) proposes two types of negation from one negator *m̄* in TSM, with a crucial difference being whether a negator complex is formed in the overt syntax (i.e., (65)) or the lexicon. I follow Lin’s (2004) analysis in treating *bô* and *kín* as forming a morphological unit in the lexicon and is realized as an adverb *bô-kín*. If this line of thinking is hypothetically on the right track, (i) is predicted to be grammatical, as the  $Op^{RED}$  moves across the adverb *bô-kín* without inducing the intervening effect and is not sensitive to the adverb. The second complication is that *bô-kín* can express the speaker’s mood, such as ‘it is suggested that...’. In this light, it is tempting to analyze *bô-kín* as a CP-level adverb. Admittedly, more research is needed to address the complications. I thank the reviewer for urging me to consider the example (i).

(i) Lí kongkhò bô kín siá-siá-leh, bînásài beh ántsuánn kau?  
 you assignment NEG quick write-write-DEL tomorrow will how hand.in  
 ‘If you do not finish doing your homework assignment for a while, what can you hand in tomorrow?’



As one may conceive, IAspP seems to be independent of OAspP in the proposed analysis (see (55)), as they merge to the clausal structure in two separate domains (i.e., vP and TP). Thus, if *leh* is assumed to be the realization of the head of IAspP, it is predicted that *leh* can take an action verb and turn it into a telic predicate, though the predicate is not reduplicated. This prediction is not borne out in (66), however.

- (66)\*Asîng [hit-pún tsheh] thák-leh.  
 Asing that-CL book read-DEL  
 Intended ‘Asing has read that book for a while.’

We suggest that (66) does not serve as a counterexample to the proposed analysis but lends additional support to the composite of telicity and perfectivity encoded by the TSM VV-*leh* construction. First, the ungrammaticality of (66) can be explained in a way that the verb complex *thák-leh* targeted by the Op<sup>RED</sup> via *Lowering* at PF fails to be properly spelled out at PF (i.e., reduplication), violating PF conditions. This line of thinking fares well with Chomsky's (Chomsky 1995) derivational approach to syntax, with the idea that 'a derivation  $D \rightarrow \Sigma$  is canceled if  $\Sigma$  contains a strong feature' (Chomsky 1995: 233); put differently, the strong feature can be recast as the Op<sup>RED</sup> that needs to be eliminated from the interface through the morphology of reduplication. It is worth mentioning that reduplication as a reflex of PF is not self-motivated.

Another example provided by one reviewer, as in (67), shows that the complex *thák-leh* is reduplicated and this pattern of reduplication is compositional in encoding telicity and perfectivity found in the TSM VV-*leh* construction.<sup>38</sup> The V-*leh* V-*leh* complex can be derived by the proposed analysis in the current work, as shown in (68). To motivate the derivation (68), one additional assumption is needed—after the  $V^0$ -IAsp<sup>0</sup> complex adjoins to  $v^0$  via head movement, they form a head complex which can serve as a complete

