NONCOMPOSITIONAL SCOPAL MORPHOLOGY IN YI

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ABSTRACT. This paper distinguishes between scopal affix paradigms and compositional affix paradigms, two notions confused in the literature. The Yi languages (Tibeto-Burman: China) exhibit maximally scopal paradigms which reflect the cognitive layers of the sentence in the mind of the speaker. In spite of this prototypical pattern, the paradigm is full of noncompositional pairs of morphemes.

KEYWORDS: Scopal morphology, templatic morphology, compositionality, Yi, China

1. Introduction

In the literature on affix order, scholars often identify scopal affix paradigms with systems that are semantically compositional. Here are some quotes:

“Global Uniformity is due to the presence of scopal relationships, or semantic compositionality, between the morphemes involved.” (Rice 2000:24)

“I show that neither semantic scope (or ‘compositionality’) nor the syntactic MP can account for the full range of suffix ordering facts in any Bantu language.” (Hyman 2003: 246)

“Semantic scope implies semantic compositionality.” (Manova & Aronoff 2010:121)

However, scopal paradigms are not necessarily compositional and compositional paradigms need not be scopal. In scopal paradigms, the interpretation of an affix depends on the meaning of its neighbor, as opposed to templatic paradigms in which an affix does not depend on adjacent morphemes (see §2 for full details). According to the classical principle of compositionality, the meaning of a compositional affix cluster is “a function of the meaning of its parts and the way they are combined” (Frege 1884:x; Janssen 1997:419; Szabó 2012). We can sharpen this principle by the two statements in (1). An affix cluster is compositional if for every pair of affixes X and Y,

(1) a. If XY is attested, then Meaning(XY) is defined as a function of Meaning(X), Meaning(Y) and of the order XY.
   b. If XY is unattested, then there is no semantic function that outputs a sense for Meaning(X), Meaning(Y) and for the order XY.

A paradigm is therefore noncompositional in exactly two ways.

(2) a. XY is attested, but Meaning(XY) is not derivable, i.e. opaque or ambiguous.
   b. XY is unattested, but Meaning(XY) is conceptually conceivable.

In particular, scopal paradigms can be noncompositional, as I demonstrate in this paper for the Yi languages (§4). Conversely, templatic paradigms can be compositional. An affix cluster may consist of morphemes which contribute compositionally to the whole but whose meanings are independent of each other. For example, agreement morphology in Ngarinyin is compositional and largely templatic.¹

¹ I wish to thank Ingo Plag, Editor of Morphology, and three anonymous reviewers for helpful comments on previous drafts. An early version of this paper was presented at the 3rd Vienna Workshop on Affix Order in Vienna (Austria), January 15-16, 2011.

¹ Although McGregor (2002: 25) does not discuss affix order in Ngarinyin, it follows nevertheless from the description that the paradigm of the classificatory verb is largely templatic.
sense of the verbal complex in (3) is a function of the meaning of the agreement affixes and of the verb ma ‘take’, which is the way the affixes are combined. On the other hand, the cluster in (3) is nonscopal as the interpretation of the accusative prefix doesn’t depend on the nominative or locative prefix and vice versa.²

(3) Ngarinyin (Worrorn: Australia)

| jaraug | andu- | ma-nga-lu. |
| push.back | 3P.PL.ACC | 3P.SG.NOM take PST LOC.PROX |

‘He pushed them back this way.’

These considerations lead to the possibility of four kinds of affix paradigms. (4a) and (4c) are extreme potentially unattested types. Most paradigms are not fully compositional.

(4) a. compositional scopal paradigms b. noncompositional scopal paradigms
c. compositional templatic paradigms d. noncompositional templatic paradigms

The goal of this paper is to illustrate the type (4b) with the Yi languages. We show that they have scopal as opposed to templatic paradigms (§2), that the paradigms can be characterized by the cognitive layers of the sentence in the mind of native speakers (§3), and that the paradigms have numerous compositional gaps (§4).

The Yi languages (Tibeto-Burman: China) are a group of more than 100 languages spoken in Sichuan, Yunnan, Guangxi and Guizhou (P.R. of China). The ethnic Yi （彝） nationality, one of the 56 ethnic nationalities in China, makes up one of the Burmese-Lolo language group, one of the eight subgroups in Tibeto-Burman. The Yi languages have between 3 and 5 omnisyllabic tones (Matisoff 1989), which are contrastive tones on every syllable. Tones are marked by two numbers between 1 and 5, one for the beginning, one for the end of the tonal contour (e.g. ³³, ²¹). I have done research on Yi languages for more than 17 years and collected the data for this paper during 2003-2006. The data are based on systematic fieldwork in four Yi languages, representative of four major subgroups: Liangshan Nuosu (North), Weining Neasu (East), Yongren Lolo (Central) and Gejiu Nesu (South). I also elicited data from several other Yi languages in a more unsystematic fashion.

2. Scopal vs. templatic paradigms

Languages linearize affixes in templatic paradigms (Simpson & Withgott 1986:156; Spencer 1991; Inkelas 1993) or in scopal paradigms (Stump 1997; Mithun 1999). Both paradigms are represented in (5) for suffixes.

(5) a. Templatlic (flat) ordering: STEM A B C D E

A, B, C, D and E are morpheme categories which represent positions in a word. Templatic and layered morphology are characterized by opposite behavior to four properties: headedness, zero morphemes, lookahead, and adjacency (Simpson & Withgott 1986; Spencer 1991; Rice 2000; Manova & Aronoff 2010).

² For the interlinear glosses, see the list of abbreviations at the end of the paper. Glosses of verb enclitics in the Yi languages are separately presented in table 4.

Table 1: Four properties of template and scopal morphology

<table>
<thead>
<tr>
<th></th>
<th>Template Morphology</th>
<th>Scopal Morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headed Structures</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Zero Morphemes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Lookahead</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Adjacency</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The choice of affix paradigm is influenced by the morphology type of a language which is defined by the degree of synthesis and fusion (Comrie 1989: 42-44). Nordlinger (2010) showcases the polysynthetic Murrinh-Patha language with prototypical templatic morphology. Other synthetic languages display mixed templatic/scopal morphologies such as the Athapaskan (Rice 2000) and Caucasian languages (Korotkova & Lander 2010).

Exploring affix order is nonsensical in extreme isolating and extreme fusional languages as these languages attach no or only one affix to a root. Yet, the isolating languages in East Asia use enclitics relatively bound to the verb. Most of these enclitics are grammaticalized verbs whose function as verb survived in a few cases. They can be separated from the stem, can be reduplicated but cannot stand alone. They are less bound to their host than affixes in synthetic languages, but it is still appropriate to compare enclitic order with affix order, because the enclitics represent the major strategies to encode tense, aspect and modality (though not subject agreement), just as affixes in synthetic languages.

