

# Crosslinguistic grammaticalization patterns of the ALLATIVE

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## *Abstract*

*Goal-marking morphemes, or ALLATIVES, are notoriously polysemous crosslinguistically. In a survey of 44 genetically and areally diverse languages, we have tracked synchronic usage patterns for 54 ALLATIVE markers and confirmed that they indeed exhibit a wide range of semantic and grammatical functions. A number of previous grammaticalization studies undertaken from a cognitive/typological perspective have argued that various non-spatial goal-marking senses of ALLATIVE morphemes, such as DATIVE/BENEFACTIVE and PURPOSIVE, often develop out of a spatial sense through various semantic extensions. Our data also indicated that ALLATIVES grammaticalize extensively, but that DATIVE, PURPOSIVE, and other common abstract extensions, perhaps strongly associated with the ALLATIVE sense, have an equal – and thus independent – likelihood of developing. That is, their functional evolution is not fully predetermined by a single implicational hierarchy or by a unidimensional grammaticalization chain. Instead, an ALLATIVE marker undergoing grammaticalization has multiple extension pathways available to it.*

*Keywords:* allative, case, dative, grammaticalization, location, motion, polysemy, purposive, semantic map, syncretism

## **1. A linguistic (and conceptual) bias towards goals**

Goal-marking morphemes (henceforth, ALLATIVES) are strikingly plastic both semantically and functionally and they merit the attention that functional and cognitive linguists have paid them both theoretically and descriptively (cf. Haspelmath 1989; Craig 1991; Genetti 1991; Lichtenberk 1991b; Janda 1993; Heine, Güldemann, Kilian-Hatz, Lessau, Roberg, Schladt, & Stolz 1993; Hopper & Traugott 1993; Svorou 1994; Cienki 1995; Van Belle & Van Langen-

donck (eds.) 1996, 1998; Cuyckens 1998; Heine & Kuteva 2002; Stefanowitsch & Rohde 2004). By ALLATIVE,<sup>1</sup> we refer to some overt morpheme in a language, be it adposition, case affix, body part term, coverb, or other class of item, which is associated semantically with the marking of spatial goals, directions, or destinations. We thus follow in the footsteps of others who have tried to navigate between the morphosyntactic and lexicosemantic with these items, such as Crystal, who calls ALLATIVE “a type of inflection which expresses the meaning of motion ‘to’ or ‘towards’ a place” (1985: 12), or Trask, who defines them as “a case form which typically indicates the goal of motion” (1993: 13). ALLATIVES typically manifest a high degree of polysemy and/or heterosemy (or cross-categorical polysemy) crosslinguistically. The latter, as discussed extensively by Lichtenberk (1991a) and S. Rice (1996), tries to capture “cases (within a single language) where two or more meanings or functions that are historically related, in the sense of deriving from the same ultimate source, are borne by reflexes of the common source element that belong to different morphosyntactic categories. Thus, for example, there is heterosemy if a verb, a directional particle, and an aspect marker all ultimately descend from the same historical source” (Lichtenberk 1991a: 476). As a case in point, the Japanese ALLATIVE marker, *ni*, has undergone such dramatic semantic shift and functional expansion – Kabata (2000) has argued for over twenty distinct usage types – that we are using it in the present study as a benchmark against which we compare analogous ALLATIVE expressions in a variety of largely unrelated languages. Taking a cognitive/typological approach, we have developed a preliminary and multi-streamed implicational hierarchy of sense extension based on data from 44 genetically and areally diverse languages. While no language encountered can match Japanese in the breadth of lexicosyntactic exploitation of its primary ALLATIVE, we have found that Japanese *ni*’s dense polysemy patterns are exceptional only in quantity, not quality. The exceptionally productive nature of ALLATIVE polysemy or syncretism crosslinguistically continues to fascinate. Each cohort or collapsed sense requires an account, but such an undertaking is beyond the scope of this article.<sup>2</sup> Our main purpose here is to investigate the concomitant semantic roles and functions that the principal goal-marking morpheme in a language also marks, such as LOCATION, RECIPIENT, POSSESSOR, EXPERIENCER, PURPOSE, etc., as well as more traditionally conceived morphological cases, such as DATIVE, GENITIVE, etc. We do go be-

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1. Following the conventions adopted in this article, we indicate major sense types in SMALL CAPS.

2. A decision as to which senses should be collapsed or distinguished would require a painstaking task involving detailed analyses of each sense type in each language as discussed in Haspelmath (2003: 217). For discussion of how we distinguished or collapsed senses in the present study, see Footnote 9.

yond a discussion of distinct sense co-occurrence patterns and tentatively posit an implicational hierarchy, or more accurately, a set of implicational hierarchies that capture the most common polysemy patterns involving ALLATIVES.

The structure of this article is as follows. Section 2 surveys some individual studies that have mapped out particular extension pathways for ALLATIVE markers crosslinguistically. Section 3 places those particularized studies within the wider context of various grammaticalization chains suggested in the literature, paying special attention to the two distinct models of ALLATIVE syncretism, one posited by Blansitt (1988) and the other by Heine (1990). These two models serve as competing hypotheses for us as we assess the data from the typological survey we have undertaken and discuss in Sections 4 to 6. As it turns out, our findings do not really support either model and therefore, in Section 7, we propose a third model of ALLATIVE syncretism or grammaticalization (which are, after all, two sides of the same coin). Finally, in Section 8, we draw some conclusions for the descriptive and theoretical linguist alike, all the while taking stock of limitations in this study as well as future studies that we hope to pursue with LOCATIVES and ABLATIVES.

## 2. Usage patterns of ALLATIVES: A brief survey

For the past two decades or so, more functionally oriented linguists,<sup>3</sup> intrigued by the rampant polysemy and heterosemy displayed by highly frequent grammatical morphemes (henceforth “grams”) across languages, such as adpositions and particles, have noted the extensions or case syncretisms affecting ALLATIVES in particular, especially in languages where there is overlap between spatial goal-marking function and the marking of purpose or clausal subordination, as happens with English *to*, German *zu*, or French *à* – all classic ALLATIVES and all infinitive markers as well. In this section, we survey some examples of ALLATIVE extension/syncretism in English and Japanese, along with some lesser-known languages discussed in previous studies.

### 2.1. English *to* and *for*

For expository purposes, we start our discussion with two English prepositions associated with ALLATIVE meaning, *to* and *for*. Surprisingly, there has been relatively little contemporary research charting the synchronic breadth and historical depth of these two items: Davidse (1996) and S. Rice (1999) have attempted the former, while Cuyckens (1998) and Robbins (1998), in two unpublished papers, have addressed the latter; other studies which have incorporated a discussion of *to* and *for* in the modern language or diachronically in-

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3. Haspelmath (1989), Traugott & Heine (eds.) (1991), and Bybee, Perkins, & Pagliuca (1994) are leading examples.

clude Traugott (1975), Langacker (1992), Taylor (1993), Van Gelderen (1996), Fischer (2000), Jarad (2000), and Tyler & Evans (2003). Table 1 exemplifies cohort senses beyond the ALLATIVE for *to* and *for*, which is of special relevance in this article. These usages are a subset of the English contribution to the crosslinguistic ALLATIVE database on which the larger typological study is based.

A quick perusal of the *Oxford English Dictionary* only confirms the remarkable polysemy and heterosemy of *to* and *for* in English (of which only a handful of senses are now obsolete): 66 senses for *to* as a preposition, adverb, or conjunction are listed and 36 senses for *for* as a preposition and conjunction. Of course, the splitting or collapsing of individual sense types under different or similar rubrics is open to much dispute and is a debate which will not be revisited here (cf. S. Rice 1996 and Sandra & Rice 1995 for a more focused discussion). The point is that our confidence in positing distinct senses comes not from the study of a single language, but from the observation of recurring and highly similar cohort sense types and usage contexts for ALLATIVES across scores of unrelated languages (see Appendix A).

## 2.2. *Japanese ni*

As divergent as the English ALLATIVES *to* and *for* seem to be, they are overshadowed by the abundance of individual sense types manifested by Japanese *ni*. In an empirically based study drawing on historical, developmental, corpus, and comparative research, Kabata (2000) identified nearly two dozen concomitant functions in modern Japanese of this very prolific ALLATIVE case particle/postposition. She linked her classification of usage types to a domain-based taxonomy that partially recapitulated the diachronic development of *ni* as determined from the historical record. We will have more to say about domains below in Section 3. The sentences in Table 2 illustrate Kabata's sense taxonomy of *ni* (*ni* is left unglossed in these examples, but its overall function or the identity of its complement type is listed in the left-hand column in small capital letters).

This proliferation of cohort senses for *ni* gave us reason to wonder about the complexity of the ALLATIVE as a conceptual category in the first place. Which senses are common and which are infrequent across other languages? Does the course, if not the extent, of semantic expansion for ALLATIVES play out the same way crosslinguistically? Fortunately, there are a handful of studies in the literature that explore the same types of questions. We turn to these next.

## 2.3. ALLATIVE *extension in the grammaticalization literature*

A number of case studies published in an early and influential set of volumes on grammaticalization, Traugott & Heine (eds.) (1991), happened to include ac-

Table 1. Overview of the synchronic and functional distribution of the ALLATIVES *to* and *for* in English, based on S. Rice (1999)

Sense	<i>to</i>	<i>for</i>
(i) Prepositional usages		
ALLATIVE	<i>She walked to school.</i>	<i>She headed for the exit.</i>
LOCATIVE	<i>Where's it to?</i> [colloquial]	—
TEMPORAL BOUNDARY	<i>He worked from dawn to dusk.</i>	—
DURATION	—	<i>He worked for hours.</i>
DATIVE (of object)	<i>She gave it to him.</i>	—
DATIVE (of action)	<i>What did she do to him?</i>	—
BENEFACTIVE (of object)	—	<i>This book is for you.</i>
BENEFACTIVE (of action)	—	<i>I did the laundry for you.</i>
ADDRESSEE	<i>She talked to him.</i>	—
PERCEPTUAL TARGET	<i>I listened to the radio.</i>	<i>I looked for the book.</i>
CONCEPTUAL TARGET	<i>It seems to me that he's wrong.</i>	—
EXPERIENCER	<i>It was upsetting to me.</i>	<i>The test was hard for me.</i>
PURPOSE (of object)	<i>the answer to the question</i>	<i>some soup for dinner</i>
PURPOSE (of action)	—	<i>He runs everyday for his health.</i>
ACCOMPANIMENT	<i>We danced to the music.</i>	—
RESULT	<i>He was strangled to death.</i>	—
EQUIVALENCE/EXCHANGE	<i>The score is 3 to 2.</i>	<i>The cost of limes now is 3 for a dollar.</i>
COMPARISON	<i>He's similar to her.</i>	—
(ii) Grammatical particle usages		
MODAL	<i>She wants to have him arrested.</i>	—
FUTURE	<i>She's going to ask him eventually.</i>	—
PURPOSE (of object)	<i>This shirt is to wear now.</i>	<i>This laptop is for data-processing only.</i>
PURPOSE (of action)	<i>He left home to see the world.</i>	<i>I brought it here for repair.</i>
REASON	—	<i>He was punished for telling lies.</i>
INFINITIVE MARKER	<i>To know him is to love him.</i>	—
COMPLEMENTIZER	—	<i>She pleaded for him to leave.</i>

Note:

This listing is not intended to be exhaustive or uncontroversial, only illustrative of the breadth of usages for which these English ALLATIVES are deployed.

Table 2. Overview of the synchronic distribution of the ALLATIVE *ni* in Japanese, based on Kabata (2000)

ALLATIVE	<i>Kare wa hakubutukan ni it-ta.</i> he TOP museum <i>ni</i> GO-PAST 'He went to the museum.'
LOCATIVE	<i>Musume wa Tokyo ni iru.</i> daughter TOP Tokyo <i>ni</i> be.ANIM 'My daughter is in Tokyo.'
TEMPORAL	<i>Kono monogatari wa nana-seiki ni kak-are-ta.</i> this story TOP 7th-century <i>ni</i> write-PASS-PAST 'This story was written in the 7th century.'
DATIVE	<i>Makoto wa sono omotya o ototo ni yat-ta.</i> Makoto TOP that toy ACC brother <i>ni</i> give-PAST 'Makoto gave the toy to his brother.'
ADDRESSEE	<i>Kanojo wa sono kodomo ni hanashikake-ta.</i> she TOP the child <i>ni</i> talk-PAST 'She talked to the child.'
BENEFACTIVE	<i>Mariko wa Taroo ni piano o hii-te-age-ta.</i> Mariko TOP Taro <i>ni</i> piano ACC play-CONJ-AUX-PAST 'Mariko played the piano for Taro.'
POSSESSIVE	<i>Taroo ni kodomo ga aru/iru.</i> Taro <i>ni</i> child NOM exist 'Taro has a child.'
EXPERIENCER	<i>Michiko wa eki de sensei ni at-ta.</i> Michiko TOP station LOC teacher <i>ni</i> meet-PAST 'Michiko met her teacher at the station.'
CAUSEE	<i>Watashi wa Keiko ni sugu ki-te-morat-ta.</i> I TOP Keiko <i>ni</i> right.away come-CONJ-CAUS-PAST 'I had Keiko come to my house.'

PASSIVE AGENT	<p><i>Boku wa okaasan ni hidoku shikar-are-ta.</i>  I TOP mother <i>ni</i> severely scold-PASS-PAST  'I was scolded severely by my mother.'</p>
SOURCE OF TRANSFER	<p><i>Taroo wa Masao ni hon o kari-ta.</i>  Taro TOP Masao <i>ni</i> book ACC borrow-PAST  'Taro borrowed a book from Masao.'</p>
COMMUNICATIVE SOURCE	<p><i>Yumiko wa Masao ni sono nyusu o</i>  Yumiko TOP Masao <i>ni</i> the news ACC  <i>kii-ta.</i>  hear-PAST  'Yumiko heard the news from Masao.'</p>
CONCEPTUAL TARGET	<p><i>Kono mondai ni choosenshi-te-mi-yoo.</i>  this question <i>ni</i> attempt-CONJ-try-let's  'Let's attempt this question.'</p>
EMOTIONAL SOURCE	<p><i>Ryooshin wa watashi no seeseeki ni</i>  parents TOP 1SG GEN mark <i>ni</i>  <i>gakkarishi-ta.</i>  be.disappointed-PAST  'My parents were disappointed at my mark.'</p>
RESULT	<p><i>Haha wa mame o kona ni hii-ta.</i>  mother TOP beans ACC powder <i>ni</i> grind-PAST  'My mother ground beans into powder.'</p>
MANNER	<p><i>Kanojo wa shizuka ni hon o</i>  she TOP quiet <i>ni</i> book ACC  <i>yon-de-i-ta.</i>  read-CONJ-PROG-PAST  'She was quietly reading a book.'</p>
COMPARATIVE	<p><i>Kare wa gakuryoku de wa ani ni</i>  he TOP intelligence LOC TOP elder.brother <i>ni</i>  <i>masat-te-iru.</i>  superior-CONJ-PROG  'He is superior to his brother in intelligence.'</p>
REFERENCE SPACE	<p><i>Mariko wa keesan ni take-te-iru.</i>  Mariko TOP calculation <i>ni</i> excel-CONJ-PROG  'Mariko excels in calculation.'</p>
PURPOSE	<p><i>Yumiko wa hon o kai ni tachiyot-ta.</i>  Yumiko TOP book ACC buy <i>ni</i> stop.by-PAST  'Yumiko stopped to buy a book.'</p>

REASON	<p><i>Amarino atsusa ni jitto</i>  excessive heat <i>ni</i> still  <i>suwat-te-it-are-nakat-ta.</i>  sit-CONJ-PROG-can-NEG-PAST  ‘I couldn’t sit still because of the excessive heat.’</p>
ADDITIVE	<p><i>Kono hon ni kono kaban ni kono hudebako</i>  this book <i>ni</i> this bag <i>ni</i> this pencil.case  <i>o kudasai.</i>  ACC please  ‘(I’ll take) this pencil case, in addition to this book and  this bag.’</p>
CONCESSIVE	<p><i>Senshuu denwa shi-ta no ni mada</i>  last.week phone do-PAST NMLZ <i>ni</i> yet  <i>henji ga nai.</i>  response NOM exist-NEG  ‘Although I phoned last week, there hasn’t been a re-  sponse yet.’</p>
PRAGMATIC MARKER	<p><i>Are hodo shinsetsu ni shi-te-yat-ta no</i>  that much kind <i>ni</i> do-CONJ-give-PAST NMLZ  <i>ni.</i>  <i>ni</i>  ‘(Alas), I was so kind (to them) [they don’t appreciate it].’</p>

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counts on the functional extensions affecting ALLATIVE markers crosslinguistically. Lichtenberk (1991b) describes the senses of the To’aba’ita preposition *uri(a)-*, presented in (1), as being related in a slowly evolving chain of grammaticalization.

