URDU/HINDI MODALS

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Abstract

In this paper we survey the various ways of expressing modality in Urdu/Hindi and show that Urdu/Hindi modals provide interesting insights on current discussions of the semantics of modality. There are very few dedicated modals in Urdu/Hindi: most of which has been arrived at constructionally via a combination of a certain kind of verb with a certain kind of embedded verb form and a certain kind of case. Among the range of constructions yielded by such combinations, there is evidence for a two-place modal operator in addition to the one-place operator usually assumed in the literature. We also discuss instances of the Actuality Entailment, which had been shown to be sensitive to aspect, but in Urdu/Hindi appears to be sensitive to aspect only some of the time, depending on the type of modal verb. Indeed, following recent proposals by Ramchand (2011), we end up with a purely lexical account of modality and the Actuality Entailment, rather than the structural one put forward by Hacquard (2010).

1 Introduction

Modality is an area of linguistics for which a considerable amount of work exists.[1] However, modality per se exhibits great empirical detail as well as considerable cross-linguistic variation. In this paper, we provide a brief survey of how modality can be expressed in Urdu/Hindi[2] and discuss the morphosyntactic and semantic differences among the modal verbs and modal constructions we identify. We then concentrate on exploring some issues raised in the literature from the particular perspective of Urdu/Hindi, namely raising vs. control, type of modal operator (one vs. two-place) and the Actuality Entailment (Bhatt 2006).

The paper is organized as follows: Section 2 provides a brief survey of how modality is expressed in Urdu/Hindi and makes the point that modality is generally expressed constructionally in Urdu/Hindi. That is, there are very few dedicated modal verbs in Urdu/Hindi. Instead, modal readings are arrived at constructionally via a combination of a certain kind of verb with a certain kind of embedded verb form and a certain kind of case. Given this general constructional nature of Urdu/Hindi modality and also given that Urdu/Hindi does not contain raising verbs *per se*, section 3 investigates whether Urdu/Hindi modal expressions can be analyzed as raising constructions. The syntactic evidence adduced in this section prompts us to argue in section 4 for a two-place modal operator for at least one of the modal expressions involved. Finally, in section 5 we investigate whether the

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[2]Urdu is the national language of Pakistan and Hindi is one of the official languages of India. They are structurally almost identical and differ mainly in terms of orthography, choice of vocabulary items and some minor differences with respect to phonology and morphology. For our purposes, the languages are so close that they can be discussed in the same breath.

Actuality Entailment is also found in Urdu/Hindi and show that while it is found, there is some interesting variation in the data which leads us to adopt a lexical rather than a structural analysis of epistemic vs. root modality.

2 Modality in Urdu/Hindi

Modal verbs crosslinguistically often exhibit a defective paradigm; in Urdu, there is exactly one defective modal verb, derived from the verb *cah* 'want' (section 2.2). All other verbs involved in the expression of modality inflect according to the full verbal paradigm. Urdu does contains some explicit modal verbs, however modality is often expressed via a specialized use of the multifunctional verbs 'go, be, fall'. That is, the modal force is generally achieved *constructionally* rather than lexically.

Modal constructions in Urdu/Hindi fall into three morphosyntactic types that go hand in hand with semantic differences.

1. The verbs *sʌk* 'can' and *pa* 'find' in combination with a bare verb and a nominative subject (section 2.1).
2. The verbs *cahiye* 'need', *paṛ* 'fall' and *ho* 'be' in combination with an infinitive verb and a dative subject (section 2.2).
3. The verb *ja* 'go' in a complex predicate that looks superficially exactly like the passive (section 2.3).

The two dedicated modals *sʌk* 'can' and *cahiye* 'need' also allow finite complements (section 3). Further issues could be addressed with respect to Urdu/Hindi modals, such as the interaction of tense and modality as examined by Condoravdi (2002); however, we do not address such further topics within the confines of this paper.

2.1 Constructions with Bare Verbs

The two modals expressing possibility both require bare complements. In (1a), *sʌk* 'can' shows the ability to perform an action or the possibility of an event. The verb *pa* 'find/get/obtain' in (1b) shows the ability to perform an action depending on the circumstances the actor finds themselves in. The modal reading of ability and possibility with *pa* 'find' is only present when it is in a construction with a bare verb.

(1) a. yasin vo **kʌr sʌk-a**
Yasin.M.Sg.Nom that.Nom do can-Perf.M.Sg
'Yasin could do that.'

b. yasin vo **kʌr pa-ya**
Yasin.M.Sg.Nom that.Nom do find-Perf.M.Sg
'Yasin was able to do that.'

