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MOVING FOR THINKING: 
The pervasiveness of motion imagery in ideation and emotion  

1. Introduction  

Adpositions and other morphemes marking GOAL- or SOURCE-oriented participants in the spatial domain frequently undergo metaphorical extension to acquire senses which mark various GOAL- or SOURCE-oriented participants in more abstract domains. Because of their robust polysemy and tendency to grammaticalize cross-linguistically, locative terms like these have, understandably, received considerable attention in the cognitive linguistics literature. Indeed, Ronald Langacker, many of his students, and several of his close colleagues have been responsible for much of this research. In what follows, I survey a range of abstract ideational expressions cross-linguistically that appear to involve metaphorical extension from more basic allative, ablative, and motion verb constructions. The purpose of this brief overview is to show that many “static” mental state predications across languages are routinely couched in terms of motion by a trajector to or from some landmark. I will exemplify the use of allative and ablative markers, sometimes alone and sometimes in conjunction with motion predicates, for the expression of possessive, perceptual, emotive, comparative, purposive, and causative relations. 

I make no claim here about the universality or inevitability of allative/ablative extension into these more abstract and intrinsically non-spatial usage domains and I will assume here, but not discuss, the robustness and non-arbitrariness of these extension pathways. This assumption owes a great debt to imagery phenomena described at length in Langacker (1987, 1990, and 1991), which should be quite familiar to his adherents. I list a few key “dimensions of imagery” relevant to the present discussion here. Conceptual embodiment plays a major facilitating role in licensing such semantic extension from the spatial to the non-spatial. What, after all, could be more basic as an embodied activity than motion? Sequential scanning is a viewing mode that allows atemporal situations to be conceived of as processes, no doubt because moving entities appear more conceptually salient and topic-worthy than static ones. Variable construal is equally relevant since motion towards an abstract referent point as opposed to motion away from it simply involves a different profiling relative to a common base. This rich arsenal of image schematic devices has obviously allowed speakers of languages to extend their expressive power. However, without their basic description and elaboration by Ronald Langacker, among others, the figurative use of motion predicates and directional particles would have likely remained arbitrary or anecdotal or, worse, ignored as phenomena worthy of linguistic attention. By stressing the conceptual semantic import of even the most functional morphemes in a language, Langacker has encouraged systematic study leading to unified accounts in cases where data seem most random and disparate. In the context of expressions of motion being used for ideational and decidedly non-motional concepts, I offer this brief typological survey as a precursor to an experimental program that expressly investigates the pervasiveness of motion on our speaking about thinking and feeling.1  

2. Various perspectives on ‘moving for thinking’ 

I have been thinking about motion ever since the mid-1980s when I was writing my doctoral dissertation on transitivity and the English passive construction under the supervision of Ronald Langacker (Rice 1987). I was struck then by the paradoxical behavior of certain prepositions in phrasal verb constructions and how the direct expression of path of motion or target of transfer facilitated or inhibited a felicitous passive alternation for a given verb, even when the verb and the relation had nothing to do with physical motion or transfer.2 More recently, I have been immersed in fieldwork on Dene S̱úlíne (formerly known as Chipewyan), an Athapaskan language of Canada, closely related to Navajo. A few years ago in an ethnographic study of Navajo thinking, I ran across the following

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1 This paper represents an expanded version of my presentation at the September, 2003, Imagery in Language Conference. Because of its cursory typological nature, I regard the present work as preliminary and suggestive only. I hope that experimental research currently in progress will more persuasively argue the point central to the conference and to Ron Langacker’s Cognitive Grammar framework—that imagery is everywhere in language and that different languages allow speakers to image things differently.

2 E.g., compare the transitivity of yell vs. yell at against grab vs. grab at (cf. Rice 1993).
quote, which strangely bears on the topic at hand:

“Man’s thought ranges over every conceivable thing in the universe that may come into the range of his experiences. Men are roamers but their physical tendency to roam is preceded by the scope of their thought” (Oswald, Austin-Garrison, & Begishe 1996: 407).

