

The Description of Transitive Directed Motion in Lakhota (Siouan)*

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Abstract Siouan languages such as Lakhota provide an interesting case for the study of transitive directed motion descriptions because of their rich inventory of deictic motion verbs and instrumental (causative) affixes. The goal of this article is to show in detail how the different meaning components involved in such descriptions are distributed over the lexicon, the morphology, and the syntax of Lakhota. In particular, Lakhota supports a multi-verb construction for expressing transitive directed motion that consists of a transitivized deictic motion verb used as the main verb, which encodes caused motion or accompanied motion, and a dependent verb that describes the way in which the actor sets or keeps the undergoer in motion and the manner in which the undergoer moves.

Keywords: causation, deictic motion, Lakhota, multi-verb construction, Siouan, transitive motion

1. Introduction

The typology of motion expressions has drawn considerable interest during the past two decades, not least inspired by Talmy's well-known distinction between verb-framed and satellite-framed languages. The main focus of these investigations has been on intransitive motion expressions and on the morphosyntactic realization of manner of motion and path (including shape, direction, and deixis). The present article is concerned with transitive directed motion scenarios. Transitive, or multi-participant, motion is here understood as involving an actor that acts on an undergoer which changes its location as a consequence of the actor's activity. This characterization is intended to cover all kinds of transitive motion scenarios as lexicalized by the English verbs *bring*, *carry*, *throw*,

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pull, and (transitive) *roll*, among others. As in the intransitive case, all of these verbs can occur with directional expressions.

The main topic of this article is the way how transitive motion scenarios are expressed in the Siouan language Lakhota and how the different meaning components involved in such expressions are distributed over the lexicon and the morphosyntax of that language. The article is organized as follows. Section 2 gives a brief overview of the various semantic parameters involved in transitive directed motion scenarios. Section 3 provides a short sketch of the relevant grammatical properties of Lakhota. Section 4 is concerned with the encoding of transitive directed motion in Lakhota, which makes essential use of transitivized deictic motion verbs. Section 5 introduces the system of instrumental prefixes, which play an important role for the specification of manner and force. Section 6 discusses the interplay of the various morphosyntactic components in the interpretation of transitive motion expressions on the basis of a small field study. Section 7 concludes with a few remarks on typological aspects of the Lakhota constructions discussed in this article.

2. Semantic parameters of transitive directed motion

Transitive motion comes with a wider range of semantic parameters than single-participant motion since the way in which the actor brings about the motion of the undergoer can vary in several aspects. Transport, for instance, means that the actor has control over the undergoer, and moves, and thereby causes the undergoer to move with him or her. The transport verb *carry* differs from *bring* in that it specifies the manner of how the actor controls the undergoer. The verb *pull*, in contrast to *carry*, means that the actor causes the undergoer to move by acting forcefully on it in a specific manner whereas motion of the actor is not necessarily implied in this case. Causativized motion verbs such as (transitive) *roll*, by comparison, encode the manner of motion of the undergoer and the unspecified causation of this motion by the actor. The verb *throw*, finally, specifies an activity by which the actor initiates the movement of the undergoer.

A useful distinction with respect to caused motion, and causation scenarios in general, is that between *extended causation* and *onset causation*, as illustrated respectively by the examples in (1) taken from Talmy (2000: 473).

- (1) a. I pushed the box across the ice (of the frozen pond).
[I kept it in motion, going along with it.]
b. I pushed the box (off) across the ice.
[I set it in motion and stayed put.]

The sentence in (1a) describes an extended, or *extent-durational* causation scenario in which the actor continuously applies force to the undergoer that keeps

the latter in motion. This characterization does not *per se* imply that the actor moves along with the undergoer since the actor could stay put and, for instance, use a long stick to continuously push the box forward. Hence, as already noted, extent-durational caused motion may go along with accompanied motion but does not need to. An onset causation scenario as expressed by the sentence in (1b) consists of a causing event that is *point-durational*, in Talmy's terms, here a single push, which in turn starts off an *autonomous* event, here the movement of box across the ice. Note that the interpretation of (1a) does not exclude the case that the box is moved along by successive punctual pushes, maybe interleaved with extent-durational ones, irrespective of the actor's moving along with the box.

Another of Talmy's distinctions that applies to caused motion scenarios is the one between *continuous* and *discontinuous causative chains*. The difference is exemplified by the examples in (2); cf. Talmy (2000: 473/503).

- (2) a. I slid the plate across the table by pushing on it with a stick.
b. I made the plate slide across the table by throwing a stick at it.

The causative situation described in (2b) is considered as discontinuous since the flying of the stick through the air and its hitting the plate, which starts off the motion of the latter, are autonomous in that they take place "without accompanying causation". Talmy suggests that the presence of an autonomous event within the causal chain as in (2b) might correlate with the use of the periphrastic *make* construction. In (2a), by comparison, the setting or keeping in motion of the undergoer is "accompanied" by causation, and is expressed by a causativized verb form *slide*.

In his classical study on the perception of causation, Michotte (1954) introduces a number of distinctions that are relevant for the characterization of transport and caused motion scenarios. At top level, he distinguishes between *lancement* ('launching') and *entraînement* ('entrainment'). Launching means that the actor initiates the motion of the undergoer which then moves on its own, while entrainment requires the actor to move along with the undergoer thereby keeping the latter in motion. This distinction corresponds basically to the difference between onset and extended causation mentioned above. There are different ways of launching an object. On the one hand, there is the transfer of kinetic energy by impact (referred to as *lancement par percussion* 'launching-by-striking' by Michotte). Events of this type can often be described by verbs expressing an (agentive or non-agentive) impact by contact such as *kick*, as in the sentence in (3).

- (3) Peter kicked the ball over the fence.

