Southern Illinois University Edwardsville

SPARK

2021

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

Follow this and additional works at: https://spark.siue.edu/siue_fac

Recommended Citation

Carol Genetti*, Kristine Hildebrandt, Nathaniel A. Sims and Alexia Z. Fawcett

Direction and associated motion in Tibeto-Burman

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

*Corresponding author: Carol Genetti [ˈkʰɛɹol dʒəˈnɛri], NYU Abu Dhabi, Saadiyat Campus, PO Box 129188, Abu Dhabi, United Arab Emirates, E-mail: genetti@nyu.edu
Kristine Hildebrandt, [ˈkɹɪstʰin ˈhɪldəˌbɹæt], English Language & Literature, Southern Illinois University, 2227 Peck Hall, Edwardsville, IL, 62026, USA, E-mail: khildeb@siue.edu
Nathaniel A. Sims [nəˈθænjəɫ ʔej sɪmz] **and Alexia Z. Fawcett** [əˈlɛksjəzi ˈfɔsɪt]**,** Department of Linguistics, University of California, South Hall 3432, Santa Barbara, CA, 93106, USA, E-mail: nsims@ucsb.edu (N.A. Sims), afawcett@ucsb.edu (A.Z. Fawcett)

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: intentive, relinquitive, 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.

---

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 sub-groups 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

Seibert 2003; Slobin 2004; Talmy 1972, 1985, 2000; van der Zee and Slack 2003), 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
        *atne   nte   athe-**yene**-ne*
        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
        ..   *mwernarte   ape-nke-**rne***
             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
        wuu   ***soo***   *soc-eyaa*
        FOC:3SGM   **VEN**   walk-PRSPRG:3SG
        'He is walking towards me'
        (Claudi 2012: 78)

(4)   Somali: Venitive *soo* with AM interpretations
        waan   ***soo***   *seex-day*
        FOC:1SG   **VEN**   sleep-PST:1SG
        (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, Guillaume'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
*hu-kin   te   gi-n   məni gin-jəhri-**na**-ke,   u-chĩː   u-chĩː   zə*
REM-ELAT FOC we-DU also 1DU-descend-**GO**-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
*a a a   tɕʰə⁵⁵   tɕi   **mbə**-kuæ⁵³   ra*
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
*sitimi   phold-yu-ki   mobdh-yi-**kas**-yi-ko   raicha*
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).

(8)   Karbi: AM; figure = S

a-thē=tā   *kló-**pòn**-prè-si*   *továr   sodíng*
POSS-fruit=also   fall-**take.away**-scattered-NF:RLS   road   all.along
*kló-**pòn**-bōm-lò*
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)

(9)   Camling: AM; figure = A

i-ra   *mina*   *rõ*   *mu-**hod**-yu*
one-CLF   man   rice   make-**AMB**-2/3SGNPT
'A man was preparing food [while moving around]…'
(Ebert 1997: 29; UNIQUE_ID 027)

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 Nivaĉle 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.[3] 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).
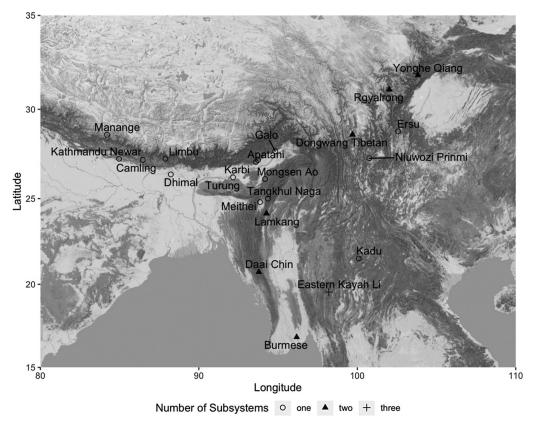
Figure 1: Geographic location of languages (for color version, see https://orcid.org/0000-0003-2456-5025).

future work the final determinations of how these fit into higher-level arborial "branches."[4] 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

---

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.

Language	ISO	Glottocode	Sub-branch	Source
Apatani	apt	apat1240	Tani	Abraham 1985, Bouchery 2016
Burmese	mya	nucl1310	Lolo-Burmese	Soe 1999
Camling	rab	caml1239	Kiranti	Ebert 1997, 2000, Rai 2011
Daai Chin	dao	daai1236	Kukish	So-Hartmann 2009
Darma	drd	darm1243	West Hinalayish	Oko 2019
Dhimal	dhi	dhim1246	Dhimalish	King 2009
Dongwang Tibetan	khg	kham1282	Tibetan	Bartee 2007
Eastern Kayah Li	eky	east2342	Karenic	Solnit 1997
Ersu	ers	ersu1241	Qiangic	Zhang 2016
Galo	adl	galo1242	Tani	Post 2007
Kadu	zkd	kadu1254	Brahmaputrin	Sangdong 2012
Karbi	mjw	karb1241	Karbi	Konnerth 2014
Kathmandu Newar	new	newa1246	Newaric	Hale and Shrestha 2006
Kham	kgj	gama1251	Magaric	Watters 2002
Kyomkyo dialect of Situ_rGyalrong[5]	jya	situ1238	Qiangic	Prins 2011
Lamkang	lmk	lamk1238	Kukish	Chelliah and Utt 2017
Manange	nmm	mana1288	Tamangic	Hildebrandt 2014, fieldnotes
Meithei	mni	mani1292	Meithei	Chelliah 1997
Mongsen Ao	njo	aona1235	Ao	Coupe 2007
Niúwōzi Prinmi	pmi	nort2723	Qiangic	Ding 2014
Tangkhul-Naga	nmf	tang1336	Tangkhul	Ahum 1997
Turung	try	turu1249	Brahmaputrin	Morey 2010
Yŏnghé Qiāng	qxs	sout2728	Qiangic	Sims and Genetti 2017, Sims' fieldnotes[6]

