HSIAOHUNG IRIS WU (*Massachusetts Institute of Technology*)

Restructuring infinitives in Tsou

Recent monoclausal approaches to restructuring are instantiated in two ways. Cinque (2004) proposes that restructuring is universally restricted to single iterations of the functional sequence of the clause. According to this view, restructuring always takes place between a main verb and a higher functional head of the same functional sequence. On the other hand, Wurmbrand (2001, 2004) argues that lexical restructuring must be admitted in the grammar as well. That is, lexical verbs in V may restructure with very small VP complement. This paper presents evidence from Tsou, a Formosan language, to support the latter view.

Restructuring in Tsou exhibits special morphology and syntax that distinguish itself from sentences containing common infinitives. Firstly, the verbs, adjectives and adverbs in the embedded constituent take their respective value for Voice inflection from the matrix auxiliary, namely the matrix T. The VP internal structure is all transparent for 'agreement harmony' as shown in (1) and (2).

(1) os-o kaeba ana ʔo tacumu
NAV-1S NAV-like NAV-eat NOM banana
'I like to eat the bananas.'

(2) mo ngoheungu no hosioyu ʔo moʔo
AV-AUX AV-afraid to AV-hunt NOM MoʔoMoʔo
'Moʔo is afraid to hunt.'

Interestingly, a rich array of lexical verbs is able to trigger restructuring (Chang 2006), not restricted to auxiliaries. This pattern is different from control constructions, where the infinitival verbs are always inflected for Active Voice (AV) though the matrix control verb can be inflected either for AV or Non-Active Voice (NAV) (cf. Chang and Tsai 2001) as in (3).

(3) i-ʔo ʔahi-a pa-bon-i na taini
NAV-1S force-NAV CAU-eat-AV NOM 3S.NOM
'I forced him to eat.'

Moreover, like other well-known versions of restructuring, the Tsou embedded constituent is an infinitival irrealis clause since auxiliaries cannot appear within the embedded clause, as exemplified in (4).

(4) i-si aenguza no *te/*nte tmacongo to yangui si oko
AUX-3S NAV-worry to AUX/AUX get.sick OBL Yangui NOM child
'Yangui worries that the child will get sick.'

More importantly, two typical properties of restructuring structure in other languages are observed here too. First is scrambling. As shown in (5), whatever processes account for the word-order options of arguments within the clause permit the matrix subject to surface inside the clauselet.

(5) mo akoyu no mihia emoo ʔo moʔo ne tapangu
AUX AV-plan to AV-buy house NOM Moʔo OBL tapang
'Moʔo plans to buy a house in Tapang.'

The other is the occurrence of long passives. The boundary separating the clauselet from the matrix verb is transparent for syntactic processes, such as long passives in (6).

(6) ita taʔpayoʔa no ana ta moʔo ʔo ufi
AUX-3S NAV-forget to NAV-eat OBL Moʔo NOM rice.cake
'Moʔo forgets to eat rice cake.'
(Lit. 'The rice cake is forgotten to be eaten by Moʔo.')

(7) mi-ta sumoyo no yoʔoca ta avʔu ʔe moʔo
AUX-3S.AV AV-afraid to NAV-bite OBL dog NOM moʔo
'Moʔo is afraid to be bitten by the dog.'

I argue that the intricate verbal morphology patterns in Tsou restructuring provide a clear example showing that the syntactic Agree can hold across a distance (Chung 2004). As (6) and (7) show, the embedded predicate has to be inflected as NAV and the matrix predicate must be either passive or unaccusative for long passives to occur. This pattern is expected if we assume the conditions on Agree as defined in Chomsky (2001). In this framework, for the embedded DP complement in long passives to Agree with the matrix T, the twin requirement—unvalued features and minimality—must be met within the matrix as well as within the clauselet. That is, both the matrix V and the embedded V must lack an external argument and fail to license objective cases, which are always satisfied in Tsou passives. If what is outlined in this paper is on the right track, it adds more empirical data for current work on restructuring and also provides some answers to the unsolved puzzles in Tsou complementation.

