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Relative Clauses in Tukang Besi: Grammatical Functions and Thematic Roles*

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1. THEMATIC ROLES AND ARGUMENT STRUCTURE

Several attempts to account for various grammatical phenomena, such as causatives and applicatives, have made reference to the 'thematic hierarchy' ([6], [8], [14]), and to specific thematic roles on this hierarchy. Whilst this has proven adequate in many ways, there have been counter claims to the effect that descriptive adequacy can be attained without the detailed reference to various thematic roles proposed by many advocates of the notion, and that reference to only two macro-roles, Actor and Undergoer ([14]), also referred to as 'proto-Agent' ([P-A]) and 'proto-Patient' ([P-P]) ([13]), are sufficient ([23], [24]). This paper does not seek to argue either for or against the hierarchical listing of thematic arguments, but rather seeks to show that reference is made at some points in the grammar of at least certain languages to specific thematic roles, and not just macro-roles, which may be determined by relative position. I shall present data about the strategies available for external relativisation in Tukang Besi that show that, although much of the data can be admirably predicted on the basis of the accessibility hierarchy ([15]), accessibility to one of the relativisation strategies is dependent on the argument bearing a particular thematic role, namely instrument. Data on the other forms of external relativisation is provided in order to place the data on instrumental relative clauses in its context, and show that the strategy examined is indeed restricted to instrumental thematic roles, and that it cannot be accounted for in terms of simple reference to subject, object, actor or undergoer.

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2. SUBJECT AND OBJECT RELATIVE CLAUSES IN TUKANG BESI

Tukang Besi is an Austronesian language spoken in central Indonesia and numerous small trading settlements in other parts of the archipelago from Singapore to New Guinea ([9]). It is a head-marking VOS language, with object suffixes and two sets of subject prefixes, for realis (R) and irrealis (I, not illustrated in the data presented here) clauses. Nominal case marking follows a Philippine-style pattern ([25], [26], [27] and many others), and I follow Bell ([4], [5]) and Kroeger ([17]) in using the label NOM for 'nominative' to gloss the case that has variously been called the 'pivot', 'subject', 'focus' or 'topic' in these languages. In common with many Austronesian languages ([8], [25]), Tukang Besi has restrictions on which arguments may be relativised. Firstly, only terms may be relativised; in order for an oblique argument to be relativised, applicative morphology must be used to first make a term out of that argument. With terms there are two main relativisation strategies involving external relative clauses that follow the modified nominal:

° If the relativised argument is the subject (transitive or intransitive) of its clause, a relative clause may be formed by infixing the subject focus infix *-[um]-* and dropping the subject prefixes on the verb. This is called the subject relative clause verb form (SRC verb form).

° If the argument is an object of a transitive clause, a SRC may be used to relativise on that argument if it is first made subject by the use of a passive prefix on the verb, or else a special object relative clause (ORC) type must be used in which the object prefix *i-*¹ is used in place of subject prefixing. The relative clause takes on a nominal character, and the *by*-phrase is indicated by the use of possessive marking.²

Examples of each of these two relative clause types with transitive verbs, and the main clauses to which they correspond,³ are given in (1) - (10):

¹ With variants *ni-* and *di-*.

² This might be thought of as a form of passivisation, but since this morphology can never appear in main clauses, and another form of passivisation freely occurs in both main and relative clauses, this issue is not taken up here. In any case, the status of the head of an object relative clause as an object, or some form of 'passive' subject is irrelevant to the consideration of the data presented in §3.

³ Tukang Besi has two basic clause types, both transitive, those with a nominative object, and those with a nominative subject. This corresponds to the Philippine 'Actor voice' and 'Object voice' ([17], [25], [26], [27], amongst others). In Tukang Besi, the voice alternation is connected with the presence or absence of object suffixes on the verb. See [9] for further discussion of the voice system.

Subject relative clause: active verb:

- (1) Eaka no-koruo na mia [_{RC} b[um]alu te pandola]
not 3R-many NOM person buy.SI CORE eggplant
'Not many people buy eggplants.'
(Lit., 'The people who buy eggplants are not many.')