Table 2: Morphology type and affix order type

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>synthetic agglutinative</td>
<td>bounded</td>
<td>templatic</td>
<td>Murrinh-Patha</td>
<td>Nordlinger (2010)</td>
<td></td>
</tr>
<tr>
<td>synthetic agglutinative</td>
<td>bounded</td>
<td>scopal (partial)</td>
<td>Athapaskan</td>
<td>Rice (2000)</td>
<td></td>
</tr>
<tr>
<td>synthetic fusional</td>
<td>bounded</td>
<td>nonsensical</td>
<td>Classical Greek</td>
<td>Morwood (2001: 62-109)</td>
<td></td>
</tr>
<tr>
<td>isolating</td>
<td>clitic</td>
<td>scopal</td>
<td>Classical Chinese; Yi</td>
<td>Pulleyblank (1995); this paper</td>
<td></td>
</tr>
</tbody>
</table>

In East Asia, we must distinguish between SVO and SOV languages. In Chinese, which has SVO order, some enclitics occur after the verb, some after the object. In the Yi languages, which have SOV order, all enclitics occur after the verb. The Yi languages thus allow to make stronger claims about the order of enclitics than Chinese. A complete list of the clitic categories is provided in §3. As many grammatical enclitics have no direct correspondence in English, I describe them with phrases or sentences.

The four properties, headedness (§2.1), zero morphemes (§2.2), lookahead (§2.3), adjacency (§2.4), are formal combinatorial features.

### 2.1 Headedness

The concept of headed structures is central in X-bar theory and is enshrined in the *Endocentricity Constraint*. Each syntactic constituent must be properly headed or, more technically speaking, each phrase structure rule must contain the same category symbol on both sides of the rewrite rule.

\[(6) \quad \text{Endocentricity Constraint (Jackendoff 1977:34)}
\]

Every possible phrase structure rule must be of the form $X^n \rightarrow \ldots X^k \ldots$ ($n \geq k$)

The idea of headedness also captures scopal morphology by interpreting each affix/clitic position as derivation.
(7) Endocentric Morphology
a. $STEM^n \rightarrow STEM^k \ Y^n \ (n \geq k)$

Headedness or endocentricity is defined in (7a) for suffixes by using the following notations:

b. $STEM^0 = STEM \ Y^2 = B \ Y^4 = D \ Y^1 = A \ Y^3 = C \ Y^5 = E$

Scopal paradigms are headed. Each derivation $STEM^n$ is an independent word constituent. The endocentric nature of scopal paradigms is compatible with recursive derivation rules. Morphemes of the same category layer may be staked after each other, morphemes of different category layers can only co-occur in monotone increasing order (A B C D...).

Yi languages have scopal verb paradigms which define the categories A, B, C, D as cognitive layers (see introduction of §3). Bare verbs can act as the sole predicate of the sentence but are grammatically underspecified. The addition of any compatible morpheme expands the predicate into another predicate of the sentence. We illustrate monotone increasing layer order in example (8) and §3.1, and showcase morphemes of the same layer order in §3.2.

Liangshan Nuosu (Sichuan Province, China)

(8) a. $mo^{33} m^{33} \ ts^{h,44} \ t^{h,33} \ i^{33} t^{h,55} \ ndo^{33}$. sky, weather hot time, when water drink.

‘When the weather is hot, one drinks water.’

b. $mo^{33} m^{33} \ ts^{h,44} \ t^{h,33} \ i^{33} t^{h,55} \ ndo^{33}$. sky, weather hot time, when water drink.

\[
\begin{array}{|c|}
\hline
\text{WANT} \ \text{Layer A} \\
\hline
\end{array}
\]

‘When the weather is hot, one wants to drink water.’

c. $mo^{33} m^{33} \ ts^{h,44} \ t^{h,33} \ i^{33} t^{h,55} \ ndo^{33}$. sky, weather hot time, when water drink.

\[
\begin{array}{|c|c|}
\hline
\text{WANT} & \text{HAB} \\
\text{Layer A} & \text{Layer B} \\
\hline
\end{array}
\]

‘When the weather is hot, one always wants to drink water.’

d. $mo^{33} m^{33} \ ts^{h,44} \ t^{h,33} \ i^{33} t^{h,55} \ ndo^{33}$. sky, weather hot time, when water drink.

\[
\begin{array}{|c|c|c|}
\hline
\text{WANT} & \text{HAB} & \text{POSS} \\
\text{Layer A} & \text{Layer B} & \text{Layer C} \\
\hline
\end{array}
\]

‘When the weather is hot, one, supposedly, always wants to drink water.’

Templatic morphology is not endocentric but “flat”. Each morpheme category $Y (= A, B, C, D, E)$ is defined as a set of morphemes $Y^1,...,Y^k$ that may be substituted in a particular slot of the word. Morphemes of the same category may not co-occur, but morphemes of different categories can co-occur.
Breaking up templatic paradigm doesn’t generate a morphological constituent let alone an independent word. In Slave (Na-Dené) with partially templatic morphology, we cannot cut preverb and situation aspect prefixes off the root. This follows from Rice’s discussion of the data (Rice 2000: 275).

\[
\begin{array}{|c|c|c|}
\hline
\text{preverb} & \text{accomplishment} & \text{STEM} \\
\hline
\text{Slot C} & \text{Slot B} & \text{Slot A} \\
\hline
\end{array}
\]

‘You get onto it.’

\[
\begin{array}{|c|c|c|}
\hline
\text{preverb} & \text{accomplishment} & \text{STEM} \\
\hline
\text{Slot B} & \text{Slot A} \\
\hline
\end{array}
\]

‘You get onto it.’

### 2.2 Zero morphemes

Zero morphemes are prevalent in templatic paradigms (Simpson & Withgott 1986: 156). In a templatic paradigm, each position must be represented by one affix of a finite contrast set. According to a principle of economy, elements used commonly tend to be eliminated (Haiman 1983: 807). It thus happens in templatic morphology that one of the contrastive meanings is marked by a zero morpheme.

Nordlinger (2010: 330) mentions the existence of several zero morphemes in the verb template of Murrinh-Patha.

\[
\begin{array}{|c|c|c|}
\hline
\text{3P.SG.S.watch(28).PST.IMP} & \text{3P.SG.O seek} & \text{PST.IMP_PC.F} \\
\text{Slot B} & \text{Slot A} & \text{Stem} \\
\hline
\end{array}
\]

‘He was looking for him/her.’

\[
\begin{array}{|c|c|c|}
\hline
\text{3P.SG.S.watch(28).PST.IMP} & \text{3P.DU/PC.O seek} & \text{PST.IMP_PC.F} \\
\text{Slot B} & \text{Slot A} & \text{Stem} \\
\hline
\end{array}
\]

‘He was looking for the few women.’

Bybee (1985a: 54) quantifies the occurrence of zero morphemes for different grammatical categories. In 25 languages with templatic morphology, 78% mark singular number with zero; 63% mark present tense with zero; 60% encode indicative mood with zero; 54% mark third person subject agreement with zero; 41% encode perfective aspect with zero.