2.2 Constructions with Infinitival Verbs

In contrast, the three verbs signaling necessity or obligation all take an infinitive complement and a dative subject. *cahiye* 'need' in (2a) conveys the advisability of performing a certain action, whereas *paṛ* 'fall' as in (2b) carries the meaning of obligation. (2b) has a different interpretation than (2a) in that the circumstances force the performance of a certain action. The construction in (2c) with *ho* 'be' is ambiguous between obligation or external constraint to perform an action and the desire to perform the action. The modal reading is only possible when in a construction with an infinitive.

(2) a. **yasin=ko** ye **kɑr-na** **cahiye**
Yasin.M.Sg=Dat this.Sg.Nom do-Inf.M.Sg need.Sg
'Yasin needs to do this.'

b. **yasin=ko** ye **kɑr-na** **pɑṛ-a**
Yasin.M.Sg=Dat this.Sg.Nom do-Inf.M.Sg fall-Perf.M.Sg
'Yasin was obliged to do this.'

c. **yasin=ko** ye **kɑr-na** **hɛ**
Yasin.M.Sg=Dat this.Sg.Nom do-Inf.M.Sg be.Pres.3.Sg
'Yasin has/wants to do this.'

The only dedicated deontic modal in this set is *cahiye* 'need' which features a defective paradigm as is typical for modals across languages. In this case, the defective paradigm consists of just a singular (2a) and a plural (3) form.[3]

(3) **yasin=ko** ye cizẽ **kɑr-ni** **cahiyẽ**
Yasin.M.Sg=Dat this.Pl.Nom thing.F.Pl.Nom do-Inf.F.Pl need.Pl
'Yasin needs to do these things.'

2.3 The (Dis)ability Passive

The construction in (4) is generally known as the passive of (dis)ability (Glassman 1976, Van Olphen 1980).

(4) **rɑza=se** vo pɑṛh-a (nɑhĩ) gɑ-ya
Raza.M.Sg=Inst that.Nom read-Perf.M.Sg not go-Perf.M.Sg
'Raza was (not) able to read that.'

This construction looks exactly like a passive on the surface, but the instrumental is a subject. Butt (1997) analyzes this as a type of V-V complex predicate. Semantically, the construction predicates an absolute and fundamental (dis)ability on

[3] *cahiye* 'need' is historically derived from a perfect form of the verb *cah* 'want'. Exactly how the modality changed from 'want' to 'need' in the process is something that needs to be investigated.

the part of the subject. This means that in (4), there is some property of Raza that precludes him from being able to perform an action, i.e. he cannot read because he is illiterate and not because he is temporarily tired and cannot see.

Butt (1997) has analyzed the semantics of this construction as being one of dispositional predication as articulated by Lawler (1973a,b), but more specifically, they are an instance of *conditional necessity*. Bhatt (1998) points out that these constructions are negative polarity items of a sort in that some negative element is generally needed for the construction to be felicitous. However, there is a dialectal divide here. Urdu speakers generally find the examples without a negation acceptable, whereas Hindi speakers appear to have a stricter requirement on the presence of the negation. A detailed discussion of this construction, interesting as it is, falls outside the scope of this paper and so we will not pursue it any further in the following discussions.

3 Raising vs. Control

Given that Urdu/Hindi modality is expressed constructionally in the various ways presented above, a question that arises is whether modals in Urdu/Hindi should be analyzed as instances of raising, as is generally the case (Hacquard 2011), or whether they represent other types of syntactic constructions.[4] The (dis)abillity passive, for example, forms a complex predicate that does not involve raising.

In this this section, we first take a look at raising in Urdu/Hindi in general and establish that there is no straightforward equivalent to the English-style raising construction (section 3.1). We then examine modal+infinitive combinations in section 3.2 and look at the modal+bare verb constructions in section 3.3. We argue that while the modal+bare verb constructions can be analyzed as raising constructions, the modal+infinitive ones instead appear to be instances of control. We also briefly consider a copy-raising analysis as a possible alternative approach in section 3.4, but conclude that our Urdu/Hindi modal constructions cannot be analyzed as instances of copy-raising.

3.1 Raising

There is no straightforward equivalent to English-style raising constructions in Urdu/Hindi. To express the meaning of 'seem' one uses a verb that means 'attach to', as illustrated in (5).

(5) ye lɑg-ta hɛ
this.Nom attach_to-Impf.M.Sg be.Pres.3.Sg
[ke raza gʰɑr gɑ-ya hɛ]
that Raza.M.Sg.Nom home.M.Sg.Loc go-Perf.M.Sg be.Pres.3.Sg
'It seems that Raza has gone home.'

