

Applicatives vs. Adjuncts:
Evidence from Chinese and Formosan
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1. Introduction

How to hierarchically represent various types of oblique elements has been an important issue within the theories of linguistics. Among others, Larson (1988), for instance, proposes that obliques may be projected as innermost arguments of verbs, as in (1a). Pylkkanen (2000) and McGinnis (2001), on the other hand, suggest that applied arguments like obliques may be introduced by applicative light verbs, as in (1b). Alexiadou (1997), Cinque (1999, 2004) and Haumann (2007), by contrast, claim that they should be generated as specifiers of functional heads, as in (1c). Travis (1988), Chomsky (1995), Tang (1990, 2001, 2008) and Ernst (2002), however, indicate that adjunction positions should also be accessible for location of oblique elements, as in (1d).

Some previous claims about hierarchical representation of oblique expressions:

- (1) a. Larson (1988), etc.: obliques may be projected as innermost arguments of verbs.
- b. Pylkkanen (2000), McGinnis (2001), etc.: obliques may be introduced by applicative light verbs.
- c. Alexiadou (1997), Cinque (1999, 2004), Haumann (2007), etc.: obliques may be generated as specifiers of functional heads.
- d. Travis (1988), Chomsky (1995), Tang (1990, 2001, 2008), Ernst (2002), etc.: adjunction positions may be accessible for location of oblique elements.

These four different kinds of approaches to generation of obliques in fact demonstrate the two main distinct perspectives of syntactically projecting oblique expressions, that is, as in (2a-c), are they to be base generated as arguments or adjuncts? In the case of arguments, are they introduced by verbs, applicative light verbs or prepositions? In the case of adjuncts, are they projected as specifiers or non-specifiers? Furthermore, with respect to phase structure, do different heights of applicatives constitute distinct phase effects for arguments and adjuncts, as in (2d-e)?

Some relevant theoretical issues:

- (2) a. Are obliques base generated as arguments or adjuncts?
 - b. arguments: are they introduced by verbs, applicative light verbs or prepositions?
 - c. adjuncts: are they projected as specifiers or non-specifiers?
- d. Do different heights of applicatives constitute distinct phase effects for arguments and adjuncts?
- e. When can EPP features be added to a phase?

2. An alternative

By examining the morphological, syntactic and semantic behavior of various types of pre-verbal and post-verbal oblique expressions in Chinese and Formosan, which are typologically different in, for example, word order (SVO vs. predicate-initial), as in (3a), agreement marking (covert vs. overt), as in (3b), and subject-only requirement (absence vs. presence), as in (3c),

Chinese vs. Formosan

- (3) a. word order: SVO (Chinese) vs. predicate-initial (most

- Formosan languages)
- b. agreement marking: covert (Chinese) vs. overt (Formosan)
- c. the subject-only requirement: absence (Chinese) vs. presence (Formosan)

it is first shown in the paper that, as indicated in (9)-(13), the various types of different properties of applicatives and phases are claimed to be distinguished in accordance with the distinct level of application as well as typology of languages, to be compared with the relevant proposals made in McGinnis (2001), as in (4)-(7), and Landau (2008), as in (8), among others.

Kinyarwanda (McGinnis 2001)

- (4) a. Umukoobwa a-ra-som-er-a umuhuungu igitabo.
 girl SP-pres-read-appl-asp boy book
 ‘The girl is reading a book for the boy.’
- b. Umukoobwa_i a-ra-andik-ir-w-a t_i ibaruwa
 girl SP-pres-write-appl-pas-asp letter
 n’umuhuungu.
 by.boy
 ‘The girl is having the letter written for her by the boy.’
- c. Ibaruwa_i a-ra-andik-ir-w-a Umukoobwa t_i
 letter SP-pres-write-appl-pas-asp girl
 n’umuhuungu.
 by.boy
 ‘The letter is written for the girl by the boy.’

McGinnis (2001)

- (5) a. Appl-VP (high): a phase with EPP features
 b. V-AppI (low): not a phase
- (6) a. Alicia_i was baked t_i a cake.
 b. *A cake_i was baked Alicia t_i.
 c. Which medal_i did Reuben award Ben Johnson t?
 d. [The pudding_i], they [_{VP} ate t_i].

McGinnis (2001)

- (7) The high Appl head is a Case-checker.

Landau (2008)

- (8) Thematic selection and formal licensing are separated; Appl is distinct from light v.

Proposals:

- (9) a. lexical applicativization vs. syntactic applicativization
 b. high applicative vs. low applicative
 c. covert applicative vs. overt applicative
 d. strong phase vs. weak phase
 e. ergative language vs. non-ergative language
 f. argument/complement obliques vs. adjunct obliques
 g. specifier obliques vs. adjoined obliques

lexical applicativization vs. syntactic applicativization

- (10) a. Lexical applicativization does not have ApplP in syntax.
 b. Only Appl-VP may be done in lexicon or syntax.

covert applicative vs. overt applicative

- (11) a. A covert Appl-VP cannot act as a case-checker.
 b. A covert V-AppI may conditionally act as a case-checker.

strong phase vs. weak phase (see also Chomsky 2001 and Aldridge

2008, among others)

- (12) a. Active/Agent Voice generally induces a strong phase.
b. Passive/Undergoer Voice generally induces a weak phase.

ergative language vs. non-ergative language

- (13) a. In Formosan, applicatives are accessible mainly for non-PV Undergoer sentences.
b. In Chinese/Kinyarwanda/English, applicatives are accessible for both Active and Passive sentences.

