9 Subjecthood and temporal adjuncts in Atayal, Seediq and Tsou*

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1 Introduction

In some Formosan languages, Tgdaya Seediq and Tsou in particular, temporal adverbials pattern with nominative arguments in undergoing focus movement, topicalisation, and relativisation. All of them involve A’-movement or A’-dependencies of some sort. The pattern is even more striking in Squliq Atayal, which I will choose as a target language in this study, with supporting evidence from Tgdaya Seediq and Tsou when necessary.

Let’s start with a rundown of basic facts about this “temporal-nominative parallel”. In Squliq Atayal, nominative wh’s cannot stay in situ, as in (1), and they must undergo A’-movement of some sort, as in (2) and (3):

(1) * m-usa Sincik suxan qu-ima?
   AV-go Hsinchu tomorrow NOM-who
   Intended for: ‘Who will go to Hsinchu tomorrow?’

* This article is a tribute to Professor Lillian M. Huang, whose devotion to the cause of Formosan linguistics has set an example for all of us. I am grateful to Henry Y. Chang, Sandra Chung, Hui-chuan J. Huang, Edward Keenan, Paul Law, Paul Jen-kuei Li, David Pesetsky, Eric Potsdam, Joachim Sabel, Stacy F. Teng, Lisa Travis, Joy J. Wu and Elizabeth Zeitoun for their helpful comments in various occasions. The research leading to this article was funded by the National Science Council of Taiwan (NSC 95-2411-H-007-022).

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The abbreviations of this paper follow those of the Leipzig Glossing Rules. Other abbreviations not included there are: AV, actor voice; IV, instrumental voice; LV, locative voice; PV, patient voice; REAL, realis mood; REL, relativiser.

The basic word order of Squliq Atayal is VOS. The declarative counterpart of (1) is fully grammatical, as shown below:

(i) m-usa Sincik suxan qu-Temu.
   AV-go Hsinchu tomorrow NOM-Temu
   ‘Temu will go to Hsinchu tomorrow.’

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(2) ima qu-[DP e₁ [CP Opi [m-usa Sincik suxan ti]]] (wh-pseudo-cleft)
who NOM AV-go Hsinchu tomorrow
‘Who is (the person who) go to Hsinchu tomorrow?’

(3) ima(*-ga) m-usa Sincik suxan? (focus movement)
who(*-TOP) AV-go Hsinchu tomorrow
‘Who will go to Hsinchu tomorrow?’

In declarative sentences with actor voice (AV), the nominative arguments may either stay at the sentence-final position, as in (4), or undergo A’-constructions such as pseudo-cleft, as in (5), and topicalisation, as in (6):

(4) m-usa Sincik suxan qu-Temu. (AV declarative)
AV-go Hsinchu tomorrow NOM-Temu
‘Temu will go to Hsinchu tomorrow.’

(5) Temu qu [DP e₁ [CP Opi [m-usa Sincik suxan ti]]. (pseudo-cleft)
Temu NOM AV-go Hsinchu tomorrow
‘(The person who) goes to Hsinchu tomorrow is Temu.’

(6) Temu-ga m-usa Sincik suxan. (topicalisation)
Temu-TOP AV-go Hsinchu tomorrow
‘Temu, (he) will go to Hsinchu tomorrow.’

As for non-nominative arguments, (7) shows that the locative object inu ‘where’ must remain in situ, whereas (8) and (9) show that it can not undergo either pseudo-cleft formation nor focus movement:

(7) m-usa suxan inu qu-Temu? (wh-in-situ)
AV-go tomorrow where NOM-Temu
‘Where will Temu go tomorrow?’

(8) * inu qu [m-usa suxan qu-Temu]? (wh-pseudo-cleft)
where NOM AV-go tomorrow NOM-Temu
Intended for: ‘Where is (the place) Temu will go tomorrow?’

(9) * inu m-usa suxan qu-Temu? (focus movement)
where AV-go tomorrow NOM-Temu
Intended for: ‘Where will Temu go tomorrow?’

The declarative counterparts of inu ‘where’ are also blocked from A’-constructions, as evidenced by the deviance of (10)–(12):

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4 For one thing, (2) may look like an instance of wh-movement. But the thing is that there is a nominative case marker in between ima ‘who’ and the rest of the sentence. So it is more likely that (2) is an equational sentence, where the subject is a headless relative. Therefore, it is an empty relative operator that undergoes A’-movement in (2). The same observation applies to its declarative counterpart in (5). In a sense, Formosan languages lend further support to the pseudo-cleft approach to this type of constructions (Paul 2001, Pearson 2001, Potsdam 2004, among others), in that there is a nominative case marker after the wh-phrase, serving to mark the rest of the sentence as its subject.
(10) * Sincik qu [DP ei [CP Op [m-usa ti] suxan qu-Temu]] (pseudo-cleft) Hsinchu NOM AV-go tomorrow NOM-Temu

Intended for: ‘(The place where) Temu will go tomorrow is Hsinchu.’

