Tonal marking of telicity in Hakka: An agree-based analysis

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Abstract. This paper investigates a syntactic mechanism underlying the tonal marking of telicity in Longbuzhen Hakka. While previous typological studies have documented tonal alternations as aspectual markers in some Sinitic languages, formal syntactic accounts of their distribution remain underexplored. Building on Schmitt (1996), we argue that AGRO probes its c-commanding domain for an internal argument, valuing its [uTelic] feature against the internal argument's [+quantized] feature upon successful valuation. Thus, a rising contour tone surfaces on the predicate head. Furthermore, we provide novel empirical evidence from Hakka ditransitive constructions, demonstrating that dative PPs induce an intervention effect.

Keywords. Longbuzhen Hakka; aspect; telicity; tonal marking; agree

1. Introduction. Textbook descriptions of Mandarin Chinese perfect(ive) traditionally distinguish two types of *le*: sentential *le*, which encodes perfect aspect, and verbal *le*, which marks perfective aspect (Chao (1968); Zhu (1982); Soh (2009), among others). This manuscript introduces an additional aspectual marking strategy drawn from data on Longbuzhen Hakka Chinese, a variety spoken in Jiangxi province. Hakka exhibits systematic tonal changes on predicates that signal aspectual readings, (see in Liao (2002:Ch. 3.1), Gan (2012), Bovonwiwat (2013), Chappell (2023), Ye (2024)). Similar tonal alternations have been documented in Cantonese verbs as markers of aspect (Yip 1980; Wen 2006; Cheung 2007). These tonal shifts function as a crucial distinction between aspect and non-aspect interpretations. The following examples illustrate this contrast.

(1) a. suei^{21} kaŋ^{44} tie^{35} **mɔ^{21}** suei^{21}.
water tank LOC NEG.have water
'lit: In the water tank has no water.'

b. suei^{21} kaŋ^{44} tie^{35} **mɔ$^{21\rightarrow35}$** suei^{21}.
water tank LOC NEG.ASP.have water
'lit: In the water tank has not had water.'

c. [suei^{21} kaŋ^{44} tie^{35} kie^{322} suei^{21}]$_i$ **mɔ$^{21\rightarrow35}$** t$_i$ (lei^{53}).
water tank LOC POS water NEG.ASP.have t$_i$ SFP
'The water in the water tank has gone (surprisingly).'

The contour tone on the predicate in example (1-a) is a low falling tone 21. The predicate *mɔ*^{21} functions as a synthetic form of the possessive verb combined with negation. In contrast, the tonal change on the predicate in example (1-b) and (1-c) yields an aspect reading, indicating that a significant period before the speech time passed during which the water tank had no water. (1-c) has an object that is raised to Foc position and indicates a pragmatic effect that implies, contrary to expectation, that the water is gone (cf. Wang & Wu (2020)). The aspect of the rising tone

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mɔ$^{21\rightarrow35}$ signaling aspect suggests an underlying syntactic derivation: specifically, that the predicate head moves to the head of AspP, which is spelled out as a tonal alternation on the predicate. Furthermore, in the case of a content verb in the following example (2), the marking of the tonal change is similar to the *have* predicate in (1):

(2) a. suei^{21} kaŋ^{44} tie^{35} **tsɑŋ$^{44\rightarrow35}$** *(lei^{53}) suei^{21}.
water tank LOC fill PAR water
'lit: In the water tank has been filled with water.'

b. suei^{21} kaŋ^{44} tie^{35} **tsɑŋ^{44} mʊa$^{21\rightarrow35}$** (*lei^{53}) suei^{21}.
water tank LOC fill PERF.RES.full PAR water
'lit: In the water tank has been filled full with water.'

Example (2-a) shows a simple predicate in which the verb stem undergoes a tonal change (44 $\rightarrow$ 35) like in (1-b), followed by a particle *lei*^{53}. This combination indicates that the water tank has been filled, in other words, the action *sɑŋ*^{44} (lit. *fill*) has completed, and does not indicate any state change of the subject 'the water tank'. In contrast, in example (2-b), the tonal change marking occurs on the adjective instead of the verb stem, where the appearance of the particle *lei*^{53} is no longer grammatical, showing that the tonal change and the particle *lei*^{53} do not co-occur in complex predicate. These examples have illustrated how aspect marking is realized differently in simple versus complex predicates in Longbuzhen Hakka.

While much work has been given to their marking strategies from a typological perspective, the formal analysis of syntax and semantics of tonal change as a contrastive feature of aspectual marking remains unexplored. We focus on Longbuzhen Hakka, a member of the Sinitic language family that is spoken mainly in Southern Mainland China. The native speakers of Longbuzhen Hakka are from a village called Longbuzhen, located in Anyuan County, Jiangxi province.

This paper is organized as follows: Section 2 looks at the tonal marking strategies in different constructions and observe some patterns abstracted from the data. Section 3 introduces Schmitt's AGRO framework. Section 4 develops our syntactic account and analyzes some potential challenges in response to the linearization problem in complex predicates and gives additional empirical support from Hakka ditransitives for our proposal. Section 5 concludes.

