Layers of Predication

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1 Introduction

Complex predicates in South Asian (and other) languages are used to form new verbal predications given a few basic building blocks.

Some of these predications can be quite complex.

hathi (1) tara=ne amu=ko bacce=se Tara=Erg Amu=Dat child.Obl=Inst elephant.M.Sg.Nom kar-va le-ne saf di-ya clean do-Caus take-Inf.Obl give-Perf.M.Sg 'Tara let Amu have the elephant cleaned by the child.' (Urdu) (2) tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom kar-va le-ne vad di memory do-Caus take-Inf.Obl give-Perf.F.Sg 'Tara let Amu have the story remembered by the child.' (Urdu)

Complex though the examples are, they are all part of the **primary predi**cation.

- How can this be dealt with/analyzed?
- What are the restrictions on complex predication?

Before answering that, section 2 provides some necessary background.

2 Recognizing Complex Predicates

Complex Predicate: A complex (polyclausal) argument structure that corresponds to a monoclausal functional structure (a single subject; a single primary event predication).

2.1 English light have

An illustrative example from English (Ritter and Rosen 1993, 1997) comes from causative *make* vs. light *have*.

Ritter and Rosen (1993) propose a *complex predicate* analysis for light *have* because it lacks an event specification and combines with the eventuality of another predicate.

Some Evidence: Negation (one event vs. two events).

- (3) a. The teacher didn't make Bill write the article, but he did it anyway.
 - b. *The teacher didn't have Bill write the article, but he did it anyway.

In LFG terms this difference would be encoded as follows.

(4) **Biclausal** make

Two a(rgument)-structures correspond to a complex/biclausal f(unctional)structure.

Make < ag pt Ev >

WRITE < ag pt >

(5)



(6) Light have

Two a(rgument)-structures are combined and correspond to a simplex/monoclausal f(unctional)-structure.

$$HAVE < ag pt$$
 $WRITE < ag pt >>$

(7)

| PRED | 'have-write < $_$, $_$, $_$, $_$, $>$ '] |
|-----------------------------|--|
| SUBJ | $\begin{bmatrix} PRED 'teacher' \end{bmatrix}$ |
| ${}^{\mathrm{OBJ}}_{	heta}$ | [PRED 'Bill'] |
| OBJ | PRED 'article' |

2.2 Some Observations about Complex Predicates

• Complex Predicates can be formed either *syntactically* (e.g., light *have*) or *morphologically* (e.g., morphological causatives).

The method of combination makes no difference in terms of functional structure (cf. LFG's slogan that "morphology competes with syntax").

- A syntactically formed complex predicate generally consists of a main predicational element (noun, verb or adjective) and a light verb that is usually the syntactic head of the construction.
- Light Verbs:
 - Crosslinguistically do not always form a uniform syntactic category but there are tests that distinguish light verbs from auxiliaries and main verbs).
 - Are not always associated with a uniform semantics, but they always muck around with the primary event predication.
- Hypothesis on Semantics:
 - Complex predicates represent the decomposition of event structure (aktionsart).
 - They not simply functional heads that encode 'viewpoint aspect' (unlike auxiliaries).

2.3 Sample Constructions in Urdu

Language specific tests must be developed in order to be able to carefully distinguish complex predicates from superficially similar looking biclausal structures (cf. English light *have*).

Tests

- Good tests tend to be: agreement, control, anaphora, negation, NPI licensing (these test the functional structure),
- Tests one needs to be careful with tend to be: word order, separability (these test surface properties and/or are often confounded by factors involving topicalization/focus).

2.3.1 Definitely Complex Predicates in Urdu

Aspectual Complex Predicates (Butt 1995)

- (8) a. nadya=ne xat **lık**^h **li-ya** Nadya.F=Erg letter.M.Nom write take-Perf.M.Sg 'Nadya wrote a letter (completely).' (Urdu)
 - b. nadya=ne makan **bana di-ya** Nadya.F=Erg house.M.Nom make give-Perf.M.Sg 'Nadya built a house (completely, for somebody else).' (Urdu)
 - c. ram **ga vț**^h-**a** Ram.M.Sg.Nom sing rise-Perf.M.Sg 'Ram sang out spontaneously (burst into song).' (Hindi, Mohanan 1994:9)
 - d. nadya **has paṛ-i** Nadya.F.Sg.Nom laugh fall-Perf.F.Sg 'Nadya burst out laughing.' (Urdu)