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Restructuring Infinitives in Tsou

Hsiao-hung Iris Wu
iriswu@mit.edu
Massachusetts Institute of Technology

1. Setting the Stage

• Tsou, like many Formosan and Western Austronesian languages, permits a range of arguments to serve as the most prominent DP of the clause (henceforth the *trigger*). The semantic role or grammatical function of the trigger is registered on the verb by voice marking or case morphology[1].

(1) a. *Trigger = Agent*
mita mosi ta pangka ta emi ?e pasuya
Nom.RL.3S put.Nom OBL table OBL rice-wine NOM Pasuya
'Pasuya put the rice wine on the table.'

b. *Trigger = Theme*
isi sia to pangka to pasuya ?o emi
Acc.RL.3S put.Acc OBL table OBL Pasuya NOM rice-wine
'Pasuya has put the rice wine on the table.'

c. *Trigger = Location*
isi sii to emi to pasuya ?o pangka
Obl.RL.3S put.Obl OBL rice-wine OBL Pasuya NOM table
'Pasuya has put the rice wine on the table.'

• I will assume that the overt spell-out of case agreement (or voice marking) on the verb is the result of Agree between the trigger and T (cf. Guilfoyle, Hung and Travis (1992), Rackowski and Richards (2005) among many others).

• The Issue: Agreement Harmony (AH)

In Tsou, the verbs, adjectives and adverbs in the embedded constituent sometimes can take their respective values for case inflection from the matrix auxiliary (Chang 2006 among others).

[1] Abbreviations used here are: Nom = nominative agreement, Acc = accusative agreement, Obl = oblique agreement, NOM = trigger marker, ACC = accusative case marker, OBL = oblique case marker, 1, 2, 3 = first, second, third person, Aux = auxiliary, Inf = Infinitive marker, RL = realis, S = singular, PL = plural, Cau = causative, IN = intransitive, INF = infinitive, LOC = locative, NPL = nonplural (number-neutral), PASS = passive.

(2) os?o ucia ana ?o tacumu
Acc.1S want.Acc eat.Acc NOM banana
'I want to eat the bananas.'

(3) os?o totea no phini ?o tacumu
Acc.1S wait.Acc Inf buy.Acc NOM banana
'I wait to buy the bananas.'

• However, AH is not found with all kinds of predicates. It is sensitive to verb types.

(4) Propositional verbs
os?o cohivi ho mita supeohu
Acc.1S know.Obl HO[2] he fall.down.Nom
'I know that he fell down.'

(5) Control verbs
i?o ?ahiya paboni na taini
Acc.1S force. Acc Cau.eat.Nom NOM he
'I forced him to eat.'

• AH is not attested in other Formosan languages. See Chang (2006) for details.

• I will argue that this kind of "agreement harmony" constitutes a case of long-distance morphological agreement that takes place in restructuring contexts.

2. The Phenomenon of Restructuring

• The Notion of Restructuring
Restructuring refers to a class of phenomena where certain ordinarily clause-bounded processes apply across the boundaries of infinitival clauses. The exact processes implicated seem to vary from language to language (see Wurmbrand 2001, Cinque 2006 and references therein).

• **"Long Passive"**

The boundary separating the clauselet from the matrix verb is transparent for syntactic processes. A DP complement can raise out of the clauselet to the specifier of the matrix T. In better studies versions of restructuring, the DP complement raises out of an embedded infinitive, which does not show passive morphology.

In (6) the embedded object is assigned nominative case and agrees with the matrix auxiliary:

[2] *Ho* is a full-fledged conjunction marker but it is still under debate whether it is also a complementizer. See discussions in Zeitoun (2000), Shen (2004) among others.

(6) German long passives
a. dass der Traktor zu reparieren versucht wurde
that the tractor-NOM to repair tried was
'that they tried to repair the tractor'
b. dass der Traktor und der Lastwagen zu reparieren versucht wurden
that [the tractor and the truck]-NOM to repair tried were
'that they tried to repair the tractor and the truck'

In Tsou, however, the embedded verb of the clauselet must be "passive", i.e. non-active or taking non-nominative case agreement, as well.