2. A Glimpse of Tonal Change. The next three examples in (3) aid the discussion concerning the distinction between tone sandhi as a phonological representation and aspectual marking as a morphological representation.

(3) a. p^{h}ɔ^{21} 'run' $\Rightarrow$ p^{h}ɔ^{35} 'have run'
b. s^{h}i̱^{322} 'eat' $\Rightarrow$ s^{h}i̱^{35} 'have eaten'
c. tsəu^{33} 'walk/leave' $\Rightarrow$ tsəu^{35} 'have walked/have left'

Two factors ensure that the rising tone in (3) is morphological but not tone sandhi. The first is that the nature of tone sandhi process requires an adjacent tone that triggers the tonal change. In the examples, all three verbs do not form any local environment within the local domain. In contrast, tone sandhi takes place when compounding and is constrained within the local phrasal domain. Second, the rising tone signaling aspectual form of a verb can in no way be construed as a separate morphological marking in terms of the direction of tonal change that occurs in a right-to-left manner, but not vice versa. The cluster predicates in Longbuzhen Hakka illustrate this explicit direction below.

(4) a. ta^{21} sɨ^{21} ‘beat to death’ ⇒ ta^{21} sɨ$^{21\rightarrow35}$ ‘have beat to death’
b. tsɑŋ^{44} mua^{21} ‘fill up’ ⇒ tsɑŋ^{44} mua$^{44\rightarrow35}$ ‘have filled up’
c. tsɨ^{21} lɑ^{53} ‘cook up’ ⇒ tsɨ^{21} lɑ$^{53\rightarrow35}$ ‘have cooked up’

The main point of contention therefore concerns the position of tonal marking with respect to its aspect. It seems that the tonal change occurs only in the verb stem as in (3); however, when it comes to cluster predicates, for example, the resultative predicates, the tonal change always marks on the stative adjective but not the verb stem. On the other hand, the stative adjective in (4) is always on the right side of the verb stem, but not on the left in Longbuzhen Hakka. Because aspect marking anchors to the right, the question arises: should such an observation be analyzed in terms of the syntax of aspect? There are competing analyses concerning the status of aspect marking within stative together with verb stem in resultative: A significant tradition starting with Comrie (1976:21)’s work prefers the syntactic analysis of aspect that assumes stative can be viewed as one possible type of perfectivity putting unnecessary emphasis on the final stage of the situation, whereas it has arguably reached further back to Tsai (2008)’s proposal of a three-layered analysis of aspectual projections in Chinese, that is, perfective, perfect, and telicity.

Another important data that has been ignored in the previous studies are from the following pair of comparison within the internal argument, bare nouns or quantized nouns. Interestingly, bare or mass nouns in Longbuzhen Hakka, e.g. *siən*^{322} ‘letter’ in (5-a), also introduce a telic reading. This implies that telicity applies to at least part of a letter to be written, and does not necessarily entail that the whole letter is completed. Indeed, (5-a) shows that tonal change is compatible with incomplete event as long as a minimal part of the letter has been written. While in (5-b), if the internal argument is quantized imbuing a maximal reading of the event in which the whole letter has been written, the use of *lei*^{53} is no longer compatible in this context. We do not explain the use of *lei*^{53} in this article but leave it for future research. In addition, in (5-c), when the internal argument is quantized, *yi?*^{2}*fen*^{44}*siən*^{322} ‘one piece of letter’, the tonal marking is on the resultative adjective, which indicates accomplishment, and cannot be canceled.

(5) a. tʃi^{44} ts^{h}a^{53}ŋ̍iə?^{2} **sia$^{21\rightarrow35}$** lei^{53} **siən^{322}**, ta^{53} hei^{53} hə?^{2} m̩^{35} tʃiən^{322} sia^{21} tsan^{322}.
3SG yesterday ASP.write PAR letter, but BE still NEG ever write good
‘He wrote letter yesterday but still has not finished writing.’
b. ʔtʃi^{44} ts^{h}a^{53}ŋ̍iə?^{2} **sia$^{21\rightarrow35}$** lei^{53} **yi?^{2} fen^{44} siən^{322}**, ta^{53} hei^{53} hə?^{2} m̩^{35} tʃiən^{322} sia^{21}
3SG yesterday ASP.write PAR one CL letter, but BE still NEG ever write tsan^{322}.
good
‘He finished writing a letter yesterday but still has not finished writing.’
c. #tʃi^{44} ts^{h}a^{53}ŋ̍iə?^{2} **sia^{21} liao$^{53\rightarrow35}$** **yi?^{2} fen^{44} siən^{322}**, ta^{53} hei^{53} hə?^{2} m̩^{35} tʃiən^{322}
3SG yesterday write ASP.finished one CL letter, but BE still NEG ever sia^{21} tsan^{322}.
write good
‘He finished writing a letter yesterday but still has not finished writing.’

