The syntactic categories of adverbials in Atayal*

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Abstract: Adverbials in Atayal comprise three morpho-syntactically distinct groups, which are further divided into head and non-head positions, according to the fact that the head adverbials cannot be topicalized but attract clitics and exhibit a fixed distribution, in opposition to the non-head ones. The head adverbials are strictly ordered, whereas the non-head adverbials are freely distributed within their semantic scope. The variable distribution of the non-head adverbials is better accounted for by an adjunct position. Hence, Atayal adverbials are licensed in two syntactic positions, heads vs. adjuncts. I suggest that heads, specifiers and adjuncts are potential syntactic positions for licensing adverbials in languages, and the ordering effect follows the nature of each syntactic category: heads/specifiers are components of the structural hierarchy and thus give strict orders, as proposed by Cinque (1999, 2004), while adjuncts are subject to semantic, rather than structural, conditions, as proposed by Ernst (2002, 2007).

1 Introduction

This paper investigates syntactic categories and the licensing conditions of adverbials in Atayal (Squliq dialect), an understudied Austronesian language spoken in the mountainous areas of Northern Taiwan. The morphosyntactic realization of adverbials in Atayal varies depending on their interpretation. For instance, manner and subject-oriented adverbials precede the verb and bear distinctive inflectional morphology. Aspecltal and epistemic adverbials, on the other hand, do not inflect, and some of them allow variable placement. Frequency adverbials either pattern like manner adverbials or as free adjuncts. However, this diversity has not received adequate attention in the existing literature. While the category of adverbials which pattern morphologically with verbs has been studied across Formosan languages, there is no consensus on the status of other adverbials. Hsiao (2004) divides Atayal adverbials into two types, predicate-like vs. adjunct-like; the latter, however, is a cover term for non-predicate adverbials and is non-uniform in its array of syntactic behaviors. The behaviors of these adverbials not only deserve an empirical inquiry of their categorial status but also present theoretical challenges for the syntax of adverbials more generally.

I first demonstrate that adverbials in Atayal can be distinguished by whether they occupy a head position or not, irrespective of their morphological differences. Placing adverbials in the context of current theories, head adverbials constitute a rigid functional hierarchy, while non-head adverbials have much freer placement and can only be in adjunct, rather than specifier, positions. Hence, Atayal adverbials belong to two types of syntactic categories, heads vs. adjuncts. The co-existence of the two types of adverbials and their respective ordering factors suggest that the current debate in the domain of adverbial syntax can be reconciled in terms of the position that adverbials occupy in the phrase structure.

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The paper is organized as follows. Section 2 reviews three theories in terms of how adverbials are encoded in the syntax. Section 3 discusses five morphosyntactic properties, which divide Atayal adverbials into three types. Section 4 argues for head vs. non-head positions of various adverbials. Section 5 presents relative orders of the head adverbials, and proposes a hierarchical analysis for the ordering and morphological differences. Section 6 discusses positional flexibility of the non-head adverbials and suggests that an adjunction analysis is superior to a specifier analysis. Section 7 concludes the paper with a discussion of empirical and theoretical implications.

2 Hypotheses

Current hypotheses regarding the syntax of adverbials can be divided into two main camps in terms of how adverbials are encoded in the phrase structure. The first is the adjunction theory, which is based on the observation that adverbials are optional and allow fair flexibility in placement. In the generative tradition, adverbials are assumed to be added to the syntactic structure by an adjunction operation, which does not change the category that they adjoin to, but only creates a new segment of that category (Jackendoff 1972, Sportiche 1988, Chomsky 1986, 1995 etc.). The adjunction theory is further developed by Ernst (2002, 2007), Svenonius (2002), and Haider (2004), who claim that adverbials can adjoin to various projections in a syntactically unconstrained manner, where illicit orders are those that violate semantic principles, the syntax-semantic interface, or non-structural conditions. For instance, in Ernst’s (2002) proposal, adverbial ordering is determined by selectional properties of each class, compositional rules for events and propositions, head-complement directionality, and morphological weight of each instance. The second proposal is the functional specifier theory, represented by Alexiadou (1997), Laenzlinger (1998), and Cinque (1999, 2004), which argue that adverbials are located in unique specifier positions of distinct functional projections. This proposal is largely motivated by the observation that cross-linguistically the specific classes of adverbials and their relative order appear to match the classes and relative order of morphologically free and bound functional morphemes (Cinque 1999). By establishing a systematic specifier/head relation between the adverbial classes and their semantics-related functional heads, the ordering can directly follow the hierarchy of functional projections. For this theory, apparent variable positions of a single adverbial are attributed to movement of the surrounding non-adverbial elements.

Holmer (2012) proposes an approach radically different from the adjunction theory and the functional specifier theory. He argues that adverbials of Formosan languages occupy head positions, in favor of the functional theory that adverbials constitute the backbone of the clause, but that the order of the adverbial heads is semantically determined. Holmer (2012: 912–4) shows that negation can either precede manner adverbials, which in turn precede duration adverbials, or be preceded by duration adverbials, contra the expected strict ordering for heads. Under his analysis, phrases in the syntactic hierarchy are unlabelled, and ordered by taking account of (a) semantic tendencies across languages (i.e., universality), which determine communicative needs (e.g., assertion vs. presupposition), and scopal possibilities (e.g., C > T), and (b) actual input on which the acquisition is based, which might vary from language to language (i.e., variation). With the unlabelled structure, adjuncts thus are no different from specifiers, and can be eliminated entirely.

The three hypotheses can be distinguished with respect to the syntactic position of adverbials and the factors which determine adverbial order. Syntactic positions for adverbials include adjuncts, specifiers, or head positions in the phrase structure. The order of adverbials may either be free (i.e.,

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1 The distinction is made for different positions in terms of X'-theory. I assume that the positional distinction between specifiers vs. adjuncts is not associated with categorization between arguments vs. adjuncts (i.e.,
determined by semantic factors) or fixed in a universal order of functional projection. (1a–c) illustrates the three hypotheses respectively.

(1) a. The adjunction theory
   - F1
     - Adv1
     - F1
     - Adv2
     - F2
     - F3

b. The F.S. theory
   - IP
     - Adv1
     - IP
     - Adv2
     - AspP
     - Asp
     - vP
     - B
     - C
     - D
     - E

c. The unlabelled structure

I will address both of these criteria (syntactic position and linear order) with respect to the positions of Atayal adverbials in Sections 3–4, and then discuss their orders in Section 5–6.

3 **Adverbials in Atayal**

Since Starosta’s (1988) discussion on adverbials in some Formosan languages, which suggests that they behave like verbs, the phenomenon of “adverbial verbs” has been studied in various other Formosan languages (P. Li 2003 for Thao; Liu 2003 for Amis; Hsiao 2004 for Atayal; Chang 2006 for Kavalan; Holmer 2006 for Seediq; Wu 2006 for Paiwan; C-L. Li 2007 for Puyuma; Su 2008 for Bunun; Chang 2009 for Tosu). These studies claim that “adverbial verbs” are a typological feature of Formosan languages and have attracted further interest in their syntactic structure (e.g., Chang 2010). However, in most studied Formosan languages, adverbials with verbal properties only belong to particular semantic classes—manner and frequency adverbials in particular—while other semantic classes of adverbials do not exhibit these verbal properties. Atayal is no exception to the general phenomenon of “adverbial verbs”, but it is not the case that all adverbials can be accommodated within the same category. Hsiao (2004) proposes that adverbials in Atayal are of two types: predicate-type and adjunct-type. She compares the former with “adverbial verbs” and the latter with adverbs in English. She assumes a four-layer structure of clauses, which is delineated by the syntactic projections VP, VoiceP, Mod/AspP, and CP, as in (2). She argues that the predicate-type adverbials are situated in Layer III, whereas the adjunct-type adverbials are distributed into Layers I, II and IV, depending on their distribution in the clause. She also examines adverbial orders within each layer, and argues that the adverbials conform to the hierarchical order proposed by Cinque (1999).

