Actor-sensitivity and Obligatory Control in Kavalan and Some Other Formosan Languages[*]

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It is shown in this paper that in Kavalan and some Formosan languages, verbs in object-control complements are required to undergo causativization. We argue that the peculiar requirement may be due to a well-observed constraint, i.e., the Actor-sensitivity constraint, which in turn follows from the morphological properties of voice affixes attested in these languages. It follows that control dependency should be thematically determined rather than grammatically determined, a conclusion against the standard structural approach.

Key words: control, causative, Actor-sensitivity, Kavalan, Formosan languages

1. Setting the stage

Control dependency (also known as Equi-NP deletion) can generally be divided into two types, that is, **obligatory control** and **optional control**, with respect to whether the embedded missing subject obligatorily takes a unique antecedent.[1] In obligatory control constructions, the embedded missing subject (represented by the empty pronominal PRO) is required to be either coreferential with the matrix subject, as in (1a), or with the matrix object, as in (1b):

(1) a. $John_i$ promised $Mary_j$ [$PRO_{i/*j}$ to behave himself].
    b. $John_i$ persuaded $Mary_j$ [$PRO_{*i/j}$ to behave herself].

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[1] For detailed discussions of the distinction between obligatory control and optional control, readers are referred to Williams (1980).

It is generally claimed that the sentence in (1a) involves subject control, which we refer as *promise*-type construction, while the sentence in (1b) involves object control, which we refer as *persuade*-type construction. In both cases, the embedded missing subject is required to take a unique antecedent. By contrast, the requirement does not hold in optional control constructions. Compare: (cf. Huang 1989:200 and Haegeman 1994: 277)

(2) a. John$_i$ wonders how [PRO$_{i/j}$ to behave oneself/himself].
  b. <u>John and Bill$_j$</u> discussed [PRO$_{i/j}$ behaving oneself/themselves].

In (2), the embedded missing subject does not have a unique antecedent. It is open to two options: it can either take generic reference, as evidenced by the generic reflexive *oneself* or be bound to the matrix argument, depending on the context. In other words, unlike in obligatory control constructions, the reference of the embedded missing subject is contextually rather than thematically or grammatically determined in optional control constructions. Accordingly, the reference of the embedded missing subject is harder to predict in optional control constructions than in obligatory control constructions. To avoid the expected complexities, this paper will be confined to the study of obligatory control constructions, leaving optional control constructions aside.

The paper is organized as follows. Section 2 presents some less known control phenomena in Kavalan and attributes them to the Actor-sensitivity constraint. Section 3 provides further support for our position, using evidence from some other Formosan languages. Section 4 discusses the typological and theoretical implications of the analysis. It is argued that the Actor-sensitivity constraint can follow from the morphological properties of voice affixes and that control dependency should be thematically determined rather than grammatically determined. Section 5 reaches a brief conclusion.

2. Actor control and Actor-sensitivity in Kavalan

2.1 The two restrictions

In Kavalan *persuade*-type constructions, the embedded verb is required to take the causative prefix *pa*-. For example:[2]

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[2] Examples from Kavalan and Tsou are drawn from our own field notes, collected from 1996 through 1999. We would like to thank our informants, in particular, Achun Pan (born in 1928), Change Pan (born in 1948), Chengchung Cheng (born in 1939) and Hsingshi Wang (born in 1942) for their consistent help.

(3) a. pawRat a tina-na tu sunis <u>pa</u>-qaynəp[3]
    force Nom mother-3S.Gen Acc child Cau(AV)-sleep
lit. 'His mother forces her child such that she causes him/her to sleep.'
b. ?? pawRat a tina-na tu sunis <u>m</u>-aynəp
    force Nom mother-3S.Gen Acc child AV-sleep[4]
for 'His mother forces his child to sleep.'

(4) a. mərinana=iku tu sunis <u>pa</u>-rusit
    persuade=1S.Nom Acc child Cau(AV)-leave
lit. 'I persuade my child such that I cause him/her to leave.'
b. ?? mərinana=iku tu sunis <u>m</u>-rusit
    persuade=1S.Nom Acc child AV-leave
for 'I persuade my child to leave.'

In (3-4a), where the matrix verb is a *persuade*-type verb, the embedded verb is required to take the causative prefix *pa-*. Without *pa-*, the grammaticality of the sentence decreases sharply, as in (3-4b). This observation also holds true with the control verb inflected for Patient voice. For example:

(5) a. pawRat-<u>an</u>-na$_i$ ni abas$_i$ aiku <u>pa</u>-ʔtuŋ tu taquq
    force-PV-3S.Gen Gen Abas 1S.Nom Cau-kill Acc chicken
lit. 'I was forced by Abas such that she caused me to kill a chicken.'
b. ?? pawRat-<u>an</u>-na$_i$ ni abas$_i$ aiku <u>mə</u>-ʔtuŋ tu taquq
    force-PV-3S.Gen Gen Abas 1S.Nom AV-kill Acc chicken
for 'I was forced by Abas to kill a chicken.'