In addition, it is also demonstrated that in accordance with their lexico-semantic and morpho-syntactic properties, oblique elements in Chinese and Formosan may be projected as arguments or adjuncts, in which all the aforementioned different generation structures are observed.

3. Chinese

In Chinese, for instance, at least seven types of applicatives as in (14)-(17), (19) and (24)-(25) below need to be postulated, to be compared with their relevant English counterparts as in (18), (20) and (23).

Mandarin/Southern Min

- (14) a. applicatives projected between the outer aspect (in the sense of Tsai (2008a)) and vP:
b. ta gei ni **xie-le** yi-feng xing.
he GEI you write-LE one-CL letter
'He wrote you a letter.'
c. ta **zai** wei ni **zuo** fan.
he ZAI WEI you make rice.
'He is cooking for you.'
- (15) a. applicatives projected between the middle aspect and VP:
b. ta **ji-gei-le** wo yi-ben shu.
he send-GEI-LE I one-CL book
'He sent me a book.'
- (16) a. lexical applicativization without syntactic ApplP:
b. ta song wo ni-de shu le.
he give I you-DE book LE
'He gave me your book.'
c. ta song ni-de shu gei wo le.
he give you-DE book GEI I LE
'He gave your book to me.'
- (17) a. syntactic applicativization with covert high Appl:
b. *ta xie-le wo yi-feng xin.
he write-LE I one-CL letter
c. *ta xie-le wo yi-ben shu.
he write-LE I one-CL book
- (18) a. applicatives projected as the complement of V:
b. He wrote me a letter.
c. He wrote me a report.

Mandarin/*Southern Min/*English

- (19) a. lexical applicativization without syntactic ApplP:
b. ta qiang-le wo henduo qian.
he steal-LE I very-much money
'He robbed me of a lot of money.'

- c. ta tou-le wo henduo qian.
he steal-LE I very-much money
'He stole a lot of money from me.'
- (20) a. V-Appl cannot introduce an applied affectee.
b. *He robbed/stole me a lot of money.
- Mandarin/Southern Min
- (21) a. wo xiang tang (zai) chuang-shang.
I want lie at bed-top
'I want to lie *(on) the bed.'
b. ni zuo (zai) zheli.
you sit at here
You sit here.'
c. ta yi quan da *(zai) zhuo-shang.
he one fist hit at table-top
'He struck one fist on the table.'
- (22) a. ni-de shu yijing bei wo fang (zai) zhuo-shang le.
you-DE book already BEI I put at table-top LE
'Your book was already put on the table by me.'
b. ta gua-le yi-fu hua *(zai) qiang-shang.
he hang-LE one-CL panting at wall-top
'He hung a painting on the wall.'
- (23) a. Your book was already put *(on) the table.
b. He put a book *(on) the table.

Mandarin/Southern Min

- (24) a. V-appl with covert Appl and pseudo-poss
b. not enough case-checkers
c. *ta fang zhuo-shang ni-de shu le.
he put take-top you-DE book LE
- (25) a. covert applicatives projected between the T and outer aspect:
b. zhuo-shang (bei wo) fang-le ni-de shu.
table-top BY I put-LE you-DE book
'(lit)The table was put your book by me.'

If the proposed analysis of the Chinese DOCs examined in the paper is on the right track, there seems to exist a transitivity hierarchy among these different types of verbs. That is, verbs with lexical covert applicatives are the most transitive, and those with syntactic covert applicatives are the least transitive, with those with syntactic overt applicatives in between. This variation of transitivity of different kinds of Chinese DO verbs also conforms to Pei-chuan Wei's (2008, personal communication) observation that diachronically the DOC appears earlier than the dative construction in Chinese. Furthermore, Chinese dialects like Southern Min (and Hakka) are also shown to be syntactically more analytical than Mandarin.

In fact, as will also be shown in the following discussions, our findings about Chinese outer and inner applicatives so far clearly indicate that in Chinese there appears a process of grammaticalization of verbs first into light verbs and then into prepositions, as a result of which the hierarchical projection of arguments and adjuncts are both affected.

To begin with, Tang (2008) examines the morphological, syntactic and semantic behavior of various types of pre-verbal and post-verbal oblique expressions like manners, locatives, temporals, etc. in Formosan and Chinese. Though, as already pointed out, these two kinds of languages are typologically different in, for example, word order (predicate-initial vs. SVO), agreement marking (overt vs. covert) and subject-only requirement (presence vs. absence), two main grammatical parallelisms are, however, found

between them.

