The aim of this paper is twofold. On the one hand, it gives a systematic description of adverbials in Tsou. On the other, it illustrates how adverbials are syntactically represented and derived in Tsou. Two types of adverbial constructions can be identified. In one type, adverbials are realized as adverbial verbs and situated between a temporal/modal auxiliary and a lexical verb, and they take the prefixes $a-/i'-$ . In the other type, adverbials occur as bound roots and combine with an event-denoting lexical prefix, yielding an adverbial compound. It is argued that adverbial verbs are generated as functional heads above Voice/VP, whereas adverbial compounds are generated as lexical heads under Voice/VP. This analysis accounts for a number of otherwise puzzling asymmetries, including the following: (i) an adverbial compound can stand alone and take nominal arguments but an adverbial verb cannot; (ii) an adverbial compound can be marked for Locative Voice and Referential Voice but an adverbial verb cannot; (iii) the root of an adverbial compound is restricted to event adverbials, but the root of an adverbial verb is free from this restriction; (iv) the prefix of an adverbial compound can be voice-marked, but the prefix of an adverbial verb is invariant; and (v) adverbial verbs must precede adverbial compounds, not the other way around.

1. INTRODUCTION. Unlike Austronesian languages spoken outside of Taiwan, Formosan languages are characterized by adverbial verb construction (AVC), a typologically unusual construction in which adverbials expressing manner, iteration, frequency, and so forth, surface as higher verbs in syntax (H. Chang 2006, forthcoming; Holmer 2006, 2007; among others). As a Formosan language, Tsou is no exception in this
regard. Nonetheless, AVCs in Tsou exhibit a number of distinctive grammatical features and deserve more attention. These features include (i) the occurrence of prefixes that are specific to adverbial verbs; (ii) the existence of adverbial compounds that are comprised of an adverbial (bound) root and an event-denoting prefix; (iii) the voice-marking of the lexical prefix of an adverbial compound; (iv) the duplication of a lexical prefix or a lexical verb that represents the same event as its preceding lexical prefix; and (v) voice concord across adverbial verbs/compounds and lexical verbs. These grammatical features are not only typologically unusual but also theoretically significant. However, there is to date no comprehensive study of these phenomena. This paper aims to fill the gap.

The paper is organized as follows. Section 2 provides a detailed description and classification of adverbial verbs/compounds in Tsou and paves the way for the subsequent discussion. Section 3 classifies Tsou AVCs into two types and examines their syntactic structures and derivations, and in the course of this section the abovementioned grammatical features will be accounted for in a principled manner. Section 4 discusses the typological and theoretical implications of this study and concludes the paper.

Before proceeding, let me briefly introduce Tsou grammar. Like most Western Austronesian languages, Tsou is a verb-initial language. However, Tsou differs from other Western Austronesian languages in that it typically starts a sentence with a temporal/modal auxiliary. The lexical verb either immediately follows the auxiliary or is preceded by another verb. Interestingly, all the verbs in a sequence must agree in their voice marking, giving rise to a voice concord, as will be discussed in detail in section 3.5.1. In what follows, I will take voice-marking as an important diagnostic for verbhood.

2. CLASSIFICATION OF ADVERBIAL VERBS/COMPOUNDS.
Adverbials are a huge and heterogeneous category. A proper classification of adverbials is a prerequisite for any adequate analysis. Cinque (1999) classifies adverbials into two broad categories: adverbials proper versus circumstantial adverbials. Adverbials proper convey adverbial notions such as manner, degree, frequency, speech act, and so forth, whereas circumstantial adverbials represent notions such as place, time, means, company, reason, purpose, and the like. Cinque observes that circumstantial adverbials differ from adverbials proper in the following respects:

![Adverbial Hierarchy](image)

* Based on Cinque 1999

Readers are referred to Zeitoun (2005) for a more detailed description of Tsou grammar.
(1) Cinque (1999:28)
   a. Circumstantial adverbials entertain freer distribution.
   b. Circumstantial adverbials are more tolerable with respect to scope.
   c. Circumstantial adverbials are typically realized as PPs or bare nouns?
   d. Circumstantial adverbials cannot occur preverbally.4
   e. Circumstantial adverbials serve as semantic predicates of underlying events rather than operators.

The circumstantial-noncircumstantial distinction largely holds for adverbials in Tsou, although the way circumstantial adverbials are differentiated from adverbials proper in Tsou is not exactly the same as what Cinque depicts in (1). As will become clear in subsequent sections, adverbials proper are normally realized as higher verbs in Tsou. Thus they allow for voice inflection and have a fixed distribution in the sentence on a par with verbs. In contrast, circumstantial adverbials typically surface as nouns and can be case-marked. Below are a few examples of circumstantial adverbials in Tsou: 5

(2) a. Os' o ait-i to kuyai nehucma taini. (place)
   NAV-1SG see-LV OBL car yesterday 3SG.NOM
   ‘I saw him on a bus yesterday.’

   b. Te-ta uh ne fuengu no taseona. (time)
   IRR-3SG go LOC mountain OBL morning
   ‘He will go to the mountain in the morning.’

   c. Cuma na te-ko papas-a ta f'uf'u? (instrument)
   what NOM IRR-2SG cut-PV OBL knife
   ‘What are you going to cut with a knife?’

   d. Mi-ta-cu o-noyu to la-ta an-a. (reason)
   AV-3SG-COS eat-fat OBL HAB-3SG eat-PV
   ‘He becomes fat because of his (bad) eating habits.’

Given that my main concern is with adverbial verbs, I will focus on adverbials proper in this paper and set aside circumstantial adverbials. In the next section, I will present a variety of adverbials proper in Tsou. My discussion will be guided by the adverbial hierarchy indicated in figure 1, proceeding from low adverbial verbs to high ones.

4. This is subject to language variation, as pointed out by Tang (2001). In Mandarin Chinese, for example, circumstantial adverbials such as locatives typically precede the verb rather than follow it, contra Cinque’s (1999) prediction. Compare:
   (i) MANDARIN CHINESE
      a. Wo zai ta-de jia chi-fan.
         I at he-DE home eat-rice
         ‘I ate rice at his home.’
      b. *Wo chi-fan zai ta-de jia.
         eat-rice at he-DE home
         (Tang 2001:215)

   In spite of this defect, Cinque’s observation on the adverbial proper-circumstantial distinction holds across languages.

5. This paper follows the Leipzig Glossing Rules in glossing examples, with the following additions or exceptions: AV, actor voice; CJ, conjunction; COS, change of state; HAB, habitual; LV, locative voice; NAV, non-actor voice; PV, patient voice; RED, reduplication; RV, referential voice; SUB, subordinator.
2.1 MANNER ADVERBIAL VERBS/COMPOUNDS. Manner adverbials specify the manner in which an action is carried out. Among adverbials, manner adverbials are the most noticeable category that observes the dynamic restriction—they select for dynamic verbs but against stative verbs. Given this connection, manner adverbials are in a better position than other adverbials to derive from verbs. This can be found even in a language like English, where the category of adverbs is robust but adverbial verbs are virtually nonexistent. For example, the manner adverb slowly has a root that can occur as a verb and take an NP as its argument:

(3) a. Economic growth slows in China.
   b. Job losses were beginning to slow.
   c. Helicopters and tanker planes drop retardants to slow the flames.

This verbal propensity of manner adverbials is best illustrated by Formosan examples. Across Formosan languages, manner adverbials are reported to invariantly surface as verbs, while the verbhood of other types of adverbials might vary from one language to another (H. Chang, forthcoming). In this sense, manner adverbial verbs can be regarded as the representatives of adverbial verbs.

Tsou is no exception in this regard. In Tsou, manner adverbials display the properties of verbs—they immediately follow the auxiliary and entertain voice marking. For example:

(4) a. Mi-ta a-u-po-poha’o coeconu
   AV-3SG ADV-u-RED-slow AV walk AV
   ‘He walks slowly.’

b. Te-ko a-u-po-poha’v-a hioa!
   IRR-2SG ADV-u-RED-slow-PV work PV
   ‘You should do your work slowly!’

As shown in (4a–b), the manner adverbial verb appears between the lexical verb and the auxiliary and is marked for Actor voice (AV, a-upo-poha’o) and Patient voice (PV, a-upo-poha’va). The permutation of the manner adverbial verb and the lexical verb will result in ungrammaticality, as indicated below:

(5) a. *Mi-ta coeconu a-u-po-poha’o.
   AV-3SG walk AV ADV-u-RED-slow AV

b. *Te-ko hioa a-u-po-poha’v-a!
   IRR-2SG work PV ADV-u-RED-slow PV

Meanwhile, a manner adverbial root can host lexical prefixes of various types, yielding an adverbial compound. Compare:

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6. Jackson Sun (pers. comm.) observes that manner adverbs can cooccur with verbs that might be identified as stative verbs, e.g., He sat on the chair impatiently and They lived happily ever after. Nonetheless, verbs of posture like sit and verbs of living like live are not typical stative verbs, as evidenced by the fact that they can take progressive aspect, as in He is sitting on the highchair and They are living in New York. Note that progressive aspect is a well-known diagnostic for dynamism.

7. Adverbial verbs behave like functional verbs rather than lexical verbs, as will be demonstrated in 3.2.
ADVERBIAL VERBS AND ADVERBIAL COMPOUNDS IN TSOU

(6) a. Mi-'o  t<m>a-u-po-poha’o  t<m>opsu  to tposu.
   AV-1SG  AV<AV>-u-RED-slow.AV  write  OBL book
   ‘I wrote (a book) slowly.’

b. Os-'o  ta-u-po-poha’v-i  to tposu.
   NAV-1SG  TA<AV>-u-RED-slow-LV  NOM book
   ‘I wrote the book slowly.’

(7) a. Mi-'o  pasu-po-poha’o  (pasunaeno).
   AV-1SG  sing-RED-slow.AV  sing.AV
   ‘I sang slowly.’

b. Os-'o  pasu-po-poha’v-a  (pasunaev-a).
   NAV-1SG  sing-RED-slow-PV  sing-PV
   ‘I sang (the song) slowly.’

In (6a–b), the manner adverbial root takes the lexical prefix ta-, which indicates actions involving either writing or listening. If we want to express the action of singing, the lexical prefix pasu- should be applied, as illustrated in (7a–b). In this regard, the lexical prefix behaves like a verbal classifier. I will return to this issue in 3.3. Note that in the case of the lexical prefix pasu-, the lexical verb is normally left out. Note also that the lexical prefixes tma-/ta- and pasu- can alternate with the prefix av-.

It is noteworthy that some of the manner adverbial roots can stand alone as lexical verbs and take NPs as their argument. Compare:

(8) Poha’o  ’e  Pasuya ho mi-ta yahioa.
   slow.AV  NOM Pasuya  SUB AV-3SG work.AV
   ‘Pasuya is slow at his work.’

In (8), poha’o, which is the root of the adverbial verb aupopoha’o, takes the proper name Pasuya as its subject. It behaves like a stative verb and serves as the main predicate of the sentence, with the lexical verb that describes the event occurring in a subordinate clause.