Permissives (Butt 1995)

- (9) a. anjum=ne saddaf=ko xat **lık**^h-ne di-ya Anjum.F=Erg Saddaf.F=Dat letter.M.Nom write-Inf.Obl give-Perf.M.Sg 'Anjum let Saddaf write a letter.'
 - b. kıs=ne kʊtte=ko g^har ke andar **a-ne di-a?** who.Obl=Erg dog.M.Obl=Dat house Gen.Obl inside come-Inf.Obl give-Perf.M.Sg 'Who let the dog come into the house?' (Glassman 1976:235)

Causatives (Saksena 1980, 1982a,b)

- (10) a. makan ban-a house.M.Sg.Nom be made-Perf.M.Sg 'The house was built.' 'Das Haus entstand.'
 - b. anjum=ne makan **ban-a**-ya Anjum.F=Erg house.M.Sg.Nom be made-Caus-Perf.M.Sg 'Anjum built a house.'
 - c. anjom=ne mazdurõ=se makan **ban-va**-ya Anjum.F=Erg laborer.M.Pl=Inst house.M.Sg.Nom be made-Caus-Perf.M.Sg 'Anjum had a house built by the laborers.'

Noun-Verb Complex Predicates (Mohanan 1994)

(11) nadya=ko kahani **yad a-yi** Nadya.F.Sg=Dat story.F.Sg.Nom memory come-Perf.F.Sg 'Nadya remembered the story (the story came to Nadya).'

> nadya=ne kahani **yad k-i** Nadya.F.Sg=Erg story.F.Sg.Nom memory do-Perf.F.Sg 'Nadya remembered the story (actively).'

Adjective-Verb Complex Predicates

- (12) a. ram=ne kamra **saf ki-ya** Ram.M.Sg=Erg room.M.Sg.Nom clean do-Perf.F.Sg 'Ram cleaned a/the room.' (Hindi, Mohanan 1994:9)
 - b. ram=ne kamre=ko **saf ki-ya** Ram.M.Sg=Erg room.M.Sg.Obl=Acc clean do-Perf.F.Sg 'Ram cleaned the room.' (Hindi)

(Dis)Abilitatives

(13) a. nadya=se yə ordu=k-i cıṭṭ^hi Nadya.F.Sg=Inst this Urdu=Gen-F.Sg letter.F.Sg.Nom

> **paṛ**^h-i nahī **ja-ti** read-Impf.F.Sg not go-Impf.F.Sg 'Nadya does not have the ability to read this Urdu letter.'

b. us=se cal-a nahi ja-e-g-a
Pron=Inst walk-Perf.M.Sg not go-3-Fut-M.Sg
'She/he can't possibly walk.' (in the context of a broken leg) (Glassman 1976:275)

2.3.2 Definitely Not Complex Predicates

Control Constructions

- (14) anjum=ne saddaf=ko [xat hk^h-ne]=ko kah-a Anjum.F=Erg Saddaf.F=Dat letter.M.Nom write-Inf.Obl=Acc say-Perf.M.Sg 'Anjum told Saddaf to write the letter.'
- (15) a. rad^ha=ne mohan=ko [kıtab par^h-ne]=**ko** majbur ki-ya Radha.F=Erg Mohan.M=Dat book.FNom read-Inf.Obl=Acc force do-Perf.M.Sg 'Radha forced Mohan to read a book.'
 - b. rad^ha=ne mohan=ko [kıtab par^h-ne]=**par** majbur ki-ya Radha.F=Erg Mohan.M=Dat book.F.Nom read-Inf.Obl=on force do-Perf.M.Sg 'Radha forced Mohan to read a book.'