First, via grammaticalization or derivational morphology, oblique elements may act as predicates, complements or adjuncts, each function with different morphological manifestations and syntactic distributions. Second, oblique elements projected as spinal heads, complements and adjuncts exhibit similar intervention and blocking asymmetries with movement operations, in which obliques of non-core modification, not those of core modification, are transparent to movement of head and adjunct XP elements.

To capture these and other relevant cross-linguistic base generation and movement phenomena, it is proposed in Tang (2008) that, as opposed to Cinque's (1999) specifier-only condition, among others, oblique expressions located in adjunction positions should be structurally permitted and syntactically distinguished from those projected as specifiers, spinal heads and complements. While non-adjoined oblique expressions enter the syntactic domain of core agreement between heads and heads/specifiers/complements, adjoined oblique expressions interact only with the semantic configuration of peripheral licensing of adjuncts by heads.

Tang (2008) also suggests that, in addition to the semantic features required for hierarchical projections of arguments and adjuncts, other types of grammatical feature specifications should also be included for feature marking of arguments and oblique expressions, the distinctive value settings of which are sensitive to different kinds of syntactic operations like head and adjunct XP movement.

If, like various non-oblique arguments, morphologically and semantically distinct types of oblique expressions may also be syntactically projected to four different kinds of generation sites like specifiers, spinal heads, complements and adjunctions that bear different feature linking relationships with verbs, then there seems to appear a plausible way of syntactic mapping of Rizzi's (2004) semantic classification of Relativized Minimality into structural representation (cf. Tsai 2008b).

In Tang (2008) it is also pointed out that different usages and occurrences of Chinese pre-verbal oblique expressions like locatives, instrumentals, benefactives, etc. may be proposed to be projected in terms of applicative light verbs according to the height of the interpretation along the lines of McGinnis (2001), among others.

As already discussed in Tang (2008), note first that the presence of (co-)verb vs. preposition contrast between grammatical (26a) and ungrammatical (27a), on the one hand, and the absence of the same contrast between grammatical (27a) and (27b), on the other hand, clearly indicate that distributional variation alone cannot determine the proper projection of so-called circumstances or extra peripheral arguments and that not all oblique expressions appearing between the subject and the verb should be base generated as applicative structures.

Mandarin

- (26) a. ni [zai bu zai meiguo [jiao nanpengyou]]?
you at not at America make boy-friend
'(lit) Do you make boy friends in the United States?'
b. ni [[zai meiguo] [jiao bu jiao nanpengyou]]?
you at America make not make boy-friend
'(lit) Do you make boy friends in the United States?'
- (27) a. *ni [zai bu zai meiguo [you nanpengyou]]?
you at not at America have boy-friend
b. ni [[zai meiguo] [you mei you nanpengyou]]?
you at America have not have boy-friend
'Do you have boy friends in the United States?'

In Chinese, in other words, grammaticalization of verbs into co-verbs and then further into prepositions is syntactically mapped to argument and adjunct projections, not just

argument realization.

Furthermore, the choice of argument or adjunct projection of oblique expressions is lexico-semantically determined by the types of co-occurring non-applicative verbs. Activity verbs like *jiao* ‘make’ in (26a), for example, not stative verbs like *you* ‘have’ in (27a), may act as embedded verbs of applicative light verbs like *zai* ‘at’. Similar grammaticality distinction is also found between stative verbs like *anjing* ‘quiet’ as in (28) and activity verbs like *mai* ‘sell’ as in (29).

Mandarin

- (28) a. *ta [zai bu zai xuexiao [hen anjing]]?
he at not at school very quiet
b. ta [[zai xuexiao] [an bu anjing]]?
he at school quiet not quiet
‘Is he quiet at school?’
- (29) a. ta [zai bu zai shichang [mai shueiguo]]?
he at not at market sell fruit
‘Does he sell fruits at the market?’
b. ta [[zai shichang][mai bu mai shueiguo]]?
he at market sell not sell fruit
‘Does he sell fruits at the market?’

Third, the finiteness/non-finiteness of the co-occurring non-applicative verb also indicates the (im)possibility of base generation of a pre-verbal oblique as argument of the applicative light verb, as shown in the ungrammaticality of finite (30a) below.

Mandarin

- (30) a. *ta [zai bu zai jiali [neng zhong hua]]?
b. he at not at home can plant flower
ta [[zai jiali] [neng bu neng zhong hua]]?
he at home can not can plant flower
‘Can he plant flowers at home?’

Fourth, the transitivity of the non-applicative verb itself, however, does not seem to have effect on the distribution of pre-verbal applicative verbs, as (31) illustrates.

Mandarin

- (31) a. ta [[zai bu zai zheli [tiaowu]]?
he at not at here dance
‘Does he dance here?’
b. ta [zai mei zai neli [ku]]?
he at not at there cry
‘Did he cry over there?’