One may consider whether other predicate classes, such as negated verbs, exhibit similar tonal shifts. However, empirical evidence suggests that not all of negative verbs undergo such alternations. Examples from negation are as follows:

(6) a. mɔ^{21} suei^{21} 'no-have water' → mɔ$^{21\to35}$ suei 'no-have water already'
b. m̩^{21} sɨ^{21} iɛ^{44} 'not smoke' → m̩$^{21\to35}$ sɨ^{53} iɛ^{44} 'have never smoked yet'
c. m̩^{21} tsei^{21} hʌ^{21} 'not cook up' → m̩$^{21\to35}$ tsei^{21} hʌ^{21} 'have not cooked up yet'

The aspectual reading is judged to have scope over the negation in all three cases. The indicated reading without tonal change in (6) is considered to be free from any aspectual reading, while once marked with Tone 35, regardless of their original phonemic tone, all carry the aspectual value with negation. Taking (6-a) as an example, the rising tone is suggestive of the nature of aspectual , that is, that the water is gone and undergoes a change of state compared to the previous state where the water is full. Without rising tone, it simply means *no-water* without pinpointing the previous status of water possession. Note that the predicate *mɔ*^{21} is a synthetic form of the negative word *m̩*^{21} and the existential verb. Mandarin and Southeastern Sinitic languages, such as Gan Chinese and Cantonese, also have such forms (Zhu 1982; Yuan et al. 1983; Yue-Hashimoto 1993; Gan 2012). However, these cases are limited to one specific negative element m̩^{21} but not other negative modal verbs such as *hʔ*^{2} *mɔ*^{21} 'have not (done something)' in (7). An example is as follows:

(7) ʔn̩^{44} həʔ^{2} mɔ^{21} sei^{21} tsaŋ^{322} səŋ^{44} a^{21}
2SG still NEG wash clean body SFP
'You haven't finished your shower yet?'

We will not discuss the effect of tonal change on negation here since the phenomenon is restricted and tonal change as a grammatical function is not productive and consistent in every occurrence. Therefore, we will only focus on the vP level of the predicate, that is, we look at the argument structure of the predicate and its interaction with the tonal change. In next section, we will come up with an Agree-based analysis.

3. Schmitt (1996) AGRO and telicity. Schmitt (1996) proposes that VP aspect, specifically the durative–terminative contrast, is computed in the syntax at the AGRO projection, where object agreement and feature checking take place. Aspectual interpretation arises from the interaction of two features: [+ADD TO] on the verb, which denotes progress over time, and [+SQA] on the object, which encodes whether the internal argument specifies a quantized amount (here we denote it as [+quantized]). Terminative (telic) readings emerge only when both features are present and visible to each other in AGRO. Although aspectual features are semantic in nature, they require syntactic feature checking to become interpretable at LF, while movement in this system is driven by Case and agreement needs rather than aspectual interpretation per se. This view rejects a parametric account of aspect, suggesting that children acquire aspectual meanings through the realization of quantificational and morphological systems in their language. Following Schmitt (1996), aspect is not an intrinsic property of verbs but is compositionally derived from verb–complement configurations: nominal complements can provide an endpoint (e.g., eat three apples, yielding a bounded event) or partition the event into subparts (e.g., eat apples, yielding an iterative or durative reading). This approach aligns with semantic theories by Verkuyl (1972) and Krifka (1998) while adding syntactic constraints to explain when certain aspectual readings are blocked or forced.

Schmitt (1996:53) states:

> "we cannot talk about aspect as a categorical element that is present or absent in a

language, nor can we talk about a division among languages in terms of aspectual marking on the verb or on the noun, given the compositional nature of aspect."

Schmitt's analysis thus rejects Vendler (1967)'s verb classes as syntactic primitives and offers a unified theory of the VP aspect that leverages existing syntactic machinery like AGRO and feature checking to account for compositional aspect and cross-linguistic variation. She also notes that the morphological case, such as the partitive in Finnish, does not satisfy the requirements of AGRO, resulting in a durative reading. In contrast, structural Case, such as accusative on the inner argument, can check the relevant feature in AGRO and yield a terminative reading, which is motivated by Chomsky (1995) that movement is driven by feature checking or Case. Chesterman (1991:140) argues that the indefiniteness of partitives is purely quantitative, rather than connected to whether a referent is known or unknown. Building on Chesterman, she notes that in example (8-a), the accusative case is checked by V+Agr within AGRO, whereas the partitive case in (8-b) is licensed by a different head independently of AGRO, and thus enjoys greater freedom (Schmitt 1996:70).

(8) a. Kaksi miestä söi joka kakun.
two men ate every cake.ACC
'Two men ate every cake.'

b. Kaksi miestä söi joka kakkua.
two men ate every cake.PART
'Two men were eating every cake.' (Schmitt 1996:65, ex. 18a,b)

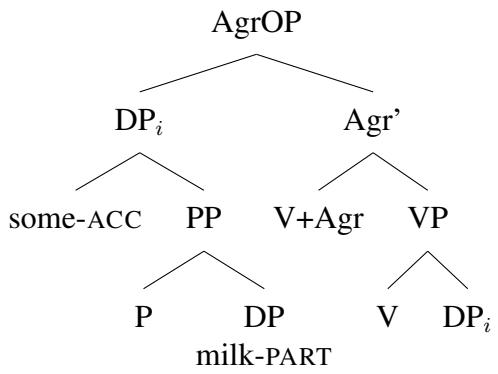
What's more, citing from Chesterman (1991), in example (9) in her work, the sentence is ambiguous in three distinct ways. The same morphological form (*kakkua* in the partitive) does not map directly onto a single interpretation. Rather, the meaning depends on the interaction between the aspectual system and the semantics of *cake* as a mass/count noun. If *cake* is construed as a bounded entity but remains in the partitive, the result is an ongoing reading in (9-a). If it is construed as mass-like ("some cake"), the interpretation is one of partial quantity in (9-b). Finally, if both process and partiality are combined, the sentence yields an ongoing interpretation in which only part of the cake is consumed in (9-c).

