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Adverbial Verbs and Adverbial Compounds in Tsou: A Syntactic Analysis

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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/*v*P, whereas adverbial compounds are generated as lexical heads under Voice/*v*P. 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.[1] 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).[2] As a Formosan language, Tsou is no exception in this

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2. As will become clearer in subsequent sections, adverbial verbs in this paper refer to functional verbs rather than lexical verbs.

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.
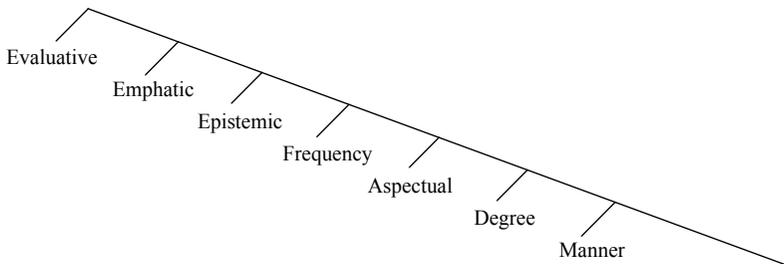
The paper is organized as follows. Section 2 provides a detailed description and classification of adverbial verbs/compounds in Tsou and paves the way for the subsequent discussion. Section 3 classifies Tsou AVCs into two types and examines their syntactic structures and derivations, and in the course 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.[3] 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:

FIGURE 1. ADVERBIAL HIERARCHY*

Evaluative
    Emphatic
        Epistemic
            Frequency
                Aspectual
                    Degree
                        Manner

*   Based on Cinque 1999

3. 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-noyɨnɨ   **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.

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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**.
          I   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.[6] 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.[7] 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, *aupopoha'o*) and Patient voice (PV, *aupopoha'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.[8] 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.

(6) a. Mi-'o   **t\<m\>a-u-po-poha'o**   t\<m\>opsɨ   to   tposɨ.
      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   tposɨ.
      NAV-1SG   TA.NAV-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 *a-*.

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:

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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**   **poeohɨ**   **to**   **fatu**   mi-ta   butaso.
      SUB   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).

(9) a. **Mayahe**   ho   mi-ta   t<m>opsʉ.
      quick.AV   SUB   AV-3SG   <AV>-write
      'He is quick at writing.'

    b. La   na'no   **ahoha'o**   ho   mo   zotayo   to   nsoo.
       HAB   very.AV   careful.AV   SUB   AV   wait.AV   OBL   salty.water
       'Be very careful and quiet while hunting animals in the salty water area.'

    c. Mi-ta   **butaso**   ho   mi-ta   poeohʉ   to   fatu.
       AV-3SG   forceful.AV   SUB   AV-3SG   push.AV   OBL   stone
       'He uses great force while pushing the stone.'

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'v-a** ait-i   'o   tposʉ.
      NAV-3SG   ADV-u-RED-slow-PV   see-LV   NOM   book
      'He read the book slowly.'

    b. I-ta   **a-u-poha'v-a**   ait-i   'o   tposʉ.
       NAV-3SG   ADV-u-slow-PV   see-LV   NOM   book
       'He slowly read the book.'

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'ʉ* '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-poha'o / *a-u-po-poha'o** cmo'ʉ   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.'

    b. Os-'o   **a-u-poha'v-a / *a-u-po-poha'v-a** ta'uzv-a   'e   e'e-taini.
       NAV-1SG   ADV-u-slow-PV / ADV-u-RED-slow-PV   believe-PV   NOM   words-3SG.GEN
       'I slowly/gradually believe in his words.'

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)

In contrast, the manner-aspectual meaning difference can be realized through reduplication in Tsou, as seen in the contrast between *aupoho'o* and *aupopoha'o*.[10]

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 tposʉ.
      quick.AV   SUB   HAB-3SG see.AV OBL book
      'He is quick in reading books.'

    b. Mi-ta   t<m>a-**mayahe** t<m>opsʉ.
      AV-3SG   TA<AV>-quick   <AV>-write
      'He is writing quickly.'