Fifth, given the aforementioned grammaticality contrasts of (26)-(31) and the grammaticality of cases like (32) below, it is clear that the ungrammaticality of sentences like (33) cannot be attributed to an account based on the height of the interpretation of applicative light verbs like *zai*. That is, in Chinese the impossibility of A-not-A question of the sentence-initial obliques in cases like (33) is not because they are projected higher than location of the C operator or the [+Q] I in the sense of Huang (1991), but because they are simply not the accessible spinal non-phrasal elements for the operation of A-not-A head movement.

Mandarin

- (32) a. shi bu shi [yinwei tianqi bu hao, suoyi ta bu neng lai]?
be not be because weather not good so he not can come
‘Is it the case that because the weather is not good, he cannot come?’
b. shi bu shi [ruguo ni you qian, ni jiu hui bang wo]?

- be not be if you have money you then will help I
 ‘Is it the case that if you have money, you will help me?’
- (33) c. shi bu shi [ni jinlai de shihou, ta yijing shuizhao le]?
 be not be you enter-come DE moment he already asleep LE
 ‘Is it the case that when you came in, he was already asleep?’
- a. *[[zai bu zai meiguo] ni [jiao nanpengyou]]?
 at not at America you make boy-friend
- b. *[[zai bu zai meiguo] ni [you nanpengyou]]?
 at not at America you have boy-friend

The discussion so far not only suggests that in Chinese pre-verbal obliques may be projected as arguments of applicative light verbs or adjuncts, but also indicates that sentence-initial obliques like locatives, etc. should not be located in terms of applicative structure. This restrictive non-sentence-initial distribution of synchronic Chinese applicative light verbs like locative *zai* seems to conform to the Chinese word order pattern of SVO. We thus propose that in Chinese the post-subject pre-verbal applicatives of locatives, temporals, instrumentals, goals, benefactives, sources, etc. are all projected between T and vP. In other words, they are treated as outer applicatives in Chinese.

4. Formosan

As shown in (34a-b), (35a-b) and (36a-b), respectively, several different claims about Formosan applicatives have been made with respect to the height, realization and argument of the applicative.

distinct heights vs. identical heights:

- (34) a. distinct heights: M. Chang (2004), Chen (2007), etc.
 b. identical heights: H. Chang (2008)

overt applicatives vs. covert applicatives:

- (35) a. overt applicatives: M. Chang (2004), Chen (2007) and Aldridge (2008), etc.
 b. covert applicatives: H. Chang (2008)

merger vs. raising of applied arguments:

- (36) a. merger: M. Chang (2004), Chen (2007) and Aldridge (2008), etc.
 b. raising: H. Chang (2008)

In the case of Formosan languages like Paiwan, some of our proposals in the paper are given as in (37) below.

Proposals (Paiwan: VSO/VOS):

- (37) a. identical heights
 b. covert applicatives
 c. merger of applied arguments

With respect to the question whether different height of applicatives and adjuncts constitute distinct phase effects, Tang (2008) has some relevant discussion as given in the below.

In languages like Chinese and Formosan post-verbal oblique expressions are not allowed to be all projected as complements, a claim different from Larson’s (1988) postulation that adjuncts may be generated as innermost arguments of the verb according to a principle of argument realization coupled with a condition on Thematic Hierarchy as in (38).

Thematic hierarchy

- (38) Agent > Theme > Goal > Obliques (manner, location, time, . . .)

Another relevant grammatical property that is characteristic of Austronesian languages has to do with a so-called subject-only condition found with various kinds of syntactic

constructions. That is, only subjects are accessible for agreement of feature specifications of tense, aspect, voice, verb, applicative, etc., and thus only subjects undergo grammatical operations like topicalization, relativization, wh-movement, etc. Most of Formosan languages are also no exceptions.

In Formosan cases like Puyuma (39b) and (40b), for instance, only the subject nominal that thematically agrees with the verb may act as topic.

Puyuma

(39)a. ta=lriputr-anay dra kuraw na bira'. (Teng 2008)

1P.Gen=wrap-UV:I Id.Obl fish DF.Nom leaf

'We wrapped fish with the leaves.'

b. na bira' i, ta=lriputr-anay dra kuraw.

DF.Nom leaf Top 1P.Gen=wrap-UV:I Id.Obl fish

'The leaves, we use them to wrap fish.'

(40)a. trikelr dra sa'adr.

<AV>pick Id.Obl branch

'She picked up some branches.'

b. *na/dra sa'adr i, trikelr.

Df.Nom/Id.Obl branch Top <AV>pick

Under this subject-only condition, note that in Puyuma verbs like *ua-dalep* 'go close', as in (41a), and *mu-atel* 'cause to fall', as in (42a), take goal expressions marked with oblique *kana* or locative *i*, according to Teng (2007). And of these two kinds of non-agreeing goals, as (41b-c) and (42b-c) illustrate, only the non-case marked goal can appear in sentence-initial position.

Puyuma

(41)a. aDi ua-dalep i/kana ine. (Teng 2007)

NEG go-close LOC/DF.OBL sea

'Don't go close to the sea.'

b. i ine i, aDi ua-dalep.