Here, thought is metaphorized as a traveler. Like a human explorer, thought surveys and moves towards its conceptual target. This view of Navajo ideation promotes the thinking process as an activity that is externalized, dynamic, and directional. As such, it is not far removed from the view of conceptual imagery espoused by Langacker (1987, 1990, 1991) which holds that every linguistic expression is predicated against a cognitive domain; that within some domain or matrix of domains, a scope of predication prevails that brings focus upon only a certain set of entities and relations in that expression; that special prominence and profiling obtain for a subset of those entities and relations; that such preferential attention is a product of subjective construal which is highly variable; that speakers/conceptualizers may engage conceptual reference points whereby some entities are accessed derivatively or secondarily by virtue of their association with a more salient reference entity; and that speakers/conceptualizers use a kind of abstract motion to “move” between the more prominent reference entity and the target.

Indeed, the notation of Cognitive Grammar (CG) is replete with motion imagery whereby individual components of a composite structure are differentially profiled or associated with other structures, thus drawing the speaker’s attention in a sequential and asymmetrical fashion. Is there an image schematic diagram in the whole of CG that doesn’t contain a bolder sub-component or an arrow depicting the direction of energy flow or attention and, thus, the order of conceptualization? Even stative relations in CG are construed with a certain dynamic, but processual predications especially are routinely described by and depicted with motion imagery, even when they do not express physical motion at all. The division of predication into an objective axis and a subjective one whereby the speaker/conceptualizer can direct attention subjectively and abstractly is a central notion in CG and it likely drives the metaphors which account for the widespread grammaticalization of motion predications into non-spatial and non-motional domains. Figure 1 nicely illustrates many of these notational and conceptual points:

![Figure 1. A classic CG image schema indicating dynamic change and subjective viewing as instances of abstract motion (Langacker 1990: 285; Fig. 7.2).](image)

One of Langacker’s most focused theses on the linguistic reliance on motion imagery is in his chapter on “Abstract motion” in Concept, Image, and Symbol (1991). He writes:

...[I]t is not at all obvious that change and motion are ever strongly dissociated in our conceptional world (ibid.: 156).

But how can we meaningfully speak of directionality when nothing moves or changes? This is another instance where a semantic contrast does not reside in the conceptual content of two expressions, but rather in how that content is accessed (ibid.: 158).

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3 I have taken the liberty of re-ordering some of the key passages to make the line of argumentation more succinct for this paper.
Under this generalized interpretation, (an abstract relation) is not to be construed as a spatial path in particular, but simply as an ordered sequence of entities within the relevant domain, such that the “mover” is capable of interacting with each of these entities individually (ibid.: 155).

What we have done, in effect, is to characterize a maximally schematic concept of motion, with respect to which physical movement through space is just a special case (though clearly prototypical). Let us speak of “abstract motion” when this schematic conception is applied to nonspatial domains (ibid.: 156).

The next four sections of this paper are meant to give a sense of the pervasiveness of the abstract “mover” in language, be it an entity in the content domain or the speaker/conceptualizer as s/he moves through and encodes the abstract scene. In Section 7, I discuss ways in which the linguistic and experiential effects of abstract motion (e.g., asymmetries of attention, the consequences of different orthographic systems, and language-specific imagery preferences) might be explored experimentally for their influence on conceptualization.

3. Marking possession with motion imagery

The linguistic encoding of possession is a familiar case of the phenomenon under study, whereby expressions of directed motion are recruited for the expression of inherently non-motional relations. Certainly, it is the case that many languages simply deploy stative verbs or static particles of possession (such as English have or with) to indicate alienable or inalienable associations that linguists subsume under the rubric of possession. However, it is not uncommon to find allatives or ablatives doing the essential work of marking possessive relationships in a language. In such constructions, the possessed NP is typically conceived of as the moving theme. The possessor NP is conceived metaphorically as the goal or source of actual or potential transfer and inferentially as the current possessor. The examples in (1) exemplify the former (possessor as goal), while those in (2) illustrate the latter (possessor as source).

(1) a. Ce stylo est à moi.
   French
   ‘That’s my pen.’ [lit. ‘that pen is to me’]

   b. Taroo ni wa kodomo ga hutari aru.
   Japanese
   ‘Taro has two children.’ [lit. ‘the two children exist to Taro’]

(2) a. palto-to od Petre-ta
   Macedonian
   ‘Peter’s coat [lit. ‘the coat from Peter’]

   b. erit’is dechene se-ts’j
   Dene Sųliné
   ‘my pen’ [lit. ‘that pen (is) from me’]

Possessive relationships prototypically abide conceptually in a spatial arena. Two objects can be in a possessive relationship by virtue of their physical proximity to one another. It is, therefore, understandable that markers of physical path to or from a possessor should enter into the coding of possessives. On the other hand, the realization of a percept or a concept (what Talmy [2000: 139] hypernymically terms “ception”) or, indeed, any mental modeling by a sentient being, is just as easily construed as an act of motion in many languages. I turn to these cases next.

