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Chapter 2
Motion event descriptions in Mombasa Swahili: An experimental study

Abstract: Mombasa Swahili speakers' descriptions of motion events are discussed, based on data from a speech elicitation experiment. The results of the experiment are examined in terms of the sentence structures used, variations in the coding positions of path according to different path types and event types, and the coding positions of deixis. Path-coding patterns are analyzed in terms of the distinction between head path coding and head-external path coding (Matsumoto, this volume). It was found that Mombasa Swahili allows considerable variation in the coding positions of path. Our findings also suggest limitations of the approach that considers only sentences involving the single-clause integration of manner and path (Talmy 1991, 2000); they also highlight the need to distinguish between the typology of lexicalization and that of path-coding positions.

1 Introduction

This chapter discusses motion event descriptions in Mombasa Swahili, based on the experimental data collected as part of the NINJAL Project on Motion Event Descriptions across Languages (MEDAL). It examines how path notions, such as TO, TO.IN, and UP, are represented in the language, along with other notions such as manner and deixis. In analyzing path-coding positions, special attention is paid to whether path notions are encoded in the "head" or the "head-external elements" (Matsumoto 2017, this volume; Matsumoto and Kawachi 2020) rather than "verbs" or "satellites" (Talmy 1991, 2000). The term head refers to the main verb (of the main clause), while head-external elements encompass all other expressions, including

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verb affixes, prepositions, adverbs, and subordinate verbs. The distinction between head path coding and head-external path coding is applied to cases where path and manner of motion are not integrated into the same clause, unlike Talmy's (1991, 2000) typology of verb-framed versus satellite-framed patterns.

The experiment reported covers three types of motion events: self-motion events (e.g., running up the stairs), caused-motion events (e.g., putting a book into a bag), and visual motion events involving the motion of a glance (e.g. casting a glance into a room). The results of the experiment show that the single-clause integration of manner and path is not frequent in Mombasa Swahili. Furthermore, path-coding positions vary extensively according to the types of path and manner described, and event types. Significantly, it manifests the pattern of "head path coding without manner" (Nagaya, this volume), in which the coding pattern of path is affected by the presence of an expression of manner. The typological significance of our findings is discussed, most importantly concerning the availability of a rich set of path verbs and head path coding.

2 Basic facts of Swahili

Swahili, also referred to as Kiswahili in the literature, is a Bantu language of the larger Niger-Congo family, spoken as a first language in Tanzania, Kenya, Congo, and some other neighboring countries. It is also widely used as a lingua franca in Eastern Africa. It is an SVO language with agglutinating morphology. It has diverse dialectal variation, and the present study is based on data of the variety used by native speakers from the Mombasa region of Kenya.

A Swahili sentence is given in (1).

(1) *A-li-som-a* *kitabu.*
SM$_{3SG}$-PST-read-IND 7.book
'He/she read a book.'

The verb has several prefix and suffix slots. A simplified schema of the verb structure is as follows:

(2) SM-TNS(-REL.M-OM)-ROOT-(CAUS-APPL-PASS)-MOOD

In the verbal structure above, the brackets indicate the optionality of the elements. Prefixes include subject marker (SM), tense marker, object marker (OM), as well as relative marker. Subject and object markers encode the noun classes of subject and

object nouns, respectively, and in the case of a human noun, indicate person and number. In Chewa (Chichewa), a related Bantu language, SM and OM are shown to be bound pronominals (Bresnan and Mchombo 1987), and this appears to be the case with Swahili. In addition, there is a wide range of suffixes that follow the verb root, and the suffixes relevant to this study include the causative (CAUS), applicative (APPL), and passive (PASS). The verbal structure ends with a final vowel, with most verbs taking an /a/ ending in the indicative (IND), or /e/ ending in the subjunctive (SBJV).

Another characteristic feature of Swahili is noun classes and concord. Swahili has 16 noun classes (separating singular and plural classes). The classes are named by the reference numbers of the Proto-Bantu system (Classes 1 through 18, with classes 12 and 13 missing). All elements within an NP obligatorily manifest concord with the head noun, indicated by prefixes appearing in each element. The agreement marker on a verb is based on noun classes, though in some dialects (e.g., Nairobi Swahili) the agreement follows a simplified pattern (Deen 2002: 22–23). The details of the class system are irrelevant to this study, and therefore it is not further described here.

In Swahili, two major strategies are employed in marking verbs in subordinate clauses without using a subordinator. One strategy employs the prefix *ki-* in the tense slot. The *ki-* marker indicates simultaneity (glossed as SIM), as shown in (3).

(3) *Julia a-li-let-a kiti kibanda-ni a-**ki**-tabasam-u.*
Julia SM_{3SG}-PST-bring-IND 7.chair 7.shed-LOC SM_{3SG}-SIM-smile-IND
'Julia brought the chair to the shed while smiling.'

The second strategy is by use of subjunctive form, marked in the verb's final vowel. This form is typically used to mark a purpose, as in (4).

(4) *Julia a-na-m(w)-it-a Maria a-ingi-**e** kibanda-ni.*
Julia SM_{3SG}-PRS-OM_{3SG}-call-IND Maria SM_{3SG}-enter-SBJV 7.shed-LOC
'Julia calls Maria so that Maria enters the shed.'

Coordination is marked with *na* 'and' at the beginning of the second clause, as in (5).

(5) *Julia a-na-m(w)-it-a Maria **na** Maria*
Julia SM_{3SG}-PRS-OM_{3SG}-call-IND Maria and Maria
a-na-eleke-a kibanda-ni.
SM_{3SG}-PRS-move.toward-IND 7.shed-LOC
'Julia calls Maria and Maria moves toward the shed.'

In some instances, the *na* coordinator is followed by a *ku*-infinitive form (Riedel and de Vos 2017).

Somewhat different is the use of a consecutive clause, exemplified by the second clause in (6).

(6) *Ken a-na-u-pig-a mpira u-**ka**-ingi-a kwenye lango*
Ken SM_{3SG}-PRS-OM_3-hit-IND 3.ball SM_3-CON-enter-IND LOC 5.goalpost
'Ken kicks the ball and then it enters the goalpost.'

In this case the tense slot is filled by a consecutive marker, *ka-*. This marker indicates that the event depicted by *ka-* occurred consecutively with the event denoted by the previous verb. This morpheme is often said to be used when the verb in the preceding clause is in the past or perfect form, but in the Mombasa dialect it does not have this restriction, as shown by the acceptability of (6). Although some may consider such clauses to be subordinate, given that preverbal prefix *ka-* is tenseless and is dependent on the preceding clause for tense, the present chapter treats *ka-* as a marker of coordination, as in Mpiranya (2015: 191).

3 Previous studies on Swahili and other Bantu languages

Research on motion event descriptions in Swahili and other Bantu languages has been conducted to some extent. An early study by Driever (1976) on various grammatical aspects of Mombasa Swahili includes significant findings on the semantic roles of verbal arguments, relevant to the current discussion. Talmy (2000: 222) states that Bantu languages are verb-framed, though he does not cite any evidence for this claim (but see Schaefer 1985 and Schaefer and Gaines 1995 for data from Bantu languages compatible with his analysis). Gaines (2001) discusses motion event descriptions in Swahili and three other Bantu languages (namely Kuyu (Gikuyu), Tswana, and Zulu). Lusekelo (2008, 2010) lists motion verbs in (Tanzanian) Swahili and discusses their uses in comparison to other Bantu languages in Tanzania. Other studies on motion expressions in Bantu languages include Schaefer (1985) and Creissels (2006) on Tswana, Taylor (1996, 2007) on Zulu, Sitoe (2001) and Menete (2022) on Tsonga (Changana), Botne (2005) on Ndali (Chindali), Atindogbé (2012) on Bantu A languages, Devos (2014) on Shangaci, Yoneda (2016) on Herero, Hieda (2016) on Saamia, Abe (2016) on Bende, and Persohn (2018) on Nyakyusa. Schaefer and Gaines (1995) survey motion event descriptions in African languages, including some Bantu languages such as Tswana and Shona.

Studies of Swahili motion event descriptions have centered on how Swahili speakers use verbs, probably reflecting the fact that Bantu languages like Swahili make limited use of prepositions and other adnominal markers to indicate path (Creissels 2006). Gaines (2001: 30) claims that Swahili uses biclausal complex sentences to represent motion events, putting path in the main verb and placing manner in a subordinate clause. He further states that the biclausal sentence is marked by the "circumstantial marker *akiwa* 'while'." It is not clear if this is the right way to characterize *akiwa*, since it is in fact composed of three morphemes: *a-*, a subject marker denoting third person singular, *ki-*, a marker of simultaneity as in (3) above, and *wa*, the verb 'be'. We cite Gaines's (2001) Swahili examples in (7) below (with some glosses changed for consistency in the present chapter). Gaines does not specify from which dialect these examples were taken.