(14) a. Te-cu **mon'i**   voecʉvcʉ   'o   engʉca.
      IRR-COS soon.AV   dark   NOM sky
      'The sky is going to become dark soon.'

    b. Te-ta   **mon'i-a**   ta-epʉng-i   'e   tposʉ.
      IRR-3SG soon-PV   write-finish-LV NOM book
      'He will finish writing the book soon.'

(15) a. Mi-cu **osni**   bonʉ   'o   feʉ'ʉ.
      AV-COS immediately.AV eat.AV   NOM pig
      'The pigs ate (the food) immediately.'

    b. I-he   **osni-a**   an-a   'o   'oanʉ.
      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', *aemʉ'au/ aemʉ'ava* 'abruptly/unexpectedly', *aha'o/aha'va* 'suddenly/unexpectedly', *ahoha'o/ ahoha'va* 'carefully', *'ahuhum'i/'ahuhum'a* 'hurriedly', *asno'zonʉ/asno'zona* 'diligently', *butaso/utasva* 'violently; with great efforts', and *bumemealʉ/bumemeala* '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.

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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   **na'no** nac'o   'o   Paicʉ.
      AV   very.AV   sad.AV NOM Paicʉ
      'Paicʉ is very sad.'

   b. I-ta   **na'n-a** nac'ov-a 'o   Paicʉ.
      NAV-3SG   very-PV   sad-PV   NOM Paicʉ
      'He dislikes Paicʉ 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 (*na'no*) or PV form (*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.
      AV-3SG   ADV-excessive.AV bad.AV
      'He is excessively bad.'

   b. I-ta   **a-ng-a**   kuzo-a 'e   Mo'o.
      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 cmʉ'ho.
      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.
      NAV-1SG ADV-a.little-PV worry-PV   2SG.NOM
      'I was a little worried about you.'

(19) a. Mi-ta   **atva'esi**   ʉmnʉ.
      AV-3SG   supreme.AV   good.AV
      'He is supremely good.'

   b. I-ta   **atva'es-a**   ʉmnʉ-a 'e   Paicʉ.
      NAV-3SG supreme-PV   good-PV NOM Paicʉ
      'He likes Paicʉ most.' (lit., 'He supremely likes Paicʉ.')

Another form that is also treated as a degree adverbial verb is *kuici* 'very/very much'. While *kuici* is fixed in its distribution just like other degree adverbial verbs, it is not marked for voice.[11] Compare:

(20) a. Mo   **kuici** ʉmnʉ   'e   Pasuya.
      AV   very   good.AV NOM Pasuya
      'Pasuya is very good.'

   b. I-ta   **kuici** ʉmnʉ-a 'e   Pasuya.
      NAV-3SG very   good-PV NOM Pasuya
      'He likes Pasuya very much.'

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11. 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, *kuici* should be treated as a higher verb.

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   tposɨ.
NAV-1SG ADV-quick-PV   see-LV NOM book
'I quickly read the book.'

   b. Os-'o **hu-kameos-i** 'o   tposɨ.
NAV-1SG see-quick-LV   NOM book
'I took a quick look at the book.'

(26) a. Ta-'u **a-ɨsɨfeɨngnɨ** 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 **tɨ-ɨsɨfeɨngnɨ** 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', *petohɨyɨ/petohɨya* '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'-nɨsku**   baito to tposɨ.
AV-3SG-only   ADV-once.AV see.AV OBL book
'He read the book only once.'

   b. I-ta-c'o **i'-nɨsk-a** ait-i   'o   tposɨ.
NAV-3SG-only ADV-once-PV see-LV NOM book
'He read the book only once.'