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-

---

5 We have used the Tibetan orthographic version of this language name. Prins (2011) uses the Pinyin Jiǎomùzú.

6 Links to the Yonghe data cited in this paper are available through Nathaniel Sims' ORCID page: https://orcid.org/0000-0003-2456-5025.

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 (Aikhenvald 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*,[7] 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.[8] 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.[9]

---

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."

Table 2: Classification of subsystems.

Language	Subsystems (# of morphemes)	AM or DIR?
Apatani	Affixes and Clitics (15)	Both
Burmese	Multi-V (4)	Both
Camling	Multi-V (7)	DIR
	Affixes and Clitics (2)	AM
Daai Chin	Affixes and Clitics (6)	Primarily DIR
	Particles (3)	AM
Darma	Multi-V (3)	Both
Dhimal	Affixes and Clitics (5)	Primarily AM
Dongwang Tibetan	Affixes and Clitics (4)	DIR
	Multi-V (2)	Both
Eastern Kayah Li	Affixes and Clitics (1)	AM
	Multi-V (11)	Primarily DIR
	Particles (5)	DIR
Ersu	Affixes and Clitics (9)	DIR
Galo	Affixes and Clitics (19)	Primarily DIR
Kadu	Multi-V (9)	Both
Karbi	Affixes and Clitics (1 proclitic)	Both
	Affixes and Clitics (9 suffixes)	Both
Kathmandu Newar	Multi-V (6)	Both
Kham	Affixes and Clitics (2)	Both
Kyomkyo rGyalrong	Affixes and Clitics (6)	DIR
	Affixes and Clitics (2)	AM
Lamkang	Affixes and Clitics (6)	Both
Manange	Multi-V (2)	DIR
Meithei	Affixes and Clitics (4)	DIR
Mongsen Ao	Affixes and Clitics (5)	Primarily DIR
Niúwōzi Prinmi[10]	Affixes and Clitics (6)	DIR
Tangkhul-Naga	Multi-V (9)	Both
Turung	Multi-V (2)	DIR
Yŏnghé Qiāng	Affixes and Clitics (2)	AM
	Affixes and Clitics (8)	DIR

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 *ʃĩ*[H] '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).

examples are from connected discourse, typically narratives.[11] 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.[12]

Once we compiled the dataset, we coded each example for the features listed in Table 3.[13]

Table 3: Features coded for each example.

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

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 Affix/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,[14] or even that in the same language morphemes are analyzed as affixes in some examples and as serial verbs in others.[15] There can also be variation between the descriptive analysis and

---

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-teŋ   cam-teŋ   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.[16] 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 -*kə*, 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 -*kə* SUBJECT.MOVES
         ʔa   phjá   kə-thɛ
         3SG   **take**   SBJ.MOVES-**go.up**
         'He takes it and (he) goes up.'
         (Solnit 1997: 39; UNIQUE_ID 097)

Solnit compares this to *ʔa phjá thɛ* '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

---

16 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.[17]

Somewhat related are two suffixes in Karbi. One is *-pōn* 'on the way', which indicates that the action of the verb takes place while the subject is in motion, e.g., *lāŋ ēn-pōn* [water take-take.away] 'to take water as one moves along'. This is canonical AM, but it makes an interesting contrast with another suffix *-dūn*, which "profiles an event against a background of motion" (Konnerth 2014: 255) e.g., *lāŋ pī-dūŋ* [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 *thùi-dūn* [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) *-dhi*:[18]

(12)   Dhimal 'leave behind'
        *odoŋ   siŋ-ta   eʔ-juri   kaura   esa   taʔ-pi-**dhi**-hi*
        that   tree-LOC   one-pair   cowrie   like.this   put-DIR-**RELINQ**-PST
        '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:

(13)   Dhimal 'leave behind'
        *oso   hul-**dhi**-khe*
        over.there   fall-**RELINQ**-IPFV
        'They fall out over there and are left behind.'
        (King 2009: 181; UNIQUE_ID 070)

---

17 LT reviewer Guillaume Jacques analyzes *thɛ* 'go up' 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 *thɛ* '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, *phjá* '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.
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 absolute 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.[19] 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.

16+ encodings	1		
11−15 encodings	1	1	
6−10 encodings	7	4	
1−5 encodings	10	5	2
	Affix and Clitic	Multi-Verb	Particles

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

---

19 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.

'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 morpho-syntactic types.