In scopal morphology, a layer need not be represented by affixes/clitics. The absence of morphemes leaves the predicate underspecified and does not carry meaning. (12a) is underspecified for layer A meanings but can be fully specified as in (12b). The same applies to examples (13)-(14).

\[
\begin{array}{|c|c|c|}
\hline
\text{path DEM.DIST CL 1P.SG run} & \text{he FUT} & \\
\text{Layer A} & \text{Layer B} \\
\hline
\end{array}
\]

‘I will run through (some / all of) that path.’
‘I will completely run through that path.’

Liangshan Nuosu (Sichuan Province, China)

(13) a. nu³ b’u⁵⁰ tsi³³ ndo³³ 2P.SG medicine drink
ko³³štu⁴⁴ ha⁴⁴!
Layer A Layer B Layer C Layer D
HAB SUG
‘Take always (some / all of) your medicine!’

b. nu³ b’u⁵⁰ tsi³³ ndo³³ 2P.SG medicine drink
sa⁵⁵ ko³³štu⁴⁴ ha⁴⁴!
Layer A Layer B Layer C Layer D
EXH-1 HAB SUG
‘Finish always all your medicine!’

Yongren Lolo (Yunnan Province, China)

(14) a. zɔ²¹ no³³ ke³³ ke³³ 3P.SG infection be infected
χ³³. FEAR
Layer A Layer B Layer C
‘[I am] afraid that he has (had or will have) an infection.’

b. zɔ²¹ no³³ ke³³ ke³³ 3P.SG infection be infected
σ⁴⁴ χ³³. GET DP FEAR
Layer A Layer B Layer C
‘[I am] afraid that he has got an infection.’

There are no zero morphemes in scopal morphology. No meaning is encoded when a layer is unrepresented.

2.3 Lookahead

Lookahead is the property of “discontinuous dependencies” (Simpson & Withgott 1986: 155-156), the property that nonadjacent morphemes mutually impose selectional restrictions.

Discontinuous morphemes Bₖ and Dₙ select each other: STEM A Bₖ C Dₙ E

Lookahead is a feature of templatic morphology not of layered morphology. In Slave, the proximal middle voice prefix d- has the lookahead property (or we should say lookback property as Slave is prefixing). It must co-occur with the distal reflexive ’ede-, the reciprocal ’ele- or the self-benefactive de-.

Slave (Athapaskan, Na-Déné: Canada)

Rice (2000: 144)

a. dah- preverb ’up’
ede-REFL noun class
d-MID STEM
Slot D Slot C Slot B Slot A
‘S/he hung him/herself.’

b. de- REFLE.BEN 2P.SG
nj- 2P.SG.S
d-MID STEM
Slot C Slot B Slot A
‘You sew for yourself.’

Rice (2000: 147)
In languages with layered morphology, nonadjacent morphemes are never required to co-occur together.

### 2.4 Adjacency

In scopal but not templatic paradigms, an affix is only sensitive to the *adjacent* morpheme which is the most recently attached by a morphological rule (Allen 1978). The English suffix -ation in *industrial-ization* only reacts to the suffix -iz and does not “know” anything about the nonadjacent word *industrial*.

The Yi enclitics are only sensitive to immediately preceding morphemes. For example, the Nuosu progressive clitic \[\text{kù}^{33}\] and perfect clitic \[\text{o}^{44}\] cannot co-occur if they are adjacent, as in (17a). Information about the progressive clitic is not available to the perfect clitic, if the future clitic \[\text{mì}^{44}\] is inserted, as in (17b).

**Liangshan Nuosu (Sichuan Province, China)**

(17a) \[t\_h^{33} k\_u^{21} m^{33} h\_i^{21} n\_i^{33} n\_a^{44} d\_z\_a^{44} d\_z\_u^{44}\]

3P.SG INT. how say also 1P.SG food eat

Intended meaning: ‘Whatever he says, I am eating.’

(17b) \[t\_h^{33} k\_u^{21} m^{33} h\_i^{21} n\_i^{33} n\_a^{44} d\_z\_a^{44} d\_z\_u^{44}\]

3P.SG INT. how say also 1P.SG food eat

\[k\_u^{44} \, m\_i^{44} \, o^{44}\]

PROG FUT DP

Layer A Layer B Layer B

‘Whatever he says, I shall be eating.’

### 3. The definition of layers

In a sample of 50 languages, Bybee (1985a:33-35; 1985b:25-26) counted the pairwise order of aspect, tense and mood inflections. She argued for a cross-linguistic ordering of ASPECT<TENSE<MOOD in spite of the low number of attested pairs.

**Table 3**: Pairwise order of affixes in Bybee’s sample of 50 languages

<table>
<thead>
<tr>
<th>1st Affix</th>
<th>2nd Affix</th>
<th>Aspect</th>
<th>Tense</th>
<th>Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspect</td>
<td>---</td>
<td>8/18</td>
<td>10/23</td>
<td></td>
</tr>
<tr>
<td>Tense</td>
<td>0/18</td>
<td>---</td>
<td>9/21</td>
<td></td>
</tr>
<tr>
<td>Mood</td>
<td>0/23</td>
<td>1/21</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

Bybee explained these figures by a relevance principle:

“A meaning element is relevant to another meaning element if the semantic content of the first directly affects or modifies the content of the latter” (1985a:13).

As she treats aspect, tense and mood as monolithic concepts, it is unclear how the pairwise ordering was determined.³ The resulting generalizations are doubtful and make wrong predictions in the case of the Yi languages.

³ There are for example three types of aspects: *phasal aspect* (inchoative, completive), *viewpoint aspect* (perfective, imperfective), *quantificational aspect* (experiential, habitual). Quantificational aspect seems to be as relevant to the verb as tense.
Liangshan Nuosu (Tibeto-Burman, China)

(18) a. \( t^h_{33} \ i^4_{33} \ b_3 \) 3P.SG home go \( t^h_{33} \ l_{33} \). Start of an attitude
   WANT COME MOOD ASPECT
   ‘He begins to want to go home.’

b. \( m^u_{33} t^c_{33} a^{44}_{33} \) name of man big \( l_{33} \ t^h_{133} \). Attitude about the start
   COME WANT ASPECT MOOD
   ‘Mudje wants to become big.’

Yongren Lolo (Tibeto-Burman, China)

(19) a. \( z^3 f_{55} d_{21} \) 3P.SG fish eat \( t^h_{33} \ z^{21}_{33} \). Future external permission of event
   CAN-2 FUT MOOD TENSE
   ‘He will be allowed to eat fish.’

b. \( * z^{21} n^6_{55} d_{21} \) 3P.SG fish eat \( z^{21} f_{33} t^h_{33} \). External permission of future event
   FUT CAN-2 TENSE MOOD
   Intended meaning: ‘He is allowed to eat fish in the future.’