As noted by Tsai and M. Chang (2003), M. Chang (2004), and Tsai (2007), this neo-Davidsonian syntactic pattern is characteristic of Tsou manner adverbials.9 Here are some more examples of this sort:

8. Taking a view that is slightly different from traditional grammar, Bauer (1988) and Booij (2005) define compounding as the formation of a new lexeme by adjoining two or more lexemes. Along this line of thought, I identify as a compound a morphological complex that comprises a lexical prefix and an adverbial root. Note also that the term “adverbial compound” is widely used in Greek grammar (Rivero 1992).

9. The expression “Neo-Davidsonian syntax” is used in a loose sense in this context. Note that the lexical verb associated with the manner adverbial in (9) occurs in a subordinate clause rather than in a conjunct. The syntactic structure in question is not exactly parallel to what is depicted in Tsai and M. Chang (2003), M. Chang (2004), and Tsai (2007), where manner modification is claimed to involve two syntactic conjuncts. The adjunction status of the ho-clause in (9) is evidenced by the fact that the ho-clause can be fronted to sentence-initial position. For instance, (9c) can be paraphrased as (i):

(i) Ho  mi-ta  poehoe  to  fatu  mi-ta  butaso.
    AV-3SG  push.AV  OBL stone  AV-3SG  forceful.AV
    ‘While pushing the stone, he uses great force.’

This syntax-semantics mismatch (that is, syntactic adjunction despite semantic conjunction) might result from the evolution of coordination into subordination, as advocated in Tsai (2007).
Interestingly, reduplication plays a significant role in the interpretation of adverbial verbs. A reduplicated manner adverbial verb aupopoha’o contrasts with its nonreduplicated counterpart aupoha’o in interpretation: the former is intended for manner reading, whereas the latter indicates the aspectual/temporal reading. Compare:

(10) a. I-ta a-u-po-poha’u-v-a ait-i ’o tposu.
    NAV-3SG ADV-u-RED-slow-PV see-LV NOM book
    ‘He read the book slowly.’

As suggested in the English translations in (10a–b), the reduplicated manner adverbial verb aupopoha’va is predicated of the internal process of the reading event. In contrast, its nonreduplicated version aupoha’va is predicated of the whole event and concerned with the relatively long time elapsed from the start of the reading. It follows that aupoha’va can cooccur with a stative verb like cmo’u ‘be rotten’ and tma’uzo ‘believe’ but aupopoha’va does not have this option:

(11) a. I’o i-si tea-i ci teova ne fuengu,
    TOP NAV-3SG make-LV REL hut LOC mountain
    la a-u-pohapo’o / *a-u-po-pohapo’o cmo’u ho mi-cu noana’o.
    HAB ADV-u-slow / ADV-u-RED-slow rotten SUB AV-COS long.time
    ‘The hut which we built in the mountain will slowly rot as time goes by.’

In English, meaning differences of this sort are usually expressed by means of the distinct distribution of an adverb: an adverb that occurs postverbally indicates pure manner reading, while an adverb in the preverbal position mainly denotes the temporal aspect of the event (Jackendoff 1972, Thomason and Stalnaker 1973, McConnell-Ginet 1982, Cinque 1999, Ernst 2002, among others). Compare:

(12) a. Everyone left slowly. (manner reading)
    b. Slowly, everyone left. (aspectual reading) (McConnel-Ginet 1982:175)
On the other hand, the manner-aspectual distinction can also be expressed in terms of distinct lexical items in Tsou. Compare:

(13) a. Mayahe ho la-ta baito to tposu.
    quick.AV SUB HAB-3SG see.AV OBL book
    ‘He is quick in reading books.’

b. Mi-ta t<m>a-mayahe t<m>opsu.
    AV-3SG TA<AV>-quick <AV>-write
    ‘He is writing quickly.’

(14) a. Te-cu mon’i voocųva ’o engųca.
    IRR-COS soon.AV dark NOM sky
    ‘The sky is going to become dark soon.’

b. Te-ta mon’i-a ta-epųg-i ’e tposu.
    IRR-3SG soon-PV write-finish-LV NOM book
    ‘He will finish writing the book soon.’

(15) a. Mi-cu osni bonų ’o feu’u.
    AV-COS immediately.AV eat.AV NOM pig
    ‘The pigs ate (the food) immediately.’

b. I-he osni-a an-a ’o ’oanų.
    NAV-3PL immediately-PV eat-PV NOM food
    ‘They ate the food immediately.’

In Tsou, the manner reading of ‘quick’ is expressed by the adverbial verb *mayahe*, as in (13), whereas the aspectual reading is conveyed by the adverbial verbs *mon’i*/mon’ia or *osni/osnia*, as in (14–15).

In addition to those presented above, Tsou manner adverbial verbs also include: *aasoye/aasoeza* ‘stealthily’, *aanana’o/aanana’va* ‘diligently/violently’, *aemu/aemu* ‘abruptly/unexpectedly’, *ahaha’o/ahaha’va* ‘carefully’, *ahohum’i/ahohum’a* ‘hurriedly’, *asno’zon/asno’zona* ‘diligently’, *butsa/utasva* ‘violently; with great efforts’, and *bunemealu/bunemeala* ‘skillfully’.

In summary, manner adverbials occur as verbs in Tsou. They have three ways to surface in syntax. First, they can occur between an auxiliary and a lexical verb that describes the event. In this position, they typically take the prefix *a*-.

Second, they can serve as the main predicate of the sentence and take an NP as its argument, with the lexical verb occurring in a subordinate clause. Third, they can occur as a bound root and conflate with a lexical prefix that denotes a specific event or an event type. In the latter two options, the prefix *a*- should be removed from the adverbials. In all three instances, manner adverbials can be marked for voice.

10. A similar pattern seems also to be attested in Mandarin Chinese. Compare:

(i) MANDARIN CHINESE
   a. Ta man-man de zou. (manner reading)
      he RED-slow ADV walk
      ‘He walked slowly.’

   b. Ta hen man (cai) zou. (aspectual reading)
      he very slow CAI walk
      ‘He left late.’ (lit. ‘He slowly walked.’)
2.2 DEGREE ADVERBIAL VERBS/COMPOUNDS. Degree adverbials, which delimit the extent of a state, also occur as verbs in Tsou. They appear after the auxiliary and enjoy voice marking. For example:

\[(16)\] a. Mo \textit{na’no} nac’o ’o Paicu. \\
\quad AV very.AV sad.AV NOM Paicu

‘Paicu is very sad.’

b. I-ta \textit{na’n-a} nac’ov-a ’o Paicu. \\
\quad NAV-3SG very-PV sad-PV NOM Paicu

‘He dislikes Paicu very much.’

As shown in (16a–b), the degree expressions meaning ‘very/very much’ occur between the auxiliary and the lexical verb; they can occur either in AV form (\textit{na’no}) or PV form (\textit{na’na}). Similar patterns can also be found with degree expressions that indicate negative connotation, reduced quantity, and supremeness. For example:

\[(17)\] a. Mi-ta a-ngu kuzo. \\
\quad AV-3SG ADV -excessive.AV bad.AV

‘He is excessively bad.’

b. I-ta a-ng-a kuzo-a ’e Mo’o. \\
\quad NAV-3SG ADV -excessive-PV bad-PV NOM Mo’o

‘He excessively dislikes Mo’o.’ (= ‘He cannot stand Mo’o’.)

\[(18)\] a. Mi-’o a-ke’i m-a’kuvo ho mi-ko o’te cmu ho. \\
\quad AV-1SG ADV -a.little.AV AV-worry SUB AV-2SG NEG come.AV

‘I was a little worried that you did not come.’

b. Os-’o a-ke’-a ta’kuv’-a suu. \\
\quad NAV-1SG ADV -a.little-PV worry-PV 2SG.NOM

‘I was a little worried about you.’

\[(19)\] a. Mi-ta atva’esi umnu. \\
\quad AV-3SG supreme.AV good.AV

‘He is supremely good.’

b. I-ta atva’es-a umnu-a ’e Paicu. \\
\quad NAV-3SG supreme-PV good-PV NOM Paicu

‘He likes Paicu most.’ (lit., ‘He supremely likes Paicu.’)

Another form that is also treated as a degree adverbial verb is \textit{kuici} ‘very/very much’. While \textit{kuici} is fixed in its distribution just like other degree adverbial verbs, it is not marked for voice.\footnote{In Tsou, the position between an auxiliary and a lexical verb is exclusively reserved for (functional) verbs; adjuncts cannot appear in this position. Being fixed in the position between an auxiliary and a lexical verb, \textit{kuici} should be treated as a higher verb.}

\[(20)\] a. Mo \textit{kuici} umnu ’e Pasuya. \\
\quad AV very good.AV NOM Pasuya

‘Pasuya is very good.’

b. I-ta \textit{kuici} umnu-a ’e Pasuya. \\
\quad NAV-3SG very good-PV NOM Pasuya

‘He likes Pasuya very much.’
Meanwhile, it is noteworthy that a few degree adverbial roots can combine with a lexical prefix, along with a stative verb. For example:

(21) a. Mi-ta **pe-e-ngu-zu**.
    AV-3SG drink-e-excessive-much.AV
    ‘He drank to excess.’

    b. Mi-’o **o-e-ngu-zu**.
    AV-1SG eat-e-excessive-much.AV
    ‘I ate to excess.’

As in (21a–b), the compounds comprise three bound morphemes: the bound morpheme -ngu, which is derived from the degree adverbial verb *angu*, the bound root -zu, which is reduced from the verb of quantification *tmuzu*, and the action-denoting prefixes *pe-* and *o-*.

As noted in Tung (1964), Tsuchida (1990), Szakos (1994), Zeitoun (2000), and S. Huang (2002), sophisticated compounding like this is rather common in Tsou. I will keep coming back to this issue throughout the paper.

It should also be noted that, unlike manner adverbial roots, degree adverbial roots do not function as the main predicate of a sentence; specifically, they normally take a lexical verb as their complement. Compare (22) with (8–9):

(22) a. *Mo na’no ’o Paicʉ ho mi-ta nac’o.
    AV very.AV NOM Paicʉ SUB AV-3SG sad.AV
    Intended: ‘Paicʉ is very sad.’

    b. I-ta na’n-a ’o Paicʉ ho i-ta nac’ov-a.
    NAV-3SG very-PV NOM Paicʉ SUB NAV-3SG sad-PV
    Intended: ‘He dislikes Paicʉ very much.’

2.3 ASPECTUAL ADVERBIAL VERBS/COMPOUNDS. By “aspectual adverbial verbs,” I mean adverbial expressions encoding the temporal aspect of an event (e.g., ‘again’, ‘first’, ‘early’, ‘late’, ‘gradually’, and ‘instantly’). As already hinted at in 2.1, all these adverbials surface as higher verbs in Tsou. They follow the auxiliary and allow for voice marking. For example:

(23) a. Mi-ta **i’-vaho** m-imo to emi.
    AV-3SG ADV-again.AV AV-drink OBL wine
    ‘He drank wine again.’

    b. I-ta **i’-vah-a** im-a si emi.
    NAV-3SG ADV-again-PV drink-PV NOM wine
    ‘He drank the wine again.’

