Conjunctive Reduction and its Origin: A Comparative Study of Tsou, Atayal, and Amis

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This paper discusses the issue of how coordinate structures evolve into subordinate structures in both syntactic and semantic terms. I call this type of process “conjunctive reduction.” It is well established in the literature on Chinese historical syntax that some modifier–head and verb–complement compounds actually derive from coordinate structures in Ancient Chinese. Based on this finding, I suggest that a similar process is also at work in Formosan languages, but on a quite different scale. That is, while Chinese encodes conjunctive reduction in compounding morphology, the same process involves full-fledged syntactic operations in Formosan languages. I propose that there are two general directions of conjunctive reduction. On the one hand, the coordinator may become a modifier marker, where the first conjunct becomes a marked adverbial; then the modifier marker may disappear completely, making the first conjunct an unmarked adverbial. I call this “adverbialization.” On the other hand, the coordinator may become a complementizer, introducing either an infinitive complement or an adverbial adjunct such as a conditional or temporal clause. I take Squlíq Atayal, Tsou, and Amis to represent the Northern, Tsouic, and Paiwanic groups respectively, which in turn points to the existence of a protolanguage with extensive coordinate construals along the line of Neo-Davidsonian semantics, very much like Ancient Chinese.

1. INTRODUCTION.1 It has been widely observed that coordinate structures have often evolved into subordinate structures with distinct semantic shift. Some examples:2

(1) a. One more can of beer and I’m leaving.
   (= If you have one more can of beer, I’m leaving.)
   (Culicover and Jackendoff 1997)

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2. Abbreviations used in examples follow the Leipzig Glossing Rules with the following additions: av, Actor Voice; conj, conjunction; iv, Instrumental Voice; lv, Locative Voice; nav, Non-Actor Voice; neu, neuter; rea, realis.
b. Dan dan er fa zhi.
   ‘Strike it daily.’
   (Chinese)

c. Shi zhu ji er bu yuan, yi wu shi zhu ren.
   ‘If you are not willing to do it to yourself, then don’t do it to others.’
   (Chinese)

In (1a), and is still a conjunction syntactically, but functions like a complementizer for conditionals in terms of its semantics. As noted by K. Mei (2002), a similar process is well-documented in the literature of Chinese historical syntax: (1b,c) illustrate this point rather nicely, where the conjunction er may introduce either a temporal adverbial or a conditional clause with topicalization. Furthermore, it has been established that some of the modifier–head and verb–complement compounds in Modern Chinese are direct descendents of coordinate structures in Classical Chinese.3

Following this line of research, I would like to examine a cluster of peculiar phenomena in Formosan languages, where a conjunction has become a complementizer for either adverbial clauses or complement clauses, a process I call “conjunctive reduction.”4 In particular, I take Tsou, Amis, and Atayal as the representatives of three subgroups of Formosan (i.e., Tsouic, Paiwanic, and Northern respectively; cf. Li 1985, Ferrell 1969, Tsuchida 1976, Blust 1977, 1999, Starosta 1995, Ho 2000, and Sagart 2004 for various views on this issue), and make a tentative comparison among various reduction patterns to see whether there are syntactico-semantic traits which can be employed as subgrouping criteria. I will start with a rundown of the basic facts from Tsou, Amis, and Atayal in sections 2–4, respectively, and show how conjunctive reduction works in the three languages. I then proceed to a dichotomy of the relevant phenomena in section 5, based on the facts from additive, sequential, modifier-marking, conditional, temporal, resultative, and complex predicate construals: one group involves complementation, where a coordinator is grammaticalized as a complementizer; the other undergoes “adverbialization,” where a coordinator becomes a modifier marker, and is optional or even disappears in a full-fledged adverbial construction. Conclusions are offered in section 6.

2. CONJUNCTIVE REDUCTION IN TSOU

2.1 Ho AS A COMPLEMENTIZER

2.1.1 Infinitive Complements of Manner Predicates. In Tsou, the conjunction ho is extremely versatile in that it can introduce an infinitive complement of a manner predicate such as butas ‘severe’, as in the Actor Voice (AV) construction (2a) (cf. Tsai

3. See Ota (1958), Wang (1958), T. Mei (1991), Huang (1995), and Lin (2002) for discussion on the relevant issues from both philological and formal perspectives. To take a concrete example, ci-sha ‘thrust-kill; assassinate’ may represent either a modifier–head compound, meaning ‘kill by thrusting (a knife)’, or a head–complement compound, meaning ‘kill as a result of thrusting (a knife)’.  

4. The notion of “conjunctive reduction” should be distinguished from the phenomenon known as “coordination reduction,” where the subject of the second conjunct is reduced and controlled by the subject of the first conjunct (cf. Ross 2004, among others). Also note that conjunctive reduction typically does not change the original word order, and the term “conjunctive” is used in its strict logical sense, that is, neither disjunctive nor subordinate.
and Chang 2003). This point is supported by the fact that it is impossible to add a realis modal to the infinitive complement, as illustrated by the deviance of (2b):

(2) a. M-i-ta butaso 'e Pasuya [ho eobako ta oko].
   AV-REA-3SG severe.AV NOM Pasuya COMP beat.AV OBL child
   ‘Pasuya beat the child severely.’
   (lit. ‘Pasuya is severe in beating the child.’)

   b. *m-i-ta butaso 'e Pasuya [ho m-i-ta eobako ta oko]
   AV-REA-3SG severe.AV NOM Pasuya COMP AV-REA-3SG beat.AV OBL child

The same pattern holds in the Non-Actor Voice (NAV) construction, as evidenced by the contrast of (3a) and (3b):

(3) a. I-ta utasveni 'e oko [ho eobaka ta Pasuya].
   NAV.REA-3SG severe.AV NOM child COMP beat.NAV OBL Pasuya
   ‘The child was beaten by Pasuya severely.’

   b. *i-ta utasveni 'e oko [ho i-ta eobaka ta Pasuya]
   NAV.REA-3SG severe.NAV NOM child COMP NAV.REA-3SG beat.NAV OBL Pasuya

Another way to construct manner expressions is to conjoin VPs rather than clauses, where the subject appears sentence-finally, as in the AV sentence (4a) and its NAV counterpart (4b):

   severe.AV COMP beat.AV OBL child NOM Pasuya
   ‘Pasuya is beating the child severely.’

   severe.NAV COMP beat.NAV OBL Pasuya NOM child
   ‘The child is being beaten by Pasuya severely.’