(7) a. *Kijana* *a-li-ingia* *chumba* *akiwa* *a-na-kimbia.*
youth SM_{3SG}-PST-move.into 7.room while SM_{3SG}-PRS-run
'The youth entered the room while he was running (i.e., ran into the room).'

b. *Mwanamke* *a-li-toka* *chumba* *akiwa* *a-na-kimbia.*
woman SM_{3SG}-PST-move.out 7.room while SM_{3SG}-PRS-run
'The woman exited the room while she was running (i.e., ran out of the room).'

c. *Mwanamume* *a-li-panda* *ngazi* *akiwa* *a-na-kimbia.*
man SM_{3SG}-PST-move.up 9.stairs while SM_{3SG}-PRS-run
'The man ascended the stairs while he was running (i.e., ran up the stairs).'

Gaines claims that the pattern in (7) is a general one in Bantu, seen also in (Gi)kuyu and Tswana (see Schaefer 1985 on Tswana), although Sitoe's (2001) descriptions of Tsonga and Hieda's (2016) descriptions of Saamia present different patterns.[1] In contrast to Gaines's (2001) claim for Swahili, Lusekelo (2008, 2010) provides Swahili data in which manner is in the main clause with path in the subordinate clause. Yoneda (2016) points out that the choice of the main verb in Herero biclausal structure depends on the subtypes of manner and path involved.

1 Sitoe (2001: Ch. 6) demonstrates that in Tsonga, both manner and path can be described in a coordinate-like sentence without a connector, as cited in (i) below, in which the second clause is in the sequential tense.

(i) Bilá átsutsúmé ánghéná ándlwíni
Bila 1.run.PST 1.enter.SQ house.LOC
'Bila ran and entered the house.'

The use of an applicative suffix to indicate goal is widely noted in Bantu (Pacchiarotti 2020: 126–132; see also Abe 2016: 173–175 on Bende and other languages). Schaefer (1985: 62) describes such a use in Tswana, which has been used to argue for the presence of a satellite-framed pattern in that language (Levin and Rappaport Hovav 1995: 184; Beavers, Levin, and Tham 2010). This option is also available in Swahili.

As has been observed above, Swahili (among other Bantu languages) has several options for indicating path (viz. main verb, subordinate verb, applicative suffix), but from the aforementioned previous studies, it is not clear which is the dominant pattern. It is therefore worthwhile to empirically examine how the speakers of Mombasa Swahili express path in descriptions with different path types and event types.

4 Expressions used in motion event descriptions

In this section, we will survey the lexical inventory of expressions used in describing motion in Swahili. We focus on their uses in Mombasa Swahili, but dialectal differences known to the authors are noted. All example sentences are those of Mombasa Swahili speakers, uttered as responses to the experiment reported in Sections 6 and 7 unless otherwise noted.

4.1 Verbs

Swahili has motion verbs like the following. Manner verbs include:

(8) *tembea* 'walk'; *kimbia* 'run'; *ruka* 'jump, fly'; *nyata* 'sneak along'; *tambaa* 'crawl'; *ogelea* 'swim'; *nyemelea* 'creep'; *dunda* 'bounce'

Some manner verbs can be reduplicated to convey specialized meanings such as repetition, as shown in (9).

(9) *tembea-tembea* 'wander'; *kimbia-kimbia* 'run around'; *nyata-nyata* 'move stealthily in a repeated way'; *ruka-ruka* 'jump repeatedly, hop'; *dunda-dunda* 'bounce repeatedly'

There are a sizable number of path verbs, which include:

(10) *ingia* 'enter'; *toka* 'exit'; *panda* 'ascend'; *shuka* 'descend'; *vuka* 'move across'; *pita* 'pass'; *pitia* 'pass by'; *anguka* 'fall'; *penya* 'move into constrained surroundings (e.g. a bush, hole)'; *fika* 'reach, arrive at'; *ondoka* 'leave (a place)'; *zunguka* 'move around'; *karibia* 'get close to'; *acha* 'leave, abandon'; *elekea* 'move towards'

In addition, the following deictic verbs are observed:

(11) *(ku)ja* 'come'; *enda* 'go'[2]

Regarding verbs for caused motion, Swahili has verbs like the following:

(12) means-of-causation verbs
ru-sh-a 'throw' (causative of *ruka* 'jump, fly'); *piga* 'hit, kick'; *gonga* 'hit'; *ita* 'call'; *beba* 'hold, carry'[3]

(13) causative path verbs
tia 'put into, pour into'; *toa* 'take out'; *inua* 'lift'; *ingi-z-a* 'cause to enter'; *pand-ish-a* 'cause to ascend'; *shu-sh-a* 'cause to descend'; *angu-sh-a* 'cause to fall'; *vu-sh-a* 'cause to cross'; *pi-sh-a* 'allow to pass'; *pit-ish-a* 'cause to pass'; *eleke-z-a* 'cause to move toward'; *fik-ish-a* 'cause to reach, deliver'; *ondo-sh-a* 'remove'; *ach-ish-a* 'cause to abandon (something/someone)'

The verbs in (12) do not necessarily entail the motion of the affected entity but *can* be used to represent the means by which motion is caused. All the causative path verbs in (13) except the first three are morphologically derived from those listed in (10). Previous studies on causativization in Bantu languages reveal two patterns of morphological derivation (Simango 1999; Schadeberg 2003; Yoneda 2015). One involves the addition of the suffix *-ish/-esh*, found in *pand-ish-a* 'cause to ascend', derived from *pand-a* 'ascend'. The other is exemplified by verbs like *shu-sh-a* 'cause to descend', derived from *shuk-a* 'descend', and *pi-sh-a* 'allow to pass', derived from *pit-a* 'pass', where /k/ or /t/ is seemingly replaced by /sh/. Yoneda (2015) argues that such forms are in fact derived from the addition of causative *-y*, with the resulting phonological change from /t, k/ + /y/ to /sh/. The aforementioned patterns are related to consonant-final verb stems, and verbs such as *ingi-a* 'enter' that have vowel-final

2 For phonological reasons, Swahili monosyllabic verbs such as *ja* 'come' are usually cited with a 'dummy *ku*' prefix, hence (*ku)ja* 'come'. This is because stress in Swahili falls on the penultimate syllable (Deen 2002: 27).

3 The verb *piga* 'hit, kick' requires the figure to move, while *gonga* 'hit' does not.

verb stems are causativized with the suffix *-z*. The causativized form of the verb *ingi-a* 'enter' is *ingi-z-a* 'cause to enter' (Mohammed 2001: 215).

In addition, causative path verbs have semantic restrictions on the types of causation they can denote. The first three verbs listed in (13), for example, are restricted to manipulative causation.

Manner verbs can also be causativized to derive causative manner verbs, as in (14).

(14) *tembe-z-a* 'show around, cause to walk' (< *tembea* 'walk'+ causative); *kimbi-z-a* 'chase, cause something/someone to move fast' (< *kimbia* 'run'+ causative); *tamba-li-sh-a* 'roll(tr)' (< *tambaa* 'creep, crawl' + applicative + causative)

When manner verbs are causativized, the meaning is, in some cases, not simply the causative version of the base verb, as illustrated in (14) above.

Swahili has PUT-TAKE verbs, which have a very general path meaning encoded, as given in (15). They are used for manipulative caused motion.

(15) *weka* 'put'; *chukua* 'take'

Causative deictic verbs in Swahili are shown in (16). The use of these verbs is limited to co-motional causative events.

(16) *peleka* 'take, cause to go'; *leta* 'bring, cause to come'

The verbs of vision used in the description of visual motion are:

(17) *tazama* 'look'; *chungulia* 'peep'

4.2 Locative markers

The locative suffix *-ni,* placed on nominals of Bantu origin, plays an important role in indicating location. A nominal with this suffix can occur as a locative, goal, or even source argument of a verb, as (18) illustrates:

(18) a. *tembea/rukaruka nyumba-ni* 'walk/hop in the house' <Location>
b. *kimbia nyumba-ni* 'run {within/to} the house' <Location, Goal>
c. *(ku)ja/enda/ingia nyumba-ni* 'come to/go to/enter the house' <Goal>
d. *toka nyumba-ni* 'exit the house' <Source>

The choice between location, goal, and source is determined by the verb (Driever 1976). For example, a locative nominal with *tembea* 'walk' or *rukaruka* 'hop' can only receive a location interpretation. Some speakers of Mombasa Swahili allow the goal reading of a locative phrase with *kimbia* 'run'.[4] A locative nominal with *(ku)ja* 'come', *enda* 'go', or *ingia* 'enter' can only have a goal reading. A locative nominal with *toka* 'exit' can only have a source reading.[5] A similar observation has been made about other Bantu languages, such as Zulu (Taylor 1996: 289–291) and Tsonga (Sitoe 2001: 26) (see Wälchli and Zúñiga 2006 and Nikitina 2009 for typological surveys of such languages). In Swahili, the *-ni* locative suffix is not accommodated by non-Bantu nouns. In order to locativize a non-Bantu noun in Mombasa Swahili, *kwa* is used like a preposition, as in (19), in which the *kwa* phrase is interpreted as indicating a goal.[6]

(19) *Maria* *a-na-eleke-a* *kwa* *baiskeli.*
Maria SM_{3SG}-PRS-move.toward-IND LOC 9.bicycle
'Maria heads for a bicycle.'