(7) ita ta?payoa no ana ta mo?o ?o ufi
Aux.3S forget Acc Inf eat.Acc OBL Mo?o NOM rice-cake
'Mo?o forgets to eat the rice cake.'
Lit. 'The rice cake is forgotten to be eaten by Mo?o.'

Importantly, 'long passive' is not possible out of non-AH sentences. In other words, long passive is impossible in infinitival constructions involving a non-restructuring verb such as *force*.

(8) * i?o ?ahiya paboni ta mo?o na ufi
Acc.1S force.Acc Cau.eat.Nom OBL Mo?o NOM rice-cake
'I forced Mo? to eat the rice cake.'
Lit. 'The rice cake is forced to be eaten by Mo?.'

Similar situation in Chamorro:

(9) a. Long passive in restructuring (from Chung 2004: ex. 6b)
Tinituhun esta si Dolores kinässi as Antonio
NPL.RL.IN.PASS.begin already Dolores NPL.RL.IN.PASS.tease OBL Antonio
'Antonio began to tease Dolores.'
Lit. 'Dolores was begun to be teased by Antonio.'

b. Long passive in non-restructuring (from Chung 2004: ex. 7)
* Pära tafan-ma-chägi mu-na'fanänul ni lähali siha
FUT 1PL.IR.IN-PASS-try INF.TR-hide OBL men PL
'The men will try to hide all of us.'

• "Scrambling"

Whatever processes account for the word-order options of arguments within the clause permit the matrix subject to surface inside the clauselet.

The matrix subject can surface inside restructuring infinitives.

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(10) mo akoyu [no mihia emoo ?o mo?o ne tapangu]
Aux plan.Nom Inf buy.Nom house NOM Mo?o OBL Tapang
'Mo?o plans to buy a house in Tapang.'

Crucially, with non-AH sentences the matrix subject is preferred not to occur inside the clauselet.

(11) ?? i-?o ?ahi-a [pa-bon-i na taini to aaskiti to c?oeha]
Acc.1S force.Acc cau.eat.Nom NOM he OBL side OBL river
'I forced him to eat at the river side[3].'

Similar situation in Chamorro:

(12) a. Scrambling in restructuring (from Chung 2004: ex. 8a)
Man-o'sun [ma-dipendi siha i famalao'an gias Juan].
PL.RL.IN-bored 3PL.RL.TR-depend themselves the woman Loc Juan
'The women are tired of depending on Juan.'

b. Scrambling in non- restructuring (from Chung 2004: ex. 9)
* Kao amn-ayuda [um-ispiha i chi'lu-hu lahi i famagu'un]?
Q NPL.RL.IN.AP-help INF.TR-look.for the sibling-1SG make the children
'Did my brother help look for the children?'

Having established a correlation between restructuring and "agreement harmony", the next question to be addressed is why this correlation exists.

3. The Proposal: Restructuring and Long-Distance Agreement and Agree

• A range of approaches to restructuring share the property that they treat restructuring infinitives as being reduced, as lacking some property that non-restructuring infinitives have.

- Wurmbrand (2001): VP, no external argument
- Moore (1991): vP, with external argument (as PRO or trace)
- Bhatt (2002): defective TP

• I argue for the structures in (13), where the restructuring infinitive is at least smaller than TP and the non-restructuring infinitive is at least larger than TP.

[3] In Tsou, only NAV or Acc case-marked control verbs can occur with the embedded causative morpheme but AV ones cannot. This is an independent requirement of control structure. See Chang & Tsai for possible explanations.

(13) a. Tsou restructuring infinitive
[$_{vP}$ [$_{v}$ [$_{VP}$ V_{RV} [$_{vP}$ v [$_{VP}$ V IA]]]]]
b. Tsou non-restructuring infinitive
[$_{vP}$ [$_{v}$ [$_{VP}$ V_{NRV} [$_{TP}$ T [$_{vP}$ v [$_{VP}$ V IA]]]]]]

3.1 Evidence for the reduced infinitive: The size of the clauselet

• Tsou restructuring infinitives lack an independent internal tense[4] specification which is taken to reflect the lack of a T-projection.