- (1) To’aba’ita *uri*
- a. ALLATIVE
- Thaari baa ka thamo uri-a tai si*  
girl that 3SG.SEQ reach *uri-3SG* some PART  
*fangā ...*  
food  
‘The girl reached for some of the food ...’

- b. CONCEPTUAL TARGET  
*Nau ku rake'iri uri-a (>ura) wane*  
 1SG 1.PERF be.angry uri-3SG man  
 'I am angry at the man.'
- c. PURPOSE  
*Nia ka sifo uri ta i'a 'i Fafolifua ...*  
 3SG 3SG.SEQ descend uri some fish to Fafolifu  
 'He went down to Fafolifua for some fish ...'
- d. PURPOSIVE SUBORDINATOR  
 ... *uri-a fasi nia kai ngali-a mai, kai*  
 uri-3SG ABL/PURP 3SG 3SG.IMPF take-3PL hither 3SG  
*na'are-a 'a-na*  
 roast-3PL MID-his  
 '... to take back and roast.' (POSITIVE)
- e. REASON  
*Wela na'i 'e angi uri-a 'e thaofa*  
 child this 3SG.PERF cry uri-3SG 3SG.PERF be.hungry  
 'The child cried because he was hungry.'

In subsequent work, Lichtenberk (2002) documents a wide-spread POSSESSIVE-BENEFACTIVE polysemy in Oceanic languages which includes ALLATIVES in the semantic extension chain as well.

In the same set of volumes, Craig (1991) discusses the Rama goal postposition *ba(ng)*, which she argues has emerged from a verb of going and eventually has come to function as a postposition and a purposive subordinator as well as continuing to grammaticalize into a relational pre-verb marking argument, subordination, aspect, and mood. Further, both Svorou (1994) and Heine & Kuteva (2002) report on the fact that ALLATIVES frequently emerge from verbs of motion. There is increasing evidence from individual case studies and crosslinguistic surveys that 'go'-verbs, ALLATIVES, and PURPOSIVES form a natural polysemy chain that often triggers semantic or functional change (i.e., grammaticalization). Our own findings confirm that, at the very least, in the presence of 'go'-verbs, ALLATIVES frequently take on a PURPOSIVE reading, to the point of introducing verbal complements and becoming reanalyzed as subordinators. This 'go'-ALLATIVE-PURPOSIVE polysemy is apparently more prevalent than the ALLATIVE-BENEFACTIVE-POSSESSIVE syncretism reported by Lichtenberk (2002).

Genetti (1991) also traced a series of syncretisms affecting a range of postpositions, including some ALLATIVES, in a set of nearly thirty Tibeto-Burman languages and dialects. Specifically, she looked at the recurring development of spatial and social case markers into temporal and adverbial subordinators

and the shift from nominal complements to verbal ones. Below are Thulung (-*Da*) and Newari examples (-*ta*) from Genetti's study (1991: 230).

- (2) Thulung -*Da*
- a. LOCATIVE/ALLATIVE  
*ramli-ka rokomalung-Da kho sebDiu*  
 Ramli-ERG stone-*Da* ax sharpened  
 'Ramli sharpened the ax on a rough stone.' (quoted from Allen 1975: 149)
- b. PURPOSIVE SUBORDINATOR  
*yo breb-Da lək̥sa*  
 salt buy-*Da* go  
 'Go and buy some salt.' (quoted from Allen 1975: 58)
- (3) Newari -*ta*
- a. DATIVE  
*jī-ī Raj-yā-ta biy-ā*  
 I-ERG Raj-GEN-*ta* give-PAST  
 'I gave it to Raj.'
- b. PURPOSIVE SUBORDINATOR  
*jī-ī kerā nyā-e-ta wan-ā*  
 I-ERG banana buy-INF-*ta* go-PAST  
 'I went to buy some bananas.'

Genetti reports that ALLATIVES frequently mark LOCATIVE and DATIVE relations in Tibeto-Burman languages and, moreover, they very frequently extend to the marking of PURPOSE, especially in clause-combining or subordinating contexts, and nearly always in the presence of a main verb of going or coming. These patterns are also well attested in our own survey of languages reported below. Before we move on to the discussion of the survey study let us review some of the literature that has proposed models of ALLATIVE syncretism.

### 3. Models of ALLATIVE syncretism

A number of approaches over the past several decades have taken a diachronic and crosslinguistic view to the short-term challenge of motivating why certain lexical items in language – especially adpositions and light predicates – also readily accommodate a range of grammatical functions. Some of the leading ideas in the grammaticalization literature are that lexico-functional shift, as happens in grammaticalization, is largely UNIDIRECTIONAL (e.g., from the concrete to the abstract, from the spatial to the non-spatial, from the objective to the subjective), GRADUAL, and LAYERED (i.e., "old" senses or functions of a gram or lexical item often co-exist with newer, more grammaticalized senses or functions), and involves some degree of SEMANTIC WEAKENING and

PRAGMATIC STRENGTHENING (not to mention sizeable increases in frequency of the relevant gram or lexical item). Moreover, the extensions or new functions that a lexeme or gram might take on are EMERGENT and opportunistic, not pre-ordained. These ideas mesh easily with some of the central tenets of cognitive linguistics that hold (i) that polysemy is the natural state of affairs for most linguistic expressions, be they lexical items, grams, or constructions (and being polysemous, they likely form complex categories); (ii) that linguistic categorization is fuzzy, graded, and organized around prototypes;<sup>4</sup> and (iii) that meaning is not absolute, but a matter of context and construal (i.e., usage).

### 3.1. *The role of image schemas and cross-domain mappings in language change*

Perhaps the most central precept uniting cognitive linguists and grammaticalization researchers is their agreement on the folly of looking at a single language synchronically for insights into the nature of human language or explanations about why a language is structured the way it is. For both camps, meaning and usage govern linguistic form and not vice versa. Because human beings experience their environment and their interaction with others in much the same way, cognition is viewed as embodied and language is viewed as a medium of shared cognition that changes over time for all sorts of reasons. Essentially, language – and cognition, from which it is inseparable – reflects myriad acts of categorization. Moreover, human categorization is considered to be negotiable and, therefore, relative and fluid. For example, the same two phenomena can be perceived/conceived as identical, similar, partially overlapping, or wholly distinct and dissimilar, depending on the categorizing criteria.

The two categorizing criteria that, above all, are exploited as engines driving language change are metaphor and metonymy. The key idea is that human beings do not conceptualize in a vacuum, rather an entity is conceived against some sort of background knowledge base or shared realm of focus or experience, both linguistic and extra-linguistic, typically called a “domain”; see Langacker (1987), Croft (1993), and Croft & Cruse (2004) for cogent discussion about the nature and theoretical status of domains or what Lakoff (1987) calls “idealized cognitive models”. Being most basic,<sup>5</sup> physical space is the do-

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4. With respect to this last point, categories organized around prototypes are supposed to allow for structural stability on the one hand, while promoting flexible adaptability on the other, the very hallmarks of gradual semantic change.

5. All agree that SPACE is a basic domain. Differences arise in the number and nature of other proposed domains, their content, focus, basicness vs. abstractness, and relation to each other. Among the basic domains proposed by Croft (1993) are SPACE, TIME, MATTER, FORCE, VISION, MEANING, and MIND. For Langacker (1987), the basic/abstract distinction is less important than the identification of the primary domain that activates and restricts knowledge about a linguistic predication or concept in a specific usage context.

Table 3. *The set of domains or knowledge bases against which we mapped attested sense extensions of ALLATIVES*

Domain	Main types of predications (relations, processes, or events) associated with domain
Spatial	existence, location, position, motion, (dis)appearance, and quantification of physical objects
Temporal	location, duration, initiation, cessation, and distribution of events
Social	human interaction: contact, transfer, possession, communication, causation
Mental	mental state predications: perception, ideation, conceptualization, intention, emotional response
Logical/Textual	assessment of objects or events: purpose, reason, result, manner, comparison, substitution, addition, proportion, rate, extent, coincidence, quality, condition, subordination, futurity; discourse cohesion (more objective assessment)
Expressive	hypotheticality, concessive, evidentiality, belief, attitude (more subjective assessment)
Miscellaneous	grammatical relation marking (e.g., accusative, ergative, instrumental)

main that spawns the most “image schemas” (cf. Talmy 1983, Johnson 1987) and the most figurative extensions causing language change (cf. Talmy 1985, Sweetser 1990). An image schema can be thought of as a deeply ingrained and therefore archetypal conceptual gestalt, such as a physical object, a surface, a container, the center or periphery of a space, a path, the endpoints of a path, a location, or a boundary. A domain is a knowledge space against which image schemas are situated. Again, physical space is the domain against which most non-literal uses of image schemas are projected. That is, an act of sensory perception can be expressed as if the perceiver moves in some perceptual space towards the percept or, conversely, that the percept moves towards its goal, the perceiver. Likewise, languages often treat propositions as moveable or locatable objects in a discourse space.<sup>6</sup> Table 3 provides a list of domains that we have posited in the present study.

Just as the number and nature of semantic roles or relations can proliferate or shrink given a particular linguist’s theoretical orientation or the morphosyntactic demands of the language under study, so too are the number and nature of cognitive domains in cognitive linguistics open to interpretation and dispute

6. Cf. S. Rice (2004) for a crosslinguistic survey of abstract predications exploiting ALLATIVE and ABLATIVE marking, from possessive constructions and comparatives to mental state and emotion predications.

(cf. Croft 1993). We will not justify our own list except to say that the posited domains represent plausible and recurring “mental spaces” against which human beings project predications and cognitive linguists describe lexical and sentential meaning. The domains we propose are by no means mutually exclusive, although they do reflect the primary sphere or knowledge base against which different extended senses of an ALLATIVE morpheme are interpreted. These domain assignments and, indeed, the usage type assignments given below, are provisional and suggestive only. It is left to others to ascertain the validity of the classifications for specific languages or the status of domains and cross-domain mappings psychologically.

### 3.2. *Proposed implicational hierarchies*

The sheer fact that grams have evolved from lexical sources in a language is not all that controversial. What does attract debate is whether the diachronic development of a gram is an instance of some sort of meta-phenomenon which many term “grammaticalization”, or whether a lexeme is re-analyzed as a grammatical particle or affix through any number of lower-level phonological or semantic processes (widely evidenced crosslinguistically and synchronically) which need not change functional or lexical categories in the long run. We will acknowledge, but sidestep this debate here. However, many of the “models” of morphosyntactic change proposed in the previous literature promote or at least tacitly support a grammaticalization view (Anderson 1971; Diehl 1975; Sweetser 1991; Traugott 1982, 1989; Heine, Claudi, & Hünemeyer 1991 among others). We will focus on two individual studies that we take as competing hypotheses in assessing the data from the typological survey in our study: Blansitt (1988) and Heine (1990).

3.2.1. *Blansitt’s (1988) functional contiguity hypothesis.* In a study encompassing 71 genetically unrelated languages, Blansitt surveyed three types of function markers – adpositions, case inflections, and coverbs – that tend to display what he called “shared overt marking”, or deployment of the same forms to code different functions, specifically, the functions he identifies as DATIVE (indirect object), ALLATIVE (goal directional), OBJECT (direct object), and LOCATIVE (place – motion) (Blansitt 1988: 173). His functional contiguity hypothesis, shown in (4), holds that a form from this set in a language may encode overlapping functions in the order given.

(4) OBJECT  $\equiv$  DATIVE  $\equiv$  ALLATIVE  $\equiv$  LOCATIVE

That is, if a single morpheme marks OBJECT and ALLATIVE in a language, it will also mark DATIVE; if it marks DATIVE and LOCATIVE, it will also mark ALLATIVE; and if it marks OBJECT and LOCATIVE identically, then it also marks

DATIVE and ALLATIVE. Blansitt's hypothesis also has implications for overt vs. covert marking of a function such that if ALLATIVE is zero marked in a language, so too will the OBJECT and DATIVE functions, but not necessarily LOCATIVE. In other words, the least marked end of the continuum is OBJECT, crosslinguistically, while the most marked is LOCATIVE. Despite the impressive array of languages marshaled to support his hypothesis, Blansitt's interest in ALLATIVE syncretism only extended across the spatial and socio-spatial domains. The example sentences he used to illustrate instances of form/function overlap involved locative relations of existence or posture/position; motion events with verbs of coming and going; events of transfer with verbs of giving, taking, sending, and bringing; instrument manipulation with verbs of using; and communication (calling). The four functions do not always overlap, to be sure, but neither do they exhaust the range of functions that DATIVE and ALLATIVE markers, especially, can and often do participate in crosslinguistically. Moreover, Blansitt gives no explanation for why such syncretisms should exist in the first place, as compelling as the weight of his contiguity correlations are.

3.2.2. *Heine's (1990) model of DATIVE extension in Ik and Kanuri.* At about the same time, Heine was documenting an equally impressive array of syncretisms involving what he called a DATIVE or goal case marker in two remotely related Nilo-Saharan languages, Ik and Kanuri. He noted that their non-cognate suffixes, *-k<sup>ɛ</sup>* and *-ro*, respectively, shared many of the same functions, including the marking of indirect objects, directional locatives, goals, benefactives, purposes, reasons, manner and time complements, as well as marking subordinate clauses and serving as a derivational suffix to mark adverbs (Heine 1990: 129). He concluded that the extensions themselves, as well as the overlap between the two morphemes' extension patterns were more than coincidental; they represented spontaneous innovations that were motivated by shared grammaticalization processes involving step-wise extensions from basic and concrete spatial functions to more derived and abstract functions involving temporal, logical, and subordinating relations among others. Moreover, Heine posited a model of multilateral, but unidirectional ALLATIVE case expansion. Although he did not expressly relate the functional expansion to semantic extension across different cognitive domains, it is certainly tacit in his analysis, as he did invoke the role of metaphor in motivating the use of a spatial goal marker to mark a temporal goal or mental one (i.e., a purpose). Heine's model of dative expansion in Ik and Kanuri is presented in Figure 1.

There are certainly many ambiguities in Heine's model, such as what constitutes the difference between ALLATIVE and GOAL. He stipulates that the latter governs "non-concrete complements" such as abstract locations and gerunds (1990: 132). Similarly, there is little discussion – possibly because neither Ik nor Kanuri warranted it – about punctual (*at* TIME) vs. extended (*until* TIME,

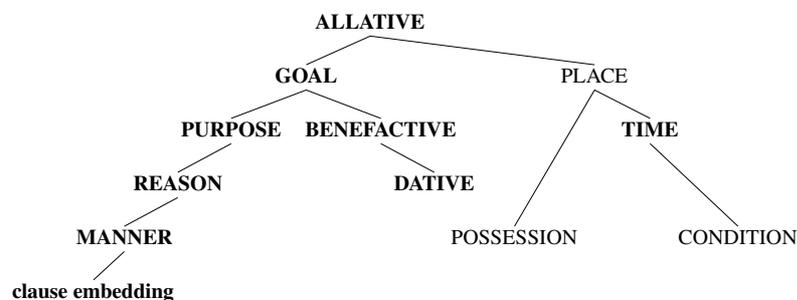


Figure 1. Heine's (1990: 131) model of ALLATIVE extension based on two Nilo-Saharan languages, *Ik* and *Kanuri* (functions in bold are evidenced by both languages; only *Ik* exhibits the other three non-bolded functions)

for TIME) temporal senses, both of which could presumably be subsumed under his TIME rubric. Moreover, one may ask how to parse out the benefits that often accrue to a recipient in order to separate the BENEFACTIVE function from the DATIVE. However, there are also many intriguing minor hypotheses ensuing from his model: for example, his suggestion that clause-embedding functions may eventually develop out of PURPOSE (examples of which were in great evidence in Section 2.3 above), or that BENEFACTIVE usages are less derived than DATIVE, or that POSSESSIVE functions are motivated by LOCATIVE (place) usages, which also give rise to TIME and CONDITION usages. We find much of merit in Heine's model, which is all the more impressive since it is based on data from only two languages. He seems to have incorporated all the senses or functions to which the ALLATIVE/DATIVE markers are put in *Ik* and *Kanuri*, which allowed him to develop a unified model of ALLATIVE extension. However, not surprisingly, our survey encompassing some forty-odd languages calls for some serious refinement to his model. We return to our own study and findings next.