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2 Example (1c) is from Holmer (2012: 916, #29), where the alphabetical labels represent unordered nodes.
(2) Hierarchy of Atayal adverbials proposed by Hsiao (2004: 78)

Layer I (above Mod-AspP): speaker-oriented adverbials
pragmatic (kal-un=mus balay ‘frankly speaking’) > evaluative (ulung ‘fortunately’)

Layer II (between Mod-AspP and VoiceP): modal-aspectual adverbials
epistemic (ki’a ‘possibly’, si saq sa ‘certainly’ > hazi ‘perhaps, possibly’)

Layer III (between VoiceP and VP): event-related adverbials
frequency > manner

Layer IV (below VP): miscellaneous adverbials

lozi’ ‘again’, balay ‘truly’, lama’ ‘first’, uzi’ ‘also’, na’ ‘still’

However, “adjunct-type adverbial” in her classification is simply a cover term for non-predicate adverbials, and this category is not homogeneous, as will be discussed below. Such adverbials also pose serious problems for the hierarchical analysis. Empirically, some of them are not associated with Hsiao’s predicted layers, as noted by Hsiao herself. For instance, hazi’ ‘perhaps’ in Layer II can follow the verb (Hsiao 2004: 75), which would have been placed in Layer IV according to her analysis. Theoretically, adjuncts are not allowed in Cinque’s hierarchy so if the so-called “adjunct-type” adverbials she defines are actual syntactic adjuncts, they will be counterexamples to Cinque’s hierarchical analysis. In order to fit Atayal’s adverbials into Cinque’s theory, we would need further evidence of distinct functional heads to which they would be specifiers.

Due to the problems of Hsiao’s analysis, I re-investigate the adverbials of Atayal. The adverbials are grouped based on the semantic classifications in Jackendoff (1972), Cinque (1999) and Ernst (2002), as listed below. Atayal data is given in the Appendix.

(3) Semantic classes of adverbials

a. Speaker-oriented:
   (i) *speech-act/pragmatic (frankly, honestly, sincerely);
   (ii) *evaluative (fortunately, happily, luckily);
   (iii) *evidential (clearly, apparently, reportedly)

b. Modal:
   (i) epistemic (perhaps, possibly, certainly);
   (ii) deontic (necessarily, obligatorily);
   (iii) ability (competently, clumsily, capably)

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3 I rename the “predicate-type adverbials/ adverbial verbs” as “event-related adverbials” as they are semantically modifiers of the event denoted by the predicate.

4 Hsiao’s (2004) original label “postverbal adverbials” is confusing because unlike the other labels, it refers to a position-based, rather than meaning-based, grouping, resulting in a mixed classification in the hierarchy (2) (p. c. Matthewson and Hudson). Since the class includes adverbials of varied semantics, I rename it ‘miscellaneous adverbials’ for clarity.

5 Unless otherwise noted, all data in this paper are from my fieldwork.

6 Speech-act, evaluative and evidential adverbials are excluded from the discussion (marked by a star). For the following reasons. Speech-act and evaluative adverbials seem to be periphrastic phrases, which are not conventionalized and always topicalized. For evidential adverbials, si saq sa si qawris sa ‘obviously, apparently (lit. it’s known/clear that…)’ is a combination of three morphemes, the affirmative marker si (Rau 1992), the verb saq ‘know’, and the locative case marker sa; mha ‘reportedly’ only appears in the sentence-final position, which grammaticalized from the verb maha ‘say’ (Huang 2008). Please see the appendix.
c. Subject-oriented: cleverly, reluctantly, intentionally

d. Manner: slowly, loudly, well

e. Aspect-related:
   (i) habitual (usually, habitually, customarily);
   (ii) repetitive/additive (again);
   (iii) aspectual (quickly, earlier, almost, already);
   (iv) frequency (always, sometimes, once, twice, frequently)

f. Emphatic: really, absolutely

g. Focusing: even, only, also, just

h. Location-time/temporal: now, once, at noon, on Friday, tomorrow, last year

This section examines each class according to the five morphosyntactic properties discussed in Change (2006) and Holmer (2006): inflectional morphology, aspectual marking, adverbial placement, clitic attraction, and topicalization. These properties divide the adverbials into three distinct types in (4), in which frequency adverbials can either behave like Type A or Type C, and for two epistemic adverbials, one belongs to Type B and the other belongs to Type C. I will indicate them by a subscript.

(4) Type A: ability, subject-oriented, manner, frequency
Type B: aspectual, habitual, deontic, epistemic
Type C: speech-act, evaluative, epistemic, additive, frequency, emphatic, focusing, temporal

3.1 Voice and mood inflection

Verbs in Atayal always carry a voice affix and a mood affix. The four voice affixes—actor voice (AV), patient voice (PV), locative voice (LV), and beneficiary voice (BV)—agree with the thematic role of the absolutive argument in the sentence. For instance in example (5), (5a) is ungrammatical because the AV prefix on the verb does not agree with the absolutive argument, which is not an agent, whereas (5b) is grammatical because the LV suffix on the verb agrees with the absolutive argument. The mood affixes—declarative, subjunctive, imperative, and dependent mood—depend on the clause type (cf. Rau 1992, Huang 1993). For instance, the dependent mood occurs in the context of negation and the affirmative marker si (Rau 1992), and the form varies with the four voices: zero marker for AV, -i for PV/LV, and -ani for BV (Huang 1995: 280).

(5) a. * wal=nya’ m-ihiy qu yumin.\(^8\)
   PAST=3S.ERG AV-hit ABS PN
   Intended for ‘He hit Yumin.’

\(^7\) Aspectual adverbials include several subclasses of aspect adverbs in Cinque (1999), for example, durative aspect like briefly, celerative aspect like quickly, prospective aspect like imminently, and anterior tense like already. The ‘celerative’ aspect is similar to Ernst’s (2002) ‘aspect-manner’ class like suddenly, abruptly, gradually, and slowly, which is defined to describe a transition from one eventuality to another (Ernst 2002: 85).

\(^8\) Abbreviations: 1=first person; 2=second person; 3=third person; ABS=absolutive; AFF=affirmative; AV=actor voice; CAUS=causative; CMP=complementizer; CONJ=conjunction; DEP=dependent; DIS=distributive; DYM=dynamic; EPI=epistemic; ERG=ergative; FUT=future; G=genitive; GEN=generic;
b. wal=nya’ bhi-an qu yumin.
PAST=3S.ERG hit-LV ABS PN
‘He hit Yumin.’

(6) a. *si=saku’ m-usa’ ngasal la.
AFF=1S.ABS AV-go house PRT
‘I cannot but go home.’

b. si=saku’ usa’ ngasal la.
AFF=1S.ABS go.DEP.AV house PRT
‘I cannot but go home.’

