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Direction and Associated Motion in Tibeto-Burman

Carol Genetti  
*New York University*, cgenetti@nyu.edu

Kristine Hildebrandt  
*Southern Illinois University Edwardsville*, khildeb@siue.edu

Alexia Fawcett  
*University of California Santa Barbara*, afawcett@umail.ucsb.edu

Nathaniel Sims  
*University of Oregon*, nate.a.sims@gmail.com

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Abstract: This study analyzes systems of direction and associated motion in 23 languages of the Tibeto-Burman family. Both direction and associated motion can be encoded by a range of grammatical strategies, including affixes, clitics, particles, serial-verb constructions, and auxiliary verbs. While some languages have only associated motion or direction, others have both, either via distinct subsystems, syntactic ambiguity, or context-dependent interpretation. While directional encodings can be interpreted as associated motion in some contexts, the reverse can also be true. Verbal semantics is key to the pragmatic interpretation of examples in context; some types of motion verbs are more compatible with directional interpretations and others with associated motion. In addition, certain types of motion verbs were found to be compatible with different temporal relationships that hold between the activity of the primary verb and the motional component. Finally, the grammatical role of the figure in such constructions depends on both the temporal relationship and the semantics of the verb.

Keywords: Tibeto-Burman, associated motion, direction, semantics, pragmatics, typology, grammar
1 Introduction

The Tibeto-Burman language family\(^1\) has long been known for prolific spatial encoding in both nominal subsystems (e.g., Lahu: Matisoff 1991; Tani languages: Post 2011; Kham: Watters 2002) and verbal (DeLancey 1980, 1985; Matisoff 2003; Wolfenden 1929). Spatial categories have been especially rich topics of discussion within individual Tibeto-Burman languages (in numerous grammars, in addition to Bickel 1997; Chelliah and Utt 2017; Genetti and Hildebrandt 2017; Lin 2002, 2017; Matisoff 2017; Van Bik and Tluangneh 2017 and the papers therein).\(^2\) We define a directional (DIR) as a grammatical encoding (affix, particle, auxiliary, etc.) that combines with a motion verb, and typically contributes information about the trajectory of motion, such as deixis, orientation, or direction (Lovestrand and Ross in preparation). We contrast directional with associated motion (AM), which “associates, in different ways, different kinds of translational motion (spatial displacement / change of location) to a (generally non-motion) verb event” (Guillaume and Koch in preparation).

The notion of AM has not been widely recognized within the Tibeto-Burman descriptive tradition. The first article to describe this phenomenon in a Tibeto-Burman language as “associated motion” is Jacques’ 2013 article on Japhug Rgyalrong. Since then, the descriptive term has appeared in a few recent grammars (Boro 2017; Konnerth 2015). However, most grammars label morphemes that convey AM meanings in directional terms, or provide alternative labels, such as: intuitive, relinquutive, or indeterminate motion (King 2009); “subject changes location” (Solnit 1997); action that results in separation or movement into pieces (Burling 1961); ‘walk’ (Sangdong 2012); ‘to and fro’ (Coupe 2007), and others. Careful analysis of examples in context is often the only way to identify AM in Tibeto-Burman.

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1 We focus here on Tibeto-Burman languages, which we interpret as Sino-Tibetan excluding Chinese. We note that there is currently a lack of consensus on both the nomenclature and the structure of this language family (van Driem 2005, 2014, inter alia; Genetti 2016). At the highest level is the question of the position of the vast Sinitic branch (i.e., Chinese) with respect to the rest of the family: Does it break off from the rest at a higher node, as reflected in the conception of “Sino-Tibetan,” or is it on a par with the other major branches of the family, in a structure most recently labeled “Trans-Himalayan”? We prefer not to opine on this controversy. As the current study came out of a broader research project on the grammar of space in Himalayan languages, we have not incorporated languages from Chinese into the current paper, hence the focus on Tibeto-Burman. We note, however, that some Chinese varieties do have associated motion (Lamarre 2020, Lamarre et al. in press; Shirai 2009).

2 Within the literature on the Tibeto-Burman verb, the concept of direction has special relevance to discussions of the many complex systems of argument indexation and their historical provenance (e.g., Bauman 1975; DeLancey 1985; Jacques and Antonov 2014; LaPolla 1994; van Driem 1993). The current paper does not treat this particular phenomenon. Direction is also frequently tied up with aspect in these languages; again, this is beyond the scope of the current study.
The only cross-linguistic article on AM in Tibeto-Burman to date is Jacques et al. (in preparation). That paper primarily describes the phenomenon in two subgroups of the family: rGyalrongic and Kiranti. It primarily focuses on affixal expressions of AM, and highlights quite diverse configurations of deixis, argument of motion, and temporal relations evident in AM structures in these languages. The paper also proposes a range of criteria to be used to further investigate the semantic nuances of AM with other types of spatio-temporal encodings. Two of the languages included in the Jacques et al. sample (Situ/Kyomkyo rGyalrong and Dhimal) are also included in the sample used in the current paper, which builds on this work in several ways: it examines a broader range of grammatical structures that encode these notions; it incorporates a more genetically diverse range of languages from across Tibeto-Burman; and, most notably, it analyzes direction and associated motion together, which allows direct comparison and observations on their interplay. Overall, this paper contributes to the growing typology on these categories (Belkadi 2015, 2016; Guillaume 2011, 2016; Guillaume and Koch in preparation) by confirming a number of predictions made in that literature, extending the language base for the typology, and contributing to our understanding of semantic and pragmatic factors that intersect with DIR and AM.

We begin the paper by providing some additional definitions and context behind the categories of direction and associated motion (Section 2), then discuss our sample, data, and methodology (Section 3). In Section 4, we illustrate that both DIR and AM can be expressed by a range of grammatical constructions. In Section 5, we turn to the relationship between DIR and AM, the different ways in which a language can be said to have both AM and DIR, and how lexical semantics and pragmatics play a role in the interpretation of particular encodings in context. In Section 6, we discuss the distinct temporal relationships that hold between the motional component provided by AM encodings and the activity of the primary verb. Finally, we turn to the mapping of semantic figures (moving arguments) to argument structures in AM and DIR contexts (Section 7). Following conclusions (Section 8), the paper includes two online appendices: a database of 238 linguistic examples culled from the bibliographic sources used for this study and a spreadsheet that shows how we coded each example.

2 The categories of associated motion and direction

While typologies of motion events, including direction, have been a focus of linguistic inquiry for many years (e.g., Levinson 1996, 2003; Senft 1997; Shay and
associated motion has only recently received broad attention in the typological literature (Belkadi 2015, 2016; Guillaume 2000, 2016; Guillaume and Koch (in preparation); Jacques et al. (in preparation); Otero et al. 2017; Payne and Otero 2016). The category was first introduced by Koch with regards to the Australian language Kaytetye (ISO gbb; Glottocode kayt1238), where “verbs that specify any kind of activity may also be specified for various kinds of motion associated with the activity,” with the motion being the subordinate semantic component (1984: 26). An example is provided in (1):

(1) Kaytetye: AM
\[
\text{atne nte athe-yene-ne}
\]
\[
\text{shit you,erg excrete-go,and-imp}
\]
‘You go and shit.’
(Koch 1984: 27)

Koch equated associated motion with the verbal categories of tense and aspect, and noted its presence in several other Australian languages. Since then, the category has been described in a variety of languages, but thorough cross-linguistic investigations and typological analysis have appeared only within the past 10 years.

The category of AM can be distinguished from Direction (DIR). DIR encodings accompany motion verbs and provide additional semantic specificity, such as deixis, path, or orientation. An example from Kaytetye is given in (2), where the suffix -rne ‘hither’ adds a deictic component to a general verb of motion, ape- ‘go, walk, move’ (Koch 1984: 23).

(2) Kaytetye: DIR
\[
\text{mwernarte ape-nke-rne}
\]
\[
\text{this way go-pres-hither}
\]
‘Come this way!’
(Koch 1984: 25)

By contrast, AM encodings provide a translational motion component that is not already present in the lexical semantics of the verb. Like directionals, most AM encodings also express the path/trajectory of the added motion component; indeed, this has been considered one of their primary typological features (Belkadi 2016; Ross in preparation).

Given the similarities between DIR and AM, it is not surprising that the distinction between them is not always clear-cut. While some encodings specialize for either AM or DIR functions, others are open to variable interpretation depending upon lexical semantic and pragmatic factors (Belkadi 2015, 2016;
Bourdin 2005). For example, Belkadi (2015) – citing data from Bourdin (2005) and Claudi (2012) – discusses Somali (ISO som; Glottocode soma1255), in which the venitive particle soo can provide either DIR meaning, e.g., ‘walk towards’ in (3), or AM, e.g., ‘nap while moving towards’ in (4):

(3) Somali: Venitive soo with DIR interpretation

\[
\begin{align*}
\text{wuu} & \quad \text{soo} & \quad \text{soc-eyaa} \\
\text{FOC:3SGM} & \quad \text{VEN} & \quad \text{walk-PRSPRG:3SG}
\end{align*}
\]

‘He is walking towards me’
(Claudi 2012: 78)

(4) Somali: Venitive soo with AM interpretations

\[
\begin{align*}
\text{waan} & \quad \text{soo} & \quad \text{seex-day} \\
\text{FOC:1SG} & \quad \text{VEN} & \quad \text{sleep-PST:1SG}
\end{align*}
\]

(i) ‘I took a nap before coming here’
(ii) ‘I took a nap on my way here (on the bus).’
(Bourdin 2005: 20)

Ross (in preparation), a genetically balanced typological study, found 34 languages with subsystems that marked AM only, 63 that marked DIR only, and 39 that marked both. There are different ways in which a language can be described as having “both”: a language can have discrete sets of AM and DIR encodings; a language can allow structural ambiguity that results in two different interpretations; or, one or more encodings can allow both DIR and AM readings depending on lexical semantic and pragmatic factors (Belkadi 2016). All three types of overlap are attested in our sample. We return to this topic in Section 5.