(14)   Prefix, DIR: Yǒnghé Qiāng *ə́ᵗ-*
        *ó   kjènt^hâ-ha   **ə́ᵗ-kə́ᵗ=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-hŋáʔ   tʃu   ləra-li   sə̀psi-əɹ   tán
        NRL-fish   DIST   descend.come-ALT.IT   turn-SEQ   just
        *pak-**kət**-əɹ   áŋ   kəwa-juk-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-bə́ə-ín-/   mootùm=lo   bə̀   má-**ín**-dùu=əəm=əə*
        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   hanthàr=si   ne-mòi
        CLF:HUM:PL   vegetable.sp=FOC   1EXCL-back
        ***nang**=kló-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*	*aphān=ke*	*dāk*	*habít*
and.then	1PL:INCL-PL	NSBJ=TOP	here	jungle

a-ingbòng=si	***nang**=ke-thòn-tí*
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 *təlwá*[20]

ʔa	*cwâ*	***təlwá***	*vɛ̄*	*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 ^{22}*jɜ*

^{22}*njukju=ko*	^{22}*kʰuŋ=tɜr=tse*	^{22}*pʰɜte*	^{22}***jɜ***	^{22}*mi*
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*

*peùt-yōk-**teū**-àng=mā*
lie-eat-**walk**-DIR₁=RLS
'(He) went about cheating.'
(Sangdong 2012: 184; UNIQUE_ID 129)

---

20 The particle *təlwa* 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.

(24)   Auxilary verb, AM: Kathmandu Newar *wəne*
         gu-khunu   *twəːt-a-**wən**-e-mal-i:-gu*
         which-day   abandon-CM-**go**-INF-need-FD-AGR
         'On which day must I abandon this house (and go)?'[21]
         (Hale and Shrestha 2006: 135; UNIQUE_ID 157)

(25)   Auxiliary verb, DIR: Kathmandu Newar *wəye*
         əle   *dən-a-**wəy**-aː*
         then   get.up-CM-**come**-NF
         'Then getting up (in the direction of the priests)…'
         (Hale and Shrestha 2006: 133; UNIQUE_ID 155)

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 *ʃi-* follows the person index:

(26)   Kyomkyo rGyalrong: DIR and AM prefixes
        nənjo   *bawbaw*   **na**-*tə*-**ʃi**-*nə-ku-w*   *me*
        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, *r̃a* '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

hã	*niŋ*	*nyiŋtaba*	*baktee*	*jo nini,*	*wi*	*tar̃af=su*
then	1PL	nighttime	time	HM	3PL	direction.LN=ABL

di	*rthiŋ*	**r̃a-ni.**
hither	dance	**come**-3.NPT

'Then, we at night time um, from their side (they) come dancing hither.'
(Oko 2019: 329; UNIQUE_ID 046)

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

ji	*o*	*tshi*	**r̃a-yo.**
1SG	3SG	meet	**come**-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

Küüi=noh	*beyang*	*sun*	*Pääng=üng*	*ah*	**juk-pee:t**	*lo.*
Küüi=ERG	small.gong	DEM	Pääng=DAT	3SG	**DIR:down**-give	INC

'Küüi sent down the small gong to Pääng.'
(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-**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   nheʔ-noŋ   bidyarthi   kitap   kham-**pu**-gha-khe*
        so   two-CLF   student   book   look-**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   dhaʔ-**pu**-hi*
        there   run-**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
         ciṭṭhi   hethe   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   ode   bebal   te odoŋ nairya-heŋ   phesar-au phutphat-pa
         so   that   woman   TOP that elephant-DAT broom-INS one.by.one-do
         *phe:-pi-**gil**-hi   doʔ-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   kodala-hoi   thai-**gil** aŋ?*
         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.[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 di-
rections: 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.

---

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').[23] 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.[24]

Table 5: Number of AM and DIR examples by motion type.

	AM	DIR
No motion	84	0
General	2	2
Manner	1	25
Path	7	58
Position	0	3
Causative	11	42
Total	**105**	**130**

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	***təva***	*phɛ́*	*ʔū*	*hi*	*ʔa:*
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*	***hü**=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.

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

		AM		DIR
Path	7	36.84%	58	46.40%
Manner	1	5.26%	25	20.00%
Causative	11	57.89%	42	33.60%
Total	**19**	100.00%	**125**	100.00%

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
        a-hor-in-rah   ***ar-van***
        OBJ:2-carry-PL-3IPFV   **VEN-go**
        '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
        saikél   *vèk-**pòn**-vōm*   *dàm-bōn-lò*
        bicycle   steer-**take.away**-CONT   go-CONT-RLS
        '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: *-pòn* AM co-occurring with path-of-motion verb and distributive
       meaning
       a-thē=tā   *kló-**pòn**-prè-si*   *továr*   *sodíng*
       POSS-fruit=also   fall-**take.away**-scattered-NF:RLS   road   all.along

       *kló-**pòn**-bōm-lò*
       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 7: Temporal relationships of AM subsystems.

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

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 *-pòn*, 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-nə　　　　　**ra/va/sok/zəŋ/ka/ta**-*nəm-rə*
　　　　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):

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

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.

(46)   Daai Chin: Concurrent AM
        *kei:=noh   ta   thi:ng-tu: kah   kkot   **lo**=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)

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.