[4] As Hacquard (2011) puts it in her recent summary of the state-of-the-art in modality: modals are generally raising verbs, except for when they are not.

However, (5) involves a finite complement and is thus not a raising construction. *lag* 'attach to' cannot be used with non-finite complements as the English 'seem' (e.g. *John seems to be going home.*); it can only occur with adjectives or nominals forming a predicational construction, as shown in (6).

(6) a. raza cʰota lɑg-ta hɛ
Raza.M.Sg.Nom small.M.Sg attach_to-Impf.M.Sg be.Pres.3.Sg
'Raza appears small.'

b. raza ʊstad lɑg-ta h anotherɛ
Raza.M.Sg.Nom teacher.M.Sg attach_to-Impf.M.Sg be.Pres.3.Sg
'Raza looks like a teacher.'

Bearing in mind that raising does not seem to exist naturally and independently in Urdu/Hindi, let us now take a close look at the modal constructions in terms of a possible raising analysis.

3.2 Modals with Infinitives

The modals with infinitives all involve dative subjects. These dative subjects are not licensed by the (infinitive) verb. Regardless of whether the verb is transitive and normally requires an ergative subject in the perfect as in (7), or is intransitive and normally requires a nominative subject as in (8), when these verbs are placed in a modal construction with *cahiye* 'need' and *paṛ* 'fall, the subject is realized as dative. The relevant examples are in (9) and (10).

(7) **yasin=ne/*ko** ye ki-ya
Yasin.M.Sg=Erg/Dat this.Nom do-Perf.M.Sg
'Yasin did this.'

(8) **yasin/*=ko** gɑ-ya
Yasin.M.Sg.Nom/=Dat go-Perf.M.Sg
'Yasin went.'

(9) a. **yasin=ko** ye **kɑr-na** cahiye
Yasin.M.Sg=Dat this.Nom do-Inf.M.Sg need.Sg
'Yasin needs to do this.'

b. **yasin=ko** **ja-na** cahiye
Yasin.M.Sg=Dat go-Inf.M.Sg need.Sg
'Yasin should go.'

(10) a. **yasin=ko** ye **kɑr-na** pɑṛ-a
Yasin.M.Sg=Dat this.Nom do-Inf.M.Sg fall-Perf.M.Sg
'Yasin was obliged to do this.'

b. **yasin=ko** **ja-na** pɑɽ-a
Yasin.M.Sg=Dat go-Inf.M.Sg fall-Perf.M.Sg
'Yasin was obliged to go.'

This data shows that the case on the subject is not licensed by the infinitive verb. Indeed, this is in line with the overall *constructive case* (Nordlinger 1998) analysis that was independently put forward by Butt and King (2004) for the construction involving the modal use of *ho* 'be' in (11), in which the dative subject alternates with an ergative and the use of the ergative signals desire rather than obligation.

(11) a. **yasin=ko** ye kɑr-na hɛ
Yasin.M.Sg=Dat this.Nom do-Inf.M.Sg be.Pres.3.Sg
'Yasin has/wants to do this.'

b. **yasin=ne** ye kɑr-na hɛ
Yasin.M.Sg=Erg this.Nom do-Inf.M.Sg be.Pres.3.Sg
'Yasin wants to do this.'

Butt and King (2004) discuss this construction in some detail and analyze it as a control construction. Under the constructive case analysis, a lexical semantic approach to case marking is taken by which the case markers themselves contribute morphosyntactic and semantic information to the overall analysis of a clause. The case markers are thus not seen as being licensed by a verb, but are seen as having to fit broad compatibility constraints, some of which emanate from the case markers themselves.

The upshot is that the dative case in the modal constructions is not licensed by the infinitive verb, but the constructive case analyis does allow for the possibility that the dative case on the subject is directly connected to the type of modality expressed in the clause, and, hence, to the modal verb. That is, the verbs *cahiye* 'need' and *paṛ* 'fall' and *ho* 'be' in combination with a dative subject are what signals the modality. However, this analysis does not work either, as a modal meaning can also be expressed without a dative subject. This is illustrated in (12).

(12) a. aj **barɪʃ** ho-ni cahiye
today rain.F.Sg.Nom be-Inf.F.Sg need.Sg
'It should rain today.'

b. aj gʰɑr=ki **sɑfai** ho-ni hɛ
today house.F.Sg=Gen.F.Sg cleaning.F.Sg.Nom be-Inf.F.Sg be.Pres.3.Sg
'Today house cleaning is to/should happen.'