Verbs like *hit*, *kick*, *knock*, and *slam* in transitive directed motion constructions such as (3) have been characterized as verbs denoting an “instantaneous application of force causing a ballistic motion” (Pinker 1989: 64). Levin (1993: Sec. 17.1), following Pinker, subsumes them under the class of ‘throw’ verbs, on a par with *throw*, *toss*, *hurl*, and *fling*. However, there is a difference between striking and throwing types of caused motion events concerning the application of force and its effect. While striking means impact, throwing means release after acceleration. Hence, the part of a throwing event that goes on before the release of the object can be seen as an entrainment of the latter by the thrower. Michotte (1954) speaks in this case of *lancement par expulsion* (‘launching-by-expulsion’).

3. General properties of Lakhota

The list of grammatical properties of Lakhota given in this section is necessarily rather selective; see Rood and Taylor (1996), Ullrich (2011), and especially Ullrich (2016) for comprehensive presentations of Lakhota. The Lakhota examples presented in the following are taken from the New Lakota Dictionary (NLD; Ullrich 2011), if not otherwise indicated.

3.1. Verbal morphology

Lakhota is a left-branching, verb-final, head-marking language. In particular, arguments are marked by pronominal affixes at the main verb of the clause (cf. Van Valin 2013). Third person singular subjects are never marked overtly, and third person plural objects are only marked (by *wičha*) if they denote animate beings.

An important grammatical distinction of verbs in Lakhota is that between “neutral” (or “stative”) predicates and “active” predicates, which is manifested in different morphophonological and morphosyntactic properties. The two classes differ most prominently in the distinct pronominal affixes they take to indicate first person singular and second person subjects. That is, the pronominal marking on the verbal head follows a split-intransitive pattern (Merlan 1985). The neutral paradigm marks first and second person singular by the affixes *ma-* and *ni-*, respectively (4a), while the (regular) active paradigm uses *wa-* and *ya-* instead (4b). The active paradigm and the neutral paradigm also apply respectively to the subject and the object of active transitive verbs (4c).¹

- (4) a. *Ma-/Ni-čháŋ~čhaŋ.*
 1SG.U-/2SG.U-tremble~REDUP

¹Following Van Valin (1985), the pronominal markings are glossed by ‘A’ for ‘Actor’ and ‘U’ for ‘Undergoer’, respectively.

- ‘I/You trembled.’
- b. *Wa-/Ya-lówaŋ.*
1SG.A-/2SG.A-sing
‘I/You sang.’
- c. *A⟨má-ya⟩pĥe.*
⟨1SG.U-2SG.A⟩hit
‘You hit me.’

There is a fairly close correlation between verbs to which the active system applies and verbs that denote actions. This is why grammars of Lakhota often draw a distinction between neutral/stative and active verbs. Note that this semantic distinction does not completely match the pronominal paradigms (e.g. Mithun 1991: 514–518). For instance, *ĥpáyA* (‘lie, be lying’) and *nawízi* (‘be jealous, envious’) follow the active paradigm while *hiŋĥpáyA* (‘fall (off/down)’) and *čéka* (‘stagger, stumble, reel’) require the neutral paradigm.

The capital *A* (or *Aŋ*) in the citation forms indicates a so-called A(blaut)-word, whose final vowel can undergo ablaut. Depending on the context, the vowel alternates between *a(ŋ)*, *e* and *iŋ*. *E*-ablaut is obligatory if the A-word occurs (without suffix) at the end of the sentence, which is often the case for the main verb in a declarative sentence. Moreover, *e*-ablaut is triggered by various enclitics, auxiliaries and relativizers, all of which immediately follow the A-word. Another context in which a verb is subject to *e*-ablaut is the non-final, dependent verb position in a purposive construction, which is briefly discussed in Section 3.2. The *iŋ*-ablaut occurs before certain conjunctions, among others.

Basically all Siouan languages have a cliticized auxiliary verb that expresses causation (Rankin et al. 2015).² In Lakhota, the enclitical causative auxiliary is *-yA*.³ It triggers *e*-ablaut and *truncation* on the verbs it attaches to (Ullrich 2016: 66). Truncation is a morphophonological reduction in which the final vowel is dropped under certain conditions if it follows an obstruent, which in turn is subject to further modification. For example, when *-yA* attaches to the intransitive verbs *otkÁ* (‘hang’), *sápA* (‘be black’) and *kakížA* (‘suffer’), the resulting causative verbs are *otkéyA* (‘hang sth’), *sabyÁ* (‘blacken sth’) and *kakíšyA* (‘make sb suffer’), respectively, with *sapA* truncated to *sab* and *kakížA* truncated to *kakíš*. Like the foregoing examples, most of the verbs that take causative *-yA* belong to the class of neutral/stative verbs. Active verbs are mostly causativized by adding the auxiliary *-khiyA*, which indicates inductive causation. For instance,

²Hidatsa seems to be the only Siouan language in which the causative verb can also occur independently, with the meaning ‘do, make, work’. The Catawban correlate of the Siouan causative auxiliaries is a full verb; see Rankin et al. (2015) for further details.

³Note that the classification of the respective lexical element as an auxiliary, clitic, or affix is a rather controversial task; cf. Rankin et al. (2002: Sec. 4).

máni (‘walk’) becomes *mánikhiyA* (‘make/let sb walk’). Some of the active verbs take *-ya* however. An example is *kiksúyA* (‘remember’), which allows the causative *kiksúyeyA* (‘remind, cause to remember’). The members of the latter class of verbs seem to describe non-intentional activities, in general.

The so-called *instrumental prefixes* provide a second way of forming transitive causative verbs in Siouan languages. The examples in (5) illustrate the use of the prefixes *ka-* (‘by striking’) and *wa-* (‘by cutting’) in Lakhota, attached to the stative roots *-blečA* (‘be shattered’) and *ksÁ* (‘be separated’), respectively.