Note also that the aspectual adverbial verbs *i’vaho/i’vaha* take the same adverbial prefix *i’-* as a cardinal frequency adverbial verb. The adverbial prefix can alternate with a lexical prefix, giving rise to an adverbial compound:

(24) a. Mi-ta **pe-vaho** to emi.
    AV-3SG drink-again.AV OBL wine
    ‘He drank wine again.’

    b. I-ta **pe-vah-a** si emi.
    NAV-3SG drink-again-PV NOM wine
    ‘He drank the wine again.’
The alternation can also be found with other types of aspectual adverbial verbs. For instance:

(25) a. Os-’o a-kameos-a ait-i ’o tposu.
    NAV-1SG ADV-quick-PV see-LV NOM book
    ‘I quickly read the book.’

b. Os-’o hu-kameos-i ’o tposu.
    NAV-1SG see-quick-LV NOM book
    ‘I took a quick look at the book.’

(26) a. Ta-’u a-usufuna tu-sbuku hotaseona.
    IRR-1SG ADV-early.AV cut-bamboo.shoots morning
    ‘I am going to pick up bamboo shoots early in the morning.’

b. Ta-’u tu-usufuna tu-sbuku hotaseona.12
    IRR-1SG cut-early.AV cut-bamboo.shoots morning
    ‘I am going to pick up bamboo shoots early in the morning.’

Like degree adverbial roots, aspectual adverbial roots cannot occur as the main predicate of a sentence; they must either take a lexical verb as their complement or conflate with a lexical prefix. The patterns observed with manner adverbial verbs in (8–9) are not available for aspectual adverbial roots.

Other aspectual adverbial verbs of this kind include auyu/aueva ‘first’, atavei/ataveya ‘at last’, petohu/yu/petohu ‘finally’, asuhcu/asuhca ‘gradually’, osni/osnia ‘immediately’, and mon’i/mon’ia ‘soon’.

2.4 FREQUENCY ADVERBIAL VERBS/COMPOUNDS. Generally speaking, frequency adverbials can be classified into two types with regard to whether they involve quantificational force (Parsons 1990, de Swart 1993). Quantificational frequency adverbials quantify over the event described by the lexical verb. They are also known as relative or proportional frequency adverbials. Examples of this category include always, usually, often, sometimes, and so forth. On the other hand, cardinal frequency adverbials are not quantificational. They simply denote the times of events; they are also known as absolute frequency adverbials. Examples of this category include once, twice, three times, and so on. Interestingly, the quantificational-cardinal distinction is morphologically distinguished in Tsou. As noted by H. Chang (forthcoming), cardinal frequency adverbial verbs are prefixed with i’, whereas quantificational frequency adverbial verbs are marked with the prefix a-. Compare:

(27) a. Mi-ta-c’o i’-nusk’a baito to tposu.
    AV-3SG-only ADV-once.AV see.AV OBL book
    ‘He read the book only once.’

b. I-ta-c’o i’-nusk-a ait-i ’o tposu.
    NAV-3SG-only ADV-once-PV see-LV NOM book
    ‘He read the book only once.’

12. Vowel harmony occurs in the adverbial compound tuusufuna. The lexical prefix tu- ‘to cut’ becomes tu- because its round vowel /u/ assimilates to the adjacent high mid unrounded vowel /u/ and accordingly changes to /u/.
(28) a. La-ta a-snguc a baito to tposu.
   HAB-3SG ADV-often AV see AV OBL book
   ‘He reads books often.’

b. La-ta a-snguc-a ait-i ’o tposu.
   HAB-3SG ADV-often-PV see-LV NOM book
   ‘He reads the book often.’

In addition, quantificational and cardinal frequency adverbials can also be differentiated in Tsou syntax. First, while cardinal frequency adverbial verbs can pattern with an auxiliary indicating either realis mood, as shown in (27), or habitual aspect, as indicated below in (29), quantificational frequency adverbial verbs typically require a habitual auxiliary, as illustrated above in (28).

(29) a. La-ko i’-popzohu ma’cohio to cono feohu?
   HAB-2SG ADV-how.many.times AV teach AV OBL one month
   ‘How many times do you teach a month?’

b. La-’u i’-sospotu ma’cohio to cono feohu.
   HAB-1SG ADV-four.times AV teach AV OBL one month
   ‘I teach four times a month.’

Second, while cardinal frequency adverbial roots can freely take lexical prefixes, quantificational frequency adverbial roots are much more restricted in this respect. Consider cardinal frequency adverbial verbs first:

(30) a. Mi-ta-e’o buh-nusk to tposu.
   AV-3SG-only see AV-once AV OBL book
   ‘He read the book only once.’

b. Mi-’o-e’o moh-nusk ta Tfuya.
   AV-1SG-only go AV-once AV OBL Tfuya
   ‘I have been to Tfuya only once.’

c. Mi-’o-e’o o-nsohu ta cono hie.
   AV-1SG-only eat-once AV OBL one day
   ‘I ate only once a day.’

d. La-’u-e’o pe-nsohu ta cono hie.
   HAB-1SG-only drink-once AV OBL one day
   ‘I drink only once a day.’

As shown in (30a–d), cardinal frequency adverbial roots can cooccur with a variety of lexical prefixes that indicate events such as seeing, going, eating, and drinking. However, the cooccurrence of quantificational frequency adverbial roots with lexical prefixes is not always acceptable. All the informants I consult reject sentences in which quantificational frequency adverbial roots take the prefixes buh/moh-:

(31) a. *La-ta buh-snguc to tposu.
   AV-3SG see AV-often AV OBL book
   Intended: ‘He reads the book often.’

b. *La-’u moh-snguc ta Tfuya.
   AV-1SG go AV-often AV OBL Tfuya
   Intended: ‘I go to Tfuya often.’
In the meantime, my language consultants debate the grammaticality of the following sentences:

(32) a. ?La-'u o-’asngucu to yosku.
   HAB-1SG eat-often.AV OBL fish
   ‘I eat fish often.’

b. ?La-'u pe-’asngucu.
   HAB-1SG drink-often.AV
   ‘I drink (wine) often.’

I will come back to this discrepancy in 3.2. For the present, it suffices to point out that both quantificational and cardinal frequency adverbials are realized as verbs in Tsou, as shown by the fact that they immediately follow the auxiliary and the fact that they are inflected for voice.

Other quantificational frequency adverbial verbs that behave like asngucu ‘often’ include aacni/aacnia ‘always’, aasvh/aasvhta ‘occasionally’, aahtu/aahta ‘sometimes’, conino ‘usually’, and ‘aoko ‘all the time; continuously’.

Before ending this section, I would like to note that quantificational frequency adverbial verbs are presumably derived from lexical stative verbs. The quantificational frequency adverbial verb asngucu ‘often/continually’ is very likely to be derived from snungcu ‘straight’:

(33) Mo snungcu ’e kaapana.
   AV straight.AV NOM bamboo
   ‘The bamboo is straight.’

As a lexical stative verb, snungcu can freely take a lexical prefix, as opposed to its adverbial counterpart asngucu. Compare (32) with (34):

(34) Os-’o ti-sngucv-a ’o memeno.
   NAV-1SG TI-straight-PV NOM wire
   ‘I straightened the wire with my hands.’

Likewise, aahtu ‘sometimes/occasionally’ might come from ahtu ‘interval’, as in o-ahtu (eat-interval) ‘eat lunch’; conino ‘usually’ and aacni ‘always’ might be based on coni ‘one’. With this analytic knowledge in mind, the pairing between form and meaning will become more transparent.

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13. As noted in Pan (2007), temporal expressions such as huhucmasi/huhucmasa ‘every day’ also surface as verbs in Tsou. See the examples below, in which AF and PF represent Actor Focus and Patient Focus, respectively.

(i) La-ta hu-hucmasi etamaku.
   ASP-3SG RED-the.next.day.AF smoke.AF
   ‘He smokes every day.’

(ii) La-si hu-hucmas-a etamaku-a ’e tamaku.
    ASP-3SG RED-the.next.day-PF smoke-PF NOM cigarette
    ‘Cigarettes, he smokes every day.’ (Pan 2007:168, cited from Zeitoun 1992:19)

Pan identifies huhucmasi/huhucmasa as verbs of frequency. While Pan’s analysis of huhucmasi/huhucmasa as verbs is correct, his classification of them into frequency adverbials deserves more elaboration. After all, huhucmasi/huhucmasa are of a temporal nature rather frequency-denoting. I leave this for further research.
2.5 EPISTEMIC ADVERBIAL VERBS. As opposed to the event modifiers mentioned above, epistemic adverbials describe the possibility of a proposition; they are known as sentence modifiers in the literature (Jackendoff 1972, Thomason and Stalnaker 1973, Parsons 1990, Ernst 2002). Epistemic adverbials appear relatively high in the sentence; they are ruled out sentence-finally in English (Jackendoff 1972, Thomason and Stalnaker 1973).

In the Formosan literature, epistemic adverbials are reported to occur sentence-initially and to foreshadow voice inflection (Wu 2004, Hsiao 2004, H. Chang 2006, Su 2008). However, this is not the case in Tsou. In Tsou, epistemic adverbials are sandwiched by an auxiliary and a lexical verb and marked for voice just like other types of adverbials. Compare:

(35) a. Te a-sonu mu chu maitan’e.
   IRR ADV-easy.AV rain.AV today
   ‘It will possibly rain today.’

b. Te-ta a-sonu cmu’ho hohucma.
   IRR-3SG ADV-easy.AV come.AV tomorrow
   ‘He will possibly come tomorrow.’

c. Mi-ta a-sonu m-imo to emi nesoni.
   IRR-3SG ADV-easy.AV AV-drink OBL wine just.now
   ‘He possibly drank wine just now.’

d. I-ta a-son-a im-a ’o emi nesoni.
   IRR-3SG ADV-easy-PV drink-PV NOM wine just.now
   ‘He possibly drank the wine just now.’

Note that the reduplication of an epistemic adverbial verb will increase its possibility. Consider the reduplicated version of sentences (36a–b):

(36) a. Te a-so-sonu mu chu maitan’e.
   IRR ADV-RED-easy.AV rain.AV today
   ‘It will probably rain today.’

b. Te-ta a-so-sonu cmu’ho hohucma.
   IRR-3SG ADV-RED-easy.AV come.AV tomorrow
   ‘He will probably come tomorrow.’

As suggested by the translations, the CV reduplication of asonu changes its meaning from ‘possibly’ to ‘probably’.

In addition, unlike the event adverbials discussed above, epistemic adverbial verbs do not take lexical prefixes. They will be intended for something else once they host a lexical prefix. Compare:

(37) a. I-ta a-son-a an-a ’o yosku.
   NAV-3SG ADV-easy-PV eat-PV NOM fish
   ‘He possibly ate the fish.’

b. *I-ta o-son-a ’o yosku.
   NAV-3SG eat-easy-PV NOM fish
   Intended: ‘He possibly ate the fish.’

(38) a. Te-to pe-son-a!
   IRR-1PL drink-easy-PV
   ‘Let’s bottom up!’
As shown in the contrast in (37a–b), the epistemic adverbial verb is not allowed to take a lexical prefix; to convey epistemic meaning, Tsou has to resort to the typical AVC, that is, an adverbial verb taking a lexical verb as its complement. With a lexical prefix, the adverbial will shift from epistemic reading to manner reading (asonu mimo ‘possibly drink’ versus pesona ‘bottom up’). The meaning shift is expected, given that there is a restriction on the application of lexical prefixes, as will be discussed in detail in 3.3, and that the epistemic adverbial verb asonu ‘possibly’ might be derived from the stative verb sonu ‘easy’. Consider:

(39) Mo sonu ho os-’o hioa ’e mo maica.
    NAV easy.AV SUB NAV-3SG work.PV NOM AV like.this
    ‘Work like this is easy for me.’