#### 4. Methodology

The present study was motivated by the analysis of Japanese *ni* summarized in Kabata & Rice (1997) and described at length in Kabata (2000). As shown in Sections 2.1 and 2.2 above, in both Japanese and English, the basic ALLATIVE markers (*ni*; *to* and *for*) span multiple usage domains, complement types, and grammatical categories. While we felt that each of these ALLATIVES was somewhat unusual in the breadth of its polysemy patterns, we were curious about (i) which co-senses or co-functions were most common for ALLATIVES crosslinguistically, and (ii) which senses might be correlated in a language, if not also

forming part of a grammaticalization chain. We embarked on a comparative study whereby we would note any and all goal-marking morpheme(s) in a language and trace the concomitant usages beyond ALLATIVE, classifying them as best we could by their domain of usage and their similarity with analogous expressions in English, Japanese, or other languages surveyed. Thus, taking an overt ALLATIVE morpheme in a language as our starting point, our objective here is to demonstrate that if ALLATIVES grammaticalize,<sup>7</sup> certain cohort senses are probably privileged over others, most likely for cognitive reasons. One could have well approached this study with LOCATIVE or PURPOSIVE as the starting point and the results might well have been different: there are certainly languages in which LOCATIVES and ALLATIVES do not overlap, nor do ALLATIVES and PURPOSIVES.

We proceeded as follows. Checking as many language sources as were available, from dictionaries and grammars to journal articles and native consultants, we attempted to select languages by family, type, area, and accessibility of reliable source materials. Where possible, we obtained secondary verification of every usage of an ALLATIVE morpheme entered into our database. All told, we documented usage patterns of 54 ALLATIVES from 44 languages. The languages are listed by region in Table 4 with their genealogical information. The ALLATIVE morphemes we tracked and the data sources are also listed in the table.

In collecting data from published sources, we first recorded a marker that signaled an ALLATIVE relation in its example sentence and painstakingly looked for all other sentences in the data source containing the same morpheme. This selection process yielded a fairly conservative estimate of ALLATIVE polysemy. In all but a few cases, the authors of these analyses were not focusing on phenomena such as polysemy, cross-domain metaphorical mappings, grammaticalization chains, or, indeed, the semantics of grammatical markers. We are thus more vulnerable to a sin of omission than one of overstatement in our discussion section below.<sup>8</sup> For example, we included the bound active preposition, *ʔuʔ-*, in Bella Coola, but rejected its stative counterpart, *ʔaʔ-*. Despite its impressive array of extended senses, *ʔaʔ-* apparently lacks an ALLATIVE reading, presenting only a LOCATIVE sense in the spatial domain. Conversely, we included both English *to* and *for* even though an ALLATIVE sense is not as strongly associated with *for* as it is with *to*. We took pains to not presume a priority for

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7. Or, rather, that they continue to grammaticalize. We do not address here the issue of ALLATIVES as an endpoint of a grammaticalization chain which starts as a body part nominal, a geographical place name, a verb or coverb, or other “source” morpheme type (cf. Heine, Güldemann, et al. 1993, Svorou 1994, or Heine & Kuteva 2002).

8. The method used for gathering data in this study is one of sampling for ALLATIVE forms and functions. We acknowledge that one or another ALLATIVE form or function may have failed to be picked up, but, after all, the procedure is a sample and the essential point is that we collected a wide range of fairly consistent data.

Table 4. List of the 54 ALLATIVE morphemes in the 44 source languages in our database by region with genealogical information after Haspelmath et al. (eds.) (2005) and data source. Languages marked with \* are not listed in Haspelmath et al. (eds.) (2005). The + sign in the right most column indicates that native speaker consultants provided the data.

Region	Language	ALLATIVE morpheme(s)	Genus	Family (Subfamily)	Source
Asia	Japanese	<i>ni, e</i>	(isolate)		Matsumura (1971)
	Korean	<i>-ey, -ulo</i>	(isolate)		Lee (1993), Martin et al. (1967)
	Mandarin	<i>dào</i>	Chinese	Sino-Tibetan	Li & Thompson (1981)
	Tagalog	<i>sa</i>	Meso-Philippine	Austronesian (Western Malayo-Polynesian)	Schachter & Otanes (1972)
	Tamil	<i>-iku</i>	Southern Dravidian	Dravidian	
	Thai	<i>pai, thǎy</i>	Kam-Tai	Tai-Kadai	
	Tibetan	<i>-la</i>	Bodic	Sino-Tibetan (Tibeto-Burman)	Haas (1964), Sato & Wutichannon (1977)
	Vietnamese	<i>den</i>	Viet-Muong	Austro-Asiatic (Mon-Khmer)	Goldstein (1984)
					Thompson (1965)
					Gorka (1989)
Europe	Basque	<i>-gana, -ra</i>	(isolate)	Indo-European	
	English	<i>to, for</i>	Germanic	Indo-European	
	Farsi (Persian)	<i>be</i>	Iranian	Indo-European	
	French	<i>à</i>	Romance	Indo-European	
	German	<i>zu, nach</i>	Germanic	Indo-European	Kitroe (1989)
	Lezgian	<i>-z</i>	Lezgian	Nakh-Daghestanian (Daghestanian)	Durrell (1991), Terrell et al. (1999)
	Polish	<i>do, na</i>	Slavic	Indo-European	Haspelmath (1993)
	Rumanian	<i>la</i>	Romance	Indo-European	Bielec (1998)
	Russian	<i>в</i>	Slavic	Indo-European	Wheeler & Unbegaun (1972)

Region	Language	ALLATIVE morpheme(s)	Genus	Family (Subfamily)	Source
Africa	Spanish	<i>a</i>	Romance	Indo-European	Jarman & Russell (eds.) (1994), Kattán-Ibarra (1997)
	Turkish	<i>-e</i>	Turkic	Altaic	Underhill (1976)
	Acholi	<i>bòót, kà</i>	Nilotic	Nilo-Saharan (Eastern Sudanic)	Crazzolara (1955)
	Hausa	<i>zawà</i>	West Chadic	Afro-Asiatic (Chadic)	Newman (2000)
	Ik	<i>ké</i>	Kuliak	Nilo-Saharan (Eastern Sudanic)	Heine (1990)
	Kanuri	<i>ro</i>	Saharan	Nilo-Saharan	Heine (1990)
	Luganda	<i>e</i>	Bantoid	Niger-Congo (Benue-Congo)	Chesswas (1963), Snoxall (ed.) (1967)
	Senufo	<i>má</i>	Gur	Niger-Congo	Carlson (1991)
	Swahili	<i>kwa</i>	Bantoid	Niger-Congo (Benue-Congo)	Ashton (1944), Loogman (1965), Rechenbach (1967)
	Yoruba	<i>si</i>	Defoid	Niger-Congo (Benue-Congo)	Ogunbowale (1970), Rowlands (1969)
Pacific	Bidyara*	<i>-gu</i>	Pama-Nyungan	Australian	Breen (1973)
	Dyirbal	<i>-gu</i>	Pama-Nyungan	Australian	Dixon (1972)
	Hawaiian	<i>ia</i>	Oceanic	Austronesian (Eastern Malayo-Polynesian)	Elbert & Pukui (1979)
	Kayardild	<i>-kir/ing/-jir -kiwa-<i>tha</i></i>	Tangkic	Australian	Evans (1995)
	Maori	<i>ki</i>	Oceanic	Austronesian (Eastern Malayo-Polynesian)	Bauer (1993)
	To'abaïta	<i>uri-</i>	Oceanic	Malayo-Polynesian (Eastern Austronesian)	Lichtenberk (1991b)
	Yimas	<i>nampán, ira-</i>	Lower Sepik	Malayo-Polynesian (Eastern Austronesian)	Foley (1991)
	Wardaman	<i>-garr/-warr</i>	Yangmanic	Lower Sepik-Ramu Australian (Gunwinyguan)	Merlan (1994)

Region	Language	ALLATIVE morpheme(s)	Genus	Family (Subfamily)	Source
North America	Bella Coola	<i>ʔut</i>	Bella Coola	Salishan	Davis & Saunders (1997)
	Hopi	<i>-mi</i>	(isolate)		Malotki (1983)
	Slave (North Slave)	<i>-ts'ǫ́</i>	Athapaskan	Na-Dene	K. Rice (1989)
	Tohono 'O'odham	<i>wui</i>	Tepiman	Uto-Aztecan	Zepeda (1983)
	Totonac	<i>la'lh-</i>	Totonacan	Totonacan	
South America	Ika	<i>-seʔ</i>	Aruak	Chibchan	Frank (1990)
	Koasati	<i>-fon</i>	Muskogean	Muskogean	Kimball (1991)
	Quechua (Imbabura)	<i>-man</i>	Quechuan	Quechuan	Cole (1985), Jake (1985)
	Rama	<i>bang</i>	Rama	Chibchan	Craig (1991)

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ALLATIVE marking (versus, for example, RECIPIENT or PURPOSE), despite the prevalence of assumptions about the conceptual basicness and hence historical priority of spatial marking in the literature. Nevertheless, we undertook a study that would approach Blansitt's in breadth of languages and Heine's in depth of semantic extension beyond just socio-spatial usages. To that end, in collecting data directly from native speaker consultants, we tried to elicit sentences that contained phrases that were known to be marked with ALLATIVES in other languages. In this regard, Japanese served as an upper limit on our expectations about ALLATIVE polysemy. The English examples in Table 5 served as our source sentences from which we tried to extract comparable examples representing a general usage type that some languages mark with an ALLATIVE.

Example sentences illustrating a specific extended usage of a language's basic ALLATIVE morpheme (be it adposition, case marker, affix, or verb/coverb) were coded as "hits" for that usage type and entered into a database in which we tracked language, morpheme type, and incidence (but, naturally, not frequency in the language) of extended usage types. We counted the number and noted the nature of all "cohort" uses.<sup>9</sup> Of the 47 potential sense types listed in Table 5 (many of which are fairly redundant with one another – such as {ALLATIVE, DESTINATION, DIRECTION, and GOAL} – and were later collapsed), we recorded 33 senses, including ALLATIVE, from the languages we studied. In the next two sections, we summarize our findings.

## 5. Common extensions and cohort usage types

### 5.1. *The ALLATIVE connections*

Our database tracks the senses associated with 54 ALLATIVE markers across 44 languages. Appendix A presents a full list of the sense types associated with each ALLATIVE morpheme. The senses we identified with each ALLATIVE are identified by the "+" mark. When the target ALLATIVE morpheme is used as part of compound or complex forms (as in English *into* or *throughout*), it was counted as a .5 (and we added a parenthesis to the "+" mark in the table), since it contributed only partially to the overall function marker or sense type. The average semantic density or number of usage cohorts per morpheme was 5.8.

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9. Let us say a word about how we split or grouped senses. We largely used semantic guidelines rather than morphosyntactic ones because of our assumption that meaning is central in driving linguistic form. Given the descriptive limitations of many of our sources, we were not able to consistently track the grammatical category of an ALLATIVE sense's complement (e.g., concrete/count noun, abstract/mass noun, nominalization, non-finite verb, finite verb, coordinate clause, subordinate clause). Had this information been uniformly available, the generalizations we draw below would need to be refined. As a case in point, would one find a general diffusion across PURPOSE senses for both nominal and verbal complements or does one type of complement emerge before the other?

Table 5. A sampling of the kinds of elicitation sentences used with consultants (with the text in roman representing material which we thought might be susceptible to encoding via a phrase containing an ALLATIVE marker)

Usage type	English equivalent
ALLATIVE	<i>He drove to the store.</i>
DESTINATION	<i>She arrived at the airport.</i>
DIRECTION	<i>He turned towards the East.</i>
GOAL	<i>He reached for the gun.</i>
ADDESSIVE	<i>The book is on the table; I put it on the floor.</i>
LOCATIVE	<i>I live at home; He stood at the door; I bought it in Japan.</i>
ABLATIVE	<i>She comes from South America; He left the house.</i>
TEMPORAL LOCATIVE	<i>I met him at 8 p.m.</i>
TEMPORAL DURATION	<i>The movie lasted for 3 hours.</i>
TEMPORAL BOUNDARY	<i>I worked until lunchtime; I'll have it finished by tonight.</i>
RECIPIENT	<i>She gave the money to the clerk.</i>
BENEFACTIVE	<i>I did it for my mother.</i>
ADDRESSEE	<i>She told the story to the child.</i>
COMMUNICATIVE SOURCE	<i>He heard the news from his mother.</i>
TRANSFER SOURCE	<i>She got the key from her neighbor.</i>
COMITATIVE	<i>She danced with her father.</i>
CAUSEE	<i>I made him leave the room; I let her answer the phone.</i>
INALIENABLE POSSESSIVE	<i>I have two brothers; the two brothers of mine</i>
ALIENABLE POSSESSIVE	<i>I have a small house; that small house of mine</i>
PERCEPT	<i>I listened to the music.</i>
PERCEIVER	<i>The smell overcame me; It appeared to us over the horizon.</i>
CONCEPT	<i>I thought about him; I remembered (about) the story.</i>
CONCEIVER	<i>The thought occurred to me.</i>
EMOTIONAL TARGET	<i>She was angry at him.</i>
EXPERIENCER	<i>The movie upset her/was upsetting to her.</i>
PURPOSE (OF OBJECT)	<i>This watch is for your birthday.</i>
PURPOSE /INFINITIVE	<i>He dieted to lose weight; He left here in order to make some money.</i>
PURPOSE (OF ACTION)	<i>They went out for dinner.</i>
REASON	<i>I left because of you; She's crying from hunger; I did it out of spite.</i>
RESULT	<i>It turned to yellow; The meat became tough.</i>
ACCOMPANIMENT	<i>He danced to the music; We drank wine with dinner.</i>
ERGATIVE	<i>A dog ate the meat.</i>
ACCUSATIVE	<i>A dog ate the meat.</i>
MANNER	<i>He walks with a limp.</i>
"about"	<i>The movie is about a writer.</i>
INSTRUMENT	<i>He cut it with a knife.</i>
MATERIAL SUBSTANCE	<i>It's made out of wood.</i>

Usage type	English equivalent
COMPARATIVE	<i>She's taller than he is.</i>
RATE/PROPORTION	<i>He took the stairs 3 at a time.</i>
EQUIVALENCE/SUBSTITUTION	<i>I paid \$30 for dinner; I worked in exchange for food.</i>
(EXCESSIVE) EXTENT	<i>He drank too much; She worked on it to the degree she could.</i>
ADDITIVE	<i>I bought a pen {and/in addition to} a new wallet; I added 3 eggs to the batter.</i>
PROSPECTIVE/FUTURE	<i>She's going to leave tomorrow.</i>
INFINITIVE	<i>She asked him to see a doctor.</i>
SUBORDINATION/CONCESSIVE	<i>Since we're here, we plan to stay; Although she's angry at me, I don't care.</i>
PRAGMATIC	<i>That doesn't make any sense, you know.</i>

The range was from 1 (cases where an ALLATIVE morpheme was associated with no other function) to 23 (the case of Japanese *ni*) with a standard deviation of 4.4. Appendix B illustrates each sense type with examples from the database.

