Moving Right Along:
Motion verb sequences in Urdu

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1 Introduction

- Various types of complex verbal constructions in Urdu/Hindi (e.g., Mohanan (1994), Butt (1995), Raza (2011)) with N+V, ADJ+V, P+V and V+V complex predicates.[1]
- **This talk** revolves around the phenomenon of motion verb sequences (MVSs) in Urdu (first noted by Hook (1973)), where two motion verbs are put in sequence.

(1) cor mɑkan=se bahɑr **kud nɪkl-a**
thief.M.Sg.Nom house.M.Sg=Source outside **jump emerge-Perf.M.Sg**
'The thief jumped out of the house.' (Hook 1973, p. 69)

- Several properties are puzzling:
  - From a surface point of view, MVSs are similar to aspectual complex predicates (Butt, 1995): verb in the root form followed by a finite verb.
  - However, no aspectual contribution by the finite verb, but rather motional information.
  - Interpreting both verbs together results in a complex motion event.
  - Not restricted to a specific set of motion verbs.
  - **Problem:** How should Urdu MVSs be treated?

2 In general: V+V sequences in Urdu

Complex predicates are a common, frequently used and in fact preferred way of expressing events in Urdu (only about 700 simple verbs). Different kinds of **light verbs** in Urdu (as established by Butt (1995)):

	Light verbs	**Contribution**
Aspectual CPs	*paṛ-na* 'to fall'	Inception (no conscious control)
	uṭʰ-na 'to rise'	Inception
	ja-na 'to go'	Telicity
Permissive CP	*de-na* 'to give'	Adds a causer to the event

(2) am **gɪr pɑṛ-a**
mango.M.Sg.Nom **fall fall-Perf.M.Sg**
'The mango fell (suddenly).'

[1]I am greatly indebted to Asad Mustafa from KICS Lahore, Pakistan, for his support in data collection and Rajesh Bhatt, Miriam Butt, Gilian Ramchand and Melanie Seiss for helpful discussions.

(3) ɑnjʊm=ne sɑddɑf=ko **ja-ne** **dɪ-ya**
Anjum.F.Sg=Erg Saddaf.F.Sg=Acc **go-Inf.Obl** **give-Perf.M.Sg**
'Anjum let Saddaf go.'

→ Aspectual and permissive light verbs contribute different information than the finite verb in an MVS.

- Up to now, no account of how MVSs should be treated and what an adequate syntactic representation should look like.

Roadmap:

- Show the various types of motion verb sequences (MVSs) and their syntactic properties.
- Draw conclusions on their constitution/distribution using a quantitative investigation.
- Situate MVSs with respect to similar constructions in other languages and related constructions in Urdu/Hindi.
- Provide an LFG account for the phenomenon.

3 How "light" is the finite verb?

3.1 Data

- At most two consecutive motion verbs in a verbal phrase.
- First motion verb in the root form, the second motion verb is finite and responsible for agreement and inflection.

(4) a. sanḍ gayõ=ki ṛevɑṛ **bɑṛ^h** **doṛ-a**
ox.M.Sg.Nom cow.F.Pl.Obl=Gen.Fem herd.M.Sg **advance** **run-Perf.M.Sg**
'The ox charged into a herd of cows.'

b. sanḍ hɑmare mɑkan=mẽ **g^{h}ʊs** **cɑl-a**
ox.M.Sg.Nom Pron.1.Pl.Obl.Gen house.M.Sg=Loc **enter** **move-Perf.M.Sg**
'An ox got into our house.'

c. g^{h}oṛa **doṛ** **b^{h}ag-a**
horse.M.Sg.Nom **run** **run-Perf.M.Sg**
'The horse ran away.'

Oddity #1: Some MVSs can swap their motion verbs.

- Root verb becomes the finite verb and vice versa.
- Overall interpretation of the sentence is retained.

(5) a. hɑva=ke ek j^{h}onke=ke sat^h pɑtɑng **uṛ** **cɑl-i**
wind.M.Sg=Gen one gust.M.Obl=Gen with kite.F.Sg.Nom **fly** **move-Perf.F.Sg**
'The kite flew up with a gust of wind.' (Hook 1973, p. 57)

b. hɑva=ke ek j^{h}onke=ke sat^h pɑtɑng **cɑl uṛ-i**
wind.M.Sg=Gen one gust.M.Obl=Gen with kite.F.Sg.Nom **move fly-Perf.F.Sg**
'The kite flew up with a gust of wind.'