Meanwhile, it should be noted that adverbial verbs of this category might be polysemous—they might have different senses, depending upon the contexts where they appear. For example:

(40) Ho mo mo-kua’onga ’e enguca, te a-sansanno mühcu.
    SUB AV MO-black NOM sky IRR ADV-sure.AV rain.AV
    ‘When the sky becomes black, it will surely rain.’

(41) a. Te-’o a-sansanno maine’e hohucma.
    IRR-1SG ADV-sure.AV come.home tomorrow
    ‘I must come home tomorrow.’ (lit. ‘I will surely come home tomorrow.’)

b. Te-’o a-sansanno mayo to tposu.
    IRR-1SG ADV-sure.AV take.AV OBL book
    ‘I must take the book.’ (lit. ‘I will surely take the book.’)

In (40), asansanno conveys the probability of it raining. In contrast, it commits the speaker to the action of returning in (41a) and taking the book in (41b). Only in the deontic/lexical sense can the adverbial verb take an NP as its argument and combine with a lexical prefix. Consider:

(42) a. Os-’o a-sansann-a ’o la-ta hioa ta Pasuya.
    NAV-1SG ADV-sure-PV NOM HAB-3SG do.PV GEN Pasuya
    ‘I know for sure what Pasuya does.’

b. Os-’o a-sansann-a na eni.
    NAV-1SG ADV-sure-PV NOM this
    ‘I am sure of this.’

(43) a. Te-ko tu-sansann-i ’o Mo’o.
    IRR-2SG ask-sure-LV NOM Mo’o
    ‘You should double-check with Mo’o.’

b. Te-ko tu-sansann-a na eni.
    IRR-2SG ask-sure-PV NOM this
    ‘You should check this.’
I will return to the constraint on lexical prefixation in 3.3.

2.6 EMPHATIC ADVERBIAL VERBS. As noted by Ernst (2002), emphatic adverbials are not very selective as to their modifiees. They can modify various things, ranging from a simple event to an entire proposition; their distribution varies with that of their modifiees. Take English emphatic adverb really for example:

(44) a. Tim really could have been taking the loss hard.
   b. Tim could really have been taking the loss hard.
   c. Tim could have really been taking the loss hard.
   d. Tim could have been really taking the loss hard.  (Ernst 2002:353)

In Tsou, emphatic adverbial verbs are realized as higher verbs like other types of adverbials, and they are restricted to preverbal positions and inflected for voice. Consider:

(45) a. Mi-ta a’umtu o-asoye ta kamcia.
    AV-3SG ADV true.AV eat-stealthily.AV OBL candy
    ‘He really ate candy stealthily.’
   b. Te-ko a’umt-a phi-a-neni no fou fuzu?
    IRR-2SG ADV true-PV buy-PV RV OBL meat boar
    ‘Will you really buy boar meat for me?’

Still, emphatic adverbial verbs in Tsou can create various scopes of modification, as suggested in their eligibility in taking lexical prefixes. Emphatic adverbial verbs will be intended for modifying an event/object if they host a lexical prefix; they are not eligible for taking lexical prefixes on a propositional reading. Compare:

(46) a. Te-’o-cu o-u-’umtu ta naveu.
    IRR-1SG-COS eat-u-true.AV OBL rice
    ‘I will have a real meal.’ or ‘I will have a meal regularly.’
    # ‘I will really eat rice.’
   b. Te-’o-cu o-u-’umt-a ’e naveu.
    IRR-1SG-COS eat-u-true-PV NOM rice
    ‘I will have the real meal.’
    # ‘I will really eat the rice.’

In (46a–b), the adverbial compound ou’umtu/ou’umta is meant to emphasize the quality of the object or the manner in which the action is performed rather than the truth of the proposition. In this reading, the emphatic adverbial verbs behave like manner adverbial verbs and scope over a process rather than a proposition, as opposed to their propositional counterparts shown in (45a–b).

Like epistemic adverbial verbs, emphatic adverbial verbs might be derived from stative lexical verbs, as implied by the fact that they can occur as a syntactic predicate and take an NP argument:

(47) Zou a’umtu?
    is true
    ‘Is this true?’

Accordingly, it is not surprising that emphatic adverbial verbs can obtain the manner reading.
2.7 EVALUATIVE ADVERBIAL VERBS. Evaluative adverbials convey the speaker’s evaluative attitudes toward a proposition and are also known as speaker-oriented adverbials. They usually scope over other adverbs, quantifiers, and negators, and appear rather high in the sentence. Compare:

(48) a. Fortunately, Jim did not remove his shoes.
    b. *Jim did not fortunately remove his shoes. (Ernst 2002:323)

However, evaluative adverbials must follow a temporal/modal auxiliary in Tsou. Compare:

(49) a. Mi-’o a-bohtu bona netaseona,
    AV-1SG ADV-careless.AV eat.AV morning
    ko’ko o’a mocu mi-’o sieo.
    therefore NEG yet AV-1SG hungry
    ‘Fortunately, I ate something in the morning; therefore, I am not hungry now.’
    b. Os-’o-cu a-boht-a a-uev-a p’an-i ’o teo’ua.
    NAV-1SG ADV-careless-PV ADV-first-PV feed-LV NOM chicken
    ‘Fortunately, I fed the chicken(s) first.’

As shown in (49), the evaluative adverbials abohtu/abohta are preceded by the auxiliary mi/os- and inflected for AV and PV. It is very likely that the evaluative adverbial surfaces as a higher verb in Tsou.

Still, there are some clues that suggest that an evaluative adverbial verb appears relatively high in Tsou syntax. First, as shown in (49b), the evaluative adverbial verb must precede the aspectual adverbial verb; the reverse order is not allowed:

(50) *Os-’o-cu a-uev-a a-boht-a p’an-i ’o teo’ua.
    NAV-1SG-COS A-first-PV ADV-careless-PV feed-LV NOM chicken

Second, the evaluative adverbial verb cannot take a lexical prefix in its clausal reading. The combination is possible only if the adverbial root is intended for manner reading. Compare:

(51) a. Mi-ta-c’o e-bohtu.
    AV-3SG-only say-careless.AV
    ‘He just spoke carelessly (but happened to be correct).’
    # ‘Fortunately, he spoke out.’
    b. I-ta-c’o e-boht-a ’e seiso no Cou.
    NAV-3SG-only say-careless-PV NOM bible GEN Tsou
    ‘He only read the Tsou bible carelessly (but happened to be correct).’
    # ‘Fortunately, he only read the Tsou bible.’

(52) a. La-ta pasu-bohtu ho la-ta pasu-Mayasvi.
    HAB-3SG sing-careless.AV SUB HAB-3SG song-Mayasvi
    ‘He sang the songs of Mayasvi carelessly (but happened to be correct).’
    # ‘Fortunately, he sang the songs of Mayasvi.’
    b. I-ta pasu-boht-a ’o pasu-Mayasvi.
    NAV-3SG sing-careless-PV NOM song-Mayasvi
    ‘He sang the songs of Mayasvi carelessly (but happened to be correct).’
    # ‘Fortunately, he sang the songs of Mayasvi.’
As shown in (51–52), the adverbial compounds ebohtu/ebohta and pasubohtu/pasubohta express the manner in which the actions are carried out instead of the speaker’s positive attitude toward a proposition. This suggests that the evaluative clausal reading is not eligible for lexical prefixation.

2.8 SUMMARY: OBSERVATIONS AND GENERALIZATIONS. In the preceding sections, I have shown that adverbials of various types, ranging from low adverbials such as manner adverbials to high adverbials such as evaluative adverbials, occur as higher verbs in Tsou; they immediately follow the auxiliary and can bear voice marking. In addition, I have also demonstrated that (i) Tsou adverbial verbs usually take the prefix a-, as summarized in table 1, and that a- can alternate with a lexical prefix in certain circumstances; in some instances, the lexical prefix may find a doubling lexical prefix or a lexical verb of the same event type down the tree; (ii) a lexical prefix is sensitive to adverbial type; (iii) an adverbial verb and the following lexical verb are required to agree in their voice marking; (iv) unlike a lexical verb, an adverbial verb is defective in its voice marking. In the next section, I will examine these grammatical properties more closely and attempt to sort out their restrictions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
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<tbody>
<tr>
<td>MANNER</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-anana’o/a-anana’va ‘diligently/violently’;</td>
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<tr>
<td></td>
<td>a-asoye/a-asoeza ‘stealthily’;</td>
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<tr>
<td></td>
<td>a-emnina/emnina’va ‘abruptly/unexpectedly’;</td>
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<tr>
<td></td>
<td>a-ha’a/ha’va ‘suddenly/unexpectedly’;</td>
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<td></td>
<td>a-huhum/i’/a-huhum a ‘hurriedly’;</td>
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<td></td>
<td>a-mayah/e/a-mayah ‘quickly’; a-sno’zona/a-sno’zona ‘delightfully’;</td>
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<td></td>
<td>a-upopoha’a/a-upopoha’va ‘slowly’</td>
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<tr>
<td>without a-</td>
<td>butaso/utasva ‘violently; with great efforts’;</td>
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<tr>
<td></td>
<td>bumemealu/bumemeala ‘skilfully’</td>
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<tr>
<td>DEGREE</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-ke’i/ke’a ‘a little’; a-ngu/a-nga ‘extremely; overly’;</td>
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<td></td>
<td>a-tva’esi/a-tva’esa supremely’</td>
</tr>
<tr>
<td>without a-</td>
<td>kiici ‘very’; na’no/na’na ‘very’</td>
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<tr>
<td>ASPECTUAL</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-kameosa ‘quickly’; a-suhcu/a-suhca ‘gradually’; a-tavei/a-taveya ‘at last’;</td>
</tr>
<tr>
<td></td>
<td>a-uyu/a-ueba ‘first’; a-nesi/a-nesa ‘early’</td>
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<tr>
<td>without a-</td>
<td>i’-vaho/i’-vaha ‘again’; mon’i/mon’i’a ‘soon’;</td>
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<td></td>
<td>osni/osnia ‘immediately’; petohwa/petohya ‘finally’</td>
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<tr>
<td>FREQUENCY</td>
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<tr>
<td>with a-</td>
<td>a-acni/a-acnia ‘always’; a-ahua/a-ahtu ‘sometimes’;</td>
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<tr>
<td></td>
<td>a-asvudo/a-asvudo ‘occasionally’; a-oku ‘all the time’;</td>
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<td></td>
<td>a-sngu’a-sngu’a ‘often’</td>
</tr>
<tr>
<td>without a-</td>
<td>conino ‘usually’; i’-musku/i’-muska ‘once’; i’-sospo’tu ‘four times’</td>
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<tr>
<td>EPISTEMIC</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-sansanno ‘surely’; a-som/a-sona ‘possibly’;</td>
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<tr>
<td></td>
<td>a-sosonna/a-sosona ‘probably’</td>
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<tr>
<td>without a-</td>
<td>(unattested)</td>
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<tr>
<td>EMPHATIC</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-’ummtu/a-’umta ‘really’</td>
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<tr>
<td>without a-</td>
<td>(unattested)</td>
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<tr>
<td>EVALUATIVE</td>
<td></td>
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<tr>
<td>with a-</td>
<td>a-bohtu/a-bohta ‘fortunately’</td>
</tr>
<tr>
<td>without a-</td>
<td>(unattested)</td>
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</table>
3. SYNTAX OF AVCS

3.1 SYNTACTIC CLASSIFICATION OF AVCS. On the basis of the above data, two broad types of Adverbial Verb Construction (AVC) can be distinguished in Tsou. The first type is a typical AVC, hereafter referred to as TAVC. TAVCs are pervasive across Formosan languages, as illustrated in previous studies (see Liu 2003 for Amis, Hsiao 2004 for Atayal, Wu 2004 for Paiwan, H. Chang 2006 for Kavalan, Holmer 2006 for Seediq, Su 2008 for Bunun). H. Chang (forthcoming) labels languages that exhibit TAVCs as the Kavalan-type on the grounds that TAVCs are predominant in Kavalan, and that other types of AVCs are virtually nonexistent in the language. In TAVCs, the adverbial verb take a lexical verb as its complement, as shown in (35c–d), repeated below as (53a–b):

(53) a. Mi-ta a-sonu m-imo to emi nesoni.
   IRR-3SG ADV-easy AV -drink OBL wine just.now
   ‘He possibly drank wine just now.’

b. I-ta a-son-a im-a ’o emi nesoni.
   IRR-3SG ADV-easy-PV drink-PV NOM wine just.now
   ‘He possibly drank the wine just now.’