As in (5a), the embedded verb is required to undergo causativization as well, even though the control verb is inflected for Patient voice.

    While the control verb can be inflected either for Actor voice or for Patient voice, the embedded verb can only bear Actor voice. This is also the case when the embedded verb is causativized. For example:

(6) a. *pawRat   a   tina-na   tu   sunis   qaynəp-<u>an</u>
       force   Nom   mother-3S.Gen   Acc   child   sleep-PV
    b. *pawRat-an-na   ni   abas   aiku   Ɂtuŋ-<u>an</u>   ya   taquq
       force-PV-3S.Gen   Gen   Abas   1S.Nom   kill-PV   Nom   chicken
    c. *pawRat   a   tina-na   tu   sunis   pa-qaynəp-<u>an</u>
       force   Nom   mother-3S.Gen   Acc   child   Cau-sleep-PV
    d. *pawRat-an-na   ni   abas   aiku   pa-Ɂtuŋ-<u>an</u>   ya   taquq
       force-PV-3S.Gen   Gen   Abas   1S.Nom   Cau-kill-PV   Nom   chicken

This restriction together with the obligatory causativization of embedded verb conspire to exclude the Patient argument of control verb from serving as a controller. With the causativization of the embedded verb, the sentences in (3a) and (5a) can be semantically represented as something like (7):

(7) pawRat   (abas$_i$,   aiku$_j$,   pa-   (PRO$_i$…
     force   Actor   Patient   Cause   Actor

As shown in (7), the Kavalan *persuade*-type sentences all involve **Actor control**: the matrix Actor *abas* serves as the controller of the first embedded missing subject all the time, regardless of what grammatical relation it has.[5] This is also attested in *promise*-type constructions, as will be shown in the next section.

2.2 Kavalan *promise*-type constructions

Unlike *persuade*-type constructions, Kavalan *promise*-type constructions do not observe the causativization of embedded verb. For example:

(8) a. <u>m</u>-paska=isu   <u>mə</u>-Ɂtuŋ   tu   taquq
     AV-try=2S.Nom   AV-kill   Acc   chicken
     'You tried to kill a chicken.'

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[5]   The capitalized **Actor** is used as a cover term for those theta roles underlined in the following examples: the agent in (i), the experiencer in (ii), or the theme in (iii):
    (i) <u>Clinton</u> bombed Sudan.
    (ii) <u>Clinton</u> hates Starr.
    (iii) <u>Clinton</u> fell.

b. paska-<u>an</u>-na=pa   mə-ʔtuŋ   tu   taquq[6]
   try-PV-3S.Gen=Fut AV-kill   Acc   chicken
lit. 'A chicken will be tried by him such that he kills (it).'

As in (8), the embedded verbs does not take the causative prefix *pa-*. Still, as in *persuade*-type constructions, Kavalan *promise*-type matrix verbs can be inflected either for Actor voice (as in 8a) or for Patient voice (as in 8b), while the embedded verbs can only be inflected for Actor voice. Thus, sentences with embedded verbs inflected for PV are ruled out, as illustrated in (9):

(9) *paska=pa=iku   ʔtuŋ-<u>an</u>   ya   taquq
    try=Fut=1S.Nom   kill-PV   Nom chicken

Semantically, the sentences in (8a) and (8b) can be represented as (10), with irrelevant points aside:

(10) mpaska/paskan $(x_i,$ məʔtuŋ $(PRO_i\ldots$
    try   Actor kill   Actor

It is evident that in Kavalan, *promise*-type constructions always involve Actor control as well: the matrix Actor (represented as x_i) always controls the reference of the embedded missing subject, no matter what grammatical relation it has.

2.3 Summary: Actor-sensitivity

We have seen that in Kavalan Actor outranks other thematic relations and occurs as the antecedent of the embedded missing subject all the time, regardless of what grammatical relation it has and what kind of verb it patterns with. Not only the so-called subject control (*promise*-type) but also object control (*persuade*-type) turn out to be Actor control actually. This indicates that control operations are sensitive to Actor, that is, **Actor-sensitive** in Kavalan. The restriction triggers the causativization of embedded verb in *persuade*-type control constructions.[7] Pay special attention to the asymmetry

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[6] The sentence in (8b) will also be fine if the accusative marker *tu* is replaced by the nominative case marker *ya*, that is:
(i) paska-an-na=pa mə-ʔtuŋ <u>ya</u> taquq
For details, see Chang (1997:134-137).
[7] Meanwhile, it is not immediately clear why an embedded verb can only be inflected for Actor voice. There should be no a priori reason for the restriction. For example, English verbs in

that the causativization of embedded verb occurs in *persuade*-type control constructions but not in *promise*-type control constructions. This *promise-persuade* asymmetry re-currents among Formosan languages, as will be discussed in the subsequent sections.