Two functional grammar theories use a detailed classification of aspect, tense, mood concepts into cognitive layers that make correct predictions: Role & Reference Grammar (VanValin & LaPolla 1997) and Theory of Functional Grammar (Hengeveld 1989; Dik & Hengeveld 1997). 4

I shall focus on TFG because affix order played an important role in its development (especially Hengeveld 1989). TFG distinguishes between representational (Bühler 1934) and interpersonal (Halliday 1970) affixes. Representational affixes encode a clause as real or hypothetical. Interpersonal affixes encode the clause as speech act with a message for the addressee. Only if a clause fully represents a situation, is it possible to use it for communicating a message. TFG predicts that interpersonal affixes are more distant to the verb stem than representational affixes.

In the representational layer, predicate affixes code internal properties of an event such as phases, perspectives or mental dispositions of participants. Predication affixes anchor an event in an external world in terms of its time and frequency of occurrence or in terms of obligation and permission. The internal/external distinction corresponds to a canonical order: predicate affixes < predication affixes. In the interpersonal layer, proposition affixes convey attitudes or information sources of the speaker (self-oriented), while illocutionary affixes encode the speech act type (other-oriented).

Dik & Hengeveld (1997:50) propose that the human mind encodes an event as utterance in successive cognitive layers ordered by the packaging of grammatical concepts.

(20) \begin{align*}
A & \text{(Predicate)} \prec B \text{(Predication)} \prec C \text{(Proposition)} \prec D \text{(Illocution)}
\end{align*}

---

4 Generative models such as lexicalism (Chomsky, 1970; Anderson, 1992) and distributed morphology (Halle & Marantz, 1993) do not provide a systemic integration of affix concepts. Wunderlich & Fabri (1995: 246-247) propose a hierarchy of functional categories that is similar to Bybee’s. It is conceived as a component of the generative theory of word formation and empirically justified only with German data. Formal semantic approaches such as Davidsonian event semantics or Montegovian possible world semantics analyze affix concepts individually not in a system. (Davidsonian event semantics models aspetual notions, while Montegovian possible world semantics formalizes modality.) Cinque (1999) proposes classes of “lower” and “higher” adverbal phrases but his conclusions are derived from adverbal phrases not affixes.
The following table classifies the concepts of the Yi enclitics into the cognitive layers of TFG. The two left columns are adapted from an overview presented by Hengeveld (1989: 131-132).

<table>
<thead>
<tr>
<th>Layers</th>
<th>Groups</th>
<th>Yi clitic category</th>
<th>Historical meaning</th>
<th>Glosses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Predicate</td>
<td>Group 1 (Phase)</td>
<td>RISE</td>
<td>‘rise’</td>
<td>Starting phase (“start”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COME</td>
<td>‘come’</td>
<td>Inchoative phase (“become”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DESCEND</td>
<td>‘descend’</td>
<td>Continuative phase (“go down”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EXIT</td>
<td>‘exit’</td>
<td>Ending phase (“stop”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GET</td>
<td>‘get, obtain’</td>
<td>Resultative (“succeed”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FOL</td>
<td>‘follow’</td>
<td>Resultative (“up”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SEND</td>
<td>‘send, scatter’</td>
<td>Resultative (“away”)</td>
</tr>
<tr>
<td></td>
<td>Group 2 (Aspect I)</td>
<td>IMP</td>
<td>---</td>
<td>Imperfective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AMP</td>
<td>‘put’</td>
<td>Ambiperfective (“-ing”, “finished”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PROG</td>
<td>variable</td>
<td>Progressive (“in process of”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EXH-1</td>
<td>‘point to’</td>
<td>Exhaustive for object (“completely”)</td>
</tr>
<tr>
<td></td>
<td>Group 3 (Modality I)</td>
<td>LIKE</td>
<td>---</td>
<td>Subject-liking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WANT</td>
<td>---</td>
<td>Subject-wanting</td>
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<td>CAN-1</td>
<td>---</td>
<td>Subject-ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRY</td>
<td>‘look’</td>
<td>Subject-trial</td>
</tr>
<tr>
<td></td>
<td>Group 4 (Negation I)</td>
<td>NEG-1</td>
<td>---</td>
<td>Predicate negation</td>
</tr>
<tr>
<td>B. Predication</td>
<td>Group 5 (Tense)</td>
<td>(IM)FUT</td>
<td>‘say, follow’</td>
<td>(Immediate) Future tense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STP</td>
<td>‘put, come’</td>
<td>Stative perfect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DP</td>
<td>---</td>
<td>Dynamic perfect</td>
</tr>
<tr>
<td></td>
<td>Group 6 (Aspect II)</td>
<td>EXH-2</td>
<td>‘point to’</td>
<td>Exhaustive aspect for subject (“all”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EXP</td>
<td>‘pass’</td>
<td>Experiential aspect (“once before”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PER</td>
<td>‘attached to’</td>
<td>Periodical aspect (“once in while”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HAB</td>
<td>variable</td>
<td>Habitual aspect (“usually”)</td>
</tr>
<tr>
<td></td>
<td>Group 7 (Modality II)</td>
<td>MUST</td>
<td>---</td>
<td>External strong obligation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SHOULD</td>
<td>---</td>
<td>External weak obligation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAN-2</td>
<td>---</td>
<td>External permission</td>
</tr>
<tr>
<td></td>
<td>Group 8 (Negation II)</td>
<td>NEG-2</td>
<td>---</td>
<td>Predication negation</td>
</tr>
<tr>
<td>C. Proposition</td>
<td>Group 9 (Modality III)</td>
<td>NESS</td>
<td>variable</td>
<td>Speaker-judgement of necessity</td>
</tr>
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<td></td>
<td></td>
<td>POSS</td>
<td>variable</td>
<td>Speaker-judgement of possibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FEAR</td>
<td>‘fear’</td>
<td>Speaker-attitude of fear</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REGR</td>
<td>variable</td>
<td>Speaker-attitude of regret</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WISH</td>
<td>‘wish’</td>
<td>Speaker-attitude of wish</td>
</tr>
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<td></td>
<td>Group 10 (Evidentiality)</td>
<td>QUOT</td>
<td>‘say’</td>
<td>Direct/indirect quotation</td>
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<td></td>
<td>Group 11 (Negation III)</td>
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<td>---</td>
<td>Negation of speaker-judgement</td>
</tr>
<tr>
<td>D. Illocution</td>
<td>Group 12 (Illocution)</td>
<td>ALT</td>
<td>---</td>
<td>Alternative question</td>
</tr>
<tr>
<td></td>
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<td>SUG</td>
<td>---</td>
<td>Speaker-request for feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REPL</td>
<td>---</td>
<td>Speaker-indication of feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMPT</td>
<td>---</td>
<td>Imperative order</td>
</tr>
</tbody>
</table>

This classification of Yi enclitics defines a motivated scopal paradigm, which is illustrated with examples in §3.1 and §3.2. Most clitics in Table 4 are grammaticalized verbs. The analysis of a few individual clitics was published previously (Gerner 2002a, 2002b, 2004, 2007, 2009, 2013). More than
three enclitics are rarely stacked after each other for overload of complex meanings. The following examples with four enclitics sound awkward to native speakers but consist of morphemes that are compatible as pairs.