(9) Söimme kakkua (Chesterman 1991)
ate-1PL cake-PART

a. 'We were eating a/the cake.' (durative)
b. 'We ate some cake.' (terminative)
c. 'We were eating some cake.' (durative)

She further proposes that a null element corresponding to *some* in Finnish receives accusative case that yields telic reading in (9-b) (also suggested by Kratzer (2004:402) citing Krifka (1998:207) as referred as accusative determiner), while the partitive marker itself only licenses the case of the noun to which it attaches. In this view, the partitive is internal to the DP, and it is the DP as a whole that bears the accusative case. The proposed tree in her work is copied as follows:.

(10)



We adopt her basic proposal, but this raises additional complexity when dealing with complex predicates in Chinese and other languages. Moreover, these approaches do not directly explain how complex predicates, such as resultative verb compounds in Chinese, derive their telicity. In such constructions, the aspectual interpretation depends not only on the presence of argument that forms agreement with AGRO but also on the compositional interaction between two verbal elements that jointly contribute to event delimitation. This question has inspired many linguists to propose an explanation.

In the following section, we first develop our own analysis, then examine the existing linearization puzzle in complex predicates, and finally look into ditransitives for more evidence supporting an Agree-based approach to telicity.

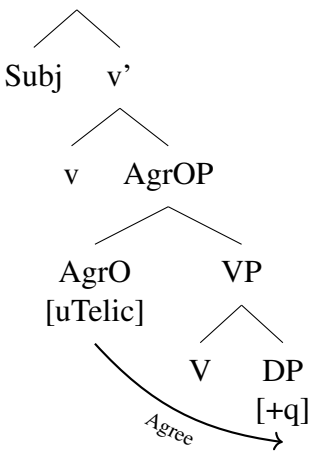
4. An Agree-Based Analysis on tonal change in telicity. The syntactic analysis of telicity has often been overloaded with additional projections within the vP domain (e.g. Borer (1993); Travis (2010) and more). While these approaches capture certain cross-linguistic generalizations, they introduce a proliferation of projections whose empirical necessity remains debated in the time of Minimalist Program in Chomsky (1995, 2000, 2013).

We propose the tonal alternation as the phonological realization of a syntactic feature: the head AGRO, which carries a [uTelic] feature, is spelled out prosodically as a rising tone on the next head via AGREE. Following Schmitt (1996), we analyze that AGRO immediately *c*-commands the maximal projection that contains the internal argument, ensuring locality for feature checking and operator binding in telicity computation. With simple predicates, AGRO merges directly above VP. When the internal argument is a mass noun like *suei*^{21} 'water' in (2-a) or *siən*^{322} in (5-a), the [uTelic] feature on AGRO is checked due to the null quantized head on the noun (Schmitt 1996:70). In such cases, the verb moves to AGRO but the particle *lei*^{53} must surface, signaling the absence of event culmination, as in (2-a). In complex predicates like in (5-b), AGROP is structurally located between the verb phrase (VP) and lower event-structural projections, such as ResulP. AGRO binds event variables and checks a [uTelic] feature against the internal argument. Our proposal predicts that the tonal marking and the use of *lei*^{53} can be restricted by the nature of object or compound adjective with the help of tonal change as shown in the example (5).

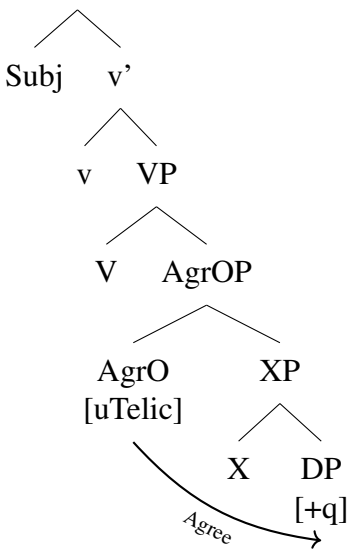
We demonstrate that these predictions are borne out in the data, with tonal aspect marking appearing on verb stems in simple predicates, and on adjectives in complex predicates, where *lei* is absent. While this system parallels some aspectual properties of the English noun phrases inside of VP (Krifka (1998); Schmitt (1996); MacDonald (2008), and more), we argue that the Hakka tonal alternations and *lei* can be explained by well-established model for telicity proposed

early in Schmitt (1996). We argue that AGRO functions as the syntactic locus of agreement with the accusative object (we will return to this accusative agreement in ditransitive in Hakka in section 4.2), establishing an AGREE relation that determines the aspectual interpretation of the predicate. Specifically, telicity arises when the features of the internal argument—such as definiteness, boundedness, or quantization—are successfully valued through agreement with AGRO. This account links object agreement and aspectual boundedness compositionally, predicting that only feature-checked (i.e., accusative) objects can yield telic interpretations. This account captures the intuition that telicity is syntactically licensed through the Agree system, rather than being purely semantic or lexical.