Table 6 re-sorts the results presented in Appendix A in decreasing order of their prevalence of a sense type. Lines, arbitrarily drawn at 20% and 10% of the 54 ALLATIVE morphemes exhibiting the particular sense/function in the database, separate the most and least prevalent co-occurring senses, that is, senses that were found to co-occur with the ALLATIVE sense in most morphemes vs. those that were found more rarely to co-occur with the ALLATIVE sense. Much of the discussion that follows will concentrate on the eight most frequent senses after the ALLATIVE sense, which is 100%, from Table 6. On the far right column on each sense type is its average sense density or the average number of cohort senses for languages whose ALLATIVE manifests that particular sense type. These numbers become relevant to our discussion later in Section 6.

From Table 6, we can make a number of preliminary observations. First of all, the single most prevalent cohort sense of an ALLATIVE is to mark PURPOSE; nearly half of all the ALLATIVE morphemes in our database are used to signal a PURPOSIVE relation (46%). Recall that Blansitt (1988) was only concerned with OBJECTIVE, DATIVE, and LOCATIVE syncretism with ALLATIVES and ignored PURPOSIVE uses altogether. By contrast, we found very little incidence of direct object marking (what we label ACCUSATIVE in our data tables) by ALLATIVES in the languages included in our study (2% or only 1 morpheme). The second most prevalent were CONCEPTUAL senses (35%), which were not even addressed by Blansitt or Heine, followed by RECIPIENT usages (Heine's DATIVES) at 34%. In our database, RECIPIENT usages stand in approximately a two-to-one

Table 6. *The 33 concomitant senses of the primary ALLATIVE morpheme(s) in the languages in our database organized by frequency of incidence of sense type. Lines separate those extended senses which are associated with at least 20% of our ALLATIVE morphemes as well as senses that are associated with less than 10%.*

N	%	Domain	Sense type	Thumbnail example	Sense density
54	100	Spatial	ALLATIVE (ALL)	<i>go to/towards</i> LOC, <i>reached</i> <i>for it</i>	—
25	46	Logical/Textual	PURPOSE (PUR)	<i>used it for</i> <i>that, did it in</i> <i>order to VP</i>	8.1
19	35	Mental	CONCEPTUAL (CONC)	<i>think about/</i> <i>occur to</i>	8.5
18.5	34	Social	RECIPIENT (REC)	<i>give to ANIM</i>	8.8
17	32	Spatial	LOCATIVE (LOC)	<i>be at LOC</i>	9.2
14	26	Temporal	TIMEPOINT (TIME)	<i>at TIME</i>	9.6
13.5	25	Social	ADDRESSEE (ADR)	<i>talk to ANIM</i>	10.0
12	22	Mental	PERCEPTUAL (PERC)	<i>look at/</i> <i>appear to</i>	9.2
11.5	21	Logical/Textual	REASON (REAS)	<i>did it because</i> <i>of him, ran</i> <i>from fear</i>	9.3
10	19	Temporal	BOUNDARY (BOUND)	<i>by/until TIME</i>	6.4
9	17	Social	BENEFACTIVE (BEN)	<i>make/do for</i> ANIM	10.0
8	15	Social	POSSESSIVE (POSS)	<i>have, belong</i> <i>to</i>	11.4
8	15	Logical/Textual	PROPORTION, RATE (RATE)	<i>3 out of 4, 3</i> <i>at a time,</i> <i>once per hour</i>	12.9
8	15	Logical/Textual	EQUIVALENCE (EQUIV)	<i>equal to, as,</i> <i>in exchange</i> <i>for</i>	11.8
7.5	14	Logical/Textual	SUBORDINATOR (SUBORD)	<i>although,</i> <i>when, while +</i> <i>finite clause</i>	9.7
7	13	Logical/Textual	INFINITIVE (INF)	<i>to VP</i> <i>(nonfinite</i> <i>complement)</i>	9.9
6.5	12	Mental	EMOTIONAL TARGET/ EXPERIENCER (EXP)	<i>be angry</i> <i>at/be hard for</i>	12.4

N	%	Domain	Sense type	Thumbnail example	Sense density
6	11	Spatial	ABLATIVE (ABL)	<i>come from</i>	7.6
6	11	Logical/Textual	ACCOMPANIMENT (ACMP)	<i>dance to music, drink wine with dinner</i>	10.3
6	11	Logical/Textual	MANNER (MAN)	<i>in manner of</i>	9.7
5	9	Logical/Textual	COMPARATIVE (COMP)	<i>taller than X, similar to Y, different from Z</i>	12.7
5	9	Logical/Textual	RESULT (RES)	<i>become X, turn to Y, result in Z</i>	12.6
5	9	Miscellaneous	INSTRUMENTAL (INST)	<i>cut it with a knife</i>	10.4
5	9	Logical/Textual	ADDITIVE (ADD)	<i>and X, add to Y, in addition to Z</i>	14.2
4.5	8	Social	PASSIVE AGENT (PASS)	<i>done by</i>	12.0
4.5	8	Social	HUMAN SOURCE OF TRANSFER (H-SRC)	<i>receive/hear from, according to</i>	10.8
4	7	Temporal	DURATION (DUR)	<i>lasted for/did within TIME period</i>	9.5
3.5	7	Social	CAUSEE (CAUS)	<i>make ANIM do</i>	12.5
3	6	Logical/Textual	(EXCESSIVE) EXTENT (EXT)	<i>to X degree</i>	3.7
2	4	Logical/Textual	FUTURE/MODAL (FUT)	<i>be going to VP soon</i>	9.5
1	2	Social	COMITATIVE (COM)	<i>do with ANIM</i>	4.0
1	2	Expressive	PRAGMATIC EFFECT (PRAG)	<i>regrettably, surprisingly</i>	23.0
1	2	Miscellaneous	ACCUSATIVE (ACC)	<i>ate the meat</i>	9.0
1	2	Miscellaneous	ERGATIVE (ERG)	<i>the dog ate it</i>	5.0

ratio with BENEFACTIVE ones (17 %), suggesting that the endpoint of a physical transfer relationship is more salient, or more like a basic, spatial ALLATIVE than an event which has direct or indirect experiential effects on a third party. We will have more to say about the DATIVE/RECIPIENT-BENEFACTIVE connection below. Consistent with Blansitt and Heine, we found that ALLATIVE and LOCATIVE (Heine's PLACE) usages frequently co-occur, with 32 % of our ALLATIVES also marking LOCATIVE relations. TIMEPOINT usages (26 %) were on a par with ADDRESSEE usages (25 %), as were PERCEPT/PERCEIVER usages (22 %) and REASON (21 %).

It must be emphasized that the raw incidence of any single cohort sense type is really only of minor interest. While it is somewhat instructive to compare the occurrence frequencies of two or more sense cohorts in order to begin formulating a model of ALLATIVE polysemy, it is absolutely necessary to compare raw frequency of multiple individual senses with the frequency of their co-occurrences within a language. There are three possible patterns of sense relationships: independence, coincidence, and dependence, as illustrated in Figure 2. If a SENSE B and a SENSE C each have an aggregate frequency across the database of 20 %, but never co-occur in any language, then we can presume that the two senses are very distinct and/or dissimilar, and represent, in all likelihood, independently motivated grammatical uses (independence, Figure 2a). By contrast, if a SENSE B and a SENSE C each have an aggregate frequency of 25 %, but co-occur in most of the languages, then we may rightly wonder about the semantic or functional independence of the two senses (coincidence, Figure 2b). Finally, if a SENSE B has an aggregate frequency of 40 % and a SENSE C has an aggregate frequency of only 15 %, and nearly all instances of SENSE C occur in languages that also exhibit SENSE B, then we might be led to conclude that SENSE C derives from SENSE B (dependence, Figure 2c).

Where relevant, results from a two-tailed Fisher's exact test of independence (FET) will also be shown to provide the statistical significance (or non-significance) of the interdependency.<sup>10</sup> We will let these pie charts, together with FET results, be our guide as we survey the most relevant co-occurrence patterns between multiple cohort senses in our database in the next three sections.

## 5.2. *Place and time*

There are three types of spatial relations that the morphemes in our database could potentially mark: ALLATIVE, LOCATIVE, and ABLATIVE senses. Because

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10. In a Fisher's exact test, the null hypothesis states that the distributions of any two cohorts to be tested have no relation, nor is one dependent on the other. When the calculated *p* value, which is the only output of an FET, is smaller than 0.05 (two-tailed), the null hypothesis is rejected and the interdependency of two cohort senses is considered as statistically significant.

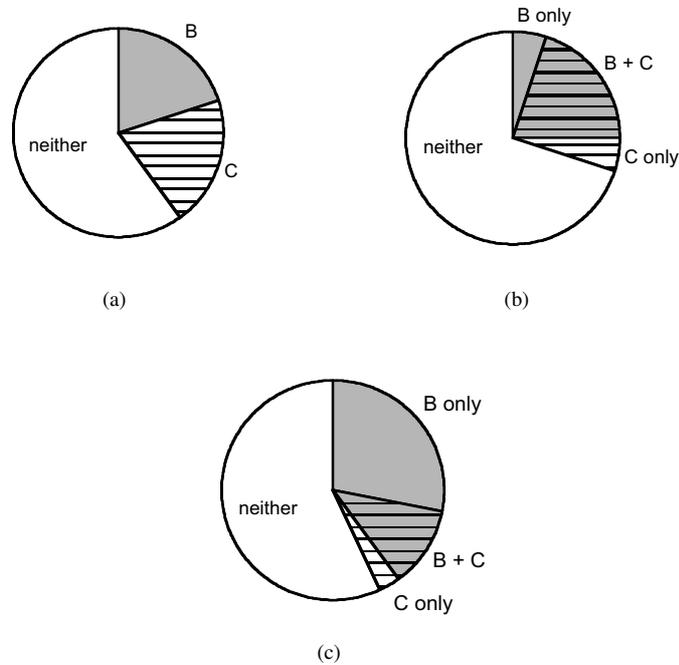


Figure 2. Diagrams showing three possible relationships – independence (a), coincidence (b), and dependence (c) – holding between cohort ALLATIVE sense types in our database

ALLATIVES were our starting point, any polysemy or syncretism observed across the languages in the database would necessarily have to involve the collapse of ALLATIVE and LOCATIVE, ALLATIVE and ABLATIVE, or the collapse of all three. It is left to a different study to ascertain the crosslinguistic incidence of LOCATIVE-ABLATIVE syncretism to the exclusion of ALLATIVE. In any case, LOCATIVE cohort usages far out-number ABLATIVES in our database by nearly a 3-to-1 margin. Moreover, of the six instances of ABLATIVE usages, five of them co-occur with a LOCATIVE usage. This distribution leads us to conclude that ABLATIVE senses derive from LOCATIVES rather than enjoying an independent motivation from the “basic” ALLATIVE sense. Figure 3 diagrams the cohort distribution facts regarding LOCATIVE and ABLATIVE senses of ALLATIVES, indicating the distribution pattern that resembles the “sense dependence” template given in Figure 2c. The dependency is confirmed to be statistically significant ( $p < .01$ ; FET). The conclusion that we draw at this point is that ABLATIVE senses are indeed peripheral to the ALLATIVE category and they likely do not

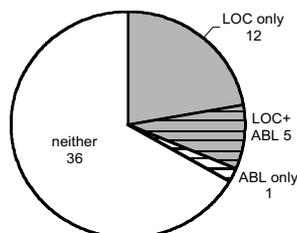


Figure 3. *Distribution of LOCATIVE (17) and ABLATIVE (6) usages of the 54 ALLATIVE usages in our database*

play much of a primary role in motivating other senses commonly associated with ALLATIVES.

There are three other cohort senses of particular interest as we chart the behavior of ALLATIVE morphemes with respect to the marking of relations in the spatial and temporal domains: LOCATIVE, TIMEPOINT, and time goal, or what we will call BOUNDARY senses. From the figures given in Table 6, we observe that LOCATIVE usages occur with 32% of the ALLATIVES, TIMEPOINT usages with 26%, and BOUNDARY usages with 19%. Within the spatial domain, one can easily hypothesize that a salient destination or endpoint of a path (the archetypal ALLATIVE) might have given rise via metonymy to a focus on the destination location itself (the LOCATIVE) through semantic weakening.<sup>11</sup> If this is the case, then LOCATIVE usages of an ALLATIVE might also be more closely associated with TIMEPOINT usages to the extent that they share the idea of static location rather than destination, albeit in different domains. That is, LOCATIVE usages may be the necessary intermediary motivating TIMEPOINT usages, especially since they are more prevalent than the latter.<sup>12</sup> The distribution patterns shown in Figure 4 support this possibility: the majority of TIMEPOINT usages co-occur

11. The metonymy might just as well be reversed or even bi-directional such that a salient location might have extended to encompass a salient destination in other languages. This is probably unlikely given the preponderance of crosslinguistic grammaticalization evidence that suggests that locative markers frequently derive from motion verbs (*go, leave, move, walk*), “post-motion” verbs (*stop, rest*), verbs of physical or perceptual “reach” (*touch, point out, look at, see*), or body part nouns which move or are vector-like (*leg, hand, penis*) (cf. Heine, Güldemann, et al. 1993: 274).

12. In this vein, Heine & Kuteva (2002: 206) write, “[i]t is hard to find languages where some expressions for locative concepts are not extended to also refer to temporal concepts”. Haspelmath (1997) also provides strong evidence for the use of time-space metaphors crosslinguistically.

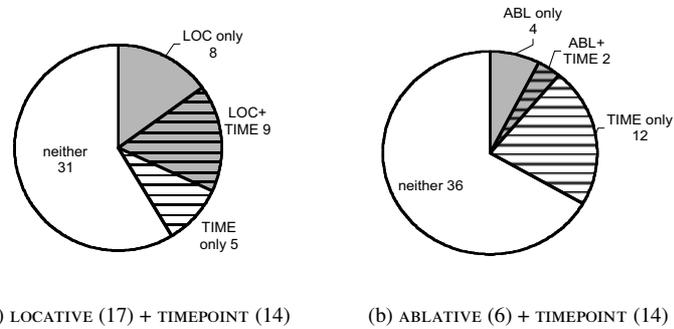


Figure 4. Distribution of LOCATIVE and TIMEPOINT (a) and TIMEPOINT and ABLATIVE (b) usages

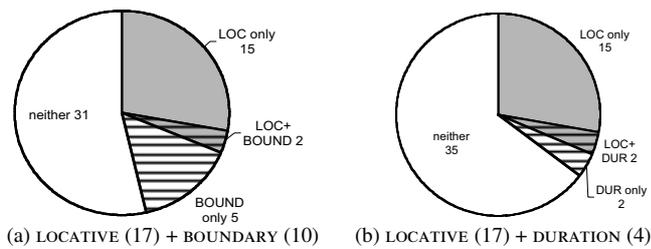


Figure 5. Diagrams showing the overlap of LOCATIVE with BOUNDARY (a) and with DURATION (b)

with LOCATIVE ( $p < .01$ ; FET), but not with ABLATIVE ( $p = .64$ ; FET), in the database.

What, then, is the relationship between LOCATIVE and the two remaining temporal senses marked by ALLATIVES in our survey, namely BOUNDARY and DURATION senses? The results, shown in Figure 5, suggest that BOUNDARY and DURATION senses are relatively independent from LOCATIVE ( $p = .47$  and  $p = .47$  respectively; FET), unlike what we observed with ABLATIVE and TIMEPOINT. Figure 5a resembles the “sense independence” template in Figure 2a, whereas the co-occurrence pattern in Figure 5b best resembles the “sense coincidence” template from Figure 2b. In both cases, there appears to be little conceptual overlap with LOCATIVE.

On the other hand, if we compare the incidence of BOUNDARY and DURATION with TIMEPOINT, as shown in Figures 6a and 6b, it seems that DURATION ( $p < .05$ ; FET), but not BOUNDARY ( $p = .71$ ; FET), derive from TIMEPOINT. BOUNDARY and DURATION exhibit no overlap at all, as evident in Figure 6c. BOUNDARY senses appear to be motivated by the basic ALLATIVE sense directly.