Here the realis modal typically does not appear, and the usage can only express an ongoing process happening before the speaker’s own eyes. We may thus take this to be some sort of evidential construal.

Last, as noted by H. Chang (2004), it is possible to employ the manner predicate as an adverbial modifier in the presence of the realis modal, as in (5a,b):

(5) a. M-i-ta butaso obako ta oko 'e Pasuya.
   AV-REA-3SG severe.AV beat.AV OBL child NOM Pasuya
   ‘Pasuya beat the child severely.’

   b. I-ta utasveni eobaka ta Pasuya 'e oko.
   NAV.REA-3SG severe.NAV beat.NAV OBL Pasuya NOM child
   ‘The child was beaten by Pasuya severely.’

Furthermore, the deviance of (6a,b) shows that ho is not allowed in this type of construal, presumably because it is modification rather than complementation that is in action here:

5. Tsou, Amis, and Atayal are basically head-initial languages. An adverbial, often behaving like a predicate rather than an adjunct, appears to the left of arguments. Complements, on the other hand, appear typically to the right of predicates. Admittedly, there are some irregularities with the above generalization that are rooted deeply in the process of conjunctive reduction, as we will see in the following discussion.

6. As a reviewer points out, the manner constructions discussed here are reminiscent of the following paraphrases in English: it’s nice and warm for it’s nicely warm, or try and do it for try to do it.
2.1.2 Adverbial Clauses. In addition, ho may also introduce an adverbial clause, often interpreted as ‘when (irrealis)’ or ‘if’ (cf. Tung 1964, Zeitoun 1996), as in (10a), which is reminiscent of the conditional construal of English and in (1). Here ho and the realis modal are both obligatory, as illustrated by the deviance of (10b) and (10c), respectively:

(10) a. M-i-ta butaso ’e Pasuya[ho m-i-ta eobako ta oko].
   AV-REA-3SG severe.AV NOM Pasuya when.IRR AV-REA-3SG beat.AV OBL child
   ‘Pasuya would do it severely when he beats the child.’

b. *m-i-ta butaso ’e Pasuya[m-i-ta eobako ta oko]
   AV-REA-3SG severe.AV NOM Pasuya AV-REA-3SG beat.AV OBL child

c. *m-i-ta butaso ’e Pasuya[ho eobako ta oko]
   AV-REA-3SG severe.AV NOM Pasuya when.IRR AV-REA-3SG beat.AV OBL child

In other words, in contrast to the infinitive complement just mentioned, the adverbial clause must be tensed and introduced by a full-fledged complementizer. Moreover, it can be placed in sentence-initial position, as in (11a), which is a sure indication that the clause in question is indeed an adverbial rather than a complement:

(11) a. [Ho m-i-ta eobako ta oko], m-i-ta butaso ’e Pasuya.
    when.IRR AV-REA-3SG beat.AV OBL child AV-REA-3SG severe.AV NOM Pasuya
    ‘Pasuya would do it severely when he beats the child.’

7. The (a) sentences in (6)–(9) are ungrammatical versions of (5a), while the (b) sentences are ungrammatical versions of (5b).

8. This is exactly why Tung (1964) classifies ho-clauses of this type as complex sentences rather than compound sentences.
b. *[m-i-ta eobako ta oko], m-i-ta butaso 'e Pasuya
   AV-REA-3SG beat.AV OBL child AV-REA-3SG severe.AV NOM Pasuya
   c. *[ho eobako ta oko], m-i-ta butaso 'e Pasuya
   when.IRR beat.AV OBL child AV-REA-3SG severe.AV NOM Pasuya

Also note that the topicalized adverbial clause observes exactly the same restrictions as its sentence-final counterpart, as in (11b,c), and thus belongs to the same syntactic class. Moreover, as a complementizer of adverbial clauses, it may alternate with a variety of other complementizers, such as *iho and *siho (cf. Tung 1964).

Another characteristic of the adverbial clause is that it does not observe the voice matching constraint between manner predicates and their infinitive complements, as evidenced by (12):

(12) M-i-ta butaso [ho i-ta eobaka ta Pasuya 'e oko].
   AV-REA-3SG severe.AV when NAV-REA-3SG beat.NAV OBL Pasuya NOM child
   ‘He would do it fiercely when the child is beaten by Pasuya.’

Here the matrix clause takes the actor voice, while the adverbial clause takes the non-actor voice. The test result shows no conflicting effect.

It is also worthwhile to note that, while *ho carries irrealis semantics when construed as ‘when’, it does have a realis counterpart, *ne, which is interpreted as ‘when (realis)’, introducing a temporal clause, as in (13):

(13) M-i-ta butaso 'e Pasuya [ne m-i-ta eobako ta oko].
   AV-REA-3SG severe.AV NOM Pasuya when AV-REA-3SG beat.AV OBL child
   ‘Pasuya did it severely when he beat the child.’

