

Clausal Modifiers in the Grammar Matrix to be presented at COLING 2018

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Adverbial Clausal Modifiers

Ame ga agaru to, Gon wa hotto shite ana kara haidemashita
rain NOM stop when Gon TOP relief performing hole from snuck.out
'When the rain stopped, Gon got relieved and came out of the hole'
Japanese [jpn] (Thompson *et al.*, 2007)

Yīnwèi tiān hēi le, suǒyǐ wǒ méi chū — qu
because sky black CRS so I no exit — go
'Because it had gotten dark, I didn't go out.'
Mandarin [cmn] (Li and Thompson, 1989)

Yaʔáf ǵéŋi suǵá-l kí-f pu-wá-qi-pi
man leave.remote woman house.ACC her-sweep-PURP
'The man left in order for the woman to sweep the house'
Luiseño [lui] (Thompson *et al.*, 2007)

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Typology

Analysis

Library
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Evaluation and
Error Analysis

Adverbial Clausal Modifiers

- ▶ Clause Position
- ▶ Clause Attachment
- ▶ Subordinator Type
- ▶ Subordinator Position
- ▶ Subordinator Attachment
- ▶ 'Pair' Adverb Position and Attachment
- ▶ Special Verbal Morphology
- ▶ Nominalization
- ▶ Shared Subject
- ▶ Special Word Order

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Clausal Modifiers [\[documentation\]](#)

Languages often have several different strategies for clausal modifiers. You may define any number of clausal modifier strategies below or you can leave this page blank, in which case the starter grammar produced will not support clausal modifiers.

The Grammar Matrix defines clausal modification with three types of subordinators:

Free Subordinating Morpheme

A free morpheme that marks the subordinate clause

Free Subordinating Morpheme Pair

A pair of subordinator morphemes, one of which marks the subordinate clause, the other of which marks the matrix clause

No Free Subordinating Morpheme

The clausal modifier does not contain a free subordinator morpheme

Clausal modifiers may also be marked by special verbal morphology, nominalization of the subordinate clause, special word order in the subordinate clause, and subject sharing. You may define any number of clausal modifier strategies by combining the free morpheme type with subject sharing and various morphological constraints.

Note: Some characteristics of clausal modifiers must be defined on other pages of the grammar matrix.

Special Word order (currently only supported for V2 languages with Vfinal word order in the subordinate clause) should be specified on the word order page

Nominalization strategies should be defined on the Nominalized Clauses page. These strategies can then be added to a clausal modifier strategy under Add a Feature

Additional features such as finite non-finite, or features associated with bound subordinator morphemes should be defined on the Other Features page and added to a clausal modifier strategy under Add a Feature.

▼ cms1

Clausal Modifier Strategy 1:

The clausal modifier is positioned:

- ☐ before the matrix clause
- ☐ after the matrix clause
- ☐ either before or after the matrix clause

The clausal modifier attaches to/modifies:

- ☐ a VP
- ☐ an S
- ☐ either a VP or an S

The subordinate predication is contributed by:

- a free subordinator morpheme
- a free subordinator morpheme pair: one in the subordinate clause and one in the main clause
- this strategy does not use a free subordinator morpheme

The clausal modifier has the following features

Note: Features can be defined on the Other Features page. If this morphological feature cannot head a matrix clause, it should be defined as a FORM feature.

Add a Feature

Is the subject of the subordinate clause unexpressed and shared with the subject of the main clause?

☐ Yes

Add a Clausal Modifier Strategy

Basic Type Definitions

```
adposition-subord-lex-item := single-rel-lex-item &
                             norm-ltop-lex-item &
[ SYNSEM.LOCAL.CAT
  [ MC -,
    HEAD adp &
    [ MOD < [ LOCAL scopal-mod &
              [ CAT [ HEAD verb,
                    VAL [ COMPS < > ]]]>],
    VAL [ SUBJ < >,
          SPR < >,
          COMPS < [LOCAL.CAT [ MC -,
                              VAL.COMPS < >]] > ]]].
```

adverb-subord-lex-item := no-rels-hcons-lex-item.

adv-marked-subord-clause-phrase := unary-phrase.

morphological-subord-clause-phrase := unary-phrase.