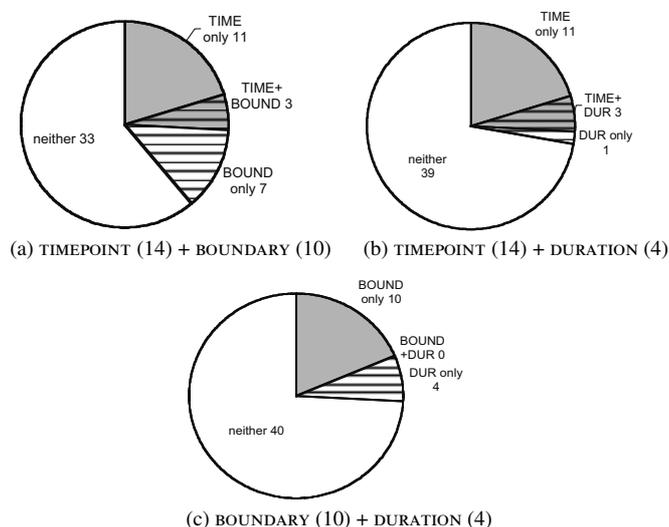


Figure 6. Diagrams showing the distribution of the three cohort usages: TIMEPOINT, BOUNDARY, and DURATION usages

They do not co-occur with any of the other senses just discussed, either spatial or temporal, in any appreciable way.

Using the information contained in Figures 3 to 6, we are now in a position to begin refining Heine’s model of ALLATIVE extension as presented in Figure 1. We propose the first fragment of our own model in Figure 7. This figure and others like it will eventually be reflected in our comprehensive model shown in Figure 19. However, for expository purposes, we will build the model up by sections. This model is intended to reflect the probable relationships holding among ALLATIVE, ABLATIVE, LOCATIVE, TIMEPOINT, BOUNDARY, and DURATION senses diachronically and crosslinguistically. Solid lines indicate those relationships that have been confirmed or strongly suggested by the data, and broken lines indicate relationships that are only suggestive and need further investigation.

### 5.3. Place and person

Any focus on the person takes us to the social and mental domains – domains in which human interaction, transactional, perceptual, conceptual, and emotional events transpire. With respect to the social domain (we will address the mental domain later), the most prevalent person-related sense in the database turns out to be RECIPIENT, the archetypal DATIVE, which is a cohort sense of 34 % of the ALLATIVES we studied. RECIPIENTS are prototypically human endpoints of

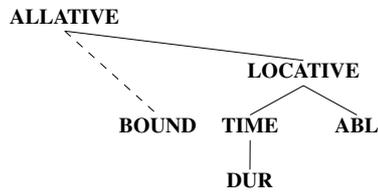
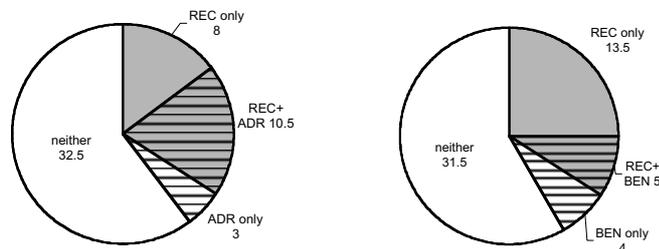


Figure 7. A hierarchical mapping of the major relationships among each of five cohort SPATIAL and TEMPORAL senses of the ALLATIVES in our database



(a) RECIPIENT (18.5) + ADDRESSEE (13.5) (b) RECIPIENT (18.5) + BENEFACTIVE (9)

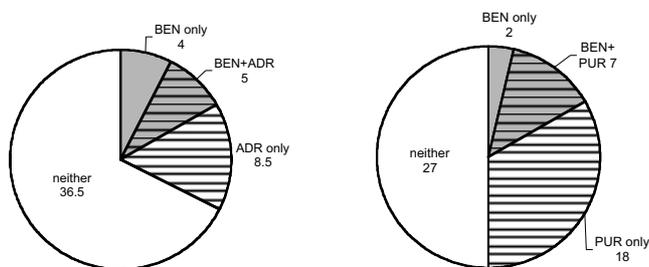
Figure 8. Diagrams showing the distribution of RECIPIENT and two human cohort usages: ADDRESSEE (a) and BENEFACTIVE (b)

a physical transaction. These usage types are far more common than other obviously “human endpoint” senses such as ADDRESSEE (25 % of the ALLATIVES), BENEFACTIVE (17 %), or even CAUSEE (7 %) – senses that have all been associated with ALLATIVE or DATIVE marking in the literature and which sometimes fall out under the general rubric APPLICATIVE.

As an operating procedure, we took the most frequently occurring sense in a given domain and assumed that it serves as a “seed” for associated senses.<sup>13</sup> To that end, we were interested in the degree of overlap between RECIPIENT and three other person-marking social domain senses: ADDRESSEE, BENEFACTIVE, and POSSESSIVE. As it turns out, RECIPIENT overlaps with ADDRESSEE at the significant level ( $p < .01$ ; FET) as shown in Figure 8a, but not with BENEFACTIVE ( $p = .24$ ; FET), shown in Figure 8b.

By contrast, BENEFACTIVE usages overlap with ADDRESSEE as well as with PURPOSE, as shown in Figures 9a and 9b. ADDRESSEES and BENEFACTIVES are

13. Taking the frequency as indicator of semantic importance was believed to be a good rule of thumb, following previous studies in grammaticalization like Heine, Claudi, & Hünemeyer, who maintain that “it is its high frequency of occurrence that makes a given lexeme eligible for grammaticalization” although “high frequency of use on its own is not sufficient to account for grammaticalization” (1991: 38–39). Nonetheless, the authors are aware that it is falsifiable.



(a) BENEFACTIVE (9) + ADDRESSEE (13.5) (b) BENEFACTIVE (9) + PURPOSE (25)

Figure 9. Diagrams showing the overlap of BENEFACTIVE with ADDRESSEE (a), and with PURPOSE (b)

both typically human and it takes little stretch of imagination to see that since these usages are similar semantically they might receive similar marking across languages. Likewise, BENEFACTIVE seems to be an obvious special case of PURPOSE; when one acts for the benefit of another (or out of malevolence), he or she is usually acting purposefully.

The case of POSSESSIVE is instructive, although, like BENEFACTIVE, it is a somewhat peripheral usage in our database, manifesting itself as an associated sense in only 15% of the ALLATIVES. There are no POSSESSIVE usages in the database that do not also overlap with some combination of PURPOSE, LOCATIVE, and RECIPIENT. PURPOSE usages practically subsume POSSESSIVE senses ( $p < .05$ ; FET), as shown in Figure 10a, but POSSESSIVE also overlaps to a similar degree with LOCATIVE and RECIPIENT ( $p < .01$  and  $p < .05$  respectively; FET), the second and third most common associate usage with POSSESSIVE after PURPOSE, as shown in Figures 10b and 10c.

The pivotal cohort, however, is PURPOSE. Except in a single case in which POSSESSIVE and RECIPIENT overlap in its absence, POSSESSIVE co-occurs with PURPOSE, either in isolation (one case) or in the combination of PURPOSE and RECIPIENT (one case), PURPOSE and LOCATIVE (three cases), or PURPOSE, RECIPIENT, and LOCATIVE (three cases).<sup>14</sup> As we shall see below, when PURPOSE is present, so too are a variety of other usage types affecting predications in most of the other domains, including LOCATIVE. Purposefulness is, after all, strongly associated with animate motion. ALLATIVES used in the context of volitional motion frequently mark purposeful destinations, such as *the phone* in

14. It should be noted that POSSESSIVE and BENEFACTIVE overlap considerably, too, but never exclusively. That is, for the six instances in which BENEFACTIVE overlaps with POSSESSIVE, those overlaps coincide with PURPOSE five times and RECIPIENT once. It is, therefore, unlikely that POSSESSIVE usages are uniquely motivated by BENEFACTIVE.

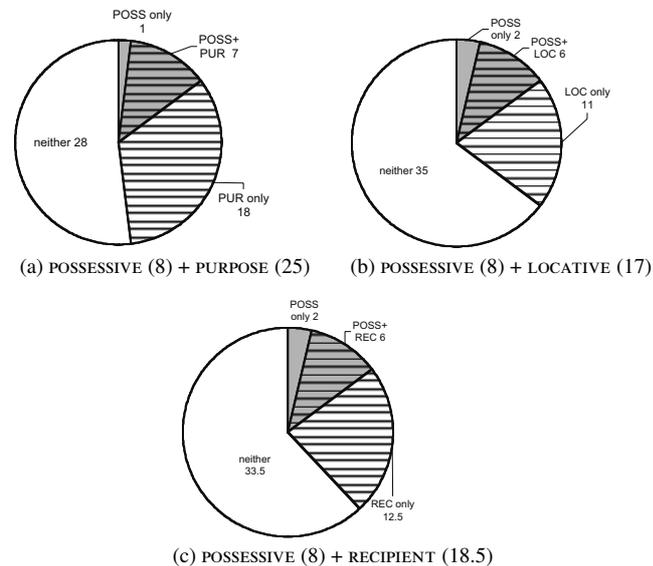


Figure 10. *The extent to which POSSESSIVE overlaps with PURPOSE (a), LOCATIVE (b), and RECIPIENT (c) usages of the 54 ALLATIVE markers in our database*

*The girl ran to the phone* and unlike *the floor* in *The glass fell to the floor*. Perhaps PURPOSES represent such strong metonymic extensions from a spatial goal concept that once a group of speakers begin to use an ALLATIVE to mark PURPOSE, goal-based metaphors and metonymies in other content domains become apparent and the ALLATIVE extends accordingly. It would certainly be misguided to assume that LOCATIVE usages of ALLATIVES motivate the development of POSSESSIVE senses, as Heine (1990) proposed based on data from a single language (Ik).

Returning to our model of ALLATIVE polysemy, we will tentatively propose that, for social domain usages, ALLATIVES tend to extend first and foremost to RECIPIENTS, the typically human, yet also spatial endpoint of physical transfer. RECIPIENT senses might then give rise to ADDRESSEE and BENEFACTIVE usages, but these two could also have competing motivation from PURPOSE senses, which we will discuss presently. Likewise, POSSESSIVE usages of ALLATIVES, which are likely to be more derivative than ADDRESSEE or BENEFACTIVE, may be multiply motivated. Our updated model is shown in Figure 11.

The other class of person-related usages in the database comprises those that mark mental state predications. Chief among these are relations pertaining to either a perceptual target (e.g., *look at X*) or a perceiver (e.g., *appear to Y*), a

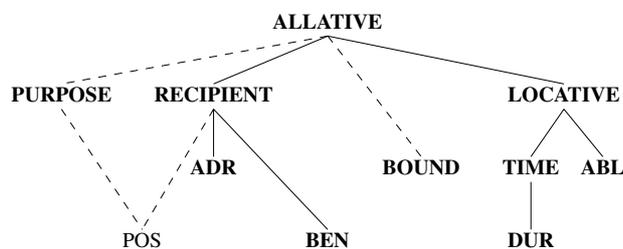


Figure 11. A hierarchical mapping of the major relationships among the major SOCIAL and SPATIO-TEMPORAL domain senses of the ALLATIVES in our database

conceptual target (e.g., *think about X*) or a conceiver (e.g., *occur to Y*), and an emotional target (e.g., *be angry at X*) or experiencer of an emotional response (e.g., *be hard for Y*). Perception and conceptualization are readily construed as involving motion crosslinguistically. For example, the percept/concept can be construed as moving towards the perceiver/conceiver (which is the entity marked by the ALLATIVE) or the perceiver/conceiver as moving figuratively towards the percept/concept (the ALLATIVE-marked entity in such instances). What seems like an ambiguity between mental source and mental goal results from variation in the essential construal.<sup>15</sup> For descriptive purposes here, we have subsumed these variable mental state construals under the three rubrics PERCEPTUAL, CONCEPTUAL, and EXPERIENCER.

A glance back at Table 6 reveals that conception-related senses dominate among the ALLATIVE based senses in the mental domain. CONCEPTUAL usages, which we assume serve as the “seed” sense in this domain, are attested by 35 %, PERCEPTUAL usages by 22 %, and EXPERIENCER usages by 12 % of our focal goal-marking morphemes. The pie charts in Figure 12 show the co-occurrence relationships among these three mental domain senses. PERCEPTUAL usages are likely to have derived from CONCEPTUAL usages rather than the other way around, though the FET failed to reach a significant level ( $p = .086$ ). EXPERIENCER usages are closely associated both with CONCEPTUAL usages and PERCEPTUAL usages ( $p < .05$  and  $p < .01$  respectively; FET), likely reflecting close relationships between the two types of mental state predications.

As with social domain usages, if we go beyond the domain cohorts of these three sense types, we can adduce other commonalities among extended senses

15. This ambiguity is reminiscent of the better known TIME IS SPACE metaphor that operates in nearly every language. We can conceive of time as a moving entity which comes upon us or passes us (e.g., *Our anniversary is fast approaching*) or as a landscape which we move through (e.g., *We're getting close to the end of the year*). See Haspelmath (1997), Lakoff & Johnson (1980), and Lakoff (1987) for further discussion.

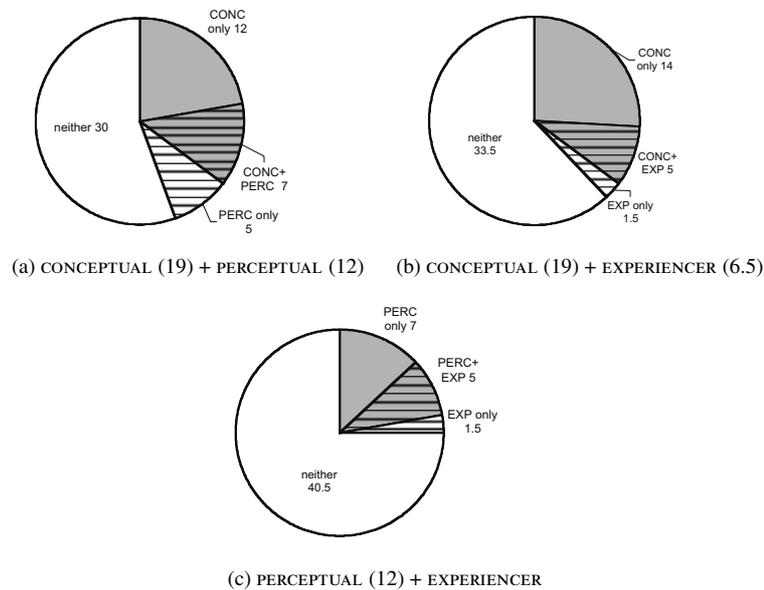


Figure 12. Diagrams showing the distribution of CONCEPTUAL, PERCEPTUAL, and EXPERIENCER usages which involve mental state predications and were relatively frequent in the database

and even propose some lateral motivation for the emergence of one or another sense. Let us start with CONCEPTUAL senses. There are three usages that stand out as favored cohorts with CONCEPTUAL: RECIPIENT, PURPOSE, and ADDRESSEE. The degree of sense overlap between each of these three sense types and CONCEPTUAL is diagrammed in Figure 13.