LOC sea Top NEG go-close

'The sea, don't go close to it.'

c. *na/kana ine i, aDi ua-dalep.

DF.NOM DF.OBL sea Top NEG go-close

(42)a. mu-atel=ku i/kana kali.

ACAUS-fall=1S.NOM LOC/DF.OBL brook

'I fell into the brook.'

b. i kali i, mu-atel=ku

LOC brook Top ACAUS-fall=1S.NOM

'The brook, I fell into it.'

c. *na/kana kali i, mu-atel=ku.

DF.NOM DF.OBL brook Top ACAUS-fall=1S.NOM

By comparison, Puyuma non-agreeing temporal adjuncts as in (43) and locative adjuncts as in (44) can both occur pre-verbally or post-verbally, and they do not take case markers.

Puyuma

(43) (garem) i, ka-kuda=mi (garem)? (Teng 2007)

now Top RED-how=1PECL.NOM now

'Now what should we do?'

(44) (i/*kana ruma') i, TekeL=ku (i/*kana ruma').

LOC DF.OBL house Top ITR-drink=1S.NOM LOC DF.OBL house

'At home I drink (wine).'

And, according to Teng (2007), in Puyuma temporals and locatives also act as subjects in sentences like (45) and (46), respectively, to be compared with the non-subject goals in (41a) and (42a).

Puyuma

(45) nantu ka-si<a>kasik-an andaman. (Teng 2007)

DF.NOM/3.PSR ka-<a>set.out-NMZ tomorrow

‘Tomorrow is (the day of) their setting out.’

(46) ku=selrap-ay i/na sawka.

1Gen=sweep-LV LOC/DF.NOM kitchen

‘I sweep the kitchen.’

As for Puyuma unmarked oblique complements, they are also not allowed in sentence-initial positions, as demonstrated in (47).

Puyuma

(47) * an kur-panana=Diya ___ i nanali m-asal i,
if get-hurt=IMPF SG.NOM my.mother ITR-again TOP

‘If my mother gets hurt again,’ (Teng 2007)

Puyuma data discussed so far seem to suggest two important things. First, oblique expressions like instrumentals, goals, benefactives, temporals, locatives, etc. may be syntactically projected as arguments or non-arguments in Formosan languages. Second, only in argument positions like subjects, objects and complements are the required sets of semantic features like [agent], [patient], [instrument], [goal], [benefactive], [time], [location], etc. visible for the relevant overt agreement checking of the subject-only constraint in Formosan languages (cf. Rackowski & Richards 2005 and Pearson 2005, among others).

With the same structural consideration, non-argument specifier positions of spinal functional heads that may potentially agree with raised verbs should also not be treated as location of these Formosan post-verbal movable peripheral adjuncts. An alternative way of hierarchical projection of such Formosan adjuncts then is to locate them in non-agreeing adjunction positions of spinal functional and lexical heads in accordance with the morpho-syntactic and lexico-semantic properties of distinct types of predicates and non-core adjuncts. If an analysis along this line of the thought is on the right track, the Chinese pre-verbal non-blocking non-spinal [+ peripheral] adjuncts may also be generated as adjoined, not specifier, adjuncts.

Similarly, as shown in Paiwan AV (48b-c) and NAV (49b-c), non-agreeing object nominals also cannot be interpreted as heads of relatives.

Paiwan

(48)a. na-v-en-eLi ti kai tua kun. (Tang et al. 1998: 379)

Perf-AV-buy Nom Kai Obl skirt

‘Kai bought a skirt.’

b. ti kai a na-v-en-eLi tua kun.

TI Kai A Perf-AV-buy Obl skirt

‘The person that bought a skirt is Kai.’

c. *kun a na-v-en-eLi ti kai.

skirt A Perf-AV-buy Nom Kai

(49)a. v-in-eLi ni Kai a kun.

PV-buy Gen Kai Nom skirt

‘Kai bought a skirt.’

b. kun a v-in-eLi ni kai.

skirt A PV-buy Gen Kai

‘The thing that Kai bought is a skirt.’

c. *ti kai a v-in-eLi a kun.

TI Kai A PV-buy Nom skirt

And in Paiwan (50) and (51a), the temporal complement, not the temporal adjunct, cannot appear sentence-initially.

Paiwan

(50) * uri-ma-sengseng ___ ti kai [a pate-nuicavil].
will-work-AV Nom Kai A until-next-year
'Kai will work until next year.'

(51)a. ___ uri-ma-ngetez ___ ti kui nuicavil.
will-come-AV Nom Kui next-year
'Kui will come next year.'

b. ka mangetez ti kai, '-em-au'aung ti kui _____. (Tang 1999: 574)
when come-AV Nom Kai cry-AV-Red Nom Kui
'When Kai came, Kui was crying.'

c. nu k-em-an, migacal ti kai _____. (Tang 1999: 575)
while eat-AV stand Nom Kai
'Kai is standing while eating.'

Likewise, in the case of Paiwan locative expressions, it is also complement locatives as in (52) and (53), not adjunct locatives as in (54), that cannot occur pre-verbally (cf. Wu 2004).