The marker *kwenye,* which is composed of the locative noun class *ku-* prefix and quasi-adjective *-enye* 'having', as noted in Mohammed (2001: 68), is also used to mark location. This is shown in (20) below.

(20) *Maria* *a-li-end-a* *kwenye* *baiskeli.*
Maria SM_{3SG}-PST-go-IND LOC 9.bicycle
'Maria went to a bicycle (where a bicycle was located).'

Nominals marked with *kwenye* are also interpreted as a goal argument when they occur with certain motion verbs.

It is not clear if these locative markers intrinsically encode the notion of reaching a goal. The goal reading arises in its combination of co-occurring verbs.

4 There may be a dialectal/idiolectal difference as to this possibility. Driever (1976: 64) notes that *kimbia* allows only a locative meaning in Mombasa Swahili. The verb *kimbia* can also mean 'run away, escape' and a locative phrase can be interpreted as a source in that case.

5 It appears that adverbs/prepositions like *ndani* 'inside' cannot be used to indicate a source with *toka* 'exit'.

6 According to Nobuko Yoneda, Tanzanian Swahili speakers do not use *kwa*-phrases to mark a goal in this way; *kwa* in (19) is interpreted as instrumental.

4.3 Prepositions and adverbs

Nurse and Philippson (2003: 9) state that most Bantu languages have few real prepositions. This has been observed in languages like Zulu (Taylor 1996: 295) and Herero (Yoneda 2016: 223). Creissels (2006: 19, 23) points out that there are many languages in Niger-Congo including Bantu in which the distinction between location, source, and goal is coded only by verbs, and not by prepositions or case markers. As can be seen in the discussion on locative markers in Section 4.2, the interpretation of locative markers in Mombasa Swahili is also dependent on the verbs with which they co-occur.

There are, however, some items that are often said to be prepositions in Swahili. Simplex prepositions are listed in (21) below. Some of these prepositions have other meanings, but here we list spatial senses only.

(21) *hadi* 'up to, as far as'; *mpaka* 'up to'; *kutoka* 'from'; *katika* 'in'

We have not encountered prepositions for meanings such as 'through' and 'across'.

The following are forms in Swahili which function as adverbs when occurring alone, or as 'complex prepositions' when co-occurring with *ya, wa,* or *na* (Mohammed 2001: 102).

(22) *juu* (*ya*) 'up, on'; *ndani* (*ya*) 'inside'; *nje* (*ya*) 'outside'; *chini* (*ya*) 'down, under'; *upande* (*wa*) 'side, beside'; *karibu* (*na*) 'near'

These forms as adverbs have only directional readings, as in (23a), while as prepositions they can have both location and direction readings (depending on the verb), as exemplified in (23b).

(23) a. *kimbia ndani* 'run in'
b. *kimbia ndani ya chumba* 'run (within/into) the room'

The lexemes listed in (22) above are nominal in origin and, as is characteristic of nouns in Swahili, belong to a noun class. This relates to the choice of the morpheme *ya* or *wa* used to introduce a ground nominal. Opalka (1982: 71) argues that the lexemes *juu* 'up, on', *ndani* 'inside', *nje* 'outside', and *chini* 'down, under' have a feature inherent in class 9 nouns, while *upande* 'side, beside', have a feature of class 11 nouns. Accordingly, the subject markers *i-* (noun class 9) and *u-* (noun class 11)

conjoin with the associative marker *a* to form *ya* and *wa*, respectively.[7] The expression in (24) illustrates this:

(24) *upande wa juu ya ukuta* 'around the top of the wall'

There are notable differences among verbs regarding co-occurrence with these forms. The verbs *kimbia* 'run' and *enda* 'go' co-occur with adverbs as in (23a), while *tembea* 'walk' does not. Similarly, there are notable differences among verbs as to whether nominal forms following complex prepositions denote goals. In contrast to the verb *kimbia* 'run' in (23b), which co-occurs with *ndani ya chumba* to encode either a location or a goal, verbs such as *tembea* 'walk' or *rukaruka* 'hop' in the same context can only encode location, as illustrated in (25):

(25) *tembea ndani ya chumba* 'walk {within/*into} the room'

As noted above, adverbs appearing in isolation can only denote path (direction in this case). However, when these same forms are used as prepositions, they regularly represent location, and in combination with certain verbs they can also express paths (TO, FRM). The difference in the meaning of *juu* 'up, on' in adverbial and prepositional uses is a good example. As an adverb, *juu* refers to an upward direction. However, as a preposition that co-occurs with several verbs, *juu* represents the meaning of 'onto, to the top of' and the direction of movement can be downward (e.g., *anguka juu ya meza* 'fall onto the table'). This is a situation similar to German *auf* 'up, onto'.

4.4 Notes on goal

Swahili has multiple means of indicating goal. As noted in Section 4.2 above, nominals marked with the locative *-ni* suffix, or the locative markers *kwa* or *kwenye*, are interpreted as a goal argument when appearing with certain verbs, such as *elekea* 'move toward', as in (19–20). As noted, it is not clear whether the notion of TO is intrinsically coded in those forms.

Another means of marking goal is to employ the preposition *hadi* 'as far as', which tends to co-occur with the locatives *kwa* or *kwenye*, as illustrated in (26).

7 A similar glide formation has been attested in related Bantu languages, e.g., Chewa (Mchombo 2004: 4) and Makaa (Heath 2003: 337). In contrast, as indicated in Mohamed (2001: 102), *na* functions as a preposition, and thus does not come from such a process.

(26) *Kazu* *a-me-kimbi-a* ***hadi*** *kwa* *baiskeli.*
Kazu SM_{3SG}-PRF-run-IND as.far.as LOC 9.bicycle
"Kazu has run as far as (the place where) the bicycle (is located).

One important means to indicate a goal is the use of the applicative marker *-(l)i*, which is suffixed to a verb stem, usually adding an argument to the verb, and altering its argument structure. When a verb is applicativized to alternate its argument structure, one of its oblique arguments (or sometimes an adjunct) is promoted to object (see Bresnan and Moshi 1990; Alsina and Mchombo 1993). In Swahili, an object promoted by applicativization (the "applied object") can have one of the following functions: benefactive, goal, malefactive, instrument, reason, location, or theme (Ngonyani 1998). With motion verbs, an applied object is usually a goal. An example is given below.

(27) *Julia* *a-na-**ni**-j-**i**-a.*
Julia SM_{3SG}-PRS-OM_{1SG}-come-APPL-IND
'Julia comes to me.'

In (27), the applicative suffix *-i* is attached to the verb *j(a)* 'come', with the first-person singular object marker *ni-* preceding the verb in conformity with the Swahili verb structure schema given in Section 2 above. As in (27), deixis can be expressed by means of an applicative morpheme and a first-person object marker in addition to the verb *j(a)*.

There are certain limitations on the use of the applicative to mark goal. The applicative suffix cannot be placed on reduplicated verbs, for example.[8] In addition, it can induce meaning shift. For example, *tembe-le-a* 'walk-APPL-IND' means 'visit', not 'walk to'. See Marten and Mous (2017) for an observation that the applicative suffix does not simply add an argument.

Finally, one can use the verb *fika* 'arrive at, reach', *karibia* 'get close to', or *elekea* 'move toward' to indicate goal. The last one merits special attention. The verb *elekea* is used typically in a subordinate clause marked with *ki-* indicating simultaneity, as shown in (28).

8 There appear to be dialectal variations about forming applicativized verbs. Lusekelo (2008: 15) gives a Swahili sentence in which the verb *sukuma* 'push' is used with an applicative, a construction disallowed in Mombasa Swahili.

(28) *Simon a-na-kimbi-a kando ya barabara,*
Simon SM_{3SG}-PRS-run-IND 9.side 9.POSS 9.road
***a-ki-eleke**-a kwa baiskeli.*
SM_{3SG}-SIM-move.toward-IND LOC 9.bicycle
'Simon runs on the side of the road, as he heads for the bicycle.'