- Auxiliaries: No auxiliary is allowed in the restructuring clauselet.

(14) a. os?ocu ahoza {(*te) /(*nte)} ana ?o fou
Acc.1S start.Acc Aux Aux eat. Acc NOM meat
'I have started to eat the meat.'
b. ita ta?payoa no (*mo) ana ta mo?o ?o ufi
Acc.3S forget.Acc Inf Aux eat.Acc OBL Mo?o NOM rice-cake
'Mo?o forgets to eat the rice cake.'
Lit. 'The rice cake is forgotten to be eaten by Mo?o.'

- Negation: The negator that selects TPs is not allowed to be in the clauselet.

Different types of negators in Tsou have different selectional properties (Sung 1999).

(15) o?a *selects TPs and precedes the auxiliaries*
isi cohivi to mo?o ho **o?a** mo mihino to simeo ?o pasuya
Acc.3S know.Obl OBL Mo?o HO Neg Aux buy.Nom OBL pork NOM Pasuya
'Mo?o knows that Pasuya did not buy pork.'

(16) o?te *selects VPs and follows the auxiliaries*
isi cohivi to mo?o ho mo **o?te** mihino to simeo ?o pasuya
Aux-3S know.Obl OBL Mo'o HO Aux Neg buy.Nom OBL pork NOM Pasuya
'Mo?o knows that Pasuya did not buy pork.'

Restructuring infinitive is only compatible with o?te.

(17) a. os?ocu ahoza o?te ana ?o fou
Acc.1S start.Acc Neg eat-Acc NOM meat
'I have started not to eat the meat.'

[4] When we claim that restructuring infinitives lack Tense or TP, we claim that restructuring infinitives lack the *functional structure* associated with Tense (such as tense features, a *before/after* relation, or a tense operator).

b. * os?ocu ahoza o?a ana ?o fou
Acc-1S start.Acc Neg eat.Acc NOM meat

The restructuring-tense connection[5]

Table 1 Restructuring verbs and tense (adapted from Wurmbrand 2001: 93)

Verb	*German*	*Japanese*	*Tsou*	*Tense*
propositional (*believe*)	-	-	-	+
factive (*regret*)	-	-	-	+
plan	-	-	+	+/-
motion (*come, go*)	+	+	+	-
Begin	+	+	+	-
Forget	+	+	+/-	-
causative	+	+	-	-
Try	+	+/-	+	-
finish, stop	-	+	+	-

3.2 Long-Distance Agreement and Agree

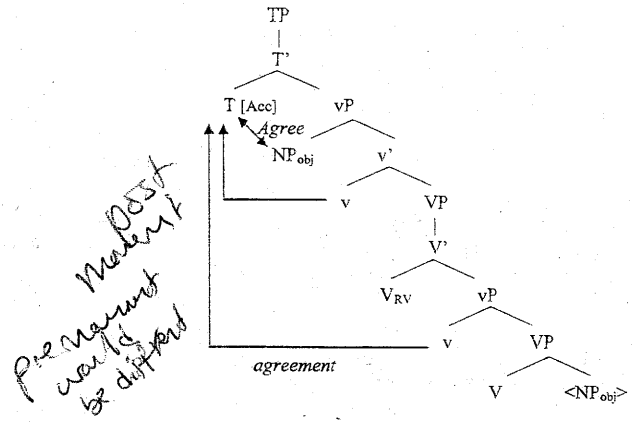
• As argued in Bhatt's (2002) discussion of Hindi-Urdu restructuring and Chung's (2004) discussion of Chamorro restructuring, infinitival agreement can be parasitic on the agreement of the matrix finite T, given appropriate contexts. A dependency is created between the matrix T and the infinitival head, such that whatever features set the values of the features of the matrix T co-valuate the features of the infinitival head.

• I suggest that something similar happens in Tsou restructuring. The lower predicate's morphological agreement is parasitic on the next highest T head so that a case morphology dependency is established between the verb and its next highest T head.