3. Actor-sensitivity elsewhere

3.1 Actor-sensitivity in some other Formosan languages

Likewise, it is reported by Yeh (1997) that verbs in control complements are required to be inflected for Actor voice in Formosan languages other than Kavalan. Moreover, the causativization of embedded verbs in *persuade*-type control constructions is attested as well. For example:

(11) Budai Rukai (Yeh 1997:95)
    a. pakyadili ku   ama ki   ina   <u>pa</u>-lumay ki   lavavalake
       force   Nom father Obl mother Cau-beat Obl child
       'Father forced Mother to beat the child.'[8]
    b. ky-pakyadili ku   ina   ki   ama   <u>pa</u>-lumay ki   lavavalake
       force   Nom mother Obl father Cau-beat Obl child
       'Mother was forced by Father to beat a child.'

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control complements can be inflected for passive as well. For example:
(i) a. John promised to be <u>examined</u> by the doctor.
    b. John persuaded Mary to be <u>examined</u> by the doctor.
Assuming his lexicase framework, Starosta (1991, 1998) attributes the restriction to the transitivity of embedded verbs: verbs inflected for AV are intransitive while verbs inflected for NAV are transitive. Under his theory, only intransitive verbs are allowed in control complements. His explanation, however, seems to us to be not very straightforward. We would like to argue instead that the restriction may have something to do with the finiteness of embedded verbs. We assume that verbs inflected for AV can be identified as non-finite while their NAV counterparts cannot. It is well-known that AV verbs are more flexible in temporal interpretation than NAV verbs: they can be interpreted as present tense, past tense, or generic tense while NAV verbs can only be interpreted either as past tense or future tense. Given that root verbs are generally not attested, AV verbs turn out be the best candidate to serve as non-finite verbs. Our assumption is also supported by the fact that AV verbs, instead of NAV verbs, occur as citation forms, which are non-finite for sure.

[8] Obliquely marked Patients are all interpreted as definites in Yeh (1997). But, to my best knowledge of Formosan languages, they should be indefinite instead. Thus, the interpretation of (11a) should be 'Father forced Mother to beat <u>a</u> child' rather than 'Father forced Mother to beat <u>the</u> child.'

(12) Puyuma (Yeh 1997:90)
   a. tu-aisel-aw   tu-walak   <u>pa</u>-ekan da tinalek kan tina-taw
       3S.Gen-persuade-PV 3S.Gen-child Cau-eat Obl rice   Obl   mother-3P.Obl
   b. tu-pawka-(y)aw   i   ukak   <u>pa</u>-alu   kana   maidaŋ
       3S.Gen-send-PV Nom Ukak   Cau-hunt Obl   old.man
       'The old man sent Ukak to hunt.'

(13) Tsou (Yeh 1997:89)
   i-si   ʔahɨya   <u>pa</u>-bonɨ   ʔo   oko   to   ino
   NAV-3S.Gen force   Cau-eat   Nom   child   Obl   mother[9]
   'Mother forced the child to eat.'

Along the same line of thought, this can be due to the Actor-sensitivity constraint.

3.2 Some complications: Lexical properties or Actor-sensitivity?

Meanwhile, Yeh notes that causativization of embedded verbs is not obligatory in some of the above-mentioned Formosan languages, while a different meaning is intended. Take Puyuma for example:

(14) Puyuma (Yeh 1997:97, also in Teng 1997:41, 45)
   a. adi   tu-pasisi-i   i   ukak   kan pilay
       Neg 3S.Gen-force-NAV Nom Ukak   Obl Pilay
       <u>pa</u>-takaw   da   paysu
       Cau-steal   Obl   money
       'Pilay did not force Ukak to steal money.'
   b. paisi   <u>m</u>-əkan i   pilay
       force(AV) AV-eat Nom Pilay
       'Pilay forced himself to eat.'

As in (14a), the control sentence with a causativized embedded verb expresses the Actor's use of compulsion to make the Patient do something, while the control sentence

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[9] József Szakos (p.c.) argued that *ʔahɨya* should be treated as an adverb meaning 'forcefully' or as a modal auxiliary meaning 'must' instead. On this analysis, the sentence in (13) involves a mono-clausal instead of bi-clausal construction, where *pa-bonɨ* serves as the main verb. This explains why *pa-bonɨ* should take the causative morpheme *pa: pa* is used to license a causee (which serves as the eater in this case). Along this line of thought, however, *pa-bonɨ* should have been inflected for Patient voice in accord with the preverbs *i* and *ʔahɨya*. For the time being, we keep this option open, pending further study.

without a causativized embedded verb simply conveys the Actor's coercion of himself, as in (14b). In view of the contrast, Yeh claims that the emergence of the causative morpheme is to add a new argument (e.g. the Patient *ukak* in 14a) and render it as the argument shared by the matrix verb and the embedded verb, thereby deriving pivotal constructions. Without the causativization of embedded verbs, control sentences are claimed to behave like serial verb constructions. On this view, control verbs will be identified as a two-place predicate in both *promise*-type and *persuade*-type control constructions. It turns into be a three-place predicate with the help of the embedded causative morpheme in *persuade*-type control constructions. In other words, the embedded causative morpheme forms a complex predicate with the control verb.