In sum, if we analyze the modal+infinitives as raising constructions, we have no good explanation for the case marking of the subject. We established that the dative itself is not necessarily required to express modality. Given that Butt and King (2004) have independently analyzed the *ho* 'be' modal construction as a control

construction and that embedded infinitives in Urdu/Hindi generally correspond to controlled XCOMPs, we conclude that a raising analysis is not well motivated for the modal+infinitive constructions, but that a control analysis is feasible.

3.3 Modals with Bare Verbs

In contrast, the modal constructions with *sak* 'can' and *pa* 'find' do not seem to involve control. The reasons for this conclusion are as follows. In addition to the ability uses we have already seen and repeated here for convenience in (13), *sak* 'can' and *pa* 'find' also allow for pure possibility readings as in (14). Here, no ability or agency is predicated of the subject and the subject is not directly thematically related to the ability modals. That is, *rain, decision* and *account* are thematically related to the bare verbs, but not to the modals. Since the subject is not related thematically to the modal, it becomes hard to defend a control analysis.

(13) a. yasin vo kar **sɑk-ta** hɛ
Yasin.M.Sg.Nom that.Nom do can-Impf.M.Sg be.Pres.3.Sg
'Yasin can do that.'

b. yasin vo kar **pa-ta** hɛ
Yasin.M.Sg.Nom that.Nom do find-Impf.M.Sg be.Pres.3.sg
'Yasin is able to do that.'

(14) a. aj **barɪʃ** **ho sɑk-ti** hɛ
today rain.F.Nom be can-Impf.F.Sg be.Pres.3.Sg
'It's possible that it will rain today.'

b. brasɪl=mẽ rɑʃtrɑpɑti=ka **fɛsla** nɑhĩ
Brazil=in president=Gen.M.Sg decision.M.Sg.Nom not

ho pa-ya
be find-Perf.M.Sg
'In Brasil a decision on the president was not able to be arrived at.'

c. cunav=mẽ sipiem=ka **kʰata** nɑhĩ
election.M.Sg=in CPM=Gen.M.Sg account.M.Sg.Nom not

kʰʊl pa-ya
open find-Perf.M.Sg
'The account of the CPM (Communist Party Marxist) couldn't be opened in the election.' (i.e., the CPM couldn't get even one seat in the election.)

An alternative analysis could be that the V+V modal constructions illustrated above are instances of V+V complex predicates of the type shown in (15) and known by various appellations in the literature such as *aspectual complex predicates* or *vector verbs* (see Butt 1995, Hook 1974).

(15) a. nadya=ne xɑt **lɪkʰ li-ya**
Nadya.F=Erg letter.M.Nom write take-Perf.M.Sg
'Nadya wrote a letter (completely).'

b. ram **ga ʊʈʰ-a**
Ram.M.Sg.Nom sing rise-Perf.M.Sg
'Ram sang out spontaneously (burst into song).'

As can be seen, the modal+bare verb constructions look very much like the V-V complex predicates in (15) on the surface and thus a complex predicate analysis is tempting. The complex predicates in (15) are monoclausal (Butt 1995), so if the modal+bare verb constructions are to be analyzed as V-V complex predicates on a part with (15), then their monoclausality needs to be established. However, this turns out to be difficult if not impossible to do since the monoclausality tests established for Urdu by Butt (1995) cannot distinguish between the a monoclausal complex predicate analysis and a biclausal analysis because there are simply not enough of the right kinds of arguments around to test behavior with respect to anaphora, agreement and control.[5]

However, we can adduce some other evidence. Concerning the combinatory possibilities with auxiliaries and other types of complex predicates, the modal+bare verb constructions differ significantly from the aspectual complex predicates in (15). Consider the data in (16)–(17), which show an active and a passive version of an aspectual V-V complex predicate and a modal+bare verb construction, respectively.

(16) a. rɑza=ne gʰɑr xɑrid li-ya
Raza.M.Sg=Erg house.M.Sg.Nom buy take-Perf.M.Sg
'Raza bought a house.'

b. gʰɑr rɑza=se xɑrid li-ya gɑ-ya
house.M.Sg.Nom Raza.M.Sg=Inst buy take-Perf.M.Sg go-Perf.M.Sg
'A house was bought by Raza.'

(17) a. rɑza gʰɑr xɑrid sɑk-a
Raza.M.Sg=Erg house.M.Sg.Nom buy can-Perf.M.Sg
'Raza was able to buy a house.'

b. gʰɑr rɑza=se xɑrid-a ja sɑk-a
house.M.Sg.Nom Raza.M.Sg=Inst buy-Perf.M.Sg go can-Perf.M.Sg
'A house was able to be bought by Raza.'