Most of the work on AM has examined the category as it is marked by bound morphology, as the initial descriptions of AM focused on affixes. For example, Guillaumé’s study of AM in South American languages is restricted to “grammatical morphemes … associated with the verb” and overtly excludes multi-verb constructions such as compounding, verb serialization, subordination, or coordination (2016: 12). However, if AM is a cross-linguistically valid conceptual category similar to grammatical concepts such as tense, mood, and aspect – as argued by Wilkins (1991) – then we would expect that, like other grammatical categories, languages use a variety of structural means to encode it, and perhaps most obviously in the languages of our sample, multi-verb constructions. This has recently been confirmed by Lovestrand and Ross (in preparation), who found that in a balanced sample of 121 languages with SVCs, 60 have at least one construction that expresses AM. While their study was restricted to SVCs, they also provide examples of AM in verb-compound constructions, pseudocoordination, and complex predicates created with converbs. We follow Lovestrand and Ross in looking at the category in our sample in grammatically broad
terms and find that AM, like directionals, can be conveyed by SVCs, verbal compounds, auxiliary verbs, and particles, in addition to affixes (Section 4). This is to be expected, as many of these structures give rise to affixal morphology, which in turn, can be reanalyzed as lexical distinctions, a historical trajectory established for Tibeto-Burman by DeLancey (1985).

The emerging typologies of AM make a three-way distinction between prior, concurrent, and subsequent AM, which indicates the temporal relationship of the motional component with the action predicated by the primary verb (i.e., ‘move and VERB, ‘VERB while moving’, ‘VERB and move’). Levinson and Wilkins (2006: 534) propose an implicational hierarchy such that prior motion > concurrent motion > subsequent motion, which was supported by Guillaume’s (2016) study of 66 languages of the Amazonian basin. We do not find support for this hierarchy in our sample (Section 6); however, we do provide a nuanced description of the subtypes of examples that occur with each temporal relation.

An interesting contrast commonly discussed in the literature is how the figure (the moving argument) maps onto grammatical roles. With DIR constructions, the figure tends to be the S of an intransitive verb or the O (P) of a transitive verb, as shown in (5)–(7).

(5)  Kham: Directional; figure = S

\[ \text{hu-kin} \quad \text{te} \quad \text{gi-n} \quad \text{mani} \quad \text{gin-j\text{\text{-}}hri-na-ke} , \quad u-chi: \quad u-chi: \quad z\ddot{a} \]
\[ \text{REM-ELAT} \quad \text{FOC} \quad \text{we-DEU} \quad \text{also 1DU-descend-60-PFV 3s-back 3s-back EMPH} \]
‘Then we too descended, right after him.’
(Watters 2002: 422; UNIQUE_ID 166)

(6)  Dongwang Tibetan: Directional; figure = O

\[ \text{a a a} \quad t\text{\text{-}}s_{55} \quad t\text{\text{-}}ci \quad mb\text{\text{-}}k\text{\text{-}}u\text{\text{\text{-}}}s_{53} \quad ra \]
\[ \text{uh water INDF down-circle RA} \]
‘Circle some water (around the inside edges of the churn) down.’
(Bartee 2007: 501; UNIQUE_ID 080)

(7)  Camling: Directional; figure = O

\[ \text{sitimi} \quad \text{phold-yu-ki} \quad \text{mobdh-yi-kas-yi-ko} \quad \text{raicha} \]
\[ \text{firebrand overturn-3P-SEQ spill-3P-V2:away-3P-NMLZ REP} \]
‘… he overturned the firebrand and spilled [the food].’
(Ebert 2000: 51; UNIQUE_ID 023)

Thus, figures of DIR constructions tend towards an absolutive mapping pattern. By contrast, the figure of AM constructions tends to be either the S of an intransitive or the A of a transitive, thus AM constructions tend to follow a nominative pattern, as shown in (8) and (9).
While this is a strong tendency – noted by Belkadi (2015), Guillaume (2000, 2016), and Lovestrand and Ross (in preparation) – it is not an absolute rule, as demonstrated for Nivače and Pilagá (Otero et al. 2017; Payne and Otero 2016). We explore this dimension within Tibeto-Burman in Section 7, and note that within AM in our sample, the grammatical role of the figure depends on the semantic relationship between the motional component and primary verb.

3 Sample, data, and methodology

3.1 Sampling process

The 23 languages used for this study were chosen with an eye to geographic and typological diversity, and with the goal of building a sample that represents distinct sub-groups within Tibeto-Burman. With regards to the latter point, it is important to note that there is a lack of consensus on the phylogenetic structure of Tibeto-Burman (Genetti 2016). Rather, there are multiple proposals of distinct (yet partially overlapping) structures. Following van Driem (2005, 2011), we take a maximally agnostic “fallen leaves” approach, grouping together those sub-families where there is strong evidence of genetic relationships and leaving for

3 Not included in this list is Lepcha, which appears to have neither direction nor associated motion expressed by verbal morphology (Plaisier 2007). Grammars of five other languages were consulted, but the were languages not incorporated into this study. This was either because we found the relevant data to be ambiguous or indeterminate (Andvik 2010 for Tsangla, Hyslop 2017 for Kurtöp, van Driem 1987 for Limbu), atypically presented (Matisoff 1973 for Lahu), or lacking full-sentence text-based examples (Burling 1961 for Garo).
future work the final determinations of how these fit into higher-level arborial “branches.” The 23 languages of our sample represent 18 of the “fallen leaves” sub-families as identified by van Driem. The languages and their sub-families in our sample are given in Table 1.

Geographically, the languages range from central Nepal in the west to Sichuan province in the east, and cluster in the Himalayas. Their distribution can be seen on the map in Figure 1. Most of these languages are spoken in hilly – even mountainous – environments, but not exclusively; some are spoken on the flat river deltas south of the Himalayan range.

In broad typological terms, Tibeto-Burman languages run the gamut from isolating structures to significant polysynthesis, with the full spectrum of

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4 We differ from van Driem in excluding Sinitic. We acknowledge that there is not consensus on these groupings or the names attached to them (e.g., Kachinic versus Sal). For a recent view on the structure of the family, based on phylogenetic methodology, see Sagart et al. (2019). We have not adopted that model here in part because some of the languages of our study (e.g., Newar, Kham) have not been incorporated into their model.
Table 1: Twenty-three languages of the sample, their sub-branches, and sources.

<table>
<thead>
<tr>
<th>Language</th>
<th>ISO</th>
<th>Glottocode</th>
<th>Sub-branch</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apatani</td>
<td>apt</td>
<td>apat1240</td>
<td>Tani</td>
<td>Abraham 1985, Bouchery 2016</td>
</tr>
<tr>
<td>Burmese</td>
<td>mya</td>
<td>nucl1310</td>
<td>Lolo-Burmese</td>
<td>Soe 1999</td>
</tr>
<tr>
<td>Camling</td>
<td>rab</td>
<td>caml1239</td>
<td>Kiranti</td>
<td>Ebert 1997, 2000, Rai 2011</td>
</tr>
<tr>
<td>Daai Chin</td>
<td>dao</td>
<td>daai1236</td>
<td>Kukish</td>
<td>So-Hartmann 2009</td>
</tr>
<tr>
<td>Darma</td>
<td>drd</td>
<td>darm1243</td>
<td>West</td>
<td>Oko 2019</td>
</tr>
<tr>
<td>Dhimal</td>
<td>dhi</td>
<td>dhim1246</td>
<td>Dhimalish</td>
<td>King 2009</td>
</tr>
<tr>
<td>Dongwang Tibetan</td>
<td>khg</td>
<td>kham1282</td>
<td>Tibetan</td>
<td>Bartee 2007</td>
</tr>
<tr>
<td>Eastern Kayah Li</td>
<td>eky</td>
<td>east2342</td>
<td>Karenic</td>
<td>Solnit 1997</td>
</tr>
<tr>
<td>Ersu</td>
<td>ers</td>
<td>ersu1241</td>
<td>Qiangic</td>
<td>Zhang 2016</td>
</tr>
<tr>
<td>Galo</td>
<td>adl</td>
<td>galo1242</td>
<td>Tani</td>
<td>Post 2007</td>
</tr>
<tr>
<td>Kadu</td>
<td>zkd</td>
<td>kudu1254</td>
<td>Brahmaputrin</td>
<td>Sangdong 2012</td>
</tr>
<tr>
<td>Karbi</td>
<td>mjw</td>
<td>karb1241</td>
<td>Karbi</td>
<td>Konnerth 2014</td>
</tr>
<tr>
<td>Kathmandu Newar</td>
<td>new</td>
<td>newa1246</td>
<td>Newaric</td>
<td>Hale and Shrestha 2006</td>
</tr>
<tr>
<td>Kham</td>
<td>kgi</td>
<td>gama1251</td>
<td>Magaric</td>
<td>Watters 2002</td>
</tr>
<tr>
<td>Kyomkyo dialect of</td>
<td>jya</td>
<td>situ1238</td>
<td>Qiangic</td>
<td>Prins 2011</td>
</tr>
<tr>
<td>Situ_Rgyalrong(^5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamkang</td>
<td>lmk</td>
<td>lamk1238</td>
<td>Kukish</td>
<td>Chelliah and Ut 2017</td>
</tr>
<tr>
<td>Manange</td>
<td>nmm</td>
<td>mana1288</td>
<td>Tamangic</td>
<td>Hildebrandt 2014, fieldnotes</td>
</tr>
<tr>
<td>Meithei</td>
<td>mni</td>
<td>mani1292</td>
<td>Meithei</td>
<td>Chelliah 1997</td>
</tr>
<tr>
<td>Mongsen Ao</td>
<td>njo</td>
<td>aona1235</td>
<td>Ao</td>
<td>Coupe 2007</td>
</tr>
<tr>
<td>Niúwózi Prinmi</td>
<td>pni</td>
<td>nort2723</td>
<td>Qiangic</td>
<td>Ding 2014</td>
</tr>
<tr>
<td>Tangkhul-Naga</td>
<td>nmf</td>
<td>tang1336</td>
<td>Tangkhul</td>
<td>Ahum 1997</td>
</tr>
<tr>
<td>Turung</td>
<td>try</td>
<td>turu1249</td>
<td>Brahmaputrin</td>
<td>Morey 2010</td>
</tr>
<tr>
<td>Yōnghé Qiāng</td>
<td>qxs</td>
<td>sout2728</td>
<td>Qiangic</td>
<td>Sims and Genetti 2017, Sims'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>fieldnotes(^6)</td>
</tr>
</tbody>
</table>

morphological complexity between. Our sample contains languages from across this typological spectrum.