Liangshan Nuosu (Sichuan Province, China)

(21) \( k^h a^{44} d i^{33} n_i^{33} z e^{21} z o^{55} v u^{21} \)

\( \) every QUANT.all potato sell

\( \) PROG EXH-2 DP POSS

\( Layer A \) Layer B Layer B Layer C

‘Everyone might have been in the process of selling potato.’

Weining Neasu (Guizhou Province, China)

(22) \( e r^{21} d z u^{33} z o^{13} n u^{55} l o^{33} l e^{55} \)

\( 3P.SG \) eat

\( SEND \) EXP REGR REPL

\( Layer A \) Layer B Layer C Layer D

‘[Let me reply you:] he has got used to it unfortunately.’

Yongren Lolo (Yunnan Province, China)

(23) \( z o^{21} z e^{33} u^{13} s a^{33} l a^{21} d z o^{21} \)

\( 3P.SG \) egg NUM.3 CL eat

\( EXIT \) EXP STP DP

\( Layer A \) Layer B Layer B Layer B

‘It is the case that he just experienced finishing eating three eggs.’

The enclitic verb paradigm is endocentric. Morphemes of different categories can only co-occur in monotone increasing layer order (§3.1). The paradigm is recursive. Morphemes of the same layer can be stacked after each other (§3.2). Apparent exceptions always fall back into the previous cases (§3.3) or, in the case of the negation clitics, conform to universal tendencies (§3.4).

3.1 Enclitic order across layers

If XY is a possible string (X is in the scope of Y), then X cannot be of a higher layer than Y. This is Hengeveld’s Hypothesis 1 (1989:141). Conversely, if X belongs to a lower layer than Y, then XY is not necessarily a possible string (X is not necessarily in the scope of Y).

<table>
<thead>
<tr>
<th>Verb</th>
<th>Layer A</th>
<th>Layer B</th>
<th>Layer C</th>
<th>Layer D</th>
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<tbody>
<tr>
<td></td>
<td>Group 1</td>
<td>Group 5</td>
<td>Group 9</td>
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<td></td>
<td>Group 2</td>
<td>Group 6</td>
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<td></td>
<td>Group 3</td>
<td>Group 7</td>
<td>Group 11</td>
<td>Group 14</td>
</tr>
<tr>
<td></td>
<td>Group 4</td>
<td>Group 8</td>
<td>Group 12</td>
<td>Group 15</td>
</tr>
</tbody>
</table>

The data are based on systematic fieldwork in four Yi languages, and unsystematic elicitation in several other Yi languages.

Liangshan Nuosu (Sichuan Province, China)

(24) a. \( t h i^{55} k o^{33} t a^{33}, n u^{33} a^{44} n i^{33} g u r^{33} t s h i^{33} s h u^{21} \)

\( here \) LOC COV mushroom much CL 3P.SG search

\( y u^{44} n d z o^{21} t o^{44} d i^{21}. \)

\( GET \) EXP POSS

\( Layer A \) Layer B Layer C

‘It might have been here that he once found many mushrooms.’
b. \( \text{hair} \ 3\text{P.SG} \ \text{cut} \)
\begin{align*}
\text{\( \text{så}^{55} \ \text{a}^{44} \ \text{di}^{44}. \)} \\
\text{EXH-1} \ \text{DP} \ \text{QUOT}
\end{align*}

Layer A  Layer B  Layer C

‘It is said that he cut all the hair.’

c. \( \text{mother} \ \text{belly} \ \text{ache} \)
\begin{align*}
\text{\( \text{ndi}^{55} \ \text{lo}^{44} \ \text{di}^{21} \ \text{da}^{21}? \)} \\
\text{PER} \ \text{POSS} \ \text{ALT}
\end{align*}

Layer B  Layer C  Layer D

‘Is it possible that Mom sometimes has stomachache?’

Weining Neasu (Guizhou Province, China)

(25) \( \text{\( \text{èr}^{21} \ \text{sx}^{33} \)} \ \text{SEND} \ \text{FUT} \ \text{REPL}
\begin{align*}
\text{\( \text{zo}^{13} \ \text{he}^{33} \ \text{le}^{55}. \)} \\
\text{Layer A} \ \text{Layer B} \ \text{Layer D}
\end{align*}

‘[Let me reply you:] He will complete [his paths].’

The permutation of enclitics from different layers is prohibited, as illustrated in (26b) for Neasu.

Weining Neasu (Guizhou Province, China)

(26) a. \( \text{\( \text{yó}^{33} \ \text{èr}^{21} \ \text{tø}^{55} \ \text{tºh}^{55} \ \text{lø}^{21} \)} \ \text{get} \ \text{3P.PL} \ \text{COV.partake} \ \text{go}
\begin{align*}
\text{\( \text{lo}^{53} \ \text{sa}^{33}. \)} \\
\text{REGR} \ \text{SUG}
\end{align*}

Layer C  Layer D

‘I regret but I couldn’t go with them, ok?’

b. \( \# \text{\( \text{èr}^{21} \ \text{tºh}^{33} \ \text{ma}^{55} \ \text{dzø}^{21} \)} \ \text{here} \ \text{NEG-1} \ \text{live}
\begin{align*}
\text{\( \text{sa}^{33} \ \text{lo}^{33}. \)} \\
\text{SUG} \ \text{REGR}
\end{align*}

Layer D  Layer C

Intended meaning: ‘Unfortunately, he doesn’t live here, ok?’

3.2 Enclitic order within layers

If XY and YX are possible strings (X is in the scope of Y and Y is in the scope of X), then X and Y must belong to the same layer. The converse is not true. The Yi languages differ in how extensively they license variable scope. Lolo (Yunnan) is more flexible, Nuosu (Sichuan) is more restrictive and Neasu (Guizhou) is rigid with one exception.

Yongren Lolo (Yunnan Province, China)

Layer A

(27) a. \( \text{\( \text{zø}^{21} \ \text{au}^{55} \ \text{yó}^{21} \ \text{tºh}^{33} \)} \ \text{3P.SG} \ \text{Lolo song} \ \text{sing}
\begin{align*}
\text{\( \text{du}^{33} \ \text{ku}^{55}. \)} \\
\text{RISE} \ \text{CAN-1}
\end{align*}

Group 1  Group 3

‘She can start to sing the Lolo love song.’

b. \( \text{\( \text{zø}^{21} \ \text{zø}^{33} \)} \ \text{3P.SG} \ \text{go, walk}
\begin{align*}
\text{\( \text{ku}^{55} \ \text{du}^{33}. \)} \\
\text{CAN-1} \ \text{RISE}
\end{align*}

Group 3  Group 1

‘She can start to sing the Lolo love song.’

In (28), the permuted order is understood to have emphatic meaning.
Several Yi languages have two perfect clitics (Gerner 2002b): *stative perfect* (‘it is the case that’) and *dynamic perfect* (‘have’-particle). In Lolo they can be permuted with a difference in meaning.