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Constraints	Adposition Subordinator	Adverb Subordinator	No Subordinator
Clause Position	{POSTHEAD +, -, <i>bool</i> } (lexical item)	{POSTHEAD +, -, <i>bool</i> } (lexical rule)	{POSTHEAD +, -, <i>bool</i> } (unary rule)
Clause Attachment	{MOD.SUBJ <>, < >, <i>none</i> } (lexical item)	{MOD.SUBJ <>, < >, <i>none</i> } (unary rule)	{MOD.SUBJ <>, < >, <i>none</i> } (unary rule)
Subordinator Position	{INIT +, -} (lexical item)	{POSTHEAD +, -, <i>bool</i> } (lexical item)	
Subordinator Attachment	{COMPS.SUBJ <>} (lexical item)	{MOD.SUBJ <>, < >, <i>none</i> } (lexical item)	
Matrix Pair	{SUBPAIR} (lexical item)	{SUBPAIR} (lexical item)	
Special Morphology	{COMPS.FEATURE} (lexical item)	{MOD.FEATURE} (lexical item)	{DTR.FEATURE} (unary rule)
Nominalization	{COMPS.NMZ +} (lexical item)		{DTR.NMZ +} (unary rule)
Shared Subject	{COMPS.SUBJ [0] < <i>unexpressed</i> >} {MOD.SUBJ [0]} (lexical item)	{DTR.SUBJ [0] < <i>unexpressed</i> >} {MOD.SUBJ [0]} (unary rule)	{DTR.SUBJ [0] < <i>unexpressed</i> >} {MOD.SUBJ [0]} (unary rule)

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Development Data: Pseudo Languages

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- ▶ Artificial languages with a minimal lexicon
 - ▶ eg. subord noun1 verb1 noun2 verb2
- ▶ Designed to capture the typological space as best we can
 - ▶ each subordinator type with each additional feature (but not feature value) for a total of
 - ▶ exhaustive coverage of feature values would result in 1008 strategies

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Development Data: Illustrative Languages

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- ▶ Real languages selected to illustrate test phenomena covered
 - ▶ Mandarin [cmn] (Sino-Tibetan) : subordinator pairs
 - ▶ Rukai [dru] (Austronesian) : nominalization
 - ▶ German [deu] (Indo-European) : special word order
 - ▶ Wambaya [wmb] (Mirndi) : special morphology
- ▶ Test interactions with other phenomena in the language
- ▶ One phenomenon left unsupported : case change

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Test Data: Held Out Languages

- ▶ 5 randomly sampled languages that are genetically and geographically diverse
- ▶ Testsuites and grammars created according to descriptive grammars, replicating the user scenario
- ▶ Coverage 88.4%
- ▶ Over-generation 1.5%

Language	Family	Test Items	Coverage	Over-generation
Ma'di [mhi]	Central Sudanic	23	16/17	0/6
Mosetén [cas]	Mosetenan	26	13/15	0/11
Lavukaleve [lvk]	Solomons East Papuan	23	8/10	1/13
Basque [eus]	Basque	26	13/16	0/10
Uranina [ura]	Uranina	21	12/12	0/9

Error Analysis

- ▶ In Scope Phenomena
 - ▶ VP attachment ruled out in the basic type for morphological subordination (Mosetén)
 - ▶ Subject dropping not supported for nominalized clauses (Basque)
- ▶ Out of Scope Phenomena
 - ▶ Case change (Lavukaleve, also seen in Wambaya)

Le ee=ve-age lai ga oeo-m
day 3.SG.ACC=come.out-ANT rain the go.around-3.SG.ACC
'Upon the day coming out, the rain soaked him.'

- ▶ Low attaching subordinators (Ma'di)

Opi edzhi dzho ira ri ra ko-ba oru
Opi bring if beer the AFF up-put up
'If Opi brings the beer, he should put it up (on the shelf).'

- ▶ "pair" adverbs without a subordinator (Lavukaleve)