In (16b), the passive auxiliary 'go' appears after the V-V complex predicate, indicating that the complex predicate as a unit has undergone passivization. In (17b),

[5] As Butt (1995) points out, scrambling possibilities and placement and scope of negation or adverbials do not function as tests for biclausality vs. monoclausality in Urdu/Hindi.

on the other hand, the passive auxiliary ‘go’ must be placed between the modal and the other verb. This is an indication that the modal construction is indeed biclausal. Given that a biclausal control analysis is out, an analysis of the modal+bare verb combinations as a biclausal raising construction is a reasonable alternative which is not ruled out on any empirical grounds. Indeed, consider the fact that *sak* ‘can’ also allows a modal expressions with finite complements. This is absolutely not typical of complex predicates, but is attested for raising constructions as in the English *John seems to be sleeping.* vs. *It seems that John is sleeping*. The relevant Urdu/Hindi example is shown in (18). Note that as in English, when a finite clause is used, an impersonal subject is introduced in the matrix clause.

(18) **ho sɑk-ta** hɛ [ke vo mehnɑt kɑr-e]
be can-Impf.M.Sg be.Pres.3.Sg that that.Nom labour.F.Sg.Nom do-Subj.3.Sg
‘It is possible that he will work hard.’

In sum, the modal+infinitive constructions appear to be instances of control, whereas the modal+bare verb constructions are probably instances of raising.

3.4 Copy-raising?

One of our reviewers suggested that the example in (18) as well as examples as in (19) could be analyzed as instances of *copy-raising* (Asudeh and Toivonen 2010). As (19) shows, the deontic modal *cahiye* ‘need’ also allows a finite complement with an impersonal subject, just like *sak* ‘can’.[6]

(19) ye **ho-na** **cahiye** [ke vo mehnɑt kɑr-e]
this.Nom be-Inf.M.Sg need.Sg that that.Nom labour.F.Sg.Nom do-Subj.3.Sg
‘This needs to happen, that he work hard.’

However, copy-raising crucially involves an anaphor in the embedded finite clause which refers back to the subject in the matrix clause, as illustrated in (20) for English. However, while in (18) and (19) there is an anaphor embedded in the finite clause that could potentially refer to the subject in the matrix clause, this need not be the case, as already illustrated by (18) and (19) and further demonstrated by (21)–(22).

(20) a. Chris$_i$ seemed like he$_i$ enjoyed the marathon.

b. *Chris$_i$ seemed like they$_j$ enjoyed the marathon.

c. *Chris$_i$ seemed like those people$_j$ enjoyed the marathon.

[6]Only these two verbs of the modals surveyed here allow finite complements. It is probably not a coincidence that these are also the only dedicated modals in Urdu/Hindi.

(21) a. **ho sɑk-ta** hɛ
be can-Impf.M.Sg be.Pres.3.Sg

[ke vo log mehnɑt kɑr-e]
that that.Nom people.M.Nom labour.F.Sg.Nom do-Subj.3.Sg
'It is possible that those people will work hard.'

b. ye **ho-na** **cahiye**
this.Nom be-Inf.M.Sg need.Sg

[ke vo log mehnɑt kɑr-e]
that that.Nom people.M.Nom labour.F.Sg.Nom do-Subj.3.Sg
'This needs to happen, that those people work hard.'

(22) a. **rɑza=ko**$_i$ **cahiye** [ke vo$_j$ mehnɑt kɑr-e]
Raza.M.Sg=Dat need.Sg that that.Nom labour.F.SgNom do-Subj.3.Sg
'Raza needs for her/him to work hard.'

b. **rɑza=ko**$_i$ **cahiye**
Raza.M.Sg=Dat need.Sg

[ke [vo log]$_j$ mehnɑt kɑr-e]
that that.Nom people.M.Nom labour.F.Sg.Nom do-Subj.3.Sg
'Raza needs for those people to work hard.'

In (21), the NP 'those people' does not need to refer back to the subject, which is impersonal. In (22), we have a thematic subject, 'Raza' and the anaphors 'her/him' or 'those people' also do not need to refer back to the subject. This stands in stark contrast with the English pattern in (20b–c).

Furthermore, if these were instances of copy-raising, we would not expect the copy-raised version to result in a meaning that is distinct from the version without copy-raising. That is, the meanings of the sentences in (23) do not seem to be distinct.

(23) a. John seems to be happy.

b. John seems like he is happy.

However, the same is not true for Urdu/Hindi, as shown in (24), in which (24a) shows the version with a non-finite embedded clause and (24b) a version which contains a finite embedded clause. Unlike in English, in Urdu/Hindi, these syntactic difference go hand in hand with a difference in semantic interpretation.