However, with ability, subject-oriented, manner, or frequency adverbials (i.e., type A), the agreeing voice/mood affixes appear on the adverbial, while the verb obligatorily takes the actor voice and the declarative mood. For example, the adverbial pk’yal ‘much, violently, forcefully’ in (7a) takes the PV and the declarative mood (i.e., a fusion of both functions on the marker -un), and the adverbial pknyhu ‘no words’ in (7b) takes the AV and the dependent mood (i.e., zero marker), patterning like the main verb in (5b–6b); in contrast, the verb modified by the adverbial in (7) cannot agree with the absolutive argument and the clause type.

(7) a. wal=nya’ p-k-yal-un m-ihiy/*bhi-an qu yumin.
PAST=3S.ERG DYM-VZR-much-PV AV-hit/hit-LV ABS PN
‘He hit Yumin violently.’

b. si=saku’ p-k-nyhu’ m-usa’/*usa’.
AFF=1S.ABS DYM-VZR-no.words.DEP.AV AV-go/go.DEP.AV
‘I cannot but go without permission.’

Other adverbial classes besides these four do not bear any inflectional morphology, and the modified verb inflects as in normal sentences, as illustrated in (8):

(8) a. nway niq-un na tali qu mami. (deontic)
alright eat-PV ERG PN ABS rice
‘The rice can be eaten by Tali.’

b. hazi’=nya’ ini’ niq-i mami’ qani. (epistemic)
a.little=3S.ERG NEG eat-DEP.PV rice this
‘He probably doesn’t eat this rice.’

3.2 Aspectual marking

Aspectual affixes, which usually fall on verbs, as shown in (9), will shift to a type A adverbial, if one is present. For instance, in (10a), the manner adverbial must take the perfective infix -in-, while
the lexical verb cannot. Once the infix attaches to the verb, as in (10b), or to both the adverbial and the verb, as in (10c), the sentences are ungrammatical.

(9) \( \text{m-<n>ima’ qu kawas la!} \)
\( \text{AV-<PFV>bath ABS PN PRT} \)
‘Kawas took a bath.’

(10) a. \( \text{p<in>k-’iyal-an=maku’ m-ihiy ru maymaw m-usa’} \)
\( \text{DYM<PFV>VZR-much-LV=1S.ERG AV-hit CONJ then AV-go} \)
\( \text{p-qaniq iyu’.} \)
\( \text{CAUS-eat.AV medicine} \)
‘After being hit by me violently, (he) went to be fed medicine.’

b. * \( \text{p<in>k-’iyal-an=maku’ m-<n>ihiy ru …} \)
\( \text{DYM-VZR-much-LV=1S.G AV-hit<PFV> CONJ …} \)

c. * \( \text{p<in>k-’iyal-an=maku’ m-<n>ihiy ru …} \)
\( \text{DYM<PFV>VZR-much-LV=1S.G AV-hit<PFV> CONJ …} \)

The other adverbials cannot host aspectual affixes. As exemplified in (11), the verb is always the bearer of the future prefix.

(11) a. \( \text{obih=saku’ balay p-’agal la.} \)
\( \text{close=1S.ABS truly FUT-take.AV PRT} \)
‘I would almost pass (an exam).’

b. \( \text{p-t’uqu hazi’.} \)
\( \text{FUT-sulk.AV a.little} \)
‘(He) might get mad.’

3.3 Placement

Adverbials differ in whether they have a fixed or flexible position in the clause. Ability, subject-oriented, manner, and frequency\(b\) adverbials (i.e., Type A) always precede the verb that they modify, as shown in (12a–b), and follow the temporal marking if there is an overt one, as shown in (12c–d).\(^9\)

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\(^9\) Temporal interpretation in Atayal is either determined by overt (free/bound) or covert morphemes. For instance, the past tense can be either expressed by the auxiliary \textit{wal} or the perfective affix \textit{-in-}, as in (ia–b), or licensed with a proper context, as in (ii).

(i) a. \( \text{wal m-ima’ qu kawas la!} \)
\( \text{PAST AV-bath ABS PN PRT} \)
‘Kawas took a bath.’
(12) a. baq=saku l<m>ngiq. (ability)
    can.AV=1S.ABS swim<A> <AV>
    ‘I can swim.’

b. (t-)s-pzyang-un=nya’ t<m>qlih yumin. (subject-oriented)
   VZR-VZR-special-PV=3S.ERG tease<A> <AV> PN
   ‘He deliberately teases Yumin.’

c. wal=maku’ p-k-’yal-un m-ihiy hya’ la. (manner)
   PAST=1S.ERG DYM-VZR-much-PV AV-hit 3S.N PRT
   ‘I hit him violently.’

d. si gin-krayryax-I m-ihiy ni rimuy qu tali. (frequency)
   AFF DIS-every.day-DEP.PV AV-hit ERG PN ABS PN
   ‘Rimuy often/frequently hits Tali.’

Aspectual, habitual, deontic, and epistemicB adverbials (i.e., Type B) are also restricted to one position. The aspectual adverbials, including hilaw, nahay ‘quickly, soon, shortly’, obih ‘almost’, rima ‘already’ etc., intervene between the temporal auxiliary and the verb, as in (13a), or precede the verb with an aspectual affix, as in (13b). The habitual adverbial mutuw ‘generally’ and the deontic adverbial nway ‘can, be allowed to’ must precede the verb, but they cannot co-occur with any temporal auxiliaries or aspectual affixes, as shown in (14). The epistemicB adverbial k‘a must precede the verb as well as the temporal auxiliary, as shown in (15).

(13) a. (*rima’) wal=myan rima’ bhg-un (*rima’) qu tlnga=myan. (aspectual)
   (*already) PAST=1P.ERG already set-PV (*already) ABS trap=1P.G
   ‘We’ve already set our trap.’

b. obih p-takuy (*obih) slaq qu tali. (aspectual)
   close FUT.AV-fall (*close) farm ABS PN
   ‘Tali almost falls in farm.’

(14) a. (*musa’) mutuw mlaka kwara’ qbhniq. (habitual)
   (*FUT) GEN fly.AV all bird
   ‘All birds fly.’

b. (*musa’) nway=su’ tlam-an. (deontic)
   (*FUT) alright=2S.ERG taste-LV
   ‘You can taste (this).’

b. m<n>ima’ qu kawas la!
   AV<PFV>bath ABS PN PRT
   ‘Kawas took a bath.’ (Su 2004: 17–18)

(ii) zngat-un ni tali qu qwaw.
   rob-PV ERG PN ABS wine
   ‘Tali robbed the wine.’
(15) ki’a cyux (*ki’a) m-’abi’ ru ini’ qbaq m-wah. (epistemicC)
   EPL.POS PROG (*possibly) AV-sleep CONJ NEG can.DEP.AV AV-come
   ‘He may be sleeping so he can’t come.’

   EpistemicC, additive, frequencyC, emphatic, focusing, and temporal adverbials (i.e., Type C) allow varied positions without changing the meaning. Emphatic and temporal adverbials can appear in any slot of the clause, as shown in (16). The epistemicC adverbial hazi’ is also free everywhere except the sentence-final position, as shown in (17). The additive adverbial lawzi ‘again’ can neither precede the temporal auxiliaries nor be in the final position, as shown in (18). The frequencyC and focusing adverbials are only allowed in postverbal positions except the final slot, as shown in (19).

(16) a. <balay> m-wah <balay> qu tali <balay>. (emphatic)
   <really> AV-come <really> ABS PN <really>
   ‘Tali is really coming.’

   b. <suxan> m-usa’ <suxan> ngasal ni rimuy (temporal)
   <tomorrow> AV-go <tomorrow> house ERG PN
   <suxan> qu temu <suxan>.
   <tomorrow> ABS PN <tomorrow>
   ‘Temu will go to Rimuy’s home tomorrow.’