In sum, the adverbial clause of (10a) sharply contrasts with the infinitive complements of (2–4) in that it must retain *ho and the realis modal to secure the conditional interpretation; it can be raised to a topic position, as in (11a); and the voice matching constraint is irrelevant, as in (12).

2.1.3 Instrumental, Locative, and Purposive Expressions. There are a couple of other constructions sharing the characteristics of manner constructions in taking infinitive complements. The first construction has to do with instrumental predicates which, just like manner predicates, take an infinitive complement headed by *ho, as in (14):

   AV-REA-3SG use-AV OBL knife COMP AV.kill OBL boar NOM Pasuya
   ‘Pasuya is using the knife to kill the boar.’

It is possible for the instrument *poyave ‘knife’ to form a compound verb with the reduced form of *tith ‘use’, that is, *ti-, as in the AV sentence (15a) and its NAV counterpart (15b):9

   with-knife COMP kill.AV OBL boar NOM Pasuya
   ‘Pasuya is killing the boar with a knife.’

b. Ti-poyave [*ho syu’ca ta Pasuya] 'e fuzu.
   with-knife COMP kill.NAV OBL Pasuya NOM boar
   ‘The boar is being killed by Pasuya with a knife.’

9. The notation *(X) indicates that the sentence is grammatical with X but ungrammatical if X is omitted.
Here the reading is distinctly evidential, and the complementizer ho cannot be omitted, which is a sure indication of complementation.

Locative predicates display a similar trait. That is, their complements are again introduced by ho, and the realis modal is not allowed in the complement, as evidenced by (16a,b):

(16) a. M-o yon ne hcuyu [ho *(m-o) mum’u to ocia’o Pasuya].
   AV-REA at LOC mountain COMP AV-REA plant.AV OBL tea NOM Pasuya
   ‘Pasuya is growing tea in the mountain.’

   b. M-o yon to hopo [ho *(m-o) mongsi ’o Pasuya].
   AV-REA at OBL bed COMP AV-REA cry.AV NOM Pasuya
   ‘Pasuya is crying on the bed.’

Moreover, both instrumental and locative constructions require the voice of the main predicate to be in accordance with that of the infinitive.

On the other hand, a purposive adjunct is very often headed by the complementizer ho, as in (17):

(17) M-o mhino no emi ’o Pasuya [ho ima].
   AV-REA buy.AV OBL wine NOM Pasuya COMP drink.AV
   ‘Pasuya bought wine to drink.’

The difference is that the voice matching requirement is not observed here, very much like the conditional clauses mentioned above.

We therefore conclude that instrumental and locative predicates pattern with manner predicates in taking infinitive complements where the conjunction ho has evolved into a nonfinite complementizer. By contrast, purposive adjuncts pattern with adverbial clauses in not enforcing voice matching.

2.2 Ho AS A CONJUNCTION

2.2.1 Resultative Construction. Just like the manner construction, the resultative construction in Tsou employs ho as a conjunction of some sort. However, it differs from its manner counterpart in two important aspects: the realis modal of the second conjunct is obligatory, but that of the first conjunct is optional. This is true whether the subject appears in the second conjunct, as in (18a) and (19a), or in the first, as in (18b) and (19b):

(18) 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-work
   ‘Pasuya worked till he was tired.’

   b. (M-i-ta) ngosio ho *(m-i-ta) yaa-hioa ’e Pasuya.
   AV-REA-3SG tired.AV CONJ AV-REA-3SG do.AV-work NOM Pasuya
   ‘Pasuya worked till he was tired.’

(19) a. Alu pe-puncuke ’e Pasuya ho *(m-i-ta) mimo to emi.
   till.AV drink-full.AV NOM Pasuya CONJ AV-REA-3SG drink.AV OBL wine
   ‘Pasuya drank wine till he was full.’

   b. Alu pe-puncuke ho *(m-i-ta) mimo to emi ’e Pasuya
   till.AV drink-full.AV CONJ AV-REA-3SG drink.AV OBL wine NOM Pasuya
   ‘Pasuya drank wine till he was full.’
Moreover, it seems to be true that, unlike in the manner construction, *ho* must be present regardless of the locus of the subject, as indicated by the deviance of (20) and (21) as compared with (18) and (19) respectively:

(20) a. *m-i-ta ngosio ’e Pasuya m-i-ta yaa-hioa
   AV-REA-3SG tired.AV NOM Pasuya AV-REA-3SG do.AV-work
   b. *m-i-ta ngosio m-i-ta yaa-hioa ’e Pasuya
   AV-REA-3SG tired.AV AV-REA-3SG do.AV-work NOM Pasuya

(21) a. *alu pe-puncuke ’e Pasuya m-i-ta mimo to emi
till.AV drink-full.AV NOM Pasuya AV-REA-3SG drink.AV OBL wine
   b. *alu pe-puncuke m-i-ta mimo to emi ’e Pasuya
till.AV drink-full.AV AV-REA-3SG drink.AV OBL wine NOM Pasuya

The only way *ho* can be omitted is for the resultative predicate to form a complex predicate with a bound verbal form such as *pe*—‘drink’ (in a process that is quite similar to Chinese compounding), as exemplified below (cf. also H. Chang 2004):

(22) M-i-ta na’no pe-puncuke to emi ’e Pasuya.
    AV-REA-3SG very drink-full.AV OBL wine NOM Pasuya
    ‘Pasuya drank wine till he was full.’