If we compare the degree of overlap with our template diagrams presented in Figure 2, then the results in Figures 13a and 13b are suggestive of sense coincidence only.<sup>16</sup> CONCEPTUAL, RECIPIENT, and PURPOSE are all highly frequent usage cohorts of ALLATIVE, but they are highly frequent in their own right. There are at least as many exclusive examples in our database of each of these senses as there are of overlapping ones (we have yet to present the results for PURPOSE and RECIPIENT overlap, but do so in Figure 18 below). This leads us to think that PURPOSIVE, CONCEPTUAL, and RECIPIENT senses all have an equal chance of developing in any given language. Interestingly enough, it looks like there is an affinity holding between CONCEPTUAL and ADDRESSEE usages ( $p < .01$ ; FET), as shown in Figure 13c, suggesting that communication

16. FET tests did not yield significant results either, at  $p = .14$  and  $p = .57$  respectively.

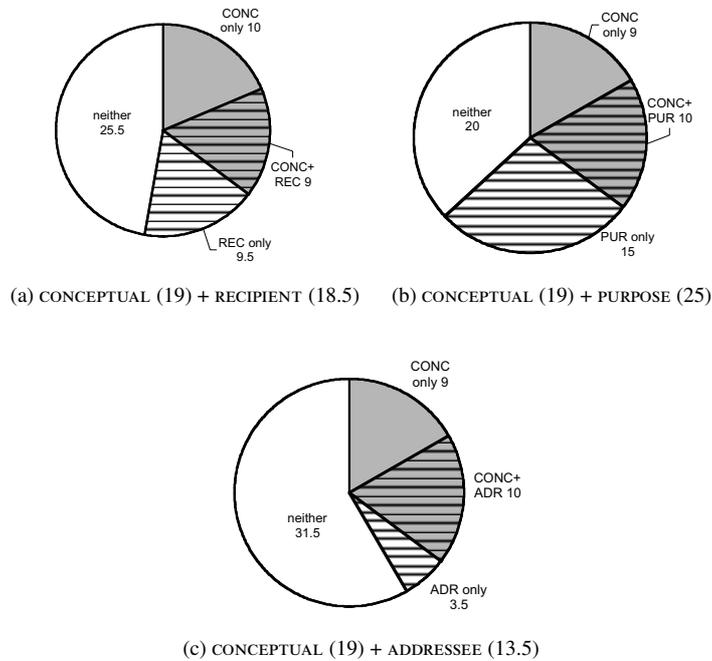


Figure 13. Diagrams showing the overlapping distribution of CONCEPTUAL with its three favored cohorts: RECIPIENT (a), PURPOSE (b), and ADDRESSEE (c)

may be construed as much, if not more, affiliated with mental state predications as an extension of physical transfer across languages.

Similarly, EXPERIENCER and RECIPIENT show interdependent affiliation. Consider the distribution facts for these two senses as shown in Figure 14. EXPERIENCER senses, predicated primarily in the mental domain, seem especially dependent on or even derivative of RECIPIENT senses, predicated primarily against the social domain. The degree of overlap, which is statistically significant ( $p < .05$ ; FET), is slightly greater than that between EXPERIENCER and CONCEPTUAL, as diagrammed in Figure 12b. The overlaps between CONCEPTUAL and ADDRESSEE, on the one hand, and RECIPIENT and EXPERIENCER, on the other, are two instances in which our domain classifications obscure relationships more than reveal them.

As we continue to build on our model of ALLATIVE polysemy, we now incorporate, as shown in Figure 15, these mental domain findings to the spatial, temporal, and social domain senses diagrammed in Figures 7 and 11.

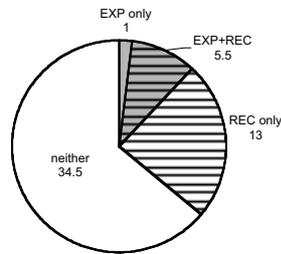


Figure 14. *The extent to which EXPERIENCER (6.5) and RECIPIENT (18.5) usages of ALLATIVES in our database overlap*

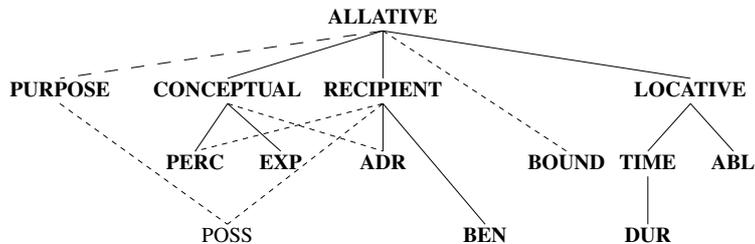


Figure 15. *A hierarchical mapping of the major relationships among the MENTAL, SOCIAL, TEMPORAL, and SPATIAL domain senses of the ALLATIVES in our database*

#### 5.4. Place and purpose

We conclude our survey of the dominant crosslinguistic co-senses and co-functions of ALLATIVE markers by moving into the domain of logical/textual relations. Predications in this broadly construed domain encompass rationales and outcomes behind events (such as purposes, reasons, and results); comparison, rate, or substitution evaluations; as well as conditional, intentional, modal, and counterfactual relations between propositions. The most prevalent sense across the entire database involves a usage type from this domain: PURPOSE. It is the single most common cohort sense of the ALLATIVES in our study and is frequently mentioned in the literature as deriving from a goal-marking morpheme. Nearly half (46%) of the 54 spatial goal markers we looked at also code PURPOSE relations with either an abstract nominal or a verb, or clause as a complement. The second most frequent use from the logical/textual domain is REASON, which shows up at a rate of less than half of PURPOSE (21%). Recurring yet hardly robust senses include PROPORTION/RATE marking (15%), EQUIVALENCE (15%), SUBORDINATOR (14%), INFINITIVAL (13%), and MANNER (11%). The

pie charts in Figure 16 illustrate the degree of overlap between PURPOSE and the other key senses in this domain of logical/textual expression.<sup>17</sup>

The distribution patterns for all six cohort sense types match the sense dependence template in Figure 2c. Both the preponderance of PURPOSE senses and the relative infrequency of the remaining six cohort senses, as well as the near total overlap of the six cohorts with PURPOSE, strongly suggest that the former derive from the latter. FET tests confirmed the interdependency of PURPOSE with REASON, PROPORTION/RATE, and EQUIVALENCE ( $p < .05$ ), as well as with MANNER ( $p < .01$ ), though not with SUBORDINATOR<sup>18</sup> and INFINITIVAL.

Although it may be difficult to motivate direct semantic linkages between PURPOSE and PROPORTION/RATE, PURPOSE and EQUIVALENCE, or PURPOSE and MANNER, the fact that a PURPOSIVE use of an ALLATIVE moves the morpheme into the realm of abstract relation marking may inspire these other senses. In the case of PURPOSE and REASON syncretism, this is a well-known ambiguity (or metonymy); REASONS motivate future events and future PURPOSES cause events to transpire in the first place (cf. Frawley 1992: 227). INFINITIVAL uses of ALLATIVES often carry a PURPOSIVE if not future inference. They differ primarily in the syntactic narrowness of their complements. The same could not be said of SUBORDINATOR usages of ALLATIVES. While they do tend to introduce clauses (both finite and nonfinite), they often convey a temporal or concessive sense as well. Interestingly, if we look at the co-incidence of INFINITIVAL and SUBORDINATOR usages of ALLATIVES in the database, we find no overlap at all. That is, these two senses are completely orthogonal to each other, as shown in Figure 17a. This suggests that a split may occur once a language develops a PURPOSE sense out of an ALLATIVE. The new PURPOSE marker may go on to grammaticalize into an INFINITIVAL marker or into a SUBORDINATOR, but it likely does not do both. It is important to note that there is also no overlap between INFINITIVAL and REASON senses, nor would we expect there to be. Senses that seem

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17. Indeed, Haspelmath (1989) posited a grammaticalization chain of this sort affecting ALLATIVES, proclaiming the source-to-target extension hierarchy as below (note the conspicuous placement of PURPOSE):

(i) ALLATIVE > PURPOSE > INFINITIVE > COMPLEMENTIZER

Our survey results are partially compatible with this posited order of extension, as skeletal as it is. We cannot fully endorse it, however, as an inevitable or unitary grammaticalization pathway since so many other extension pathways appear to be available to ALLATIVES crosslinguistically as well. Nevertheless, with respect to the domain of logical/textual relations, the dependencies as postulated above holding among ALLATIVE, PURPOSE, and INFINITIVE usages seem right.

18. We need to clarify here that what we are calling (and coded as such in the database) SUBORDINATOR senses do not convey a PURPOSIVE meaning. If they did, they would have been tagged as PURPOSES. The usages we labeled SUBORDINATOR senses introduce subordinate clauses in a highly grammatical fashion.

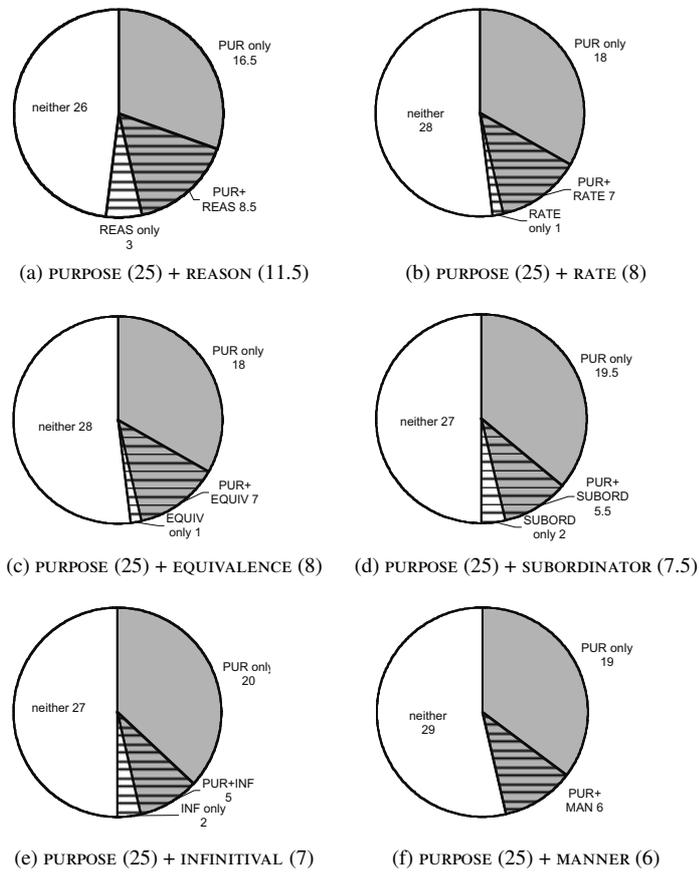


Figure 16. Diagrams showing the distribution of PURPOSE and its 6 cohort usages in the textual domain

to derive from REASON, such as MANNER, are likewise completely independent of INFINITIVAL senses, as shown in Figures 17b and 17c.

The existence and extent of co-occurrences among different senses leads us to conclude that there is a bifurcation in the senses that derive from PURPOSE, starting with REASON and INFINITIVAL. Earlier, we alluded to the fact that PURPOSE and RECIPIENT senses seem orthogonal as well. That is, all things being equal, an ALLATIVE in a language has about an equal chance of developing into an event-related PURPOSE marker or into a general class of human-oriented DATIVE markers (RECIPIENT, BENEFACTIVE, ADDRESSEE, etc.). The distribution pattern diagrammed in Figure 18 best fits the template diagrammed in Fig-

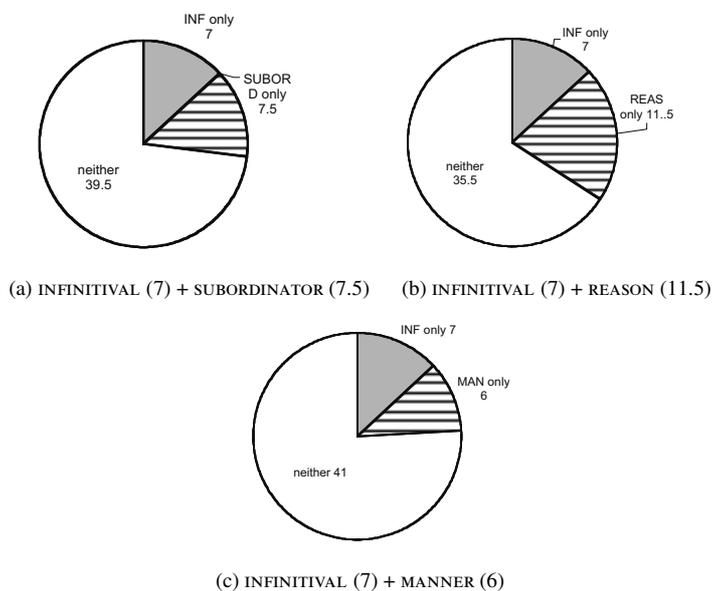


Figure 17. *The complete independence of INFINITIVAL and three REASON-related senses in the database*

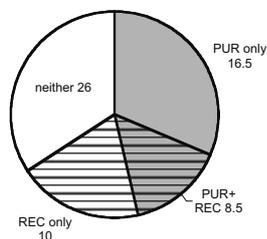


Figure 18. *The degree of overlap between PURPOSE (25) and RECIPIENT (18.5) senses among the ALLATIVE markers examined in this study*

ure 2b, with the degree of overlap between PURPOSE and RECIPIENT senses in the database smaller than the incidence of either sense alone. Two senses may correlate somewhat, but are likely not interdependent in any critical way, as indicated by the result of an FET ( $p = 1$ ).

However, it is not just PURPOSE and RECIPIENT senses which seem orthogonal and relatively independent to us. We have identified four dominant “seed” sense types that tend to attract ALLATIVE marking crosslinguistically: PURPOSE, RECIPIENT, LOCATIVE, and CONCEPTUAL.

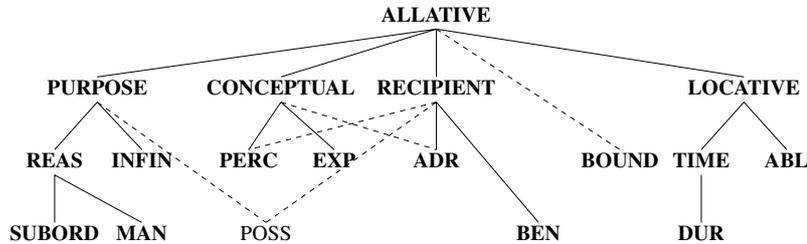


Figure 19. A hierarchical mapping of the major relationships among the major LOGICAL/TEXTUAL, MENTAL, SOCIAL, TEMPORAL, and SPATIAL domain senses of the ALLATIVES in our database

We conclude this section on frequently occurring cohort senses of ALLATIVE markers by proposing a developmental pathway for the senses within the logical/textual domain in Figure 19. We take PURPOSE to be the dominant and, therefore, “seed” sense which may eventually engender other senses and usages in this domain. We also acknowledge the role that PURPOSE senses may play in licensing abstract usages in other domains, such as POSSESSIVE or BENEFACTIVE. The advent of PURPOSE usages may serve as a kind of “tipping point” by which the metaphorical leap from physical destinations to mentally projected intentions is so great that the utility of ALLATIVE marking in other domains becomes insuppressible. Of course, there are other factors at play that determine the extent and order of grammaticalization. We address some of these factors in Section 8.

## 6. Infrequent and non-occurring senses

It is always easier to speak about instances than absences, but there are some glaring disparities between the highly frequent senses in our database and the barely present or non-existent ones. Let us begin by discussing the non-occurring senses. Such a list can only be coherent when speaking of oppositions. Whereas some PURPOSIVE or INFINITIVAL usages of ALLATIVES easily take on FUTURE inferences, there were no cases of the ALLATIVES we studied taking on a PAST reading, either alone or in combination with a particular collocating verb (such as *come*). While temporal usages in general were in evidence (TIMEPOINT, BOUNDARY, DURATION), there were no unequivocal aspectual usages present in the database. Aspect markers (cf. Bybee et al. 1994) seem to arise out of verbal or LOCATIVE sources. Finally, while many oblique complements or adjuncts were indicated by ALLATIVES, there were relatively few instances in which ALLATIVES marked direct complements or arguments of the verb, such as subject or object. Likewise, the range of major case relations ran

Table 7. The incidence of overlap between each of the suspect source-oriented senses. Numbers in parentheses indicated total incidence in the database. Although we report some sense incidences as fractions, indicating that they surface in combined forms, we round up when it comes to reporting the incidence of overlap.

Cohort	ABLATIVE (6)	PASSIVE AGENT (4.5)	HUMAN SOURCE (4.5)	CAUSEE (3.5)	ERGATIVE (1)
Sense					
ABLATIVE (6)		1	0	0	0
PASSIVE AGENT (4.5)			1.5	1.5	0
HUMAN SOURCE (4.5)				1.5	1
CAUSEE (3.5)					0
ERGATIVE (1)					

from DATIVE, COMITATIVE, and INSTRUMENTAL to GENITIVE (POSSESSIVE) and PARTITIVE, but largely skirted NOMINATIVE, ACCUSATIVE, ERGATIVE, or ABSOLUTIVE.