(11) * Sincik-ga m-usa suxan qu-Temu. (topicalisation) Hsinchu-TOP AV-go tomorrow NOM-Temu

Intended for: ‘To Hsinchu, Temu will go tomorrow.’

(12) * [[m-usa suxan qu-Temu] ka slaq] ga krahu yal. (relativisation) AV-go tomorrow NOM-Temu REL wet.field TOP big very

Intended for: ‘As for the wet field where Temu will go tomorrow, (it) is very big.’

How about adverbial expressions? The instrumental how, m-ha-nanu ‘with what’, behaves more like a predicate. Sentence (13) shows that it is inflected with voice morphology, and remains in situ in a verbal position:

(13) m-ha-nanu mhiy ume qu-Temu? (wh-in-situ) AV-with-what AV.strike plum NOM-Temu

‘How will Temu knock down plums?’

Moreover, it resists all kind of A’-construals, as evidenced by the deviance of (14)–(15):

(14) * (m-ha-nanu qu [mhiy ume qu-Temu]? (wh-pseudo-cleft) AV-with-what NOM AV.strike plum NOM-Temu

Intended for: ‘What is (the way) Temu will knock down plums?’

(15) * (m-ha-nanu ga mhiy ume qu-Temu? (focus movement) AV-with-what-TOP AV.strike plum NOM-Temu

Intended for: ‘How will Temu knock down plums?’

Again, its declarative counterparts are not compatible with pseudo-cleft, topicalisation, and relativisation, as exemplified in (16)–(18) respectively:

(16) * ruma’ qu [mhiy ume qu-Temu]. (pseudo-cleft) bamboo.stick NOM AV.strike plum NOM-Temu

Intended for: ‘(The instrument with which) Temu will knock down plums is a bamboo stick.’

(17) * ruma’-ga mhiy ume qu-Temu. (topicalisation) bamboo.stick-TOP AV.strike plum NOM-Temu

Intended for: ‘With a bamboo stick, Temu will knock down plums.’

(18) * [[mhiy ume qu-Temu] ka ruma’] krahu yal. (relativisation) AV.strike plum NOM-Temu REL bamboo.stick big very

Intended for: ‘As for the bamboo stick with which Temu will knock down plums, (it) is big.’

As a matter of fact, this nominative/non-nominative asymmetry is just an instance of a much broader generalisation concerning the subjecthood of Austronesian languages, often dubbed as “subject sensitivity” (Keenan 1976, Keenan & Comrie 1977, Guilfoyle et al. 1992, Huang 1995, H.Y. Chang 1997, among many others).

Nevertheless, there is an exception to this picture. In Squiliq Atayal, temporal expressions are subject to A’-construals, as in (19)–(21):
(19) **suxan qu [m-usa Sincik qu-Temu].** (pseudo-cleft)
    tomorrow NOM AV-go Hsinchu NOM-Temu
    ‘(The time when) Temu will go to Hsinchu is tomorrow.’

(20) **suxan-ga m-usa Sincik qu-Temu.** (topicalisation)
    tomorrow-TOP AV-go Hsinchu NOM-Temu
    ‘Tomorrow, Temu will go to Hsinchu.’

(21) **[[m-usa Sincik Temu] ka riax] ga byacing-ka-nial.** (relativisation)
    AV-go Hsinchu Temu REL time TOP month-of-coming
    ‘The time Temu will go to Hsinchu is the coming month.’

Furthermore, just like **inu** ‘where’ of (8), (9) and **m-ha-namu** ‘how’ of (14), (15), a temporal **wh** may stay in situ, as in (22). But unlike them, **knwan** ‘when’ may actually undergo A’-movement, as in (23), (24):

(22) **m-usa Sincik knwan qu-Temu?** (wh-in-situ)
    AV-go Hsinchu when NOM-Temu
    ‘When will Temu go to Hsinchu?’

(23) **knwan qu [m-usa Sincik qu-Temu]?** (wh-pseudo-cleft)
    when NOM AV-go Hsinchu NOM-Temu
    ‘When is (the time) Temu will go to Hsinchu?’

(24) **knwan m-usa Sincik qu-Temu?** (focus movement)
    when AV-go Hsinchu NOM-Temu
    ‘When will Temu go to Hsinchu?’