(24) a. bɑccõ=ko [vɑkt=pɑr skul pɑhũc
child.Pl=Dat time.M.Sg=on school.F.Sg.Obl arrive

ja-na] cahiye
go-Inf.M.Sg need.Sg
'It is neceesary that the children be at school punctually.'

b. bɑccõ=ko cahiye
child.Pl=Dat need.Sg

[ke vo vɑkt=pɑr skul pɑhõc ja-ẽ]
that Pron.3.Nom time.M.Sg=on school.F.Sg.Obl arrive go-Subj.3
'The children need to make sure they arrive at school on time.'

The example in (24a) is ambiguous as to who the *holder-of-obligation* is — it could be the children (the dative subject), or it could be some other person whose responsibility it is to make sure the children are at school on time. However, in (24b) with a finite complement, the holder-of-obligation **must** be the dative subject.[7] We therefore conclude that the Urdu/Hindi constructions are not instances of copy-raising.

4 One- or Two-Place Operator?

As already mentioned, the general assumption in the literature is that modals are raising verbs (see Hacquard 2011). This was shown not to hold for all Urdu/Hindi modal constructions (section 3). In this section, we look at the semantic assumptions that have been generated by the fact that modals generally are realized in terms of raising verbs.

The fact that raising constructions involve a proposition but no thematic subject argument at the matrix clause in the syntax has generally been translated into a one-place operator at the semantic level (a.o. Lewis 1944, Carnap 1947). That is, the modal operator is assumed to take a proposition and provide modal information about that proposition.

However, the data from the modal+infinitive constructions (*cahiye* 'need', *paṛ* 'fall' and *ho* 'be') showed that a raising analysis is not probable and the subject is thematically related to the modal verb. The latter point is made quite forcefully by the examples involving *cahiye* 'need' when it licenses a finite complement.

(25) rɑvi=ko cahiye [ke rɑza mehnɑt kɑr-e]
Ravi need.Sg that Raza.M.Sg.Nom labour.F.Sg.Nom do-Subj.3.Sg
'Ravi needs for Raza to work hard.'

In (25), the subject is clearly not raised up out of the finite clause and, as established in section 3.4, the embedded subject does not need to refer to the matrix subject. As such, the matrix subject must be thematically related directly to the modal *cahiye* 'need' and the dative case on the subject must be connected directly to the modal construction.

[7] Note that (24) also contains a V-V complex predicate, namely *pahõc ja* 'reach go', where the 'go' signals completion of the event. The presence or absence of complex predication is orthogonal to the point being made.

We take this data as establishing the need for a two-place modal operator in the semantic analysis. This two-place operator takes an individual and a proposition and relate the two to one another. In (25), the two-place modal operator would thus relate Ravi as the bearer of an obligation to the proposition that Raza work hard.

Further evidence for a two-place operator comes from *paṛ* 'fall'. Unlike *sak* 'can' ((21a)), *cahiye* 'need' ((12a), (21b)), *ho* 'be' ((12b)) and *pa* 'find' ((14b)), *paṛ* 'fall' requires a dative subject. This is shown in (26) and (27).

(26) a. *ho paṛ-ta hɛ
be fall-Impf.M.Sg be.Pres.3.Sg

[ke vo mehnɑt kɑr-e]
that that.Nom labour.F.Sg.Nom do-Subj.3.Sg
'It is necessary that he will work hard.'

b. *ye ho-na paṛ-a
this.Nom be-Inf.M.Sg fall-Perf.M.Sg

[ke vo mehnɑt kɑr-e]
that that.Nom labour.F.Sg.Nom do-Subj.3.Sg
'This needs to happen, that he work hard.'

c. *aj barıʃ ho-ni paṛ-i
today rain.F.Sg.Nom be-Inf.F.Sg fall-Perf.F.Sg
'It should rain today.'

(27) rɑvi=ko mehnɑt kɑr-ni paṛ-ti hɛ
Ravi.M.Sg=Dat labour.F.Sg.Nom do-Inf.F.Sg fall-Impf.F.Sg be.Pres.3.Sg
'Ravi has to work.'

The absence of a dative argument leads to ungrammaticality, as shown in (26). We conclude from this data that *paṛ* 'fall' directly and thematically selects its subject argument. This means that in (27), Ravi must be analyzed as a thematic argument of *paṛ* 'fall'. That is, Ravi is placed in a relationship with the proposition expressed by the non-finite clause and this relationship is mediated by *paṛ* 'fall'.