Temporal Expressions

(16) mem-sahiba cai bana-ne=ko t^hĩ
Madam.F.Nom tea.F.Nom make-Inf.Obl=Acc be.Past.F.Pl
'Madam was just about to make tea.' (Glassman 1986:233)

Modal Control Constructions (Small Clauses)

(Butt and King 2003, 2005, Bashir 1999)

- (17) a. nadya=ne zu ja-na hε Nadya.F.Sg=Erg zoo.M.Sg.Obl go-Inf.M.Sg be.Pres.3.Sg 'Nadya wants to go to the zoo.' (Urdu)
 - b. nadya=ko zu ja-na hε Nadya.F.Sg=Dat zoo.M.Sg.Obl go-Inf.M.Sg be.Pres.3.Sg 'Nadya has to go to the zoo.' (Urdu)

Passives

(18) cor (polis=se pokṛ-a gɛ-ya/ja-ta thief.M.Sg.Nom police=Inst catch-Perf.M.Sg go-Perf.M.Sg/go-Impf.M.Sg 'The thief was caught by the police.' (adapted from Mohanan (1994:183))

Auxiliary Constructions

- (19) a. billi bistar [ke nic^he] so rah-i hε cat.F.Sg.Nom bed.M.Sg Gen.Obl under sleep stay-Perf.F.Sg be.Pres.3.Sg
 'The cat is sleeping under the bed.' (Urdu)
 - b. nadya saddaf=se bat kar rah-i hɛ Nadya.F.Sg.Nom Saddaf.F.Sg=Inst talk.F.Sg.Nom do stay-Perf.F.Sg be.Pres.3.Sg 'Nadya is talking to Saddaf.' (Urdu)

2.3.3 Dubious Cases

"Aspectual" verbs in the sense of Smith 1991.

These are probably not complex predicates as they show no selectional restrictions ((20b)), nor evidence for a complex argument structure ((20a)).

(20) a. vo ro-ne lag-i Pron.Nom cry-Inf.Obl be.attached-Perf.F.Sg 'She began to cry.

b. vo a cuk-a Pron.Nom come lift-Perf.M.Sg 'He has arrived.'

2.3.4 Resultatives/Depictives

Resultatives ((21)) and Depictives ((22)) are often analyzed as "complex predicates".

- (21) a. The monkey wiped the table clean.
 - b. The monkey hammered the metal flat.
- (22) a. I ate the fish raw.
 - b. I entered the room naked.

However, unlike the examples we have seen from Urdu so far, these tend are examples of **secondary predication** and not primary predication.

Resultatives

Urdu does not allow for resultatives via secondary predication.

(23) *bandar=ne mez=ko saf põãc-a monkey.M.Sg=Erg table.F.Sg=Acc clean wipe-Perf.M.Sg 'The monkey wiped the table clean.'

The only way to express the above would be via a subordinated clause.

(24) bandar=ne mez=ko [põãc kar] saf ki-ya monkey.M.Sg=Erg table.F.Sg=Acc wipe having clean do-Perf.M.Sg 'The monkey cleaned the table by wiping it (having wiped it).' Incidentally, the type of construction in (24) historically gave rise to the aspectual complex predicates in (8), which have been analyzed as resultative by Butt and Ramchand (2005).

Depictives

Depictives exist in Urdu and function as secondary, not primary predication.

(25) bandar=ne macc^hli=ko kacc^hi k^ha-yi monkey.M.Sg=Erg fish.F.Sg=Acc raw.F.Sg eat-Perf.F.Sg 'The monkey ate the fish raw.'

3 Building Up Primary Predications

We can now recognize the complex predicates in (26) and (27) as consisting of:

 $\begin{array}{l} \label{eq:constraint} [[[Adj+V]+Caus]+LV]+Permissive] ((26)) \\ [[[[N+V]+Caus]+LV]+Permissive] ((27)) \end{array}$

- (26) tara=ne amu=ko bacce=se hat^hi Tara=Erg Amu=Dat child.Obl=Inst elephant.M.Sg.Nom saf kar-va le-ne di-ya clean do-Caus take-Inf.Obl give-Perf.M.Sg
 'Tara let Amu have the elephant cleaned by the child.' (Urdu)
- (27) tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom

yad kar-va le-ne di memory do-Caus take-Inf.Obl give-Perf.F.Sg 'Tara let Amu have the story remembered by the child.' (Urdu)

Questions:

- Not all permutations that are in principle possible work (see (28) and (29)). Why?
- How can we understand the basic predicative building blocks?
 - How can a complex argument and predicational structure result in a monoclausal/primary predication?
 - What are the constraints on complex predicate formation?