(11) a.



b.



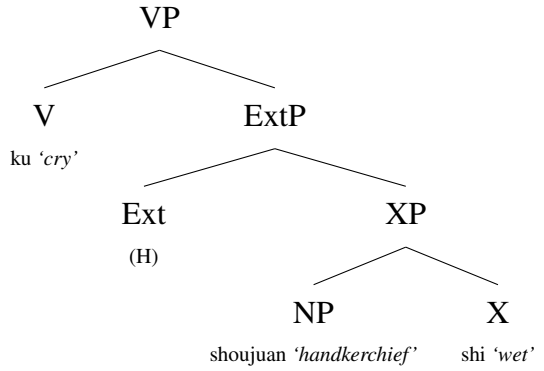
This Agree-based configuration builds on Schmitt (1996) and Borer (1993), who attributes aspectual composition to functional structure rather than lexical semantics, and MacDonald (2010), who demonstrates that the boundedness of the object DP crucially determines event telicity. In our account, these insights are unified under an Agree relation: AGRO bears uninterpretable aspectual features [uTelic] that must be valued by the object's interpretable [+quantized] (that is [+q]) feature. Once valued, the verb's event-structural feature combines with the bounded object to yield a telic predicate. Failure of agreement—either because the object lacks [+q] or because no valuation occurs—results in an atelic interpretation (or incompletion).

4.1. PUZZLES ON AGRO IN RESULTATIVE CONSTRUCTION. Regarding the debate on linear order in compound predicates in Hakka Chinese, Sybesma (1997)'s work offers a novel analysis of the distinction between the aspectual aspect particle *le* and the resultative complement *liao* in Mandarin Chinese. Sybesma proposes that *le* following the verb is best analyzed as a resultative predicate, rather than as a purely aspectual marker. In this view, *le* functions as a realization operator: it signals that the event has reached a state of realization, either as completion, termination, or inception depending on the predicate type and object. He argues that in Mandarin Chinese, bounded predicates denote events with inherent endpoints, signaling completion, whereas unbounded predicates describe ongoing or habitual actions lacking such boundaries (cf. Comrie (1976)). Sybesma claims that Chinese has no inherently telic predicates. What appear to be accomplishments (e.g. *xie le yi feng xin* 'write a letter') decompose into *activity + result*. *Le* is the

realization head of this resultative projection. Formally, Sybesma represents this as:

(12) a. ta $[_{\text{VP}}\ ku\ [_{\text{EXT}P}\ -\ [_{\text{EXT}^0}\ H]\ [_{\text{XP}}\ shoujuan\quad shi]]]$

b.



Sybesma proposes that in the Mandarin resultatives, where *le* heads XP (but not VP) and stativizes the event. The aspect marker *le* functions to mark both the completion and termination of events. It indicates that the event denoted by the verb has been realized, that is, it has reached its culmination. Currently, *le* stativizes the event by stopping the dynamic progression of the action and expressing that the resultant state continues to hold. Consequently, *le* marks realization in both bounded and unbounded predicate contexts by encoding event culmination and persistence of its resultant state. As for head movement, Sybesma does not specify the incorporation order, simply stating that "In the case of cluster resultatives, the head of the embedded result denoting small clause, *shi* 'wet' in (12-a), raises and incorporates into the head of ExtP, H, and then moves on to incorporate into the matrix verb" in p. 221.

However, this raises a substantive question about the linear order. If we adopt a left-adjoining head-movement analysis in the sense of strict asymmetry in Kayne (1994), the derivation fails to converge, since it predicts the wrong word order, as shown below.

(13) $\textsc{Asp}(3) \leftarrow V(2) \leftarrow \textsc{Ext}(1) \leftarrow X(0)$

(14) Cycle 1: X–Ext
Cycle 2: X–Ext–V
Cycle 3: X–Ext–V–Asp

Wrongly Predicted order: **shi ku le shoupa* (lit. 'wet cry ASP handkerchief')

Similar to Sybesma (1997), Song (2018) and Tay (2024) propose that there is a functional head between verb and adjective in complex predicate. Song (2018) names it 'low inner aspectual projection' while Tay (2024) 'null aspectual affix' assuming ASP lower than little V projection according to MacDonald (2008). The extra functional projection is used to introduce the internal postverbal argument given that the second predicate usually licenses the internal one if there is one while the first predicate always licenses the external argument (Cheng & Huang 1994).