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

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:

(48)   Kadu: Concurrent AM, semantically complex V2 and caused motion
        *cānsíttá=haík   tán-**tāt**-àng=mā*
        PN=ABL   beat-**release**-DIR$_1$=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-**lī**=pín*　　　*sèk-tàk*　　*pòkhá=pè*　　*kasúm=pán=naà*
　　　　call-**come**=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 absolute

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
      sitimi   *phold-yu-ki*   *mobdh-yi-**kas**-yi-ko*   *raicha*
      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)

(56) Meithei: Transitive DIR; Fig = Tandem
      mə-hák-nə   *layrik*   *pu-**sin**-í*
      3P-here-CNTR   book   bring-**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 *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
      ne-tūm   *hēm*   ***nang**=che-lē-lò*
      1EXCL.PL   house   **CIS**-RR-reach-RLS
      '…we arrived at home.'
      (Konnerth 2014: 231; UNIQUE_ID 136)

Table 8: Types of transitive AM, their temporal relationship, and role of figure.

Subtype	Temporal relationship	Role of Figure
Move to VERB	Prior	A
Move and VERB		
Go along VERBing	Concurrent	A
Wander around VERBing		
VERB and move	Subsequent	A
VERB causes O to move	Concurrent Subsequent	O
A VERBS and moves with O	Concurrent Subsequent	Tandem (A + O)
"leave behind"	Subsequent	Varies

(58)   Karbi: Transitive DIR; O is locative goal and Fig = A
        *là   bharí   taló   the-pī   **nang**=ke-káp-jí kopú=lo=ma*
        this   very.big sea   be.big-AUG   **CIS**=NMLZ-cross.water-IRR$_2$ 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$_i$ after he$_i$ arrived*) such examples are not attested in our data and would more likely involve other grammatical structures.[28] 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.

---

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).

AD	Anti-deictic	Katmandu Newar
ADD	additive	Galo
AGT	agentive	Ersu, Mongsen Ao
ALT.IT	alternating iterative converb	Mongsen Ao
ANAP	anaphoric	Galo, Ersu, Mongsen Ao
AMB	ambulative	Camling
AR	another's relative	Turung
AUG	augmentative	Karbi
AURV	auto-revelative	Galo
AUX.EX/EQ	existential / equational auxiliary	Darma
CAP	capability	Galo
CC	clause chainer	Manange
CEP	counter-expectation particle	Kham
CF	constituent final	Daai Chin
CIRC	circumlocative	Dhimal
CIS	cislocative	Karbi, Niúwōzi Prinmi
CM	concatenation marker	Katmandu Newar
CNTR	contrastive	Meithei
CON	connective	Lamkang
CONJ	phrasal conjunction	Mongsen Ao
CONT	continuative (Ka., Kh.) contrastive (Darma)	Karbi, Kham, Darma
CONTEMP	contemporative converb	Mongsen Ao
COS	change of state marker	Kadu, Ersu
DIM	diminuitive	Katmandu Newar
DIR	directional	Dhimal, Daai Chin, Kadu, Yŏnghé Qiāng
DISC	discourse marker/clitic	Niúwōzi Prinmi, Yŏnghé Qiāng
DO	direct object	Galo
ELAT	elative	Kham
EMPH	emphasis	Daai Chin, Dhimal, Kham
EREFL	emphatic reflexivity marker	Kyomkyo rGyalrong
ETAG	emphatic tag	Galo
EVID	evidential	Meithei
EXH	exhaustive	Galo
FD	future disjunct	Katmandu Newar
FI	final intonation	Galo
FRM	frame setter	Niúwōzi Prinmi
FWD	forward	Galo
HEST	hesitation	Galo
HM	hesitation/pause marker	Darma
HON	honorific	Karbi
HORIZ	horizontal	Lamkang

(continued)

HORIZ.PERM	horizontal permanent	Lamkang
HORT	hortative	Galo
HS	hearsay	Kadu
HUM	human	Karbi
I	invisible	Eastern Kayah Li
II	stem II	Lamkang
ID	imperfect disjunct	Katmandu Newar
IM	indeterminate motion	Dhimal
IMPD	impending	Katmandu Newar
INC	inceptive (Daai Chin); incompletive (Darma)	Daai Chin, Darma
IND	individuator	Galo
INTJ	interjection	Eastern Kayah Li
INTN	intention	Galo, Dhimal
INTG	interrogative marker on the sentence level	Kyomkyo rGyalrong
INV	inverse	Camling
IO	indirect object	Daai Chin
LN	loan word	Darma
LNK	(clausal) linker	Ersu, Yŏnghé Qiāng
MID	middle	Lamkang
MIR	mirative	Daai Chin
NAGT	non-agentive	Galo
NEUT	neutral	Darma
NF	non-final	Karbi
NFI	non-final intonation	Galo
NFUT	non-future	Tangkhul Naga, Daai Chin
NHYP	non-hypothetical	Meithei
NMCL	nominal clause marker	Niúwōzi Prinmi
NPFV	non-perfective aspect	Lamkang
NPT	non-past	Darma
NRL	non-relational prefix	Mongsen Ao
NSG	non-singular (dual and plural)	Camling
NSBJ	non-subject	Karbi
NUM	numeral	Ersu
NVOL	non-volitional	Daai Chin
OBLG	obligation, probability	Meithei
OR	orientation marker	Kyomkyo rGyalrong
ON	superessive	Kham
ONE	numeral prefix for 'one' (w/classifiers)	Kham
PART	particle	Camling
PD	past disjunct	Katmandu Newar
PN	proper noun	Ersu, Galo, Kadu, Karbi
POL	polite	Dhimal
PP	past/passive participle	Tangkhul Naga