Admittedly, it is difficult to conceive of possessive relations as purely non-motional or static. A possessor has a relationship with a possessed object by virtue of its actual or potential transfer into the possessor’s sphere of control. In many languages, this transfer aspect of possession is not directly profiled, although it may remain tacit in the conceptualization.

Unless indicated otherwise, all examples are from my own fieldnotes or from native speakers who have contributed to a cross-linguistic database reported on in Rice and Kabata 2002.

The abbreviations ALL and ABL stand for allative and ablative, respectively, indicating to and from relations. I have not glossed other morphological terms in the interest of space and focus.
4. “CEPTION” as motion

The movement of a theme into or out of a location is a highly salient relationship visually and it is equally privileged linguistically. Given the pervasiveness of metaphor in language, it is not surprising that human languages should so readily exploit such a basic mental model (motion) for the encoding of abstract relations such as perception and ideation. Just as a possessed NP moves into or out of the sphere of control in many possessive relations, so too do percepts and ideas move into or out of the sphere of consciousness. However, in the domain of “ception”, it is just as likely that the perceiver/conceiver (or its metonymic proxy—the eye, the ear, or the mind) is the moving theme, entering or exiting the domain of the percept/concept. These motion-based metaphorical renderings of perception and conception are accomplished through a variety of allatives, ablatives, and verbs of motion and transfer. The examples in (3) exemplify cases in which the perceiver or conceptualizer (construed either wholistically or metonymically via the sensory organ) moves toward or away from the percept or concept, while the examples in (4) reverse the construal and encode the percept or concept as the moving theme.

Perceiver/Conceiver as Mover

(3) a. I listened to the music.  
   b. Let’s not go there again, it’ll just make me angry.  
   c. Man be musighi goosh da-dam.  
      I ALL music ear gave.  
      ‘I listened to the music.’ [lit. ‘I gave my ear to the music’]  
   d. Alistaajabu kwa uzuri wake.  
      3SG.PAST.BE.astonished ALL beauty POSS  
      ‘He was astonished at its beauty.’ (lit. ‘He was astonished to its beauty.’)  
   e. to rê ñūhi deñ ahn duonl lañn vieñ nañ.  
      1SG think go 2SG during do work this  
      (Thompson 1965:232)  
      ‘I think about you doing this work.’

Percept/Concept as Mover

(4) a. Out of sight, out of mind.  
   b. It came to me in the middle of the night.  
   c. That feeling goes away once I see him again.  
   d. I gave him a piece of my mind.  
   e. I can’t take anything he says at face value.  
   f. I put it to him as directly as possible.  
   g. ñumyenun cenêkwu -ey kwansimi manhta.  
      ALL  
      ‘She is interested in tennis.’ [lit. ‘her interests lie towards tennis’]  
   h. si-ni kük-chûa.  
      1SG-mind on-away  
      ‘I’m disappointed.’ [lit. ‘it’s away from my mind’]  
   i. betiye hûchu.  
      3SG-word PERF.1SG.take  
      ‘I took his/her word.’  
   j. se-tsû-ch-aññi.  
      1SG-towards 3SG.speaks  
      ‘S/he’s scolding me.’ [lit. ‘s/he talks towards me’]
5. COMPARATIVES and moving targets of comparison

The thematic construction types examined in Sections 3 and 4 might seem more transparently “spatializable” than the comparative constructions we turn to next. However, the mental act of making a comparison between two unequal phenomena is, in the most basic instance involving physical attributes, ascertained through a sequential visual inspection of first one entity or relation and then the other. Either the target of comparison or the source could be accessed and assessed first. Thus, it should not be terribly surprising that comparative constructions in many languages can involve spatial language suggesting movement either to or away from the standard of comparison by the object of comparison. The direction of abstract motion taken by the viewer/conceptualizer making a comparison is arbitrary; the fact that motion language is used at all is not. Crosslinguistically (as based on this admittedly small and randomly compiled sample), comparative evaluation appears to invoke imagery of motion along a horizontal axis, as shown in (5), far more than along a vertical, as exemplified in (6).