3.2 Coding process

For each of the languages sampled, we examined reference grammars looking for evidence of DIR or AM encodings, and categorized these by their morphosyntactic properties, sorting them into three broad types: affixes and clitics, particles, and multi-
verb constructions, the latter being used as a cover term for serial-verb and verb-auxiliary constructions that express DIR and AM meanings (see Anderson (2011) for a typological comparison of auxiliary verb constructions and other complex predicate types). For serial-verb constructions, we limited our study to asymmetrical SVCs, which allow only a restricted set of verbs in one of the verbal slots (Aiikhenvald 2006: 3). These are thus similar to auxiliary verbs, which differ from restricted serial verbs in being syndetic, receiving some overt marking of their relationship with the primary verb (serial verbs are asyndetic and – within Tibeto-Burman – unmarked). In all cases, we included in our dataset elements that appear to productively combine with other verbs.

We included in our analysis some encodings that have a broader array of functions than DIR and/or AM. For example, the Karbi proclitic nang= is not only used for cislocative and associated motion. It also extends into person-marking in complex ways, and has both temporal and more general semantic extensions, such as “orientation toward a reference point” where no motion is involved (Konnerth 2015). In other languages, some DIR or AM encodings also function as tense/aspect markers or convey other meanings resulting from metaphorical extension. In these cases, while we included the overall encoding in our dataset, we excluded the examples where it had a function other than DIR or AM.

Central to our analysis is the concept of subsystems, created when one or more morphemes with Directional and/or AM meanings occur in a particular grammatical position, either affixal, cliticized, particle, or grammaticalized verb (serial or auxiliary). Of the 23 languages, six had two grammatically distinct subsystems and one (Eastern Kayah Li) had three (one prefix, one particle, and a set of serial verbs). Thus, our dataset covers 31 subsystems in all. The number of encodings in each subsystem ranged from one to nineteen. The grammatical classifications of subsystem and the number of morphemes in each is shown in the middle column of Table 2. Only six subsystems had dedicated AM markers. The numbers of encodings in these systems were comparatively small, with Daai Chin having the most at four.

The third column of Table 2 indicates whether the morphemes for a given subsystem exclusively or primarily encoded DIR, exclusively or primarily encoded AM, or encoded both.

7 Other authors, such as Guillaume (2016), use the term “system” in the same way. The current study grew out of a larger project on how these languages encode spatial concepts grammatically, where we examine a number of subsystems of different types (e.g., nominals, adverbials). We see these as subparts of the broader “system” of spatial encodings.

8 This count excludes morphemes that alternate paradigmatically with DIR or AM forms, but are not themselves used in motion expressions. For example, the Apatani serial verb sa indicates that an action is performed at a distant place (Abraham 1985: 85); it has been excluded from our counts.

9 What we refer to as “primarily AM” is equivalent to “AM-DD” (deictic directional) in Voisin (in preparation). Similarly, our “primarily directional” subsystems she would classify as “DD-AM.”
For each subsystem, we compiled examples for each encoding, taking them from grammars, associated text collections, or fieldnotes. The majority of

10 In the Prinmi texts, there are two examples where the verb /pʰ ‘go’ is used with what seems to be an AM function (Ding 2014: 330), but given that we have no further data, and no knowledge of whether a verb equivalent to ‘come’ can also be used, we have not counted this as a distinct subsystem here, neither have we included these in any of our counts below. Other varieties of Prinmi (aka Pumi) also have examples suggestive of AM (Daudey 2014: 307–309).

### Table 2: Classification of subsystems.

<table>
<thead>
<tr>
<th>Language</th>
<th>Subsystems (# of morphemes)</th>
<th>AM or DIR?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apatani</td>
<td>Affixes and Clitics (15)</td>
<td>Both</td>
</tr>
<tr>
<td>Burmese</td>
<td>Multi-V (4)</td>
<td>Both</td>
</tr>
<tr>
<td>Camling</td>
<td>Multi-V (7)</td>
<td>DIR</td>
</tr>
<tr>
<td></td>
<td>Affixes and Clitics (2)</td>
<td>AM</td>
</tr>
<tr>
<td>Daai Chin</td>
<td>Affixes and Clitics (6)</td>
<td>Primarily DIR</td>
</tr>
<tr>
<td></td>
<td>Particles (3)</td>
<td>AM</td>
</tr>
<tr>
<td>Darma</td>
<td>Multi-V (3)</td>
<td>Both</td>
</tr>
<tr>
<td>Dhimal</td>
<td>Affixes and Clitics (5)</td>
<td>Primarily AM</td>
</tr>
<tr>
<td>Dongwang Tibetan</td>
<td>Affixes and Clitics (4)</td>
<td>DIR</td>
</tr>
<tr>
<td></td>
<td>Multi-V (2)</td>
<td>Both</td>
</tr>
<tr>
<td>Eastern Kayah Li</td>
<td>Affixes and Clitics (1)</td>
<td>AM</td>
</tr>
<tr>
<td></td>
<td>Multi-V (11)</td>
<td>Primarily DIR</td>
</tr>
<tr>
<td></td>
<td>Particles (5)</td>
<td>DIR</td>
</tr>
<tr>
<td>Ersu</td>
<td>Affixes and Clitics (9)</td>
<td>DIR</td>
</tr>
<tr>
<td>Galo</td>
<td>Affixes and Clitics (19)</td>
<td>Primarily DIR</td>
</tr>
<tr>
<td>Kadu</td>
<td>Multi-V (9)</td>
<td>Both</td>
</tr>
<tr>
<td>Karbi</td>
<td>Affixes and Clitics (1 proclitic)</td>
<td>Both</td>
</tr>
<tr>
<td></td>
<td>Affixes and Clitics (9 suffixes)</td>
<td>Both</td>
</tr>
<tr>
<td>Kathmandu Newar</td>
<td>Multi-V (6)</td>
<td>Both</td>
</tr>
<tr>
<td>Kham</td>
<td>Affixes and Clitics (2)</td>
<td>Both</td>
</tr>
<tr>
<td>Kyomkyo rGyalrong</td>
<td>Affixes and Clitics (6)</td>
<td>DIR</td>
</tr>
<tr>
<td></td>
<td>Affixes and Clitics (2)</td>
<td>AM</td>
</tr>
<tr>
<td>Lamkang</td>
<td>Affixes and Clitics (6)</td>
<td>Both</td>
</tr>
<tr>
<td>Manange</td>
<td>Multi-V (2)</td>
<td>DIR</td>
</tr>
<tr>
<td>Meithei</td>
<td>Affixes and Clitics (4)</td>
<td>DIR</td>
</tr>
<tr>
<td>Mongsen Ao</td>
<td>Affixes and Clitics (5)</td>
<td>Primarily DIR</td>
</tr>
<tr>
<td>Niúwōzi Prinmi⁰¹</td>
<td>Affixes and Clitics (6)</td>
<td>DIR</td>
</tr>
<tr>
<td>Tangkhul-Naga</td>
<td>Multi-V (9)</td>
<td>Both</td>
</tr>
<tr>
<td>Turung</td>
<td>Multi-V (2)</td>
<td>DIR</td>
</tr>
<tr>
<td>Yǒnghé Qiāng</td>
<td>Affixes and Clitics (2)</td>
<td>AM</td>
</tr>
<tr>
<td></td>
<td>Affixes and Clitics (8)</td>
<td>DIR</td>
</tr>
</tbody>
</table>
examples are from connected discourse, typically narratives. While we limited ourselves to one example for many of the encodings, we explored in more detail when the systems looked especially rich and when extensive discourse samples were available (e.g., Dhimal). Through this process we compiled a database of 238 examples, which served as the basis for this study.

Once we compiled the dataset, we coded each example for the features listed in Table 3.

Table 3: Features coded for each example.

<table>
<thead>
<tr>
<th>Unique ID</th>
<th>Encoding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Translation or gloss of encoding</td>
<td></td>
</tr>
<tr>
<td>Morphosyntactic type of encoding (Af/uniFB01x/Clitic, Particle, Multi-V)</td>
<td></td>
</tr>
<tr>
<td>If Af/uniFB01x/Clitic, whether it precedes or follows the verb stem</td>
<td></td>
</tr>
<tr>
<td>Primary verb (English translation)</td>
<td></td>
</tr>
<tr>
<td>Primary verb transitivity</td>
<td></td>
</tr>
<tr>
<td>Primary verb as +/- motion</td>
<td></td>
</tr>
<tr>
<td>If primary verb is a motion verb, type of motion</td>
<td></td>
</tr>
<tr>
<td>AM or DIR</td>
<td></td>
</tr>
<tr>
<td>If AM, whether motion is prior, concurrent or subsequent to main verb event</td>
<td></td>
</tr>
<tr>
<td>Grammatical role of the figure, as A, S, O, or Tandem (A + O)</td>
<td></td>
</tr>
</tbody>
</table>

As the coding of examples is central to our analyses, a few of these features and how we coded them merit discussion.

Regarding morphosyntactic type, we based our coding of systems as Af/uniFB01x/Clitic, Multi-V, or Particle on the descriptive terms used by grammar writers. However, we found that different linguists writing about the same morphemes sometimes describe them in different ways, or even that in the same language morphemes are analyzed as affixes in some examples and as serial verbs in others. There can also be variation between the descriptive analysis and

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11 At times grammars listed encodings but did not exemplify them, nor could they be found in available texts. These include forms from Apatani, Eastern Kayah Li, Galo, and Karbi.
12 The database will be made publicly available on Zenodo and its DOI will be provided in the final version of the paper.
13 The spreadsheet with these encodings will be made publicly available on Zenodo and will be provided as an online supplement to this paper.
14 An example is Apatani: Abraham (1985) calls the forms “particles” although he describes them as “verbs that are added to the main verb to modify its inherent meaning,” (1985: 73), i.e., as serial verbs. By contrast, Bouchery’s extensive (2016) dictionary labels the same forms as directional suffixes. We’ve chosen Bouchery’s classification as the more modern and extensive treatment.
15 An example is Lamkang (Chelliah and Utt 2017).
transcriptional practice with respect to whether morphemes are represented as bound. For example, Sangdong transcriptionally represents Kadu serial verbs as a single word, linking them with a hyphen, although he describes them in the text as “juxtaposed” (2012: 171).

The primary reason for this lack of consistency is that what have been traditionally been called “directive” markers in Tibeto-Burman have a common grammaticalization pathway from motion verb to affix to lexicalization, a process that DeLancey (1985) has shown to be cyclic in the history of the family. The transitional nature of these encodings means that their status as verb or affix is not always clear. This falls out naturally from the graduality of grammaticalization (Lichtenberk 1991). Also, in some languages there is evidence of poly-grammaticalization, whereby a single morpheme is the source of multiple grammaticalization chains (see Craig 1991 for an original account of this phenomenon). In coding these forms, we prioritized more extensive and recent works over older and shorter ones (Apatani), descriptive text over transcriptional practice (Kadu), and structures that appeared to be prevalent over those that appeared to be rare (Lamkang). However, we acknowledge that the act of coding itself requires us to place each example into one of three discrete categories, when in fact, the category boundaries are porous and some examples lie along a cline from verb to affix (Schiering et al. 2010). As a result, we do not make claims or draw conclusions based on the morphosyntactic classification of these constructions.