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12. Vowel harmony occurs in the adverbial compound *tɨɨsɨfeɨngnɨ*: The lexical prefix *tu-* 'to cut' becomes *tɨ-* because its round vowel /u/ assimilates to the adjacent high mid unrounded vowel /ɨ/ and accordingly changes to /ɨ/.

(28) a. La-ta **a**-sngucu   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-c'o **buh**-nusku to tposu.
AV-3SG-only see.AV-once.AV OBL book
'He read the book only once.'

b. Mi-'o-c'o **moh**-nusku 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 cono hie.
AV-1SG-only eat-once.AV OBL one   day
'I ate only once a day.'

d. La-'u-c'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**-sngucu to tposu.
AV-3SG see.AV-often.AV OBL book
Intended: 'He reads the book often.'

b. *La-'u **moh**-sngucu 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-’asngʉcʉ**   to   yoskʉ.
            HAB-1SG   eat-often.AV   OBL   fish
          ‘I eat fish often.’

      b. ?La-’u   **pe-’asngʉcʉ**.
            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 *asngʉcʉ* ‘often’ include *aacni/aacnia* ‘always’, *aasvʉtʉ/aasvʉta* ‘occasionally’, *aahtu/aahta* ‘sometimes’, *conino* ‘usually’, and *’aoko* ‘all the time; continuously’.[13] Freestanding cardinal frequency adverbial roots are rare; they usually conflate with a lexical prefix.

   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 *asngʉcʉ* ‘often/continually’ is very likely to be derived from *sʉʉngcʉ* ‘straight’:

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

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

(34) Os-’o   **ti-sngʉcv-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 forego 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-sonʉ**   mʉchʉ maitan'e.
       IRR   ADV-easy.AV rain.AV   today
       'It will possibly rain today.'

    b. Te-ta   **a-sonʉ**   cmʉ'ho hohucma.
       IRR-3SG ADV-easy.AV come.AV tomorrow
       'He will possibly come tomorrow.'

    c. Mi-ta   **a-sonʉ**   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-sonʉ**   mʉchʉ maitan'e.
       IRR   ADV-RED-easy.AV rain.AV   today
       'It will probably rain today.'

    b. Te-ta   **a-so-sonʉ**   cmʉ'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 *asonʉ* 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   yoskʉ.
       NAV-3SG ADV-easy-PV eat-PV NOM fish
       'He possibly ate the fish.'

    b. *I-ta   **o-son-a**   'o   yoskʉ.
       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!'

b. Mi-ta   **o-so-sonʉ**   bonʉ   to   yoskʉ.
   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   yoskʉ.
   NAV-3SG   eat-RED-easy-PV   eat-PV   NOM   fish
   'He ate the fish without any difficulty.'

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 (*asonʉ 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 *asonʉ* 'possibly' might be derived from the stative verb *sonʉ* 'easy'. Consider:

(39) Mo   **sonʉ**   ho   os-'o   hioa   'e   mo   maica.
     AV   easy.AV   SUB   NAV-1SG   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   engʉca, te   **a-sansanno**   mʉchʉ.
     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   tposʉ.
     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-'ʉmtʉ**   o-asoye   ta   kamcia.
        AV-3SG   ADV-true.AV   eat-stealthily.AV   OBL   candy
        'He really ate candy stealthily.'

      b. Te-ko   **a-'ʉmt-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-'ʉmtʉ**   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-'ʉmt-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'ʉmtʉ/ou'ʉmta* 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'ʉmtʉ?
      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-bohtʉ**   bonʉ 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 *abohtʉ/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-bohtʉ**.
         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-bohtʉ** 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 *ebohtɨ/ebohta* and *pasubohtɨ/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 1. ADVERBIAL VERBS IN TSOU