Strictly speaking, this verb does not entail reaching a goal, but denotes approaching the goal. However, as will be observed, many speakers use expressions like (28) in describing an event in which the moving person clearly reaches a goal.

In addition, the verb *elekea* is often used in the infinitive form with *ku-*, as illustrated below:

(29) *Simon a-na-gong-a mpira **ku**-eleke-a kibanda-ni.*
Simon SM_{3SG}-PRS-hit-IND 3.ball INF-move.toward-IND 7.shed-LOC
'Simon hit the ball, with the ball moving toward a shed.'

It appears that in Tanzanian Swahili, the form *ku-elekea* functions as a complex preposition (see Kraska-Szlenk 2007: 117; Mpiranya 2015: 123), in a way somewhat similar to *kutoka* 'from', which is a preposition developed from the infinitive form of the verb *toka* 'exit' (see also Heine and Kuteva 2004: 71). The following sentence cited in Kraska-Szlenk (2007: 117) illustrates that *ku-elekea* can be used without motion meaning (i.e., as a preposition indicating direction rather than a verb of motion).

(30) *Picha kubwa mbili [. . .] zi-me-tundik-w-a ukuta-ni*
10.picture 10.big 10.two SM_{10}-PRF-place-PASS-IND 11.wall-LOC
ku-eleke-a watazamaji.
INF-move.toward-IND 2.viewers
'Two big pictures [. . .] are hung on the wall facing the viewers.'

The preposition status of *ku-elekea* in Mombasa Swahili is not clear. While there is evidence suggesting a grammaticalized status for *ku-elekea*,[9] our consultants of Mombasa Swahili did not find (30) acceptable. We will treat *ku-elekea* as heading a subordinate clause.

9 An adverb test was performed with Mombasa Swahili speakers, which revealed that while the adverb *haraka* 'quickly' can be accommodated in (i) below, it cannot be accommodated in (ii) below. This suggests that *ku-elekea* is grammaticalized.

5 The experiment: Method

Data collection for Experiment A of the MEDAL project was conducted by the second author in Nairobi, Kenya, in 2013. The participants were native speakers of the Mombasa dialect of Swahili. Mombasa is a region in Kenya where Swahili has been consistently spoken as a native language. This dialect is slightly different from Standard Swahili, which is based on the Zanzibar dialect in Tanzania. Fifteen Mombasa Swahili speakers participated in this experiment, including nine females and six males. The ages of the participants ranged from 20 to 40 years, with twelve of them being students in their 20s who had moved to Nairobi for university education.

The experiment was conducted using the Swahili version of the computer program for Experiment A. Participants watched 52 video clips on the experimenter's laptop and were asked to orally describe what they saw in each clip. A voice recorder was used to record participants' descriptions of the events. The written instructions in the video were in Swahili, and since the experimenter spoke Swahili as a lingua franca, the entire experiment was conducted in Swahili.

The 52 clips included those describing self-motion, caused-motion, and visual motion events. They included a core set of 27 video clips depicting various self-motion events. Each of these 27 clips differed in terms of three conditions: types of path (TO, TO.IN, UP), manner (WALK, RUN, SKIP), and deixis (TWRD.S 'towards the speaker', AWY.FRM.S 'away from the speaker', ORTHOG 'orthogonally in front of the speaker'). Each path had a different ground object: a bicycle for TO, a gazebo (shed) for TO.IN, and stairs for UP. For example, the clip combining RUN, TO.IN, and TWRD.S shows a man running into a gazebo where the camera (speaker) is positioned.

The video clips for caused-motion events included 12 clips focused on the TO.IN-path, cross-classified by four types of means of causation (MOVE.BY.HAND, KICK, CARRY, and CALL) and three types of deixis (TWRD.S, AWY.FRM.S, and ORTHOG). Specific events depicted were: manually moving a book into a bag, kicking a ball into a gazebo (through an open door), carrying a chair into a gazebo, and calling a person into a gazebo. The other six clips depicted additional kicking events, cross-classified by two additional path types (TO, UP) and the three deixis types listed above. Specific

(i) *Simon* *a-me-u-gong-a* *mpira* *u-ki-eleke-a* *haraka* *kwao.*
Simon SM_{3SG}-PRF-OM_3-hit-IND 3.ball SM_3-SIM-move.toward-IND quickly $16.POSS_{3PL}$
'Simon has kicked the ball, while it moves quickly to them (i.e., their location).'

(ii) *Simon* *a-me-u-gong-a* *mpira* *ku-eleke-a* *(*haraka)* *kwao*
Simon SM_{3SG}-PRF-OM_3-hit-IND 3.ball INF-move.toward-IND quickly $16.POSS_{3PL}$
'Simon has kicked the ball toward them (i.e., their location).'

events in these kicking videos included: kicking a ball to a bicycle and kicking a ball to the top of a wall.

The three clips for visual motion tested the expression of path in describing a scene where a person casts a glance into a building. The expression of the path traced by the glance was examined in three deictic situations: a) the person looks into the building towards the speaker (the camera); b) the person looks into the building away from the speaker; and c) the person looks into the building sideways as seen from the speaker. For more details on the experiment, see Matsumoto (this volume).

6 Descriptions of self-motion: Results and discussion

In this section, we present the results from the core set of 27 video clips depicting various self-motion events.

6.1 Sentence types

One interesting finding from our data is that Mombasa Swahili speakers tended to utilize complex sentences. Figure 1 shows the sentence types, based on responses for the 27 core video clips for self-motion events.

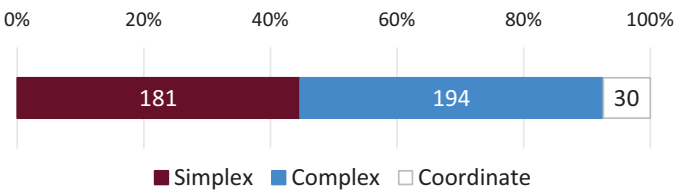

Figure 1: Sentence types used in self-motion descriptions.

As observed in Figure 1, complex sentences were used more than other types (specifically 48.1% of the responses), and simplex sentences accounted for only 44.7%. The tendency to use complex sentences was particularly salient in responses that indicated both manner and path. On the other hand, simplex sentences were often used where manner and deixis were unexpressed, or when an applicative was used for the path TO. Some responses are shown in (31) and (32).

(31) Simplex sentences

a. *Maria a-na-pand-a ngazi.*
Maria SM$_{3SG}$-PRS-ascend-IND 9.stairs
'Maria ascends the stairs.' (i.e., climbs the stairs.)

b. *Kazu a-li-kimbi-li-a baiskeli barabara-ni.*
Kazu SM$_{3SG}$-PST-run-APPL-IND 9.bicycle 9.road-LOC
'Kazu ran to the bicycle (that was located) on a road.'

(32) Complex sentences

a. *Kazu a-na-kimbi-a* [*a-ki-ingi-a ndani ya nyumba*].
Kazu SM$_{3SG}$-PRS-run-IND SM$_{3SG}$-SIM-enter-IND in(to) 9.house
'Kazu runs as he enters inside the house.'

b. *Maria a-na-pand-a ngazi polepole* [*a-ki-tembe-a*].
Maria SM$_{3SG}$-PRS-ascend-IND 9.stairs slowly SM$_{3SG}$-SIM-walk-IND
'Maria ascends the stairs slowly, while she walks.'

Note that in (32a) manner is in the main clause and path is in the subordinate clause, while the reverse holds in (32b).

One reason that multiple clauses were used in Mombasa Swahili appears to be a preference for limiting the expression of ground elements to one per verb. It has been observed in previous studies that a Swahili motion verb cannot accommodate two locativized nominals, one for source and the other for goal (Driever 1976: 61). In our data, only 1.0% of the responses contained more than one ground element with a single verb. More typically, different verbs were used for different grounds, and this was not limited to the cases involving source and goal, as shown in (33).

(33) *Maria a-pand-a ngazi, a-ki-eleke-a kwangu*
Maria SM$_{3SG}$-ascend-IND 9.stairs SM$_{3SG}$-SIM-move.toward-IND 17.POSS$_{1SG}$
'Maria ascends the stairs while moving toward me (i.e., my location).'

The frequent use of complex sentences suggests that in Mombasa Swahili motion events are not frequently integrated into a simplex clause, in line with cross-linguistic observations made in Croft et al. (2010). The sentences with manner and path expressed in the same clause accounted for only 14.6% of the responses (15.1% if deixis is treated as path).

6.2 Frequencies of manner, path, and deixis coding

Here, we examine the frequencies of manner (M), path (P), and deixis (D) coding. Figure 2 shows the average numbers of forms indicating these three categories per response in describing the 27 core video clips. As shown, there is a relatively low frequency of deictic coding. This point will be discussed later in the chapter.