Comparison as Movement along a Horizontal Axis

(5)  

<table>
<thead>
<tr>
<th>a.</th>
<th><em>The old place is different to what I remember.</em></th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td><em>The old place is different from what I remember.</em></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Mas matanda siya sa kaibigan niya.</td>
<td>Tagalog</td>
</tr>
<tr>
<td>d.</td>
<td>Sodom-ete hati mananga-i.</td>
<td>Mundari</td>
</tr>
<tr>
<td>e.</td>
<td>Rta-nas khyi chun-ba yin.</td>
<td>Tibetan</td>
</tr>
<tr>
<td>f.</td>
<td>me-se wo adw</td>
<td>Twi</td>
</tr>
<tr>
<td>g.</td>
<td>bɔrɔ dɔlɛ dɔlɛ wɔlɛ yɛlɛ</td>
<td>Baka</td>
</tr>
<tr>
<td>h.</td>
<td><em>I easily surpass you at most winter sports, but not at summer ones.</em></td>
<td>English</td>
</tr>
<tr>
<td>i.</td>
<td>ebe di didi ta ny</td>
<td>Ewe</td>
</tr>
<tr>
<td>j.</td>
<td>Evavakucakenakauoqô mai nakauoqori.</td>
<td>Fijian</td>
</tr>
</tbody>
</table>

Comparison as Movement along a Vertical Axis

(6)  

<table>
<thead>
<tr>
<th>a.</th>
<th><em>cake ‘ascend’ &gt; ‘more than’</em></th>
<th>Fijian</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td><em>sobu ‘descend’ &gt; ‘less than’</em></td>
<td></td>
</tr>
</tbody>
</table>

Any differences along the lines of directionality or axis are suggestive of claims that linguistic relativity might support conceptual relativity (cf. Gumperz and Levinson 1996, Lucy 1997). I briefly address implications for
linguistic relativity issues and how these might be investigated experimentally in Section 7. First, I survey a final expressive domain which regularly deploys the language of motion crosslinguistically—the logical ordering of events.

6. CAUSATION, REASON, and PURPOSE events as moving entities

Syntactic theories have long made much of the fact that, in many languages, events (clauses) share many syntactic and semantic features of NPs (nominalizations) and vice versa. Cognitive Grammar couches this similarity in terms of sequential vs. summary scanning (cf. Langacker 1987), among other construal phenomena. It should come as no surprise that events and other abstract concepts can readily be construed and encoded in languages as moving entities or as locations from which or to which other events move. This deployment of motion imagery for the logical organization of causes or reasons behind events or the purpose for which they happen is widespread crosslinguistically. It is not at all unusual for ALLATIVE and ABLATIVE markers to grammaticalize as conjunctions or complementizers of purpose or reason. Some examples are illustrated in (7) and (8) respectively. A less familiar strategy for marking logical relations such as causation, reason, or purpose between events is through the use of motion verbs. Examples are given in (9) below.

Logical Marking with Directional Particles

(7) a. She earned a Master’s degree to get a higher salary. English
b. Fue a preguntar. Spanish
   3SG.PAST.go ALL ask.INF
   ‘S/he went to ask.’
c. ko te hoki-nga teenei o rua ki hawaiki ki te tiki i a pou
   TOP the return-NOM this GEN Rua ALL Hawiki ALL the fetch DO PERS Pou
   (Bauer 1993: 387)
   ‘So Rua returned to Hawaiki to fetch Pou’
d. czyto jest bielizna do prasowania?
   clothes ALL do prasowania
   (Bielec 1998: 217)
   ‘Are these clothes for ironing?’
e. Wela na’i ‘e angi uri’ e thaofa
   child this he.PFV cry ALL he.PFV be.hungry
   (Lichtenberk 1992: 68)
   ‘The child cried because he was hungry’ (lit. ‘The child cried to his being hungry’)

(8) a. I fainted from exhaustion. English
b. Sikukwita kwa kuna umechoka.
   ALL
   ‘I did not call you because (lit. to) you were tired.’
c. aika chuwwi -ey telko issta
   child cold ALL shiver be
   (Lee 1993: 39)
   ‘The child is shivering with (lit. to) cold.’
d. Fale-a ta.sii fanga ‘a-na welana’i fasi ka bona
   give-it some.part food to-his child this ABL he:SEQ be.quiet
   (Lichtenberk 1992: 68)
   ‘Give some food to the child so that he is quiet’
   (lit. ‘The child will quiet down from (you) giving him some food’)