On the other hand, resultative constructions also differ from adverbial clauses introduced by *ho* in a couple of ways. First, the adverbial clause can be topicalized, but the second conjunct of the resultative construction cannot. As a result, the topicalized clause can only be construed as conditional, as in (23):

(23) [Ho m-i-ta yaa-hioa], m-i-ta ngosio ’e Pasuya.
    when AV-REA-3SG do.AV-work AV-REA-3SG tired.AV NOM Pasuya
   a. ‘When Pasuya works, he gets tired.’
   b. ‘Pasuya worked till he was tired.’

The same restriction is also observed by the manner construction, as illustrated by the contrast of (24) and (25), where topicalization of the infinitive complement is in no way felicitous:

(24) [Ho m-i-ta eobako ta oko ’e Pasuya], m-i-ta butaso.
    when AV-REA-3SG beat.AV OBL child NOM Pasuya AV-REA-3SG severe.AV
    ‘When Pasuya beats the child, it is severe.’
(25) *[ho eobako ta oko] m-i-ta butaso ’e Pasuya
    when beat.AV OBL child AV-REA-3SG severe.AV NOM Pasuya

Second, while the adverbial clause allows conflicting voices between the two conjuncts, the resultative construction adheres to the voice matching effect found with the manner construction, as evidenced by the deviance of (26):

(26) *alu pe-puncuke ’e Pasuya ho i-ta ima to emi
till.AV drink-full.AV NOM Pasuya CONJ AV-REA-3SG drink.AV OBL wine

2.2.2 Frequency and Duration Expressions. Curiously enough, as noted by M. Chang (2004), frequency and duration expressions in Tsou also involve *ho* as a conjunction linking a frequency/duration predicate to the main predicate, as exemplified by (27) and (28), respectively:
(27) M-i-ta i’toteohu ho m-i-ta mongsi ’e Pasuya.
av-rea-3sg three.times.av conj av-rea-3sg cry.av nom Pasuya
‘Pasuya cried three times.’

(28) M-i-ta miteuhi ho m-i-ta mongsi ’e Pasuya.
av-rea-3sg three.days.av conj av-rea-3sg cry.av nom Pasuya
‘Pasuya cried for three days.’

Just like the resultative construction, here the realis modal of the second conjunct cannot be omitted, as evidenced by the deviance of (29) and (30) as compared with (27) and (28):

(29) *m-i-ta i’toteohu ho mongsi ’e Pasuya
av-rea-3sg three.times.av conj cry.av nom Pasuya

(30) *m-i-ta miteuhi ho mongsi ’e Pasuya
av-rea-3sg three.days.av conj cry.av nom Pasuya

The same restriction applies equally to both AV and NAV sentences, as shown by the parallel between (31a) and (31b):

(31) a. M-i-ta i’toeohu ho *(m-i-ta) eobako ta oko ’e Pasuya.
av-rea-3sg three.times.av conj av-rea-3sg beat.av obl.child nom Pasuya
‘Pasuya beat the child for three times.’

b. I-ta i’toeoha ho *(i-ta) eobaka ta Pasuya ’e oko.
nav.rea-3sg three.times.nav conj nav.rea-3sg beat.nav obl.Pasuya nom child
‘The child was beaten by Pasuya for three times.’

By contrast, if ho is not present in the sentence, then the realis modal only appears sentence-initially, as in (32a,b):

(32) a. M-o i’toeohu eobako ta oko ’e Pasuya.
av-rea three.times.av beat.av obl.child nom Pasuya
‘Pasuya beat the child for three times.’

b. I-si i’toteoha eobaka ta Pasuya ’e oko.
nav.rea-3sg three.times.nav beat.nav obl.Pasuya nom child
‘The child was beaten by Pasuya for three times.’

Alternatively, the frequency/duration predicate may combine with a bound verbal form such as e- ‘beat’ or mi- ‘live’ to form a complex predicate, as exemplified by (33) and (34), respectively:

(33) a. M-i-ta e-tuehu ta oko ’e Pasuya.
av-rea-3sg beat-three.times.av obl.child nom Pasuya
‘Pasuya beat the child three times.’

b. M-i-ta e-pusku ta oko ’e Pasuya.
av-rea-3sg beat-twice.av obl.child nom Pasuya
‘Pasuya beat the child twice.’

(34) a. M-i-ta mi-tuehi ne Tapangu ’e Pasuya.
av-rea-3sg live-three.days.av loc Tabang nom Pasuya
‘Pasuya stayed in Dabang for three days.’

b. M-i-ta mi-msohi ne Tapangu ’e Pasuya.
av-rea-3sg live-two.days.av loc Tabang nom Pasuya
‘Pasuya stayed in Dabang for two days.’
It also seems possible to conjoin a duration predicate at the VP level. As illustrated in (35), the conjoined phrase has a causative light verb as its complement. The level of conjunction here is therefore bound to be under VP:

(35) i-si poa-[mituehi ho o’t e yuvu’ohu] to emi ’e Pasuya.

nav.rea-3sg make-three.days.av conj neg get.up.av obl wine nom Pasuya

‘The wine made Pasuya unable to get up for three days.’