- (2) No-balu te pandola na mia
3R-buy CORE eggplant NOM person
'People buy eggplants.'

- (3) No-balu-'e na pandola te mia
3R-buy-3OBJ NOM eggplant CORE person
'People buy the eggplants.'

Subject relative clause: passive verb:

- (4) Te kodipo [_{RC} t[um]o-'ita] no-to'oge
CORE shark PASS.SI-see 3R-big
'The shark that was seen was big.'

- (5) No-to-'ita-mo na kodipo
3R-PASS-see-PF NOM shark
'The shark was visible.'

Subject relative clause: intransitive verb:

- (6) Te wowine [_{RC} t[um]ato i aba] o-saori-mandawulu
CORE woman arrive.SI OBL just.then 3R-very-beautiful
'The woman who just arrived is very pretty.'

- (7) La'a-mo no-rato na wowine
just-PF 3R-arrive NOM woman
'The woman just arrived.'

Object relative clause:

- (8) O-koruo na kengke [_{RC} i-hembula di Wanse]
3R-many NOM cloves OP-plant OBL Wanci
'There are a lot of cloves grown on Wanci.'
(Lit., 'The cloves that are grown in Wanci are many.')

- (9) O-hembula te kengke di Wanse
3R-plant CORE cloves OBL Wanci
'They grow cloves on Wanci.'

- (10) O-hembula-'e na kengke di Wanse
 3R-plant-3OBJ NOM cloves OBL Wanci
 'They grow the cloves on Wanci.'

These data are unremarkable, and illustrate only that subjects (and objects, if *i-* is accepted as relativising on an object, and not taken to be a passive marker on its own) can be heads of relative clauses. This is wholly predictable from cross-linguistic data ([15]). The inability of an oblique argument to head a relative clause is illustrated in (11) - (13); regardless of the choice of subject or object relative clauses, and the presence or absence of an oblique case marker or preposition in the sentence, (12) and (13) are ungrammatical:

- (11) No-nangu-nangu-mo di / kua Nua Bela'a
 3R-RED-swim-PF OBL / ALL Nua Bela'a
 'They swam over to Nua Bela'a.'
- (12) *Nua Bela'a [_{RC} i-nangu-nangu-no (di / kua)]
 Nua Bela'a OP-RED-swim-3POSS OBL / ALL
 'Nua Bela'a that they swam over to'
- (13) *Nua Bela'a [_{RC} n[um]angu-nangu (di / kua)]
 Nua Bela'a RED.SI-swim OBL / ALL
 'Nua Bela'a that they swam over to'

The only way to relativise on this locative argument is to relativise on a verb that uses applicative morphology, and so treats the location as an object. In this case, it is the directional applicative -VCI that is used:⁴

- (14) No-nangu-si-mo te Nua Bela'a
 3R-swim-DIR-PF CORE Nua Bela'a
 'They swam to Nua Bela'a.'
- (15) Nua Bela'a [_{RC} i-nangu-si-no]
 Nua Bela'a OP-swim-DIR-3POSS
 'Nua Bela'a that they swam to'

⁴ Of course, object suffixes, and so a nominative object, are also possibilities: *Nonangunangusi'emo na Nua Bela'a*.

Similar treatment is afforded to other oblique arguments; only beneficiary is illustrated here, with (16) - (19) showing that neither the subject nor the object relativisation strategies are available for instrumental arguments, but that relativisation is possible if the verb displays applicative morphology. Similar restraints also apply to comitative and locative obliques:

- (16) No-hugu te pandola ako te ina-no
 3R-chop CORE eggplant BEN' CORE mother-3POSS
 'She chops the eggplant for her mother.'
- (17) *Te ina-no [_{RC} i-hugu-no (nu pandola)]
 CORE mother-3POSS OP-chop-3POSS GEN eggplant
 'her mother, who she chops (the eggplant)'
- (18) *Te ina-no [_{RC} h[um]ugu (te pandola)]
 CORE mother-3POSS chop.SI CORE eggplant
 (Good for: 'her mother, who chopped (the eggplant)')
- (19) Te ina-no [_{RC} i-hugu-ako-no (nu pandola)]
 CORE mother-3POSS OP-chop-APPL-3POSS GEN eggplant
 'her mother, for whom she chops (the eggplant)'