(continued)

PPOS	postposition	Daai Chin
PRO	prospective	Meithei, Kham
PRSPRG	present progressive	Somali
REDUPL	reduplication	Turung
RELINQ	relinquitive	Camling, Dhimal
REM	remote	Kham
REP	report particle, reported speech particle	Camling, Kham
RLS	realis	Burmese, Galo, Kadu, Karbi
RL	relational prefix	Mongsen Ao
RR	reflexive/reciprocal	Karbi
RS	resultant state marker	Mongsen Ao
RØ	oblique participant involved	Eastern Kayah Li
SBRD	subordinator/subordinate clause	Galo
SCNJ	sentence conjunction	Galo
SEQ	sequential subordinator	Camling
SIM	simultaneous converb	Mongsen Ao
SLEV	same (topographic) level	Galo
SLF	self	Ersu
SP	specifier	Katmandu Newar
SPROX	speaker proximate	Galo
SSEQ	subsequential	Galo
TEM	co-temporal	Dhimal
TRANS	translocative	Niúwōzi Prinmi
TSBRD	temporal subordinator/subordinate clause	Galo
U	unmarked for visibility	Eastern Kayah Li
UP.PERM	upward movement, to expected/permanent state, more significant place	Lamkang
V2	grammaticalized verb	Camling
VEN	venitive	Somali, Dhimal, Lamkang
VPT	viewpoint marker	Kyomkyo rGyalrong

contributions have allowed us to expand and improve this study. We hereby absolve them of any responsibility for any remaining errors of fact or interpretation.

Author contributions: Carol Genetti: Primary writer; theoretical framing; data collection, coding, and analysis; final data curation; calculations. Kristine Hildebrandt: Secondary writer; theoretical framing; data collection, coding, and analysis; contributor of Manange field data; references; final formatting. Nathaniel A. Sims: Data collection, coding, and analysis; contributor of Yonghe Qiang field data; statistical renderings; appendices; maps. Alexia Z. Fawcett: Data collection, coding, and analysis; references; final formatting.

References

Abraham, P.T. 1985. *Apatani grammar*. Mysore: Central Institute of Indian Languages Grammar Series 12.

Ahum, Victor. 1997. *Tangkhul Naga grammar: A study of word formation*. New Delhi: Jawaharlal Nehru University Dissertation.

Aikhenvald, Alexandra Y. 2006. Serial verb constructions in typological perspective. In Alexandra Y. Aikhenvald & R .M. W. Dixon (eds.), *Serial verb constructions: A cross-linguistic typology (Explorations in linguistic typology 2)*, 1–68. Cambridge: Cambridge University Press.

Anderson, Gregory D.S. 2011. Auxiliary verb constructions (and other complex predicate types): A functional-constructional overview. *Language and Linguistics Compass* 5(11). 795–828.

Andvik, Erik E. 2010. *A grammar of Tsangla (Brill's Tibetan studies library: Languages of the greater himalayan region)*. Leiden & Boston: Brill.

Bartee, Ellen L. 2007. *A grammar of Dongwang Tibetan*. Santa Barbara, California: University of California Santa Barbara Dissertation.

Bauman, James. 1975. *Pronouns and pronominal morphology in Tibeto-Burman*. Berkeley, California: University of California, Berkeley Dissertation.

Belkadi, Aicha. 2015. Associated motion with deictic directionals: A comparative overview. *SOAS Working Papers in Linguistics* 17. 49–76. https://www.soas.ac.uk/linguistics/research/workingpapers/volume-17/file105415.pdf (accessed 16 October 2010).

Belkadi, Aicha. 2016. Associated motion constructions in African languages. *Africana Linguistica* 22. 43–70.

Bickel, Balthasar. 1997. Spatial operations in deixis, cognition, and culture: Where to orient oneself in Belhare. In Jan Nuyts & Eric Pederson (eds.), *Language and conceptualization*, 46–83. Cambridge: Cambridge University Press.

Bickel, Balthasar & Johanna Nichols. 2007. Inflectional morphology. In Timothy Shopen (ed.), *Language typology and syntactic description*, 2nd edn. 169–240. Cambridge: Cambridge University Press.

Boro, Krishna. 2017. *A grammar of Hakhun Tangsa*. Eugene, Oregon: University of Oregon Dissertation.

Bouchery, Pascal. 2016. *Dictionary of the Apatani language: Apatani-English dictionary (with English Apatani index)*. https://hal.archives-ouvertes.fr/hal-01423834 (accessed 18 October 2019).

Bourdin, Phillipe. 2005. The marking of directional deixis in Somali: How typologically idiosyncratic is it? In F. K. Erhard Voeltz (ed.), *Studies in African linguistic typology* (Typological Studies in Language 64), 13–42. Amsterdam & Philadelphia: John Benjamins.