- (5) a. *Žaŋžáŋ kiŋ ka-bléče.*
 glass DEF by.striking-be.shattered
 ‘(S)he broke the glass.’
- b. *Míla uŋ wa-ksé.*
 knife with by.cutting-be.separated
 ‘(S)he cut it with a knife.’

As indicated by the respective glosses, instrumental prefixes encode a certain way of acting on someone or something. That is, irrespective of being traditionally called “instrumental”, the prefixes do not primarily encode an instrument but an activity. This analysis can be justified on etymological grounds since there are good reasons to assume that the instrumental prefixes in Siouan languages historically derive from verbal roots (cf. Rankin et al. 2015). Moreover, the presence of *uŋ* (‘with, using’) in example (5b) shows that the prefixes do not function as instrumental applicative affixes. An overview of the different instrumental prefixes in Lakhota is given in Section 5.

3.2. Multi-verb constructions

Lakhota has a number of constructions in which the main verb is preceded by one or more dependent verb forms. Here, ‘dependent’ means that personal markings occur on the main verb only, in general, and that the dependent forms show certain morphophonemic properties. The multi-verb constructions in Lakhota include lexical and syntactic cases. The following overview focuses on monoclausal constructions that play a role in the expression of (transitive) directed motion.

A general distinction can be drawn between multi-verb constructions in which the dependent verb is semantically governed by the main verb and those where the semantic relation between the verbs is introduced by the construction (or the context or world knowledge). The first class comprises various kinds of modal and control verbs in the position of the main verb (e.g., correlates of English *try to*, *pretend to*, *be able to*). The dependent expression serves as a semantic argument in this case. Lakhota has a number of lexeme-triggered

constructions of this type, both on the syntactic and the morphological level (cf. de Reuse 2006). An example of the second class of constructions is the *purposive construction* (cf. Ullrich 2018: Sec. 10.2), in which the dependent verb describes the purpose of the activity denoted by the main verb, as illustrated by the examples in (6).

- (6) a. *Nuŋwé - yà-pi.*
 swim - go-PL
 ‘They went to swim.’
- b. *Wól - iyotake.*
 eat - sit.down
 ‘(S)he sat down to eat’

In this construction, the stress on the main verb is reduced and the dependent verb undergoes *e*-ablaut (*nuŋwé* < *nuŋwÁŋ*) and truncation (*wól* < *wóA*), if possible. Moreover, subject markings occur on the main verb only.

For the topic of the present article, the following type of multi-verb construction is the most relevant one. As in the purposive construction, subject markings occur on the main verb and the dependent verb undergoes truncation. In contrast to the previous construction, however, the dependent verb does not ablaut and the main verb maintains independent stress. Moreover, more than one dependent verb is possible (see (10)). An example of this construction that directly contrasts with (6a) is *Nuŋwáŋ yápi*, which means ‘they swam away/were swimming away/advanced away swimming’. In this example, the dependent verb specifies the manner of the deictic motion expressed by the main verb. The morphophonemic and morphosyntactic properties of the construction in question are summarized in (7) and (8).

- (7) a. V_{dep} and V_{head} have independent stress;
 b. V_{dep} undergoes truncation, if possible;
 c. V_{dep} does not ablaut (if it cannot be truncated);
- (8) a. V_{dep} and V_{head} share the same subject, which is marked on V_{head} ;
 b. object marking is on V_{head} if V_{head} is transitive;
 c. object marking on intransitive V_{head} is possible (if V_{dep} is transitive).

Property (8c) is illustrated by the example in (9a), in which the animate plural object marker *wičha* is not on the transitive verb *wáŋyáŋg* (< *wáŋyáŋkA*) but on the intransitive verb *yuŋkÁ* (‘lie’). Marking on the transitive verb as in (9b) is also possible without any apparent difference in meaning.

- (9) a. *Wáŋyáŋg wičhá-yuŋke.*
 watch 3PL.U.ANIM-lie
 ‘(S)he lay watching them.’
- b. *Wáŋ<wičha>yáŋg yuŋké.*
 <3PL.U.ANIM>watch lie

The semantic implications of the described construction can be roughly characterized as follows, in line with the data and analyses in Ullrich (2011,

event; in other words, the construction has the Macro-Event Property.⁵ Further examples of sequential event descriptions that have the Macro-Event Property are given in Bohnemeyer and Van Valin (2017). Lakhota, by comparison, seems to lack such a construction.

4. The expression of (transitive) directed motion in Lakhota

4.1. Deictic motion verbs (= verbs of coming and going)

Lakhota shares with most other Siouan languages a system of four morphologically simple deictic motion verbs (Taylor 1976). These four verbs can be cross-classified along two dimensions: whether they express movement toward or away from the speaker (or, more generally, the deictic center of the discourse) and whether they express non-completed movement or the completion of the movement, i.e., the arrival at the respective location. The four stems in Lakhota are:

- (13) *ú* toward here/the speaker/the deictic center
yÁ toward there/a place away from {the speaker/the deictic center}
hí arrival here/at {the speaker/the deictic center}
í arrival there/at a place away from {the speaker/the deictic center}

In addition, Lakhota provides the two morphologically complex deictic motion verbs *iyáyA* and *hiyú*, which arise from combining respectively *í* with *yÁ* (reduplicated) and *hí* with *ú*, and which are used to refer to the departure from here toward there and the departure from there toward here, respectively. A third motion compound, *hiyáyA*, is built from *hí* and (reduplicated) *yÁ* and means ‘pass by’.⁶

The system of deictic motion verbs in Lakhota is summarized by the diagram shown in Figure 1. The figure also shows in brackets the corresponding set of *vertitive* motion verbs, which encode that the goal of the motion is a place where the mover belongs to or has been before. The vertitive variants are morphologically derived from the basic verbs, and the two vertitive departure ver-

⁵By “consequential”, Stewart (2001: 14) means that the two verbs “express a natural sequence of events, and they are temporarily ordered in a precedence-consequence iconic relation.” Moreover, the action expressed by the second verb is to be seen as “the second step of an overall plan on the part of the agent.”