We have so far seen that Tukang Besi has a cross-linguistically predictable set of relativisation strategies involving relativisation of only the subject and the object (or just the subject, if the prefix *i-* is taken to involve covert passivisation); other arguments, obliques of whatever semantic type, can only be relativised if they are syntactically treated as the object of an applicative construction. The subject of a passive verb using the prefix *to* may also be relativised, in which case, regardless of its thematic role, it relativises using the subject relative clause type, showing that accessibility to these strategies is independent of thematic role information.

3. INSTRUMENTAL RELATIVE CLAUSES

In addition to the SRC and ORC relative clause types, a third type of external relative clause, the instrument relative clause (IRC) is used to

⁵ In addition to beneficiary, *ako* can also introduce arguments bearing a wide range of thematic roles: instruments, themes or purposes. Co-agents ('associative' in the Bantu literature, 'comitative' in the Australian) can be made objects through the use of *-ngkene*. The syntax of these applicative constructions is beyond the scope of this paper.

relativise on an argument that is an instrument, but is not marked as oblique. Although *ako* may be used to introduce any instrument, an 'intermediate agent' ([20]: 247) type of instrument may appear as a direct argument (neither subject nor object) of some verbs without *ako*. When serving in a relative clause, the verb is not affixed in any special way, and only the lack of subject prefixes serves to indicate the subordinate nature of the verb. An example of this is shown in (20), with a corresponding main clause in (21). Notice that the instrument may not be relativised using either SRCs or ORCs, as seen in (22) and (23):

Instrument relative clause:

- (20) No-moboha na palu-su [_{RC} hoko-lobu te kabali]
 3R-heavy NOM hammer-1SG.POSS FACT-straight CORE machete
 'My finishing hammer for machetes is heavy.'
 (Lit., 'The hammer that is used to make knives straight is heavy.')

- (21) Ku-hoko-lobu te kabali te palu-su
 3R-FACT-straight CORE machete CORE hammer-1SG.POSS
 'I straighten knives with my hammer.'

- (22) *No-moboha na palu-su [_{RC} m]oko-lobu te poda]
 3R-heavy NOM hammer-1SG.POSS FACT.SI-straight CORE knife

(Good in principle for: 'My hammer that straightens knives is heavy', but the verb *hokolobu* requires an agentive subject, which an inanimate instrument cannot be; sentences such as 'The falling rock broke the table.' (**Nopisa'e na meja te watu humuti*) or 'The knife cut the rope.' (**Noriwa te hao na poda*) are ungrammatical in *Tukang Bési*, even in folk tales)

- (23) *No-moboha na palu-su [_{RC} i-hoko-lobu]
 3R-heavy NOM hammer-1SG.POSS OP-FACT-straight

(Good for: 'My hammer that was straightened is heavy'. Completely ungrammatical as **Nomoboha na palusu ihokolobu te poda*, since an ORC is a nominalised construction and does not permit CORE-marked NPs. Equally unacceptable for the same reasons as (22) if a genitive case is used on *poda*: **Nomoboha na palusu ihokolobu nu poda*, implying agency on the part of the knife.)

The remarkable fact about the IRC is that it does not discriminate between subject, object, or otherwise; any argument bearing an instrumental thematic role may be relativised with this strategy.⁶ The examples in (20) - (23) showed a term instrument that was neither subject nor object, but there are verbs in *Tukang Bési* that subcategorise for an instrumental subject, as seen in (24) with 'raho ([Instrument], [Patient])' 'affect', and the relative clauses (25) and (26), or an instrumental object, as seen in (27) with 'hekabatu ([Agent], [Instrument]), ([Locative])' 'stone', and the relative clauses (28) and (29).

Instrumental subject:

- (24) No-raho-kami te bomba i olo
 3R-affect-1PA.OBJ CORE wave OBL mooring.place
 'The waves soaked us in the mooring place.'