Burling, Robbins. 1961. *A Garo grammar*. Pune, India: Deccan College Postgraduate and Research Institute.

Chelliah, Shobhana L. 1997. *A grammar of Meithei (Mouton grammar library 17)*. Berlin: Mouton de Gruyter.

Chelliah, Shobhana L. & Tyler P. Utt. 2017. The syntax and semantics of spatial reference in the Lamkang verb. *Himalayan Linguistics* 16(1). 28–40.

Claudi, Ulrike. 2012. Who moves, and why? In Angelika Mietzener & Ulrike Claudi (eds.), *Directionality in grammar and discourse: Case studies from Africa*, 77–89. Köln: Rüdiger Köppe Verlag.

Comrie, Bernard, Martin Haspelmath & Balthasar Bickel. 2015. *The Leipzig glossing rules: Conventions for interlinear morpheme-by-morpheme glosses*. https://www.eva.mpg.de/lingua/pdf/Glossing-Rules.pdf (accessed 22 October 2019).

Coupe, Alexander R. 2007. *A grammar of Mongsen Ao*. (Mouton Grammar Library 39). Berlin: Mouton de Gruyter.

Craig, Colette G. 1991. Ways to go in Rama. In Elizabeth Closs Traugott & Bernt Heine (eds.), *Approaches to grammaticalization, Vol. II: Types of grammatical markers*, 455–491. Amsterdam & Philadelphia: John Benjamins.

Daudey, Henrietta. 2014. *A grammar of Wadu Pumi*. Melbourne: La Trobe University Dissertation.

DeLancey, Scott Cameron. 1980. Deictic categories in the Tibeto-Burman verb. Bloomington, IN: Indiana University Dissertation.

DeLancey, Scott. 1985. The analysis-synthesis-lexis cycle in Tibeto-Burman: A case study in motivated change. In John Haiman (ed.), *Iconicity in syntax*, 367–389. Amsterdam & Philadelphia: John Benjamins.

Ding, Picus Sizhi. 2014. *A grammar of Pumi*. Leiden, Netherlands: Brill.

Ebert, Karen H. 1997. *Camling (Chamling)*. München: Lincom Europa.

Ebert, Karen H. 2000. *Camling texts and glossary*. München: Lincom Europa.

Enfield, N.J. 2005. Areal linguistics and Mainland Southeast Asia. *Annual Review of Anthropology* 34. 181–206.

Enfield, N.J. 2011. Linguistic diversity in Mainland Southeast Asia. In N.J. Enfield (ed.), *Dynamics of human diversity*, 63–79. Canberra: Pacific Linguistics.

Genetti, Carol. 2016. The Tibeto-Burman languages of South Asia: The languages, histories, and genetic relationships. In Hans Henrich Hock & Elena Bashir (eds.), *The languages and linguistics of South Asia: A comprehensive guide (The world of linguistics, volume 7)*, 130–154. Berlin and Boston: De Gruyter Mouton.

Genetti, Carol & Kristine A. Hildebrandt. 2017. Introduction: The grammatical encoding of space in Tibeto-Burman languages. *Himalayan Linguistics* 16(1). 1–5.

Guillaume, Antoine. 2000. Directionals versus associated motions in Cavineña. *Lacus Forum* 26, 395–401. University of Alberta.

Guillaume, Antoine. 2011. Grammaticalization of motion and language contact: The category of 'associated motion' in Southwestern Amazonian languages. Paper presented at the *4th*

international conference of the association Française de Linguistique cognitive (AFLiCo IV), Lyon, May 24-27, 2011.

Guillaume, Antoine. 2016. Associated motion in South America: Typological and areal perspectives. *Linguistic Typology* 20(1). 81–177.

Guillaume, Antoine & Harold Koch (eds.). In press/2021. *Associated motion (Empirical approaches to language typology)*: Berlin: De Gruyter Mouton.

Hale, Austin & Kedār P. Shrestha. 2006. *Newār: Nepāl Bhāsā*. München: Lincom.

Hildebrandt, Kristine A. 2004. A grammar and dictionary of the Manange language. In Carol Genetti (ed.), *Tibeto-Burman languages of Nepal: Manange and Sherpa*, 2–189. Canberra: Pacific Linguistics.

Hyslop, Gwendolyn. 2017. *Grammar of Kurtöp (Brill's Tibetan studies library: Languages of the himalayan region)*. Leipzig & Boston: Brill.

Jacques, Guillaume. 2013. Harmonization and disharmonization of affix ordering and basic word order. *Linguistic Typology* 17(2): 187–217.

Jacques, Guillaume. 2016. Complementation in Japhug Gyalrong. *Linguistics of the Tibeto-Burman Area* 39(2). 222–281.

Jacques, Guillaume & Anton Antonov. 2014. Direct/Inverse systems. *Language and Linguistics Compass* 8. 301–318.

Jacques, Guillaume, Aimée Lahaussois & Zhang Shuya. In press/2021. In Antoine Guillaume & Harold Koch (eds.), *Associated motion (Empirical approaches to language typology)*: Berlin: DeGruyter Mouton.

King, John T. 2009. *A grammar of Dhimal*. Leiden: Brill.