In coding examples for the motion category, we coded the primary verb as a motion verb if translational motion is a semantic component of the verb (‘go’, ‘run’, etc.). Transitive verbs that involve translational motion of the O, such as ‘put’, or ‘carry’, were coded as motion verbs, as were ‘cut (away)’, ‘saw (off)’, and ‘tear (out)’, as they entailed the movement of some piece of the O. The verb ‘give’ was coded as a non-motion verb, as its primary sense is change of possession and change of location is not entailed. Verbs that denote metaphorical or fictive motion were excluded from this study. We also coded motion verbs for type of motion; this is more fully discussed in Section 5.2.

Perhaps the most important coding involved the categorization of examples as DIR and AM. Examples were coded as DIR if the primary verb was a motion verb and if the relevant encoding provided additional information on the trajectory of motion. Examples were coded as AM if the encoding added a semantic component of translational motion that would not be present in the absence of that encoding. Belkadi (2016) discusses cases where a single encoding may have DIR interpretations in some examples and AM interpretations in others, depending on semantic and pragmatic factors (see also Bourdin (2005)). This is true for our data as well; we discuss this in detail in Section 5. We follow Guillaume (2016: 9) in considering such cases to be bona fide instances of AM.
We have included in our dataset examples of “purposive AM,” which we define as translational motion undergone for the purpose of carrying out a subsequent action. An example is the Dhimal “intentive” suffix, which is in paradigmatic alternation with the other AM suffixes in the language; see (10):

(10) Dhimal: “intentive” -lha
    hale    cum-ten    cam-ten    hale    coi-lha-gha
    plough     grab-SEQ     grab-SEQ     plough     plough-INTN-1SG.PST
    ‘Having grabbed the plough, I went to plough.’
    (King 2009: 175; UNIQUE_ID 047)

King notes that the intentive differs from the “distal” (i.e., prior AM) suffix, with which it paradigmatically alternates, in that “completeness of the movement does not necessarily entail completeness of the action… only that the subject went with the intention” (2009: 174). Lovestrand and Ross (in preparation) similarly differentiate purpose from prior AM in that with the former the occurrence of the event predicated by the non-motion verb is only implied (and so is cancellable), while in the latter it is entailed. In both cases the translational motion is asserted to occur and is associated with another verb event, even if that event is not realized. It thus meets the definition of AM.\footnote{We do not include in our dataset examples of non-AM purposive constructions, which allow non-motion verbs as the main verb (e.g., ‘collected wood to light a fire’). These typically involve adverbial clauses in the languages of our sample.}

A few encodings were categorized as AM although they might be considered non-canonical. One such case is the Eastern Kayah Li prefix -ka, which Solnit (1997) glosses as SUBJECT.MOVES. This morpheme explicitly indicates that the subject of the primary verb undergoes translational motion that would otherwise be absent, as shown in (11):

(11) Eastern Kayah Li: AM marker -ka SUBJECT.MOVES
    ?a    phjá    ka-the
    3SG   take   SBJ.MOVES-go.up
    ‘He takes it and (he) goes up.’
    (Solnit 1997: 39; UNIQUE_ID 097)

Solnit compares this to ?a phjá the ‘he picks it up’, which lacks the prefix. Here, only the object undergoes motion. We interpret this as AM, although it differs from other cases in that it attributes the translational motion signaled by a grammaticalized verb

\footnote{A parallel example might be found in the evidential domain: some evidentials entail the occurrence of an event while other evidentials only implicate that occurrence.}
to a particular argument of the main verb, rather than being a motion encoding itself. The result is translational motion of that argument that would otherwise be absent.\textsuperscript{17}

Somewhat related are two suffixes in Karbi. One is -\textit{p\text{"o}n} ‘on the way’, which indicates that the action of the verb takes place while the subject is in motion, e.g., \textit{l\text{"a}n\text{"e}n-p\text{"o}n} [water take-take.away] ‘to take water as one moves along’. This is canonical AM, but it makes an interesting contrast with another suffix -\textit{d\text{"u}n}, which “profiles an event against a background of motion” (Konnerth 2014: 255) e.g., \textit{l\text{"a}n\text{"e}n-p\text{"i}-d\text{"u}n} [water give-JOIN] ‘give water (to someone) as they move along’, where the figure is not the subject of the primary verb. Indeed, the figure doesn’t have to be an argument of the verb at all, as can be seen by \textit{th\text{"u}-d\text{"u}n} [wrap-JOIN] ‘to wrap something for someone else to take as they go’. In both cases, the suffixes provide a translational motion component that would otherwise be absent, but they differ with respect to the attribution of the motion to the subject or to another participant.

Lastly, we classify encodings meaning ‘leave behind’ as AM. These occur in three of the languages of our corpus (Camling, Dhimal, and Karbi). A Dhimal example is given in (12); the morpheme in question is the “relinquitive” (RELINQ) -\textit{dhi}.\textsuperscript{18}

\textbf{(12)} Dhimal ‘leave behind’
\begin{quote}
o\text{"o}d\text{"o}n\text{"o} n\text{"i}-\text{"t}a\ e\text{"o} \text{"j}u\text{"r}i\ k\text{"a}ura\ esa\ ta\text{"o}-\text{"p}\text{"i}-\text{"d}\text{"i}-h\text{"i}
\end{quote}
\begin{quote}
that\ tree-LOC\ one-pair\ cowrie\ like.this\ put-DIR-RELINQ-PST
\end{quote}
‘He placed a pair of cowries in that tree and left them like this.’
(King 2009: 399; UNIQUE_ID 072)

This suffix clearly adds a translational motion component. When the verb is transitive, it profiles the fact that the O does not move while someone else does. When the verb is intransitive, the S of the verb does not move, although someone else does:

\textbf{(13)} Dhimal ‘leave behind’
\begin{quote}
o\text{"o}\text{"s}o\ h\text{"u}-\text{"d}\text{"i}-k\text{"h}e
\end{quote}
\begin{quote}
over.there\ fall-RELINQ-IPFV
\end{quote}
‘They fall out over there and are left behind.’
(King 2009: 181; UNIQUE_ID 070)

\textsuperscript{17} LT reviewer Guillaume Jacques analyzes \textit{th} as a resultative in the text-embedded example, and as a serial verb in example (11) above. We follow Solnit’s grammatical analysis here. Jacques also states that in the absence of this occurring with a non-motion verb it should not be analyzed as AM, as the motion is expressed by the verb \textit{th} ‘go up’. While the latter point is true, the function of the prefix is to attribute that movement to the subject of the preceding verb, \textit{phj\text{"a}} ‘take’, an argument that otherwise would not undergo translational motion. In our view the prefix is thus associating a particular type of translational motion to an event that otherwise would be lacking, hence it should be analyzed as AM.

\textsuperscript{18} Note that the preceding morpheme glossed DRV is not “directional” but “directive”, an applicative suffix that indicates an affected actant (King 2009: 198).
While the primary semantic force of the suffix is to indicate lack of movement of the absolutive argument, it does this by contrast to the motion of others (the A of a transitive verb or an un-named participant (non-argument) of an intransitive), resulting in separation (King 2009: 179–181). This is a quite distinctive type of AM.

We now turn to deeper analysis and exemplification.

4 The grammatical expression of direction and associated motion

Of the 31 subsystems, we categorized 19 as Affixes/Clitics, two as Particles, and nine as Multi-V, following the parameters – and the caveats – laid out in Section 3. Of the bound forms, only one was a clitic: the Karbi cislocative proclitic nang=. The two languages with particle subsystems are both located in the Mainland Southeast Area Sprachbund, where languages tend toward isolating typologies and particles are common (Enfield 2005, 2011; Migliazza 1996).

Both Affix/Clitic and Multi-V subsystems show a broad range in the number of encodings, as shown in Table 4. The two subsystems with the largest number (Apatani at 15 and Galo at 19) are both affixal. Both particle subsystems are comparatively small: four in Eastern Kayah Li and six in Daai Chin.

Table 4: Numbers of encodings by subsystem type.

<table>
<thead>
<tr>
<th>Encodings</th>
<th>Affix and Clitic</th>
<th>Multi-Verb</th>
<th>Particles</th>
</tr>
</thead>
<tbody>
<tr>
<td>16+</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11–15</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6–10</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1–5</td>
<td>10</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

There are some interesting differences across the morphosyntactic types. With Affix/Clitic and Particle subsystems, AM or DIR encodings are found both preceding and following the primary verb. By contrast, all Multi-Verb encodings follow, consistent with the verb-final typology of the family. In addition, Affix/Clitic and Particle subsystems can be paradigmatically structured across multiple dimensions, while Multi-Verb systems often have a single oppositional pair (typically towards/away). Multi-Verb systems also exhibit wider semantic variation, including senses such as

As with different types of multi-verb constructions, there is the potential for some ambiguity in the difference between an ‘affix’ and a ‘particle.’ We strive to maintain the terminological choices made by the authors of the references that we have consulted. Bickel and Nichols (2007: 173) identify particles as inflectional or derivational grammatical markers that are phonologically free units, but that have distributional restrictions that align them more grammatically with affixes.

19
‘encircle’, ‘towards home’, and ‘emerge’, reflecting the semantic richness of the verbal lexicon and less progress down the grammaticalization pathway.

Examples (14)–(25) illustrate AM and DIR encodings for each of the morphosyntactic types.