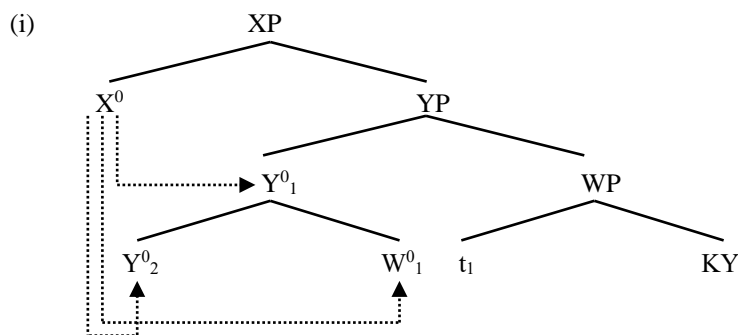
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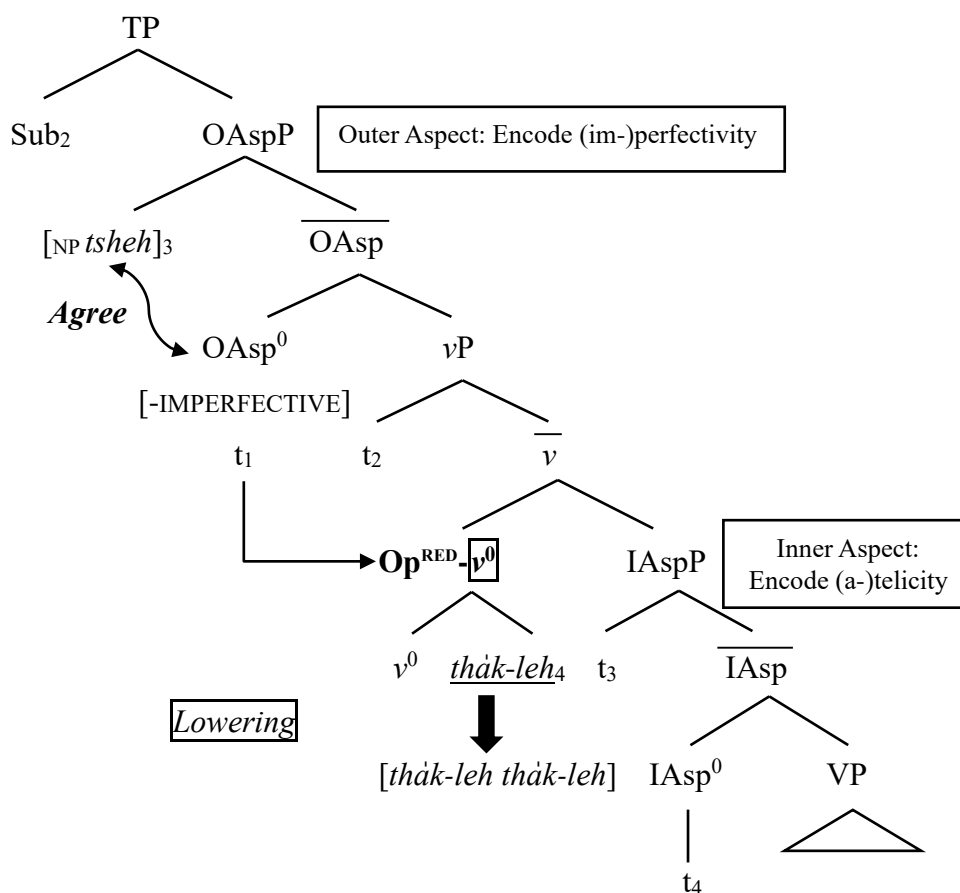
<sup>38</sup> I consulted two native speakers of TSM about the aspectual interpretation of the V-*leh* V-*leh* pattern (67), we agree that it is similar to the VV-*leh* construction in encoding the short duration of the action (i.e., the reading action) that lasts for a while and will end eventually. Nonetheless, I am not certain whether the V-*leh* V-*leh* pattern can be a sub-type of the VV-*leh* construction at the moment, or vice versa, though Hung (2015) notes that the ABAB pattern to express tentativeness, an extension of the delimitative aspect (Ritter and Rosen 2005: 22), is less common. I thank the reviewer for sharing this example with me and will leave the V-*leh* V-*leh* pattern for further research.

morphosyntactic word ( $V^0$ -IAsp<sup>0</sup>- $v^0$ ) targeted by the Op<sup>RED</sup>. As a result, the whole word is opaque for any post-syntactic operation (i.e., reduplication) and is fully reduplicated.<sup>39</sup>

- (67) Asîng    tsheh    **thák-leh thák-leh**    tō    khùn    khi    ah.  
 Asing    book    read-DEL read-DEL    then sleep    away    SFP  
 ‘After Asing had read the book for a while, he fell sleep then.’

<sup>39</sup> It is worth mentioning that *Lowering* is sensitive to headness in a sense that it targets a head ( $X^0$ ) only but has a non-local property. In other words, an intervening head does not block *Lowering* from targeting another lower head. As visualized in (i), *Lowering* of  $X^0$  is permitted to target  $Y^0_1$ ,  $W^0$  or  $Y^0_2$ . (See Embick & Noyer (2001: 568-569) for the suffixation of the Bulgarian definite marker *-ta* for example). Hence, the *V-leh V-leh* pattern (67) or the *VV-leh* pattern (56) can be adequately explained by the proposed analysis in this paper, with a major difference being that in the former, the Op<sup>RED</sup> targets the  $v^0$  complex, while in the latter, it targets the verb only.



(68) The derivation of the V-*leh* V-*leh* complex in (67)

Lau (2021) proposes that verbal reduplication in the TSM evaluative verb reduplicative construction in (69), which contains a negative evaluative reading on the post-verbal noun, results from the interpretative evaluative feature  $uF^{EVAL}$  that head-moves to a verb at  $v^0$  and has to be strengthened so that it can be subject to PF rules by reduplicating the syllable of the verb at  $v^0$  to be lexically realized, which serves as a way to ensure that the derivation does not crash at PF. Hence, the verb *thák* in (66) has to be reduplicated as a reflex of the feature checking process taking place between the object NP at [Spec, OAspP] and OAsp<sup>0</sup>. Otherwise, the derivation like (66) crashes at the interface.