(6) a. ek kala sap nale=se **b^{h}ag nɪkl-a**
one black.M.Sg snake.M.Sg.Nom pipe.M.Sg.Obl=Instr **run emerge-Perf.M.Sg**
'A black snake shot out of the pipe.'

b. ek kala sap nale=se **nɪkɑl b^{h}ag-a**
one black.M.Sg snake.M.Sg.Nom pipe.M.Sg.Obl=Instr **emerge flee-Perf.M.Sg**
'A black snake shot out of the pipe.'

Oddity #2: Some constructions allow for the causativization of (at least one of) their motion verbs.

1. V_1.base + V_2-Caus
2. V_1-Caus + V_2.base
3. V_1-Caus + V_2-Caus

→ Causativization not dependent on the position in the MVS, but

- on the individual motion verb (e.g. *ja-na* 'to go' cannot causativize).
- on the combination of motion verbs.

Challenge: Some combinations are clearly ungrammatical ((7) and (8)) or exhibit a varying degree of speaker acceptance (9).

(7) * ʃɑrabi kɑmre=se bahɑr **ḍɑgmɑga nɪkl-a**
drunkard.M.Sg room.M.Sg.Obl=Instr outside **stagger emerge-Perf.M.Sg**
'The drunkard staggered out of the room.'

(8) * bɑccɑh kɑmre=mẽ **ring g^{h}ʊs-a**
child.M.Sg.Nom room.M.Sg.Obl=Loc **crawl enter-Perf.M.Sg**
'The child crawled into the room.'

(9) √/* bɑccɑh kɑmre=mẽ **ring nɪkl-a**
child.M.Sg.Nom room.M.Sg.Obl=Loc **crawl emerge-Perf.M.Sg**
'The child crawled out of the room.'

→ Regional variation w.r.t. to the acceptance of MVSs, also differences between Urdu and Hindi.

3.2 A quantitative investigation of MVSs

Investigation of MVSs in three different Urdu corpora:

- Corpus crawled from the BBC Urdu website (BBC)
- The CLE corpus (Urooj et al., 2012) (CLE)

- The Hindi-Urdu Treebank (Bhatt et al., 2009) (HUTB)

→ In total, around 16.1 million tokens.

MVS **extraction:** Bigram collection of two motion verbs following each other.[2]

	BBC	CLE	HUTB
# of tokens	8.018.600	7.984.827	96.388
# of simple motion verbs	13.035	11.709	181
# of MVS	146	677	6
# of different MVSs	33	81	3
% of MVSs	1.1%	5.8%	3.3%

Table 1: Statistics on motion verbs in the three corpora

General patterns:

- Some MVSs found across corpora:
  - *baṛʰ caṛʰ-na* 'to climb up (lit. to advance climb)'
  - *bʰag nɪkal-na* 'to run out of (lit. to run emerge)'
  - *ʊtar caṛʰ-na* 'to climb down (lit. to descend climb)'
- Causative MVSs are less frequent than their base counterparts..
- *bʰag-na* 'to flee/run' and *doṛ-na* 'to run' often in V_2 position.
- *cal-na* 'to move/walk' often V_2s in an MVS, with a range of different V_1s.
- Most flexible motion verb: *nɪkal-na* 'to emerge' used as V_1 and V_2 in a range of combinations.

3.3 Some conclusions

- Narasimhan (2003) claims that Urdu/Hindi is a *verb-framed language* (Talmy, 1991): Manner of motion is expressed by a participle construction, the path of motion is expressed by the main verb ('enter the room hobbling').
  - → No mentioning of MVSs and the way they express complex motion.
  - → "Stacking" of motion verbs as in the MVSs might be a way of avoiding elaborate adjunct constructions.
- Considerable amount of idiosyncrasy on a number of levels:
  - → No consistent explanation of combinatorial possibilities (e.g. manner of motion verbs versus directional motion verbs).
  - → Opaque rules as to the availability and interpretation of swapped MVSs.
  - → No consistent causativization pattern.
- Varying degree of lexical semantic content that is contributed by each motion verb.

[2] MVSs with *ja-na* 'to go' as V_2 are neglected as in this case I assume that *ja* 'go' is an aspectual complex predicate denoting completion, following Butt (1995).