(15) $\textsc{Asp}(1) \leftarrow X(0)$
$v(3) \leftarrow V(2)$

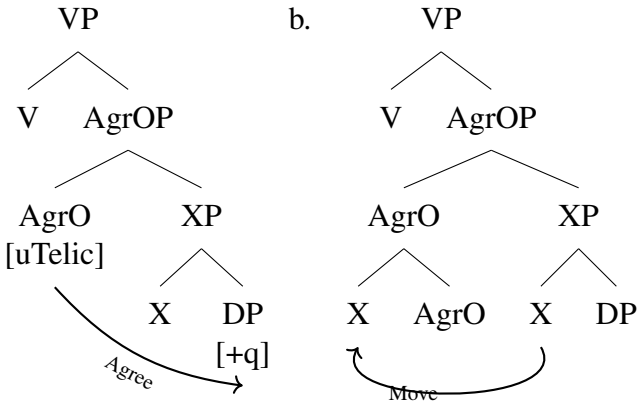
(16) Cycle 1: X–Asp
Cycle 2: V–v

Correctly Predicted order: *ku shi le shoupa* (lit. 'cry wet ASP handkerchief')

We acknowledge that there is a functional projection in between the verbal and adjectival projections in complex predicates in Mandarin and extend it to other Sinitic languages like Longbuzhen Hakka. We propose that the functional projection is AGROP building on the simple predicate analysis in Schmitt (1996) and extend it to resultatives predicates as well.

To resolve the linearization problem, our analysis follows from non-cyclic head movement (Song 2018; Tay 2024) where X moves to AGRO spelled out at PF in complex predicates like resultatives after AgrO probes down and finds the goal as follows.

(17) a. b.



4.2. EVIDENCE OF AGRO IN HAKKA DOUBLE OBJECT CONSTRUCTION AND LICENSING OF THEME OBJECT (ACCUSATIVE) BUT NOT OBJECT WITH DATIVE MARKER. Below we report evidence for the Agree-based analysis of telicity marking from intervention effects associated with dative constructions in Hakka. We identify five surface realizations of VP with two arguments that have tonal marking on the verb, including one unavailable structure, i.e., type IV. The tree diagrams in (19) show the critical structures in type I/II, IV, III, and V, respectively, according to Ye (2023).

(18) a. tʃi^{44} na^{21} liao$^{53\rightarrow35}$ yi?^{2} kai^{53} ma?^{2}sang^{44}lau^{53} pa^{53} san^{21}.
3SG take ASP.RES one CL stranger CL umbrella
'He gave a stranger an umbrella .' [Type I]

b. tʃi^{44} na^{21} liao$^{53\rightarrow35}$ pa^{53} san^{21} yi?^{2} kai^{53} ma?^{2}sang^{44}lau^{53}.
3SG take ASP.RES CL umbrella one CL stranger
'He gave an umbrella (to) a stranger.' [Type II]

c. tʃi^{44} na^{21} liao$^{53\rightarrow35}$ pa^{53} san^{21} tə^{322} yi?^{2} kai^{53} ma?^{2}sang^{44}lau^{53}.
3SG take ASP.RES CL umbrella DAT one CL stranger
'he gave an umbrella to a stranger.' [Type III]

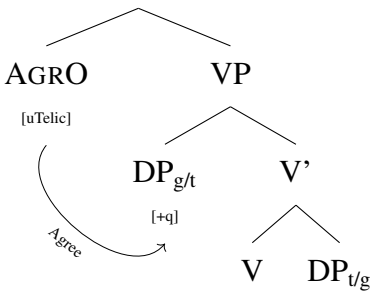
d. *tʃi^{44} na^{21} liao$^{53\rightarrow35}$ tə^{322} yi?^{2} kai^{53} ma?^{2}sang^{44}lau^{53} pa^{53} san^{21}.
3SG take ASP.RES DAT one CL stranger CL umbrella
'he gave an umbrella to a stranger.' [Type IV]

e. tʃi^{44} tə^{322} yi?^{2} kai^{53} ma?^{2}sang^{44}lau^{53} na^{21} liao$^{53\rightarrow35}$ pa^{53} san^{21}
he DAT one CL stranger take ASP.RES CL umbrella
'to a stranger, he gave an umbrella .' [Type V]

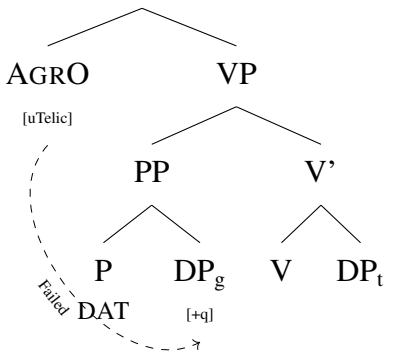
Table 1. Patterns of argument structure in Hakka ditransitives interacting with tonal change

Sentence type	Word order	Syntax Figure
I. Double object structure	S + V^{35} + DP$_g$ + DP$_t$	(19)-a
II. Reverted double object	S + V^{35} + DP$_t$ + DP$_g$	(19)-a
III. Dative construction	S + V^{35} + DP$_t$ + (DAT + DP$_g$)	(19)-c
IV. Low applicative	*S + V^{35} + (DAT + DP$_g$) + DP$_t$	(19)-b
V. High applicative	S + (DAT + DP$_g$) + V^{35} + DP$_t$	(19)-d

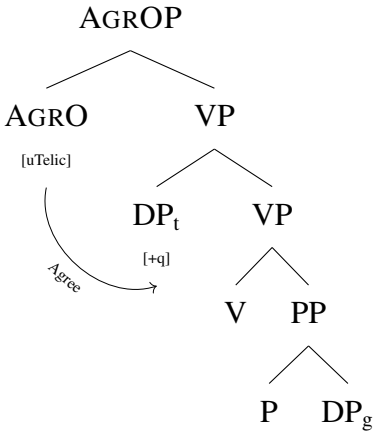
(19) a.