- (25) O-to'oge na bomba [_{RC} r]um]aho-kami i olo]
 3R-big NOM wave affect.SI-1PA.OBJ OBL mooring.place
 'The waves that soaked us in the mooring place were big.'

- (26) O-to'oge na bomba [_{RC} raho-kami i olo]
 3R-big NOM wave affect-1PA.OBJ OBL mooring.place
 (same translation as (25))

Instrumental object:

- (27) No-heka-batu te po'o i wembe
 3R-VERB-stone CORE mango OBL goat
 'He threw a mango at the goat.'
 (Glossing literally, 'He stoned the goat with a mango.')

- (28) No-sangka-mo na po'o [_{RC} i-heka-batu-no i wembe]
 3R-pass-PF NOM mango OP-VERB-stone-3POSS OBL goat
 'The mango that he threw at the goat missed.'
 or 'The mango that he threw at the goat was overripe.'

- (29) No-sangka-mo na po'o [_{RC} heka-batu i wembe]
 3R-pass-PF NOM mango VERB-stone OBL goat
 (same translation as (28))

⁶ It is also possible to relative these arguments with using SRCs or ORCs, if they are subjects or objects of the clause.

The internal structure of the relative clause is almost the same as a subject relative clause, with a partially complete clause left behind. In an IRC there can be no mention of a *hy*-phrase: only the object of the verb may be present in the relative clause.

- (30) Te baliu-su [_{RC}tu'o te kau] no-mohama
 CORE axe-1SG.POSS chop CORE tree 3R-sharp
 'My axe that (someone) chops trees with is sharp.'
- (31) *Te baliu-su [_{RC}(tu'o te kau (na / nu) iaku]
 CORE axe-1SG.POSS chop CORE tree NOM GEN 1SG
 'My axe that I chop trees with is sharp.'

While (30) is perfectly grammatical, (31) shows an attempt to include a *hy*-phrase in the relative clause, and is ungrammatical. Changing the relative orderings of *te kau* and *na iaku / nu iaku*⁷ does not improve the grammaticality of the sentence.

This IRC strategy is not limited to 'intermediate agents' and other terms: any instrumental argument may be relativised with it, even those that may not appear as direct arguments. This is illustrated with the verb *wila* 'go'. It is an intransitive verb, and does not permit an object without the use of applicative morphology. Sentences (32) - (36) show that the instrument of travelling, *te honda* 'motorbike', cannot be relativised with either SRCs or plain ORCs, but may be relativised with an ORC and an applicative suffix, or with an IRC:

- (32) No-wilakua iwo ako te honda wo'ou-no
 3R-go ALL there:lower INSTR CORE motorbike new-3POSS
 'He went down on his new motorbike.'
- (33) *No-wo'ou na honda [_{RC}i-wila-no]
 3R-new NOM motorbike OP-go-3POSS
 'The motorbike that he went on is new.'
- (34) *No-wo'ou na honda [_{RC}w[um]ila]
 3R-new NOM motorbike go.SI
 'The motorbike that he went on is new.'

⁷ Or *-su*, the first person possessive suffix.

- (35) No-wo'ou na honda [_{RC}i-wila-ako-no]
 3R-new NOM motorbike OP-go-APPL-POSS
 'The motorbike on which he went is new.'
- (36) No-wo'ou na honda-no [_{RC}wila]
 3R-new NOM motorbike-3POSS go
 'The motorbike on which he went is new.'

We have seen that the IRC may be used with instrumental arguments that are subjects, objects, instruments which are direct arguments of the verb, and instruments which are oblique arguments of the verb. We must conclude that the grammatical role borne by the argument is not a determining factor in its ability to head an IRC, but rather that the thematic role that it bears, i.e., instrument, is. The next section will examine the SRC and ORC to see if they are also amenable to an analysis in terms of thematic roles.