In Nuosu but no other Yi language, the experiential and habitual aspects can co-occur in both orders in spite of their contrary aspectual values. Both are grammaticalized verbs: ‘pass’ (EXP) and ‘seek’ (HAB). The verbal meaning ‘seek’ is still alive.
3.3 Apparent exceptions

There are apparent counterexamples for the cognitive clitic order. Most contradictions can be explained by that fact that one enclitic is polysemous and belongs to two layers. For example, the Nuosu clitic sa\(^{55}\) (Gerner 2007) operates at layer A and B. It scopes over the direct object in quantized events at layer A, as in (33a), and over the external subject at layer B, as in (33b).

Liangshan Nuosu (Sichuan Province, China)

(32) a. ni\(^{55}\) ts\(^{i55}t\)ce\(^{33}\) dzu\(^{33}\) hu\(^{44}\) 2P.SG REFL eat TRY

intended meaning: ‘Try to eat yourself!’ [Gentle summon]

b. * ni\(^{55}\) tsi\(^{55}t\)ce\(^{33}\) dzu\(^{33}\) hu\(^{44}\) 2P.SG REFL eat TRY

intended meaning: ‘Try to eat yourself!’

Layers A / B

Liangshan Nuosu (Sichuan Province, China)

(33) a. dza\(^{33}\) a\(^{44}z\)\(^{33}\) ts\(^{i44}\) t\(\)w\(^{21}\) ga\(^{33}\) dzu\(^{33}\) food big DEM.PROX bowl 1P.SG eat

‘I should completely eat up this big bowl of rice.’

b. ts\(^{h021}yo\(^{44}\) k\(^{h44}di\(^{33}\) ni\(^{33}\) k\(^{h33}ba\(^{33}\) y\(^{21}\) 3P.PL who also present get

‘They all should get a present.’

Most enclitics are grammaticalized verbs. Sometimes, the verbal meaning survives and coexists with the grammaticalized clitic. In Lolo (Yunnan), the habitual aspect marker \(\chi u\)\(^{33}\) coexists with its earlier matrix verb meaning familiar with. This ambiguity explains the existence of two orders.

Yongren Lolo (Yunnan Province, China)

(34) a. \(\gamma\)o\(^{33}\) lo\(^{21}ti\(^{55}\)su\(^{33}\) dzo\(^{21}\) 1P.SG peanuts eat \(\chi u\)\(^{33}\) familiar with (HAB) AMP

Verb (Group 6) Group 2

‘I am in the process of getting used to eating peanuts.’

b. \(\gamma\)o\(^{33}\) xo\(^{21}\) 1P.SG stand \(\chi u\)\(^{33}\) do\(^{55}\) AMP HAB

Group 2 Group 6

‘I am standing [on my feet] and I am used to it.’
In addition to polysemous clitics, there are several homophonic clitics with two unrelated meanings. The Nuosu morpheme \( \text{mi}^{44} \) functions as future clitic at layer B and as illocutionary clitic at layer D.

Liangshan Nuosu (Sichuan Province, China)

(35) a. \( \text{nu}^{33} \text{ci}^{44} \text{si}^{21} \text{su}^{55} \text{ndzu}^{33} \text{su}^{33} \) 2P.SG what COV. take others money return

\[ \begin{array}{|l|} \hline \text{mi}^{44} \text{ha}^{44} \text{?} \\ \text{FUT} \text{SUG} \\ \text{Group 5} \text{Group 11} \\ \hline \end{array} \]

‘[Please tell me:] How will you settle your debts?’

b. \( \text{du}^{21} \text{bo}^{33} \text{k}^{3} \text{u}^{33} \text{vo}^{55}, \text{du}^{21} \text{ko}^{33} \text{hu}^{44} \text{z}^{33}, \text{k}^{3} \text{a}^{44} \text{di}^{33} \text{nu}^{33} \) outside dog bark rise LOC see go who COP

\[ \begin{array}{|l|} \hline \text{ha}^{44} \text{mi}^{44}? \\ \text{SUG} \text{SUG} \\ \text{Group 11} \text{Group 11} \\ \hline \end{array} \]

‘There is a dog barking outside; [please tell me:] who is gonna have a look?’

In the same vein, the clitic \( \text{ma}^{21} \) in Neasu (Guizhou) has two independent meanings, as illocutionary clitic and as negation clitic.

Weining Neasu (Guizhou Province, China)

(36) a. \( \text{na}^{21} \text{tc}^{h}^{55} \text{ndi}^{33} \text{di}^{13} \) 2P.SG put on shoe wear

\[ \begin{array}{|l|} \hline \text{zy}^{55} \text{ma}^{21}? \\ \text{PROG} \text{IMPT} \\ \text{Group 2} \text{Group 11} \\ \hline \end{array} \]

‘Put your shoes on and wear them!’

a. \( \text{na}^{21} \text{tc}^{h}^{55} \text{ndi}^{33} \text{di}^{13} \) 2P.SG put on shoe wear

\[ \begin{array}{|l|} \hline \text{ma}^{21} \text{zy}^{55}. \\ \text{NEG-1} \text{PROG} \\ \text{Group 4} \text{Group 2} \\ \hline \end{array} \]

‘You are not wearing your shoes.’

The clitic \( \text{z}^{21} / \text{z}^{44} \) in Lolo (Yunnan) is nearly homophonic. In the high tone it conveys the meaning of dynamic perfect (layer B) and in the low tone it is an illocutionary clitic (layer D).

Yongren Lolo (Yunnan Province, China)

(37) a. \( \text{z}^{21} \text{a}^{21} \text{ni}^{33} \text{ts}^{b}^{33} \text{so}^{33} \text{pa}^{21} \) 3P.SG last year person poor become

\[ \begin{array}{|l|} \hline \text{z}^{44} \text{c}^{21}. \\ \text{DP} \text{FEAR} \\ \text{Group 5} \text{Group 9} \\ \hline \end{array} \]

‘I am afraid that he became impoverished last year.’

b. \( \text{z}^{21} \text{be}^{33} \text{le}^{21} \text{ni}^{33} \text{t}^{b} \text{ie}^{21} \text{da}^{33} \) 3P.SG self finger GOAL cut

\[ \begin{array}{|l|} \hline \text{za}^{33} \text{z}^{21}. \\ \text{FEAR} \text{REPL} \\ \text{Group 9} \text{Group 11} \\ \hline \end{array} \]

‘[In order to reply to you:] I am afraid that he cut his finger.’