The same pattern is attested in two other Formosan languages Tsou and Tgdaya Seediq as well (cf. C.-L. Chang 1996, and M. Chang 2004). The following table summarises all the facts from the three languages:

<table>
<thead>
<tr>
<th></th>
<th>AV interrogative</th>
<th>AV declarative</th>
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<tr>
<td></td>
<td>in situ</td>
<td>A’-movement</td>
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<tr>
<td>nominative argument</td>
<td>ok</td>
<td>ok</td>
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<td>temporal adverbial</td>
<td>ok</td>
<td>ok</td>
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<tr>
<td>accusative/oblique argument</td>
<td>ok</td>
<td>*</td>
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<td>instrumental adverbial</td>
<td>ok</td>
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Putting this temporal-nominative parallel in perspective, I would like to address the following issues. First, what is the common property shared by nominative arguments and temporal adverbials? Second, what factors are responsible for the subject sensitivity effects? Can we provide a coherent account in terms of economy principles? Lastly, why does nominative **wh**’s behave differently from other **wh**’s-in-situ?

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5 But see H.Y. Chang (1997) for a marginal contrast between nominative and temporal **wh**’s in Tgdaya Seediq.
2 A working hypothesis

To solve the first puzzle, I would like to pursue a line laid out by Pesetsky & Torrego (2001), as stated in (26), where nominative case is analysed as an uninterpretable Tense feature on D:

(26) Nominative case is an instance of an uninterpretable Tense feature (\(uT\)) on D.

Under this approach, a nominative wh in English bears both uninterpretable wh- and T-feature, i.e., \([uWh, uT]\). It then raises to check \([uWh, uT]\) on C, as illustrated in (27a). As a result, T-to-C movement is blocked, which accounts for the deviance of (27b):

(27) a. Who read the book?
[[CP who\([\_Wh, uT]\) [C\([\_Wh, uT]\) [IP \_ read the book]]]]

b. * Who did read the book?
[[CP who\([\_Wh, uT]\) [C\([\_Wh, uT]\) [C\([\_Wh, uT]\) [IP \_ read the book]]]]]

The head movement is blocked because the derivation of (27a) uses fewer number of movement operations than (27b). Namely, (27a) only involves \(wh\)-movement, while (27b) employs both \(wh\)-movement and T-to-C movement. As for non-subject \(wh\)'s which bear only \([uWh]\), T-to-C movement must be applied to check off the T-feature on C, as illustrated in (28):

(28) What did Mary read?
[[CP what\([\_Wh]\) [C\([\_Wh]\) [C\([\_Wh]\) [C\([\_Wh]\) [IP Mary read \_]]]]]]

The problem here is that the object \(wh\) is not the closest XP to C. Pesetsky and Torrego then resort to the principle of Minimal Compliance proposed by Richards (1997), according to which one instance of movement can save another by observing locality principles minimally. As a result, after T-to-C movement applies in (28), the object \(wh\) is free to check the \(wh\)-feature on C. Following this dichotomy between subject and object \(wh\)'s, I would like to propose that temporal adverbials, just like nominative arguments, bear Tense features. The difference is that the T-feature encoded by a nominative case is uninterpretable, whereas the one on a temporal adverbial is interpretable, i.e., \(iT\).

It follows that a nominative argument must raise to [Spec, TP] to check off its \(uT\), as illustrated below:

(29) [[TP [T\([\_T]\) [VP \_]] DP\([\_Wh]\)]]

By contrast, the interpretable T-feature cannot be checked off, and therefore need not to be checked. Temporal adverbials are therefore not required to raise. If a temporal adverbial did occupy [Spec, TP], then the closest T-feature to C is the \(iT\) in [Spec, TP]. As a result, there will be no way for a nominative DP to check off its \(uT\), which would crash the derivation:

(30) * [[TP [T\([\_T]\) [VP \_ DP\([\_T]\) \_]] XP\([iT]\)]]

This distinction between nominative arguments and temporal adverbials is supported by their distinct syntactic distributions, i.e., while nominative arguments typically

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6 Following is a simplified version of Minimal Compliance formulated in Pesetsky & Torrego (2001): Once T-to-C movement applies, the attracted XP need not to be the closest one.
occupy a sentence-final position, presumably [Spec, TP], temporal adverbials such as suxan ‘tomorrow’ occur much more freely, as in (31a–c). Note that the only place they cannot occur is in between the predicate and the locative object Sincik, as in (31d). We will come back to this issue below.