4. ACCESSIBILITY TO THE DIFFERENT RELATIVE CLAUSE TYPES

4.1 Subject and Object Relative Clause

The SRC and ORC forms of relativisation have been unproblematically explained in terms of the head of the relative clause verb bearing the subject or object grammatical function.⁸ This was demonstrated in sentences (1), showing a 'proto-agent' subject of a transitive clause, (4) with a 'proto-patient' subject of a passive clause, (6) with a 'proto-agent' subject of an intransitive clause, (25) with an inanimate (yet presumably still classed as proto-agent, since it is the effector, acting on another adversely affected argument) subject of a transitive clause, and (37), which has a 'proto-patient' subject of an intransitive clause:

- (37) No-tode-mo na anabou [_{RC}l[um]ile]
 3R-flee-PF NOM small.child naked.SI
 'The naked child has run away.'

⁸ Although not crucial to the argument presented here, it is worth noting that these can in turn be defined in terms of relative positions on a thematic hierarchy (without reference to specific thematic roles): we can state that SRC must be headed by the argument that bears the highest-ranked thematic role in its subcategorisation frame, regardless of whether it is a proto-agent or a proto-patient (in Dowty's terminology). An ORC can only be used with a head that does not bear the highest ranked thematic role.

From these examples, and the ungrammatical SRCs seen in (13), (18), (22) and (34) it should be clear that neither the exact thematic role, nor the 'proto-agent' or 'proto-patient' status of the argument plays any part in the ability of an argument to head an SRC; only its status as subject of the relative clause verb is relevant.

Similarly, we find that the ORC can only be used for arguments that are the objects of transitive verbs. Even if an argument is a 'proto-patient', as in (38), it may not head an ORC if it is the sole argument of its verb; only an object may head an ORC:

- (38) *Te kene-su [_{RC} i-mohoo]
 CORE friend-1SG.POSS OP-sick
 'My friend who was sick'

If an ORC does appear on a verb that can have both intransitive and transitive interpretations, the verb can only be interpreted as transitive:

- (39) Te kaluku [_{RC} i-buti]
 CORE coconut OP-fall
 'The coconut that was dropped'
 *'The coconut that fell'

- (40) Te kolikoli [_{RC} i-ja'o]
 CORE canoe OP-bad
 'The canoe that was ruined'
 *'The canoe that was bad'

The second interpretation of (39) can only be achieved grammatically through the use of an SRC, such as *te kaluku bunuui*. It is clear that the ORC with *i-* can only be used when the object of the verb heads the relative clause (further examples can be found in sentences (12), (17), (23) and (33)).

4.2. Instrumental Relative Clauses

We have seen that with an IRC the 'proto-agent' instrumental subject argument may serve as the head, as in (26), and also that the 'proto-patient' object argument may be head, as in (29), as may an argument that is a term but neither subject nor object, as in (20) and (30), or that is otherwise oblique, as in (36). From this we must conclude that the ability to appear as the head

of an instrumental relative clause is dependent directly on the thematic role borne by the instrumental argument, and not its bearing a particular grammatical function in the clause, or by occupying a particular position of prominence relative to the other arguments in the verb's list of terms. Thus the need to recognise reference to a particular thematic role is established for this relativisation strategy.

4.3 The Interaction of Thematic Roles and Grammatical Functions

Having established the need to refer to information about the identity of thematic roles, we must address the question: how does this information tie in with information about grammatical functions? While the answer requires more space than is available in this short article, some comments can be made on this point. A proposal has already been advanced that refers to grammatical functions as a relation applied to the thematic hierarchy ([7]), and so shows that we can assign a primacy to the thematic hierarchy, and the relative positions of a verb's arguments on that hierarchy. The need to recognise distinct thematic roles is more problematic, since a particular thematic role is usually not restricted to just one grammatical function. Work by Alsina ([1], [2]), Manning ([18]) and T. Mohanan ([21]) within the framework of Lexical Functional Grammar makes reference to information at the argument structure level of representation. The formalism for separating the list of arguments and the list of thematic roles is inherent in the HPSG literature, but the thematic role content (in Pollard and Sag's terminology) is listed at a separate level from the subcategorisation list, as seen in (41) (from [22]: 29):