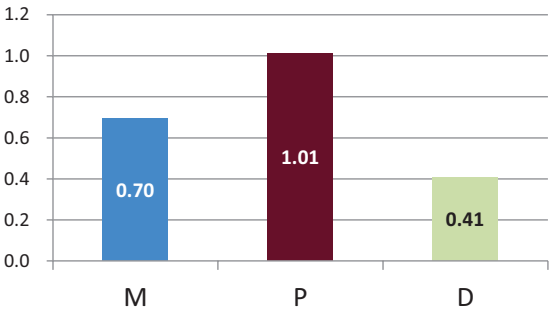

Figure 2: Average per-response frequencies of M, P, and D expressions (self-motion).

Figures 3–5 show the respective scene-based analyses of the inclusion of manner, path, and deixis in the responses obtained. Figure 3 indicates the percentages of responses in which manner is included at least once for /Walk/, /Run/, and /Skip/ scenes. Figure 4 indicates the percentages of responses in which at least one form representing TO, TO.IN, or UP was included for /To/, /To.in/, and /Up/ scenes, respectively ("partial coding" will be explained shortly). Figure 5 indicates the percentages of responses in which deixis was included at least once for /TwrdS/, /AwyFrmS/, and /Orthog/ scenes.

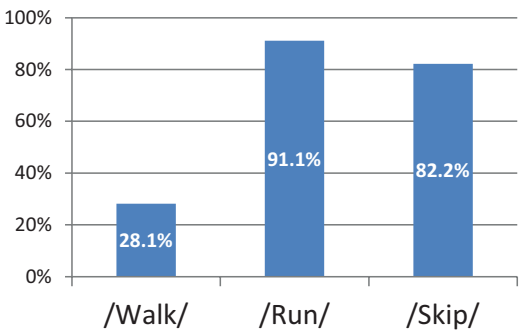

Figure 3: Responses with overt inclusion of manner (self-motion).

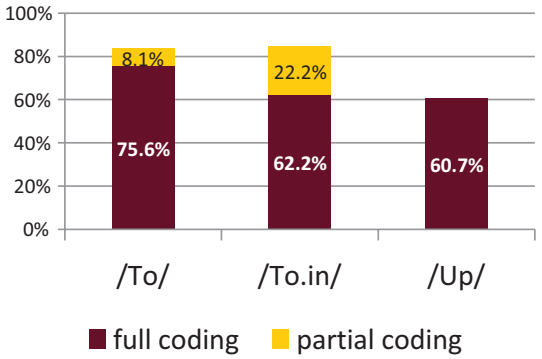

Figure 4: Responses with overt inclusion of path (self-motion).

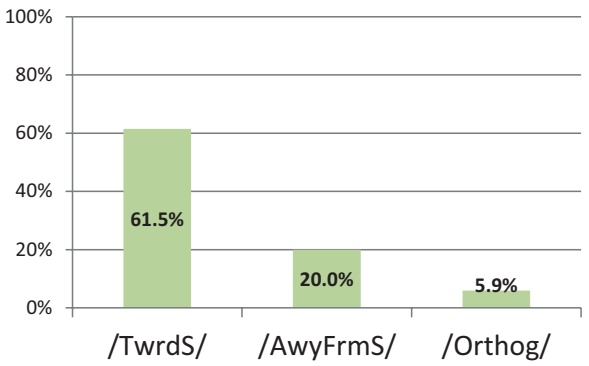

Figure 5: Responses with overt inclusion of deixis (self-motion).

As observed, Mombasa Swahili speakers tended to omit manner when describing /Walk/ scenes. Deixis also tended to be omitted, especially in the /AwyFrmS/ and /Orthog/ scenes but the inclusion rate in /TwrdS/ scenes was also relatively low in comparison to other languages. Paths in /To/ and /To.in/ scenes were often partially coded, either with the use of a locative marker such as *kwa* only (e.g., *kimbia kwa baiskeli* (run LOC bicycle) 'run to a bicycle', or, in the case of /To.in/ scenes, with the expression of TO(WARD) but not IN (e.g., *elekea kwenye chumba* (move.toward LOC room) 'move toward the room'), indicated as "partial coding" in Figure 4.

6.3 Path-coding positions

6.3.1 Overall patterns

Figure 6 indicates the proportion of responses with head and head-external path coding. The head refers to the main verb of a simplex sentence (as in (31a)), of the main clause of a complex sentence (as in (32b)), or of one of the conjunct clauses of a coordinate sentence. The head-external positions include applicative suffixes (as in (31b)), adverbs, prepositions (as in (26)), and verbs in subordinate clauses (as in (32a)). The figure indicates whether path was coded in the head position only, or a head-external position only, or in both positions in the same sentence (as in (33)).

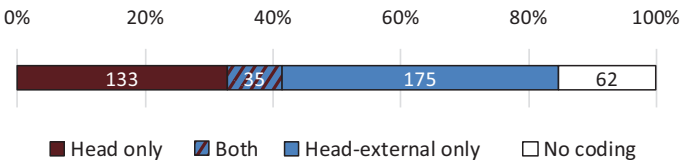

Figure 6: Path-coding patterns in self-motion descriptions.

This figure shows that path appeared in the main verb in more than 40% of all responses (with "head only" and "both" combined). While this was relatively high compared with other languages (see Matsumoto, volume 2), path was more often described head-externally (with "head-external only" and "both" combined).

The path-coding position was dependent on various factors. In Figure 7 the top data bar shows the ratio of head and head-external path coding in the responses with both manner and path expressed, as in (32a) and (32b), and the second data bar shows the same ratio in the responses with path but not manner expressed, as in (31a).

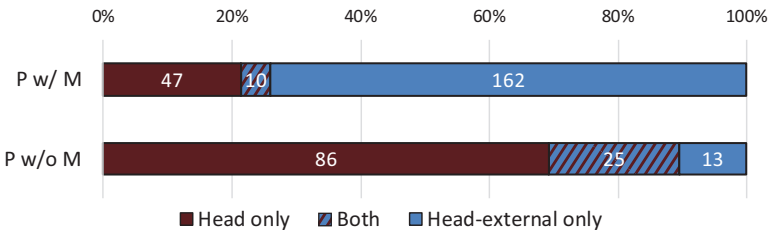

Figure 7: Path-coding patterns in responses with path, with or without manner expressed.

The most important finding is that the coding position of path was drastically different depending on whether manner was also expressed (manner contingency of path coding). As seen from Figure 7, when path was expressed in the absence of an

expression of manner, it was predominantly expressed in the main verb (head path coding without manner). In contrast, when path was expressed in the presence of an expression of manner, it was predominantly expressed in a head-external position.

In responses in which manner and path were expressed in a single clause, head path coding (verb-framing) was used for 33.9% of the responses, and head-external path coding was used in 72.9% of the responses. When we compare the number of examples in which manner and path were expressed in the main and subordinate clauses, those with manner in the main clause such as (32a) were far more frequent (121 vs. 28 responses) than those with path in the main clause such as (32b), a result which conforms to the claims of Lusekelo (2008, 2010) and is contrary to Gaines's (2001) statement that the pattern exemplified in (7) is a general one for Swahili.[10]

6.3.2 Path types

Our findings reveal that path type highly influences path-coding positions. Figure 8 shows the average per-response frequencies of the use of different coding positions for the paths TO, TO.IN, and UP used in the scenes for which they were tested (i.e., /To/, /To.in/, and /Up/ scenes). These per-response frequencies are calculated by dividing the number of attestations of path coding in each position by the total number of responses for the path scenes. (CO-H refers to the head in one of the conjunct clauses, and SUB-H refers to the head of a subordinate clause).

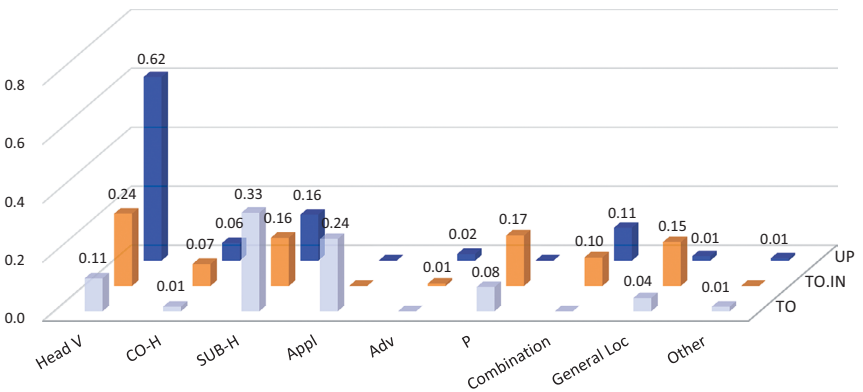

Figure 8: Average per-response frequencies of different coding positions of TO, TO.IN, and UP tested in different path scenes.