⁶Siouan languages differ somewhat with respect which compound stems are available and how they are interpreted; cf. Taylor (1976). Comparing the system of Lakhota with that of Hočank (Winnebago) provides an interesting contrast: In Hočank, the two simple stems for non-completed movement are used to denote the inception of motion (i.e., departure) while ongoing movement is expressed by adding a suffix *-he* to these stems. The ‘pass by’ compound, on the other hand, is built from simple stems in the same way as in Lakhota.

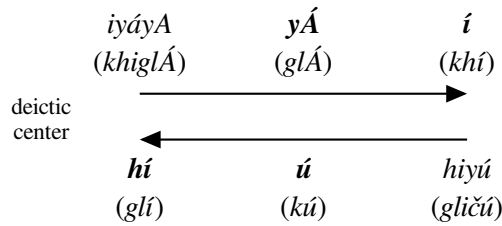


Figure 1: Basic (and vertitive) deictic motion verbs

sions are formed by compounding in analogous ways. The latter is also the case for the vertitive ‘pass by’ compound *gliglÁ* (‘pass by on the way back’).⁷

4.2. The expression of goals and directions

In Lakota, the expression of non-deictic path notions such as goal or course differs crucially from the expression of deixis, which is encoded by the main verb of directed motion expressions. The end location or goal of a movement can be specified by locative and directional adverbs. Examples of locative adverbs for topological relations are *mahél* (‘inside’), *tháŋkál* (‘outside’), *khiyéla* (‘nearby, close’), and *akáŋl* (‘on top, on the surface’). Locative adverbs can function as postpositions if the prefix *i-* is added, which has the basic meaning ‘in contact with’ but can be more generally used for expressing ‘in relation to, with reference to’, among others (Ullrich 2016: 404/438). That is, *itháŋkal* means ‘outside of’ and *ikhíyela* means ‘close to’. Lakota has also two general locative postpositions, *él* and *ektá*, which roughly correspond to English ‘at’, where *ektá* is primarily used for places away from the speaker or deictic center. Moreover, there is a locative suffix *-ta* (*-ata*, *-yata*) which, when attached to nouns such as *wakpá* (‘river’) and *pahá* (‘hill’), produces locative adverbs like *wakpáta* (‘at the/a river’) and *paháta* (‘at/on the/a hill’).

The examples in (14a) and (14b) illustrate how boundary-crossing motion can be expressed by combining a deictic verb with an appropriate topological locative adverb.

⁷The Lakota system of deictic motion verbs shown in Figure 1 is basically identical to that of Dakota and Assiniboine, except for minor morphophonological deviations (Taylor 1976: 290). Boudin (this volume) puts the Assiniboine system of deictic verbs into a wider cross-linguistic context.

In the light of the data discussed by Lamarre et al. (this volume) it is worth mentioning that the four arrival verbs *í*, *khí*, *hí* and *glí* combine with a small number of verbs to form lexical compounds that seem to realize a ‘come/go & do’ pattern, possibly superseded by more lexicalized meanings (Ullrich 2016: 348). For example, *khí* combined with *yuykÁ* (‘lie’) gives rise to *khiyúŋka* (‘return back and lie down’; ‘go back to bed’). Since this type of compounding turns posture verbs into predicates that primarily describe the transition into the respective posture, de Reuse (2006: 308) speaks of “Aktionsart marking” in this case.

- (14) a. *Thaŋkál wa-í.*
 outside 1SG.A-arrive.there
 ‘I went outside.’
- b. *Thi-máhel khiglé.*
 house-inside depart.back.toward.there
 ‘(S)he went back into the house.’
- c. *Mary thí ektá iyáye.*
 Mary house LOC.DIST depart.toward.there
 ‘(S)he went over to Mary’s house.’
- d. *Wakpála kiŋ aglágla ú-pi.*
 river DEF along come-PL.
 ‘They were coming along the river.’

Example (14c) illustrates the specification of a goal by means of the distal locative postposition *ektá*. In (14d), a verb of non-completed motion is combined with a path description.

The adverbs and postpositions mentioned so far can occur in purely locational predications. The question then arises of what to consider as their basic semantic contribution. One option is to regard them as ambiguous between a locative and a directional interpretation (which is the standard strategy of a typical Lakhota-to-English dictionary). From a theoretical perspective, it seems more reasonable to assume a basic locative meaning of these expressions and to regard the directional meaning component of constructions like (14a)–(14c) as being introduced by the deictic motion verb.⁸ Example (15) illustrates that manner of motion verbs like *máni* (‘walk’) do not trigger a directional reading of locative postpositions.

- (15) *Oičhimani kiŋ iháŋke hčē kiŋ ektá máni.*
 procession DEF end.of very DEF LOC.DIST walk
 ‘(S)he walked at the very end of the procession.’

Thus, in Lakhota, the directional interpretation of locative adverbs and postpositions seems to require the presence of a deictic expression.

There are two further means of expressing goals and directions in Lakhota to be mentioned briefly: directional adverbs and locative prefixes. Lative directional adverbs can be formed by adding the suffix *-kiya* (‘toward’) to locative adverbs, as illustrated in (16).

⁸A similar point with respect to English is made by Gehrke (2008: 88), who assumes that the spatial preposition *in*, *on*, *under*, and *behind* only have a locative lexical meaning and that their use in directional phrases is to be explained structurally. This is in line with Zubizarreta and Oh (2007: 138–140), at least as far as the locative prepositions *in(side)* and *outside* are concerned.

- (16) *Pahá-ta-kiya iṅyaṅke.*
 hill-LOC-DIR run
 ‘(S)he is running towards the hill’.