2.3 INTERIM SUMMARY. We can summarize the Tsou patterns observed so far as follows (with RM = realis modal):

I. RM AP ho VP → manner
II. AP ho RM VP → resultative
III. AP ho VP → manner (evidential)
IV. RM AP VP → manner or resultative
V. RM AP [ho RM VP] → conditional clause
VI. [ho RM VP], RM AP → conditional clause
VII. RM LocP/InsP ho VP → location or instrument
VIII. FreP/DurP ho RM VP → frequency or duration

Furthermore, it seems to be true that the conjunctive structures in Tsou involve at least three types of reduction, as illustrated below:

I. conjunction → manner predicate + infinitive complement
II. conjunction → manner predicate + conditional clause
III. conjunction → resultative clause + main predicate

3. CONJUNCTIVE REDUCTION IN SQUILIQ ATAYAL

3.1 RU AS A COMPLEMENTIZER. By contrast, Squiliq Atayal seems to be located at the other end of the spectrum. Consider the following:

(36) a. Pkyalun yal mihi Yumin qu Tali.
    severe very av.beat Yumin nom Tali

    ‘Tali beat Yumin very severely.’

b. *pkyalun yal ru mihi Yumin qu Tali
    severe very conj av.beat Yumin nom Tali

c. *pkyalun yal bhi-an na Tali qu Yumin
    severe very beat-lv obl Tali nom Yumin

The conjunction ru cannot appear in a manner construction: (36a) is such a construction, while (36b) with ru is ungrammatical. Here the main predicate in terms of semantics is more likely to be a syntactic complement to the manner predicate pkyalun ‘severe’. This is because here the voice of the beating event has to be Actor-oriented, a restriction very similar to that in Amis, Kavalan, and Paiwan (cf. Huang 1997, Tang 1999, Liu 2003, and H. Chang 2005, among others), as evidenced by the deviance of (36c).

With the conjunction ru, the construal can only be either resultative, as in the AV sentence (37a) and its NAV counterpart (37b), or causal, as in (37c,d), where the locus of the nominative argument makes no difference. Both construals instantiate a cause–effect relationship in Vendler’s (1967) sense. Moreover, it is clear from (37b–d) that the effect of voice matching is nowhere to be found in these constructions:
(37) a. Mlu rmai qu Tali ru m’wi yal.
   AV.ride horse NOM Tali CONJ AV.tired very
   ‘Tali rode the horse such that (he) was very tired.’

b. Lgan na Tali qu rmai ru yasaqu m’wi yal.
   ride.LV OBL Tali NOM horse CONJ such.that AV.tired very
   ‘The horse was ridden by Tali such that (it) was very tired.’

c. Lgan na Tali qu rmai ru m’wi yal.
   ride.LV OBL Tali NOM horse CONJ AV.tired very
   ‘The horse was ridden by Tali, so (it) was very tired.’

d. Lgan na Tali ru m’wi yal qu rmai.
   ride.LV OBL Tali CONJ AV.tired very NOM horse
   ‘The horse was ridden by Tali, so (it) was very tired.’

We may even embed a resultative construal under a causal construal licensed by ru:

(38) ’Suu yal qu Tali ru m’wi qu rmai lgan-nya.
   heavy very NOM Tali conj tired NOM horse ride.LV-3SG.OBJ
   a. ‘Tali is too heavy, so the horse is tired after having been ridden by
   him.’ (realis)
   b. ‘Tali is too heavy, so the horse would be tired if ridden by him.’ (irrealis)

It is also important to note that the ordering of the main predicate and the resultative predicate in Sülüq is opposite to what we observe in Tsou. If we reverse the two conjuncts of (37b) in the Tsouic order, as in (39), the ordinary conjunctive interpretation emerges (also cf. Huang 1995):

(39) M’wi yal qu rmai lgan na Tali.
   AV.tired very NOM horse and ride.LV OBL Tali
   ‘The horse was very tired and (it) was still ridden by Tali.’

In other words, the sentence is not interpreted as resultative at all, and carries only the usual additive or sequential reading, very much like the conjunctive sentences given below:

(40) a. Wal m-lu kacing-rapa ru wal Sinciku qu Tali.
    PST AV-ride buffalo-water and go Hsinchu NOM Tali
    ‘Tali rode a water buffalo to go to Hsinchu.’

b. M-lu kacing-rapa ru mwah Sinciku qu Tali.
    AV-ride buffalo-water and come Hsinchu NOM Tali
    ‘Tali is riding a water buffalo to come to Hsinchu.’

When the conjunction ru is omitted, both additive and conditional construals are possible, as illustrated by the (a) and (b) translations of (41):

(41) M’wi yal qu rmai lgan na Tali.
   AV.tired very NOM horse ride.LV OBL Tali
   a. ‘The horse was very tired and (it) was still ridden by Tali.’ (additive)
   b. ‘The horse would be tired if ridden by Tali.’ (conditional)

Here the voices of the two predicates again do not match, which in turn suggests that we indeed have a case in direct contrast to the manner construction discussed above. Thus the conjunctive construction may well involve an ongoing process of adverbialization rather than complementation.
On the other hand, the task of introducing a conditional clause can also be taken by a complementizer like *mha* ‘if’,
10 as in (42a). Just like the conditional clause headed by *ho* in Tsou, it can be fronted to sentence-initial position, as illustrated by the contrast of (42b):

(42) a. M’wi yal qu rmai [mha lgan na Tali].
   AV.tired very NOM horse if ride.LV OBL Tali
   ‘The horse would be very tired, if (it) was ridden by Tali.’

b. [Mha lgan na Tali], m’wi yal qu rmai.
   if ride.LV OBL Tali AV.tired very NOM horse
   ‘If (it) was ridden by Tali, the horse would be very tired.’