(17) <hazi> cyux <hazi> m-’abi <hazi> slaq <hazi>. (epistemicC)
   <a.little> PROG <a.little> AV-sleep <a.little> farm <a.little>
   qu huzil <*hazi>.
   ABS dog <*a.little>
   ‘The dog is possibly sleeping in the farm.’

(18) <*lawzi> wal <lawzi> m-agal <lawzi> qnabuw <lawzi> (additive)
   <*again> PAST <*again> AV-take <*again> prize <*again>
   qu yumin <*lawzi>.
   ABS PN <*again>
   ‘Yumin won a prize again.’

(19) a. mutuw <*krayryax> m-’abi <*krayryax> kya’ slaq <*krayryax>.
   GEN <every.day> AV-sleep <every.day> LOC farm<every.day>
   qu tali <*krayryax>.
   ABS PN <*every.day>
   ‘Tali always/often/frequently sleeps in the farm.’

   b. <*uzi> cyux <*uzi> m-’abi <*uzi> slaq <*uzi> (focusing)
   <*also> PROG <*also> AV-sleep <*also> farm <*also>
   qu huzil qasa <*uzi>.
   ABS dog that <*also>
   ‘The dog also sleeps in the farm.’
The distribution of the adverbials can be summarized in (20). The top line represents the order of the temporal marking (I) and verb (V), as well as the ergative/oblique and absolutive DPs. A check mark in a column headed by a long underscore means that the adverbial can occur in this position of the sentence.

(20) Placement of Atayal adverbials

<table>
<thead>
<tr>
<th>Fixed</th>
<th>I</th>
<th>V</th>
<th>DP&lt;sub&gt;ERG/OBL&lt;/sub&gt;</th>
<th>DP&lt;sub&gt;ABS&lt;/sub&gt;</th>
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</tbody>
</table>

- epistemic<sub>B</sub>
- habitual; deontic
- aspectual; ability; manner; sub-oriented; frequency<sub>1</sub>

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- temporal; emphatic
- epistemic<sub>C</sub>
- additive
- frequency<sub>C</sub>
- focusing

3.4 Clitic attraction

Atayal has a set of morphologically free and bound personal pronouns. The set of bound pronouns behaves like syntactic clitics, which cannot stand alone but attach to the first overt c-commanding head such as a verb, negation, or a temporal auxiliary, as shown in (21a–c), respectively:

(21) a. ks’ang-un=maku’ qu tali’.
    scold-PV=1S.ERG ABS PN
    ‘I scolded Tali.’

b. ini’=saku’ kagaw ngasal=maku’.
    NEG=1S.ABS sweep.DEP.AV house=1S.G
    ‘I didn’t sweep my house.’

c. wal=nya’ nbu-un cyugal yuyut qwaw ni tali.
    PAST=3S.ERG drink-PV three bottle wine G PN
    ‘He drank up Tali’s three bottles of wine.’

The bound pronouns, however, cannot attach to the subordinated complementizer maha or the conjunction ru’, as in (22), which suggests that they are clause-bound.

(22) a. k<m>ayal maha(*=saku’) [iyat=saku’ qbaq m-usa’ wah gi].
    <AV>say CMP(*=1S.ABS) NEG=1S.ABS can.DEP.AV AV-go PRT PRT
    ‘(She) says “I can’t go”.’

The check mark under I represents the incompatibility of the adverbials and the temporal marking (cf. (14) above). Further research on the temporal semantics of the adverbials is needed.
b. baq m-t-zyaw qu tali ru’(*=naha’) [qbu’-an=naha’].
can AV-VZR-thing ABS PN CONJ(*=3P.ERG) pay-LV=3P.ERG
‘Tali can work so they pay him.’

Interestingly, preverbal adverbials show a difference in their ability to attract clitics. Type A and B adverbials, which are located in a fixed position, must attract clitics as long as they are the first element in a clause:

\[ \begin{array}{l}
(23) \\
a. ki’a=nya’ wal(*=nya’) kyal-un (mahananu) (epistemicB) \\
EPI.POS=3S.ERG PAST(*=3S.ERG) speak-PV (how) \\
swa m-lux t’uqu. \\
why AV-idle sulk.AV \\
‘He probably was scolded or why did he sulk for no reason?’
\end{array} \]

b. mutuw=nha t’ring-an(*=nha) m-tciriq squ bnkis=ta. (habitual) \\
GEN=3P.G start-LV(*=3P.G) AV-quarrel OBL old=1P.G \\
‘They would result in our elders’ quarrels.’

c. nway=su’ tlam-an(*=su’). (deontic) \\
alright=2s.ERG taste-LV(*=2S.ERG) \\
‘You can taste (this).’

d. obih=saku’ p’-agal(*=saku’) la. (aspectual) \\
close=1S.ABS FUT-take.AV(*=1S.ABS) PRT
‘I almost get it.’

e. baq=saku’ l<m>ngiq(*=saku). (ability) \\
can.AV=1S.ABS swim<AV>(*=1S.ABS) \\
‘I can swim.’

f. p-knyu’-un=maku’ miq(*=maku’) pila yata=mu. (manner) \\
DYM-no.words-PV=1S.ERG give.AV(*=1S.ERG) money aunt=1S.G \\
‘I gave my aunt money without her permission.’

g. (t)-s-pzyang-un=nya’ t<m>qlih(*=nya’) yumin. (subject-oriented) \\
VZR-VZR-special-PV=3S.ERG tease<AV>(*=3S.ERG) PN \\
‘He intentionally teases Yumin.’

h. mn-xal=saku’ m-usa’(*=saku) m-lu yaba’. (frequencyA) \\
AV.DIS-once=1S.ABS AV-go(*=1S.ABS) AV-accompany father \\
‘I went with father once.’

By contrast, Type C adverbials, which allow varied positions, do not attract clitics even if they are the first element. As exemplified in (24), the clitic can only attach to the verb or the auxiliary following each adverbial.\(^{11}\)

\(^{11}\) The additive adverbial lawzi always follows the temporal auxiliaries so it is not listed in (24).
(24) a. suxan(*=maku) gal-un=maku. (temporal) tomorrow(*=1S.ERG) take-PV=1S.ERG ‘I will take (it) tomorrow.’

b. balay(*=su) m-wah= su? (emphatic) truly(*=2S.ABS) AV-come=2S.ABS ‘Do you really come?’

c. hazi’(*=nya’) cyux=nya’ si-an t’tu.12 (epistemic) a.little(*=3S.ERG) PROG=3S.ERG put-LV clamp ‘He is probably placing the trap (there).’

3.5 Topicalization

Topicalization of arguments in Atayal observes the so-called ‘subject/absolutive-only’ requirement, as do other A’-extractions like relativization, cleft-formation and wh-movement (Keenan 1976, 1995, Keenan and Comrie 1977). Only the absolutive-marked argument can be preposed by the topic marker ga:

(25) a. qulih qasa ga, wal niq-un ni tali. fish that TOP PAST eat-PV ERG PN ‘As for that fish, Tali ate it.’

b. * tali ga, wal niq-un qu qulih qasa. PN TOP PAST eat-PV ABS fish that

Adverbials, as non-arguments, are expected to not observe this requirement. However, some adverbials can be topicalized. Specifically, only those which show flexible positions and do not attract clitics, that is, Type C adverbials, can be topicalized, as in (26). Topicalization of the other adverbials is illicit, as exemplified in (27).