Given the reduced structure in restructuring infinitives, the embedded predicate, without an independent T within the clauselet, takes its case specification from the matrix T and hence ultimately from the trigger. This is what I call long-distance (morphological) agreement.

[5] However, note that the correlation goes only one way since not all verbs that block an independent tense interpretation are necessarily restructuring verbs.

(18) The (simplified) phrase structure of restructuring in Tsou



• Can the syntactic relation Agree also hold across a distance in this construction? Assume the conditions on Agree as defined in Chomsky (2001). In this framework, for the embedded DP complement in long passive to Agree with the matrix T, the twin requirement -- unvalued features and minimality -- must be met within the matrix as well as within the clauselet.

» The embedded predicate cannot be any predicate whose v would select an external argument and license objective Case.

(19) * ita ta?payoa no boni ta mo?o ?o ufi
Aux.3S forget.Acc Inf eat.Nom NOM Mo?o NOM rice-cake
'Mo?o forgets to eat rice cake.'

» The matrix predicate must be a predicate whose v does not select an external argument or license objective Case. In (20) the highest argument of the unaccusative, an experiencer in this case, is either covert or realized in the oblique morphological case.

(20) mita ~~s~~umoyo no ana ta mo?o ?e ko~~k~~oŋu
Aux.3S.Nom fear.Nom Inf eat.Acc OBL Mo?o NOM lizard
'Mo?o is afraid to eat the lizard.'

→ Long passive requires long-distance Agree: both the matrix V and the embedded V must lack an external argument and fail to license objective cases, which are always satisfied in Tsou long passive.

3.3 Infinitival marker

• Among the sentences that exhibit the AH, there are verbs that combine with bare infinitives, verbs that require an infinitival marker,

(21) ita ta?payoa no ana ta mo?o ?o ufi
Aux.3S forget.Acc Inf eat.Acc OBL Mo?o NOM rice-cake
'Mo?o forgets to eat the rice cake.'

• However, it is a common assumption that the infinitival marker represents tense. Thus, since certain restructuring infinitives in Tsou obligatorily project the infinitival marker *no* 'to', the question arises (apparently) of how the presence of the infinitival marker can be reconciled with the claim that restructuring infinitives do not involve a T projection.

• Wurmbrand (2001): restructuring infinitives can include a projection that hosts the infinitival marker, however since this projection bears no semantic content and does not seem to fulfill any syntactic function, it is essentially 'invisible' for the computation of the restructuring configuration (also see Travis (1994, 2000) for arguments that English infinitival marker is in a lower functional projection inside the verb phrase).

• In addition to the above reasons, we have grounds to believe that the complement introduced by *no* is smaller than a TP.

-Auxiliaries are not allowed in the no-complement.
(22) ita ta?payoa no {*te/*net} ana ta mo?o ?o ufi
Aux.3S forget.Acc Inf Aux/Aux eat.Acc OBL Mo?o NOM rice-cake
'Mo?o forgets to eat the rice cake.'

- The no-complement clause allows only the VP negator o?te.
(23) ita ta?payoa no o?te ana ta mo?o ?o ufi
Aux.3S forget.Acc Inf Neg eat.Acc OBL Mo?o NOM rice-cake
'Mo?o forgets not to eat the rice cake.'

- No TP adverbials can appear inside the no-complement.
(24) * mo akoyu no asonu mihia emoo ?o mo?o
Aux plan.Nom Inf probably.Nom buy.Nom house NOM Mo?o.
Lit. 'Mo?o plans to probably buy a house.'

• The distribution of the infinitival marker is determined by the lexical or selectional property of the matrix verb (cf. Burzio 1986, Rochette 1988).

4. Concluding Remarks

The distinctive characteristics of Tsou restructuring are not determined exclusively in the syntax. The phrase structure of restructuring and the possibility of long passive are produced by syntactic operations while long-distance morphological agreement is probably not, unless we allow functional heads to be Goals for Agree as well as Probes.

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motion verbs

emotive modal excluded

but lots of other restructuring