The Urdu/Hindi data shows that two-place modals exist in the syntax. In particular, Urdu/Hindi syntactically encodes the 'bearer of obligation' relation. There is a place for the 'bearer of obligation' in existing semantic theories of modals. For example, recent developments in semantic analysis via f-structure rewriting (Crouch 2005, 2006, Crouch and King 2006) explicitly posit contexts for the evaluation of situations. In this system, a two-place operator for modals is very natural. Furthermore, if one looks closely at standard approaches to modality in the literature, one finds that modal operators are often subscripted or that a two-place accessibilty relation is built into the operator (e.g., possible world semantics; Lewis 1944).[8]

[8]We thank Dick Crouch for pointing this out to us.

These treatments indirectly make reference to the bearer of obligation, which is identified pragmatically. What makes the Urdu/Hindi modals special is that they structurally encode this argument.

In sum, there is empirical evidence for a two-place modal operator and there are independently motivated theoretical reasons which also point towards the explicit adoption of a two-place operator for modal interpretation in general. In the context of this paper, however, we propose to remain conservative in that we only assume a two-place operator for those modals for which we have firm empirical evidence: *paṛ* 'fall' and *cahiye* 'need'. All other modals are assumed to be one-place operators for the time being.

5 The Actuality Entailment

In this section, we take a look at another issue, the *Actuality Entailment* in which syntax and semantics have been assumed to be closely tied to one another, and examine how this issue plays out with respect to Urdu/Hindi modals. We show that although the Urdu/Hindi patterns broadly conform to what has been established in the literature, there are some interesting differences which boil down to contrasts at a lexical, rather than a strutural level. We therefore adopt new ideas by Ramchand (2011) who associates interpretational differences with lexically coded differences as to how modality is evaluated.

5.1 The Actuality Entailment — Basic Data and Ideas

A long-standing puzzle about ability modals involves the contrast shown in (28) (Karttunen 1971). In (28b), the modal does not merely express a possibility, but implicates that Jane did swim across the lake. Bhatt (2006) showed with respect to a range of languages that this behavior of ability modals correlates with grammatical aspect: In the perfective, the proposition expressed must hold in the actual world (and not in some possible world, as is the case in (28b)). In the imperfective, on the other hand, no such requirement is imposed ((28a)). This difference in interpretation has to do with episodic statements vs. generic statements and has become known as the Actuality Entailment (Bhatt 2006).

(28) a. In her twenties, Jane was able to swim across Lake Balaton, though she never did.

b. ?? Yesterday, Jane was able to swim across Lake Balaton, but she didn't.

(examples based on Piñon (2003))

Hacquard (2009, 2010) argues that the Actuality Entailment is not confined to ability modals, but occurs with all *root* interpretations. This includes possibility and necessity modals, but crucially not epistemic modals or epistemic readings of possibility and necessity modals. As discussed in the next section, this prediction works out to be mostly right in an interesting way for Urdu/Hindi.

5.2 Urdu/Hindi Patterns

Root interpretations (modality connected to circumstances in the world surrounding the event) are found with: *sʌk* 'can', *pa* 'find', *paṛ* 'fall' and *ho* 'be'. Epistemic interpretations (modality connected to speaker's knowledge of the world) are found with: *cahiye* 'need' and *ho* 'be'.

5.2.1 Root Readings

As shown in (29) and (30), *sʌk* 'can' and *pa* 'find' are both root modals and are both subject to the Actuality Entailment. These two verbs are thus in total compliance with Hacquard's generalization.

(29) a. raza gari=ko cɑl-a **sɑk-ta** hɛ,
Raza.M.Sg.Nom car.F.Sg=Acc walk-Caus can-Impf.M.Sg be.Pres.3.Sg
mɑgɑr ʊs=ne gari=ko nɑhĩ cɑl-a-ya
but Pron.3.Sg.Obl=Erg car.F.Sg=Acc not walk-Caus-Perf.M.Sg
'Raza is able to drive a car, but he didn't drive the car.'

b. ??raza gari=ko cɑl-a **sɑk-a**,
Raza.M.Sg.Nom car.F.Sg=Acc walk-Caus can-Perf.M.Sg
mɑgɑr ʊs=ne gari=ko nɑhĩ cɑl-a-ya
but Pron.3.Sg.Obl=Erg car.F.Sg=Acc not walk-Caus-Perf.M.Sg
'Raza was able to drive a car, but he didn't drive the car.'