The second type involves an adverbial root in combination with a lexical prefix of various kinds, as repeatedly mentioned in the preceding sections. In this type, the adverbial concept is expressed by a (bound) root, which conflates with an event-denoting prefix. This type can be further classified into two subtypes with respect to whether the resulting adverbial compound occurs as the main predicate of the sentence. Consider the main predicate usage first; for convenience of exposition, I will refer to this subtype as Lexically Prefixed Adverbial Verb Constructions (LPAVCs); example (54) repeats (24), and (55) repeats (52a):

(54) a. Mi-ta pe-vaho to emi.
   AV-3SG drink-again AV OBL wine
   ‘He drank wine again.’

b. I-ta pe-vah-a si emi.
   NAV-3SG drink-again-PV NOM wine
   ‘He drank the wine again.’

(55) La-ta pasu-bohtu ho la-ta pasu-Mayasvi.
   HAB-3SG sing-careless AV SUB HAB-3SG song-Mayasvi
   ‘He sang the songs of Mayasvi carelessly (but happened to be correct).’

On the other hand, an adverbial compound may occur as a higher verb, taking as its complement a lexical verb or another lexically prefixed compound that denotes the same event type as its prefixal antecedent, as shown in (6a) and (26b), repeated below as (56) and (57), respectively:

(56) Mi-o t<^m> a-u-po-poha’o t<^m> oPH to tposH.
   AV-1SG TA<AV>-u-RED-slow AV <AV>-write OBL book
   ‘I wrote (a book) slowly.’
(57) Ta-’u tu-usufungnu tu-sbuku hotaseona.
IRR-1SG cut-early.AV cut-bamboo.shoots morning
‘I am going to pick up bamboo shoots early in the morning.’

Phenomena like these are dubbed as Prefix Harmony by Tsuchida (2000), labeled as Anticipating Sequence phenomena by Adelaar (2004), and referred to as Prefix Concord by Li (2009). In this paper, I would simply adopt Li’s terminology and label the phenomenon in question as Prefix Concord (PC) and refer to the adverbial verb construction involving PC as PCAVC.

Note that there is still another type of construction that was mentioned from time to time in the preceding sections but is not included in the current categorization. The construction involves what is called Neo-Davidsonian syntax and is referred to as NDAVC in this paper. In NDAVCs, the “adverbial” root serves the function of a lexical verb and occurs as the main predicate of the sentence, as illustrated in (8) and (13a), repeated here as (58) and (59), respectively:

(58) Poha’o ’e Pasuya ho mi-ta yahioa.
slow.AV NOM Pasuya SUB AV-3SG work.AV
‘Pasuya is slow at his work.’

(59) Mayahe ho la-ta bairo to tposu.
quick.AV SUB HAB-3SG see.AV OBL book
‘He is quick in reading books.’

In NDAVCs, the “adverbial” roots are intended for predication rather than modification; they occur as lexical heads rather than functional heads. In this usage, they do not function as adverbials at all. To be concise and coherent, this study will set aside NDAVCs.

With this delimitation in mind, let us move on to examine the syntax of TA VCs, LPAVCs, and PCAVCs.

3.2 SYNTAX OF TA VCS. In the traditional X-bar theory, adverbials are analyzed as adjuncts, which are adjoined to either X0, X′, or XP. Cinque (1999), however, argues for an unconventional structure of adverbs, in which adverbs proper are argued to occur either as functional heads or as specifiers of functional heads, as indicated in the following quotation: “my suggestion is that adverbs are the overt manifestation of (the specifiers of) different functional projections, that in certain languages also manifest themselves via overt material in the corresponding head positions” (Cinque 1999:vi).

Following Cinque’s line of thought, Holmer (2006) treats adverbial verbs in Seediq as functional heads. The Tsou data presented in the preceding sections are in line with Holmer’s analysis. Note that an adverbial verb behaves grammatically like a functional verb rather than a lexical verb in Tsou. First, like a functional verb, an adverbial verb cannot stand alone without the support of a lexical verb. Thus, the AVCs presented in section 2 will become ungrammatical if their lexical verbs are left out. Compare:

(60) cf. (4)

a. *Mi-ta a-u-po-poha’o.
AV-3SG ADV-u-RED-slow.AV

IRR-2SG ADV-u-RED-slow-PV
Second, an adverbial verb is voice-marked in the same way as an auxiliary—both an adverbial verb and an auxiliary exhibit the two-way basic voice distinction, whereas a lexical verb can entertain up to four types of voice-marking. This morphological asymmetry is best illustrated by an AVC involving ditransitive verbs. For example:

\[(64) \begin{align*}
\text{a. } & \text{Mo } \text{asonu } \text{mo-si } \text{ta } \text{pangka } \text{to } \text{emi } \text{’o } \text{amo}. \\
& \text{AV } \text{possibly.AV } \text{AV-put } \text{OBL } \text{table } \text{OBL } \text{wine } \text{NOM } \text{father} \\
& \text{’Father possibly put wine on the table.’} \\
\text{b. } & \text{I-si } \text{ason-a } \text{si-a } \text{ta } \text{pangka } \text{to } \text{amo } \text{’o } \text{emi}. \\
& \text{NAV-3SG } \text{possibly-NAV } \text{put-PV } \text{OBL } \text{table } \text{GEN } \text{father } \text{NOM } \text{wine} \\
& \text{’Father possibly put the wine on the table.’} \\
\text{c. } & \text{I-si } \text{ason-a } \text{si-i } \text{ta } \text{amo } \text{ta } \text{emi } \text{’o } \text{pangka}. \\
& \text{NAV-3SG } \text{possibly-NAV } \text{put-LV } \text{GEN } \text{father } \text{OBL } \text{wine } \text{NOM } \text{table} \\
& \text{’Father possibly put the wine on the table.’} \\
\text{d. } & \text{I-si } \text{ason-a } \text{si-eni } \text{ta } \text{emi } \text{ta } \text{amo}. \\
& \text{NAV-3SG } \text{possibly-NAV } \text{put-RV } \text{OBL } \text{wine } \text{GEN } \text{father} \\
& \text{’Father possibly put the wine for him.’} (Based on Zeitoun 2000:93–94)
\end{align*}\]

As illustrated in (64), the adverbial verb occurs either in AV form (asonu) or PV form (asona), while the lexical verb can appear in AV, PV, LV, and RV forms. In other words, the voice-marking of the adverbial verb is dichotomous. If the PV suffix marked on the adverbial verb is understood as a broad NAV marking, the voice-marking of the adverbial verb will be fully parallel to that of the auxiliary.

The grammatical properties demonstrated above indicate that an adverbial verb should appear as a functional head. The next question is: Where, exactly, is it placed in the phrase structure? I suggest that an adverbial verb is situated between the tense head and the voice head, given the fact that it consistently occurs between an auxiliary and a lexical verb. In this analysis, example (64c) can be structurally represented as figure 2, with the irrelevant details put aside.

As demonstrated in figure 2, an adverbial verb is generated above the VoiceP and the ApplP. This accounts for its ineligibility for taking LV and RV affixes, which are believed

**FIGURE 2. PHRASE STRUCTURE OF TAVCs: (64c), FOR EXAMPLE**

![Phrase Structure Diagram](image)

### 3.3 SYNTAX OF LPAVCS/PCAVCs. In LPAVCs, an adverbial root and a lexical prefix form an adverbial compound, with the lexical prefix denoting an event and the adverbial root describing the property of the event. An adverbial compound contrasts sharply with an adverbial verb in grammatical behaviors. I have shown above that an adverbial verb should be identified as a functional head. In contrast, an adverbial compound should be treated as a lexical head. The analysis is based on the following facts.

First, an adverbial compound is able to stand alone and take nominal arguments. Consider (65), which repeats (24), and (66), which repeats (30):

(65) a. **Mi-ta pe-vaho to emi.**
   _AV-3SG drink-again.AV OBL wine_
   ‘He drank wine again.’

b. **I-ta pe-vah-a si emi.**
   _NAV-3SG drink-again-PV NOM wine_
   ‘He drank the wine again.’

(66) a. **Mi-ta-c’o buh-nsku to tposu.**
   _AV-3SG-only see.AV-once.AV OBL book_
   ‘He read the book only once.’

b. **Mi-’o-c’o moh-nsku ta Tfuya.**
   _AV-1SG-only go.AV-once.AV OBL Tfuya_
   ‘I have been to Tfuya only once.’

c. **Mi-’o-c’o o-nsohu ta conohie.**
   _AV-1SG-only eat-once.AV OBL oneday_
   ‘I ate only once a day.’

d. **La-’u-c’o pe-nsohu ta conohie.**
   _HAB-1SG-only drink-once.AV OBL oneday_
   ‘I drink only once a day.’

Second, an adverbial compound can be marked for applicative LV and RV. In the examples that follow, (67a) repeats (6b) and (67b) repeats (25b).
a. Os-’o ta-u-po-poha’v-i ’o tposu. 
NAV-1SG TA.NAV-u-RED-slow-LV NOM book
‘I wrote the book slowly.’
b. Os-’o hu-kameos-i ’o tposu. 
NAV-1SG see-quick-LV NOM book
‘I took a quick look at the book.’
c. I-ta ti-u-po-poha’v-eni to evi ’e mameoi. 
NAV-3SG TI-u-RED-slow-RV OBL tree NOM old.man
‘He chopped a tree slowly for the old man.’

Third, while the root of an adverbial verb can be of various kinds, the root of an adverbial compound is very restricted. If we take a closer look at the adverbial compounds mentioned above, we would find that their adverbial roots are all event-related, including those denoting manner, speed, iteration, duration, and frequency. On the other hand, propositional and speaker-oriented adverbials are all banned from taking a lexical prefix. Thus, example (37b), repeated below as (68), is ruled out.