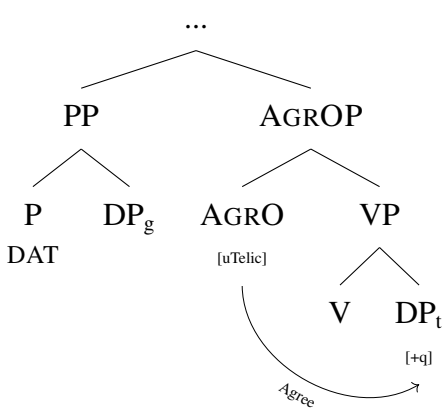
b.



c.



d.



We adopt that a probe searches downward in its c-command domain and targets the closest DP bearing the relevant feature for telicity valuation (Schmitt 1996; Chomsky 2000). In ditransitives, the probe on AGRO searches either for the Goal (DP_g) or the Theme (DP_t). The structural configuration in (19)-a shows that agreement is subject to locality: AGRO probes downward and first encounters DP_g, which asymmetrically c-commands DP_t, yielding agreement between AGRO and DP_g. It is the true the other way around where AGRO probes downward and first encounter DP_t, yielding agreement between them. In (19)-b, DP_g and DP_t are equally close to AGRO, and we assume that the leftmost DP, DP_g, is chosen due to linear or processing reasons (Ke 2019; Branan & Erlewine 2026; Ke et al. 2025). However, DP_g is dative-marked and its features are not accessible for valuation (Preminger 2009: ch. 8); thus the valuation process of agreement between AGRO and DP_g is disrupted, causing agreement failure. This correctly explains the ungrammaticality of (19)-b. Finally, (19)-c&d confirm the analysis with the absence of the intervention effect if the dative PP does not intervene between AGRO and DP_t: when DP_g inside the dative PP is structurally lower (19)-c or higher (19)-d, telicity marking is correctly predicted. In sum, tonal marking appears only when no closer dative-marked DP with a competing feature disrupts the Agree chain required to value AGRO.

5. Conclusion. Overall, this study provides a novel syntax account of tonal change in Hakka, showing that agreement at AGRO as a mechanism of telicity computation. It extends the Agree operation to telicity in the tonal domain. We further provide new evidence from ditransitive structures demonstrating that the familiar effect of dative intervention (Preminger 2009) can be extended to Hakka tonal morphology: the agreement for tonal marking fails precisely when a dative PP intervenes.

References

Borer, Hagit. 1993. The projection of arguments. In Elena Benedicto & Jeffrey Runner (eds.), *Functional projections*, vol. 17, 19–47. Amherst, MA: University of Massachusetts Occasional Papers.

Bovonwiwat, Wichaya. 2013. Aspects in fengshun hakka spoken in thailand: Perfective, experiential, and inchoative. *Journal of the Southeast Asian Linguistics Society (JSEALS)* 6. 35–53. http://jseals.org.

Branan, Kenyon & Michael Yoshitaka Erlewine. 2026. Locality and (minimal) search. In Vera Gribanova & Myriam Uribe-Etxebarria (eds.), *The cambridge handbook of the minimalist program*, Cambridge: Cambridge University Press.

Chao, Yuen Ren. 1968. *A grammar of spoken chinese*. University of California Press.

Chappell, Hilary. 2023. Tone morphemes in sinitic: where prosody meets morphology. *Journal of Chinese Linguistics* 51(3). 483–521. https://doi.org/hal-04544226.

Cheng, Lisa Lai-Shen & C.-T. James Huang. 1994. On the argument structure of resultative compounds. In Matthew Chen & Ovid Tzeng (eds.), *A festschrift for william s.-y. wang*, 187–221. Taipei: Pyramid Press.

Chesterman, Andrew. 1991. *On definiteness: A study with special reference to english and finnish*. Cambridge: Cambridge University Press.

Cheung, Samuel Hung-nin. 2007. *Xi$\bar{a}$nggǎng yuèyǔ yǔfǎ de yánjiū [research on the grammar of hong kong cantonese]*. Hong Kong: Hong Kong Chinese University Publishers. A comprehensive study on the grammar of Hong Kong Cantonese.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by step: Essays on minimalist syntax in honor of howard lasnik*, 89–155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2013. Problems of projection. *Lingua* 130. 33–49. https://doi.org/10.1016/j.lingua.2012.12.003.

Comrie, Bernard. 1976. *Aspect: An introduction to the study of verbal aspect and related problems*. Cambridge: Cambridge University Press.

Gan, Yuen En. 2012. Yue fangyan biandiao wanchengti wenti de tanta [discussion on the tone change in the perfective aspect of yue dialects]). *Jinan Xuebao (Zhexue Shehui Kexue Ban))* 34(7). 70–73.

Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Ke, Alan Hezao. 2019. *The syntax, semantics, and processing of agreement and binding grammatical illusions*: University of Michigan Ph.d. dissertation.

Ke, Alan Hezao, Andrew McInnerney & Yushi Sugimoto. 2025. Lack of c-command in coordinate structures: Evidence from binding. *Natural Language Linguistic Theory* 43. 2139–2178. https://doi.org/10.1007/s11049-025-09662-8.

Kratzer, Angelika. 2004. Telicity and the semantics of objective case. In Jacqueline Guéron & Jacqueline Lecarme (eds.), *The syntax of time*, 389–423. Cambridge, MA: MIT Press.

Krifka, Manfred. 1998. The origins of telicity. In Susan Rothstein (ed.), *Events and grammar*, 197–235. Dordrecht: Kluwer Academic Publishers.

Liao, Haiming. 2002. *Research on function words in anyuan longbu dialect (Ānyuǎn lóngbùhuà xūcí yánjiū)*. Wǔhàn: Huazhong University of Science and Technology Master's thesis. Research on function words in the Anyuan Longbu dialect.

MacDonald, J. E. 2008. Domain of aspectual interpretation. *Linguistic Inquiry* 39(1). 128–147.

MacDonald, Jonathan E. 2010. The aspectual influence of the noun: (a)telicity, (a)symmetry, incrementality and universality. *Language and Linguistics Compass* 4(9). 831–845. https://doi.org/10.1111/j.1749-818x.2010.00227.x.

Preminger, Omer. 2009. Breaking agreements: Distinguishing agreement and clitic doubling by their failures. *Linguistic Inquiry* 40(4). 619–666. https://doi.org/10.1162/ling.2009.40.4.619.

Schmitt, Cristina. 1996. *Aspect and the syntax of noun phrases*: University of Maryland dissertation.

Soh, Hooi Ling. 2009. Speaker presupposition and mandarin chinese sentence-final *le*: A unified analysis of the "change of state" and the "contrary to expectation" reading. *Natural Language and Linguistic Theory* 27(3). 623–657.

Song, Chenchen. 2018. Severing telicity from result. *Journal of East Asian Linguistics* 27. 275–307. https://doi.org/10.1007/s10831-018-9170-8.

Sybesma, Rint. 1997. Why chinese verb *le* is a resultative predicate. *Journal of East Asian Linguistics* 6(3). 215–261.

Tay, Wenkai. 2024. *Resultative expressions in mandarin chinese*: University College London Doctoral thesis. https://discovery.ucl.ac.uk/id/eprint/10196298. Open-access via UCL Discovery.

Travis, Lisa. 2010. *Inner aspect: The articulation of the vp*. Dordrecht: Springer.

Tsai, Wei-Tien Dylan. 2008. Tense anchoring in chinese. *Lingua* 118(5). 675–686. https://doi.org/https://doi.org/10.1016/j.lingua.2007.09.002. https://www.sciencedirect.com/science/article/pii/S0024384107001714.

Vendler, Zeno. 1967. Verbs and times. In *Linguistics in philosophy*, 97–121. Ithaca, NY: Cornell University Press.

Verkuyl, Henk J. 1972. *On the compositional nature of the aspects*. Dordrecht: Reidel.

Wang, Chyan-an Arthur & Hsiao-hung Iris Wu. 2020. Telicity and object position in taiwanese southern min and hakka. *The Linguistic Review* 37(3). 331–357.

Wen, Changyan. 2006. Shicheng gaotian fangyan de wancheng biandiao: 'heyin yinbianshuo' [tone sandhi for completion in the gaotian dialect of shicheng, jiangxi: A tonal coalescence account]. *Zhongguo Yuwen [Chinese Language]* (1). 58–65. In Chinese.

Ye, Yanpeng. 2023. Jiāngxī ān yuǎn (lóng bù) kèjiā huà de shuāng jí wù jiégòu the [ditransitive structure in the longbu hakka variety of anyuan]. *Dialect (Fangyan)* 02. 196–202. https://doi.org/CNKI:SUN:FYZA.0.2023-02-014.

Ye, Yanpeng. 2024. Ānyuǎn (lóngbù) kèjiāhuà de wèicí biàndiào- wánzhěng, wánchéng yǔ wánjié [predicate tone sandhi in anyuan (longbu) hakka: Completeness, perfectivity, and termination]. In *The 16th hakka dialect academic conference*, Longnan, China. Conference abstract.

Yip, Moira Jean. 1980. *The tonal phonology of chinese*: Massachusetts Institute of Technology dissertation.

Yuan, Jiahua, Bi Lu & Changji Zhou. 1983. *Hànyǔ fāngyán gàiyào [a sketch of chinese dialects]*. Beijing: Wénzì Gǎigé Chūbǎnshè. In Chinese.

Yue-Hashimoto, Anne. 1993. *Comparative chinese dialectal grammar: Handbook for investigators*. Paris: École des Hautes Études en Sciences Sociales, Centre de Recherches Linguistiques sur l'Asie Orientale.

Zhu, Dexi. 1982. *Yufa jiangyi [lecture notes on grammar]*. Beijing: The Commercial Press. Originally published in Chinese.