Paiwan

(52)a. * na-v-en-eLi ___ ti kai ___ tua kun i siubay.
Perf-AV-buy Nom Kai Obl skirt Loc store
'Kai bought a skirt in the store.'

b. * p-in-i-vavaw ___ a kizing tua kavates nimadu _____.
PI-PV-top Nom spoon Obl basket his
'He put the spoon on top of the basket.'

(53)a. * vaik-anga ___ timadu i timur.
go (AV)-ANGA he Loc Timur
'He left Timur.'

b. * uri-vaik ___ timadu [a ma-timur].
will-go (AV) he A MA-Timur
'He will go to Timur.'

(54)a. ka na-i-gaku-aken, segalu-aken _____. (Wu 2004)
when Asp-in-school-(AF)-1S.Nom quiet (AF)-1S.Nom
'I was quiet at school'

b. nu i-gaku-aken, segalu-aken _____.
when in-school (AF)-1S.Nom quiet (AF)-1S.Nom
'I am quiet at school.'

In addition to Puyuma and Paiwan, in which adjoined and non-adjoined obliques exhibit completely opposite overt agreeing patterns with verbs, other Formosan languages like Tsou also observe grammaticality contrasts of the same kind. For example, Tsou temporal adjuncts as in (55) can occur pre-verbally.

Tsou

(55) ne hucma m-i-ta ___ * uhne tfuya _____.
yesterday AV-Rea-3SG go(AV) Tfuya
'o pasuya _____. (M. Chang 2001: 2)
Nom Pasuya
'Yesterday Pasuya went to Tfuya.'

Tsou temporal expressions in fact may also be case or non-case marked. According to Pan (2007), it is again the non-case marked temporal adjunct, not the case marked temporal

complement, that may appear sentence-initially.

Tsou

- (56)a. ne-mihna m-i-ta-n'a b-onu to naveu ___ 'e pasuya ____.
 NE-just AF-REA-3S-ASP AF-eat OBL rice Nom Pasuya
 'Pasuya was just eating rice.' (Pan 2007)
- b. * te-ta uh ne'e no feohu-no-'tueva.
 IRR-3S get.to(AF) there OBL moon-OBL-March
 '(S)he will go there in March.'

Also, as pointed out in Tsai (2007), in Tsou the post-verbal temporal adjunct clause as in (57a), not the post-verbal resultative complement as in (58a), may be topicalized to a sentence-initial position, though both types of non-subcategorized constructions are marked with subordinator *ho* 'and'.

Tsou

- (57)a. M-i-ta butaso 'e Pasuya [ho m-i-ta
 AV-REA-3SG severe.AV Nom Pasuya when.IRR AV-REA-3SG
 eobako ta oko]. (Tsai 2007)
 beat.AV BL child
 'Pasuya would do it severely when he beats the child.'
- b. [Ho m-i-ta eobako ta oko], m-i-ta
 when.IRR AV-REA-3SG OBL child AV-REA-3SG
 butaso 'e Pasuya
 severe.AV Nom Pasuya
 'Pasuya would do it severely when he beats the child.'
- (58)a. (M-i-ta) ngosio 'e Pasuya ho *(m-i-ta) yaa-hioa.
 AV-REA-3SG tired.AV NOM Pasuya CONJ AV-REA-3SG do.AV-wok
 'Pasuya worked till he was tired.'
- b. *[Ho m-i-ta yaa-hioa], m-i-ta ngosio 'e Pasuya.
 CONJ AV-REA-3SG do.AV-wok AV-REA-3SG tired.AV NOM Pasuya

Under the analysis discussed so far, the grammaticality distinction in topicalization between Tsou temporal (57b) and resultative (58b) may also be accounted for in a principled way. That is, *ho*-marked resultatives, not temporals, are located as complements and hence exhibit the subject-only effect.

In view of the aforementioned Formosan topicalization asymmetries, one may, by contrast, postulate that only Formosan adjuncts projected higher than subjects are accessible for topicalization because they do not interact with agreement requirements of subjects with raised verbs in Formosan languages. There, however, appear some cross-linguistic problems for an approach along this line of thought.

First, in Chinese non-blocking pre-verbal adjuncts do not necessarily occur higher than subjects; they in fact very often appear between the subject and the verb, or even after the verb.

Second, being of different word order patterns (SVO vs. predicate-initial), non-complement phrasal adjuncts are generally base-generated pre-verbally in Chinese-type and post-verbally in Formosan-type. It thus would be rather arbitrary to claim that the presence/absence of cross-linguistic movement asymmetries should all be simply resorted to the (un)availability of syntactic projections of adjuncts higher than location of the subject. In other words, a more restrictive theory of adjunct licensing is independently required to parametrize the (im)possibility of projecting non-complement obliques in pre-subject positions among languages.

Third, empirically and theoretically it remains an important question to answer as to, within and across languages, which oblique expressions, pre-verbal or post-verbal, may

block/undergo A/A'-movement operations and why blocking/movement asymmetries exist among oblique expressions with identical and distinct semantic roles (cf. McGinnis 2001, Rackowski & Richards 2005 and Pearson 2005, among others).