(31) a. suxan m-usa Sincik qu-Temu.
    tomorrow AV-go Hsinchu NOM-Temu
    ‘Temu will go to Hsinchu tomorrow.’

    b. m-usa Sincik suxan qu-Temu.
        AV-go Hsinchu tomorrow NOM-Temu

    c. m-usa Sincik qu-Temu suxan.
        AV-go Hsinchu NOM-Temu tomorrow

    d. * m-usa suxan Sincik qu-Temu.
        AV-go tomorrow Hsinchu NOM-Temu

Here I follow Pesetsky & Torrego (2001) in assuming that the $u_T$ on D remains active until the completion of the CP phase. Otherwise, the nominative $wh$ would be frozen in [Spec, TP] once its $u_T$ is checked off. Furthermore, I would like to suggest that sentences involving A'-construals are headed by C with a $u_T$, very much in line with Rizzi’s (1997) proposal that there is a head expressing finiteness in the CP layer. As a result, we have two options to check off the $u_T$ on C: One is to raise a nominative argument with the $u_T$-feature, and the other is to raise a temporal adverbial with the $i_T$-feature.7

To deal with the second puzzle, suppose further that there is no T-to-C movement in Squliq Atayal, which seems to be a plausible assumption in view of the fact that a tensed verb cannot raise across a temporal adverbial, as evidenced by the contrast between (31a) and (31d).8 Then it follows from the Minimal Compliance account that non-nominative arguments, as well as instrumental adverbials, are blocked from A'-construals.

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7 An anonymous reviewer points out a technical issue given Chomsky’s (2001) characterisation of feature agreement, where a Probe-Goal relation is established between an uninterpretable feature on the probe and an interpretable feature on the goal. The system is designed as such so that Full Interpretation can be met (that uninterpretable feature can be erased/checked through a matching interpretable one). Since under our approach both C and T carry $u_T$, it becomes problematic as to how they pair with $u_T$ on a nominative argument. One way to tackle this issue, as proposed by the reviewer, is to adopt Pesetsky & Torrego’s (2007) later proposal, which dissociates interpretability from feature valuation. Under the new design, one may assume that C and T both carry interpretable T-feature (or some type of EPP feature), but the T feature of C is not valued. A nominative argument carries $u_T$ with no value, and a temporal adjunct carries $u_T$ with a value. When T probes, the nominative DP is the only Goal (under feature complementariness), hence valued after agreement and movement to [Spec, TP]. Due to the valuation, when C probes, both the nominative argument and the temporal adjunct are equally valued (assuming multiple agreement in the sense of Hiraiwa (2005) and Chomsky (2008)), but one of them then raises to [Spec, CP] to value the unvalued T-feature on C. Another way to look at the impossibility of (31d), as noted by an anonymous reviewer, is to say that the VOS order results from remnant VP raising, hence blocking further construals of the temporal adjunct within.
Now the last puzzle. Let me first point out that wh’s in situ in these languages behave like polarity items. Just like in Chinese, they allow extensive indefinite usages when scoped over by modals, negation, yes-no question, and conditional operators (cf. Tsai 1997, 2003). Therefore, we may safely assume that, in these Formosan languages, wh-nominals do not have intrinsic operator features. It follows that they are subject to unselective binding from an implicit Q-morpheme on C (cf. Baker 1970, Pesetsky 1987, Nishigauchi 1990, Tsai 1994), by virtue of being able to introduce a choice function variable in situ (cf. Reinhart 1998), as sketched in the following schema:

(32) \[ [\text{CP} [\text{C'} \text{Q}_f [\text{IP} ... f(\text{wh}) ... ]] ] \]

On the other hand, a nominative wh cannot remain in situ, because it must raise to check off the $uT$ on C. In which case, the polarity wh would raise beyond the scope of the question operator on C, which may well bleed the configuration of unselective binding, as shown below:

(33) * \[ [\text{CP} f(\text{wh}) [\text{C'} \text{Q}_f [\text{IP} ... t ... ]] ] \]

This results in vacuous quantification. Consequently, the only way to ask a subject wh-question in these languages is to employ either pseudo-cleft formation or focus movement. By contrast, a temporal wh enjoys the freedom of either remaining in situ, or raising to [Spec, CP].

To sum up, nominative arguments and temporal adverbials pattern together in forming A'-dependencies because both are endowed with T-features. Their distinct distributions are reduced to a difference in the interpretability of their T-features, namely, $uT$ vs $iT$.