At first sight, Yeh's analysis appears to be plausible. However, a closer inspection shows that Yeh's analysis deserves further elaboration. First, Yeh's analysis predicts that control verbs will remain as a two-place predicate if embedded verbs do not undergo causativization. But this prediction is not borne out. In the data Yeh provides, it is found that control verbs can take three arguments in the constructions where embedded verbs do not undergo causativization. Take Saisiyat for example:

(15) Saisiyat (Yeh 1997:98)
    a. ʔoyaʔ   ʔiʔiβih   pa-siʔæl   ka   pazay   ka   korkoriŋ
       mother   force   Cau-eat   Acc   rice   Acc   child
       'Mother forced the child to eat.'
    b. ʔoyaʔ   ʔiʔiβih   <u>hi   nonak</u>   s-<u>om</u>-iʔæl   ka   ʔalaw
       mother   force   Acc   self   eat-AV   Acc   fish
       'Mother forced herself to eat the fish.'

As shown in (15b), the non-causativized embedded verb *somiʔæl* occurs as a complement of the matrix verb and the matrix verb takes three obligatory arguments (including the accusatively marked argument *nonak*) on a par with its causativized counterpart *pasiʔæl* in (15a). This indirectly indicates that the causative morpheme does not serve to satisfy the need of argument addition and argument-sharing. Without causativization, there is still an argument shared by the matrix verb and the embedded verb. Argument-sharing is supposed to be intrinsically existent in the *persuade*-type control constructions; it should be natural in the constructions. In addition, it is also conceptually unlikely that argument-sharing is the driving force of peculiar causativization of the embedded verb. On the contrary, the argument-sharing will be derived more easily without the causativization of embedded verbs, as attested in *persuade*-type control constructions in English. For example:

(15') John persuaded <u>Mary</u> to leave.

Under the traditional analysis, *Mary* in (15') plays dual roles: it serves as the Patient of the matrix verb and the Actor of the embedded verb as well. In other words, *Mary* is an argument shared by the matrix verb and the embedded verb. Obviously, the argument-sharing can be done without any peculiar device, as opposed to that in Formosan languages at issue.

Second, on Yeh's view, control verbs inflected for different voice will be identified as a same lexical category. For example, in (14), the NAV control verb *pasisii* and the AV control verb *paisi* will both be analyzed as a two-place predicate. And the reason why *pasisii*-sentence (14a) allows three arguments but *paisi*-sentence (14b) two arguments will be because the control verb *paisii* occurs with the causative morpheme *pa-*, which contributes an extra argument to the sentence. However, the analysis can not account for the contrast Yeh and Teng (1997) observe, which states that in Puyuma NAV control verbs can occur with the embedded causative morpheme while AV control verbs can not. This is suggested in (14) and also shown below:

(16) Puyuma (Teng 1997:39)
 a. tu-rəŋarəŋa-yaw [pa-ʈəkəḷ ḍa əraw] kan pilay i ukak
  3S.Gen-persuade-NAV Cau-drink Obl wine Obl Pilay Nom Ukak
  'Pilay persuaded Ukak to drink wine.'
 b. *rəŋarəŋa   [pa-ʈəkəḷ ḍa əraw] kan pilay i ukak
  persuade (AV) Cau-drink Obl wine Obl Pilay Nom Ukak

Actually, this is also the case in Tsou. For example:

(17) Tsou
 a. i-ʔo   ʔahɨy-a pa-bon-ɨ na taini
  NAV-1S.Gen force-PV Cau-eat-AV Nom 3S.Nom
  'I forced him to eat.'
 b. *mi-ʔo   ʔahɨy-i taini pa-bon-ɨ
  AV-1S.Nom force-AV 3S.Obl Cau-eat-AV

As in (17), the NAV control verb *ʔahɨya* can occur with the embedded causative morpheme *pa-* while the AV control verb *ʔahɨyi* can not. Instead, the AV control verb *ʔahɨyi* can only be used as a verb which does not take Patient as its argument:

(18) Tsou

    mi-ʔo   ʔahɨy-ɨ   bon-ɨ

    AV-1S.Nom   force-AV   eat-AV

    'I forced (myself) to eat.'

This is similar to the situation in Puyuma (see 14b). In both cases, the AV control verbs occur as *promise*-type control verbs and do not occur with an embedded causative morpheme, in contrast with their NAV counterparts shown in (14a) and (18).