(68) *I-ta o-son-a ’o yoskũ. 
NAV-3SG eat-easy-PV NOM fish
Intended: ‘He possibly ate the fish.’

In the meantime, an adverbial root that sounds like a propositional/speaker-oriented adverbial will be intended for describing an event once it combines with a lexical prefix. Compare (69), which repeats (38); (70), which repeats (46); and (71), which repeats (51).

(69) a. Te-to pe-son-a! 
IRR-1PL drink-easy-PV
‘Let’s bottom up!’
b. Mi-ta o-so-sonũ bonũ to yoskũ. 
AV-3SG eat-RED-easy.AV eat.AV OBL fish
‘He eats fish without any difficulty.’
c. I-ta o-so-son-a an-a ’o yoskũ. 
NAV-3SG eat-RED-easy-PV eat-PV NOM fish
‘He ate the fish without any difficulty.’

(70) a. Te-’o-cu o-u-’umtũ ta naveu. 
IRR-1SG-COS eat-u-true.AV OBL rice
‘I will have a real meal.’ or ‘I will have a meal regularly.’
# ‘I will really eat rice.’
b. Te-’o-cu o-u-’umt-a ’e naveu. 
IRR-1SG-COS eat-u-true-PV NOM rice
‘I will have the real meal.’
# ‘I will really eat the rice.’

(71) a. Mi-ta-c’o e-bohũ. 
AV-3SG-only say-careless.AV
‘He just spoke carelessly (but happened to be correct).’
# ‘Fortunately, he spoke out.’
b. I-ta-c’o e-boht-a ’e seiso no Cou.  
NAV-3SG-only say-careless-PV NOM bible GEN Tsou  
’He only read the Tsou bible carelessly (but happened to be correct).’  
# ‘Fortunately, he only read the Tsou bible.’

Fourth, the prefix of an adverbial compound can be inflected for voice, while the prefix of an adverbial verb is invariant, as will be discussed in 3.5.2. Table 2 lists the adverbial compounds presented in this paper and their adverbial-verb counterparts. Table 3, which sums up the differences between an adverbial compound and an adverbial verb, reveals much important information about LPVCs. Properties I–II indicate that an adverbial compound should be lexical in nature. Property III suggests that an adverbial compound should be base-generated under the ApplP. Property IV reveals that the root of an adverbial compound should originate within the scope of an event-denoting light verb. By Property V, we can infer that an adverbial compound is syntactically derived. Putting all the information together, we can work out how a LPVC is syntactically represented and derived. For example, we might assign (67a) the underlying structure in figure 3 in light of the above observations. In this analysis, the host restriction puzzle falls out naturally.

An event-related adverbial is base-generated under a light verb and thus can incorporate into it. By contrast, a propositional/speaker-oriented adverbial is generated outside of a light verb and thus fails to incorporate into it. Following the adverbial incorporation anal-

| TABLE 2. ADVERBIAL VERBS / COMPOUNDS IN TSOU |
|---|---|---|---|
| ADVERBIAL TYPE | ADVERBIAL VERB | ADVERBIAL COMPOUND | EXAMPLE |
| Manner | aupopoha’o ‘slowly’ | tmaupopoha’o ‘to write slowly’ | (6a) |
|  | amayahe ‘quickly’ | tmamayahe ‘to write quickly’ | (13b) |
| Degree | angu ‘excessively’ | peenguzu ‘to drink to excess’ | (21a) |
| Aspectual | akameosi ‘quickly’ | hukameosi ‘to have a quick look at’ | (25b) |
| Cardinal frequency | inusku ‘once’ | mohnusu ‘to go to … once’ | (30b) |
| Quantificational frequency | asngwoc ‘often’ | tisngwocv ‘to make it straight’ | (34) |
|  |  |  | # ‘to do s.t. with hands often’ |
| Epistemic | asonu ‘possibly’ | pesonu ‘to bottom up’ | (38a) |
|  |  |  | # ‘to possibly drink’ |
|  |  |  |  |  |
| Emphatic | a ‘nhta ‘really’ | ou ‘nhta ‘to eat a regular meal’ | (46a) |
|  |  |  | # ‘to really eat’ |
| Evaluative | abohtu ‘fortunately’ | ebohtu ‘to say carelessly’ | (51a) |
|  |  |  | # ‘to fortunately say’ |

| TABLE 3. ADVERBIAL COMPOUNDS VS. ADVERBIAL VERBS IN TSOU |
|---|---|---|
| GRAMMATICAL PROPERTY | ADVERBIAL TYPE | ADVERBIAL COMPOUND | ADVERBIAL VERB |
| I. Can it stand alone? | Yes | No |
| II. Can it take nominal argument? | Yes | No |
| III. Can it take applicative LV/RV marking? | Yes | No |
| IV. Is its host limited to event-related adverbials? | Yes | No |
| V. Can its prefix be voice-marked? | Yes | No |
ysis proposed by Rivero (1992) and Alexioudou (1997), I argue that an adverbial compound in Tsou is derived via the head movement of an adverbial root into the governing lexical prefix. This analysis nicely predicts that an adverbial that is generated above a light verb will fail to incorporate into the light verb, given that the head movement will leave its trace ungoverned, violating ECP. Accordingly, the underlying structure of (68) can thus be roughly represented as figure 4.

Let us turn to consider the syntax of PCAVCs. As illustrated in 3.1, PCAVCs also involve an adverbial compound. However, an adverbial compound in PCAVCs functions differently from an adverbial compound in LPAVCs; the former occurs as a higher verb, but the latter as the main predicate of the sentence. As a higher verb, the adverbial compound performs two functions in PCAVCs: its prefix serves to classify the event described by the second verb, and its adverbial root is intended to give specific information to the event. Due to the first function, the prefix of an adverbial compound usually refers to an event category rather than an event entity. Compare:

**FIGURE 3. UNDERLYING STRUCTURE OF LPAVCs: (67a), FOR EXAMPLE**

```
TP
  | VoiceP
  | AplP
T
  | Voice
  | [NAV]
  | os-

FIGURE 4. UNDERLYING STRUCTURE OF (68)

```

**FIGURE 4. UNDERLYING STRUCTURE OF (68)**

```
TP
  | EpisP
  | VoiceP
  | vP
T
  | Epis
  | asonaa
  | [NAV]
  | o-
```
(72) a. Os-’o ti-u-po-poha’v-a chu-a ’o feʉ’u.
NAV-1SG TI-u-RED-slow-PV kill-PV NOM pig
‘I killed the pig slowly.’
b. Os-’o ti-u-po-poha’v-a teoc-a ’o evi.
NAV-1SG TI-u-RED-slow-PV chop.down-PV NOM tree
‘I chopped down the tree slowly.’

In (72), the prefix ti- is meant for a class of actions that are all carried out by hand. Since it
does not refer to any specific action, it is able to pattern with either an action of killing, as
in (72a), or an action of chopping, as in (72b). In view of its event-classifying function, I
treat the prefix as a light verb, heading the light verb phrase vP above VP (Chomsky

Meanwhile, adverbial compounding in PCA VCs is also subject to the host restriction
attested in LPAVCs. Recall that an event-related adverbial can serve as the host of an
adverbial compound, but a propositional/speaker-oriented adverbial cannot. Compare:

(73) a. *Os-’o ti-son-a chu-a ’o feʉ’u.
NAV-1SG TI-easy-PV kill-PV NOM pig
Intended: ‘I possibly killed the pig.’
b. *Os-’o ti-son-a teoc-a ’o evi.
NAV-1SG TI-easy-PV chop.down-PV NOM tree
Intended: ‘I possibly chopped down the tree.’

Accordingly, I assume that the adverbial host of an adverbial compound in PCAVCs also
originates as the complement of the light verb represented by the prefix of the adverbial
compound. It follows that a PCAVC like (73a) will have the underlying structure
depicted in figure 5.

PC constructions are reported to be attested in Austronesian languages spoken in cen-
tral-southern Taiwan (Nojima 1996, Tsuchida 2000, Adelaar 2004, Li 2009, among oth-
ers). It is observed in the literature that the verb following an adverbial compound is
required to appear in the default AV form. Nonetheless, Tsou is different in this regard. In
Tsou, the second verb should accord with the adverbial compound in its voice-marking.
Note that the sentences in (72) will become ungrammatical if the second verb is changed
to AV form. Compare:

FIGURE 5. UNDERLYING STRUCTURE OF PCAVCs: (72a), FOR EXAMPLE
(74) a. *Os-'o ti-u-po-poha’v-a c<m>uhu ‘o feu’u.
NAV-1SG TI-u-RED-slow-PV <AV>-kill NOM pig
b. *Os-'o ti-u-po-poha’v-a t<m>oeceu ‘o evi.
NAV-1SG TI-u-RED-slow-PV <AV>-chop.down NOM tree

Under the concord restriction, the second verb should occur in AV form if the adverbial compound bears AV marking. Compare (75), which repeats (6):

(75) a. Mi-'o t<m>a-u-po-poha'o t<m>opsu to tposu.
AV-1SG TA<AV>-u-RED-slow.AV <av>-write OBL book
‘I wrote (a book) slowly.’
b. Os-'o ta-u-po-poha’v-i ‘o tposu.
NAV-1SG NAV-u-RED-slow-LV NOM book
‘I wrote the book slowly.’

In the analysis advanced above, an adverbial verb and an adverbial compound are placed in different positions. As a functional category, an adverbial verb is always situated above VoiceP/vP. In contrast, as a lexical verb, an adverbial compound is generated under VoiceP/vP. The predication is that an adverbial verb can cooccur with an adverbial compound. This predication is borne out, as will be illustrated shortly.

3.4 ADVERBIAL STACKING. In the very beginning of section 2, I postulate an adverbial hierarchy in figure 1. Given the left-branching nature of phrase structure in Tsou, this hypothesis would expect any adverbial verb higher in the hierarchy to precede an adverbial verb lower in the hierarchy. This is exactly what is attested in Tsou. Consider:

(76) a. A-bohtu a-’amte na’no po-popoha’o ho mi-ta po-kuyai.
ADV-careless.AV ADV -real.AV very.AV push-slow.AV SUB AV-3SG push-car.AV
‘Fortunately, he really drove his car very slowly.’
b. *A-bohtu a-’amte po-popoha’o na’no ho mi-ta po-kuyai.
ADV-careless.AV ADV -real.AV push-slow.AV very.AV SUB AV-3SG push-car.AV

As shown in (76a), the evaluative adverbial verb abohtu should precede the degree adverbial verb na’no, which in turn should precede the adverbial compound. The sentence will be ruled out if the constituent order is reversed, as illustrated in (76b). A similar restriction can also be found with other types of adverbial verbs, as indicated below:

(77) a. I-ta-cu a-son-a a-uev-a p’an-i ‘o teo’ua.
NAV-3SG ADV-easy-PV ADV-first-PV feed-LV NOM chicken
‘He might possibly have fed the chicken first.’
b. *I-ta-cu a-uev-a a-son-a p’an-i ‘o teo’ua.
NAV-3SG ADV-first-PV ADV-easy-PV feed-LV NOM chicken

Furthermore, recall that an adverbial verb occurs as a functional head above VoiceP/vP but an adverbial compound is realized as a lexical verb under VoiceP/vP. Therefore, an adverbial verb must precede an adverbial compound in surface syntax. Compare:

(78) a. Mi-ta a-bohtu po-popoha’o ho mi-ta po-kuyai.
AV-3SG ADV-careless.AV push-slow.AV SUB AV-3SG push-car.AV
‘Fortunately, he drove his care slowly.’
b. *Mi-ta po-popoha’o a-bohtu ho mi-ta po-kuyai.
AV-3SG push-slow.AV ADV-careless.AV SUB AV-3SG push-car.AV
Remember also that frequency adverbial verbs should be split into two subtypes, as demonstrated in 2.4. The stacking fact below further suggests that quantificational frequency adverbial verbs should dominate cardinal frequency adverbial verbs, not the other way around.