Type	Examples
MANNER	
with *a-* :	*a-anana'o/a-anana'va* 'diligently/violently'; *a-asoye/a-asoeza* 'stealthily'; *a-emɨ'au/a-emɨ'ava* 'abruptly/unexpectedly'; *a-ha'o/a-ha'va* 'suddenly/unexpectedly'; *a-hoha'o/a-hoha'va* 'carefully'; *'a-huhum'i/'a-huhum'a* 'hurriedly'; *a-mayahe/a-mayahza* 'quickly'; *a-sno'zonɨ/a-sno'zona* 'deligently'; *a-upopoha'o/a-upopoha'va* 'slowly'
without *a-* :	*butaso/utasva* 'violently; with great efforts'; *bumemealɨ/bumemeala* 'skillfully'
DEGREE	
with *a-* :	*a-ke'i/a-ke'a* 'a little'; *a-ngu/a-nga* 'extremely; overly'; *a-tva'esi/a-tva'esa* 'supremely'
without *a-* :	*kuici* 'very'; *na'no/na'na* 'very'
ASPECTUAL	
with *a-* :	*a-kameosa* 'quickly'; *a-suhcu/a-suhca* 'gradually'; *a-tavei/a-taveya* 'at last'; *a-uyu/a-ueva* 'first'; *a-ɨsɨfeɨngnɨ* 'early'
without *a-* :	***i'-vaho/ i'-vaha*** 'again'; *mon'i/mon'ia* 'soon'; *osni/osnia* 'immediately'; *petohɨyɨ/petohɨya* 'finally'
FREQUENCY	
with *a-* :	*a-acni/a-acnia* 'always'; *a-ahtu/a-ahta* 'sometimes'; *a-asvɨtɨ/a-asvɨta* 'occasionally'; *'a-oko* 'all the time'; *a-sngɨcɨ/a-sngɨca* 'often'
without *a-* :	*conino* 'usually'; ***i'-nɨskɨ/ i'-nɨska*** 'once'; ***i'-sospotɨ*** 'four times'
EPISTEMIC	
with *a-* :	*a-sansanno* 'surely'; *a-sonɨ/ a-sona* 'possibly'; *a-sosonɨ/ a-sosona* 'probably'
without *a-* :	(unattested)
EMPHATIC	
with *a-* :	*a-'ɨmtɨ/ a-'ɨmta* 'really'
without *a-* :	(unattested)
EVALUATIVE	
with *a-* :	*a-bohtɨ/a-bohta* 'fortunately'
without *a-* :	(unattested)

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-sonɨ** m-imo to emi nesoni.
      IRR-3SG ADV-easy.AV 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-bohtɨ** 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>opsɨ to tposɨ.
      AV-1SG TA\<AV>-u-RED-slow.AV \<AV>-write OBL book
      'I wrote (a book) slowly.'

(57) Ta-'u   ~~tu-usufcungnu~~   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   baito 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 TAVCs, LPAVCs, and PCAVCs.

3.2 SYNTAX OF TAVCS.   In the traditional X-bar theory, adverbials are analyzed as adjuncts, which are adjoined to either X^0, 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

   b. *Te-ko   **a-u-po-poha'v-a**.
      IRR-2SG   ADV-u-RED-slow-PV

(61) cf. (23)

    a. *Mi-ta   **i'-vaho**   to   emi.
        AV-3SG   ADV-again.AV   OBL   wine

    b. *I-ta   **i'-vah-a**   si   emi.
        NAV-3SG ADV-again-PV   NOM   wine

(62) cf. (28)

    a. *La-ta   **a-sngᵾcᵾ**   to   tposᵾ.
        HAB-3SG ADV-often.AV   OBL   book

    b. *La-ta   **a-sngᵾc-a**   'o   tposᵾ.
        HAB-3SG ADV-often-PV   NOM   book

(63) cf. (35c–d)

    a. *Mi-ta   **a-sonᵾ**   to   emi   nesoni.
        IRR-3SG ADV-easy.AV   OBL   wine   just.now

    b. *I-ta   **a-son-a**   'o   emi   nesoni.
        IRR-3SG ADV-easy-PV   NOM   wine   just.now

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) a. Mo   **asonᵾ**   **mo-si**   ta   pangka   to   emi   'o   amo.
       AV   possibly.AV   AV-put   OBL   table   OBL   wine   NOM   father
      'Father possibly put wine on the table.'