A question then arises: Why is the causativization of embedded verbs restricted to constructions where control verbs are inflected for NAV? Following Starosta (1997), we assume that AV verbs are intransitive while NAV verbs are intransitive. In AV constructions, Actor is the only argument in matrix clause and serves as the controller of the missing subject in embedded clauses. Thus, no causativization is needed. In contrast, in NAV constructions, there are two arguments in matrix clauses competing for control: Actor and Patient. To prevent Patient from becoming the controller, causativization is thus employed. Take Tsou for illustration. The *ʔahɨya-ʔahɨyɨ* contrast shown in (17a) and (18) can be roughly represented as the semantic structures (19a-b) respectively:

(19) a. ʔahɨya   (x$_i$,   y$_j$ pa   (PRO$_i$…

       force   Actor   Patient   Cau   Actor

    b. ʔahɨyɨ   (x$_i$,   bonɨ   (x$_i$…

       force   Actor   eat   Actor

Voice inflection aside, the case in question is similar to the control verb *mianqiang* (勉強) in Chinese, as shown below:

(20) Chinese

    a. wo$_i$ mianqiang [PRO$_i$ daying]

       I   force   consent

       'I forced (myself) to consent to that.'

       我$_i$勉強〔PRO$_i$ 答應〕。

    b. wo$_i$ mianqiang ta$_j$ [PRO$_{*i/j}$ daying]

       I   force   him   consent

       'I forced him to consent to that.'

       我$_i$勉強他$_j$〔PRO$_{*i/j}$ 答應〕。

As in (20), *mianqiang* can be used either as a two place predicate (20a) or as a three-place predicate (20b). This is also true with the English control verb *expect*:

(21) a. I$_i$ expect [PRO$_i$ to win].
　　b. I$_i$ expect him$_j$ [PRO$_{*i/j}$ to win].

In other words, the AV verb *ʔahɨyɨ* behaves like *mianqiang* and *expect* in their subject-control use (*promise*-type) whereas the PV verb *ʔahɨya* behaves like *mianqiang* and *expect* in their object-control use (*persuade*-type). Remember that it has been shown in section 2 that the causativization of embedded verb occurs only in *persuade*-type control constructions. It is therefore not surprising that only *ʔahɨya* can occur with the embedded causative morpheme, given that the causative morpheme is used to prevent the Patient from serving as a controller.

The Actor-sensitivity effect is widely attested among Formosan languages. Consider first the Saisiyat data shown in (15), repeated here as (22):

(22) Saisiyat (Yeh 1997:98)
　　a. ʔoyaʔ　　ʔiʔiβih　pa-siʔæl　ka　　pazay　ka　　korkoriŋ
　　　　mother　force　　Cau-eat　Acc　　rice　　Acc　　child
　　　　'Mother forced the child to eat.'
　　b. ʔoyaʔ　　ʔiʔiβih　<u>hi　　nonak</u>　s-om-iʔæl　ka　　ʔalaw
　　　　mother　force　　Acc self　　eat-AV　　Acc　　fish
　　　　'Mother forced herself to eat the fish.'

Pay attention to the sentence in (22b). The sentence in (22b) appears to be a counterexample to our analysis. The control verb *ʔiʔiβih* occurs as a three-place predicate and takes a control complement where the verb does not take the causative morpheme. It seems that the Patient *nonak* can serve as the controller as well, violating Actor-sensitivity. However, a closer inspection shows that this is not the case. Note that since the Patient *nonak* occurs as a reflexive of the Actor *ʔoyaʔ*, it must be co-referential with and bound by *ʔoyaʔ*, as illustrated below:

(23) Saisiyat
　　ʔoyaʔ$_i$　　ʔiʔiβih　　<u>hi　　nonak</u>$_i$　[PRO$_i$　s-om-iʔæl　ka　　ʔalaw]
　　mother　　force　　　Acc　self　　PRO　　eat-AV　　Acc　fish
　　　　　　|_____|

On this analysis, the seemingly Patient-control will turn out to be Actor-control actually. Bound by its antecedent, the reflexive behaves just like an oblique argument which does not play an important role in the determination of controller. The sentence in (23) can be likened to be a *promise*-type control construction in much the same way as (14b) and

(18). The non-occurrence of the causativization of the embedded verb follows directly from the *promise-persuade* asymmetry.

Another thing deserving our attention is that in Paiwan the presence/absence of the embedded causative morpheme correlates with the use of different markers in control constructions. For example:

(24) Paiwan (Yeh 1997:99)

    a. Ɂ-əm-adil   ti   kina   tua   alak   <u>a</u>/*tu(a)   pa-kan

       force-AV   Nom   mother   Acc   child   Lin   Cau-eat

    lit. 'Mother forces her child such that she causes him/her to eat.'

    b. Ɂ-əm-adil   ti   kina   *a/tu(a)   k-əm-an   a   alak

       force-AV   Nom   mother   Lin   eat-AV   Nom   child

    lit. 'Mother forces that the child eats.'