3.4 The negation clitics

All enclitics scope over material to the left but negation clitics scope over the element to their right. The enclitic \( \text{ma}^{21} \) in (38) can be prefixed to the predicate or to other clitics in layer A, B, and C. It negates the concept of the predicate or of the clitic to which it is prefixed.
Luoping Nase (Yunnan Province, China)

(38) a. \[ \text{tsu}^{21} \text{ ng}^{6} \text{o}^{21} \text{ni}^{33} \text{ ma}^{21} \text{ lie}^{21} \] 3P.SG tomorrow \( \text{NEG} \) come

‘He won’t come tomorrow.’

b. \[ \text{tsu}^{21} \text{ ng}^{6} \text{o}^{21} \text{ni}^{33} \text{ lie}^{21} \text{ ma}^{21} \text{ ku}^{33} \] 3P.SG tomorrow come \( \text{NEG-1} \) CAN-1

\[ \text{Layer A} \text{ Layer A} \]

‘He won’t be able to come tomorrow.’

c. \[ \text{tsu}^{21} \text{ ng}^{6} \text{o}^{21} \text{ni}^{33} \text{ lie}^{21} \text{ ku}^{33} \text{ ma}^{21} \text{ di}^{55} \text{.} \] 3P.SG tomorrow come CAN-1 NEG-3 NESS

\[ \text{Layer A} \text{ Layer C} \text{ Layer C} \]

‘It is not certain that he’ll be able to come tomorrow.’

The rightward scope of negation clitics is the sole problematic phenomenon for the otherwise regular scopal paradigms. Negation clitics satisfy the adjacency property (§2.4), but violate the endocentric principle (§2.1) which predicts that derivations like in (39)

(39) Scopal word derivation: \[[[[\text{VERB} \rightarrow \text{A}] \rightarrow \text{C}] \rightarrow \text{C}] \]

\[[[[\text{VERB} \rightarrow \text{CAN-1}] \rightarrow \text{NESS}] \rightarrow \text{NEG-3}] \]

are well-formed words, which they are not, as illustrated in (40) for Luoping Nase.

Luoping Nase (Yunnan Province, China)

(40) * \[ \text{tsu}^{21} \text{ ng}^{6} \text{o}^{21} \text{ni}^{33} \text{ lie}^{21} \text{ ku}^{33} \text{ di}^{55} \text{ ma}^{21} \] 3P.SG tomorrow come CAN-1 NESS NEG-3

\[ \text{Layer A} \text{ Layer C} \text{ Layer C} \]

Intended meaning: ‘He won’t be necessarily able to come tomorrow.’

Bybee (1985: 177-178) points out the preference for prefixing negation expression in the world’s languages which is motivated by the way the human brain comprehends words. If the most significant information (such as negation) occurs at the beginning of the word, language comprehension is maximally effective.

4. Compositionality gaps

4.1 Opaque compounds

Several compound enclitics, resulting from a process of grammaticalization, exhibit opaque meaning. As these clitics are noncompositional in a scopal paradigm, they contradict the prevalent assumption, pointed out in the introduction, that scopal and compositional paradigms are identical. Table 5 displays the group and function of seven compound clitics in three Yi languages. None of these clitics has a compositional make-up.
For the first compound clitic in Nuosu, the compositional order would be $\text{kù}^{33}\text{mi}^{44}\text{o}^{44}$ (current relevance of a future progressive event). This order also exists and is illustrated above in (17b). In the opaque clitic, the two clitics $\text{kù}^{33}$ and $\text{mi}^{44}$ underwent a process of metathesis and were semantically reanalyzed by native speakers with a nontransparent meaning (immediate future).

Liangshan Nuosu (Sichuan Province, China)

(41) a. $\text{ŋa}^{33} \text{vi}^{55} \text{vu}^{33} \text{ha}^{33}\text{pi}^{55} \text{dz}^{33}$  
1P.SG.PSS brother vegetables plant

$kù^{33}$  
PROG  
Group 2

‘My brother is planting vegetables.’

b. $\text{ŋa}^{33} \text{çå}^{21} \text{mo}^{21} \text{çå}^{21}$  
1P.SG wife marry

$\text{mi}^{44}$  
FUT  
Group 5

‘I will get married.’

c. $\text{a}^{55} \text{no}^{21} \text{ts}^{33}\text{wu}^{33} \text{tei}^{33} \text{lu}^{33}$  
female name dish NUM.3 CL cook

$o^{44}$  
DP  
Group 5

‘Anyo has cooked three dishes.’

d. $\text{ho}^{33}\text{nu}^{33} \text{ko}^{33} \text{dzi}^{33}\text{bo}^{33} \text{zo}^{33}\text{dz}^{33} \text{hi}^{55}$  
mountain LOC crops harvest CAN-2

$\text{mi}^{44}\text{kù}^{33}\text{o}^{44}$  
IMFUT  
Group 5

‘The crops on the mountain can be harvested very soon.’

The Nuosu regret clitic $\text{o}^{44}\text{ma}^{21}$ encodes an expressive illocutionary force. It is composed of the perfect clitic $\text{o}^{44}$ and the imperative clitic $\text{ma}^{21}$, but is unrelated to these two functions.

Liangshan Nuosu (Sichuan Province, China)

(42) a. $\text{ŋa}^{33} \text{vi}^{33} \text{bo}^{33} \text{mo}^{33} \text{nù}^{35} \text{çå}^{44}\text{nu}^{33}$  
1P.SG buy go IMP 2P.SG rest

$\text{ma}^{21}$!  
IMPT  
Group 11

‘I will go shopping. Have a rest here!’

b. $\text{zo}^{33} \text{la}^{55} \text{mo}^{33} \text{çì}^{55} \text{st}^{33}$  
sheep wolf bite die

$\text{o}^{44}\text{ma}^{21}$!  
REGR  
Group 9

‘Alas, the sheep was bitten to death by the wolf.’

---

Table 5: Opaque compound clitics

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<th>Yi</th>
<th>Compound Clitic</th>
<th>Compound Function</th>
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<th>Group 2</th>
<th>Group 5</th>
<th>Group 11</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NEG</td>
<td>FOL</td>
<td>PROG</td>
<td>IMP</td>
</tr>
<tr>
<td>Nuosu mi$^{44}$ku$^{33}$o$^{44}$</td>
<td>Group 5: Immediate Future</td>
<td>$\text{kù}^{33}$</td>
<td>$\text{mi}^{44}$</td>
<td>$\text{o}^{44}$</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>$\text{o}^{44}$ma$^{21}$</td>
<td>Group 9: Regret (recent past)</td>
<td>$\text{o}^{44}$</td>
<td>$\text{ma}^{21}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\text{o}^{44}$mo$^{21}$</td>
<td>Group 9: Regret (distant past)</td>
<td>$\text{o}^{44}$</td>
<td>$\text{mo}^{33}$</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>$\text{o}^{44}$li$^{21}$</td>
<td>Group 9: Regret (loss/fallout)</td>
<td>$\text{o}^{44}$</td>
<td>$\text{li}^{21}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nesu wø$^{33}$</td>
<td>Group 5: Perfect (positive)</td>
<td>$\text{ma}^{21}$</td>
<td>$\text{o}^{44}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>wo$^{33}$</td>
<td>Group 5: Perfect (negated)</td>
<td>$\text{ma}^{21}$</td>
<td>$\text{o}^{44}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lolo ŋ$^{21}$me$^{33}$</td>
<td>Group 5: Future Tense</td>
<td>ŋ$^{21}$</td>
<td>me$^{33}$</td>
<td></td>
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</tbody>
</table>
The clitic He^{21} has lost its use in Modern Nuosu but survived in the compound o^{44}He^{21}. Illustrations are skipped here. In Nesu, there are two perfect clitics, w_{3}^{33} and wo^{33}. The clitic wo^{33} marks verbs of positive polarity while wo^{33} only occurs after negated verbs. Both clitics are illustrated in (43)-(44). They result from a process of fusion with the clitic _^{33} which in separate contexts marks dynamic verbs and stative adjectives for imperfective aspect, as illustrated in (45).