3 Typological correlations

There are also a couple of typological correlations which might be regarded as the supporting evidence for our proposal. A point of interest has to do with the fact that there is no temporal voice throughout the Formosan languages, whereas there are often voices for patients, instruments, and locations. The following examples are from Squilq Atayal:\footnote{The verb root for ‘strike’ is bihiy. The various forms in (34)-(37) result from different combinations of the root and voice/aspect affixes.}

(34) mihiy ume qu-Temu. (Actor Voice)
    AV.strike plum NOM-Temu
    ‘Temu will knock down plums.’

(35) bhy-un na-Temu qu-ume. (Patient Voice)
    strike-PV OBL-Temu NOM-plum
    ‘Plums will be knocked down by Temu.’

(36) b’inh’hy-an ume na-Temu qu-slaq. (Locative Voice)
    <PXF>strike-LV plum OBL-Temu NOM-wet.field
    ‘Plums was knocked down by Temu in the wet field.’
(37) s-bihiy ume na-Temu gu-ruma’.
   (Instrumental Voice)
   IV-strike plum OBL-Temu NOM-bamboo.stick
   ‘Plums will be knocked down by Temu with a bamboo stick.’

This means that temporal expressions can never be a subject. The reason is very simple from our perspective: They bear an interpretable T-feature by default, and thus in the same league as nominative arguments in their ability to license A'-construals. We may therefore correlate the absence of temporal voice with the extractability of temporal wh-expressions.

Another relevant fact is that temporal wh-phrases sometimes carry realis/irrealis morphology. A good example comes from Tsou. There is a contrast between ne-homna ‘realis when’ of (38a) and ho-homna ‘irrealis when’ of (39a), which must agree with their respective tense modals, as evidenced by the deviance of (38b) and (39b) (cf. M. Chang 2004):

(38) a. m-o baito ta-mo’o ne-homna ’o-pasuya?
   AV-REAL see.AV OBL-Mo’o REAL-when NOM-Pasuya
   ‘When did Pasuya see Mo’o?’

   b. * m-o baito ta-mo’o ho-homna ’o-pasuya?
   AV-REAL see.AV OBL-Mo’o IRR-when NOM-Pasuya

(39) a. te baito ta-mo’o ho-homna ’o-pasuya?
   IRR see.AV OBL-Mo’o IRR-when NOM-Pasuya
   ‘When will Pasuya see Mo’o?’

   b. * te baito ta-mo’o ne-homna ’o-pasuya?
   IRR see.AV OBL-Mo’o REAL-when NOM-Pasuya

The same pattern is attested in Seediq, as shown by the contrast between knuwan ‘irrealis when’ of (40a) and sknuwan ‘realis when’ of (41a) (cf. C.-L. Chang 1996):

(40) a. knuwan ka [mi-imah sino tama]?
    when.IRR NOM IRR-drink wine father
    ‘When is (the time) Father will drink wine?’

   b. * sknuwan ka [mi-imah sino tama]?
    REAL.when NOM IRR-drink wine father

(41) a. sknuwan ka [m-oatat tunux na laqi ka-payi]?
    REAL.when NOM AV<PFV>cut head of child NOM-grandmother
    ‘When is (the time) Grandmother cut the child’s hair?’

   b. * knuwan ka [m-oatat tunux na laqi ka-payi]?
    IRR.when NOM AV<PFV>cut head of child NOM-grandmother

Again, they must agree with the tense morphology of the main predicate. This strongly recalls the future morphology marked on nominative DPs in Pittapitta (cf. Hale 1998, Pesetsky & Torrego 2001):

(42) a. ngapiri-ngu thawa paya-nha.
    father-FUT kill bird-ACC
    ‘Father will kill the bird (with missile thrown).’
b. thithi-ngu karnta pathiparnta.
   elder.brother-FUT go morning
   ‘My elder brother will go in the morning.’

We therefore have a good reason to group temporal adverbials and nominative arguments together in view of their ability to take tense morphology.

4 Concluding remarks

If our analysis is on the right track, it becomes possible to give a more precise characterisation of at least some of the peripheral/EPP features. Our proposal provides yet another reason for relating tense features to A'-construals in the left periphery.

Moreover, subject sensitivity is reduced to checking the \(uT\)-feature on C. Temporal adverbials form a natural class with nominative arguments in both syntactic and morphological terms: As IP-adverbials, they can be merged \(after\) the completion of the vP phase. As temporal expressions, they bear interpretable Tense features.

Given the extension of the \(uT\) analysis to accusative/oblique arguments in Pesetsky & Torrego (2004), the subject sensitivity effects can be accommodated in two ways. Either accusative/oblique arguments check their \(uT\) with T, or they bear interpretable T-features as a legacy of inherent case-marking. Just like temporal adjuncts merged \(before\) the completion of the vP phase, they cannot undergo further A'-movement.
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