Yeh (1997) notes that in (24a), the linker *a* instead of *tu(a)* is used when the embedded verb is prefixed with the causative morpheme whereas in (24b), the opposite pattern is attested: the linker *tu(a)* instead of *a* is used when the causativization of the embedded verb does not occur. With the observation, we are curious why this is so and what is the grammatical status of the linker *a* and *tu(a)*. Following Tang (1999), we propose that the *a*-introduced complement in (24a) should be analyzed as a nonfinite clause whereas the *tu(a)*-introduced complement in (24b) should be analyzed as a finite clause. This analysis naturally accounts for why *alak* is marked accusative case in (24a) but marked nominative case in (24b). In (24a), the control verb *Ɂəmadil* should be a three-place predicate such as *mianqiang* and *expect* in their object-control use (*persuade*-type), as shown in the following semantic structure:

(25) Paiwan

    Ɂəmadil (kina$_i$,   alak$_j$,   pa-   (PRO$_i$…

    force   Actor   Patient   Cause

In that case, *Ɂəmadil* semantically select a Patient and an infinitival clause as its complement. Since *Ɂəmadil* is inflected for Actor voice, the Patient *alak*, which occurs as *Ɂəmadil*'s direct object, thus get accusatively marked. Furthermore, being an instance of *persuade*-type control, it is expected to occur with the embedded causative morpheme. By contrast, in (24b), *Ɂəmadil* appears as a two-place predicate, taking a finite clause as its complement such as English verb *expect* in its non-control use, as compared below:

(26) a. Mary expected that the child ate rice.
    b. ʔəmadil (kina$_i$,   kan   (alak$_j$…
       force   Actor   eat   Actor

In this case, *alak* occurs as the subject of the embedded finite clause and thus marked nominative case. And since no control operation is involved here, the causativization of the embedded verb is not expected to happen.

    To summarize, the peculiar causativization of embedded verb can not be attributed to the lexical properties of matrix verbs on empirical and conceptual grounds. Rather, it should be due to a language-particular constraint, that is, the Actor-sensitivity constraint. In *persuade*-type control constructions, there are two potential controllers, that is, Actor and Patient. To conform to the Actor-sensitivity constraint, however, Patient should be excluded from being a controller. To accomplish this task, there thus arise the two restrictions: the obligatory causativization of embedded verbs, which singles out Actor as the controller and the requirement of embedded verbs being inflected for Actor voice, which exempts Patient from being a controller. By contrast, in *promise*-type control constructions, there is only one potential controller, that is, Actor. Unless there arises semantic conflict, the Actor-sensitivity constraint will not be violated. It is thus pointless to get embedded verbs causativized, while the requirement of embedded verbs being inflected for Actor voice should hold.

3.3 Actor-sensitivity in other syntactic operations

    Actually, Actor-sensitivity is not limited to control operations. In Tsou, for example, Actor-sensitivity is also observed in verbal agreement, emphatic reflexivization, and perhaps topicalization. Let's take up these syntactic operations one by one.

    As noted by Y.-Y. Chang (1996) and Starosta (1998), verbal agreement is only accessible to Actor in Tsou, regardless of what grammatical relation the Actor has. For example:

(27) Tsou (Y.-Y. Chang 1996:9)
    a. mi-<u>ta</u>$_i$ baito   to   oʔoko   ʔe   <u>pasuya</u>$_i$
       AV-3S.Nom   see (AV)   Obl   children   Nom Pasuya
       'Pasuya saw children.'
    b. i-<u>ta</u>$_i$ ait-i   ta   <u>pasuya</u>$_i$ ʔe   oʔoko
       NAV-3S.Gen   see-PV   Obl   Pasuya   Nom children
       'The children were seen by Pasuya.'

As in (27), the agreement suffix *ta* is invariably associated with the Actor *pasuya*, which occurs as the subject in (27a) but as an oblique argument in (27b). In other words, verbal agreement is only accessible to the Actor, no matter what grammatical relation it has.

Likewise, Tsou emphatic reflexivization can only be associated with Actor.[10] For example:

(28) Tsou

    a. mi-<u>ko</u>ᵢ   <u>iachi</u>ᵢ   eobak-o ta   mameoi[11]

       AV-2S.Nom self(AV) hit-AV Obl old.man

       'You yourself hit an old man.'

    b. i-<u>ta</u>ᵢ   <u>iachi-a</u>ᵢ   eobak-a ta   paicɨᵢ ʔe   mameoi

       NAV-3S.Gen self-PV hit-PV   Obl   Paicɨ Nom old.man

       'The old man was hit by Paicɨ herself.'