10 As Schaefer (pers. com.) points out, the order of verbs in Mombasa Swahili (i.e., M preceding P) resembles that in the serial verb constructions of West African Niger-Congo languages.

As shown, TO was quite often expressed outside the main verb. It was indicated mostly in a subordinate clause with the verb *elekea* 'move toward', either in a *ki*-marked form (59 instances) or in a *ku*-marked infinitive form (19 instances), with a goal nominal marked with *kwa* or *kwenye* in most cases. In addition, TO was often expressed with an applicative morpheme (Appl), but this form was not used with all verbs (e.g., it was not attested with *tembea* 'walk' or *rukaruka* 'hop'). The applicative was used often for cases where the goal was the first person. The use of prepositions (P) such as *hadi* 'as far as' was found but limited. There was also a limited use of a general locative marker *kwa* or *kwenye* without an overt indication of TO (labeled "General Loc" in Figure 8); these markers are interpreted as indicating a goal with *(ku)ja* 'come' (3 instances), *enda* 'go' (3 instances), and *kimbia* 'run' (1 instance). There was much individual variation in the use of those options: 3 speakers used the applicative more than 5 times for the nine /To/ scenes, while 5 speakers did not use it at all. 4 speakers used *elekea* as a subordinate verb for more than 5 times and 2 did not use it at all.

TO.IN was often expressed in the main verb position as well as the subordinate verb position, in most cases with the verb *ingia* 'enter'. The complex preposition *ndani ya* 'in(to)' was also sometimes used (included in "P" in Figure 8). The nominal representing a ground of TO.IN was often simply marked with a locative marker, without a clear indication of TO or IN. In contrast, UP was predominantly expressed in the main verb. The tendency to use a verb for UP is commonly observed in other languages (Matsumoto 2017, Volume 2). The pattern of using the main verb for UP in a biclausal construction is also observed in Herero, but in Herero TO.IN is also widely expressed in the main verb (Yoneda 2016).

The limited use of prepositions to indicate TO and TO.IN is quite noteworthy. This finding concurs with the observations made regarding the limited role of prepositions in Bantu languages by Nurse and Philippson (2003: 9), mentioned in Section 3.3. Instead, Mombasa Swahili has a tendency to use verbs (either in the main clause or a subordinate clause) to indicate TO and TO.IN in the case of self-motion.

6.4 Expressions of manner

Figure 9 shows the average per-response frequencies of different options for manner, including the option of omission (no coding). The manner in the /Walk/ scenes was very often omitted in the responses. However, when expressed, it was predominantly in the main verb, as was the case with both /Run/ and /Skip/ scenes. The verb most frequently used for /Skip/ scenes was *rukaruka* 'hop'.

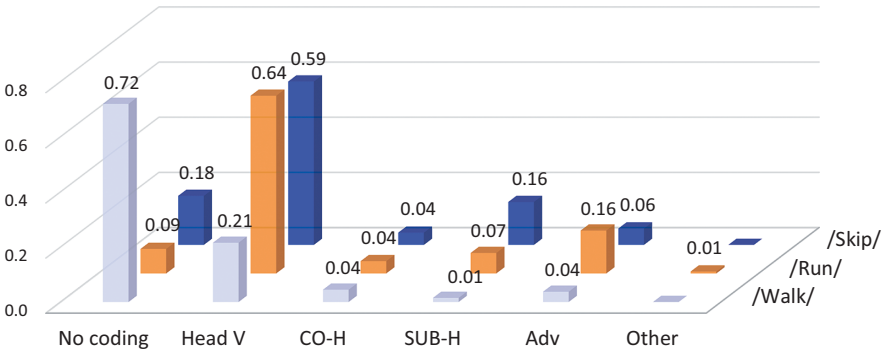

Figure 9: Average per-response frequencies of different coding options used for manner in different manner scenes.

There was not much variety in the verbs used among the responses from a given speaker. The average number of different manner verb roots used per speaker was 2.93. Adverbs observed include *kwa*-phrases, such as *kwa haraka*/*kasi*/*upesi* 'with hurriedness/force/speed'. Gaines (2001) notes the use of nominalized manner verbs, but only two instances of these were found (e.g., *kwa ku-nyatanyata* 'with a stealthy motion').

6.5 Expressions of deixis

In Mombasa Swahili, the description of deixis is somewhat complicated. As mentioned earlier, deixis was not overtly expressed much, except in /TwrdS/ scenes, where the deictic direction was expressed in a variety of ways: 1) via the verb (*ku*)*ja* 'come' (V), 2) with the combination of a path verb and a first-person object marking, as in (*a-li-*)*ni-karibia* ((SM$_{3SG}$-PST-)OM$_{1SG}$-get.close.to) (VP), 3) in the form of an applicative morpheme plus first-person object marking (Appl+1stPro), and 4) using a locativized first-person pronoun, *kwangu* '(to) my location' (1stPro+Loc).[11] These devices can be used in the main clause or in a conjunct or subordinate clause. Figure 10 shows the average per-response frequency of each of the 5 options used in main clauses, in conjunct clauses, and in subordinate clauses.[12]

11 The adverbial *kwangu* comprises the prefix *ku-* (locative noun class 17) and the first-person possessive *-angu* 'my'.

12 The use of a deictic verb in the main clause was most frequent in the descriptions of the /TwrdS/ scenes, especially in the /Walk-To.in-TwrdS/ scene ("walking into the gazebo (shed) toward the speaker"), in which the entry into the speaker's space is salient.

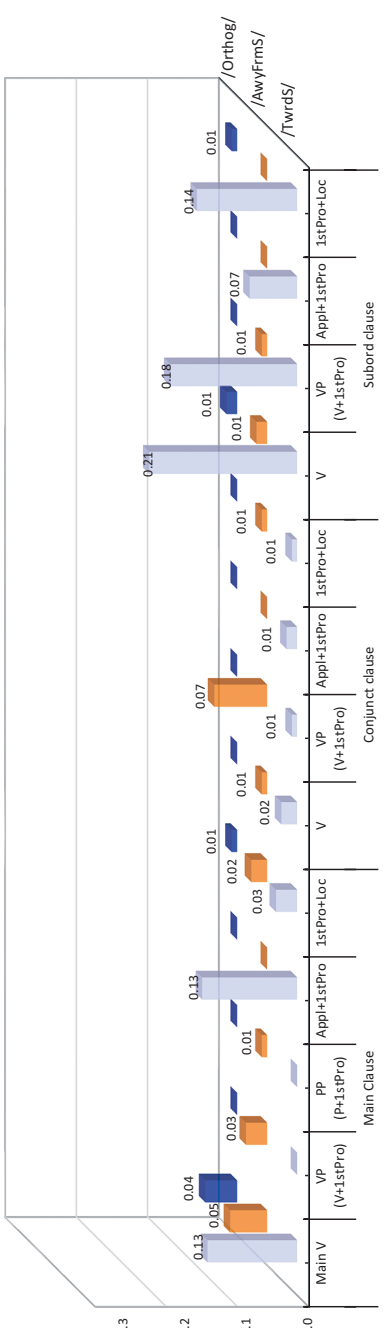

Figure 10: Average per-response frequencies of different coding positions of deixis for different deixis scenes.

Deictic expressions were more often used within a subordinate clause (51.8% of all indications of deixis) than within the main clause or a conjunct clause, a pattern quite rare in other languages. A closer look at the figure shows, however, that there is an interesting difference among the deictic expressions used for the three scenes: Subordinate clauses were used more often in describing deixis in /TwrdS/ scenes, and coordinate sentences were used more often in describing deixis in /AwyFrmS/ scenes. An example of a complex sentence with subordination is given in (34a), in which a deictic verb and a locativized first-person pronoun are used in a subordinate clause. An example of a coordinate sentence is given in (34b), in which a path verb and a first-person object marker are used in the first conjunct.

(34) a. *Maria a-na-tembe-a a-ki-j-a kwangu.*
Maria SM_{3SG}-PRS-walk-IND SM_{3SG}-SIM-come-IND $17.POSS_{1SG}$
'Maria walks as she comes to me.'

b. *Maria a-na-ni-ach-a na ku-tembe-a barabara-ni*
Maria SM_{3SG}-PRS-OM_{1SG}-leave-IND and INF-walk-IND road-LOC
'Maria leaves me and walks on the road.'

The tendency to use complex sentences and to some degree coordinate sentences is a reflection of Mombasa Swahili's inclination to express events in a non-integrated way.

This fact may account for why deixis is very infrequently expressed in this language, as seen in Figures 2 and 10. Mombasa Swahili's strategy of coding deixis in subordinate (or conjunct) clauses produces a higher cognitive cost for use. It may be that deictic information is left unexpressed unless there is an overriding need to mention it.