Given the overriding vector-like goal image schema supposedly underlying ALLATIVES semantically, it was not surprising that there were few source-oriented usages at all, such as ABLATIVE (11 %), HUMAN SOURCE (8 %), PASSIVE AGENT (8 %), CAUSEE (7 %), or ERGATIVE (2 %).<sup>19</sup> What was surprising was that there were any. Although the numbers are small, it is worth noting some of the incidence of overlap between each of the suspect source-oriented senses, summarized in Table 7. The central message is that these source-oriented senses do not seem to co-occur or be mutually reinforcing.

Without overly dwelling on these peripheral senses, the case of CAUSEE bears some discussion. Although it does not overlap with its source-oriented cohorts, it does with some key social and mental domain senses: ADDRESSEE, RECIPIENT, and CONCEPTUAL. These overlap relationships are diagrammed in Figure 20.

As it happens, ADDRESSEE senses completely subsume those that mark CAUSEE. While not all interpersonal causation is mediated verbally between the causer and the causee, indirect causation that has a communicative component seems to be the archetypal case, at least in English. Indeed, there seems to be a natural conceptual overlap between an ADDRESSEE and a CAUSEE, just as there would be (and is) between a CAUSEE and a conceptualizer or conceiver. CAUSEES are as much endpoints of coercive verbal transfer as they are starting points of subsequent action. Caught in the middle, they are bound to

19. We are ignoring the most frequent source-oriented extension in the database: REASON. We have already touched on the conceptual overlap between PURPOSES and REASONS and regard the latter as almost wholly derivative of the former crosslinguistically.

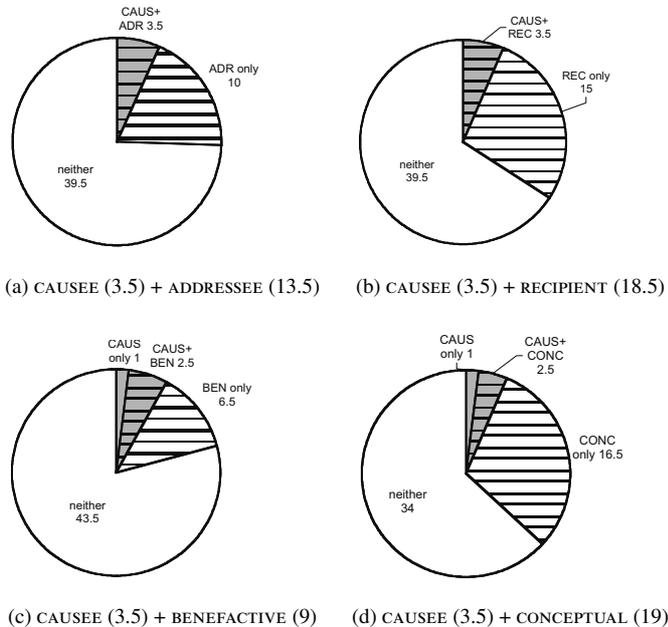


Figure 20. Diagrams showing the cohort relationships among the four most frequent senses which co-occur with CAUSEE

receive ambiguous treatment linguistically, being neither prototypical goals nor sources.

The seemingly counterintuitive source-oriented ALLATIVE senses typically manifest themselves only when a sufficient level of sense density has been reached. That is, when the grammaticalizing morpheme (which we assume has an ALLATIVE or LOCATIVE meaning fundamentally) has reached a critical threshold in the language, the likelihood of sense proliferation and domain infiltration, especially in the case of these more abstract and source-oriented usages, increases. In Table 6, we have reported the average semantic density, or the average number of cohort senses for languages whose ALLATIVE manifests that particular sense type, for each of the 33 extended senses. We found that highly frequent senses are represented by ALLATIVES exhibiting a relatively low sense density across languages, while infrequent senses are associated with relatively high sense densities among their ALLATIVES. In other words, the trend may be towards common senses emerging early, with rare senses emerging late, and only after the ALLATIVE has undergone extensive grammaticalization, already becoming quite polysemous in the process. To investigate the appar-

ent negative correlation between the frequency of a particular sense and the average cohort sense density of all the ALLATIVES evincing that sense, we performed a Pearson's  $r$  for all senses with a frequency greater than 3 (we assumed that the more infrequent senses would be highly idiosyncratic and less representative of the ALLATIVE category). The correlation coefficient,  $-.50$ , was significant ( $p < .01$ ).

For five of the six source-based sense types under discussion here, the average number of senses across the languages in which they appear in is rather high: ABLATIVE (average sense density 7.6), PASSIVE AGENT (12.0), HUMAN SOURCE (10.8), CAUSEE (12.5), and ERGATIVE (5). This suggests to us that, for the most part, these are highly derived senses. The high degree of marginality of these senses likely reaches a point at which individual factors within a language become the most powerful determinants of grammaticalization. Consequently, it would be futile in such marginal cases to look for recurring patterns of co-occurrence crosslinguistically, or try to divine what might motivate a particular peripheral sense in the first place.

## 7. Our model of ALLATIVE polysemy/syncretism

Although we have been slowly revealing parts of our own model of ALLATIVE polysemy as we reported the distribution patterns from our typological survey in Sections 5 and 6, we are now in a position to synthesize those findings and compare our results with those of Heine (1990), whose model was given in Figure 1. In our study of 54 ALLATIVE markers, we found TEMPORAL usages to be surprisingly infrequent, but they do seem to derive from LOCATIVE senses, as hypothesized by Heine. However, unlike what Heine concluded, we found that POSSESSIVE usages seem to be multiply or at least equally motivated as extensions from both RECIPIENT and LOCATIVE (his PLACE) usages. Our results support few remaining aspects of his model except the grammaticalization chain linking PURPOSE to REASON and clause embedding functions. The inclusion of MANNER in this line of development seems unwarranted for the languages we studied.

We do not see the necessity of separating concrete ALLATIVE (with spatial, nominal complements) and more abstract GOAL (with non-spatial, nominalization and verbal complements) usages. Moreover, we felt the data merited the unpacking of the concept DATIVE since RECIPIENT, ADDRESSEE, and EXPERIENCER roles, among others, were usually treated separately by the different languages. We also treat BENEFACTIVE as derivative of DATIVE rather than the other way around. Even more significantly, our data support the introduction of additional nodes into the model, some of which are partially or wholly dependent on existing nodes. Chief among these are the nodes for senses which we have placed in what we call the domain of mental state predications. Fi-

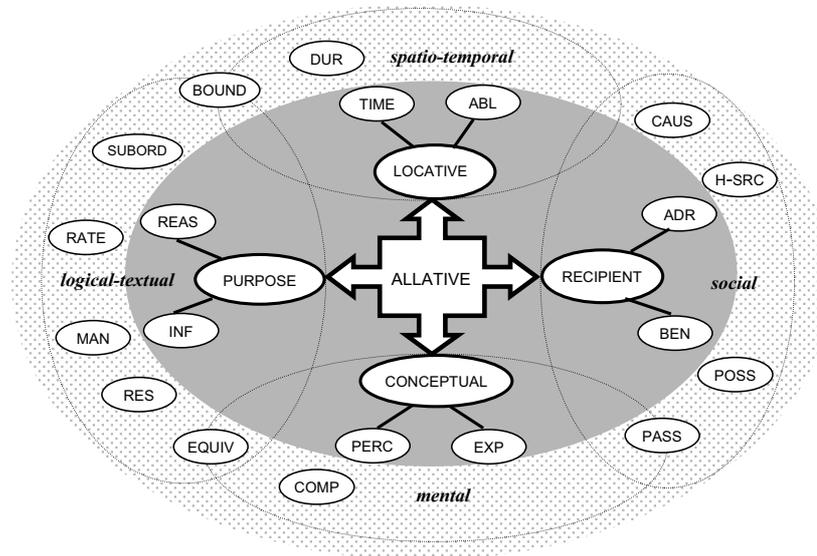


Figure 21. An idealized elaboration of the stream model presented in Figure 19 to encompass further sense delineation within a stream and the subsequent development of other more peripheral senses which may enjoy multiple and inter-domain motivation

nally, rather than a bifurcating model along the lines of Heine's (1990), we propose a model in which four distinct semantic/functional domains are initially available to a grammaticalizing ALLATIVE. Those four domains are: the spatio-temporal domain, the social domain, the mental domain, and the domain of logical/textual relations. One or more may be "traversed" or none at all.

Figure 21 illustrates an elaboration of the stream model presented in Figure 19 to encompass further sense delineation within a stream. This model attempts to accommodate the subsequent development of other more peripheral senses which may enjoy multiple and interdomain motivation (as represented by the outer circle). The only indication at all of sense dependence among the four major sub-senses in each domain – LOCATIVE, RECIPIENT, CONCEPTUAL, and PURPOSE – is the fact that a majority ( $N = 12$ ) of the 17 LOCATIVE senses are subsumed by PURPOSE ( $p < .05$ ; FET). Otherwise, we conclude that these four cohort senses, though somewhat correlated, are independently motivated. There simply is not any appreciable overlap beyond chance level among RECIPIENT, LOCATIVE, CONCEPTUAL, and PURPOSE senses as evidenced by the languages in our study.

In what we could consider as subsequent stages of ALLATIVE grammaticalization, we have evidence for positing further differentiation of sense types

within a domain based on derivation from one of these four “seed” senses. For example, LOCATIVE senses seem to split into TIMEPOINT and ABLATIVE usages, RECIPIENT senses into ADDRESSEE and BENEFACTIVE, CONCEPTUAL senses into PERCEPTUAL and EXPERIENCER, and PURPOSE senses into REASON and INFINITIVAL. An ALLATIVE undergoing further, intermediate differentiation of this sort may avail itself of one or both of these available bifurcating paths. Let us recapitulate our evidence for this proposal. With respect to spatiotemporal polysemy, we found little overlap between TIMEPOINT and ABLATIVE usages (see Figure 4b), but clear dependence by both on LOCATIVE senses (see Figures 3 and 4a). In the social domain, our crosslinguistic database returned more ambiguous patterns. As diagrammed in Figure 8 and described above, ADDRESSEE and BENEFACTIVE senses clearly coincide with RECIPIENT, but not overwhelmingly so. Both happen to also coincide with PURPOSE to a far greater degree, as do many other non logical/textual domain usages. With respect to the two senses that we claim derive from CONCEPTUAL usages, PERCEPTUAL and EXPERIENCER, we showed in Figure 12 that the latter are clearly dependent on the former and fairly independent of each other. There is, however, appreciable overlap between these two derived senses with the more basic PURPOSE and RECIPIENT senses. We will address some additional inter-domain correlations below. Finally, in the logical/textual domain, we established with Figures 16 and 17 that although many senses seem to derive directly from PURPOSE, REASON and INFINITIVAL senses have no affinity with one another whatsoever, nor do some of their own proposed sub-senses. Beyond these intermediate binary splits, we feel reluctant to posit further unilateral derivation or grammaticalization chains.

The outer “ring” in Figure 21 is meant to represent the multiple and often inter-domain semantic motivations behind these rarer, more abstract, and less goal-like ALLATIVE senses. A more conventional hierarchical map with roughly the same information was presented in Figure 19. It fails to capture the more ambiguous nature of peripheral sense development, although it does invite a clearer comparison with Heine’s (1990) model.

Our model is compatible with, and shows a striking similarity to, semantic maps proposed in recent years by several typologists and cognitive linguists (e.g., Croft 2001, Haspelmath 2003).<sup>20</sup> Like semantic maps, our model attempts to capture the synchronic relationships between senses and their likely developmental paths. However, since the primary purpose of our study was to identify the crosslinguistic patterns of semantic distributions of ALLATIVES, we were more interested in the properties shared by different grams, rather than those that distinguish them. Had we taken a different approach to our study and

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20. Croft (2001) used the term “conceptual space” instead of semantic maps.

Table 8. *The average sense density of an ALLATIVE marker by its morpheme type based on the 54 items in our database*

Morpheme type	Number in database	Average number of senses
Bound preposition or prefix	6	3.7
Bound postposition or suffix	20	5.2
Postposition	5	5.8
Preposition	19	7.7
Verb/coverb	4	3.3

started off with micro-level semantic analyses of each ALLATIVE morpheme, as suggested by Haspelmath as “the semantic-map method” (2003: 215), the outcome may have been different.

Before we conclude, the correlation concerning the nature of the morphosyntactic marker (preposition, postposition, case prefix, case suffix, verb/coverb) and the sense density of a language’s ALLATIVE is worth some attention. We report two kinds of findings in Table 8: the total number of items per marker type and the average number of senses per marker type. Due to the relatively small number of items in some of the morpheme type categories, these averages can only be taken impressionistically. Nevertheless, they do suggest that unbound adpositions – and prepositions more than postpositions – are the most likely ALLATIVE candidates to undergo semantic shift.

Of the bound case affixes (we grouped bound adpositions together with the case markers), suffixes are both more numerous and more likely to succumb to grammaticalization pressures than prefixes. The small number of ALLATIVES still having a verb or coverb function and the even smaller number of average co-senses that they are associated with, leads us to conclude that interference from the verb’s semantics resists the adoption of ALLATIVE-like meanings. The differences suggested by the results in Table 8 remind us that the category, ALLATIVE, is neither homogeneous semantically nor morphologically. ALLATIVE morphemes in different languages are at different stages of grammaticalization. A snapshot survey like the one we have undertaken here, which freezes the action in mid-race, can only be convincing with a large number of independent data points. Undoubtedly, the original lexical source of the ALLATIVE morpheme influences its subsequent semantic/functional pattern, as does its original grammatical category.

## 8. Towards an understanding of allativity

Two questions served as the impetus behind this study: (i) Given that ALLATIVES are semantically and functionally complex in English and Japanese, which senses are common and which are infrequent across other languages?

(ii) Does the pattern of ALLATIVE polysemy play out the same way crosslinguistically? In our survey of 54 ALLATIVE markers, we arrived at some clear answers to the first question, at least with respect to our sample. In response to the second question, the answers are more equivocal, although we feel we can start to conjecture about what a diachronic map showing the direction and order of semantic extension would look like. Such a map (as shown in Figures 19 and 21) can then be subject to challenge or support with additional evidence.

There is no doubt that the goal image schema is extraordinarily robust crosslinguistically, as is the concept of directed motion. As markers of place, ALLATIVES readily get extended metaphorically and functionally in constructions where persons and purposes are also construed as destinations. In fact, languages with grammaticalizing ALLATIVES in which at least one of these “macro”-senses is not in evidence are probably in the minority. This is not to say that the development patterns uncovered in our ALLATIVE database suggest unidimensionality. They do not. Rather, ALLATIVES may undergo multiple pathways, in a “unilateral” fashion. They might, but they need not take on temporal marking, the great range of social interactional senses associated with DATIVES and APPLICATIVES crosslinguistically, the equally prolific set of logical senses having an evaluative or qualitative character, or clause-combining functions. However, once an ALLATIVE manifests multiple functional reflexes, breaking some sort of sense density threshold as it were, then the marker typically migrates across two or more of the four main streams: time, social interaction, conceptualization, or logical/textual relations.

A number of factors in a language, both morphosyntactic and semantic, potentially hold ALLATIVE polysemy in check, however. First and foremost is the availability of an overt marker of allativity, a factor that was not investigated in this study. The amount of verb-ALLATIVE conflation present in a language and the nature of the verbs which subsume ALLATIVE meaning would be a worthy study in its own right. One could also look at the co-presence of inflectional and derivational morphology on the verb to mark, for example, passive or causation, in order to determine its role in suppressing or motivating ALLATIVE meaning. Conversely, in languages with more than one morpheme available to signal ALLATIVE-like relations (e.g., English *to/for*, Japanese *nile*, Korean *-ey/-ulo*, Polish *na/do*, German *nach/zu*) the division of labor is often and understandably unequal. Similarly, the availability of independent LOCATIVES, ABLATIVES, DATIVES, GENITIVES, PURPOSIVES, INSTRUMENTALS, etc., to pre-empt or reduce some of the semantic load that might naturally fall to the ALLATIVE definitely would influence the degree of sense density it attains.