In Tsou, the emphatic reflexive occurs preverbally and accords with the main verb in its voice inflection. In (28a), the emphatic reflexive *iachi* is inflected for Actor voice on a par with the main verb *eobako* and associated with the nominative Actor *ko* rather than the accusative Patient *mameoi*; in (28b), the emphatic reflexive *iachia* is inflected for Patient voice on a par with the main verb *eobaka* and is associated with the genitive Actor *Paicɨ* rather than the nominative Patient *mameoi*. Obviously, in both cases, the emphatic reflexive is always associated with the Actor. In other words, the emphatic reflexivization is only accessible to the Actor just like control dependency and verbal agreement.

Similar effect seems to be also attested in Tsou topicalization. Y.-Y. Chang reports that subject-sensitivity is observed in Actor voice sentences but not in Non-Actor voice sentences. For example:

(29) Tsou (Y.-Y. Chang 1997:9)

    a. ʔe   <u>pasuya</u> mi-ta   eobak-o ta   moʔo

       Nom Pasuya AV-3S.Nom hit-AV Obl   Moʔo

       'Pasuya, he is hitting Moʔo.'

    b. *ʔe   <u>moʔo</u>   mi-ta   eobak-o ʔe   pasuya

        Nom Moʔo AV-3S.Nom hit-AV Nom Pasuya

    for 'Moʔo, Pasuya is hitting him.'

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[10] This is also observed in Weng (1998).

[11] As noted by József Szakos (p.c.), *iachi* and *iachia* can also be interpreted as an adverbial 'alone'. However, the Actor-sensitivity generalization always holds, regardless of what interpretation we take.

(30) a. ʔe   moʔo   i-ta   eobak-a   ta   pasuya$_i$
       Nom   Moʔo   NAV-3S.Gen   hit-PV   Obl   Pasuya
       'Moʔo, he was hit by Pasuya.'
    b. ʔe   pasuya   i-ta   eobak-a   ʔe   moʔo
       Nom   Pasuya   NAV-3S.Gen hit-PV   Nom   Moʔo
       'Pasuya, Moʔo was hit by him.'

As in the Actor voice sentences in (29a-b), only the argument which is associated with the subject can occur as the topic. By contrast, as in the Non-Actor voice sentences in (30a-b), both the Patient (*moʔo* in 30a) and the Actor (*pasuya* in 30b) can occur as the topic. There seems to observe Actor/Non-Actor voice asymmetry with regard to topicalization.

Why is this so? We suggest that the asymmetry can follow from Actor-sensitivity as well, while Actor-sensitivity only serves as a saving device in this case. As in other Formosan languages, topicalization observes subject-sensitivity to a certain degree in Tsou. However, given that Actor is syntactically prominent in Tsou as shown above, it could be the case that Actor can evade the subject-sensitivity. This can be the reason why the Actor *pasuya* can function as the topic in (30b), yielding the asymmetry.

3.4 Language that does not observe Actor-sensitivity

Not all Formosan languages observe Actor-sensitivity in control dependency. Take Seediq for example:

(31) Seediq (Chang 1997:199)
    a. heya   s-um-uluwa   yaku$_i$ [PRO$_i$ m-imah   sino]
       3S   permit-AV   1S(Acc)   AV-drink   wine
       'He permits me to drink wine.'
    b. heya   h-um-etun   yaku$_i$ [PRO$_i$ beebu   isu]
       3S   stop-AV   1S(Acc)   beat   2S.Neu
       'He stops me from beating you.'

As in (31), Actor-sensitivity does not hold in Seediq control operations: the embedded verb does not undergo causativization and the Patient *yaku* can serve as the antecedent of the embedded missing subject.

Interestingly, the lack of Actor-sensitivity effect in control operations correlates the fact that not only Actor but also Patient can trigger verbal agreement in Seediq. For example:

(32) Seediq (Chang 1997:99)

    a. wada-<u>ku</u>$_j$-<u>na</u>$_i$ bube-**un**   na   <u>pawan</u>$_i$ ka   <u>yaku</u>$_j$

       Past-1S.Nom-3S.Gen   beat-PV Gen   Pawan   Nom 1S

       'I was beaten by Pawan.'

    b. maha-<u>ku</u>$_j$-<u>na</u>$_i$ bube-**un**   na   <u>pawan</u>$_i$ ka   <u>yaku</u>$_j$

       Fut-1S.Nom-3S.Gen   beat-PV Gen   Pawan   Nom 1S

       'I will be beaten by Pawan.'

In (32), the nominative Patient *yaku* as well as the genitively marked Actor *pawan* can trigger verbal agreement, as represented by the agreement affixes *ku* and *na* on the auxiliary verbs.