The difference between /TwrdS/ and /AwyFrmS/ scenes in the use of conjunct and subordinate clauses relates to the linear order in which sub-events of motion are expressed. Since all subordinate clauses in our data occurred after the main clause, the use of subordinate clauses for expressing deixis means that deixis is represented in the second clause (or after) if a complex sentence is used.[13] Taken together with the observation that the first conjunct of a coordinate sentence tended to express deixis away from the speaker, it can be said that deixis away from the speaker tends to be expressed in the first clause and deixis toward the speaker in the second clause. This reflects the strategy of matching the order of sub-events and the order of clauses, since the sub-event of leaving the speaker's

13 Subordinate clauses with *ki-* marking can be fronted, but no such cases were found in our data.

location occurs at the beginning of the entire motion event, and that of reaching the speaker's location occurs at the end.

6.6 The pattern of competition for the main verb slot

The tendencies for path coding, which were mentioned in Section 6.3, can be understood better in terms of competition. The main verb position can be occupied by (a) a manner verb, (b) a path verb, or (c) a deictic verb. For example, in a motion event in which a person runs up toward the speaker, the description can have verbs expressing, respectively, RUN, UP, and TWRD.S competing for the main verb slot. The winning element is dependent on the type of manner, path, or deixis that is involved in the motion event.

Figure 11 shows the semantic categories expressed by the main verb for each path subtype in the self-motion descriptions. As observed in Section 6.3, TO was frequently expressed head-externally. In Figure 11 we see that manner is expressed a majority of the time in the head position in /To/ scenes, and similarly for the /To.in/ scenes, manner is expressed in head position more often than is any other semantic category, but in the /Up/ scenes, it is path rather than manner that is expressed in that position a majority of the time.

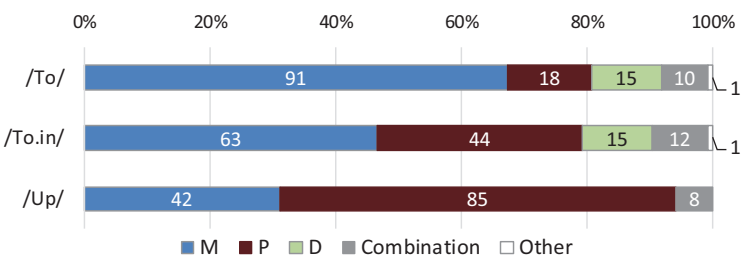

Figure 11: Semantic categories in the head in the three path scenes.

Figure 12 shows the semantic categories of the main verbs for each manner scene. Earlier on, we pointed out that the manner in /Walk/ scenes is not mentioned in many cases, hence path occupies the main verb position. In contrast, manner tends to occupy the main verb position in the /Run/ and /Skip/ scenes.

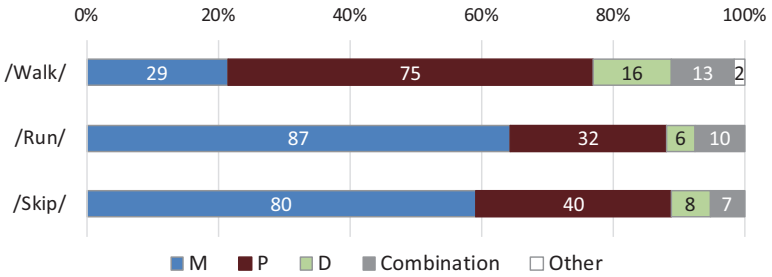

Figure 12: Semantic categories in the head in the three manner scenes.

The strength of each subtype of manner, path, and deixis can be calculated using the "winning percentages" or the rate in which manner, path, or deixis was selected for expression in the main verb slot in describing scenes containing each of their subtypes. Table 1 gives the percentages of the nine categories. It shows that running is the strongest, with /Run/ scenes eliciting a manner verb in the main verb slot in 64.4% of the responses.

Table 1: Winning percentages for the main verb slot.

/Run/	64.4%
/Up/	62.2%
/Skip/	61.4%
/To.in/	24.4%
/Walk/	21.4%
/TwrdS/	13.3%
/To/	11.1%
/AwyFrmS/	5.2%
/Orthog/	4.4%

7 Descriptions of caused-motion and visual motion events: Results and discussion

In this section, we discuss results from the 18 video clips designed to elicit descriptions of caused-motion events, as well as results from the three video clips designed to elicit descriptions of visual motion events.

7.1 Sentence types

Almost all the responses (96.7%) for caused-motion events contained both a causation sub-event and a motion sub-event. 56.3% of the responses were simplex sentences, and 25.2% of the responses were coordinate sentences. All the responses for visual motion events were simplex sentences.

7.2 The coding of TO.IN in four different caused-motion events

The descriptions of caused motion differed markedly in the types of sentence structure and types of verbs used in the main verb position, depending on the means of causation in the described events. The /MoveByHand/ scenes were mostly described by a simplex sentence, with a causative path verb (46.7%; 21 instances) or a verb of putting (40.0%; 18 instances) as the main verb, and with the ground marked either by the preposition *ndani* or by a general locative marker, *-ni*, *kwa*, or *kwenye*. Examples are given in (35).

(35) a. *Ren a-na-ti-a kitabu ndani ya mkoba wa Sam*
Ren SM_{3SG}-PRS-put.in-IND 7.book inside of 3.bag 3.POSS Sam
'Ren put the book into Sam's bag.'

b. *Ren a-me-wek-a kitabu kwenye mkoba wa Sam*
Ren SM_{3SG}-PRF-put-IND 7.book LOC 3.bag 3.POSS Sam
'Ren put the book into Sam's bag.'

In the descriptions of /Kick/ scenes, the most common pattern observed was having a means verb heading a simplex sentence, with path indicated by the preposition *ndani ya,* as illustrated in (36a). In other instances, a means verb headed the first conjunct clause in a coordinate sentence, with a non-causative path verb heading the second conjunct clause. An example of this is shown in (36b). Note that this sentence has a subject switch in the coordinate structure and that the second conjunct bears the consecutive marker.

(36) a. *Simon a-na-pig-a mpira ndani ya chumba.*
Simon SM_{3SG}-PRS-hit-IND 3.ball inside of 7.room
'Simon kicks (hits) the ball into the room.'

b. *Simon a-me-pig-a mpira u-ka-ingi-a kibanda-ni.*
Simon SM_{3SG}-PRF-hit-IND 3.ball SM_{3}-CON-enter-IND 7.shed-LOC
'Simon has kicked (hit) the ball (and) it enters the shed.'

The /Carry/ scenes elicited different patterns. One common pattern observed included the use of a simplex sentence with a causative deictic verb (28.9%; 13 instances), a means verb 'carry' (15.6%; 7 instances), or a causative path verb 'put in' (15.6%; 7 instances) as the main verb. An example of the use of a causative deictic verb is in (37a). Another common pattern used a coordinate sentence, with a means verb in the first conjunct clause, and a verb of putting (11.1%; 5 instances) or a causative deictic verb (13.3%; 6 instances) in the second. An example of a coordinate sentence with a means verb heading the first conjunct and a verb of putting heading the second conjunct is shown in (37b). Only one instance of a subordinate clause was found in the data.

(37) a. *Julia a-li-ni-let-e-a kiti kibanda-ni.*
Julia SM_{3SG}-PST-OM_{1SG}-bring-APPL-IND 7.chair 7.shed-LOC
'Julia brought me the chair to the shed.'

b. *Julia a-beb-a kiti na ku-wek-a*
Julia SM_{3SG}.PRS-carry-IND 7.chair and INF-put-IND
kwenye chumba cha kupumzikia
LOC 7.room 7.POSS 15.resting
'Julia carries the chair and puts (it) in the rest room.'

The /Call/ scenes were mostly described in biclausal sentences, either using a means verb as the main verb with a motion verb (usually in the subjunctive) in a subordinate clause, as in (38a), or using the coordination of clauses headed, respectively, by a means verb and a motion verb (path verb or deictic verb), with the consecutive marker on the verb in the second clause, as in (38b). The goal nominal was marked simply in the locative form in most cases.

(38) a. *Julia a-na-m(w)-it-a Maria a-j-e kibanda-ni.*
Julia SM_{3SG}-PRS-OM_{3SG}-call-IND Maria SM_{3SG}-come-SBJV 7.shed-LOC
'Julia calls Maria to come to the shed.'

b. *Julia a-na-m(w)-it-a Maria na Maria a-ka-ingi-a.*
Julia SM_{3SG}-PRS-OM_{3SG}-call-IND Maria and Maria SM_{3SG}-CON-enter-IND
'Julia calls Maria, and Maria enters.'