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

    c. I-si   **ason-a**   **si-i**   ta   amo   ta   emi   'o   pangka.
       NAV-3SG possibly-NAV put-LV   GEN   father OBL   wine   NOM   table
      'Father possibly put the wine on the table.'

    d. I-si   **ason-a**   **si-eni**   ta   emi   ta   amo.
       NAV-3SG possibly-NAV put-RV   OBL   wine   GEN   father
   'Father possibly put the wine for him.'(Based on Zeitoun 2000:93–94)

As illustrated in (64), the adverbial verb occurs either in AV form (*asonᵾ*) 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

to involve applicativization (S. Huang 2005, J. Wu 2006, S. Chen 2007, H. Chang 2008, among others).

FIGURE 2. PHRASE STRUCTURE OF TAVCs: (64c), FOR EXAMPLE
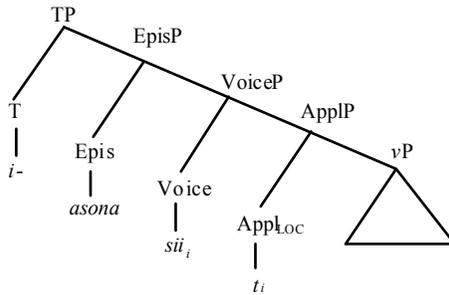
3.3 SYNTAX OF LPAVCS/PCAVCS. In LPAVCs, an adverbial root and a lexical prefix form an adverbial compound, with the lexical prefix denoting an event and the adverbial root describing the property of the event. An adverbial compound contrasts sharply with an adverbial verb in grammatical behaviors. I 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**-nʉskʉ to tposʉ.
          AV-3SG-only see.AV-once.AV OBL book
          'He read the book only once.'

      b. Mi-'o-c'o **moh**-nʉskʉ ta Tfuya.
          AV-1SG-only go.AV-once.AV OBL Tfuya
          'I have been to Tfuya only once.'

      c. Mi-'o-c'o **o**-nsohʉ   ta conohie.
          AV-1SG-only eat-once.AV   OBL oneday
          'I ate only once a day.'

      d. La-'u-c'o **pe**-nsohʉ   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).

(67) a. Os-'o **ta-u-po-poha'v-i**   'o   tposɨ.
      NAV-1SG TA.NAV-u-RED-slow-LV   NOM book
      'I wrote the book slowly.'

    b. Os-'o **hu-kameos-i**   'o   tposɨ.
      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   yoskɨ.
     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-sonɨ**   bonɨ to   yoskɨ.
      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   yoskɨ.
      NAV-3SG eat-RED-easy-PV   eat-PV NOM fish
      'He ate the fish without any difficulty.'

(70) a. Te-'o-cu **o-u-'ɨmtɨ**   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-'ɨmt-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-bohtɨ**.
      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 LPAVCs. 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 LPAVC 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	*akameosɨ* 'quickly'	*hukameosi* 'to have a quick look at'	(25b)
Cardinal frequency	*inɨskɨ* 'once'	*mohnɨskɨ* 'to go to … once'	(30b)
Quantificational frequency	*asngɨcɨ* 'often'	*tisɨɨngcva* 'to make it straight' # 'to do s.t. with hands often'	(34)
Epistemic	*asonɨ* 'possibly'	*pesona* 'to bottom up' # 'to possibly drink'	(38a)
	asansanno 'surely'	*tusansanni* 'to double-check with s.o.' # 'to surely ask'	(43a)
Emphatic	*a'ɨmtɨ* 'really'	*ou'ɨmtɨ* 'to eat a regular meal' # 'to really eat'	(46a)
Evaluative	*abohtɨ* 'fortunately'	*ebohtɨ* 'to say carelessly' # 'to fortunately say'	(51a)