## (69) TSM evaluative verb reduplicative construction (Lau 2021: 613)

tsiáh-tsiáh hit-lō kē-lōo ê tshan-thiann.

eat-eat DEM-kind low-class LNK restaurant

‘You ate that kind of low-class restaurant. (And I disapprove it.)’

Second, the proposed analysis illustrates that OAspP links to IAspP through OS to establish a structural dependence in the VV-*leh* construction.<sup>40</sup> As illustrated in (55), the shifted object NP moves through two positions (i.e., [Spec, IAspP] and [Spec, OAspP]) to enter the relevant checking domains to compute two types of aspectual interpretation. That is, the valuation of the [ $\pm$ IMPERFECTIVE] feature on OAsp<sup>0</sup> in the TP layer hinges on that of the [ $\pm$ TELIC] feature on IAsp<sup>0</sup> in the  $\nu$ P layer through OS. If this line of reasoning is plausible, the ungrammaticality of (66) is accounted for in the way that the apparent shifted object targets an information structural position (i.e., [Spec, TopP]) with the [ $\pm$ IMPERFECTIVE] feature on OAsp<sup>0</sup> being not checked. As shown in (70a), when the progressive aspect is used, OS does not take place because (70a) is not a VV-*leh* construction and the presence of the progressive aspect is not dependent on OS. Furthermore, the object NP is permitted to undergo OS in (70b), but it targets a topic position, as evidenced by the contrastive topic in the second

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<sup>40</sup> A word of clarification is that the presence of *leh* does not necessarily depend upon OAspP for its licensing condition in other constructions. For instance, (i) does not have a delimitative and perfective reading (i.e., the door-opening event lasts for a while and will end eventually) but a continuative reading (Lien 2015). Further investigation is necessary to explore whether every inner aspect category (i.e., *leh* in the VV-*leh* construction) can link to an outer aspect category. I am grateful to one reviewer for urging me to clarify this consequence from the proposed analysis in this paper.

(i) pâng-king m̄ng khui-leh.  
 room door open-LEH  
 ‘The room door is open.’

clause.<sup>41</sup>

- (70) a. *Asîng tî-leh thák [hit-pún tsheh].*  
 Asing PROG read that-CL book  
 ‘Asing is reading that book now.’
- b. *Asîng [hit-pún tsheh]<sub>1</sub> tî-leh thák t<sub>1</sub>,*  
 Asing that-CL book PROG read  
 (tsit-pún tán-tsit-ē)  
 this-CL wait.a.minute  
 ‘As for that book Asing is reading it now; as for that book, he will read it later.’

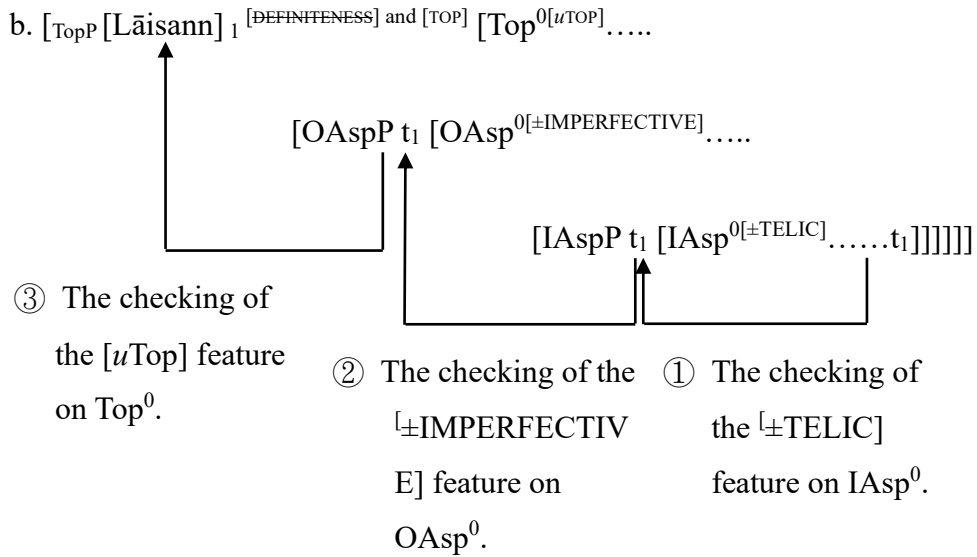
It is worth mentioning that the proposed analysis can accommodate the fact that the shifted object NP, after checking the [ $\pm$ IMPERFECTIVE] feature on  $OAsp^0$ , is allowed to undergo further movement to a higher position, as shown in (71), where the shifted NP targets a sentence-initial position. I adopt Aboh’s (2010) system that formal features and information structural features are added to lexical items in the numeration, according to which a lexical item is merged with discourse-related features (e.g., focus, topic, interrogative, etc.) when entering the numeration, and these features project in overt syntax for the features to be checked in order for a syntactic derivation to converge. Following this system, the shifted object NP is merged with a feature bundle of [DEFINITENESS] and [TOP] in the numeration, before entering the derivation. As illustrated in (71b), though