(79) a. La-’u a-acni moh-nsku ne Maibayu ho mo conofeohu.
   HAB-1SG ADV-one go-once LOC Chiayi SUB AV one.month
   ‘I go to Chiayi once a month.’

b. *La-’u moh-nsku a-acni ne Maibayu ho mo conofeohu.
   HAB-1SG go-once ADV-one LOC Chiayi SUB AV one.month

As a result, the adverbial hierarchy in figure 1 should be revised as figure 6. As shown in figure 6, every adverbial verb is realized as the head of a respective functional projection and sandwiched by T and Voice in Tsou.

3.5 VOICE-MARKING IN AVCS

3.5.1 Voice Concord. As noted in L. Huang (1997) and H. Chang (2005, 2006, forthcoming), AVCs in Tsou differ from those attested in other Formosan languages in the voice-marking of the lexical verb. In other Formosan languages, the lexical verb is invariably marked for AV, regardless of the voice-marking of its preceding adverbial verb. Take Kavalan, for example:

(80) KAVALAN
   a. Paqanas-iku t<em>ayta tu sulal.
      slow.AV-1SG.NOM <AV>-see OBL book
      ‘I read a book slowly/carefully.’

   a’. *Paqanas-iku tayta-an ya sulal.
      slow.AV-1SG.NOM see-PV NOM book

   b. Paqanas-an-ku t<em>ayta ya sulal.
      slow-PV-1SG.GEN <AV>-see NOM book
      ‘I read the book slowly.’

   b’. *Paqanas-an-ku tayta-an ya sulal.
      slow-PV-1SG.GEN see-PV NOM book

      (H. Chang 2006:6)
By contrast, a lexical verb should accord with the adverbial verb in its voice-marking in Tsou. Compare:

(81) a. I-ta a-u-po-poha’v-a ait-i ’o tposu.
NAV-3SG ADV-u-RED-slow-PV see-LV NOM book
‘He read the book slowly.’

b. *I-ta a-u-po-poha’v-a baito ’o tposu.
NAV-3SG ADV-u-RED-slow-PV see.AV NOM book

(82) a. Os-’o ti-u-po-poha’v-a teoc-a ’o evi.
NAV-1SG TI-u-RED-slow-PV chop.down-PV NOM tree
‘I chopped down the tree slowly.’

b. *Os-’o ti-u-po-poha’v-a t<m>oeceu ’o evi.
NAV-1SG TI-u-RED-slow-PV <AV>-chop.down NOM tree

Note that the voice concord is attested in a categorical rather than a copying manner. As illustrated in (81a), the adverbial verb and the lexical verb bear the voice marker of the same type instead of the same token; specifically, both of them are in non-Actor voice (NAV), with the adverbial verb marked in patient voice (PV) and the lexical verb in locative voice (LV). Given that the voice distinction of an adverbial verb is dichotomous, as pointed out in 3.2, the PV suffix -a on an adverbial verb can be construed as a marker of the NAV category, as opposed to the AV category. Given that the voice concord across auxiliary and lexical verbs is also a two-way contrast, as indicated in (83)—see Tung (1964), Zeitoun (1992, 2000, 2005), Szakos (1994), among others—a generalization concerning the voice concord in Tsou can be formulated, as stated in (84):

(83) a. Mo mo-si ta pangka to emi ’o amo.
AV AV -put OBL table OBL wine NOM father
‘Father put wine on the table.’

b. I-si si-a ta pangka to amo ’o emi.
NAV-3SG put-PV OBL table GEN father NOM wine
‘Father put the wine on the table.’

c. I-si si-i ta amo ta emi ’o pangka.
NAV-3SG put-LV GEN father OBL wine NOM table
‘Father put the wine on the table.’

d. I-si si-eni ta emi ta amo.
NAV-3SG put-RV OBL wine GEN father
‘Father put the wine for him.’ (Zeitoun 2000:93–94)

(84) **Voice concord in Tsou**

(i) The voice feature of a functional verb can be either [AV] or [NAV].

(ii) The voice feature of a lexical verb must accord with the clausemate functional verb(s).

This generalization will also accommodate the voice concord involving higher verbs such as aspectual/mental state/desirative/modal verbs, if coupled with an analysis of those verbs as functional heads:
(85) a. Mi-’o ahoi bonu to ściłmy. 
   AV-1SG start.AV eat.AV OBL banana
   ‘I start eating bananas.’

   b. Os-’o ahoz-a an-a ’o ściłmy. 
   NAV-1SG start-PV eat-PV NOM banana
   ‘I start eating the bananas.’

(86) a. Mi-’o kaebu bonu to ściłmy. 
   AV-1SG like.AV eat.AV OBL banana
   ‘I like eating bananas.’

   b. Os-’o kaeb-a an-a ’o ściłmy. 
   NAV-1SG like-PV eat-PV NOM banana
   ‘I like eating the bananas.’

(87) a. Mi-’o m-ici bonu to ściłmy. 
   AV-1SG AV -want eat. AV OBL banana
   ‘I want to eat bananas.’

   b. Os-’o uci-a an-a ’o ściłmy. 
   NAV-1SG want-PV eat-PV NOM banana
   ‘I want to eat the bananas.’

(88) a. Mi-’o m-eelu buh-mayahe to tposu. 
   AV-1SG AV -able-AV see.AV-quick OBL book
   ‘I am able to read quickly.’

   b. *Mi-’o butaso poeoh-a ’o tposu. 
   AV-3SG forceful.AV push-PV NOM stone

   (H. Chang 2005:6)

(90) a. Mi-ta butaso ho mi-ta poeohu to fatu. 
   AV-3SG forceful.AV push.AV OBL stone
   ‘He pushed a stone forcefully.’
   Lit. ‘He was forceful in pushing a stone.’

   b. Mi-ta butaso ho i-ta poeoh-a ’o fatu. 
   AV-3SG forceful.AV SUB NAV-3SG push-PV NOM stone
   ‘He pushed the stone forcefully.’
   Lit. ‘He was forceful in pushing the stone.’

   (H. Chang 2005:5)

   (90) a. Mi-ta butaso ho mi-ta poeohu to fatu. 
   AV-3SG forceful.AV push.AV OBL stone
   ‘He pushed a stone forcefully.’
   Lit. ‘He was forceful in pushing a stone.’

   b. Mi-ta butaso ho i-ta poeoh-a ’o fatu. 
   AV-3SG forceful.AV SUB NAV-3SG push-PV NOM stone
   ‘He pushed the stone forcefully.’
   Lit. ‘He was forceful in pushing the stone.’

   (H. Chang 2005:6)

   It should be noted that the voice concord is clause-bound—it does not cut across the 
   clause boundary. Compare:

   (89) a. Mi-ta butaso poeohu to fatu. 
   AV-3SG forceful.AV push.AV OBL stone
   ‘He pushed a stone forcefully.’
   Lit. ‘He was forceful in pushing a stone.’

   b. *Mi-ta butaso poeoh-a ’o fatu. 
   AV-3SG forceful.AV push-PV NOM stone

   While the lexical verb poeohu is required to agree with the adverbial verb butaso in its 
   voice marking in (89), poeohu can occur either in AV or PV in (90). The reason the sec-
   ond verb in (90) evades the voice concord constraint is that it appears in a separate clause 
   (led by the subordinator ho) that is subordinate to the matrix clause headed by the manner
The subordinate status of the ho-clause in (90a) is evidenced by the fact that the ho-clause allows for its own tense/mood auxiliary and the fact that the ho-clause can be fronted to sentence-initial position, as indicated below:14

(91) Ho mi-ta pokohe to fatu, mi-ta butaso.

SUB AV-3SG push.AV OBL stone AV-3SG forceful.AV

‘He pushed a stone forcefully.’

Lit. ‘He was forceful in pushing the stone.’

Likewise, the clause-bound effects can also be found in a finite complement clause. Consider:

(92) Os-’o cohiv-i ho mi-ta tma’congo.

NAV-1SG know-LV COMP AV-3SG sick.AV

‘I know that he is sick.’

To sum up, the voice concord holds between a lexical verb and the functional verbs that directly govern the lexical verb. The voice concord is clause-bound; it would be disrupted by an intervening conjunction, subordinator, or complementizer.

A puzzle that remains to be worked out is: Why are the functional projections above VoiceP voice-marked? Recall that the (adverbial) functional heads do not appear within the domain of the VoiceP. This puzzle is particularly evident for evaluative adverbial verbs. Consider:

(93) a. Mi-’o a-bohtu bone netaseona, ko’ko o’a mocu mi-’osieo.

AV-1SG ADV-careless.AV eat.AV morning therefore NEG yet AV-1SG hungry

‘Fortunately, I ate something in the morning; therefore, I am not hungry now.’

b. Os-’o-cu a-boht-a a-uev-a p’an-i ’o teo’ua.

NAV-1SG ADV-careless-PV ADV -first-PV feed-LV NOM chicken

‘Fortunately, I have fed the chicken first.’

An evaluative adverbial verb conveys the speaker’s attitude toward a proposition and should occur far above the VoiceP (see figure 6). How does it acquire the voice feature from the lower projection? I am aware that the same puzzle applies to the voice-marking of the temporal/modal auxiliary. Given that, cross-linguistically, the voice morphology of a clause normally appears on the verb that is located down the tense node, I assume that in Tsou, the voice feature on the temporal/modal auxiliary and the adverbial verbs is syntactically derived. My hunch is that a higher functional head acquires its voice feature through agreeing with the subject NP that arguably stops over in SpecVoiceP. I assume that the subject NP is base-generated within the VoiceP and is required to agree with the voice head to receive a voice feature. Bearing the voice feature, it is raised in a successive cyclic manner, stopping over at the specifier of each functional projection, and ends up in SpecTP. The raising NP transmits its voice feature to the functional head on the way to its terminal landing site. In this analysis, (93b) will be roughly represented in figure 7.

In the analysis, a higher head receives the voice feature from the lower head via the mediation of a raising argument. The analysis predicts that the voice concord will not

14. Tsai (2007) argues quite convincingly that the conjunction ho has developed two other functions in Tsou—in addition to conjunction, it can also encode complementation and subordination. Readers are referred to Lin (2002) and Tsai (2007) for further discussion.
come about if there is no mediating raising argument. This is the case for the following serial verb constructions:

(94) a. Os-’o tith-a m-apaso to fou ’o f’uf’u.
   NAV-1SG use-PV AV-cut OBL meat NOM knife
   ‘I used the knife to cut meat.’

b. *Os-’o tith-a papas-a to fou ’o f’uf’u.
   NAV-1SG use-PV cut-PV OBL meat NOM knife

In (94), lexical verbs are placed one after another in the domain of the same tense node. However, unlike those verbs in (85–88), the lexical verbs in (94) do not observe the voice concord. A question immediately arises: Why is this so? The proposed analysis might answer the question. Note that in (94), the matrix subject is not raised from the embedded phrase. This means that there is no mediation between the higher verb and the lower verb. Accordingly, the feature transmission will not be available and hence the voice concord is not attested (see figure 8 overleaf).