Another variant of the conditional construal is licensed by *i* ‘if’, as in (43a). The difference is that the adverbial headed by *i* cannot be topicalized, as in (43b):

(43) a. M’wi yal qu rmai [i lgan na Tali].
   AV.tired very NOM horse if ride.LV OBL Tali
   ‘The horse would be very tired, if (it) was ridden by Tali.’

b. *[i lgan na Tali], m’wi yal qu rmai
   if ride.LV OBL Tali AV.tired very NOM horse

Sometimes even topicalization itself may be employed to express some sort of subordination, as exemplified by the focus concessive usage of (44a) and the universal concessive usage of (44b):

(44) a. M’wi yal qu rmai ga, lgan na Tali.
   AV.tired very NOM horse TOP ride.LV OBL Tali
   ‘(Even though) the horse was very tired, (it) was still ridden by Tali.’

b. Qutuh-qutuh lgan na Tali qu rmai ga, m’wi yal.
   one-one ride.LV OBL Tali NOM horse TOP AV.tired very
   ‘Each time the horse was ridden by Tali, (it) was tired.’

3.2 OTHER EVENT MODIFIERS. As we might expect, Squliq Atayal does not employ the conjunction *ru* in instrumental construals, as is the case with manner. To express instrumentality, we may use the instrumental voice (IV) to identify the instrument either as the nominative argument, as in (45a), or as the focus of a pseudo-cleft construction such as (45b):

(45) a. S-kut biyoq na Tali qu lalaw.
   iv-kill boar OBL Tali NOM knife
   ‘The knife is used by Tali to kill the boar.’

b. Lalaw qu [s-kut biyoq na Tali].
   knife NOM iv-kill boar OBL Tali
   ‘What is used by Tali to kill the boar is a knife.’

Alternatively, instrumentality can also be expressed by adding in a ‘use’-type verb like *magal* ‘take’, as in (46a). Moreover, attaching the past modal *wal* to the instrumental expression is not permitted, as in (46b):

10. As a reviewer points out, *mha* is originally a verb of saying that has been grammaticalized as a complementizer.
(46) a. Magal lalaw wal k$m>ut biyoq qu Tali.
   AV.take knife PST <AV>.kill boar NOM Tali
   ‘Tali killed the boar by taking a knife.’

b. *wal magal lalaw k$m>ut biyoq qu Tali
   PST AV.take knife <AV>.kill boar NOM Tali

This restriction, however, is completely disregarded in the presence of the conjunction
ru, and the reading, as one might expect, is additive or sequential, as shown by the free
distribution of the past modal in (47a–c):

(47) a. Magal lalaw ru wal k$m>ut biyoq qu Tali.
   AV.take knife CONJ PST <AV>.kill boar NOM Tali
   ‘Tali took a knife and killed the boar.’

b. Wal magal lalaw ru k$m>ut biyoq qu Tali.
   PST AV.take knife CONJ <AV>.kill boar NOM Tali
   ‘Tali took a knife and killed the boar.’

c. Wal magal lalaw ru wal k$m>ut biyoq qu Tali.
   PST AV.take knife CONJ PST <AV>.kill boar NOM Tali
   ‘Tali took a knife and killed the boar.’

Locative expressions show the same traits: they can be either identified as nominative
arguments by the locative voice (LV), as in (48a), or construed as adjuncts, as in (48b):

(48) a. Wal pmy-an ocia na Tali qu rgax.
   PST grow-LV tea OBL Tali NOM mountain
   ‘The mountain is where Tali grew tea.’

b. Cyux muya ocia rgax qu Tali.
   PROG AV.grow tea mountain NOM Tali
   ‘Tali is growing tea on the mountain.’

As for frequency and duration expressions, in direct contrast to Tsou, the conjunction
ru cannot appear at all, as illustrated by the contrast of the (a) sentences in (49)–(51) with
the corresponding (b) sentences:

(49) a. Min-cyugal musa Sinciqu qu Tali.
   times-three go Hsinchu NOM Tali
   ‘Tali went to Hsinchu three times.’

b. *min-cyugal ru musa Sinciqu qu Tali.
   times-three CONJ go Hsinchu NOM Tali

(50) a. Cyugal lyax wal Sinciqu qu Tali.
   three day went Hsinchu NOM Tali
   ‘Tali went to Hsinchu for three days.’

b. *cyugal lyax ru wal Sinciqu qu Tali
   three day CONJ went Hsinchu NOM Tali

(51) a. Cyugal lyax m$n>wah Sinciqu qu Tali.
   three day <PFV>come Hsinchu NOM Tali
   ‘Tali has been to Hsinchu for three days.’

b. *cyugal lyax ru m$n>wah Sinciqu qu Tali
   three day CONJ <PFV>come Hsinchu NOM Tali
4. CONJUNCTIVE REDUCTION IN AMIS. Finally, Amis seems to stand between Tsou and Squliq in that it employs the conjunction *a* to form both manner and resultative constructions, but the voice of the second conjunct must be Actor-oriented.11

First note that the most common coordinator in Amis is *a* ‘and’, which may conjoin two DPs either in an argument position, as in (52a), or in a predicate position, as in (52b):

(52) a. K<um>aqen ci-Aki tu [titi nu-fafuy] a tu [(titi nu) kulung].
    <AV>eat NOM-Aki ACC meat GEN-pig CONJ ACC meat GEN cow
    ‘Aki eats pork and beef.’

    NEU meat GEN-pig CONJ ACC meat GEN-cow such-eat GEN Aki
    ‘What Aki eats is pork and beef.’

It can also conjoin two clauses, expressing a temporal sequential relation, as in (53) (cf. Huang 1997, Wu 2000):

(53) Takaraw ci Aki a ma-qukak-tu anucila.
    tall NOM Aki CONJ av-thin-already afterwards
    ‘Aki is tall, and will become thin afterwards.’

Furthermore, as pointed out by Liu (2003), the conjunction *a* may serve to conjoin a manner predicate with another predicate, where it functions as a complementizer introducing an AV clause, presumably as a result of conjunctive reduction:12

    severe-PAobl Aki comp AV-beat NOM Panay
    ‘Panay is to be beaten severely by Aki.’

    severe-FM obl Aki comp AV-beat NOM Panay
    ‘Panay was beaten severely by Aki.’