Note that in the case of topological adverbs such as *mahél* (‘inside’) and *ṭhaṅkál* (‘outside’), the respective lative adverbs are *mahétakiya* (‘toward the inside’) and *ṭhaṅkátakiya* (‘toward the outside’); for *mahél* and *ṭhaṅkál* are to be regarded as truncated forms of *mahéta* and *ṭhaṅkáta*.

The so-called locative prefixes in Lakhota include *a-*, *o-*, *i-* (and *khi-*). While their precise meaning contribution depends considerably on the class of verbs they attach to, the prefixes *a-*, *o-*, and *i-* might be said to roughly correspond to ‘on’, ‘in’, and ‘at’, respectively. Adding a locative prefix to a verb has often an applicative, valence-increasing effect. Among others, locative prefixes can combine with verbs of putting to specify the target location, as shown in (17).

- (17) *Wígli kiṅ niḡé kiṅ él o-káštāṅ.*
 oil DEF pouch DEF LOC in-pour
 ‘(S)he poured the oil into the pouch.’

4.3. Transitive deictic motion verbs

Deictic motion verbs can be transitivized in two ways: by *a*-prefixation and by applying the general causative suffix *-yA*:

- (18) *a*-prefixation → accompanied motion
yA-suffixation → caused motion

Roughly speaking, the prefix *a-* turns verbs of coming and going into verbs of bringing and taking (along).⁹ Here, bringing and taking are to be understood as to include accompanied motion of the kind expressed by English ‘guide’, ‘lead’, etc. In the following, the prefix *a-* in the described use is glossed by AM (short for ‘Accompanied Motion’). The example in (19a) shows a simple use of such a prefixed verb together with the locative postposition *ektá*.

- (19) a. *Lé Lisa thí ektá á-ya yo.*
 DEM Lisa house LOC.DIST AM-go IMP
 ‘Take this over to Lisa’s house!’
 b. *Wahínkpe waṅ ye-yé.*
 arrow INDEF go-CAUS
 ‘(S)he sent/shot an arrow.’

⁹Deictic motion verbs prefixed by *a-* can also be used to refer to *collective* coming and going (Ullrich 2016: 360).

The cliticized causative auxiliary *-yA* can attach to the intransitive deictic verbs except for the verbs of arrival. The example in (19b) illustrates the application of *-yA* to the deictic verb *yÁ* ('go, be on the way going'). Since *-yA* triggers *e*-ablaut on the base verb, the resulting causative verb is *yeyÁ*. Likewise, causativization of *iyáyA* gives rise to *iyáyeyA*, whose meaning can be paraphrased as 'cause to depart (from here)' or 'send away (from here)'.¹⁰ The application of *-yA* to the deictic verbs of non-completed motion *yÁ* ('go') and *ú* ('come') has to be qualified insofar as the caused motion use of *uyÁ* is not common anymore (according to the NLD). The causative form *yeyÁ*, on the other hand, can be used with the meaning 'send/throw/toss', as illustrated in (19b).

4.4. Expressing manner and causal force in directed motion constructions

Intransitive deictic manner of motion scenarios can be expressed by combining a manner of motion verb with a deictic motion verb using the SimEvent construction described in Section 3.2. Two examples are given in (20).

- (20) a. *Ínyang glé.*
run go.back
'(S)he was running back.'
- b. *Ziŋtkála kiŋ kiŋyáŋ iyáye.*
bird DEF fly depart
'The bird flew away.'

The deictic motion verb is always the main verb of the construction, which means that it occurs in final position and carries the subject marking if expressed. According to the properties listed in (7), the non-final verb is subject to truncation. In example (20a), the manner verb *ínyanŋkA* ('run') is truncated to *ínyanŋg*. Other examples of manner of motion verbs in Lakota are *maní* ('walk'), *slohÁŋ* ('crawl, creep'), *naúŋkA* ('gallop'), *kiŋyÁŋ* ('fly') and *nuŋwÁŋ* ('swim'). We have seen in (15) and (16) that manner verbs can also occur without a deictic verb. Another such example is given in (21).

- (21) *Blé waŋ tháŋka aglágla máni-pi.*
lake INDEF big along walk-PL
'They walked along a big lake.'

In the transitive case, the SimEvent construction can be employed for combining manner and causal force with deictic motion or transport. The construction then consists of a transitive verb that expresses the way the actor sets or keeps the undergoer in motion and, possibly, the way in which the undergoer

¹⁰In addition, there is the form *iyéyA*, which is frequently used in the same sense as *iyáyeyA* (and *yeyÁ*), but which can also function as an auxiliary with the meaning 'cause to happen/do sth suddenly/promptly'. The exact way in which *iyéyA* is derived as a caused motion verb calls for further research, however.

moves, followed by a deictic motion verb which is typically transitive. Examples with causative deictic motion verbs are given in (22).

- (22) a. *Kaḥ'ól hiyú-ye.*
 throw depart.from.there.toward.here-CAUS
 '(S)he threw it toward here.'
- b. *Pa-čég~čég* *tḥaŋkál hiyú-ni-ye.*
 by.pushing-stagger~REDUP outside depart.from.there-2SG.U-CAUS
 '(S)he pushed you out (making you stagger).'

In accordance with the properties of the SimEvent construction, only the main verb carries personal markings, in general, and the non-final, dependent verb undergoes truncation, if possible, as, e.g., *čég* < *čekA* in (22b).

The dependent expression *kaḥ'ól* ('throw') in (22a) is somewhat exceptional in that there is no non-truncated verbal stem such as *kaḥ'ótA* documented in Lakota (though Buechel and Manhart 2002 mention it as an obsolete form). Example (22b) is particularly relevant to the topic of the present section since the morphological structure of the dependent verb *pačégčeg* (< *pačégčekA*) provides a transparent encoding of the way the actor enforces the motion of the undergoer, expressed by the instrumental prefix *pa-*, and the manner of motion of the undergoer, expressed by the reduplicated version of the verb *čekA*.