TABLE 3. ADVERBIAL COMPOUNDS VS. ADVERBIAL VERBS IN TSOU

GRAMMATICAL PROPERTY	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:

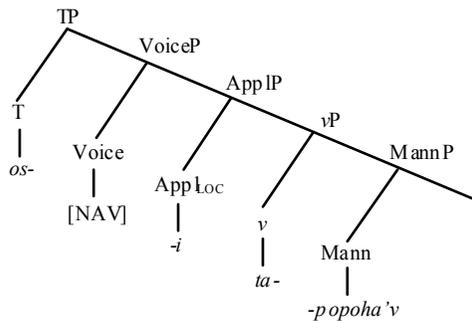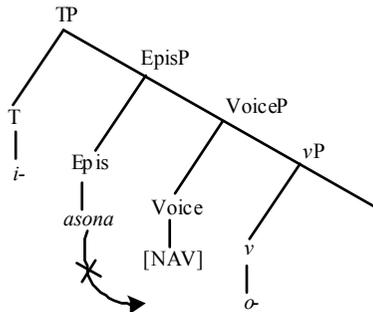**FIGURE 3. UNDERLYING STRUCTURE OF LPAVCs:
(67a), FOR EXAMPLE**

FIGURE 4. UNDERLYING STRUCTURE OF (68)

(72) a. Os-'o **ti-u-po-poha'v-a** chu-a   'o feʉ'ʉ.
          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 *v*P above VP (Chomsky 1995, 2001).

    Meanwhile, adverbial compounding in PCAVCs 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'ʉ.
          NAV-1SG TI-u-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 central-southern Taiwan (Nojima 1996, Tsuchida 2000, Adelaar 2004, Li 2009, among others). 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
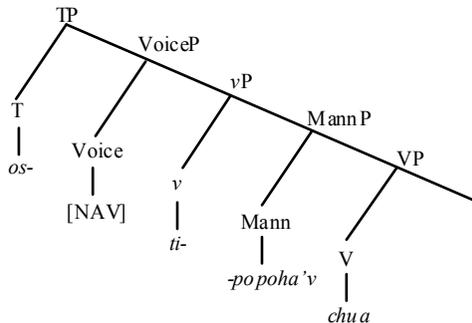
(74) a. *Os-'o ti-u-po-poha'v-a **c\<m\>uhu**   'o   fe**ʉ**'**ʉ**.
         NAV-1SG TI-u-RED-slow-PV \<AV\>-kill   NOM pig

   b. *Os-'o ti-u-po-poha'v-a **t\<m\>oecʉ**   '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\>opsʉ to   tposʉ.
         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   tposʉ.
         NAV-1SG TA.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/*v*P. In contrast, as a lexical verb, an adverbial compound is generated under VoiceP/*v*P. 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-bohtʉ**   **a-'ʉmtʉ 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-bohtʉ**   **a-'ʉmtʉ 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 *abohtʉ* 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/*v*P but an adverbial compound is realized as a lexical verb under VoiceP/*v*P. Therefore, an adverbial verb must precede an adverbial compound in surface syntax. Compare:

(78) a. Mi-ta   **a-bohtʉ**   **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-bohtʉ**   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-nɨskɨ** ne Maibayu ho mo conofeohɨ.
    HAB-1SG ADV-one go-once   LOC Chiayi   SUB AV one.month
    'I go to Chiayi once a month.'

   b. *La-'u **moh-nɨskɨ a-acni** ne Maibayu ho mo conofeohɨ.
    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.