(14) Prefix, DIR: Yônghé Qiăng ʒʰ-
ó kjèntʰá-ha ʒʰ-kʰʷ=næ
DISC house-LOC DIR:in-go.PFV=LNK
‘Well, (he) went into the house and …’
(YH-089_133; UNIQUE_ID 233)

(15) Prefix, AM: Lamkang ar-
ar-vang-prthleng-cha=u
VEN-HORIZ.PERM-change.clothes-MID=IMP
‘Come and change your clothes!’
(Chelliah and Utt 2017: 33; UNIQUE_ID 191)

(16) Suffix, DIR: Mongsen Ao -kət
a-hŋay tʃu lora-li səpsi-ə u tŋ
NRL-fish DIST descend.come-ALT.IT turn-SEQ just
pak-kət-ə u əŋ kəwa-ju:k-li
disperse-ASCEND-SEQ just ascend.go-PFV-ALT.IT
‘The fish repeatedly came down (towards the fishing wire), then just turned around and went back up (the river) dispersing as they went up over and over…’
(Coupe 2007: 302; UNIQUE_ID 199)

(17) Suffix, AM: Galo -in
má-bəŋ-in-/ mootùm=lo bə má-İN-duː=æm=æ
search.for-CONT-FWD jungle=LOC DIST.down search.for-FWD-IPFV=TSBRD=TOP
‘While going and searching down in the jungle’
(Post 2007: 929; UNIQUE_ID 122)

(18) Proclitic, DIR: Karbi nang=
bàng hanthər=si ne-məi
CLF:HUM:PL vegetable.sp=FOC 1EXCL-back
nang=klò-dùp
cis=fall-falling.sound.from.high.solid.object
‘A hanthar fruit fell on my back…’
(Konnerth 2014: 231; UNIQUE_ID 135)
(19) Proclitic, AM: Karbi nang-
amātsi e-tūm aṭhān=ke dāk ḥabīt
and.then 1PL:INCL-PL NSBJ=top here jungle
a-ingbòng=si nang=ke-thòn-ti
POSS-IN.MIDDLE.OF=FOC CIS=NMLZ-DROP-GET.RID.OF
‘...and then, she took us here in the middle of the jungle and abandoned us.’
(Konnerth 2014: 158; UNIQUE_ID 139)

(20) Particle, DIR: Eastern Kayah Li təlwā20
ʔa cwā təlwā vē hi
3s go past my house
‘He went past my house.’
(Solnit 1997: 137; UNIQUE_ID 88)

(21) Particle, AM: Daai Chin lo-
nah pyoh kah bük lo-kkhai ni
2SG.POSS weeding 1SG look come=FUT EMPH
‘I will come and look at your weeding.’
(So-Hartmann 2009: 289; UNIQUE_ID 38)

(22) Serial verb, DIR: Manange 22j3
22njukju=ko 22kʰ’un=tsr=tse 22pʰ’ste 22j3 22mi
dog=DEF window=ABL=ABL fall go EVID
‘The dog fell out of (away from) the window.’
(Hildebrandt 2004: 121; UNIQUE_ID 193)

(23) Serial verb, AM: Kadu teū
peūt-yōk-teū-àng=mā
lie-eat-walk-DIR1=RLS
‘(He) went about cheating.’
(Sangdong 2012: 184; UNIQUE_ID 129)

20 The particle təlwā is applicative, transitivizing the clause and allowing an overt object. Some Galo forms also have applicative properties. Note that while Solnit lists other directionals in this subsystem, he does not provide examples.
Now that we have established that encodings of all morphosyntactic types can encode DIR, AM, or both, we examine the interaction of direction and associated motion (Section 5), explore the subsystems in more detail (Section 6), consider temporal relationships of AM clauses (Section 7), and look at patterns of the figure in DIR and AM contexts (Section 8).

5 The relationship between direction and associated motion

Of the 31 subsystems in our study, 14 contained exclusively or primarily DIR encodings and six contained exclusively or primarily AM encodings (see Table 2 above). The remaining 11 had both DIR and AM examples. However, the nature of the overlap of these categories varied by language. The nature of this variation is discussed in Section 5.1 below. Verbal semantics plays a central role in this, particularly the distinction between motion verbs and non-motion verbs. We also look within the motion verb category, at different types of motion, and see that certain motion categories are more conducive to AM and others to DIR (Section 5.2).

5.1 Overlapping DIR and AM systems

There are at least three distinct ways by which a language can have both DIR and AM. First, a language can have discrete grammatical subsystems, with one set of encodings specialized for AM and another set specialized for DIR. Five languages

21 Hale and Shrestha note that this construction has an alternative interpretation, with the AAux translating as a converb, i.e., ‘On which day, having abandoned (this house) must I go?’
of our sample are of this type. Second, a language can have structurally ambiguous examples that produce AM readings under one structural analysis and DIR under another. We only have one clear example of this type. Finally, one or more encodings in a subsystem may have DIR interpretations under one set of semantic and pragmatic conditions, and AM under another. Ten of the languages in our study are of this third type.

The first type, a language with discrete grammatical subsystems for encoding DIR and AM, is exemplified by Kyomkyo rGyalrong (Prins 2011). The language has two distinct set of prefixes: six DIR prefixes which occur outermost in the verb, as well as a distinct pair of prefixes which Prins calls “viewpoint” (see also Jacques 2013 for Japhug Rgyalrong). The forms are related to ‘come’ and ‘go’, and the examples typically translate as Prior AM and frequently have a purposive reading. Example (26) has prefixes from both sets. The perfective orientation prefix na- is the first element of the verb; the viewpoint prefix fi- follows the person index:

(26) Kyomkyo rGyalrong: DIR and AM prefixes
\[nəndʒə bawbaw na-tə-fi-na-ku-w\]  
you bag pfv:down-2-vpt-erefl-buy-2sg intg
‘Did you go down and buy a bag for yourself?’  
(Prins 2011: 390; UNIQUE_ID 180)

The second type of language with both DIR and AM is one where these interpretations result from underlying structural ambiguity. Our only apparent example of this is Lamkang, which has both prefixal directionals and a serial-verb construction. Example (27) has two possible meanings, one resulting from a structural analysis of directional prefix + verb, and the other from an analysis of “a sequence of two finite verbs which can also be interpreted as serial actions.”

(27) Lamkang: Structural ambiguity
\[hung-lou\]
up.perm-take
‘You bring it upwards!’ or ‘You go up and bring it!’
(Chelliah and Utt 2017: 33; UNIQUE_ID 183)

In this language, serial constructions can have both verbs marked with tense-aspect morphology, but this can also be dropped, as in (27). In these languages, syncretism is common, as is polygrammaticalization, whereby a lexeme can develop into a grammatical marker, while still retaining a separate lexeme form and function (see Craig 1991 for an extensive study of polygrammaticalization in Rama). Two distinct structures, one resulting from reanalysis of the verb as a
prefix, and the other with it retaining the status of a verb, underlie a single string of morphemes, leading to two distinct yet related semantic interpretations.

The third type of language with both DIR and AM is one where individual encodings allow different interpretations based on semantic and pragmatic factors. An example is Darma, where the auxiliary verb, ōra ‘come’ has DIR interpretations with a motion verb ‘dance’, as in (28), and AM interpretations with a non-motion verb ‘meet’, as in (29):

(28) Darma: DIR interpretation with motion verb

\text{hā  niŋ  nyįntaba  baktee  jo nini, wi tāra=su}

\text{then 1PL nighttime time HM 3PL direction.LN=ABL}

\text{di  rthiŋ  ōra-ni.}

\text{hither dance  ōra-3.NPT}

‘Then, we at nighttime um, from their side (they) come dancing hither.’

(Oko 2019: 329; UNIQUE_ID 046)

(29) Darma: AM interpretation with non-motion verb

\text{ji  o  tshi  ōra-yo.}

\text{1SG 3SG meet  ōra-1SG.PST}

‘I came to meet him.’

(Oko 2019: 330; UNIQUE_ID 048)

Belkadi (2016) provides detailed discussion of similar cases in a number of African languages. She suggests that AM readings might arise in contexts where DIR readings are not available due to the lexical semantics of the primary verb and pragmatic factors (2016: 63). This assumes that DIR readings are basic and AM a secondary function that arises in particular contexts, a situation that Voisin (in preparation) classifies as DD-AM, where DD stands for “deictic directional.” A language like this in our sample is Daai Chin, which has a set of six preverbal directional particles. AM interpretations appear to arise sporadically, as in (30).

(30) Daai Chin: preverbal directional prefix with AM interpretation

\text{Kūii=noh  beyang  sun  Pāāng=üng ah juk-pee:t  lo.}

\text{Kūii=ERG small.gong  DEM Pāāng=DAT 3SG \textbf{DIR:down}-give INC}

‘Kūii sent down the small gong to Pāāng.’

(So-Hartmann 2009: 285; UNIQUE_ID 034)

So-Hartmann writes of this example that juk- implicates downward motion that does not include the agent (2009: 285). Since the act of giving does not typically involve downward motion of the O, the prefix invites the pragmatic inference of translational motion over a distance, confirmed by So-Hartmann’s translation of
the verb as ‘sent down’. So here the directional takes on an AM interpretation under utterance-specific semantic and pragmatic conditions.

A very different situation is found in Dhimal. This language has a set of five suffixes that King (2009) calls “deictic motion,” and which convey different types of AM. Of these, three can take on DIR interpretations under specific semantic conditions. Consider the suffix -pu (labeled “distal”). King writes that when this suffix is used with telic events “the action of the main verb takes place away from the referent and after the motion has occurred” (King 2009: 171). This results in a Prior AM interpretation, as shown in (31):

(31) Dhimal: -pu and telic verb results in Prior AM

\[ jha:-pu \]
\[ wash-\text{DIST} \]
\[ ‘Go and wash it.’ \]
\[ (King 2009: 171; UNIQUE_ID 062) \]

With atelic events, the action of the primary verb and the motion are simultaneous. If the primary verb is a non-motion verb, a concurrent AM interpretation is produced, as shown in (32). If the primary verb is a motion verb, then a directional interpretation is produced, as in (33).