(26) a. balay ga, ini’ kzyan nasa hya’. (evaluative) truly TOP NEG like.LV that.way 3S.N ‘In fact, he does not act like that.’13

b. suxan ga m-usa’ sincik qu temu. (temporal) tomorrow TOP AV-go Hsinchu ABS PN ‘Temu will go to Hsinchu tomorrow.’

c. hazi’ ga, ini’=nya’ niq-i mami’ qani. (epistemic) a.little TOP NEG=3S.ERG eat-PV.NEG rice this ‘It seems that he didn’t eat this rice.’

---

12 One consultant allows hazi’ to attract clitics optionally, while for the other consultants, clitics must fall on the first head after hazi’. This might involve dialectal or idiolect difference and needs further work.

13 The emphatic adverbial balay turns into an evaluative adverbial when being topicalized.
d. lawzi ga, bhi-un=nya’ qu huzil qasa. (additive)
   again TOP hit-PV=3S.ERG ABS dog that
   ‘Again, he hits that dog.’

e. kruma’ ga min-sazing ru min-cyugal=nha (frequency_A)
   some TOP DIS.AV-two CONJ DIS.AV=three=3P.G
   cingay qu rhzyal.
   many ABS land
   ‘Sometimes, they cultivate the land two or three times.’

(27) a. * ki’a ga, cyux=nya’ si-an t’tu. (epistemic_B)
   EPL.POS TOP PROG=3S.ERG put-LV clamp
   Intended for ‘Possibly, he is putting the clamp.’

b. * rima’ ga m<n>aniq qu tali (aspectual)
   already TOP <PFV>eat.AV ABS PN
   Intended for ‘Tali ate already.’

c. * (t)-s-pzyang-un ga t<m>qlih=nya’ yumin. (subject-oriented)
   VZR-VZR-special-PV TOP tease<AV>=3S.ERG PN
   Intended for ‘Intentionally, he teases Yumin.’

d. * (si) gin-krayryaxiy ga, m-ihiy ni rimuy qu tali’. (frequency_A)
   (AFF) DIS-every.day. DEP.AV TOP AV-hit ERG PN ABS PN
   Intended for ‘Often/frequently, Rimuy hits Tali.’

To sum up, the five morphosyntactic features under discussion group the adverbials into three
distinct types, as in Table 1. The ability to host inflectional morphology distinguishes Type A from
Types B and C. Type C adverbials exhibit flexible placement, lack the ability to attract clitics, and
can be topicalized. In other words, Type B patterns with Type C with respect to the first three
features but with Type A regarding the last three ones.

<table>
<thead>
<tr>
<th>Section</th>
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<th>Type B</th>
<th>Type C</th>
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</thead>
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<tr>
<td>3.1</td>
<td>Voice/mood affixes</td>
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<td>✗</td>
</tr>
<tr>
<td></td>
<td>AV/declarative on V</td>
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<td>✗</td>
</tr>
<tr>
<td>3.2</td>
<td>Aspectual affixes</td>
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<td>✗</td>
</tr>
<tr>
<td>3.3</td>
<td>Flexible placement</td>
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<td>✗</td>
</tr>
<tr>
<td>3.4</td>
<td>Clitic attraction</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3.5</td>
<td>Topicalization</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

Table 1 Morphosyntax of Atayal adverbials
4 Head vs. non-head position

Given the three hypotheses in Section 2, this section discusses the syntactic position of the three types of adverbials in Atayal. I argue that the lack of topicalization, along with the ability to attract clitics and a fixed distribution, shows that the Type A and B adverbials occupy head positions, in opposition to the Type C adverbials. The inflectional morphology of voice, mood, and aspect is not necessary for heads but only points to their location in the syntactic hierarchy, as will be explained in Section 5.

I have shown that topicalization is only possible for the Type C adverbials. Examples in (28) show that an argument can be topicalized, as shown in (28b), while a verb or an auxiliary can’t, as shown in (28c–d). In this regard, the Type C adverbials pattern like an argument rather than a verb or an auxiliary.

There are two pieces of evidence which show that Type C adverbials have a non-head status. First, Type C adverbials have the ability to topicalize. Topicalization is typically subsumed under wh-movement, which is regarded as XP-movement as opposed to head-movement. Second, Type C adverbials do not realize voice/mood and aspect affixes. The realization of these inflectional affixes on verbs in Atayal is normally explained by head-movement of the verb to the Voice and Asp heads, so the lack of inflectional affixes on Type C adverbials suggests they have not undergone head movement. In contrast, Type A and B adverbials pattern with verbs and auxiliaries in being a head. The fact that Type A adverbials realize inflectional affixes (cf. Section 3.1–3.2) shows that they undergo head-movement. Moreover, the clitic attraction and placement tests consistently separate Types A/B from C in the same manner as the topicalization test, which suggests that the distinction between Types A/B and C is not accidental.14

Hsiao’s (2004) division between predicate-type and adjunct-type adverbials would correctly separate Type A from Types B and C. However, the differences between Types B and C would lack an explanation. Specifically, her analysis requires Type B to be a special subclass of adjuncts which disallows topicalization, attracts clitics, and has a fixed position. However, I have not found any syntactic analysis which can simultaneously incorporate these three properties.

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14 Another potentially useful test is from modification of adverbials, which might differ if the adverbials are in two different positions (p.c. Rochemont). For example, modification might be more restricted for heads than for non-head adverbials. I leave this for future research.
I suggest that the Types A/B and C adverbials in Atayal are categorized along a *head vs. non-head* distinction.\(^{15}\) An immediate question is whether there is any semantic correlation with this categorial distinction. Following Ernst (2002), I suggest that head adverbials are predicational adverbs, while non-head adverbials are functional adverbs. In Ernst’s definition, predicational adverbs possess certain selectional requirements for compositional objects such as events, propositions, and facts, whereas functional adverbs largely involve focus-presupposition structure and/or quantification over events, times, instances, or occurrences etc., so they perform a variety of operations and pose fewer restrictions on their compositional objects. Ernst argues that the different semantics affects their structural positions in English: predicational adverbs correlate with a certain syntactic node, e.g. VP-/IP-adverbs (Jackendoff 1972), and their positions are more restricted, while the functional adverbs are variable in their scope and can occur in a wide variety of positions. In Atayal, the semantic distinction between predicational and functional adverbs is directly encoded in the categorial difference between heads and non-heads. Nevertheless, notice that the epistemic and frequency classes, which can be either instantiated as a head or non-head adverbial, are exceptions to Ernst’s (2002) classification. I regard this semantic distinction as distinct from questions of syntactic categorization and leave these exceptions for future research.

5 **Head adverbials**

This section shows that the head adverbials exhibit a rigid ordering in favor of a structural hierarchy. I propose a head-movement analysis to account for morphological differences among head adverbials (cf. Section 3.1–3.2).