FIGURE 6. ADVERBIAL HIERARCHY (REVISED)
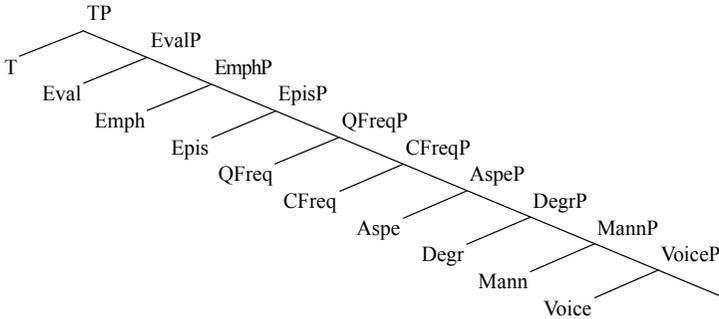
3.5 VOICE-MARKING IN AVCS

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   tposɨ.
         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   tposɨ.
         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>oecɨ**   '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 clause-
               mate 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   cnumu.
          AV-1SG   start.AV   eat.AV   OBL   banana
          ‘I start eating bananas.’

      b. Os-’o   **ahoz-a**   **an-a**   ’o   cnumu.
          NAV-1SG   start-PV   eat-PV   NOM   banana
          ‘I start eating the bananas.’   (H. Chang 2005:6)

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

      b. Os-’o   **kaeb-a**   **an-a**   ’o   cnumu.
          NAV-1SG   like-PV   eat-PV   NOM   banana
          ‘I like eating the bananas.’   (H. Chang 2005:6)

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

      b. Os-’o   **uci-a**   **an-a**   ’o   cnumu.
          NAV-1SG   want-PV   eat-PV   NOM   banana
          ‘I want to eat the bananas.’   (H. Chang 2005:5)

(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. Os-’o   **peel-a**   **hu-mayahz-i**   ’o   tposu.
          NAV-1SG   able-PV   see.NAV-quick-LV   NOM   book
          ‘I am able to read the book quickly.’   (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

(90) a. Mi-ta   butaso   **ho**   mi-ta   **poeohu**   to   fatu.
          AV-3SG   forceful.AV SUB   AV-3SG   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.’

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 second 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

predicate. 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   poeohɨ 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-bohtɨ   bonɨ** netaseona, ko'ko o'a mocu mi-'osieo.
      AV-1SG ADV-careless.AV eat.AV morning   therefore NEG yet   AV-1SGhungry
      '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).