(32) Dhimal: -pu and atelic non-motion verb results in Concurrent (simultaneous) AM

\[ kalua \ nhe?-\text{non} \ bidyarthi \ kitap \ kham-\text{pu}-\text{gha-khe} \]
\[ so \ two-\text{CLF} \ student \ book \ look-\text{DIST-PST,IPFV-IPFV} \]
\[ ‘Then, two students were going along looking at a book.’ \]
\[ (King 2009: 349; UNIQUE_ID 063) \]

(33) Dhimal: -pu and motion verb results in DIR

\[ oso \ dha?-\text{pu-hi} \]
\[ there \ run-\text{DIST-PST} \]
\[ ‘[He] ran off in that direction.’ \]
\[ (King 2009: 172; UNIQUE_ID 060) \]

A similar three-way split can be found with the “indeterminate motion” suffix -gil. With telic events, “the action is performed on an object, causing it to move in a direction away from the referent” (King 2009: 177), while with atelic events, “the event occurs in multiple locations and at multiple times in a haphazard, back and forth manner” (King 2009: 178). All the examples with motion verbs, however, have DIR translations. Examples are in (34) to (36).
(34) Dhimal: -gil and telic verb results in Subsequent AM

\[
ci\text{t}\text{\texttt{\textipa{t}}} \quad \text{hethe} \quad \text{lekhe-gil-gha}
\]

letter how.many write-IM-1SG.PST

‘I wrote and sent so many letters.’
(King 2009: 178; UNIQUE_ID 069)

(35) Dhimal: -gil and atelic non-motion verb results in Concurrent
(simultaneous) AM

\[
kalua \quad ode \quad bebal \quad te \quad odo\Text{\textipa{n}} \quad nairya-he \quad phesar-au \quad phutphat-pa
\]

so that woman TOP that elephant-DAT broom-INS one.by.one-do

\[
\text{phe:-pi-gil-hi} \quad \text{do?-khe}
\]

sweep-DIR-IM-PST say-IPFV

‘Then that woman went around and swept up the elephants one by one with a broom.’
(King 2009: 342; UNIQUE_ID 068)

(36) Dhimal: -gil and motion verb results in DIR

\[
kalau \quad kodala-hoi \quad thai-gil \text{\textipa{a}}?\text{?}
\]

then hoe-INS toss-IM okay

‘Then throw it away with a hoe, okay?’
(King 2009: 178; UNIQUE_ID 064)

Of the other three AM suffixes in Dhimal, two consistently have AM readings (one is a “leave-behind” construction, and the other is purposive AM). A third, the venitive suffix -pa, takes on DIR meanings with motion verbs.\textsuperscript{22}

We see that the Dhimal subsystem is preponderantly one of AM (i.e., is AM-DD in the terms of Voisin (in preparation)); only three of the five suffixes can have DIR readings, and these only occur with motion verbs. The range of AM meanings conveyed by Dhimal is complex, and critically depends on verbal semantics. However, the factors are identifiable and systematic. This is thus different from the Daai Chin case, where the subsystem is preponderantly a DIR system, with AM interpretations arising sporadically.

Thus we can see that the interplay between AM and DIR works in both directions: encodings that are primarily DIR can derive AM interpretations, and those that are primarily AM can derive DIR interpretations. Underlying all of this is verbal semantics: some classes of verbs have a natural affinity for DIR and others for AM.

\textsuperscript{22} As King describes this as having “idiosyncratic behavior” (2009: 182), we don’t go into detail here.
5.2 Direction, associated motion, and motion-verb type

So far, we have been treating “motion verbs” as a unified lexical class. However, different types of motion verbs have different levels of affinity for DIR or AM readings, suggesting a more fine-grained analysis is advisable, a point made by Belkadi (2016). To examine this in cases where the interpretation as DIR or AM is based on semantic or pragmatic factors, we categorized all of the motion verbs by type, including (following Belkadi) path-of-motion (e.g., ‘come’, ‘ascend’, ‘insert’, ‘drop’), manner-of-motion (e.g., ‘hop’, ‘fly’, ‘run’), and causative-motion verbs (e.g., ‘pull’, ‘chase’, ‘toss’). We also included a category for “general motion” (‘move’, ‘roam’). The number of examples in each motion type, by AM/DIR, is presented in Table 5. For comparison, examples with non-motion verbs were included as well.23

<table>
<thead>
<tr>
<th>AM</th>
<th>DIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No motion</td>
<td>84</td>
</tr>
<tr>
<td>General</td>
<td>2</td>
</tr>
<tr>
<td>Manner</td>
<td>1</td>
</tr>
<tr>
<td>Path</td>
<td>7</td>
</tr>
<tr>
<td>Position</td>
<td>0</td>
</tr>
<tr>
<td>Causative</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105</strong></td>
</tr>
</tbody>
</table>

These figures demonstrate that AM encodings do occur with motion verbs, although DIR encodings with motion verbs are much more common in our data set.

Our data contains four examples of verbs of general motion – i.e., those that do not lexicalize path, manner, or causation. Of these, two occurred with maximally general motion verbs (translated as ‘move’ and ‘move around’). In both cases, the encodings provided path specifications and the resulting interpretation was DIR, as in the Eastern Kayah Li example in (37):

23 Verbs that lexicalized both path and manner (e.g., ‘climb’, ‘fall’) were coded as “path,” causative and manner (‘throw’) to “causative,” and causative and path (e.g., ‘pull’, ‘insert’) to “causative.”

24 Three examples that allow both AM and DIR interpretations, plus two examples which predicated change of position in a particular direction (e.g., ‘stand up in the direction of the priests’) were not counted in this table.
(37) Eastern Kayah Li: General motion verb receives path specification from DIR encoding

\[ lē \ tava \ phē \ ühi \ âa: \]
move.around curving simply 3I house INTJ

‘[But] they just moved in a circle around the house.’
(Solnit 1997: 313; UNIQUE_ID 091)

Not surprisingly, motion verbs which explicitly lexicalize a lack of direction (‘roam’, ‘wander around aimlessly’, counted as “general motion” in Table 5) also do not occur with DIR encodings in our data. As indicated in Table 6, our dataset contains two such examples with AM; both have concurrent AM markers that redundantly indicate the lack of a distinct motion trajectory.25

(38) Daai Chin: General motion verb with AM

\[ tuh \ vei \ ta \ nah \ ngvaa:k \ hui=kti \ ni. \]
now PPOS FOC 2SG roam.around DIR:around=NFUT EMPH

‘Until now you roamed around without any purpose!’
(So-Hartmann 2009: 290; UNIQUE_ID 039)

The remaining three categories of motion verbs are those discussed by Belkadi: those that lexicalize manner of motion, path of motion, and causative motion. She proposes a ranking of motion-verb types based on how likely they are to trigger AM or DIR meanings: path-of-motion verbs > manner-of-motion verbs > causative-motion verbs. She predicts that verbs to the right of this ranking are more likely to trigger AM, while those to the left are more likely to derive directional meanings (2016: 64).26 Table 6 shows the number of examples of each type in our dataset that occur with AM and with DIR encodings:

25 The DIR gloss is the original used consistently by So-Hartmann for all morphemes in this paradigmatic slot. As with all glossing, we faithfully replicate the original source (with the exception of updating some glosses to follow the Leipzig Glossing Rules). We analyze this as AM, lacking explicit direction, with the marker redundantly emphasizing this (as in the English phrase ‘roam around’). Jacques et al. (in preparation) exemplify redundant use of AM markers on motion verbs of the same deixis, a similar phenomenon.

26 Belkadi also adds to the rankings perception verbs, non-motion verbs, and states. Our data do not provide any evidence of the “complementation type” perception verbs with AM interpretations that she cites (e.g., ‘saw the cows coming’). We exclude activities and states from the current discussion, which focuses on motion verbs only. However, we note that our definition of DIR requires a motion verb so necessarily excludes these classes of verbs.
AM encodings are most likely to occur with causative verbs, as Belkadi’s ranking predicts. These examples are all transitive and typically involve tandem motion of both the A and the O; an example from Lamkang is in (39):

(39) Lamkang: causative motion and AM
\[
\begin{array}{ll}
\text{a-hor-in-rah} & \text{ar-van} \\
\text{OBJ:2-carry-PL-3IPFV} & \text{VEN-go} \\
\end{array}
\]
‘They should all come carrying you.’
(Chelliah and Utt 2017: 34; UNIQUE_ID 190)

The only example of AM with a manner-of-motion verb in our dataset is a Karbi example with a verb-stem meaning ‘steer’; this is given in (40): 27

(40) Karbi: manner-of-motion and AM
\[
\begin{array}{ll}
\text{saikêl} & \text{vêk-pôn-vôm} \\
\text{bicycle} & \text{steer-take.away-CONT} \\
\end{array}
\]
‘He is steering the bicycle and going away.’
(Konnerth 2014: 256; UNIQUE_ID 145)

There are seven path-of-motion verbs with AM in our data. These are of mixed types. Two are Dhimal relinquitive “leave-behind” examples, which allow a semantic disjunct between the primary verb and the motion event resulting in someone or something being left behind. In (41) a causative relationship between

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>DIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>7</td>
<td>58</td>
</tr>
<tr>
<td>Manner</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Causative</td>
<td>11</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>125</td>
</tr>
</tbody>
</table>

Table 6: Number and percentage of AM and DIR examples with different motion-verb types.

AM encodings are most likely to occur with causative verbs, as Belkadi’s ranking predicts. These examples are all transitive and typically involve tandem motion of both the A and the O; an example from Lamkang is in (39):

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\begin{array}{ll}
\text{a-hor-in-rah} & \text{ar-van} \\
\text{OBJ:2-carry-PL-3IPFV} & \text{VEN-go} \\
\end{array}
\]
‘They should all come carrying you.’
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The only example of AM with a manner-of-motion verb in our dataset is a Karbi example with a verb-stem meaning ‘steer’; this is given in (40): 27

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\begin{array}{ll}
\text{saikêl} & \text{vêk-pôn-vôm} \\
\text{bicycle} & \text{steer-take.away-CONT} \\
\end{array}
\]
‘He is steering the bicycle and going away.’
(Konnerth 2014: 256; UNIQUE_ID 145)

There are seven path-of-motion verbs with AM in our data. These are of mixed types. Two are Dhimal relinquitive “leave-behind” examples, which allow a semantic disjunct between the primary verb and the motion event resulting in someone or something being left behind. In (41) a causative relationship between

27 Antoine Guillaume (pers. comm.) notes that if the meaning is ‘steer the bicycle while going away’ then the interpretation as DIR is equally possible. Our analysis has relied heavily on the exact translation of the grammar writers and we have used this as the basis for interpretation. It is quite possible that many grammar writers, when transcribing texts, have not thought through the subtle implications of various translations. However, it is also the case that these fine distinctions that linguists impose may not always be salient to speakers. For example, if one steers a bicycle while going away, then one also steers the bicycle and goes away, and steers the bicycle away. As linguists we need to choose between English alternatives in translation, but we should keep in mind that they may not reflect actual distinctions that are made in the language of study. The fact that a single event can have alternative translations that lead to DIR or AM interpretations of the encoding demonstrates the inherent semantic core shared by DIR and AM, which leads to the chameleon nature of these constructions.
the event of the primary verb and the motion event can be inferred, but it is indirect; one event (falling out) causes the other to occur (they are left behind):

(41) Dhimal: AM and path-of-motion verb with -dhi “relinquitive” morpheme
oso hul-dhi-khe
over.there fall-RELINQ-IPFV
‘They fall out over there and are left behind.’
(King 2009: 181; UNIQUE_ID 070)

Another path example has a concurrent AM suffix and distributive aspect:

(42) Karbi: -pôn AM co-occurring with path-of-motion verb and distributive meaning
a-thê=tâ klô-pôn-prê-si továr sodîng
POSS-fruit=also fall-take.away-scattered-NF:RLS road all.along
klô-pôn-bôm-lô
fall-take.away-CONT-RLS
‘...and the fruits are falling down here and there and all along the road they keep falling down (as the bike goes along).’
(Konnerth 2014: 257; UNIQUE_ID 143)

The remaining example of this type is that with the somewhat unusual Eastern Kayah Li kə ‘subject moves’ prefix exemplified in (11) above.