5.1 **Strict ordering**

The position of overt temporal auxiliaries and lexical verbs can diagnose the position of the head adverbials. As discussed in Section 3.3, the aspectual, frequency\(_A\), manner, subject-oriented and ability adverbials follow the temporal auxiliaries and precede the lexical verb; the deontic and habitual adverbials are in complementary distribution with the auxiliaries; and the epistemic\(_B\) adverbials must precede auxiliaries (cf. the summary in (20)). Such patterns constitute three preverbal syntactic zones:

\[(29) \text{Syntactic zones of Atayal clauses} \]

| epistemic\(_B\) | INFL habitual deontic | aspectual ability frequency\(_A\) subject-oriented manner | V DP\(_{OBL/ERG}\) DP\(_{ABS}\) |

Stacking two adverbials can help identify relative orders of the adverbials within or across the zones. The following examples show that adverbials of the different classes are strictly ordered.\(^{16}\) Example (30) shows that frequency\(_A\) adverbials precede subject-oriented adverbials, and example

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\(^{15}\) The distinction is made between different positions (cf. fn. 1), rather than sizes, of adverbials. While head positions are reserved for X\(^0\) adverbials, specifier and adjunct positions are possible for both X\(^0\) (which is also XP itself) and XP adverbials (thanks Wiltschko for pointing this out to me).

\(^{16}\) Adverbials of the same class can be conjoined (cf. Hsiao 2004: 55–56).
(31) shows that subject-oriented adverbials precede manner adverbials. Example (32) shows that frequency adverbials also precede manner adverbials.

(30) **Frequency < subject-oriented**
   a. si gin-krayryax-i m-s-pzyang t<\textless m>qlih ni rimuy
      AFF DIS-every.day-DEP.PV AV-VZR-special bully<AV> ERG PN
      qu tali.
      ABS PN
      ‘Rimuy often/always/frequently deliberately bullies Tali.’
   b. * si (t)-s-pzyang-i min-krayryax t<\textless m>qlih ni rimuy qu tali.
      AFF VZR-VZR-special-DEP.PV DIS.AV-every.day bully<AV> ERG PN ABS PN

(31) **Subject-oriented > manner**
   a. hya qu m-s-pzyang m-ruuw t\textless m>uruw tali.
      3S.N ABS AV-VZR-special AV-hard push<AV> PN
      ‘He deliberately rudely pushed Tali.’
   b. * hya qu m-ruuw (m-)s-p-zyang t\textless m>uruw tali.
      3S.N ABS AV-hard (AV-)VZR-special push<AV> PN

(32) **Frequency > manner**
   a. min-cyugal m-quriq m-usa’ Bnka’ qu tali.
      DIS.AV-three AV-steal AV-go Taipei ABS PN
      ‘Tali went to Taipei stealthily for three times.’
   b. * m-quriq min-cyugal m-usa’ Bnka’ qu tali.
      AV-steal DIS.AV-three AV-go Taipei ABS PN

Moreover, an aspectual adverbial precedes an ability adverbial but not vice versa, as shown in (33).

(33) **Aspectual > ability**
   a. hazi’ rima’ baq (m-)t-lubuw qu rimuy la.
      a.little already can.AV (AV-)VZR-harmonic ABS PN PRT
      ‘Rimuy seems to already be able to play the harmonic.’
   b. * hazi’ baq rima’ (m-)t-lubuw qu rimuy la.
      a.little can.AV already (AV-)VZR-harmonic ABS PN PRT

Regarding modality, the epistemic adverbial ki’a must precede a deontic adverbial:

(34) **Epistemic > deontic**

\[ ki’a \ siki \ m-wah. \]
\[ EPI.POS \have.to.AV\come \]
‘You might have to come.’
Head adverbials therefore occur in a rigid order when stacked. As we saw above, head adverbials also occur in a strict order relative to the auxiliaries and the verb. This body of evidence yields a rigid ordering of adverbials, as listed in (35). The order in (35) shows that Type B adverbials occur before Type A adverbials, where Type A adverbials are the only type of head adverbial which inflects.

(35) Ordering of head adverbials:
epistemicB > deontic(?>) habitual > aspectual > ability(?) > frequencyA > subj.-oriented > manner > V

|--Type B------------------|--Type A (w/ inflectional morphology)--|

5.2 Analysis

I argue that head adverbials host their own projections, which form a syntactic hierarchy, as sketched in (36). Based on the rigid ordering discussed above, I argue that the projections v and Asp are located higher than the Type A adverbials but lower than the Type B adverbials. I assume that vP corresponds to the event boundary denoted by a verb (Chomsky 1995, Kratzer 1996) and determines the voice and mood of an entire clause, while AspP is occupied by the perfective/imperfective affixes.

(36) Syntactic representation of head adverbials

Because they are heads and situated above the verb, the Type A adverbials (frequencyA/subject-oriented/manner) are the closest head to v, so they can move to v and then to Asp, receiving voice, mood and aspectual affixes. This adverbial movement simultaneously blocks the verb from raising to v, as dictated by the Head Movement Constraint (Travis 1984). The head movement and the blocking effect are sketched in (37).

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17 I am short of data for the order of the deontic adverbials and the habitual adverbials, and the order of the ability adverbials and the frequencyA adverbials.

18 Asp must be projected above v but not the other way around (thanks Rochemont for pointing this out to me) because verbs obligatorily carry a voice affix but can be devoid of an aspectual affix (cf. fn. 9), which I take as evidence that verbs obligatorily move to v but optionally to Asp.
This adverbial movement explains why the Type A adverbials bear full-fledged inflection. The adverbials also block movement of the following verb, so that it only has the actor voice and declarative mood but no aspectual affixes. The actor voice and declarative mood can be regarded as the respective default values of the voice and mood inflections. On the other hand, because Type B adverbials merged after v and Asp, they have nothing to do with head movement to v and Asp, which explains why they do not inflect. In short, the morphological difference between the Type A and B adverbials (cf. Sections 3.1–3.2) results from their different merged position in the syntactic hierarchy.

6 Non-head adverbials

Non-head adverbials could be analyzed as adjuncts or specifiers. This section compares these two analyses and suggests that the adjunction analysis better accounts for the flexible placement of the non-head adverbials (cf. Section 3.3) and their overall distribution.

Following Aldridge (2004, 2005), I assume the operations in (38) to derive the auxiliary/verb-initial and the absolutive-final orders (i.e., V(O_{OBJ})S_{ABS}/VS_{ERG}O_{ABS}) of Atayal.

In (38a), the verb obligatorily moves though v to Asp, resulting an auxiliary/verb-initial word order. The absolutive object obligatorily moves out of vP, triggered by EPP on v, to be interpreted...
as specific. As the highest DP in the structure, the absolutive object further moves to the specifier of CP, attracted by EPP on C, accounting for the fact that only absolutive DPs can have access to A’-extractions. This is shown in (38b). At the same time when the absolutive object raises, the remnant IP fronts into another specifier of CP higher than the raised absolutive object, which can be attributed to a constraint preventing a DP in the CP phase edge (cf. Aldridge to appear) or to a [T] feature on C (cf. Aldridge 2004).

6.1 An adjunction analysis

The flexible distribution of non-head adverbials could have one of two different effects on semantics: (a) position change induces scope or meaning difference, and (b) different occurrences have the same meaning. Each of these effects receives a different explanation under a specifier or adjunction analysis. In the functional specifier theory, multiple instances in cases like (a) are analyzed as homophones or an underspecified morpheme with additional properties specific to each instance (Cinque 2004: 692–3). In this view, multiple surface positions must correspond to two (or more) adverbials base-generated in different positions; flexible distribution is only apparent. This analysis, however, cannot explain cases like (b) as multiple occurrences have no meaning difference. Since a specifier relies on some relationship to its head and has a very local position, multiple occurrences of the flexibility like (b) have to be attributed to independently motivated movement of non-adverbial elements.19 By contrast, in the adjunction theory, the flexibility in (a) results from interaction of the adverbial and the material to which it is adjoined, while (b) is possible for the adjunction operation within a proper semantic composition.