(28) */???tara=ne amu=ko bacce=se hathi Tara=Erg Amu=Dat child.Obl=Inst elephant.M.Sg.Nom saf kar-va-ne de li-ya/di-ya clean do-Caus-Inf.Obl give take-Perf.M.Sg/give-Perf.M.Sg 'Tara let Amu have the elephant cleaned by the child.' (Urdu) (29) */??tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom vad de li/di kar-va-ne memory do-Caus-Inf.Obl give take/give-Perf.F.Sg 'Tara let Amu have the story remembered by the child.' (Urdu)

3.1 Analytical Ingredients

This section lays out the theoretical assumptions that seem to be necessary.

• LFG's notion of a *Linking Theory* by which arguments are placed in a many-to-many correspondence with grammatical relations.

Note: This explicitly rejects strict positional one-to-one mappings such as the UTAH (cf. also Ramchand 2006) or even LFG's weaker Function-Argument Biuniqueness Principle (cf. Alsina 1996, Butt 1995, Mohanan 1994).

• Butt's (1998) idea that argument fusion works much like control, but on a-structure: the lowest matrix argument is always identified with the highest embedded argument.

(30) CAUSE < ag pt MAKE < ag pt >> | | | | |SUBJ OBJ $_{\theta}$ OBJ

• Ramchand's (2006) idea that an event consists of exactly three parts: an *initiation* subevent, a *process* subevent and a *result* subevent. (Note: This is like the CAUSE, DO, BECOME of standard lexical decomposition.)

$$e: e_1 \to e_2 \to e_3$$

• Butt and Ramchand's (2005) idea that complex predication serves to put together the basic building blocks of primary event predication: the pieces of a complex predicate provide information about the subevents in a primary predication.

3.2 Analysis

This section provides a step-by-step analysis of (31).

(31) tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom yad kar-va le-ne di memory do-Caus take-Inf.Obl give-Perf.F.Sg
'Tara let Amu have the story remembered by the child.' (Urdu)

3.2.1 N-V Complex Predicates

Working from the inside out, we begin with a N-V complex predicate.

(32) bacce=ne kahani yad k-i child=Erg story.F.Sg.Nom memory do-Perf.F.Sg 'The child remembered a/the story'

kar 'do' here functions as a light verb which is looking for another predicate. It also provides a *process* subevent.

(33) DO < ag %Pred > e_2 (process)

The other predicate in this case is a noun (and therefore it has no agent).

(34) MEMORY

This predicate does not provide a subevent of its own, rather it modifies the subevent designated by whatever predicate it is combined with. We therefore also do not get argument identification here.

(35) $DO < ag MEMORY < th >> e_2 (process)$ | | SUBJ OBJ

Note that 'story' agrees with the verb, showing that it is the direct object.

Alternative Account

In Ramchand's (2006) system, *initiation*, *process* and *result* are syntactically encoded in the first phase via vP, procP(=VP) and resP, respectively.

In her account, (32) would be analyzed as shown in (36).



The object 'story' is the Rheme of proc — it does not add any subevental structure, but slots into the existing process subevent.

3.2.2 Morphological Causatives

The N-V complex predicate in (32) can be causativized, just like any simplex predicate.

(37) amu=ne bacce=se kahani yad kar-va-yi Amu=Erg child=Inst story.F.Sg.Nom memory do-Caus-Perf.F.Sg 'Amu had the child remember a/the story'

With Alsina (1996) I assume a three-place cause predicate which is again looking for another predicate to co-predicate with.

(38) CAUSE < ag pt %Pred > e_1 (initiation)

This piece of morphology predicates a different part of the event (i.e., a different subevent) and so when the two a-structures are combined, argument identification must take place.

(39) e:
$$e_1 \rightarrow e_2$$
 (init,proc)
CAUSE < ag pt DO < ag MEMORY < th >>>
 $|$ $|$ $|$ $|$ $|$ $|$ $|$ $|$ $|$ SUBJ OBL OBJ

This gives a primary predication with exactly the right distribution of grammatical relations.

Alternative Account

In Ramchand's account, the morphological causative is a v and identifies the initiation subevent.



The cause is treated as an adjunct.

3.2.3 Aspectual Light Verbs

The causativized N-V complex predicate can take an aspectual light verb, just like any simplex verb.

(41) amu=ne bacce=se kahani yad kar-va l-i Amu=Erg child=Inst story.F.Sg.Nom memory do-Caus take-Perf.F.Sg 'Amu had the child remember a/the story'

The aspectual light verbs give a sense of completion of the event. Ramchand and Butt (2005) interpret this as triggering the contribution of a result subevent.