In sum, causative-motion verbs have the most robust pattern of occurrence with AM encodings, while path-of-motion verbs that occur with AM are somewhat idiosyncratic, and manner-of-motion verbs are rare.

Looking at the DIR column of Table 6, we see that examples with DIR encodings are most likely to have path verbs, followed by causative, followed by manner. In addition, manner verbs are much more likely to occur with DIR than AM. Thus, although we must be tentative due to the small number of examples, overall the Tibeto-Burman data seem to confirm Belkadi’s proposed ranking, especially with regards to causative verbs being the most compatible with AM and path- and manner-verbs being more compatible with DIR.

6 Temporal relations in associated motion contexts

As noted in Section 2, three possible temporal relationships can hold between the action of the primary event and the motional component provided by the AM encoding: the motion may occur prior to, concurrent with, or subsequent to that of the primary
verb. Levinson and Wilkins (2006) tentatively propose the following implicational hierarchy: prior motion > concurrent motion > subsequent motion, and typological studies by Guillaume (2016), Ross (in preparation), and Lovestrand and Ross (in preparation) all provide quantitative evidence for this. As articulated by Guillaume (2016: 40) the hierarchy makes the following prediction: “If a language has a marker for subsequent motion, it will also have a marker for prior and/or concurrent motion, and if it has a marker for concurrent motion, it will also have a marker for prior motion.”

Like Jacques et al. (in preparation), we find that all three temporal relationships are attested in Tibeto-Burman. In our total dataset of 105 AM examples, the three temporal relationships occur in roughly equal numbers (31 concurrent, 39 prior, 35 subsequent).

However, when we look at individual subsystems, we find that these can be specialized for temporal relationship. Some subsystems have encodings that only express prior motion, some only concurrent motion, and some only subsequent motion. The latter two types disconfirm the predictions of the proposed hierarchy, as our dataset includes examples of subsystems with markers of concurrent or subsequent motion that lack markers of prior motion. Other subsystems encode more than one temporal relationship (for example, prior and concurrent but not subsequent). Table 7 presents the logically possible combinations of temporal relationships and the subsystems in our sample that encode them.

<table>
<thead>
<tr>
<th>Temporal relationship</th>
<th>Subsystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior only</td>
<td>Apatani A/C, Dongwang Tibetan MV, Kham A/C, Kyomkyo rGyalrong, Lamkang A/C, Yōnghé Qiāng A/C</td>
</tr>
<tr>
<td>Concurrent only</td>
<td>Galo A/C</td>
</tr>
<tr>
<td>Subsequent only</td>
<td>Camling MV, Eastern Kayah Li A/C, Eastern Kayah Li MV, Mongsen Ao A/C, Turung MV</td>
</tr>
<tr>
<td>Prior and Concurrent</td>
<td>Lamkang MV</td>
</tr>
<tr>
<td>Prior and Subsequent</td>
<td>Darma MV, Karbi A/C (proclitic), Kathmandu Newar MV, Tangkhul MV</td>
</tr>
<tr>
<td>Concurrent and Subsequent</td>
<td>Camling A/C, Daai Chin A/C</td>
</tr>
<tr>
<td>Prior, Concurrent, and Subsequent</td>
<td>Burmese MV, Daai Chin PRT, Dhimal A/C, Kadu MV, Karbi A/C (suffixes)</td>
</tr>
</tbody>
</table>

A/C, affix/clitic; MV, Multi-Verb; PRT, Particle.

No clear pattern emerges to suggest a preference for a particular temporal relationship, nor are there any patterns of association between grammatical expression and temporal relationship. Of the subsystems that encode more than one type,
in some cases this is due to a single subsystem containing multiple encodings specified for different temporal relationships (e.g., Dhimal), and in others it is due to a lack of specific temporal specification for a single encoding, allowing multiple interpretations based on the semantics of the associated verb stem (e.g., Karbi -pôn, take away or the Kadu serial verb teū ‘walk’).

Although our data do not confirm the proposed typological hierarchy in this regard, a closer examination of the examples with each type of temporal relationship allow for some observations on semantics.

6.1 Prior AM

Of the three temporal relationships, prior AM examples are the most semantically consistent. Most denote movement to a location with the intention of carrying out the action of the verb (‘go to VERB’) or indicate movement to a location followed by the action of the primary verb (‘go to VERB’). Accordingly, the figure in Prior AM examples is limited to the nominative category (A or S). In most examples, the motional component indicates a simple trajectory towards or away. However, we do find lexicalization of path in some encodings, as in the following examples from Apatani and Tangkhul Naga:

(43) Apatani: Prior AM
so du-ha-to
here sit-in-IMP
‘Come sit here!’
(Bouchery 2016: 109; UNIQUE_ID 007)

(44) Tangkhul Naga: Prior AM
i-na ra/va/sok/zəŋ/ka/ta-nəm-ra
I-NOM come/go/out/in/up/down-push-FUT
‘I will come/go/go out/go in/go up/go down and push.’
(Ahum 1997: 210; UNIQUE_ID 222)

6.2 Concurrent AM

Examples of concurrent AM can be classified into three types. One denotes iterative actions that are carried out as the nominative argument (A or S) moves from place to place; these are the verbs which lexicalize lack of direction. An example is the Dhimal suffix -gil, which King glosses as “indeterminate motion” (IM):
The second type of concurrent AM denotes continual or iterative movement as one or more participants move along a trajectory toward or away from the deictic center. While the path may not be specified precisely, a path is implied. In these examples, we do not find lexicalization of either manner or more complex path trajectories.

While the figure in this type is typically the S or A of the primary verb (45), one also finds tandem motion where both the A and the O undergo movement, as in (46). Karbi provides an interesting contrast with the suffix -dūn, which explicitly denotes that the figure is other than the A or S (non-nominative). In (47), the figure is the two objects.

The third type involves semantically rich encodings. The following Kadu example has a semantically complex V2 in a serial-verb construction, although it is bleached in this concatenation. There is a causative relationship between the action of the primary verb and the motional component of the serial verb, unlike in the examples above:

(45) Dhimal: Concurrent AM
kalau tuili bho.-gil-khe.
solay.egg seek-IM-IPFV
‘Then it goes around trying to lay eggs.’
(King 2009: 179; UNIQUE_ID 065)

(46) Daai Chin: Concurrent AM
kei:=noh ta thi:ng-tu: kah kko tlo=kti ni
1s=ERG FOC tree-branch 1s carry COME=NFUT EMPH
‘It was me who came carrying the firewood [home].’
(So-Hartmann 2009: 289; UNIQUE_ID 037)

(47) Karbi: Concurrent AM, figure = primary and secondary object
lāŋ pi-dūn
water give-join
‘give water (to the runners as they move along)’
(Konnerth 2014: 255; UNIQUE_ID 149)

(48) Kadu: Concurrent AM, semantically complex V2 and caused motion
cānsittā=haik tān-tāt-âng=mā
PN=ABL beat-release-Dir1=RLS
‘Kyansitta beat him away.’
(Sangdong 2012: 182; UNIQUE_ID 126)
6.3 Subsequent AM

Subsequent AM is the most semantically diverse of the three temporal categories. One notable subtype is the “leave behind” category. These indicate cessation of tandem motion, but profile the participant left behind, rather than the figure, that continues to move.

(49) Dhimal: “relinquitive”; figure = A
nheʔ-loŋ basuli pi-dhi-hi
two-CLF flute give-RELINQ-PST
‘They left behind two flutes for him.’
(King 2009: 179; UNIQUE_ID 076)

Here the first action temporally is that of the primary verb – the giving of the flutes – that is then followed by the movement of the A away, resulting in the O being left behind. However, the figure does not have to be an argument of the primary verb. In (50), the primary verb is intransitive and the S of that verb does not move, but is left behind as some other unspecified participants move away:

(50) Dhimal “relinquitive”: Subsequent AM; figure is non-argument
oso hul-dhi-khe
over.there fall-RELINQ-IPFV
‘They fall out over there and are left behind.’
(King 2009: 181; UNIQUE_ID 070)

In addition to “leave behind” examples, several languages have subsequent AM constructions where the motion is toward or away from another deictic center at the conclusion of the action of the primary verb. With these cases the figure is either A/S or tandem:

(51) Burmese: Subsequent AM with movement away from deictic center;
Fig = A
thu hta-min: sa: la te
3p rice eat come RLS
‘She ate and came.’
(Soe 1999: 206; UNIQUE_ID 015)

(52) Dhimal: Subsequent AM with movement toward deictic center; Fig = Tandem
boi col-pa-hi
uncle buy-VEN-PST
‘Uncle bought it and brought it back.’
(King 2009: 184; UNIQUE_ID 055)
With subsequent AM, it is also possible for the figure to be the O. These either involve encodings translated as ‘send’, as in (53), or causative motion where the action of the primary verb results in the movement of O, as in (54):

(53) Kathmandu Newar: AM with chwəyə ‘send’; Fig = O
dhəy-a: khyan-a-chwət-ə
say-NF scare-CM-send-PD
‘So thinking, she scared him off.’
(Hale and Shrestha 2006: 139; UNIQUE_ID 161)

(54) Kadu: Causative motion; Fig = O
kaū-li=pín sèk-tək pókhá=pè kasúm=pán=nə
call-CM=nom person-PL forest=LOC hide=COS=only
‘The people (he) brought were hidden in the forest and.’
(Sangdong 2012: 182; UNIQUE_ID 128)

In sum, although the Tibeto-Burman data of our sample do not confirm the proposed hierarchy of prior motion > concurrent motion > subsequent motion, we do find distinct semantic patterns in these three types of temporal relationships that have not been previously noted in the typological literature. Prior AM examples involve simple motion along a path, typically towards or away, although other paths are attested in our data. In our examples, the figure is consistently either A or S. Concurrent AM examples most commonly encode iterative activity that occurs along an indeterminate path, or iterative or continuous activity that occurs with motion along a determined path. In both cases, the figure is A/S or tandem. There are also some examples of concurrent AM with semantically rich encodings of varying types, some of which involve movement of the O. Finally, the examples of Subsequent AM are the most diverse semantically, although many are either “leave behind” examples or motion towards a deictic center at the conclusion of the action of the primary verb. Subsequent AM examples show the most variation of the figure: A, S, O, tandem, and even participants that are not arguments of the primary verb.