Fourth, in Formosan languages like Paiwan, for instance, wh-question formation of nominative arguments is done by means of pseudo-cleft structure, as in (59a) and (60a), whereas that of non-nominative arguments is done via wh-in-situ operation of unselective binding, as in (59b) and (60b).

Paiwan

- (59)a. *tima a na-v-en-eLi tua kun?*
 who.Nom Nom Perf-buy-AV Obl skirt
 'Who is the person that bought a skirt?'
 b. *v-in-eLi nima a kun?*
 buy-PV who.Gen Nom skirt
 '(lit) Who bought a skirt?'
 (60)a. *anema a v-in-eLi ni kai?*
 what.Nom Nom buy-PV Gen Kai
 'What is the thing that Kai bought?'
 b. *na-v-en-eLi ___ ti kai tua nema?*
 Perf-buy-AV Nom Kai Obl what
 '(lit) Kai bought what?'

In the case of Paiwan non-argument wh-questions, by comparison, the nominal non-argument wh-phrase may move overtly to the sentence-initial position of the non-pseudo-cleft sentence, as in (61a), or stay in the post-verbal in-situ positions, as in (61b). The non-nominal non-argument wh-phrase to which the LF unselective binding is not accessible, an operation of overt wh-movement to the relevant sentence-initial position is required.

Paiwan

- (61)a. *kangida na-v-en-eLi ti kai tua kun?*
 when perf-buy-AV Nom Kai Obl skirt
 b. *na-v-en-eLi ___ ti kai ___ tua kun kangida?*
 Perf-buy-AV Nom Kai Obl skirt when
 '(lit) Kai bought a skirt when?'
 (62)a. *aku v-en-eLi ti kai tua kun?*
 why buy-PV Nom Kai Obl skirt
 'Why does Kai buy skirts?'
 b. **v-en-eLi ti kai tua kun aku?*
 buy-AV Nom Kai Obl skirt why

In other words, Formosan adjunct movement operations of Tsou topicalization as in (57a) as well as of Paiwan wh-movement as in (61a) and (62a) both seem to suggest that A'-movement of a post-verbal adjunct to sentence-initial position should be structurally allowed.

Last, note that, according to Stacy Teng (personal communication, 2008), in Formosan languages like Puyuma, with overt topic marker *i*, sentence-initial adjuncts need to be interpreted as topics, with or without the presence of the overt topic marker. As a result, while subordinator *an* is obligatorily required in (63a), its presence in (63b) is optional.

Puyuma

- (63)a. *ka-a<ra>re'eT=ta *(an) kaDuwan=ta.* (Teng 2007)
 ka<RED>crowded=1P.NOM when many=1P.NOM
 'It is very crowded for us if we are large in number.'
 b. (an) *kaDuwan=ta i, ka-a<ra>re'eT=ta.*

when many=1P.NOM TOP ka<RED>crowded=1P.NOM

‘It is very crowded for us if we are large in number.’

Similarly, in Squliq Atayal, according to Pawan Nayban (personal communication, 2008), sentence-initial temporals are ungrammatical if topic marker *ga* does not appear.

Squliq Atayal

(64) ___ *(ga,) m-n-ihiy ___ sayun ___ (quw) tali’ shira’.
Top AV-Perf-hit Sayun Nom Tali’ yesterday

‘Tali’ hit Sayun yesterday.’

If in Formosan languages like Puyuma and Squliq Atayal, for instance, the non-agreeing A'-moved adjuncts should be all treated as being base generated in sentence-initial positions, it would be rather unlikely that they have to be interpreted as topics.

Based on these and other relevant observations, it seems that while adjuncts may be base generated outside the vP phase, to which movement operations are not supposed to be blocked, not all moved adjuncts should be treated as coming from syntactic positions higher than vP. Furthermore, if addition of phase-EPP features, for instance, to vP may license movement of DO arguments out of the vP phase, why cannot a similar feature approach be said about adjuncts projected within the domain of VP? We will leave these issues for further research.

5. Concluding Remarks

It is shown in the paper that in accordance with their lexico-semantic and morpho-syntactic properties, oblique elements in Chinese and Formosan may be projected as arguments or adjuncts, in which all the aforementioned different generation structures are observed. In addition, as given in (65a-b), it is also suggested that the phrase structure of applicatives is sensitive to the distinct level of application and the different typology of languages, among other things.

- (65) a. lexical vs. syntactic applicativization
b. ergative vs. non-ergative languages

If our approach is on the right track to the applicatives and adjuncts of languages like Chinese and Formosan, it seems to indicate that, as stated in (66a-b), the syntactic mapping of the phrasal projection of the applicative head to the A/A'-movement domain of phase, on the one hand, and to the structure domain of event, on the other hand, should be more carefully dealt with cross-linguistically.