(43a) h_{2}^{21} p_{3}^{33} house explode w_{3}^{33}.  
(b) *h_{2}^{21} ma_{2}^{21} p_{3}^{33} house NEG explode  

Group 2

‘The house has exploded.’  

‘The house hasn’t exploded.’

(44a) k_{5}^{55} ge^{33}g_{2}^{21} ma_{2}^{21} le^{33} 3P.SG Gejiu NEG-l come wo^{33}.  
(b) *k_{5}^{55} go^{33}g_{2}^{21} le^{33} 3P.SG Gejiu come wo^{33}.  

Group 2

‘He hasn’t come to Gejiu.’  

‘He has come to Gejiu.’

(45a) k_{5}^{55} a_{5}^{55}g_{2}^{33} zu_{2}^{21} to_{2}^{21} 3P.SG fish take go  
(b) a_{5}^{55}g_{2}^{33} o_{5}^{55} ts^{3}o_{5}^{55} ts^{3}o_{5}^{21} fish DEM CL smelly  

Group 2

‘He is taking away a fish.’  

‘This fish is smelly right now.’

The imperfective aspect clitic _^{33} fused with the negation clitic ma^{21} and the compound wo^{33} was reanalyzed with the nontransparent meaning of perfect clitic. The reintroduction of the negation particle ma^{21} before the verb imposed a sound process of distant progressive dissimilation (wo^{33} \rightarrow wo^{33}) in order to distinguish it from the clitic wo^{33} when it is not preceded by the negation clitic ma^{21}. This development explains the selectional restrictions of wo^{33} and wo^{33} noted in (43b) and (44b).

(46) Fusion  

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<td>V + ma^{21} + _^{33} \rightarrow V + wo^{33}</td>
<td>Positive Polarity: V + wo^{33}</td>
</tr>
<tr>
<td>Negative Polarity: ma^{21} + V + wo^{33} \rightarrow ma^{21} + V + wo^{33}</td>
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The Lolo future tense clitic _{3}^{21}me^{33} is composed of the negation clitic _{3}^{21} and the resultative clitic me^{33}. This compound is nontransparent but can be explained by a process of semantic reanalysis. Originally _{3}^{21}me^{33} was used to negate the result of an action. The meaning of negated result was reanalyzed as delayed result, then as delayed action and finally as future tense (Gerner 2013: 185-186).

(47) Yongren Lolo (Yunnan Province, China)  

(a) z_{2}^{51} c_{e}^{55} su^{33} 3P.SG Chinese (Han) written language NEG know  

‘He doesn’t know written Chinese.’

(b) ts_{a}^{55} pa^{33} mo^{33} ne^{33} di^{33} zo^{33} ga_{2}^{21} female monkey young girl chase  

me^{33} _{4}^{34}.  

Group 1

‘The monkey chased and caught the girls.’

(c) bo^{33} lu_{2}^{21} su^{55} dz_{o}^{33} b_{2}^{21} me^{33}.  

Group 2

‘Bolo will attend school.’
4.2 Possible but unattested scopes

In every Yi language we can find a number of clitic pairs X and Y such that

- XY exists but YX does not exist;
- Grammar concept of XY and grammar concept of YX are both conceivable.

To the extent that these pairs exist in the language, the whole paradigm becomes noncompositional. In the Yi languages, we can find these pairs of morphemes at layer A, B, C.

Liangshan Nuosu (Yunnan Province, China)  

Layers A

(48) a.  nga³³ si⁵⁵ χu³³ su³³ m³³ ku⁵⁵ te⁽³⁾³³.  
1P.SG matter, thing good NOM do CAN-1 WANT Group 2 Group 3  

‘I want to be able to do good things.’

b.  * nga³³ si⁵⁵ χu³³ su³³ m³³ te⁽³⁾³³ ku⁵⁵.  
1P.SG matter, thing good NOM do WANT CAN-1 Group 2 Group 3  

Intended meaning: ‘I am able to want to do good things.’

Liangshan Nuosu (Sichuan Province, China)  

Layers B

(49) a.  a²¹he⁵⁵ ts⁽²⁾⁴⁴ zœ³³ te⁽³⁾³³ ko³³ hœ³³ nga⁵⁵  
before people river DEM CL LOC fish catch hœ⁽³⁾⁵⁵ ndzo⁴⁴.  
CAN-2 EXP Group 7 Group 6  

‘Before people were once allowed to fish in this river.’

b.  * a²¹he⁵⁵ ts⁽²⁾⁴⁴ zœ³³ te⁽³⁾³³ ko³³ hœ³³ nga⁵⁵  
before people river DEM CL LOC fish catch ndzo⁴⁴ hi⁽³⁾⁵⁵.  
EXP CAN-2 Group 6 Group 7  

Intended meaning: ‘Before people were allowed to fish once (experience fishing) in this river.’

Yongren Lolo (Yunnan Province, China)  

Layers C

(50) a.  zœ²¹ dz³³ xau²¹ zi²¹ o⁴⁴  
3P.SG drink RES drunk DP du⁽³⁾³³ zœ⁽³⁾³³.  
POSS QUOT Group 9 Group 10  

‘It is said that he might have got drunk.’

b.  * zœ²¹ dz³³ xau²¹ zi²¹ o⁴⁴  
3P.SG drink RES drunk DP zœ⁽³⁾³³ du⁽³⁾³³.  
QUOT POSS Group 10 Group 9  

Intended meaning: ‘It might be said that he got drunk.’

5. Conclusion

In this paper, I have demonstrated that scopal paradigms need not to be compositional, contrary to widespread assumptions voiced in the literature. Scopal paradigms are distinguished from templatic
paradigms through opposite behavior to *headedness, adjacency, lookahead* and *zero morphemes*. The Yi languages (Tibeto-Burman: China) exhibit scopal paradigms whose morpheme categories can be defined as cognitive layers. In spite of this quite regular picture, the Yi paradigms are full of compositionality gaps such as the existence of opaque pairs of morphemes. Scopal paradigms therefore need not be compositional.

On the other hand, many scholars implicitly assume that templatic paradigms are *non*compositional. Future studies will likely lead to a revision of this assumption as well, by demonstrating that templatic paradigms may be relatively compositional.

### List of abbreviations

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