Another syntactic correlation is that as noted by Chang (1997), topicalization is strictly subject-sensitive in Seediq if the topic is associated with argument. For example:

(33) Seediq (Chang 1997:166)

    a. pawan   <u>ge</u>   m-ekan   ido

       Pawan   Top   AV-eat   rice

       'Pawan, (he) is eating rice.'

    b. *ido   <u>ge</u>   m-ekan   ka   pawan

        rice   Top   AV-eat   Nom   Pawan

(34) Seediq (Chang 1997:166)

    a. ido   ge   puq-un   na   pawan

       rice   Top   eat-PV Gen   Pawan

       'The rice, it will be eaten by Pawan.'

    b. *pawan ge   puq-un   ka   ido

        Pawan   Top   eat-PV   Nom   rice

Pay special attention to example (34b). Unlike the Tsou sentence in (30b), the Seediq sentence in (34b) is ruled out, where the Actor serves as the topic.

To summarize, unlike Kavalan and Tsou, Seediq does not observe Actor-sensitivity in control dependency. In addition, Seediq does not observe Actor-sensitivity or Actor-prominence in verbal agreement and topicalization. Thus, Actor-sensitivity constraint can differentiate Kavalan and Tsou from Seediq.

4. Typological and theoretical implications

4.1 Why can Actors be so prominent?

Why can Actors be so prominent in Kavalan and some other Formosan languages but not in Chinese and English? The answer to this question may lie in the voice morphology of Formosan languages. On the one hand, Actor voice affixes can be treated as antipassive morphemes, which triggers the demotion of direct objects to oblique arguments in Actor voice constructions.[12] [13] As noted by Williams (1980), oblique arguments cannot serve as obligatory controllers. Hence, Patients are exempted from being obligatory controllers. On the other hand, as noted by Chang (1997a, b), Non-Actor voice affixes function like a light verb and can prevent Actors from becoming oblique arguments in Non-Actor voice constructions. With these two forces, Actors are thus prominent all the time.

4.2 Obligatory Control is thematically determined

Since Rosenbaum (1970), it is generally claimed that the choice of controller is determined by a structural condition called **Minimal Distance Principle** (MDP), which states that the embedded missing subject takes the closest c-commanding NP as its antecedent (see Chomsky 1980, Larson 1991, Huang 1992, among many others). However, as shown above, in Kavalan and some other Formosan languages, the choice of controller is dominated by thematic relations rather than grammatical relations. For the sake of discussion, let us repeat the previous examples as below:

(37) Kavalan
a. pawRat   a   ti-abas$_i$ tu   sunis$_j$ [PRO$_{i/*j}$ pa-qaynəp]
   force   Nom   Cl-Abas   Acc   child   Cau-sleep
lit. 'Abas forces a child to cause him/her to sleep.'
b. pawRat-an-na$_i$ ni   abas$_i$ a   sunis$_j$ [PRO$_{i/*j}$ pa-qaynəp]
   force-PV-3S.Gen   Gen   Abas   Nom   child   Cau-sleep
lit. 'The child was forced by Abas for her to cause him/her to sleep.'

As shown in (37), the controller of the embedded missing subject PRO is invariably the

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[12] This accords with Starosta (1997), where verbs inflected for Actor voice are treated as intransitives.

[13] However, this may not be the case in Seediq, as objects can serve as obligatory controllers in Seediq Actor voice constructions. For illustration, see (31); for details, see Chang (1997:186-216).

Actor *abas*, regardless of what grammatical relation it has. This is unexpected under the structural approach. As the Patient *sunis* occurs most close to the embedded missing subject, the MDP will expect it to be the controller. However, this is obviously not the case.

To summarize, the structural approach fails to predict the control dependency in Kavalan as well as in Tsou and some other Formosan languages. In these languages, control operations are thematically determined rather than grammatically determined.[14]

5. Conclusion

In the previous sections, we have seen that Actor-sensitivity is well attested in a number of syntactic operations; in particular, it is observed in control dependency in Kavalan and some other Formosan languages. It follows that verbs in control complements are required to undergo causativization. The reason why Actors are so prominent may in turn follow from the morphological properties of voice affixes attested in Kavalan and some other Formosan languages: Non-Actor voice affixes keep Actors syntactically prominent on the one hand and Actor voice affixes demote Patients to peripheral oblique argument on the other hand. In addition, Actor-sensitivity indicates that control dependency should be thematically determined rather than grammatically determined. This argues against the standard structural approach to control phenomena.

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[14] This is probably also the case in accusative languages such as English and Chinese. Take English for example:

(i) a. Mary$_i$ asked Bill$_j$ [how PRO$_{i/*j}$ to behave herself/*himself].

 b. Mary$_i$ asked Bill$_j$ [PRO$_{*i/j}$ to behave *herself/himself].

Though the sentences in (ia-b) are quite similar in their structures, the control operations involving in these two sentences are quite different: the sentence in (ia) involves Actor control on a par with *promise* whereas sentence in (1b) involves Patient control like *persuade*. This can not be predicted by the MDP but can be accounted for by the lexico-thematic approach, as discussed in Ladusaw and Dowty (1988), Nishigauchi (1984), among many others. This line of thought is also pursued by Xu (1986) for Chinese control constructions.

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