Since the SimEvent construction has the same-subject constraint, the deictic head in caused motion expressions like those in (22) is necessarily transitive: The actor is required to be an argument of the deictic verb, but it is not the motion of the actor which the verb describes; hence the undergoer has to be an argument of the verb as well. The situation is different for transport and accompanied motion. Here, the actor moves along with the undergoer, and one might argue that specifying the deictic motion of the actor by an intransitive verb is sufficient in this case. As mentioned in Section 3.2, the combination of a transitive dependent verb with an intransitive main verb is licensed by the SimEvent construction, with the object of the transitive verb often marked on the main verb (cf. (9)). The examples in (23) show that this combination does indeed occur in the description of transitive motion scenarios.

- (23) a. *Pa-slóhaŋ* *máni.*
 by.pushing-slide walk
 '(S)he walked pushing it.'
- b. *K'íŋ* *kaišutḥa~tḥa* *ma-íŋyaŋke.*
 carry.on.back stumble~REDUP 1SG.U-run
 'Stumbling (s)he [the horse] ran carrying me.'

Note, however, that in these examples, the main verb is not a deictic motion

verb but a manner of motion verb.

If deixis is expressed in multi-verb descriptions of transport or accompanied motion scenarios then the transitivized, accompanied motion variant of the deictic verbs is chosen, in general. A possible morphosyntactic explanation for this “transitivity harmony” could run as follows: Since Lakota is a head-marking language, there is a tendency to mark the arguments on the final verb of the SimEvent construction. Transitive, accompanied motion versions of deictic verbs are available in the language. Hence they are used as heads in the respective constructions since they provide an argument slot for the object. The sentences in (24) illustrate the use of deictic accompanied motion verbs in combination with caused manner of motion verbs.

- (24) a. *Yu-slóhaŋ a-wičha-ye.*
by.pulling-slide AM-3PL.U.ANIM-go
'(S)he was dragging them away.'
- b. *Pa-gmígma a-glí-pi.*
by.pushing-roll AM-arrive.back-PL
'They brought it rolling.'

The dependent verbs in these examples are again morphologically complex, as in (22b) (and (23a)), consisting of an instrumental prefix and a manner of motion verb. We analyze this specific type of construction, both with caused and accompanied deictic motion verbs, in more detail in Section 6 after taking a closer look at the various instrumental prefixes in Section 5.

The transitivity constraint on the deictic verb of a transitive motion construction has to be qualified somewhat in the case of transport by carrying. On the one hand, there are examples like (25) in which the carry verbs *alóksohaŋ* ('carry sth in/under the arm(s)') and *k'íŋ* ('carry smth/sb on the back or shoulders') combine with transitive deictic verbs of accompanied motion as predicted.

- (25) a. *Oúŋpapila kiŋ alóksohaŋ a-wičha-i-pi.*
infant DEF carry.in.arm AM-3PL.U.ANIM-arrive.there-PL
'They came with the infants in their arms.'
- b. *Šíná ognágna k'íŋ a-glí-pi.*
blanket in carry.on.back AM-arrive.back-PL
'They brought it carrying it in blankets.'

On the other hand, at least *k'íŋ* can combine with intransitive deictic verbs as well; cf. (26a). The verb *yuhá*, which can mean 'hold/carry in the hands' but also 'have', even seems to allow only intransitive deictic verbs, as in (26b). Moreover, the co-occurrence of *alóksohaŋ* and *yuhá* in (26c) points to the fact that *yuhá* followed by a deictic verb can also be used in the general sense of accompanied

<i>ka-</i>	by striking/hitting (with an instrument); by action of wind or water; by outer force
<i>na-</i>	by action of foot or leg // by inner force; by natural forces
<i>pa-</i>	by pushing or by pressure with the hands or the body
<i>wa-</i>	by cutting with a blade; by a sawing motion
<i>wo-</i>	by impact from a distance; by hitting or poking with a long object; by blowing
<i>ya-</i>	by means of the mouth (teeth, tongue, lips); by speaking
<i>yu-</i>	by means of the hands; by pulling; can also express general causation

Table 1: Overview of the seven productive instrumental prefixes in Lakota

deictic motion.

- (26) a. *Tǎhǎčǎ waŋ ó na háyuziŋ na k’ŋ glí.*
 deer INDEF shoot CONJ strip.skin CONJ carry.on.back arrive.back
 ‘(S)he shot the deer, stripped the skin and brought it home.’
- b. *Íŋyaŋ waŋ yuhá hí.*
 stone INDEF hold/have arrive.here
 ‘(S)he came with a stone in her/his hands.’
- c. *Hokšičala waŋ alóksohaŋ yuhá ú.*
 baby INDEF carry.in.arm have come
 ‘(S)he was coming with a baby in her/his arms.’

The behavior of carry verbs may give reason to reconsider the above morphosyntactic explanation of the transitivity harmony. Since the SimEvent construction allows transitive dependent verbs to combine with intransitive main verbs, transitivity harmony is not strictly required on syntactic grounds. It seems that the description of transport and accompanied motion scenarios calls for a transitive deictic verb if the dependent verb does not lexically entail that the undergoer moves with the actor. Otherwise, as with verbs of carrying, the use of an intransitive deictic motion verb can be adequate as well.

5. Instrumental prefixes

5.1. Overview of the inventory

There are eight instrumental prefixes in Lakota, *ka-*, *na-*, *pa-*, *pu-*, *wa-*, *wo-*, *ya-*, *yu-*, of which *pu-* is rare. The meaning of the remaining seven prefixes is sketched in Table 1 (cf. Boas and Deloria 1941: §45; Rood and Taylor 1996: 463; Ullrich 2011: 803–807; Ullrich 2016: 430–437). Note that the two main readings of the prefix *na-*, by action of foot and by inner force, are to be seen

‘(S)he bit off its head.’