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<sup>41</sup> It is noted that the structural dependency established between two functional projections ( $OAspP$  and  $IAspP$ ) in two separate domains is not exactly a new thought. To account for the encoding of the negative evaluative reading in the object NP and the reduplicated verb in the TSM evaluative verb reduplicative construction in (69), Lau (2021) argues for a Probe-Goal Agree relation established across two domains, i.e., between  $Eval^0$  with the  $iF^{Eval}$  in the CP layer and the verb with  $uF^{EVAL}$  at  $v^0$ . Likewise, OS can be activated to establish the structural dependency between  $IAsp^0$  and  $OAsp^0$ .

the [+DEFINITENESS] feature has been checked against IAsp<sup>0</sup> and OAsp<sup>0</sup> through a valuation process in a Spec-Head configuration, the shifted object NP with the remaining [TOP] feature moves upwards to [Spec, TopP] in order to have the feature checked by valuing the [*u*TOP] on Top<sup>0</sup>.<sup>42</sup> Hence, OS in (71a) can be regarded as reflecting two types of feature-driven movement.

- (71) a. [Lāisann]<sub>1</sub>, Bûntshing t<sub>1</sub> phák-phák-leh,  
 underwear Buntshing hang-hang-DEL  
 tō khì tsiáh-pñg ah.  
 then go eat-rice SFP  
 ‘After having hanged his underwear out to dry for a while, Buntshing went to have a meal.’



In sum, our analysis properly captures how verbal reduplication encodes the delimitative aspect, which arises from the [-IMPERFECTIVE] feature on OAsp<sup>0</sup> valued by the definiteness of the shifted object NP, in addition to IAsp<sup>0</sup> being

<sup>42</sup> I thank the reviewer for urging to address this issue here.

valued as [+TELIC]. Moreover, the analysis of aspectual morphology proposed for verbal reduplication is not independently motivated. It has been observed in several languages that aspectual effects can be expressed via reduplication. For example, in Hiaki, reduplication of the light syllable from a verbal root gives rise to a habitual reading, as illustrated in (72), where the syllable *i'* is reduplicated from the verbal root *ii'aa*.

(72) Hiaki

Nee            aa=nok-i'-ii'aa

1SG.NOM      3SG.ACC=speak-RED-want

'I (habitually) want him to speak.'      (Haugen and Harley 2013: 163)

Before ending this section, it is worth taking a moment to discuss one typological implication from the proposed analysis in this work: why can OS in TSM feed verbal reduplication for the satisfaction of aspectual computation in syntax, different from OS in Mandarin that is activated for information structural considerations? We follow Wang and Wu's (2020) idea that OS in TSM is a grammatical operation that is activated when a verb needs to compute aspectual interpretations. More precisely, OS (object preposing in Wang and Wu (2020)) is grammatically obligatory when the verb carries a telic aspectual marker. The current paper adds further refinement to their idea by claiming that OS is a grammatical operation to establish a link between two aspectual projections in two domains (i.e., IAspP in the *v*P domain and OAspP in the TP domain) to derive a composite of telicity and perfectivity in the VV-*leh* construction. From a typological perspective, Ritter and Rosen (2005: 22) argue that some languages organize the arguments of the clause in conformity to discourse principles (i.e., Mandarin), while others do so 'by means of delimitation or telicity'. In this light, TSM fares well with the latter and the object NP plays a role in manifesting delimitation in syntax. This property can be also seen in Finnish, where the case

marking of the object determines the delimitation of an event, as shown in (73a-b), where the event is delimited, when the object is marked with accusative, while the event is not delimited, when the object is marked with partitive.<sup>43</sup>

(73) Finnish (cited in Ritter and Rosen 2005: 25)

- a. Anne rakensi talon vuode-ssa/\*vuode-n.  
 Anne built house-ACC year-INESSIVE/year-ACC  
 ‘Anne built a/the house in a year/for a year.’
- b. Anne rakensi taloa tunni-n/\*tunii-ssa.  
 Anne built house-PART hour-acc/hour-inessive  
 ‘Anne was building a/the house for an hour/in an hour.’