Koch, Harold. 1984. The category of "associated motion" in Kaytej. *Languages in Central Australia* 1. 23–34.

Konnerth, Linda. 2014. *A grammar of Karbi*. Eugene, Oregon: University of Oregon Dissertation.

Konnerth, Linda. 2015. A new type of convergence at the deictic center: Second person and cislocative in Karbi (Tibeto-Burman). *Studies in Language* 39(1). 24–45.

Lamarre, Christine. 2020. An associated motion approach to Northern Mandarin MOTION-CUM-PURPOSE patters. In Janet Ziqun Xing (ed.), *A typological approach to grammaticalization and lexicalization: East meets west [Trends in linguistics]*, 131–163. Berlin: De Gruyter Mouton.

Lamarre, Christine, Alice Vittrant, Anetta Kopecka, Sylvie Voisin, Noellie Bon, B. Fagard, Colette Grinevald, C. Moyse-Faurie, A. Risler, Jin-Ke Song, A. Tan & Clement Voirin In press. Deictic directionals revisited in the light of advances in typology. In L. Sarda & B. Fagard (eds.), *Neglected aspects of motion events description*. Amsterdam & Philadelphia: John Benjamins.

LaPolla, Randy. 1994. Parallel grammaticalizations in Tibeto-Burman languages: Evidence of Sapir's "drift." *Linguistics of the Tibeto-Burman Area* 17(1). 61–80. http://sealang.net/sala/ltba/htm/LAPOLLARandyJ.htm (accessed 16 October 2020).

Levinson, Stephen C. 1996. Language and space. *Annual Review of Anthropology* 25. 353–382.

Levinson, Stephen C. 2003. *Space in language and cognition: Explorations in cognitive diversity*. Cambridge: Cambridge University Press.

Levinson, Stephen C. & David P. Wilkins (eds.). 2006. *Grammars of space: Explorations in cognitive diversity. (Language culture and cognition)* Cambridge: Cambridge University Press.

Lichtenberk, Frantisek. 1991. Semantic change and heterosemy in grammaticalization. *Language* 67.3. 475–509.

Lin, You-Jing. 2002. A dimension missed: East and West in Situ rGyalrong orientation marking. *Language and Linguistics* 3(1). 27–42.

Lin, You-Jing. 2017. How grammar encodes space in Cogtse Rgyalrong. *Himalayan Linguistics* 16(1). 59–83.

Lovestrand, Joseph & Daniel Ross. In press/2021. Serial verb constructions and motion semantics. In Antoine Guillaume & Harold Koch (eds.), *Associated motion (Empirical approaches to language typology)*: Berlin: De Gruyter Mouton.

Matisoff, James A. 1973. *The grammar of Lahu* (University of California Publications in Linguistics 75). Berkeley: University of California Press.

Matisoff, James A. 1991. Endangered languages of mainland Southeast Asia. In R. H Robins & E. M. Uhlenbeck (eds.), *Endangered languages*, 189–228. Published with the authority of the Permanent International Committee of Linguists. Oxford and New York: Berg Publishers, Ltd.

Matisoff, James A. 2003. *The handbook of Proto-Tibeto-Burman: System and philosophy of Sino-Tibetan reconstruction* (University of California Publications in Linguistics 135). Berkeley, Los Angeles, & London: University of California Press.

Matisoff, James A. 2017. On the expression of spatial concepts in Lahu. *Himalayan Linguistics* 16(1). 84–98.

Migliazza, Brian. 1996. Mainland Southeast Asia: A unique linguistic area. *Notes on Linguistics* 75. 17–25.

Morey, Stephen. 2010. *Turung: A variety of Singpho language spoken in Assam*. Canberra: Pacific Linguistics.

Oko, Christina Willis. 2019. *A grammar of Darma*. Leiden: Brill.

Otero, Manuel, Alejandra Vidal & Doris L. Payne. 2017. *Associated motion and AWAY in the Chaco: Nivaĉle and Pilagá*. SSILA presentation January 8, 2017. Austin, TX.

Plaisier, Heleen. 2007. *A grammar of Lepcha. [Brill's Tibetan studies library]*. Leiden, Boston: Brill.

Payne, Doris. L. & Manuel Otero. 2016. Deictic (associated-) motion and the tense-aspect domain: Evidence from Nilotic & Koman. Paper presented at the Syntax of the World's Languages 7, Workshop on associated motion, Mexico City, August 20, 2016.

Post, Mark William. 2007. *A grammar of Galo*. Melbourne: La Trobe University Research Centre for Linguistic Typology Dissertation.

Post, Mark W. 2011. Topographical deixis and the Tani languages of North East India. *North East Indian Linguistics* 3. 137–154.

Prins, Marielle. 2011. *A web of relations: A grammar of rGyalrong, Jiǎomùzú (Kyom-kyo) dialects*. Leiden: Leiden University Dissertation.

Rai, Vishnu S. [2068] 2011. चाम्लिङ व्याकरण . किरात चाम्लिङ राई शब्दकोश तथा व्याकरण निर्माण मूल समिति. शब्दकोश तथा व्याकरण निर्माण मूल समिति. *[Chamling grammar. Kirant Chamling Rai dictionary and grammar]*. Kathmandu, Nepal: Kiranti Chamling Rai Dictionary Established Committee.