4 The status of the finite verb in MVSs

Core question: Is the finite verb in the MVS a light verb?
Related question: Are MVSs monoclausal or biclausal?

Mostly intransitive motion verb sequences → Butt's (1995) anaphora and control tests for monoclausality cannot be applied.

Negation

- Negation (or any other modifier) can be either put in front of the MVS or between the motion verbs → scoping effects.

(10) a. sap snake.M.Sg.Nom bɑl=se snake pit.M.Sg=Instr nɑhĩ not **b^{h}ag flee/run** **nɪkl-a emerge-Perf.M.Sg**
'The snake didn't shoot out of the snake pit.'

b. sap snake.M.Sg.Nom bɑl=se snake pit.M.Sg=Instr **b^{h}ag flee/run** nɑhĩ not **nɪkl-a emerge-Perf.M.Sg**
'The snake fled but didn't emerge from the snake pit.'

- The negative polarity item can come before the MVS or in between.

(11) a. ek one b^{h}i Emph pɑtɑng kite.F.Sg nɑhĩ not **uṛ fly** **cɑl-i move-Perf.F.Sg**
'Not even one kite flew up with a gust of wind.'

b. ek b^{h}i pɑtɑng **uṛ** nɑhĩ **cɑl-i**

→ No clear indication whether MVSs are mono- or biclausal.

Complex predicate formation:

- MVSs are ungrammatical when an aspectual light verb is added.
  - "Light" motion verb in the same syntactic slot as the aspectual light verb?
- MVSs can be used in permissive complex predicates as established by Butt (1995).

(12) malɪk=ne owner.M.Sg=Erg g^{h}ore=ko horse.M.Sg=Acc [[**b^{h}ag flee/run** **doṛ-ne run-Inf.Obl**] **dɪ-ya give-Perf.M.Sg**]
'The owner let the horse run away.'

→ Implication: **MVSs are monoclausal.**

To conclude:

- In MVSs, both motion verbs are in the same clause.
- Empirical investigation shows tendencies for some verbs to appear in specific slots.
- Nevertheless, combinatorial possibilities seem to be vast.

5 A cross-linguistic perspective

Using MVSs is cross-linguistically not surprising; common method to express complex motion events, in particular in many West African, Papua New Guinean and Australian languages.

- Those constructions are mostly analyzed as serial verbs.
- In Urdu, two kinds of complex predicates (aspectual and permissive) have been established.

→ Are Urdu MVSs serial verbs or a (new) kind of complex predicate in the language?

MVSs and serial verbs

Serial verbs: Problem of defining a set of features of serial verbs that hold cross-linguistically (cf. Seiss (2009)) — Bowern (2008) offers the lowest common denominator:

Criterium	MVS**s**
Succession of verbs in a single clause with one subject.	√
The verbs behave as a single unit with respect to tense etc.	√
The verbs share arguments.	√
The verbs contribute whole subevents.	∼
The verbs share their objects (Baker, 1989).	—
In causative serial verbs, the causative comes first (Aikhenvald, 2006).	—

→ I do not consider MVSs to be prototypical serial verbs.

Are MVSs complex predicates (CPs)?

Clear-cut criteria for complex predicate-hood and the light verb features in Urdu (Butt, 1995, Butt and Geuder, 2001, Butt, 2010):

Criterium	MVS**s**
Succession of verbs in a single clause with one subject.	√
The verbs behave as a single unit with respect to tense etc.	√
CPs have a complex argument structure.	√
Light verbs do not have a systematic semantic contribution.	√
Light verbs contribute a bleached version of their lexical semantics.	√/∼
Only a reduced set of verbs function as light verbs.	∼

→ MVS are not prototypical Urdu CPs.

→ The notion of the light verb has to be extended.

→ **Claim: MVSs are instances of complex predication** in Urdu, with features that account for the interpretation of the light verb.

6 Why are MVSs important?

- Development of a lexical resource for Urdu verbs, in particular motion verbs.
- Lack of a solid theoretical basis of the syntactic representation of motion events in Urdu.

- Key information in a lexical resource with respect to motion verbs: encoding the path and configuration of motion (Hwang, Palmer and Zaenen (2013) on English VerbNet).
  - Requirement 1: Information on the nature of MVSs.
  - Requirement 2: Determination of the lexical semantic contribution of individual motion verbs in MVSs.
- Encode the phenomenon of MVSs in the lexical resource to allow for broad usability in computational applications.