7 The grammatical role of the figure

The previous section looked at the AM examples from the perspective of temporal relationships; we now look at both DIR and AM from the perspective of the grammatical role of the figure. As noted in Section 2, the literature on this topic demonstrates that figures of DIR constructions tend towards an absolutive
mapping pattern, while figures of AM constructions tends to be either the S of an intransitive or the A of a transitive, thus to follow a nominative mapping pattern (Guillaume 2000), especially with prior/purposive motion (Lovestrand and Ross in preparation). However, these are tendencies. Guillaume (2016: 33) found a few languages have AM markers that designate movement of the object, although these are relatively rare, and both Belkadi (2016: 55) and Lovestrand and Ross (in preparation) cite examples of AM where the figure is not a verbal argument. We have two such examples in our dataset, both of the “leave behind” type, as in (50) above. In both examples the primary verb is intransitive.

The transitive examples are more interesting, as the figure can be the A, the O, or both the A and the O moving in tandem (T). Beginning with DIRs, there are 45 examples of DIR with transitive verbs in our database; of these, 43 involve movement of the O, either on its own (27 cases), or in tandem with the A (16 cases). Examples of each type are provided in (55) and (56):

(55) Camling: Transitive DIR; Fig = O

\[
\text{sitimi phold-}yu-\text{-ki mobdh-}yi-\text{kas-yi-ko raicha}
\]
firebrand overt\(\text{-}3\text{P-SEQ}\) spill\(\text{-}3\text{P-}V2\text{-}\text{away}\text{-}3\text{P-NMLZ REP}
\]
‘… he overturned the firebrand and spilled [the food].’

(Ebert 2000: 51; UNIQUE_ID 023)

(56) Meithei: Transitive DIR; Fig = Tandem

\[
\text{ma-hák-nə layrik pu-}sin-i
\]
3P-her\text{-}here-CNTR book bring\text{-}in-NHYP
‘He carried the book in.’

(Chelliah 1997: 209; UNIQUE_ID 195)

In each case, the primary verb causes the O to undergo movement, either with or without the A.

There remain two transitive directional examples where the figure is the A. In both cases, the encoding is the Karbi cislocative proclitic \text{nang=}, which is used to indicate motion directed towards a reference point or deictic center. In both examples the O is that reference point and the locative goal. The figure, which moves in relation to the goal, is the A. This is shown in (57) and (58):

(57) Karbi: Transitive DIR; O is locative goal and Fig = A

\[
\text{ne-tùm hēm nang=che-lē-lō}
\]
1EXCL.PL house cis-RR\text{-}reach\text{-}RLS
‘… we arrived at home.’

(Konnerth 2014: 231; UNIQUE_ID 136)
Table 8: Types of transitive AM, their temporal relationship, and role of figure.

<table>
<thead>
<tr>
<th>Subtype</th>
<th>Temporal relationship</th>
<th>Role of Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to VERB</td>
<td>Prior</td>
<td>A</td>
</tr>
<tr>
<td>Move and VERB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go along VERBing</td>
<td>Concurrent</td>
<td>A</td>
</tr>
<tr>
<td>Wander around VERBing</td>
<td>Subsequent</td>
<td>A</td>
</tr>
<tr>
<td>VERB and move</td>
<td>Concurrent Subsequent</td>
<td>O</td>
</tr>
<tr>
<td>VERB causes O to move</td>
<td>Concurrent</td>
<td></td>
</tr>
<tr>
<td>A VERBS and moves with O</td>
<td>Subsequent</td>
<td>Tandem (A + O)</td>
</tr>
<tr>
<td>“leave behind”</td>
<td>Subsequent</td>
<td>Varies</td>
</tr>
</tbody>
</table>

(58) Karbi: Transitive DIR; O is locative goal and Fig = A  
là bharí taló the-pí nang=ke-káp-jí kopú=lo=ma  
this very.big sea be.big-AUG CIS=NMLZ-cross.water-IRR₂ how=FOC=Q  
‘How will we be able to cross the huge sea?’  
(Konnerth 2014: 131; UNIQUE_ID 134)

For transitive AM examples, the role of the figure is tied up with the temporal relationship, a fact which emerged from the discussion in Section 6. Table 8 presents the primary subtypes of transitive AM examples, the temporal relationships, and the role of the figure.

When the figure is A, in the top three rows of Table 8, the motion is not caused by the activity of the primary verb, rather the A independently moves either before, during, or after that activity. This differs from when there is a causative relationship between the activity of the verb and the motion. This can be either concurrent with the action of the primary verb or subsequent to it. The O is made to move either independently or together with the A. The “leave behind” examples are their own unique type, with any participant moving such that the profiled argument is left behind.

8 Conclusions

This study has demonstrated a range of grammatical strategies used to encode DIR and AM in twenty-three Tibeto-Burman languages. These categories are quite common in these languages and there are some notably complex subsystems of both types. We found that both categories can be marked by a range of grammatical strategies. While some languages solely encode AM or DIR, 15 of the 23 languages encode both, either through having two distinct sets of encodings, having particular constructions that are structurally ambiguous and allow either interpretation, or having the interpretation of particular encodings be dependent on context. We found that in some cases primarily
Directional encodings are interpreted as AM, as noted by Belkadi (2016), but that the reverse can also be true (primarily AM encodings interpreted as DIR). At the heart of the interpretations is verbal semantics. An exploration of the motion-verb type demonstrated that causative verbs are the most compatible with AM, while verbs that lexicalize path and manner are more compatible with DIR, a finding that is aligned with Belkadi’s (2016) prediction, although it stops short of confirming the full implicational hierarchy of path > manner > causative proposed therein.

The study revealed some interesting interactions between verbal semantics, temporal relationships, and the grammatical role of the figure. Prior AM has an argument that moves prior to acting; either the movement is made with the intention of carrying out the action or the movement is simply sequentially prior. In all of the examples in our data, the figure and the A/S of the primary verb are always coreferential, which creates topic continuity and cohesion. While it is logically possible for the figure to be the O of a primary verb (e.g., in a sentence that would translate as someone met him after he arrived) such examples are not attested in our data and would more likely involve other grammatical structures. By contrast, when the motion is concurrent with the activity of the main verb, the activity can instill motion in the O, thus the O can be the figure, either independently or in tandem with A. This only happens with a subset of motion verbs, those of causative motion and those of accompaniment. This is also true of Subsequent AM, which additionally includes the unique “leave behind” examples that are the least restrictive on the grammatical role of the figure, as they allow for the figure to be a participant that is not a verbal argument at all. Thus, Prior AM has the most restriction on grammatical role (A or S), followed by Concurrent AM (A, S, O, Tandem), followed by Subsequent (all of the above, plus non-participants).

One limitation of the current study is its reliance on reference grammars and text collections as the source of data, especially as the category of AM has not been described as such in the majority of works consulted. We hope others will explore these systems in more detail, especially in conversation with native speakers, and significantly increase the number of synchronic and diachronic studies of these nuanced and fascinating systems.

**Abbreviations**

In this paper and the appendix, we have used glosses specified in the Leipzig Glossing Rules (Comrie et al. 2015). Other glosses are listed below, together with the language for which they are used.

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28 For example, Guillaume Jacques (personal communication) has pointed out that in Japhug rGyalrong a participial clause with motion is used, rather than AM (Jacques 2016).
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Language(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>Anti-deictic</td>
<td>Katmandu Newar</td>
</tr>
<tr>
<td>ADD</td>
<td>additive</td>
<td>Golo</td>
</tr>
<tr>
<td>AGT</td>
<td>agentive</td>
<td>Ersu, Mongsen Ao</td>
</tr>
<tr>
<td>ALT.IT</td>
<td>alternating iterative converb</td>
<td>Mongsen Ao</td>
</tr>
<tr>
<td>ANAP</td>
<td>anaphoric</td>
<td>Golo, Ersu, Mongsen Ao</td>
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<td>AMB</td>
<td>ambulative</td>
<td>Camling</td>
</tr>
<tr>
<td>AR</td>
<td>another’s relative</td>
<td>Turung</td>
</tr>
<tr>
<td>AUG</td>
<td>augmentative</td>
<td>Karbi</td>
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<td>auto-revelative</td>
<td>Golo</td>
</tr>
<tr>
<td>AUX.EX/EQ</td>
<td>existential / equational auxiliary</td>
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</tr>
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<td>CAP</td>
<td>capability</td>
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<td>clause chainer</td>
<td>Manange</td>
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<td>counter-expectation particle</td>
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<td>constituent final</td>
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<td>circumlocative</td>
<td>Dhimal</td>
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<tr>
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<td>cislocative</td>
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<td>concatenation marker</td>
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<td>Karbi, Kham, Darma</td>
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<td>contemporative converb</td>
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<td>diminutive</td>
<td>Katmandu Newar</td>
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<td>directional</td>
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<td>discourse marker/clitic</td>
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<td>emphasis</td>
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<td>frame setter</td>
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<td>forward</td>
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<td>hesitation</td>
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<td>impending</td>
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<td>inceptive (Daai Chin); incompletive (Darma)</td>
<td>Daai Chin, Darma</td>
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<td>individuator</td>
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<td>intention</td>
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<td>inverse</td>
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<td>indirect object</td>
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<tr>
<td>LN</td>
<td>loan word</td>
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<td>(clausal) linker</td>
<td>Ersu, Yōnghé Qiāng</td>
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<td>middle</td>
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<td>orientation marker</td>
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<td>superessive</td>
<td>Kham</td>
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<tr>
<td>ONE</td>
<td>numeral prefix for ‘one’ (w/classifiers)</td>
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<td>PART</td>
<td>particle</td>
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<td>past disjunct</td>
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<td>proper noun</td>
<td>Ersu, Galo, Kadu, Karbi</td>
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<td>polite</td>
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**References**


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