Logical Marking with Motion Verbs

(9) a. de le mu o ye
   he come LOC he go him see
   ‘He came in order to see him’ (lit. ‘He came here (to) go see him’)
   (Marchese 1986: 143)
b. e seku navi ba piska
He go.out with boat go fish
‘He left by boat to fish’ (lit. ‘He go out with boat go fish’)

Fa’Ambu (Post 1991)

c. ltoo o-weko latin o-olyo
smoke 3SG-leave child 3SG-cough
‘The smoke made the child cough’ (lit. ‘The smoke left the child cough(ing)’)

Acholi (Bavin 1992: 8-9)

As interesting as these examples may be, they only begin to make the case for a widespread human tendency to recruit the language of motion for decidedly non-motional purposes. While I am quite interested in continuing to compile a database with as many cross-linguistic examples as possible,1 I believe the fact that language for moving gets used to encode language for thinking at all is still only half of the story. I turn now to some intriguing consequences that the very linguistic ‘moving for thinking’ may have on the way we conceptualize, interpret, or remember a scene.

7. Future directions: Experimental support for ‘moving for thinking’

This paper has thus far presented an assortment of data from a variety of languages showing that a select set of non-spatial constructions can be expressed using similar spatial language, especially language having to do with motion: directional particles and verbs of motion or transfer. The non-spatial constructions illustrated here fall out under the general rubric of marking perceptual, ideational, or logical relations. Any motion alluded to in such constructions is metaphorical and generally quite subjective. As such it is quite abstract. Nevertheless, it might be far from arbitrary, especially insofar as it suggests an isomorphism between the linguistic encoding and the conceptualization underpinning it. Returning to Langacker 1991, the seminal paper on abstract motion which inspired much of the present paper, we find the following rather provocative assumption:

We can reasonably suppose that the conception of such a (stative) configuration requires a certain span of processing time for its full activation: rather than springing instantaneously into full-blown existence, the conception might be built up incrementally, with all facets of it being active only at the conclusion of this ‘build-up phase’. If so, the directionality we perceive in such sentences is attributable to the order in which the various facets of the configuration are activated. Moreover, since different orders of activation can lead to the same overall configuration, we have a way of accounting for the semantic contrast… I am assuming that every conception involving directionality at the experiential level implies some kind of seriality at the processing level (Langacker 1991:158; parentheses and emphasis mine).

This theme is equally prevalent in “Grammar as Image”, a 1979 paper which heralded the Cognitive Grammar framework. If, indeed, every act of grammar is an act of imagery and if many (if not most) acts of imagery seem to require motion (at least abstract motion), then we should expect to find asymmetries of attention and language-specific imagery effects at the processing level. Langacker’s well known contrasting pair, (i) The roof slopes steeply upward and (ii) The roof slopes steeply downward, as shown in Figure 2, suggests that in an eye-tracking study, we might expect to observe differential and non-arbitrary eye-movements by speakers who hear sentences like these in response to a simple visual presentation as shown in Figure 3. In other words, the pattern of eye movement and fixation points might demonstrate a bottom-to-top or top-to-bottom bias, depending on which auditory stimuli, sentence (i) or (ii), was presented, mirroring the arrows in Figure 2.

Eye-tracking experiments seem especially well suited to investigating any effects of spatial and directional language on the visual inspection of a static scene. One can record the overall order and direction of eye-movements as well as the number of saccades and fixation points a subject produces in response to visual array. These could be measured in response to a visual scene accompanied by an auditorily presented stimulus sentence containing motion language.

Figure 2. Langacker’s famous examples, (i) The roof slopes upward and (ii) The roof slopes downward, illustrated with arrows showing directionality at the linguistic and experiential level.

Figure 3. Sample pictorial stimuli for an eye-tracking study.

In anticipation of a series of such eye-tracking studies, I partially replicated an experiment described in Richardson, Spivey, Edelman, and Naples (2001). 161 native English-speaking undergraduate students in an introductory linguistics course at the University of Alberta were asked to select one of four schematic images deploying motion imagery (in the form of directed arrows linking two entities) that best depicted the schematic, rebus-like sentence (containing a circle, an English verb in the past tense, and a square) presented on screen. Essentially, the experimental subjects saw a transitive verb and were asked in a forced-choice task to indicate whether the event unfolded in a rightward, leftward, upward, or downward direction, even if the event was not particularly spatial. Figure 4 contains the response set that the subjects had to choose among on the basis of a sample stimulus frame like those provided on the right.