In Atayal, it is not the case that every different position of an adverbial corresponds to a different interpretation. For instance, the adverbial lawzi ‘again’ might have a repetitive or restitutive reading but for its repetitive/additive reading, there are three slots that lawzi can occupy, as in (39a). Similarly, the epistemic C adverbial hazi’ allows up to five possible slots, as in (39b).

(39) a. wal <lawzi> m-agal <lawzi> qnabuw <lawzi> qu yumin.  
PAST <again> AV-take <again> prize <again> ABS PN  
(Yumin won a prize several days ago.) ‘Yumin won a prize again.’

b. <hazi’> cyux <hazi’> si-an <hazi’> t’tu <hazi’> ni tali <hazi’>.  
<a.little> PROG <a.little> put-LV <a.little> clamp <a.little> ERG PN <a.little>  
‘Tali is probably placing the trap (there).’

The distribution of non-head adverbials is repeated in (40) from (20) above.

(40) Distribution of non-head adverbials

<table>
<thead>
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<th></th>
<th>I</th>
<th>V</th>
<th>DP</th>
<th>DP abs</th>
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</table>

|   | frequency_C; focusing | additive | epistemic_C | temporal; emphatic |

19 In the functional specifier theory, movement of adverbials is only allowed when a non-inherently focusing adverbial is used as a focusing adverb or when an adverbial is used parenthetically (Cinque 1999: 3–4).
This relatively free distribution can be accounted for by positing free adjunction to the major functional projections in the clause, namely, vP, AspP and IP. The only requirement is that an adverbial must not adjoin beyond the scope that the adverbial takes. The frequencyC/focusing adverbials modify vP so they cannot adjoin to AspP and IP, which are projected above vP. The postverbal variability can be explained by VP-adjunction or scrambling of oblique/ergative DPs. The additive adverbial modifies AspP so it is able to adjoin to AspP and vP but not IP. The epistemicC adverbial modifies IP and can adjoin to any projections below IP. Like the epistemicC adverbial, the temporal/emphatic adverbials also modify IP but they also can occur in sentence-final position. This difference can be attributed to the semantic difference between a proposition and a true proposition discussed in Ernst (2002: 73). The epistemic adverbials require as their objects a proposition whose truth-value is unspecified (because it is taken as unknown by the speaker), while the temporal/emphatic adverbials require a fact whose truth-value is instantiated. I specify the semantic difference as two IP projections (i.e., a higher IP and a lower IP). The adjunction possibilities of each adverbial class include the projections within each dotted line:

(41) An adjunction analysis of non-head adverbials

The linearization of (41) gives two correct predictions. First, since the temporal/emphatic adverbials take the widest scope, they are the only ones which can be stranded behind remnant movement (cf. 38b) so they can appear in sentence-final position. Second, since no classes can adjoin beyond their modification scope, the gradable scope that each adverbial class takes, the order IP > IP > AspP > vP gives the following preverbal adverbial ordering: temporal/emphatic > epistemicC > additive > frequencyC/focusing. As shown in (42a–b), the epistemicC adverbial must precede the additive adverbial but not vice versa. On the contrary, since every class can adjoin to vP and appear postverbally, it is expected that with the same scopal interpretation, the epistemicC and additive adverbials are freely ordered, as in (42c–d).

(42) a. wal haze' lawzi m-agal qnabuw qu tali.
    PAST a.little again AV-take prize ABS PN

b. * wal lawzi haze' m-agal qnabuw qu tali.
    PAST again a.little AV-take prize ABS PN

c. wal m-agal qnabuw haze' lawzi qu tali.
    PAST AV-take prize a.little again ABS PN

6.2 A specifier analysis

In a specifier analysis, the non-head adverbials must be hosted by their semantics-related head. In (43), the frequencyC/focusing, additive and epistemicC adverbials are licensed in the specifier of vP, AspP, and ModP, respectively. Consider now the positional possibility of each adverbial. If remnant movement can either target IP1 or ModP, the temporal/emphatic adverbials can have two possible slots: one is in final position if ModP fronts, and the other is initial position if IP1 fronts. However, with the exception of frequency/focusing adverbials, which only appear in the postverbal domain, the linearization of (43) cannot capture the flexible distribution of any adverbial class, because the specifier of each maximal projection only renders one position, as shown in (44).

(43) A specifier analysis of non-head adverbials

(44) [[IP1 [IP1 Temp/Emp [ModP Epis Mod [IP2 ? I [AspP Additive Asp [vP Freq/Foc ...]]]]]] Temp/Emp]

As mentioned above, moving non-adverbal elements over the target adverbial to different degrees is a potential explanation for adverbials with multiple surface positions. In Atayal, the element which can be moved is the verb or the auxiliary. Take the epistemicC adverbial hazi’, which allows at least four distinct slots, for example. In (45), since the head epistemicC adverbial ki’a is the potential head for licensing hazi’ in its specifier, the first instance of hazi’ can be regarded as the base position.
If *ki’a* raises to a functional projection XP higher than the base position, the second instance of *hazi’* is explained. For the third instance, the one that follows the progressive auxiliary *cyux*, *cyux* must move to another head position YP, intervening between the raised *ki’a* and the base position of *hazi’*.

(46) \[
\text{XP} \quad \text{ki’a} \quad [\text{YP} \quad \text{cyux}_{i} \quad \text{ModP} \quad \text{hazi’} \quad t_{i} \quad [\text{IP} \quad t_{j} \quad \text{AV-sleep} \quad \text{m’abi} \ldots \quad \text{PROG} \quad \text{AV-sleep}]}
\]

For the last instance, the verb must move to another head position ZP, sandwiched between the raised progressive marker and the base position of *hazi’*, in addition to the two movements in (45):

(47) \[
\text{XP} \quad \text{ki’a} \quad [\text{YP} \quad \text{cyux}_{i} \quad [\text{ZP} \quad \text{m’abi}_{k} \quad \text{ModP} \quad \text{hazi’} \quad t_{i} \quad [\text{IP} \quad t_{j} \quad [\text{AspP} \quad t_{j} \quad \ldots \quad \text{AV-sleep} \quad \text{PROG} \quad \text{AV-sleep}]}
\]

However, there is no independent motivation in Atayal for XP, YP and ZP beyond serving as landing sites for the various elements that must be moved over the single based position of *hazi’*. More critically, movement of the progressive auxiliary and the verb in principle violates the Extension Condition (Chomsky 1995) as they tuck in below the XP, to which the head adverbial *ki’a* has already moved. The progressive auxiliary and the verb cannot move first as they will block the movement of *ki’a* (and the verb movement itself will block the movement of the progressive auxiliary) according to the Head Movement Constraint (Travis 1984). The Head Movement Constraint will be also violated if *ki’a* moves to the XP through the YP/ZP, into which the verb/progressive auxiliary moves later.²⁰

## 7 Concluding remarks

I have shown that the adverbials in Atayal comprise three morpho-syntactically distinct groups, which can be further divided into head and non-head adverbials, under a proper assessment of the syntactic features. With respect to their relative orders, I have demonstrated that the head adverbials are strictly ordered, whereas the non-head adverbials are freely distributed within their semantic scope, yielding strict ordering in the preverbal domain but free ordering in the postverbal domain. I have compared an adjunct analysis and a specifier analysis of the non-head adverbials, and suggested that their flexible distribution can be better accounted for by the adjunct analysis. The paper argues that Atayal adverbials are licensed in the two syntactic positions, heads vs. adjuncts. The head adverbials, being rigidly ordered, align with verbal, aspectual, temporal, and modal

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²⁰ Movement by Phase might rescue the violations in question (p.c. Rochemont). The idea is that the three movements in (46) can operate altogether to their target position before the merger of CP. A question for this proposal is why some or all of the operations can be optional, which still needs to be explained.
projections in the syntactic hierarchy, whereas for the non-head adverbials, there is no structural constraint but a semantic requirement on their adjunction site.