- b. *Šúnka kiŋ tháhá waŋ ya-slóhaŋ a-glí.*
dog DEF hide INDEF by.mouth-slide AM-arrive.back
‘The dog brought a hide dragging it with his teeth.’

The specific type of causal relation between the action expressed by the instrumental prefix and the event or state denoted by the stem or root to which the prefix is attached depends on the Aktionsart properties of both components. If the causing event denoted by the prefix is point-durational then the causation expressed by the prefixed verb is also point-durational by default. When combined with roots or stems that express non-gradable stative (“target-state”) predicates such as *-blečA* (‘be shattered’) and *ksÁ* (‘be separated’), as in the examples in (5), the caused event is the point-durational transition into the respective state. This scenario comes close to what Talmy (2000) calls a basic causative situation: two simple events that are causally related take place (roughly) at the same time.¹³ However, this characterization has to be qualified insofar as the prefix *wo-* expresses “action from a distance”, which includes continuous (‘by poking’) but also discontinuous causation (‘by shooting’) in the sense of Section 2.

When combined with manner of motion verbs like *slohÁŋ* (‘slide; lit.: creep’) and *čékA* (‘stagger, reel’), the addition of a point-durational prefix indicates by default the causation of the onset of a movement, which can then be assumed to continue autonomously (for some time) due to the *principle of inertia*. Such a scenario is already a complex causative situation in Talmy’s sense since it consists of a basic causative situation that sets off an autonomous event. By definition, a point-durational action cannot be the causing event of a basic extent-durational causation. However, the action can be iterated (“multiplexed” in Talmy’s terms) to keep the caused event going. Rolling a hoop by (repetitively) hitting it with a stick is a case in point. Such a situation does not count as a basic causation but can still be considered as an extent-durational causation.

Potentially durative prefixes such as *pa-* (‘by pushing’) and *yu-* (‘by means of the hands, by pulling’) can denote extent-durational actions that can serve as the causing events of basic extent-durational causations. A possible scenario of this type is, for instance, given by the intended interpretation of the example in (1a). Pushes and pulls can of course also occur virtually punctual; cf. the discussion in Section 2. The full repertoire of causative situations is thus available for *pa-* and *yu-* as well, including point-durational causation and derived, multiplexed

¹³Talmy’s (2000: 495) condition that the “caused event takes place exactly during the duration of the causing event” seems somewhat counterintuitive since one would expect the cause to always precede the effect, at least slightly. The notion of “exhaustive ordered overlap” used by Pustejovsky (1995: 70) for “two basically simultaneous subevents, where one starts before the other” seems more appropriate in this respect.

extent-durational ones.

While the focus of the present article is on caused motion events that go along with a change of location, it should be kept in mind that the foregoing distinctions between the different causation types do apply in the same way to caused motion-in-place scenarios. For example, the intransitive verb *huyhúŋzA* ('shake, rock, vibrate') takes all instrumental prefixes except *wa-*, and, when combined with *pa-* or *yu-*, gives rise to basically the same variety of possible causation types.

6. The composition of causation, manner, and deictic motion

In view of the distinctions spelled out in the previous section, the possible combinations of prefix Aktionsart and caused directed motion scenarios can be summarized as shown in (28). The cases (28a) and (28d) correspond to basic causative situations. Case (28b) enforces an iterative interpretation ("multiplexing") of the punctual activity, while case (28c) requires a punctual interpretation of the potentially durative activity.

- (28) a. *inherently punctual* activity + *point-durational* causation
(e.g. *x* kicks *y* once and thereby makes *y* slide away)
- b. *inherently punctual* activity + *extent-durational* causation
(e.g. *x* kicks *y* repeatedly and thereby keeps *y* sliding forward)
- c. *potentially durative* activity + *point-durational* causation
(e.g. *x* pushes *y* once and thereby makes *y* slide away)
- d. *potentially durative* activity + *extent-durational* causation
(e.g. *x* pushes *y* continuously and thereby keeps *y* sliding forward)

In order to test empirically if and how the different combinations are interpretable by native speakers, we prepared a small questionnaire consisting of sentences which one of the authors used during a field study for eliciting English translations from three native Lakhota speakers. The sentences contain SimEvent constructions in accordance with the pattern in (29), with varying prefixes and with variation in the use of caused and accompanied deictic motion verbs.

- (29) ⟨instr. prefix⟩-⟨intrans. motion verb⟩ ⟨trans. deictic motion verb⟩

More specifically, we tested the instrumental prefixes *pa-*, *yu-*, *na-* and *ka-*, where *pa-*, *yu-*, and *na-* are potentially durative, with *na-* showing a tendency towards punctuality, and where *ka-* is inherently punctual. The intransitive motion verb was fixed to *slohÁŋ*. These instrumental verbs have been combined with three different transitive deictic motion verbs: the accompanied motion form

of *yÁ* and the causative forms of *iyáyA* and *yÁ*. The set of Lakhota sentences in the questionnaire and the English translations provided by the consultants are given in (30) for *áyA*, in (31) for *iyáyeyA*, and in (32) for *yeyÁ*.

Consider the sentences in (30). The cases in (30a) and (30b) are instances of (28d) and thus completely straightforward. The iterative interpretations of (30c) and (30d) apparently provide no difficulties either.

- (30) a. *Wógnake kiŋ pa-slóhaŋ á-ye.*
 container DEF by.pushing-slide AM-go
 ‘He’s pushing/dragging the suitcase/cabinet (along).’
- b. *Wógnake kiŋ yu-slóhaŋ á-ye.*
 container DEF by.pulling-slide AM-go
 ‘He’s pulling the suitcase/cabinet (along).’
- c. *Wógnake kiŋ na-slóhaŋ á-ye.*
 container DEF by.using.foot-slide AM-go
 ‘He’s pushing it with his feet.’
- d. *Wógnake kiŋ ka-slóhaŋ á-ye.*
 container DEF by.striking-slide AM-go
 ‘He is batting the suitcase along.’/
 ‘He’s pushing the cabinet by hitting it with something.’