- (66) a. applicative vs. phase
b. applicative vs. event structure

Selected References

- Aldridge, Edith. 2008. Phase-based account of extraction in Indonesian. *Lingua* 118: 1440-1469.
- Alexiadou, Andrew. 1997. *Adverb Placement: A Case Study in Antisymmetric Syntax*. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Chang, Henry Y.-I. 2008. Focus marking and phrase structure in Tsou. Paper read at AFLA 15, Sydney.
- Chang, Melody Y.-Y. 2001. Functional categories and adverbial expressions: a case study of Paiwan and Tsou. *Report for the National Science Council*.
- Chang, Melody Y.-Y. 2004. Subjecthood in Tsou Grammar. Hsinchu: Tsing Hua University dissertation.
- Chen, Sih-Wei. 2007. Applicative Constructions in Atayal. Hsinchu: Tsing Hua University thesis.

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge: Cambridge University Press.
- Chomsky, Noam. 2001. Derivation by phase. In M. Kenstowicz (ed.), *Ken Hale: a Life in Language*. Cambridge: MIT Press.
- Cinque, G. 1999. *Adverbs and Functional Heads*. Oxford: Oxford University Press.
- Cingue, G. 2004. Issues in Adverbial Syntax. In Andrew Alexiadou (ed.), *Taking up the Gauntlet*.
- Ernst, Thomas. 2002. *The Syntax of Adjuncts*. Cambridge: Cambridge University Press.
- Haumann, Dagmar. 2007. *Adverb Licensing and Clause Structure in English*. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Huang, C.-T. James. 1991. Modularity and Chinese A-not-A question. In Osvaldo Jaeggli and Kenneth Safir (eds.), *Interdisciplinary Approaches to Languages*.
- Landau, Idan. 2008. Two routes of control: evidence from case transmission in Russian. *Natural Language and Linguistic Theory* 26: 877-924.
- Larson, Richard. 1988. On the Double Object Construction. *Linguistic Inquiry* 19: 335-391.
- McGinnis, Martha. 2001. Variation in the phrase structure of applicatives. *Linguistic Variation Yearbook* 1: 105-146.
- Pan, Chia-jung. 2007. The Grammatical Relation of Temporal Expressions in Tsou. National Chung Cheng University thesis.
- Pearson, Matthew. 2005. The Malagasy subject/topic as an A'-element. *Natural Language & Linguistic Theory* 23: 381-457.
- Pylkkanen, Liina. 2000. What applicative heads apply to. In Michelle M. Fox, Alexander Williams and Elsi Kaiser (eds.), *Proceedings of the 24th Annual Penn Linguistics Colloquium, Penn Working Papers in Linguistics* 7.1. University of Pennsylvania.
- Rackowski, Andrea and Norvin Richards. 2005. Phase edge and extraction: a Tagalog case study. *Linguistic Inquiry* 36.4: 565-599.
- Rizzi, Luigi. 2004. Locality and the left periphery. In Adriana Belletti (ed.), *Structures and Beyond: The Cartography of Syntactic Structures*, vol. 3: 223-251. New York: Oxford University Press.
- Tang, C.-C. Jane. 1990. Chinese Phrase Structure and the Extended X-bar Theory. Ithaca: Cornell University dissertation.
- Tang, C.-C. Jane. 1999. On clausal complements in Paiwan. In Elizabeth Zeiton and Paul J.-k. Li (eds.), *Selected Papers from the International Conference on Austronesian Linguistics*: 529-579.
- Tang, C.-C. Jane. 2001. Functional projections and adverbial expressions in Chinese. *Language and Linguistics* 2.2: 203-241.
- Tang, C.-C. Jane. 2008. Specifiers vs. non-specifiers: evidence from Formosan and Chinese. Paper read at the international conference The Past Meets the Present, Academia Sinica, Taipei.
- Tang, C.-C. Jane, Henry Y.-L. Chang and Dah-an Ho. 1998. On noun phrase structures in Paiwan. *The Tsing Hua Journal of Chinese Studies, New Series* 28.3: 335-384.
- Teng, Stacy F.-C. 2007. A Reference Grammar of Puyuma, an Austronesian Language of Taiwan. Australian National University dissertation.
- Teng, Stacy, F.-C. 2008. The core/oblique distinction in Puyuma. talk given at the

National Normal University.

- Travis, Lisa. 1988. The syntax of adverbs. *McGill Working Papers in Linguistics* (Special Issue on Germanic Syntax): 280-310.
- Tsai, W.-t. Dylan. 2007. Conjunctive reduction and its origin: a comparative study of Tsou, Amis and Sqliq Atayal. *Oceanic Linguistics* 46.2: 585-602.
- Tsai, W.-T. Dylan. 2008a. Tense anchoring in Chinese. *Lingua* 118: 675-686.
- Tsai, W.-T. Dylan. 2008b. Left periphery and *how-why* alternations. *Journal of East Asian Linguistics* 17: 83-115.
- Wu, Chun-ming. 2004. A Study of Lexical Categories in Paiwan. Hsinchu: National Tsing Hua University thesis.