Cinque (1999) observes that languages with overt functional heads tend not to exhibit overt adverbials in their specifiers, and vice versa. This is confirmed in Atayal, where non-head adverbials are never accommodated in the specifier positions of the head adverbials. The distributional patterns in Atayal clearly show that the ordering of the two types of adverbials is not determined according to the same restrictions. Note that the head and adjunct adverbials in Atayal do not negate specifiers as a licensing position for adverbials in other languages. If specifier and head adverbials are indeed in complementary distribution, the co-existence of adjunct and head adverbials in Atayal predicts that languages could have specifier and adjunct adverbials. I suggest that heads, specifiers and adjuncts are potential syntactic positions for licensing adverbials in languages, and the ordering effect follows the nature of each syntactic category: heads and specifiers are components of the structural hierarchy and thus give strict orders, as proposed by Cinque (1999, 2004), while adjuncts are subject to semantic, rather than structural, conditions, as proposed by Ernst (2002, 2007). However, the analysis deviates from both theories as head/specifier and adjunct positions are not equally allowed in the two theories. In the adjunction theory, adverbials are all adjoined, while in the functional specifier theory, they are all in specifiers and there is no room for adjuncts. Therefore, this analysis opens a new perspective of adverbial licensing, which suggests that the functional hierarchy theory and the adjunction theory can coexist.

An important question for this proposal is related to the predictability of syntactic categorization. What factors into the realization of an adverbial as a head, a specifier or an adjunct? There are two possible answers from the perspective of Atayal. One possibility is that the semantic classes affect adverbial categorization. There is a tendency for predicational adverbials to be encoded as heads while functional adverbials are encoded as adjuncts in Atayal (cf. Section 4). Predicational adverbials select events or propositions so they tend to associate with a particular syntactic node; functional adverbials employ a variety of operations on specific objects and have less required mapping from the syntactic structure. The other possibility is that inventory of lexical categories in a language might constrain the syntactic positions in which adverbials can appear. Atayal has only verbs and nouns, which might be the reason why head and adjunct adverbials are found, while specifiers as an option are ruled out due to being in complementary distribution with the head adverbials. This issue merits further research.
## Appendix: A semantic classification of adverbials in Atyal

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speaker-oriented</strong></td>
<td></td>
<td></td>
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<tr>
<td>Speech-act</td>
<td><em>pucing ga</em> ‘in the end, finally’; <em>balay ga</em> ‘frankly, honestly’</td>
<td>topics</td>
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<tr>
<td></td>
<td><em>si pinbabaw kmayal ga</em> ‘generally speaking (Lit. ‘speaking from the surface’); <em>si gali sa r’tung kmayal ga</em> ‘briefly speaking’ (Lit. ‘taking the short speaking’)</td>
<td>topocalized periphrastic phrases</td>
</tr>
<tr>
<td>Evaluative</td>
<td><em>nhriq</em> ‘regretfully’; <em>ulung</em> ‘fortunately, luckily’</td>
<td>predicate</td>
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<tr>
<td></td>
<td><em>qutux gu yaqih hya</em> ‘unfortunately’ (Lit. ‘one bad thing is...’); <em>ini’ baqi maha/sa</em> ‘unexpectedly’ (Lit. ‘It’s not known that...’)</td>
<td>topics or periphrastic phrases</td>
</tr>
<tr>
<td>Evidential</td>
<td><em>mha</em> ‘reportedly’</td>
<td>final particle</td>
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<tr>
<td></td>
<td><em>si baqi sa/si qawris sa</em> ‘clearly, apparently, obviously’ (Lit. ‘What is surely known is...’)</td>
<td>periphrastic phrases</td>
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<tr>
<td><strong>Modal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epistemic</td>
<td><em>hazi</em> ‘perhaps, possibly, probably’</td>
<td>type C</td>
</tr>
<tr>
<td></td>
<td><em>ki’a</em> ‘perhaps, possibly, probably’</td>
<td>type B</td>
</tr>
<tr>
<td>Deontic</td>
<td><em>siki</em> ‘must’; <em>nway</em> ‘may, might, can’</td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td><em>baq/qbaq</em> ‘can’; <em>thuyav/thyayun</em> ‘be able to’</td>
<td></td>
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<tr>
<td>Subject-oriented</td>
<td><em>mqas</em> ‘happily’; <em>mqnyat</em> ‘diligently’; <em>mspzyang(t)spzyangun</em> ‘deliberately, intentionally’; <em>si ktuki</em> ‘desperately’</td>
<td></td>
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<tr>
<td>Manner</td>
<td><em>minblaq</em>/’nblayqun* ‘well’; <em>’atu/t’-un</em> ‘carefully’; <em>mtqayqawh</em> ‘hurriedly’; <em>hnawhaw/hawhagun</em> ‘in a low voice’; <em>mhnhw/hnhwagun</em> ‘lightly, gently’; <em>mknhyw</em> ‘slowly’; <em>mk’iyal/pk’ialun</em> ‘violently, with great strength’; <em>mknhyu</em>/pknhyu* ‘secretly, without one’s permission’; <em>mquriq/qriqun</em> ‘stealthily’</td>
<td>type A</td>
</tr>
<tr>
<td><strong>Aspect-related</strong></td>
<td></td>
<td></td>
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<tr>
<td>Habitual</td>
<td><em>yasa</em> ‘habitually’; <em>mutuw</em> ‘generally’</td>
<td></td>
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<tr>
<td>Aspectual</td>
<td><em>rima’/’lima</em> ‘already’; <em>lama</em> ‘first’; <em>obih/obeh</em> ‘almost’; <em>hilaw/helaw</em> ‘quickly, soon’; <em>nahay/nhay</em> ‘immediately’; <em>sikta</em> ‘suddenly’</td>
<td>type B</td>
</tr>
<tr>
<td>Frequency</td>
<td><em>mnxal</em> ‘once, one time’; <em>mincyugal</em> ‘three times’; <em>minkrayryax</em> ‘often, frequently’</td>
<td>type A</td>
</tr>
<tr>
<td></td>
<td>*kruma’ ‘sometime’s; <em>krayryax</em> ‘often, frequently’</td>
<td></td>
</tr>
<tr>
<td>Additive</td>
<td><em>lawzi’/lozi</em> ‘again’</td>
<td>type C</td>
</tr>
<tr>
<td>Emphatic</td>
<td><em>balay</em> ‘truly, really, surely’; <em>nbah</em> ‘rarely, scarcely’</td>
<td></td>
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<tr>
<td>Focusing</td>
<td><em>uzi</em> ‘also, too’; <em>nanak</em> ‘only’</td>
<td></td>
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<tr>
<td>Temporal</td>
<td><em>suxan</em> ‘tomorrow’; <em>kira</em> ‘today, now’; <em>sraral</em> ‘before, previously’; <em>misan</em> ‘just now’; <em>misuw</em> ‘now’</td>
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</tbody>
</table>

## References


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