7 An LFG account

Difficulty of establishing a unified account of information merging due to the (seeming) idiosyncrasy.

In general: MVSs have a complex argument structure where both verbs contribute arguments.

- Two groups of light motion verbs:
  1. Light verbs that contribute merging arguments and specific features of motion (the "real" light verbs)
  2. Light verbs that contribute merging arguments, specific features of motion and *additional* arguments (the "not so light" verbs)

Assumption #1: Build on Jackendoff's (1990) understanding that PATH is one of the "semantic parts of speech". **The specific form of the path is in fact represented by light motion verbs in Urdu.**

Jackendoff's PATH attributes	Light verbs of motion in Urdu
to	*gʰʊs-na* 'to enter'
toward	*baṛʰ-na* 'to advance'
away-from/from	*nɪkal-na* 'to emerge'
via	*gʊzar-na* 'to cross'

→ Specific motion verbs are used to express path in complex motion events, apart from the usage of directional postpositions.

Assumption #2: Motion events are also characterized by the configuration with which they are carried out. Encoding the configuration can account for light verbs that do not contribute path features.

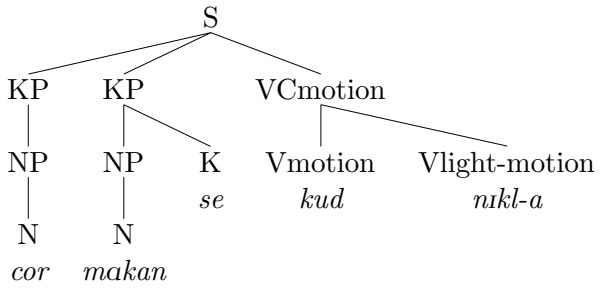
→ CONFIG attributes based on the corpus investigation:

CONFIG attributes	Light verbs of motion in Urdu
continuity	*cal-na* 'to move'
speed	*bʰag-na* 'to run'
	doṛ-na 'to run'
	uṛ-na 'to fly'

Parallel usage of motion verbs in Greek, e.g. *running* also encodes speed in motion events (S. Markantonatou, p.c.).

Constituent structure

- MVSs are grouped under one constituent (VCmotion), where **the main motion verb precedes the light motion verb**.



Functional structure

Lexicon-wise, basic idea as in Butt (2010):

- One lexical entry per motion verb, but two conjuncts:
  - A light verb usage (Vlight-motion) with lexical semantic features (and partial subcategorization information with case constraints)
  - A full verb usage with a fully specified subcategorization frame but underspecified lexical semantic features
- Lexical-semantic features under [LEX-SEM MOTION], the [LEX-SEM] f-structure is already used for information on agentivity that is manifested syntactically in Urdu.

Case #1: The second motion verb acts as a "real" light verb

1. *cal-na* **'to move/walk' as a light verb:**

- *cal-na* 'to move/walk' as the finite verb in an MVS contributes a sense of continuous movement.

  → "Light" in the sense that it looses its sense of walking.

  (13) sanḍ hɑmar-e mɑkan=mẽ **g^hʊs cɑl-a**
  ox.M.Sg.Nom Pron.1.Pl.Obl house.M.Sg=Loc **enter walk-Perf.M.Sg**
  'An ox got into our house.'

- Lexical entry of *cal-na* 'to move/walk':

  cɑl Vmain * (↑ PRED) = 'cɑl⟨(↑ SUBJ)⟩' ;
  Vlight-motion * (↑ LEX-SEM MOTION CONFIG) = continuity.

2. *doṛ-na* **'to run' and** *b^hag-na* **'to run' as light verbs:**

- *doṛ-na* 'to run' and *b^hag-na* 'to flee/run' are near synonyms and contribute a sense of speed and determination to the overall event.

→ "Light" in the sense that the actual running sense is suppressed.