Just like its counterpart in Tsou, *a* can be omitted, as in (55a,b). Here the manner predicate thus behaves more like an adverbial, which is reminiscent of its counterpart in Squliq Atayal:

    severe-PVobl Aki AV-beat NOM Panay
    ‘Panay is to be beaten severely by Aki.’

b. Dancaq-han ni Aki mi-paru ci Panay.
    severe-FM obl Aki AV-beat NOM Panay
    ‘Panay was beaten severely by Aki.’

Another way to express manner is to mark the first conjunct either with -sa, as in (56a,b), or with sa- ... -sa, as in (57a,b), while *a* again serves as a complementizer for the second conjunct (cf. Tsai and Zeng 1997, Liu 2003):

(56) a. Palifud-sa ci Aki [(a) mi-palu’ ci Kacaw-an].
    violent-SA NOM Aki comp AV-hit ACC Kacaw-ACC
    ‘Aki hit Kacaw violently.’

11. See Wu (1995, 2000), Huang (1997), Tang (1999), Liu (2003), and H. Chang (2005) for more comprehensive discussion on Amis, as well as other Formosan languages such as Paiwan and Kavalan.
12. FM = focus marker for intensifying the way, degree, or extent of an affective activity; d represents a lateral fricative.
   violent-SA COMP AV-hit ACC Kacaw-ACC NOM Aki
   ‘Aki hit Kacaw violently.’

c. *mi-palu’ ci Kacaw-an (a) palifud-sa ci Aki
   AV-hit ACC Kacaw-ACC COMP violent-SA NOM Aki
   ‘Aki hit Kacaw violently.’

(57) a. Sa-harakat-sa ci Aki [(a) c<um>ikaj].
   sa-fast-SA NOM Aki COMP <AV>run
   ‘Aki is running quickly.’

b. Sa-harakat-sa [(a) c<um>ikaj] ci Aki.
   sa-fast-SA COMP <AV>run NOM Aki
   ‘Aki is running quickly.

c. *c<um>ikaj (a) sa-harakat-sa ci Aki
   <AV>run COMP sa-fast-SA NOM Aki

Furthermore, it is instructive to note that the order of the two conjuncts cannot be
reversed, as evidenced by (56c) and (57c). The fixed word order further suggests that
conjunctive reduction is at work here.

As for genuine adverbial construals, Amis patterns with Squiliq in employing a com-
pletely unrelated expression, as illustrated in (58):13

(58) a. Mali ’pah ci Aki, pa-si-kaqen tu [titi nu-kulung].
   av.drink wine NOM Aki CAUS-such-eat ACC meat GEN-cow
   ‘Aki drank wine while eating beef.’

b. Mali ci Aki tu ’pah, pa-si-kaqen tu [titi nu-kulung].
   av.drink NOM Aki ACC wine CAUS-such-eat ACC meat GEN-cow
   ‘Aki drank wine while eating beef.’

5. A WORKING HYPOTHESIS. It should be clear at this stage that what we have
seen in Tsou is anything but an isolated phenomenon, and conjunctive reduction seems to
be a proliferating process across Formosan languages such as Amis and Squiliq Atayal,
which evolve mainly in two distinct directions. On the one hand, a manner conjunct may
be elevated to the level of a main predicate when the other conjunct undergoes comple-
mentation, which means that ho and a have been grammaticalized as infinitive comple-
mentizers in Tsou and Amis respectively. The manner predicate might eventually
incorporate the infinitive predicate through restructuring, together forming a complex
predicate, as H. Chang (2005) has suggested is the case in Kavalan and Tsou. On the
other hand, the manner conjunct may also evolve into an adverbial, either when the con-
junction drops, as is the case with ho in Tsou, or when a specialized marker emerges, as is
the case with -han and sa- … -sa in Amis. This notion is schematized in the following
diagram (where MM = modifier marker):

(59) Adv + V ← Adv-MM + V ← V Conj V → V [Comp V] → V + V

From a syntactic point of view, it is not inconceivable that a conjunctive projection
such as (60) may either evolve into a head–complement projection once the conjunction

13. Here the causative morpheme pa- arguably functions to make the control relation Actor-oriented,
which construal is quite common among Formosan languages, as reported by Chang and Tsai (2001).
has been grammaticalized as a complementizer, as in (61), or into a modifier–head projection when the conjunction becomes optional due to the loss of its core semantic property of marking additive or sequential relationship in this particular configuration, as in (62):

(60) ConjP
    V  Conj’
     Conj  V

(61) VP
    V  CP

(62) VP
    Adv  V’
     (Conj)  V

In terms of semantics, we may adopt Tsai and Chang’s (2003) view, and propose that manner expressions, which would be classified as adverbs in a language like English, actually function as syntactic predicates of events in Formosan languages. In other words, the conjunctive treatment of adjunct association à la Parsons (1990) has surfaced in syntax. Take *Pasuya hit Mo’o*, for instance. The sentence involves a hitting event, where *Pasuya* acts as the Agent and *Mo’o* the Theme. The intuition can be further sharpened along the line of Parsons (1990), as schematized below:

(63) ∃e (hitting(e) & Agent(e, *Pasuya*) & Theme(e, *Mo’o*))

Parsons’s proposal, often dubbed a “neo-Davidsonian” approach, treats the verb hit like a common noun predicating upon an underlying event, which holds thematic relations to *Pasuya* and *Mo’o*; that is, the Agent role for the former and the Patient role for the latter. Both relations are represented as conjuncts of the hitting predicate, and the event argument is claimed to be existentially bound, as illustrated in (63). Consequently, *Pasuya hit Mo’o* would mean something like ‘there was an event of hitting, and Pasuya is the Agent of the event, and Mo’o is the Theme of the event’.