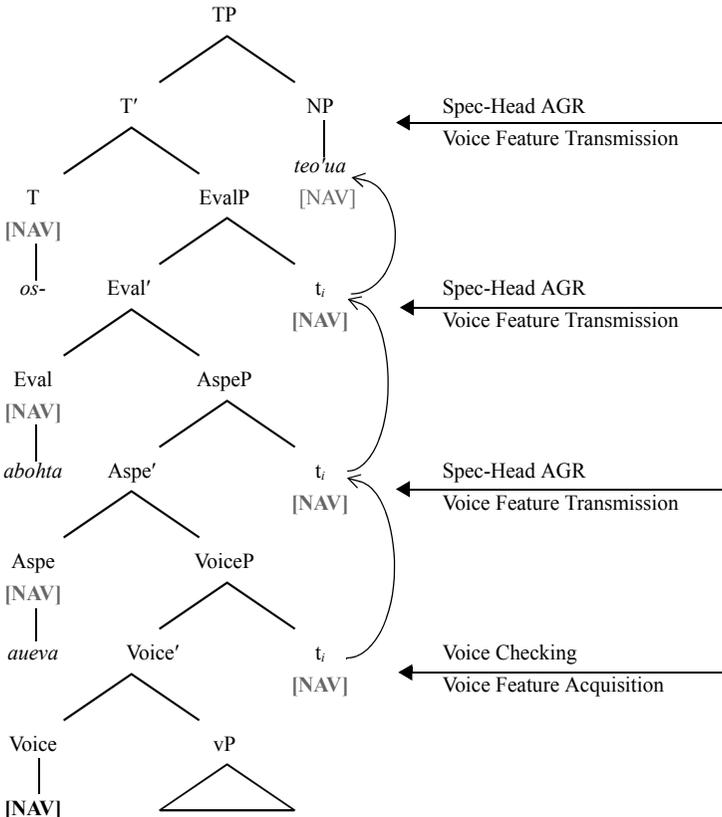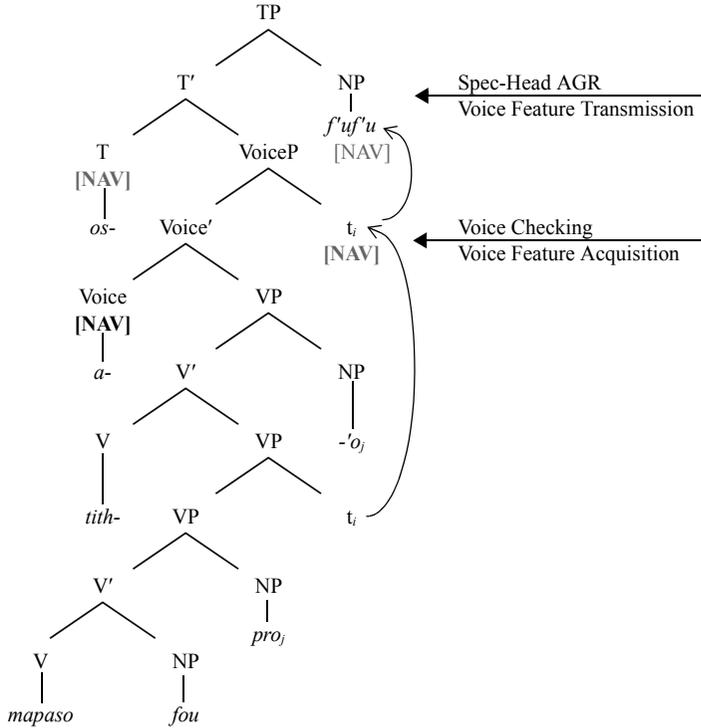### FIGURE 7. FEATURE ACQUISITION AND TRANSMISSION (93b), FOR EXAMPLE

**FIGURE 8. VOICE CONCORD UNATTESTED
(94a), FOR EXAMPLE**

A similar explanation can also carry over to the causative constructions that do not display the voice concord. For example:[15]

(95) Os-'o   poa   **m-ayo** to tposɨ   'o Mo'o.[16]
      NAV-1SG CAUS.NAV AV-take OBL book   NOM Mo'o
      'I made Mo'o take a book.'

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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** yuvɨ'ohɨ 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** coeconɨ 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** meoisi si   tposɨ-su.
         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

AV	NAV	
buh-	hu-	'to see'
him-	Ø (zero marking)	'to feel'
mateo-	teo-	'to wash (body)'
moh-	—	'to go'
ma'-	Ø (zero marking)	'to think'
sme'-	s'e-	'to cut'
smo-	paso-	'to mount'
tma-	ta-	'to hear, write, read'

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<m>a-u-po-poha'o** t<m>opsʉ   to   tposʉ.
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   tposʉ.
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.[17] 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 under-studied 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:

(97) MAYRINAX ATAYAL
    a. **M-ti-hiya-hiyaw=ci' m-aniq** cu' qulih.
        AV-eat-RED-slow=1SG.NOM AV-eat   OBL fish
        'I eat fish slowly.'

    b. **M-akna-bibul=ci'   h<um>akal.**
        AV-walk-fast=1SG.NOM   <AV>-walk
        'I walk fast.'   (C. Wu 2009)

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 *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, $Asp_{habitual}$, whereas their cardinal counterparts are treated as the specifier of a lower repetitive/iterative aspect head, namely, $Asp_{repetitive}$.

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.

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