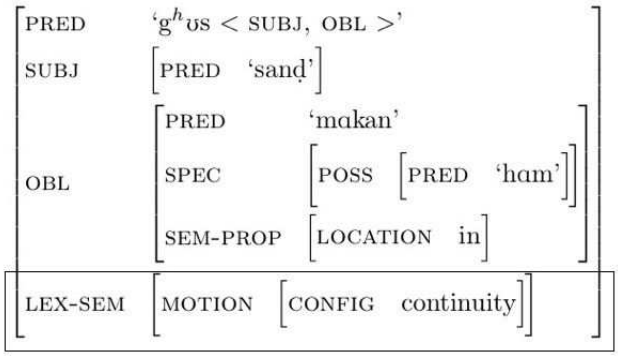


Figure 1: F-structure for (13)

(14) sap nale=se **nɪkʌl bʰag-a**
snake.M.Sg.Nom pipe.M.Sg.Obl=Instr **emerge flee-Perf.M.Sg**
'The snake shot out of the pipe.'

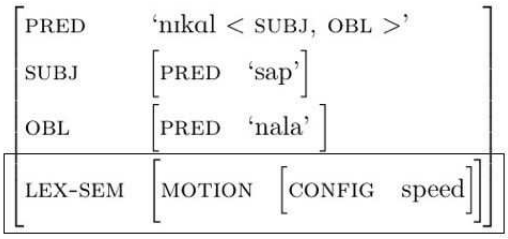


Figure 2: F-structure for (14)

Case #2: The second motion verb is "not so light"

1. *nɪkʌl-na* **'to emerge':**

- *nɪkʌl-na* 'to emerge' emphasizes the path out of a source location
- The source is required to be marked with instrumental *=se* and analyzed as an oblique.

  (15) cor mʌkan=se bahʌr **kud nɪkl-a**
  thief.M.Sg.Nom house.M.Sg=Source outside **jump emerge-Perf.M.Sg**
  'The thief jumped out of the house.'

- Lexical entry of *nɪkʌl-na* 'to emerge':

nɪkʌl	Vmain *	(↑ PRED) = 'nɪkʌl⟨(↑ SUBJ)(↑ OBL)⟩' ;
	Vlight-motion *	(↑ PRED) = 'nɪkʌl⟨(%ARGS (↑ OBL)⟩'
		(↑ OBL CASE) =c instr
		(↑ LEX-SEM MOTION PATH) = away-from.

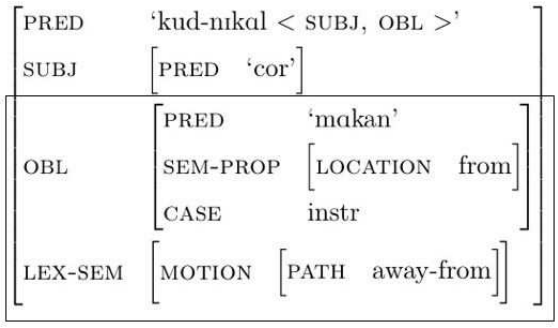


Figure 3: F-structure for (15)

Consequences:

- Swappable motion verbs do not have the same f-structure (consequent analysis of the finite verb as the light verb).

8 Discussion and conclusion

- Challenge of explaining the ungrammaticality of certain combinations remains → not solely found on the syntactic level, rather semantic constraints.
- I do not assume that information of PATH and CONFIG attributes between the main verb and the light verb regulates the combinatorial possibilities → semantic constraints, but on a different level than PATH and CONFIG.
- Answer might lie in what Levin and Rappaport Hovav (2011) term the *manner/result complementarity*: "Manner and result meaning components are in complementary distribution: a verb lexicalizes only one."

  → It seems that Urdu MVSs combine those two notions in a very flexible way.

  (16) g^{h}oṛa **doṛ** **b^{h}ag-a**
  horse.M.Sg.Nom **run** **run-Perf.M.Sg**
  'The horse ran away.'

  → The result of the running is the disappearance of the horse.

  → **Question:** Which motion verb contributes which aspect?

To conclude:

- MVSs in Urdu are in fact **complex predicates of motion**
- New group of light verbs in Urdu, namely **light verbs of motion**, which behave differently than aspectual and permissive light verbs established by Butt (1995):
  - In principle, all motion verbs can be light verbs.
  - Light verbs of motion exhibit a varying degree of "lightness".
    - Light verbs that solely contribute lexical semantic features, e.g. *cal-na* 'to move'.

    - Light verbs that contribute lexical semantic features and arguments, e.g. *nɪkal-na* 'to emerge'.

- Assumption of an elaboratted [LEX-SEM MOTION] f-structure with PATH and CONFIG information.

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