FIGURE 7. FEATURE ACQUISITION AND TRANSMISSION (93b), FOR EXAMPLE

[Diagram showing the syntax and feature movement for the example sentence (93b).]
A similar explanation can also carry over to the causative constructions that do not display the voice concord. For example:15

\[(95) \text{ Os-}^{'}\text{o poa } \text{m-ayo to tposu } \text{'} \text{o Mo'o}. 16\]

\[\text{NAV-1SG CAUS.NAV AV -take OBL book NOM Mo'o}\]

‘I made Mo’o take a book.’

15. I thank Elizabeth Zeitoun for bringing this to my attention at the Ninth International Symposium on Chinese Languages and Linguistics (IsCLL–9).

16. Unlike the causative morpheme in other Western Austronesian languages, poa appears to surface as a free-standing verb rather than a prefix in Tsou. Note that poa can be separated from the lexical verb by free words such as negative, reflexive, and adverbial verbs. Compare:

   (i) I-si poa o’te yuv’ohu no hia moyomo to emi ‘e Pasuya.
   NAV-3SG CAU NEG get.up.AV OBL HIA drunk GEN wine NOM Pasuya
   ‘The wine made Pasuya drunk and unable to get up.’ (M. Chang 2004:130)

   (ii) ’O Mo’o i-si poa iachi coecou ho uh ne gako ’o Pasuya.
   TOP Mo’o NAV-3SG CAU self walk CJ go LOC school NOM Pasuya
   ‘Mo’o made Pasuya go to school by himself.’ (C.-W. Chang 2008)

   (iii) Poa asuhcu meois si tposu.’
   CAU gradually big NOM word-2SG
   ‘Write in larger fonts!’ (lit., ‘Make your words larger!’)
Example (95) should be a construction parallel to the object-control construction: the subject *Mo’o* originates as an internal argument of the periphrastic causative verb *poa* and has a coreferential phonologically null pronoun in the embedded clause. In other words, the subject NP is not raised from the embedded clause, as in the case for the serial verb construction in (94). Therefore, the voice concord will not occur.

### 3.5.2 Voice-marking of lexical prefixes

I have pointed out in the preceding sections that a few lexical prefixes are eligible for voice-marking in Tsou. Table 4 lists the voice-marked lexical prefixes I have come across thus far.

**Table 4. Voice-marked lexical prefixes in Tsou**

<table>
<thead>
<tr>
<th>AV</th>
<th>NAV</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>buh-</td>
<td>hu-</td>
<td>‘to see’</td>
</tr>
<tr>
<td>him-</td>
<td>Ø (zero marking)</td>
<td>‘to feel’</td>
</tr>
<tr>
<td>mateo-</td>
<td>teo-</td>
<td>‘to wash (body)’</td>
</tr>
<tr>
<td>moh-</td>
<td>—</td>
<td>‘to go’</td>
</tr>
<tr>
<td>ma’-</td>
<td>Ø (zero marking)</td>
<td>‘to think’</td>
</tr>
<tr>
<td>sme’-</td>
<td>s’e-</td>
<td>‘to cut’</td>
</tr>
<tr>
<td>smo-</td>
<td>paso-</td>
<td>‘to mount’</td>
</tr>
<tr>
<td>tma-</td>
<td>ta-</td>
<td>‘to hear, write, read’</td>
</tr>
</tbody>
</table>

Note that the voice-marking of a lexical prefix is only dichotomous, namely AV versus NAV, just like the voice-marking of a functional verb. Example (96) below repeats (6):

(96) a. **Mi’-o t<AV>-a-u-po-poha’o t<AV>-opsu to tposu.**

> AV-1SG TA<AV>-u-RED-slow.AV <AV>-write OBL book

> ‘I wrote (a book) slowly.’

b. **Os’-o ta-u-po-poha’v-i ’o tposu.**

> NAV-1SG TA.NAV-u-RED-slow-LV NOM book

> ‘I wrote the book slowly.’

As illustrated in (96a–b), the lexical prefix occurs either in AV form (*tma*-), or NAV form (*ta*-), while the compound as a whole can be marked with the locative voice (LV). Given the analysis of LV and RV as involving applicativization, this would suggest that the lexical prefix is not responsible for introducing an adjunct-like argument.

Another implication is that the adverbial compounding should be syntactically rather than lexically derived in Tsou. Note that voice is a functional category and a syntactic register. It should be generated in syntax instead of in lexicon. The possibility for a lexical prefix to attract voice-marking suggests that the lexical prefix should head its own syntactic projection. This lends support to the syntactic treatment of adverbial compounds as involving head movement, as put forward in 3.3. A related revelation is that a lexical prefix might start as a full-fledged lexical verb diachronically, and that each of them takes its own voice-marking. However, as time goes by, the lexical verb

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17. Recent studies indicate that Formosan NAV voice markers that are traditionally treated as derivational and transitivizing affixes should be an amalgam of a voice projection plus an applicative/causative projection (S. Huang(2005, J. Wu 2006, and H. Chang (2008). What looks like a lexical/derivational function performed by Formosan NAV voice markers turns out to be a function carried out by the applicative projection. In this view, voice should be functional/inflectional rather than lexical/derivational.
generalizes its meaning and then develops into a prefix. As a result, most of the prefixes lose their voice-marking, with only a few of them retaining the marking. In this view, voice-marked lexical prefixes should be valued as living linguistic fossils.

4. CONCLUDING REMARKS. This paper has uncovered a number of understudied phenomena in association with adverbial verbs and adverbial compounds in Tsou. These findings have both typological and theoretical implications.

4.1 TYPOLOGICAL IMPLICATIONS. First, I have added Tsou to the list of Formosan languages that exhibit Prefix Concord (PC). In the literature, PC has been found to be attested in Bunun (Nojima 1996, Su 2008), Siraya (Tsuchida 2000, Adelaar 2004), Kanakanavu (C. Wu 2007), and Saaroa (Li 2009). Since all these languages, including Tsou, cluster in the central-southern part of Taiwan, PC looks like an areal feature. Nonetheless, C. Wu (2009) recently found that PC is also observed in Mayrinax Atayal, a Formosan language spoken in northern Taiwan. Compare:

\begin{itemize}
\item \textbf{M-akna-bibul=}ci’ \textbf{h<um>}akal.
\end{itemize}
\begin{itemize}
\item AV-walk-fast=1SG.NOM \textless AV\textgreater -walk
\end{itemize}
\begin{quote}
\text{‘I walk fast.’ (C. Wu 2009)}
\end{quote}

It seems that PC is more widespread than previously thought. Further investigation in this regard is needed.

In addition, I have observed that PC in Tsou is typically attested only if the first lexical prefix is of general type. This tendency reflects the division of labor between the first lexical prefix and the coreferential lexical prefix or lexical verb: the former specifies the type of the action and the latter its token. This type-token sequence is largely parallel to the relation of a classifier to its modifying lexical noun in the nominal structure (Tang 2004). In this respect, the identification of a lexical prefix as a verbal classifier by Nojima (1996) and Tsuchida (2000) is presumably on the right track. In terms of function, the relation of a general lexical prefix to its coreferential lexical prefix or lexical verb can also be likened to the relation of a discourse topic to its coindexed noun, as in \textit{As for fruits, I like passion-fruit most}, with the former providing the backgrounded information and the latter the focus of the sentence. In this connection, the analysis of a PCAVC as involving semantic anticipation by Adelaar (2004) is quite sensible.

Second, I have shown that a few lexical prefixes can be voice-marked in Tsou. This is typologically rare but theoretically important—it hints at the semantic/syntactic independence of the lexical prefix from its host. This is in support of a syntactic analysis of an adverbial compound.

Third, I have illustrated the voice concord across adverbial verbs/compounds and lexical verbs in Tsou. The voice concord is typologically unusual and theoretically challenging. I have offered a tentative solution to the question of how it is syntactically derived. The voice concord is reminiscent of grammatical concord like tense/mood/aspect har-
mony, which is widely observed in serializing languages (Schachter 1974, Foley and Olsen 1985, Crowley 2002). If we take all these phenomena together, we might arrive at a better picture of how grammatical concord operates in syntax. I leave this for future study.

4.2 THEORETICAL IMPLICATIONS. In the preceding sections, quantificational frequency adverbial verbs are found to be grammatically distinguished from their cardinal counterparts in Tsou. The finding lends support to the semantic division made by Parsons (1990) and de Swart (1993). In addition, the stacking of quantificational frequency adverbial verbs over their cardinal counterparts in Tsou is also consistent with Cinque’s (1999) structural hierarchy of adverbs, despite the fact that frequency adverbials are realized as functional heads by themselves rather than as the specifiers of functional heads in Tsou. In Cinque (1999), quantificational frequency adverbs are analyzed as the specifier of a higher habitual aspect head, namely, Asp\textsubscript{habitual}, whereas their cardinal counterparts are treated as the specifier of a lower repetitive/iterative aspect head, namely, Asp\textsubscript{repetitive}.

I have shown that adverbial verbs and adverbial compounds are rigidly ordered and structured in Tsou. The way they are ordered and structured conforms to Cinque’s adverbial hierarchy, although they are realized as functional heads rather than as specifiers in Tsou. Note, however, that the way adverbials are licensed in Tsou should be different from the way adverbials are licensed in English and Italian. In Cinque’s analysis, adverbials in English and Italian are licensed as specifiers of corresponding functional heads. This is not the case in Tsou, given that adverbials surface as functional heads by themselves. It is likely that adverbials are licensed as complements of functional heads in Tsou. If this is the case, adverbial licensing should be parameterized.

I have observed that in Tsou, an event adverbial is eligible to take a lexical prefix, whereas a propositional/speaker-oriented adverbial is ineligible for the operation. Similar asymmetry is also found in Modern Greek. Adopting Baker’s (1988) theory of incorporation, Rivero (1992) and Alexiadou (1997) attribute the asymmetry to the difference in generation site: event adverbials are generated under VP and can thus incorporate into the verb, whereas propositional adverbials are generated above VP and thus fail to incorporate into the verb. In the spirit of Rivero (1992) and Alexiadou (1997), I attempt to account for the asymmetry in Tsou. This is simply a first step. More studies are necessary.

Before closing the paper, I would like to point out that it is important to distinguish between adverbial verbs and adverbial compounds. I have detailed their differences in 3.3 and summarized their differences in table 3. At this moment, I would like to elaborate on one more point that has only been hinted at in the preceding sections. Readers might have noticed that although both adverbial verbs and adverbial compounds are morphologically complex, only the latter are argued to be syntactically derived. The reason behind the split analysis is that there are semantic idiosyncrasies as to the pairing between the form of the root of an adverbial verb and its meaning, while no such idiosyncrasies are observed with the pairing in adverbial compounds. If this split analysis is on the right track, we have to recognize the module of morphology as distinct from that of syntax. In other words, morphology cannot always be reduced to syntax.
REFERENCES