## 5. Conclusion

This work investigated the VV-*leh* construction in TSM and has demonstrated that OS and verbal reduplication can receive a unified analysis. We first motivated the two-tiered analysis of aspectual projections along the clausal structure, and showed that the VV-*leh* construction is interpreted as telic and

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<sup>43</sup> One reviewer suggests an alternative view on OS in the VV-*leh* construction—no object is allowed after trisyllabic verbs. (A similar constraint is proposed by Teng (1995) and Cheng (1997) to account for the shifted object NP in TSM resultative constructions involving the phase marker *liáu* ‘finish’, as discussed in (33a-c)). I agree to the reviewer’s view but add more refinement to it by claiming that OS may be triggered after multisyllabic verbs when they are reduplicated, as a VV-*leh* complex is permitted to consist of up to four syllables, as shown in (i).

- (i) Asîng [NP iê pângking] tsínglí-lí-leh tō khì khùn ah.  
 Asing his room arrange-RED-DEL then go sleep SFP  
 ‘After Asing had cleaned his room for a while, he went to sleep then.’

I am grateful to the reviewer for leading my attention to this alternative view but will leave it for another occasion.

perfective, a composite of situation aspect and viewpoint aspect, syntactically encoded by IAsp<sup>0</sup> and OAsp<sup>0</sup>, respectively. Our analysis further argued that the object NP undergoes cyclic movement to [Spec, IAspP] and [Spec, OAspP] to value [ $\pm$ TELIC] and [ $\pm$ IMPERFECTIVE] against its definiteness. OS establishes a structural dependency between IAspP and OAspP. Moreover, the analysis is able to explicate the structural height of the shifted object NP and the aspectual effects OS is associated with in the VV-*leh* construction. Finally, *leh* is the phonological realization of telicity on IAsp<sup>0</sup> that becomes a part of the VV-*leh* complex via head movement. Couched within the framework of DM, it is proposed that the Op<sup>RED</sup> on IAsp<sup>0</sup> is active as a result of the valued [-IMPERFECTIVE] and undergoes *Lowering* to adjoin to its closest verbal head for the morphology of reduplication at PF.

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[2022 年 7 月 14 日收稿；2022 年 9 月 26 日第一次修訂；2022 年 11 月 8 日第二次修訂；2022 年 11 月 18 日接受刊登]

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## 論台灣閩南語 VV-*leh* 結構之句法—構詞 介面分析

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本文探討台灣閩南語 VV-*leh* 結構中的賓語強制移位和動詞重疊等現象。前人針對台灣閩南語賓語移位只著重於動補結構（動相補語和方向補語）的討論，對於 VV-*leh* 結構中的賓語強制移位現象，移位的賓語如何帶有暫時貌解讀以及觸發動詞重疊的原因皆尚未有進一步的探討。此外，為何動詞重疊 VV 需帶有 *leh* 也尚未提出分析。本文主張這些現象密不可分，為 VV-*leh* 結構的句法—構詞介面之體現。我們採用雙層動貌投射組系統（Travis 2010, Su 2009, 2012），主張暫時貌結構其詮釋語意蘊含有界貌和完成貌，分別映照於句法結構的內外動貌功能投射組。除此之外，賓語必須透過通盤移位通過內外動貌功能投射組的指示語位置，根據其有定性與內動貌的有界性和外動貌的完成性分別進行特徵查核。從分佈形態學為著眼點（Embick and Noyer 2001），我們主張賓語移位觸發外動貌中心語的重疊運符，該運符進行後句法的向下移位，選定其 **c-command** 統治範疇內的動詞中心語進行重疊構詞。基於此分析，動詞重疊為外動貌其特徵查核後之構詞體現。本文的句法—構詞分析亦能解釋台灣閩南語其它相關結構。

關鍵詞：動詞重疊、台灣閩南語、賓語移位、分佈形態學、暫時貌