- (41) *sees* $\left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HEAD } \textit{verb/fin} \\ \text{SUBCAT} \langle \text{NP}[\textit{nom}]_{1,1}, \text{NP}[\textit{acc}]_{1,1} \rangle \end{array} \right] \\ \text{CONTENT} \left[\begin{array}{l} \text{REL } \textit{see} \\ \text{SEER } [1] \\ \text{SEEN } [2] \end{array} \right] \end{array} \right]$

A more recent version ([19], example 40) lists the thematic role information and the argument structure (= subcat list in Pollard and Sag) at the same level, making both lists of information accessible at the same level of grammar. An example of this is shown in (42):

- (42) *buy*:
$$\left[\begin{array}{l} \textit{str-trans} \\ \text{HEAD verb} \\ \text{ARG-ST } \langle \text{NP, NP} \rangle \\ \text{CONTENT } \left[\begin{array}{l} \textit{buy-rel} \\ \text{ACTOR} \quad [\quad] \\ \text{UNDERGOER} [\quad] \end{array} \right] \end{array} \right]$$

Andrews ([3] and pers. comm.) makes explicit the formalism within LFG for separating Predicate features into a lexical conceptual structure, dealing with verbal semantics and the thematic role information, and the ordered list of arguments of a verb, as seen in (43), representing 'see':

- (43) PRED:
$$\left[\begin{array}{l} \text{LCS 'see' (semantics of 'see') } \langle \text{experiencer, theme} \rangle \\ \text{TERM LIST} \quad \quad \quad \langle _ \quad , \quad _ \rangle \end{array} \right]$$

Most syntactic processes refer only to the ordered term list (such as the Lexical Mapping Theory principles espoused in Bresnan and Moshi ([8]), but with this schema the thematic role information is available for reference when required, such as for languages with split intransitive systems and other complicated case phenomena ([12]), or the relativisation strategies outlined above. Crucially, the thematic role information and the sub-categorisation information are both accessible – the thematic role information does not supplant the requirement for a more general term list/argument structure representation, but neither is the latter sufficient on its own.

5. CONCLUSIONS

The Tukang Besi data show that although relative clause formation is sensitive to the categories of subject and object, with morphologically distinct subject relative clauses and object relative clauses, these categories alone fail to account for all of the data. The presence of the third type of relative clause discussed here, the Instrumental relative clause, forces us to look to other principles for determining accessibility for this process, since it is sensitive to neither subjecthood nor objecthood, but refers directly to the thematic role of the argument concerned. The Instrumental relative clause type is similarly insensitive to the term-oblique distinction, since through the use of it oblique arguments bearing the instrumental role may be relativised, whereas oblique arguments with other thematic roles must be made objects

through the use of applicative morphology before they may be relativised. Since this process requires information about the actual thematic role (instrument or non-instrument) borne by the argument in question, we must conclude that, contrary to Rugemalira's doubts ([24]), argument structure representations require full specification of thematic role information. The degree to which this information is accessed in other modules of the grammar is not yet known (though see [11], and note that in Tukang Besi there are explicit restrictions against certain thematic roles appearing in certain constructions, e.g. against experiencer causees with base transitive verbs; see [10]). Similarly, the degree to which other languages refer to similarly 'fine-tuned' thematic role information is not yet known, though case marking peculiarities in some languages of the Caucasus ([16]), and restrictions on the appearance of experiencer subjects as causees in Chichewa ([28]) would suggest that this same degree of detailed representation is also required in languages from other parts of the world.

ABBREVIATIONS USED IN THE GLOSSES:

1	first person	2	second person	3	third person
ALL	allative	APPL	applicative	BEN	benefactive
CORE	direct, term	DIR	directional	FACT	factitive
GEN	genitive	INSTR	instrumental	NOM	nominative
OBJ	object	OBL	oblique	OP	object prefix
PA	paucal	PASS	passive	PF	perfective
POSS	possessive	R	realis	RC	relative clause
RED	reduplication	SG	singular	SI	subject infix
PL	plural	VERB	verbaliser		

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