Along this line, VP-adverbials like *with a staff* can easily be accommodated by treating them as predicates of underlying events. Thus *Pasuya hit Mo’o with a staff* can be understood as ‘there was an event of hitting, and Pasuya is the Agent of the event, and Mo’o is the Theme of the event, and the event took place with a staff’, as illustrated in the following semantic representation:

(64) ∃e (hitting(e) & Agent(e, *Pasuya*) & Theme(e, *Mo’o*) & with(e, *staff*))

By the same token, *Pasuya hit Mo’o violently* may have a similar semantic representation when we take the manner adverbial *violently* to be a predicate of the hitting event:

(65) ∃e (hitting(e) & Agent(e, *Pasuya*) & Theme(e, *Mo’o*) & violent(e))

The sentence is therefore understood as ‘there was an event of hitting, and Pasuya is the Agent of the event, and Mo’o is the Theme of the event, and the event is violent’.

Under this conjunctive approach to adjunct interpretation, we may advance an educated guess: namely, conjunctive reduction may start within a protolanguage with extensive conjunctive construals, where there is direct mapping from syntactic conjunction to semantic conjunction. In a manner of speaking, neo-Davidsonian adjunct association has surfaced in syntax in the protolanguage, just like what happened in Ancient Chinese. We therefore have an explicit theory as to why coordination very often leads to modification in Formosan languages. The question is then reduced to how and when a coordinator
evolves into a modifier marker, and then becomes optional or even disappears in a full-fledged adverbial construction.

As for complementation, it may well be the case that two conjoined events eventually develop various types of cause–effect construals, such as the temporal/conditional clauses in Tsou, and the resultative/causal clauses in Squliq Atayal. Here the coordinator has become a complementizer for either an adverbial clause or a complement clause, depending on the locus and the finiteness of the clause in question.\textsuperscript{14} We may summarize the observed patterns in Table 1.

This process is anything but uncommon in the Austronesian family as a whole, as Bril (2006) has argued quite forcefully for some of the Oceanic languages. She points out that the conjunction -(a)k in Takia can license additive, focal, and implicative construals by itself, plus consecutive and contrastive construals with other morphemes, as in akot ‘and so’ and ak man ‘but’ respectively. Similarly, -be in Manam also appears in additive, focal, sequential, consecutive, purposive, and implicative constructions, very much like ho in Tsou, ni in Squliq Atayal, and a in Amis.

In a nutshell, we will need to answer the following four questions before proceeding to a unified account of conjunctive reduction:

I. Is mood inflection obligatory? If yes, is it in the first or second conjunct?
II. Is the nominative argument in the first conjunct or in the second conjunct?
III. Is the voice matching requirement observed?
IV. Can the second conjunct be topicalized or not?

From what we have seen in Tsou, Squliq Atayal, and Amis, the implication is that (logical) conjunction is not only the primitive form for all sorts of manner, resultative, locative, instrumental, frequency, duration, and conditional construals in the Formosan languages, but also the only way to connect events and propositions in Proto-Austronesian if Bril’s analysis is on the right track. As a reviewer rightly points out, my study is not so much on the actual implementation of subgrouping and reconstruction. Rather, it provides a syntactico-semantic perspective through which we may retrace the evolution and diversification of coordinate structures. The latter part of this project will have to wait till we have a firm grasp of how conjunctive reduction works in the rest of the Formosan languages, as well as in the Austronesian family in general.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{Conjunctive Reduction} & \textbf{Tsou} & \textbf{Squliq Atayal} & \textbf{Amis} \\
\hline
Additive/Sequential Construal & ✓ & ✓ & ✓ \\
Infinitive Clause Complement & ✓ & — & ✓ \\
Modifier Marker & ✓ & — & ✓ \\
Conditional/Temporal Clause Complement & ✓ & — & — \\
Complex Predicate Formation & ✓ & — & — \\
Resultative/Causal Clause Complement & — & ✓ & — \\
\hline
\end{tabular}
\caption{Patterns of Conjunctive Reduction in Tsou, Atayal, and Amis}
\end{table}

\textsuperscript{14} A reviewer is concerned about the cause for the marginal status of Squliq Atayal with respect to conjunctive reduction. My feeling is that the phenomenon correlates with the fact that Squliq has lost some of the distinctions in its case and clitic/agreement systems. Moreover, grammatical markers can be easily omitted in this language, which is a sure indication of full-scale grammaticalization.
6. CONCLUDING REMARKS. Armed with the knowledge of the historical development of Chinese compounds, we may make an educated guess: that is, there is a general process in Formosan languages that reduces coordinate structures into their subordinate counterparts. The reduction process diverges in terms of its speed and degree across the three target languages Tsou, Squiliq Atayal, and Amis. Moreover, it has evolved mainly in two directions: In one case, one of the conjuncts is reduced to a modifier, where the coordinator serves as the complementizer of an adverbial clause. In the other, one of the conjuncts is reduced to a complement, where the coordinator serves as the complementizer of an infinitive/subjunctive clause. I therefore not only propose an explicit hypothesis on the mechanism of conjunctive reduction, but also open the possibility of looking at the sub-grouping/reconstruction issues from the vantage point of the syntax–semantics interface.

REFERENCES

Bril, Isabelle. 2006. From coordinators to pragmatic hierarchy and subordination. Paper presented in AFLA–13, National Tsing Hua University, Taiwan.