Nevertheless, we believe we have accomplished our central task of better understanding allativity. The goal image schema unquestionably pervades linguistic expression. Particular inter-domain mappings do seem especially privileged. Moreover, we expanded the set of senses looked at (compare the four

that Blansitt 1988 studied: OBJECTIVE, DATIVE, ALLATIVE, LOCATIVE) and the languages studied in depth (compare the two that Heine 1990 examined: Ik and Kanuri). As described in Section 2.3, the literature contains many studies of sporadic and far-reaching ALLATIVE extension, especially with respect to expansions from goal-marking to subordination and infinitival functions. However, we have filled in some of the smaller stepwise extensions across all the major expressive domains catalogued by grammaticalization theorists and cognitive linguists.

Naturally, future studies we would like to see undertaken by us or by others include gathering and integrating more and better data on ALLATIVES from additional languages. We are particularly interested in comparing the behavior of ALLATIVES with that of LOCATIVES and ABLATIVES crosslinguistically, both with respect to sense density and order of sense development. We have begun to mine the languages in our present database whose LOCATIVE and ABLATIVE markers do not overlap with ALLATIVE in order to prepare a comparable study. Smaller scale studies that address specific kinds of sense overlaps or case syncretisms would be valuable additions to the literature. For example, is there a typological preference for POSSESSIVE marking with ALLATIVES, ABLATIVES, or LOCATIVES? Likewise, do COMPARATIVES show a preference for one of these three spatial markers crosslinguistically?

There are two overall morals to this story that we would like to project forward. First, in the face of robust evidence from a variety of languages, linguists should be fairly dismissive of traditional accounts of ALLATIVES which link them to a set of homonymous items, such as adpositions, case markers, and conjunctions or infinitive markers (as has commonly happened for Japanese *ni* and English *to*, to mention two stellar examples). Secondly, studies of this kind that investigate polysemy patterns in the context of typological evidence rather than from synchronic usages in a single language are more defensible and more likely to yield testable hypotheses for subsequent research. The integration of cognitive and typological approaches is of increasing importance, as typological patterns are often meaningless in the absence of explicit theoretical hypotheses about the interplay of conceptualization on meaning and form. Likewise, cognitive linguistic analyses are frequently unconstrained with respect to the number and kind of meaning correspondents posited for certain formal elements. A cognitive/typological approach, as we have shown in this article, allows us to contextualize the typological findings while lending empirical support to what would otherwise be merely a plausible and possibly idiosyncratic account of semantically motivated functional extension.

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*Abbreviations (including those of Appendix B):* 1/2/3 1st/2nd/3rd person; ABL ablative; ABS absolutive; ACC accusative; AG agentive; ALL allative; ANIM animate; APPR apprehensive; AUX auxiliary; CAUS causative; CL classifier; CONJ conjunctive; DAT dative; DIST distal; DO direct object; DU dual; ERG ergative; EVID evidential; EX extreme distance; FUT future; GEN genitive; HAB habitual; IMPF imperfect; INAN inanimate; INCL inclusive; IND indicative; INF infinitive; IRR irrealis; LOC locative; M modal; MAN manner; MED medial; MID middle voice; NEG negative; NMLZ nominalizer; NOM nominative; NONSG non-singular; OBJ object; PART partitive; PASS passive; PAST past tense; PERF perfect; PL plural; POSS possessive; PRED predicate; PRES present; PRIOR prior; PROG progressive; PURP purposive; REC recipient; REF reflective; SEQ sequential; SG singular; THEME theme; TOP topic; VALIDATOR validator; VEN venitive.

#### **Appendix A: Types of cohort usages exhibited by a language's ALLATIVE**

The 54 ALLATIVES in our database arranged by sense density. The senses we identified with each ALLATIVE are identified by the + mark. Senses marked by (+) are combined forms (as in English *into*) and represent a count of .5.









**Appendix B: Examples of the 33 cohort senses of ALLATIVES in the database**

All cohort senses (listed in the left-hand column) are presented in conjunction with an ALLATIVE usage in the same language (both are in roman). In cases in which an interlinear gloss is provided, the target morpheme is represented as ALL in both instances.

LOCATIVE	Luganda (Snoxall (ed.) 1967: 47) a. <i>è Kampala èkolayo àbàntù bangì</i> ‘At Kampala many people work.’ b. <i>gendà è Māsaka ògùle èbitabo</i> ‘Go to Masaka and buy books.’
ABLATIVE	Tagalog (Schachter & Otones 1972: 76–77) a. <i>tumakas sa bilangguan ang bilanggo</i> ‘The prisoner escaped from the prison.’ b. <i>bumalik sa gusali ang bata</i> ‘The child returned to the building.’
TIME POINT	Rumanian (Claudia Calin, personal communication) a. <i>eu voi sosi la ora zece</i> I will arrive ALL o’clock 10 ‘I will arrive at ten o’clock.’ b. <i>eu merg la Tokyo în fiecare an</i> I go ALL Tokyo in every year ‘I go to Tokyo every year.’
BOUNDARY	Hopi (Malotki 1983: 85, 540) a. <i>nu’ talavay-mi tumala-y’-ta-ngwu</i> I in.morning-ALL work-POSS-IMPF-HAB ‘I generally work until early morning.’ b. <i>ùu-totsi-y um oya-t pu’</i> 2-shoes-ACC you put-PRIOR then <i>paa-mi-q-ni</i> water-ALL-EX-FUT ‘Take your shoes off and go into the water.’
DURATION	Tamil (Sivabal Sivaloganathan, personal communication) a. <i>Naan moondu manithiaalath-iku padichanaan</i> I three hours-ALL studied ‘I studied for three hours.’ b. <i>Don Tokyo-iku ponar</i> Don Tokyo-ALL went ‘Don went to Tokyo.’

- RECIPIENT North Slavey (K. Rice 1989: 299, 286)
- a. *t'asfi se-ts'é nítq*  
 thing 1SG-ALL PERF.3SG.send  
 'S/he sent something to me.'
- b. *?íts'é ts'é ?ejidéhla*  
 moose ALL PERF.3SG.run  
 'S/he ran to/towards the moose.'
- ADDRESSEE Farsi (Mazi Shirvani, personal communication)
- a. *arde ba man inglisi sohbatkard*  
 man ALL 1SG English spoke  
 'A man spoke to me in English.'
- b. *man be maghaze rundam*  
 1SG ALL shop drove  
 'I drove to the store.'
- BENEFACTIVE Ik (Heine 1990: 132)
- a. *'jɔ-ɔt-ɔsá emá ní-c-i-k<sup>e</sup>*  
 roast-VEN-PASS meat 1SG-ALL  
 'Meat has been roasted for me.'
- b. *k'á-ini nda ntsí buk'ú ák'o-k<sup>e</sup>*  
 go-they and him wedding inside-ALL  
 'and they go with him to the wedding'
- POSSESSIVE Tibetan (Goldstein 1984: 197, 187)
- a. *ṅaa qhāṅpa yöö*  
*nga-la khang pa yod*  
 I-ALL a.horse have  
 'I have a horse.'
- b. *qhō naan la chñ̄nsu*  
*kho nang la phyin song*  
 he home ALL went  
 'He went home.'
- PASSIVE AGENT Kayardild (Evans 1995: 168, 163)
- a. *nyingka ra-yii-nyarra kurdalɩng-kiiwa-nharr*  
 2SG.NOM spear-M-APPR stingray-ALL-APPR  
 'You might get stung by a stingray.'
- b. *ngada warra-jarra dathin-kiiwa-tharra*  
 1SG.NOM go-PAST that-ALL-PAST  
*ngilirr-iiwa-tharr*  
 cave-ALL-PAST  
 'I went to that cave.'

- HUMAN SOURCE Ika (Frank 1990: 37, 36)
- a. *Juan-di Abran-se? kafé kisana*  
 Juan-TOP Abran-ALL coffee bought  
*u-ž-in*  
 AUX-MED-EVID  
 ‘Juan bought coffee from Abran.’
- b. *a?kattí-se? kʌmʌtšʌ-na*  
 cave-ALL enter-DIST  
 ‘It went into a cave.’
- CAUSEE Imbabura Quechua (Jake 1985: 266, Cole 1985: 14)
- a. *maria ñuca-man pata-ta yanu-chi-rca*  
 Maria 1SG-ALL potato-ACC cook-CAUS-3.PAST  
 ‘Maria let me cook potatoes.’
- b. *wasi-man-mi ri-ju-ni*  
 house-ALL-VALIDATOR go-PROG-1SG  
 ‘I am going to the house.’
- COMITATIVE Acholi (Crazzolara 1955: 151)
- a. *lätëën tyée boot wònnê*  
 child exist ALL father  
 ‘The child is with his father.’
- b. *òcìtò boot rwoòt*  
 went ALL king  
 ‘He went to the king.’
- CONCEPTUAL Yimas (Foley 1991: 313, 314)
- a. *yanʔkuraŋ*  
 thoughts  
*k-mp-ira-aykapiŋa-k-nakn*  
 SG.THEME-3DU.AG-ALL-KNOW-IRR-3SG.DAT  
 ‘They both think about her.’
- b. *na-n-ira-wampaki-kia-k-nakn*  
 3SG.OBJ-3SG.AG-ALL-throw-nighttime-IRR-3SG.DAT  
 ‘He threw it toward him.’
- PERCEPTUAL Mandarin (Meiti Yang, personal communication)
- a. *tā kàn dào le yī tiáo yú*  
 3SG look ALL PERF one CL fish  
 ‘S/he saw a fish.’
- b. *wō méi yī tiān kāi chē dào xuéxiào*  
 I every one day drive car ALL school  
 ‘I drive to school every day.’

- EXPERIENCER Lezgi (Haspelmath 1993: 116, 89)
- a. *za-z meq'i-da*  
I-ALL cold-PRED  
'I feel cold.'
- b. *zun medinstitut.di-z fi-da*  
I.ABS medical.school-ALL go-FUT  
'I'll go to medical school.'
- PURPOSE Wardaman (Merlan 1994: 283, 77)
- a. *jarrambu-yi-warr mayi-warr ngarr-ya*  
search-NOM-ALL food-ALL 1.INCL.PL-go  
'Let's go looking for food.'
- b. *ya-wurr-ga-n yirrgulu-warr wujad-garr*  
3-3NONGS-take-PRES river-ALL big-ALL  
'They're taking it to the big river.'
- REASON Bidyara (Breen 1973: 67, 35)
- a. *yangayila ngungu barrina, dhilgiyandilagu*  
mother that cry-PRES daughter-ALL  
'that woman's crying because of her daughter'
- b. *ngaya wadyaala balbaragu*  
I go-was river-ALL  
'I was going to the river.'
- RATE German (Durrell 1991: 423, 420)
- a. *fünf Päckchen Kaffee zu hundert Gramm zum halben Preis*  
'five hundred-gram packs of coffee at half price'
- b. *dieser Bus fährt zum Bahnhof*  
'This bus goes to the station.'
- EQUIVALENCE Acholi (Crazzolara 1955: 245)
- a. *òkèlò kà wàŋ dyèèlla*  
he.brought ALL in.place.of my.goat  
'He brought it in place of my goat.'
- b. *àcìfò kà tiic*  
go ALL work  
'I go to work.'
- MANNER Kanuri (Heine 1990: 137, 136)
- a. *dəlfu fanyena-ro ruwojigəye*  
way hear.1PL.PERF-ALL write.1PL.PAST  
'We wrote it (how; in the way that; as) we hear it.'

- b. *nji ade wu-ga lejin-ba-lan*  
 water this I-DO touch.3SG.NEG.PERF  
*fan-nyi-ro lengin*  
 house-my-ALL go.I.IMP  
 'I'll go to my house without this rain ever touching me.'
- COMPARISON Tagalog (Schachter & Otones 1972: 240, 76)  
 a. *mas matanda siya sa kaibigan niya*  
 'He is older than his friend.'  
 b. *bumalik sa gusali ang bata*  
 'The child returned to the building.'
- RESULT Korean (Jeong-Hwa Lee, personal communication)  
 a. *ku-nun hwulyunghan hakca-lo*  
 he-TOP great scholar-ALL  
*pyenhay-ss-ta*  
 change-PAST-IND  
 'He turned into a great scholar.'  
 b. *san-ulo ka-ca*  
 mountain-ALL go-let's  
 'Let's go to the mountains.'
- ADDITIVE Korean (Jeong-Hwa Lee, personal communication; Lee 1993: 36)  
 a. *TV-ey, VCR-ey, camera-ey manun*  
 TV-ALL, VCR-ALL, camera-ALL many  
*kes-i iss-ta*  
 thing-NOM be-IND  
 'There were many things like a TV, a VCR, & a camera.'  
 b. *ku-nun ecey pwusan-ey ka-ss-ta*  
 he-TOP yesterday Pusan-ALL go-PAST-IND  
 'He went to Pusan yesterday.'
- ACCOMPANIMENT Polish (Jolanta Rudzinska, personal communication; Bielec 1998: 225)  
 a. *tanczylismy do muzyki*  
 'We danced to the music.'  
 b. *jadę do sklepu*  
 'I am going to the shop.'

- EXTENT Thai (Haas 1964: 217)
- a. *cèb' thǎŋ ka lúg' mâj khÿn*  
sick ALL with get.up not stretch  
'to be so sick that one can't get up'
  - b. *dənthaaŋ' paj thǎŋ' chiaŋmàj'*  
travel go ALL Chiangmai  
'travel to/as far as Chiangmai'
- SUBORDINATOR Thai (Haas 1964: 217)
- a. *thǎŋ ca kàw kô cháŋ dâaj*  
ALL will old then use can  
'Even though it is old, it can be used.'
  - b. *dənthaaŋ' paj thǎŋ' chiaŋmàj'*  
travel go ALL Chiangmai  
'travel to/as far as Chiangmai'
- INFINITIVAL Yoruba (Ogunbowale 1970: 91, 88)
- a. *a bẹ̀rẹ̀ sí ịsẹ̀*  
we started ALL work  
'We started to work.'
  - b. *bàbá lọ sí ọjà*  
father went ALL market  
'Father went to the market.'
- FUTURE Rama (Craig 1991: 485, 456)
- a. *nsu-kami-bang*  
1PL-sleep-ALL  
'Let's go to sleep.'
  - b. [We feel the following is a marginal ALLATIVE, despite Craig's classification.]  
*naaas sii ba aa taak-iikar*  
I water ALL NEG go-want  
'I don't want to go for water.'
- PRAGMATIC Japanese (Matsumura 1971: 625, 624)
- a. *moosukoshi benkyosureba seiseki ga*  
a.bit.more study.if grads NOM  
*agarudarou ni*  
rise.will ALL  
'His grade will improve if he studied a bit more (and it is a pity that he doesn't).'

- b. *yuki no naka o yatto uchi ni*  
 SNOW GEN inside ACC finally home ALL  
*tadoritui-ta*  
 arrive-PAST  
 'In the middle of snow, I finally arrived home.'
- INSTRUMENT Swahili (Loogman 1965: 287, 286)  
 a. *John aliandika barua hii kwa kalamu mpya*  
 'John wrote this letter with a new pen.'  
 b. *nakwenda kwa Hamisi*  
 'I go to Hamisi (i.e., to the place where Hamisi is).'
- ACCUSATIVE Hawai'ian (Elbert & Pukui 1979: 134, 136)  
 a. *hā'awi ke kanaka i ka makana iā*  
 give the man ALL the present REC  
*Pua*  
 Pua  
 'The man gives the present to Pua.'  
 b. *hele i Maui*  
 go ALL Maui  
 'going to Maui'
- ERGATIVE Ika (Frank 1990: 37)  
 a. *tigri-se? an-ga-na*  
 jaguar-ALL REF-eat-DIST  
 'A jaguar ate it.'  
 b. *a?kattī-se? kamAtša-na*  
 cave-ALL enter-DIST  
 'It went into a cave.'

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