One can also show (Butt 1995) that the aspectual light verbs determine the case marker on the subject. So I assume that the aspectual light verbs contribute one argument.

(42) TAKE < ag
$$\%$$
Pred > e_3 (result)

This piece of the syntax predicates a different part of the event (i.e., a different subevent) and so when the two a-structures are combined, argument identification must take place.

This gives a primary predication with exactly the right distribution of grammatical relations.

Alternative Account

In Butt and Ramchand's (2005) account, the contribution of the light verb is a bit more complex: the light verb 'take' slots into the *init* and *proc* parts of the syntactic structure, forcing the main verb into a result reading. (Note: this is consonant with the fact that the main verb is actually an old perfect participle).

(44) ruma ciț^hi-ța **lik**^h-e **p**^hello Ruma.Nom letter-Classifier write-PerfPart throw.3.Past 'Ruma wrote the letter completely.' (Bengali)



Reading: 'Amu instigates a process which has the result that Amu causes a story to be remembered.'

The recursive structure is motivated via the morphology and correctly allows for two initiation events.

In comparison, the account using direct syntactic encoding is more complex than the a-structure merger and linking account. This is because valency, word order, semantics and morphological information is dealt with simultaneously.

3.2.4 Permissives

The aspectual causativized N-V complex predicate can be embedded under a permissive, just like any simplex verb.

(46) tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom
yad kar-va le-ne di memory do-Caus take-Inf.Obl give-Perf.F.Sg
'Tara let Amu have the story remembered by the child.' (Urdu) The permissive is based on the verb 'give' and is thus analyzed as a threeplace predicate (see Butt 1995). As a main verb, 'give' requires an NP. As a light verb, it requires a predicate that has nominal characteristics. Hence the verbal noun (infinitive) marking in (46).

(47) GIVE < ag go %Pred > e_1 (init)

- Here, we get a recursive structure with the linking approach as well.
- The complex event (e₁ → e₂ → e₃) is actually the process subevent of the entire predication.
- This differs from predications as in (48), where there are two entirely separate events and the syntactic realization is biclausal (note the absence of agreement with the embedded object).
- (48) anjum=ne saddaf=ko [**cıṭṭ**^h**i** lık^h-ne]=ko **kah-a** Anjum.F=Erg Saddaf.F=Dat note.F.Nom write-Inf.Obl=Acc say-Perf.M.Sg 'Anjum told Saddaf to write the note.'

Again, argument identification must take place.

This again gives a primary predication with exactly the right distribution of grammatical relations.

Alternative Account

In Ramchand's system, the permissive light verb again is part of a recursive structure. This structure is licensed by the infinitival (verbal noun) morphology on the verb.

(50)



Reading: 'Tara is the causer/allower of a subevent of Amu instigating a process by which Amu causes a story to be remembered.'

- So far we have seen process and result subevents that can in turn be internally complex.
- However, there is still only one primary event predication, albeit a more complex one than one is led to expect from languages which make heavy use of lexicalization like English (Urdu has only about 500 simplex verbs).
- Question: we have not come across initiation subevents that are internally complex. Is this an accident?

3.3 Summary

- Urdu demonstrates that the primary predicational structure of a language can be extremely complex.
- A comparison of a linking account that has been extended to include a consideration of (sub)evental structure with a first phase approach shows some interesting similarities as well as differences.
 - Both approaches get exactly the right amount of arguments and the right kind of stacking together of the various building blocks of a primary predication in Urdu.
 - In both approaches an argument plays more than one role (i.e., is subject to argument merger in the linking approach and sits in various different places in the tree in the first phase approach).
 - The first phase approach makes concrete structural predictions.
 - The linking account is more constrained with respect to which arguments are identified/merged.
- Given that both approaches work with information about subevents, both approaches can also explain why (51) is bad.
 - (51) */???tara=ne amu=ko bacce=se kahani Tara=Erg Amu=Dat child.Obl=Inst story.F.Sg.Nom yad kar-va-ne de li/di memory do-Caus-Inf.Obl give take/give-Perf.F.Sg
 'Tara let Amu have the story remembered by the child.' (Urdu)
- **Reason:** as we have seen, the aspectual light verb ('give/take' in (51)) triggers the realization of a result subevent. However, a result reading is not compatible with the lexical semantics of *let/give*.
 - Thus, in the first phase approach, the derivation would crash.
 - In the linking approach, the argument structure merger would not be licensed in the first place.