When a verb is used in a subordinate clause, typically the venitive verb is used for motion toward the caller, even when the motion is not directed toward the speaker, suggesting that the caller is treated as the deictic center.

Interestingly, when two verbs are involved, a subject switch takes place for /Kick/ and /Call/ scenes, as in (36b) and (38), but same-subject coordina-

tion is used for /Carry/ scenes, as in (37b), a pattern also observed in Ilocano (Yamamoto, this volume).

Figure 13 shows the per-response frequency of the use of each coding position of path in the four caused-motion event types distinguished by the means of causation. The use of causative path verbs (as opposed to noncausative path verbs) is indicated by the tile texture on the bars. The use of a causative path verb was frequent only in the case of /MoveByHand/ scenes but was also found for /Carry/ scenes. Prepositions were used frequently in all the four scenes, including the /MoveByHand/ scenes. Note that they were used relatively more often than in the descriptions of self-motion events (0.17 per response as shown in the results of TO.IN coding in Figure 8).

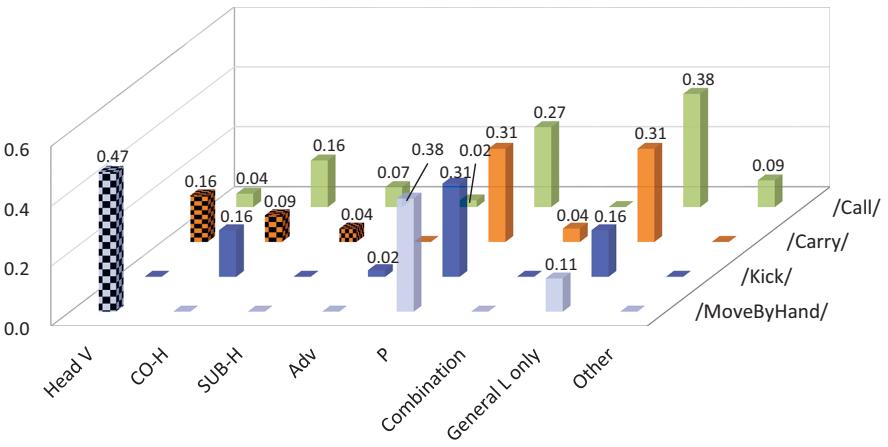

Figure 13: Average per-response frequencies of different coding positions of TO.IN in the four caused-motion scenes.

7.3 The coding of TO and UP in /Kick/ scenes

In /Kick/ scenes, the description of TO was not so different from that of TO in self-motion events: TO was rarely represented by a causative path verb (there was only one instance of *eleke-z-a* 'cause to move toward'). Instead, TO was either represented by a non-causative path verb (mainly *elekea* 'move toward') as the head verb of a second conjunct clause in a coordinate sentence or as the head verb of a subordinate clause. TO was also represented by an applicative morpheme. Interestingly, with regard to *elekea* 'move toward', there were more uses of its infinitive form

ku-elekea (9 instances) than its form with the subordinating morpheme denoting simultaneity, *(u-)ki-elekea* (3 instances).

(39) *Simon a-me-u-gong-a mpira ku-eleke-a kwa*
Simon SM_{3SG}-PRF-OM_3-hit-IND 3.ball INF-move.toward-IND LOC
baiskeli.
9.bicycle
'Simon has hit the ball, with the ball moving toward the bicycle.'

The notion UP for caused motion was rarely represented by a verb (there was only one instance of a path verb as the head verb of the second conjunct clause in a coordinated sentence), in contrast to self-motion UP events. Instead, it was very often indicated with a preposition, and somewhat less frequently with an adverb.

(40) a. *Simon a-na-pig-a mpira juu*
Simon SM_{3SG}-PRS-hit-IND 3.ball up
'Simon hits the ball up.'
b. *Simon a-na-piga mpira juu ya ukuta.*
Simon SM_{3SG}-PRS-hit-IND 3.ball (to)top of 11.wall
'Simon hits the ball to the top of the wall.'

Unlike self-motion expressions, the preposition *ndani ya* 'inside of' is used quite frequently with caused-motion verbs and vision verbs. While self-motion expressions primarily used verbal means to indicate path, caused-motion expressions employed prepositional and adverbial means to indicate path.

7.4 The coding of path in the descriptions of visual motion events

In the responses for visual motion events, only 55.5% contained an explicit expression of path. In other cases, the goal of vision was either unexpressed or marked simply in the locative. All of the explicit indications of path employed *ndani (ya)* 'inside (of)' or *katika* 'in(to)', with these items used as either a preposition or an adverb. The use of *ndani ya* as a preposition is exemplified in (41).

(41) *Julia a-na-chungu-li-a ndani ya chumba.*
Julia SM_{3SG}-PRS-peep-APPL-IND inside of 7.room
'Julia peeps into the room.'

Thus, path coding in the description of visual motion is totally head-external.

8 Typological implications

These findings from Mombasa Swahili are interesting in terms of the typology of motion event descriptions in several ways. First, Mombasa Swahili data point to the limitations of the approach in which only simplex sentences with path and manner (or another "co-event") are considered in order to characterize the pattern of motion event descriptions of a language (Talmy 1991, 2000). The data from the experiment indicate that Mombasa Swahili is a clear example of a language in which non-integrated patterns are predominantly employed to describe motion events, and that simplex structure integration of path and manner (or another co-event), as described by Talmy (1991, 2000), is not seen commonly, corroborating cross-linguistic observations in Croft et al. (2010).

Second, in terms of the coding position of path, Mombasa Swahili allows considerable variation. In self-motion, path tends to be coded in the head position if manner is not coded, and the language is thus a good example of the "head path coding without manner" type, along with Tagalog (Nagaya, this volume). This means that, even though Talmy characterized Bantu as verb-framed, the typological assignment of "verb-framed", which presupposes the integration of manner and path, cannot be said to apply to this language. In fact, Mombasa Swahili uses predominantly head-external path coding when both manner and path are present. In addition, when all responses are considered, Mombasa Swahili can be said to use both head and head-external means to indicate path, as discussed with reference to Figures 6 and 7.

The choice of head versus head-external path coding depends partially on the path types. Path is not uniform: UP (verticality) is more likely to be coded in the head position than TO.IN (boundary crossing) or TO. In contrast, TO tends to be expressed by subordinate verbs. These observations are in line with the general tendency observed in other chapters concerning the varying likelihood of different types of path being placed in the main verb, formulated in the "Scale-sensitivity Hypothesis of Path-coding Positions" (Matsumoto, Volume 2).

Path-coding position has also been shown to be dependent on event types in Mombasa Swahili. In description of self-motion, the path notion TO.IN is expressed predominantly by a verb (in the main clause or in a subordinate clause). In descriptions of caused motion, however, the use of causative path verbs is frequent only in describing manipulative (controlled) caused motion (see Mano and Matsumoto, Volume 2, for this tendency found cross-linguistically), and more use of prepositions is observed. Furthermore, Mombasa Swahili shifts totally to head-external path coding in description of visual motion, a pattern often found in languages adopting head path coding for self-motion, such as French and Italian (Matsumoto et al. 2022).

Somewhat related is the relevance of prominence or the degree of the "attraction of attention" (Morita 2020) in affecting the frequency of mention, and in affecting the winning element for the main verb slot. For manner and deixis, the types that "stand out" and call for attention (such as RUN, SKIP in manner, and TWRD.S in deixis) tend to be expressed more often in the data for Mombasa Swahili. Furthermore, RUN, SKIP, and UP tend to win in competition for the main verb slot, influencing the path-coding position in Mombasa Swahili.

Another significant finding is that, with the exception of the direction toward the speaker, deixis in Mombasa Swahili is characterized by a low frequency of coding. The limited coding of deixis can be attributed to the tendency to encode it in complex and coordinate sentences, which are cognitively a costly option to use.

Finally, Mombasa Swahili shows that the availability of a rich set of path verbs does not guarantee the head coding of path. Although Mombasa Swahili has a rich set of path verbs, they are not necessarily used in the main verb position (see Kawachi this volume for a clearer case in Kupsapiiny). This means that the typologies based on path-coding positions (Talmy 1991, 2000; Matsumoto 2017, 2018), which examine where in a sentence path is coded, are crucially different from the typologies based on lexicalization patterns (Talmy 1985; Levin and Rappaport Hovav 2013), which examine what notions are encoded in the category of verbs.

Abbreviations

APPL	applicative
CON	consecutive
IND	indicative
INF	infinitive
LOC	locative
OM	object marker
PL	plural
POSS	possessive
PRF	perfect
PRS	present
PST	past
SBJV	subjunctive
SG	singular
SIM	simultaneous
SM	subject marker
SQ	sequential

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