Ross, Daniel. In press/2021. A cross-linguistic quantitative survey of associated motion and directionals. In Antoine Guillaume & Harold Koch (eds.), *Associated motion (Empirical approaches to language typology)*: Berlin: De Gruyter Mouton.

Sagart, Laurent, Guillaume Jacques, Yunfan Lai, Robin J. Ryder, Valentin Thouzeau, Simon J. Greenhill & Johann-Mattis List. 2019. Dated language phylogenies shed light on the ancestry of Sino-Tibetan. *Proceedings of the National Academy of Sciences of the United States of America* 116(21). 10317–10322.

Sangdong, David. 2012. *A grammar of Kadu (Asak) language.* Melbourne: La Trobe University Dissertation.

Schiering, René, Balthasar Bickel & Kristine A. Hildebrandt. 2010. The prosodic word is not universal, but emergent. *Journal of Linguistics* 46(3). 657–709.

Senft, Gunter (ed.) 1997. *Referring to space*. Oxford: Clarendon Press.

Shay, Erin & Uwe Seibert. 2003. *Motion, direction and location in languages – in honor of Zygmunt Frajzyngier*. Amsterdam & Philadelphia: John Benjamins.

Shirai, Satoko. 2009. Directional prefixes in nDrapa and neighboring languages: An areal feature of Western Sichuan. *Senri Ethnological Studies* 75. 7–20.

Sims, Nathaniel & Carol Genetti. 2017. The grammatical encoding of space in Yonghe Qiang. *Himalayan Linguistics* 16(1). 99–140.

Slobin, Dan I. 2004. The many ways to search for a frog: Linguistic typology and the expression of motion events. In S. Strömqvist & L. Verhoeven (eds.), *Relating events in narratives (Vol. 2): Typological and contextual perspectives*, 219–257. Mahwah, New Jersey: Lawrence Erlbaum Associates.

So-Hartmann, Helga. 2009. *A descriptive grammar of Daai Chin (STEDT Monograph 7)*. Berkeley: University of California Press.

Soe, Myint. 1999. *A grammar of Burmese*. Eugene, Oregon: University of Oregon Dissertation.

Solnit, David B. 1997. *Eastern Kayah Li: Grammar, texts, and glossary*. Honolulu: University of Hawai'i Press.

Talmy, Leonard. 1972. *Semantic structures in English and Atsugewi*. Berkeley, CA: University of California Dissertation.

Talmy, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. In Timothy Shopen (ed.), *Language typology in syntactic description*, vol. 3, 57–149. Cambridge: Cambridge University Press.

Talmy, Leonard. 2000. *Toward a cognitive semantics*, vol. 2. Cambridge, Mass: M.I.T. Press.

Van Bik, Kenneth & Thlasui Tluangneh. 2017. Directional pre-verbal particles in Hakha Lai. *Himalayan Linguistics* 16(1). 141–150.

van der Zee, Emile & Jon Slack (eds.). 2003. *Representing direction in language and space*, New York: Oxford University Press.

van Driem, George. 1987. *A grammar of Limbu*. (Mouton Grammar Library 4). Berlin: Mouton de Gruyter.

van Driem, George. 1993. The Proto-Tibeto-Burman verbal agreement system. *Bulletin of the School of Oriental and African Studies* 56(2). 292–334.

van Driem, George. 2005. Sino-Austronesian vs. Sino-Caucasian, Sino-Bodiv vs. Sino-Tibetan, and Tibeto-Burman as default theory. In Yogendra PrasadaYadava, Govinda Bhattarai, Ram Raj Lohani, Balaram Prassain & Krishna Parajuli (eds.), *Contemporary issues in Nepalese linguistics*, 285–338. Kathmandu: Linguistic Society of Nepal.

van Driem, George. 2011. Tibeto-Burman subgroups and historical grammar. *Himalayan Linguistics* 10(1), Special Issue in Memory of Michael Noonan and David Watters. 31–39.

Van Driem, George. 2014. Trans-Himalayan. In Nathan Hill & Thomas Owen-Smith (eds.), *Trans-Himalayan linguistics*. 11–40. Berlin: Mouton de Grutyer.

Voisin, Sylvie. In press/2021. Associated motion and deictic directional in Atlantic languages. In Antoine Guillaume & Harold Koch (eds.), *Associated motion (Empirical approaches to language typology)*: Berlin: De Gruyter Mouton.

Watters, David E. 2002. *A grammar of Kham*. Cambridge: Cambridge University Press.

Wilkins, David P. 1991. The semantics, pragmatics, and diachronic development of 'associated motion' in Mparntwe Arrernte. *Buffalo Papers in Linguistics* 1. 207–257.

Wolfenden, Stuart N. 1929. *Outlines of Tibeto-Burman linguistic morphology, with special reference to the prefixes, infixes, and suffixes of Classical Tibetan, and the languages of the Kachin, Bodo, Naga, Kuki-Chin, and Burma groups*. Prize Publication #12. London: Royal Asiatic Society.

Zhang, Sihong. 2016. *A reference grammar of Ersu: A Tibeto-Burman language of China*. Townsville, Australia: James Cook University Dissertation.