4 Conclusion

- Complex Predications in terms of **primary predication** need to be examined much more closely (and possibly most fruitfully from more than one theoretical perspective).
- South Asian languages are a good place to look in terms of understanding complex lexical decomposition since the languages make productive use of basic building blocks (light verbs and pieces of the morphology), rather than wrapping everything into complex lexicalizations.

References

- Alsina, Alex. 1996. The Role of Argument Structure in Grammar: Evidence from Romance. Stanford, California: CSLI Publications.
- Alsina, Alex and Smita Joshi. 1991. Parameters in Causative Constructions. Papers from the 27th Regional Meeting of the Chicago Linguistic Society, 1–15.
- Bashir, Elena. 1999. The Urdu and Hindi Ergative Postposition ne: Its Changing Role in the Grammar. In The Yearbook of South Asian Languages and Linguistics, ed. Rajendra Singh. 11–36. New Delhi: Sage Publications.
- Butt, Miriam. 1995. The Structure of Complex Predicates. Stanford, California: CSLI Publications.
- Butt, Miriam. 1998. Constraining Argument Merger Through Aspect. In E. Hinrichs, A. Kathol and T. Nakazawa (eds.) Complex Predicates in Nonderivational Syntax. Academic Press.
- Butt, Miriam and Wilhelm Geuder. 2001. On the (Semi)Lexical Status of Light Verbs. In Norbert Corver and Henk van Riemsdijk (eds.) Semilexical Categories: On the content of function words and the function of content words, 323–370. Berlin: Mouton de Gruyter.
- Butt, Miriam and Tracy Holloway King. 2003. Case Systems: Beyond Structural Distinctions. In New Perspectives on Case Theories, ed. Ellen Brandner and Heike Zinsmeister. Stanford, California: CSLI Publications.
- Butt, Miriam and Tracy Holloway King. 2005. The Status of Case. In *Clause Structure in South Asian Languages*, ed. Veneeta Dayal and Anoop Mahajan. Dordrecht: Kluwer Academic Publishers.
- Butt, Miriam and Gillian Ramchand. 2005. Complex Aspectual Structure in Hindi/Urdu. In Nomi Ertischik-Shir and Tova Rapoport (eds.) The Syntax of Aspect, 117–153. Oxford: Oxford University Press.
- Glassman, Eugene. 1976. Spoken Urdu. Lahore: Nirali Kitaben.
- Levin, Beth and Malka Rappaport-Hovav. 1998. Building Verb Meanings. In Miriam Butt and Wilhelm Geuder The Projection of Arguments: Lexical and Compositional Factors, 97–134. Stanford, California: CSLI Publications.
- Mohanan, Tara. 1994. Argument Structure in Hindi. Stanford, California: CSLI Publications.

- Ramchand, Gillian. 1997. Aspect and Predication: The Semantics of Argument Structure. Oxford: Oxford University Press.
- Ramchand, Gillian. 2006. Verb Meaning and the Lexicon: A First Phase Syntax. Ms., University of Tromsø.
- Ritter, Elizabeth Ritter and Sara T. Rosen. 1993. Deriving Causation. Natutral Language and Linguistic Theory 11: 519–555.
- Ritter, Elizabeth Ritter and Sara T. Rosen. 1997. The function of *have. Lin*gua 101: 295–321.
- Rosen, Sara. 1989. Argument Structure and Complex Predicates. PhD thesis, Brandeis University.
- Saksena, Anuradha. 1980. The Affected Agent. Language 56(4):813–826.
- Saksena, Anuradha. 1982a. Case Marking Semantics. Lingua 56:335–343.
- Saksena, Anuradha. 1982b. Topics in the Analysis of Causatives with an Account of Hindi Paradigms. Los Angeles: University of California Press.
- Singh, Mona. 1994. Perfectivity, Definiteness, and Specificity: A Classification of Verbal Predicates Hindi. Phd Thesis, University of Texas, Austin.
- Smith, Carlotta. 1991. *The Parameter of Aspect*. Dordrecht: Kluwer Academic Publishers.