![Figure 4](image.png)

Figure 4. Sample response sheet and stimuli for forced choice experiment.

The stimulus frames varied along two dimensions: (a) the concreteness/abstractness of the verb’s primary cognitive domain of predication and (b) the dominant axis against which the verb’s semantics seems to pertain. The different groups were not equivalent in number owing to the fact that I was primarily interested in demonstrating a spatiality to these verbs in the first place and a consistent effect of axis in the second. The stimulus verbs were randomly presented to the three subject groups (representing three separate Linguistics 101 classes), although the response sheets remained the same across the three orderings. As this was only a pilot study, I was not concerned with counter-balancing the stimuli and response sheets or with the absence of distractor items. Nevertheless, the experimental data indicate a consistent and strong association with a particular axis (and, by extension, the direction of motion along which the event unfolds). Table 1 summarizes the pattern of subjects’ responses to the different verbs. The verbs in italics were taken from Richardson et al.’s 2001 original study and the organization of the table represents their original classification. The most popular image response is listed in bold. In this four-way response paradigm, chance is 25%. The verbs offended and owned showed the least amount of consensus, with the responses almost evenly split among three image schemas. By contrast, every other verb in the experiment, whether concrete
or abstract, elicited a consistent response pattern. This consistency suggests a strong effect of, or at least a robust coherence with, motion imagery. This is true even for the 31 relational predications which do not inherently involve motion (the low concreteness verbs), such as the verbs or constructional types examined in the rest of this paper: *was similar to, was different from, loved, hated, lost, remembered, forgot.*

A follow-up eye-tracking study is currently being developed. Eye-movements directed at a picture in response to an auditory stimulus—a spoken sentence containing verbs like these—might reveal that similar, albeit virtual, patterns of imagery obtain. Eventually, I would like to test speakers of languages for which different image schemas are at the heart of a given predication (e.g., an allative vs. an ablative marker for possession or comparison; differential exploitation of *go* and *come* verbs for non-motional relations such as causation and purpose). For linguistic predications whose encoding exploits the horizontal axis, there may also be an interaction or effect of orthography. Would synonymous items in languages that are orthographized using a right-to-left writing system (e.g., Semitic languages) induce an opposite image from those preferred by English speakers? That is, would the directionality of English *push* (right arrow bias) and *pull* (left arrow bias) be reversed by speakers of Arabic?

The purpose of studies like these—the off-line, forced-choice task presented above, its eye-tracking analogue just sketched, along with experiments deploying event-related potential (ERP) or fMRI (functional magnetic resonance imaging) techniques—would allow a systematic investigation of the effects of motion imagery in language on the thinking of the speakers themselves. Thus, they would allow us to take MOVING FOR THINKING from the linguistic and metalinguistic levels to the conceptual, where Ronald Langacker, back in 1970s and 1980s, suggested we would find it.
Table 1. Percentage of subjects choosing a particular directional image schema for each verb (the dominant response pattern is in bold; verbs in italics are from Richardson et al.’s [2001] original study).

<table>
<thead>
<tr>
<th>Axis</th>
<th>VERB</th>
<th>right</th>
<th>left</th>
<th>up</th>
<th>down</th>
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</thead>
<tbody>
<tr>
<td>HORIZONTAL</td>
<td>fled</td>
<td>57</td>
<td>29</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>pointed at</td>
<td>81</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>pulled</td>
<td>19</td>
<td>64</td>
<td>9</td>
<td>7</td>
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<tr>
<td></td>
<td>pushed</td>
<td>89</td>
<td>7</td>
<td>2</td>
<td>1</td>
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<tr>
<td></td>
<td>walked up to</td>
<td>67</td>
<td>4</td>
<td>26</td>
<td>1</td>
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<tr>
<td></td>
<td>preceded</td>
<td>50</td>
<td>42</td>
<td>2</td>
<td>3</td>
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<td>29</td>
<td>58</td>
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<td>followed</td>
<td>81</td>
<td>12</td>
<td>2</td>
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<td>NEUTRAL</td>
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<td>67</td>
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<td></td>
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Keywords: allatives, ablative, motion verbs, ideation, imagery, typology, conceptualization, metaphor, abstract motion, subjectification