The constructions in (31) give rise to a point-durational interpretation because of the chosen verb of departure. The straightforward cases are here (31c) and (31d); they can be both subsumed under (28a). The required punctual interpretations of *pa-* and *yu-* in (31a) and (31b) seem to be fairly unproblematic as well.

- (31) a. *Wógnake kiŋ pa-slóhaŋ iyáye-ye.*
 container DEF by.pushing-slide depart.from.here-CAUS
 ‘He pushed the suitcase away.’/
 ‘Pushes hard so that it starts sliding by itself.’
- b. *Wógnake kiŋ yu-slóhaŋ iyáye-ye.*
 container DEF by.pulling-slide depart.from.here-CAUS
 ‘Pulls hard so that it starts sliding by itself.’
- c. *Wógnake kiŋ na-slóhaŋ iyáye-ye.*
 container DEF by.using.foot-slide depart.from.here-CAUS
 ‘He pushed the suitcase away with his foot.’
- d. *Wógnake kiŋ ka-slóhaŋ iyáye-ye.*
 container DEF by.striking-slide depart.from.here-CAUS
 ‘He sent the suitcase sliding along.’

The interpretation of the combinations in (32) turned out to provide slightly

more difficulties for the consultants. (The sentences have even been considered ungrammatical by one person.) The problem might be that *yeyÁ* is the causative form of a non-completed motion verb, whose interpretation is probably less transparent than the causative form of a verb of departure. This shows up particularly in the elicited translations of sentence (32d).

- (32) a. *Wógnake kiŋ pa-slóhaŋ ye-yé.*
 container DEF by.pushing-slide go-CAUS
 ‘Standing behind pushing forward so that it slides away from him.’
- b. *Wógnake kiŋ yu-slóhaŋ ye-yé.*
 container DEF by.pulling-slide go-CAUS
 ‘He jerked the cabinet forward so that it slid.’
- c. *Wógnake kiŋ na-slóhaŋ ye-yé.*
 container DEF by.using.foot-slide go-CAUS
 ‘He kicked it and it went by itself.’/
 ‘He pushed it with his feet so that it started sliding.’
- d. *Wógnake kiŋ ka-slóhaŋ ye-yé.*
 container DEF by.striking-slide go-CAUS
 ‘He hit it, it moves along, he hit it again, it moves, he hit again, etc.’/
 ‘Kind of throw it so that it slides forward.’

In sum, the small empirical study shows that the exceptionally transparent morphosyntactic decomposition system provided by Lakhota for the encoding of force, causation, and deictic motion guides the interpretation of transitive directed motion expression as predicted.

7. Typological perspectives

Various typological perspectives can be taken on the Lakhota data discussed in this article. A first thing to ask is to which extent the Lakhota system of encoding transitive directed motion is reflected in other Siouan languages. As mentioned in passing, this holds for many of the components such as the system of deictic motion verbs, the general causative auxiliary, and the system of instrumental prefixes. More information is needed, however, about correlates of the SimEvent construction in other Siouan languages.

Assiniboine, which is closely related to Lakhota and Dakota, though not up to full mutual intelligibility, seems to provide basically the same constructional pattern as Lakhota for combining force, manner, and deictic motion in transitive directed motion descriptions; cf. (33).¹⁴

¹⁴The example is sentence (120) of the tale ‘Bad Hair White Man’ in Parks et al. (2012), using the orthographic conventions of Cumberland (2005).

- (33) *Híj, tʰatʰáka wəʒi ya-snohá a-kní-pi.* (Assiniboine)
 Oh, buffalo one by.mouth-slide AM-arrive.back-PL
 ‘Oh, they dragged one buffalo back using their mouths.’

Whether or not this type of construction has the same morphophonological and morphosyntactic properties as the SimEvent construction in Lakhota has still to be explored, however.¹⁵

The Siouan languages of the Missouri Valley branch, Crow and Hidatsa, are more distantly related to the Dakotan branch and differ from Lakhota in a number of ways. In particular, there seems to be no direct correlate of the SimEvent construction in Crow and Hidatsa. In both languages, a “same subject” morpheme *-ak* is available for conjoining verbs and verb phrases (Graczyk 2007: 402–416; Boyle 2011). Clause chaining with *-ak* can be used for expressing both simultaneous and sequential events. In this construction, person is marked on every verb of the chain but the plural morpheme occurs only on the final verb (Graczyk 2007: 406). Another difference to Lakhota is the considerably reduced set of basic deictic motion verbs in Crow and Hidatsa (Taylor 1976: 293).

In Lakhota, deictic motion is expressed by the main verb of the clause while non-deictic path information is encoded rather differently by adverbs and adpositions. Matsumoto et al. (2017) mention Kathmandu Newar (Tibeto-Burman) and Jaminjung (Northern Australia) as further examples of languages that express deixis by the main verb and path by other means such as adverbs, coverbs, or case markers. The comparison with Newar is particularly interesting since it has, like Lakhota, both accompanied and caused motion versions of deictic motion verbs (Matsuse 2020).

Instrumental prefixes, while typologically not a very widespread phenomenon, appear not only in the Siouan-Catawban language family but also in a number of other, unrelated North American languages (Mithun 1999: 118–126). Certain Austronesian languages show also affixation systems that may count as instrumental prefixes (McGregor 2002: 292).

Abbreviations A – Actor, ACC – Accusative, AM – Accompanied Motion, ANIM – Animate, CAUS – Causative, DEF – Definite, DEM – Demonstrative, DIST – Distal, INAN – Inanimate, INDEF – Indefinite, LOC – Locative, PL – Plural, REDUP – Reduplication, SG – Singular, U – Undergoer

¹⁵The short section in Cumberland (2005: 406–407) on “adverbial verbal complements” is too cursory in this respect.

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