(30) a. raza gari=ko cɑl-a **pa-ta** hɛ,
Raza.M.Sg.Nom car.F.Sg=Acc walk-Caus find-Impf.M.Sg be.Pres.3.Sg
mɑgɑr vo gari=ko nɑhĩ cɑl-a-ta
but Pron.3.Sg.Nom car.F.Sg=Acc not walk-Caus-Perf.M.Sg
'Raza can drive a car, but he didn't drive the car.'

b. ??raza gari=ko cɑl-a **pa-ya** hɛ,
Raza.M.Sg.Nom car.F.Sg=Acc walk-Caus find-Perf.M.Sg be.Pres.3.Sg
mɑgɑr ʊs=ne gari=ko nɑhĩ cɑl-a-ya
but Pron.3.Sg.Obl=Erg car.F.Sg=Acc not walk-Caus-Perf.M.Sg
'Raza could drive a car, but he didn't drive the car.'

The other two verbs that allow for root modality, however, not only pattern differently from *sʌk* 'can' and *pa* 'find', but also differ with respect to one another. With respect to *paṛ* 'fall', the Actuality Entailment always holds, regardless of the type of grammatical aspect that is employed. That is, there is no possible world in which the holder of obligation could end up not performing that action, regardless of the aspect. This is illustrated in (31).

(31) a. ??rɑvi=ko skul ja-na
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg

pɑṛ-ta hɛ,
fall-Impf.M.Sg be.Pres.3.Sg

mɑgɑr vo nɑhĩ ja-ta
but Pron.3.Sg not go-Impf.M.Sg
'Ravi has to go to school but he didn't go.'

b. ??rɑvi=ko skul ja-na
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg

pɑṛ-a hɛ,
fall-Perf.M.Sg be.Pres.3.Sg

mɑgɑr vo nɑhĩ gɑ-ya
but Pron.3.Sg not go-Perf.M.Sg
'Ravi had to go to school but he didn't go.'

c. ??rɑvi=ko skul ja-na **pɑṛ-e-g-a**,
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg fall-3.Sg-Fut-3.M

mɑgɑr vo nɑhĩ ja-e-g-a
but Pron.3.Sg not go-3.Sg-Fut-3.M
'Ravi will have to go to school but he won't go.'

With respect to the root reading of *ho* 'be', in contrast, no Actuality Entailment effect can be identified at all. This may be due to the simple morphosyntactic fact that *ho* 'be' does not occur with aspectual morphology and so no situation is created in which the Actuality Entailment could hold.[9]

(32) a. rɑvi=ko skul ja-na **hɛ**,
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg be.Pres.3.Sg

mɑgɑr vo nɑhĩ ja-ta
but Pron.3.Sg not go-Impf.M.Sg
'Ravi has to go to school but he doesn't go.'

b. rɑvi=ko skul ja-na **tʰ-a**,
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg be.Past-M.Sg

[9]Note that one could in principle assume the presence of a covert aspectual operator. In this case, if the covert aspectual operator PERF is present, one would expect the Actuality Entailment to hold. However, the covert aspectual operator IMPF could also be assumed and in this case no Actuality Entailment should follow. Given that neither is overt, the example in (32) would thus in principle be ambiguous — there is no way to identify the Actuality Entailment and it therefore does not hold in (32). Furthermore note that *ho* does have overt imperfect and perfect forms (*hota/hoti/hote* and *hua, hui, hue*, respectively). There is thus no inherent motivation to assume a covert aspectual operator in the present, past and future forms. The situation here is quite different from forms involving infinitives, for example, where an aspectual opposition cannot be made overtly.

mɑgɑr vo nɑhĩ gɑ-ya
but Pron.3.Sg not go-Perf.M.Sg
'Ravi had to go to school but he didn't go.'

c. rɑvi=ko skul ja-na **ho-g-a**,
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg fall-3.Sg-Fut-3.M

mɑgɑr vo nɑhĩ ja-e-g-a
but Pron.3.Sg not go-3.Sg-Fut-3.M
'Ravi will have to go to school but he won't go.'

5.2.2 Epistemic Readings

In line with Hacquard's generalization, the Actuality Entailment does not apply with respect to epistemic modals or epistemic readings of possibility or necessity modals. A set of examples for *cahiye* 'need' are provided in (33); the examples for the epistemic reading of *ho* 'be' look just as in (32).

(33) a. rɑvi=ko skul ja-na **cahiye**
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg need.Sg

mɑgɑr vo nɑhĩ ja-ta
but Pron.3.Sg not go-Impf.M.Sg
'Ravi has to go to school but he doesn't go.'

b. rɑvi=ko skul ja-na **cahiye t^{h}-a**
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg need.Sg be.Past-M.Sg

mɑgɑr vo nɑhĩ gɑ-ya
but Pron.3.Sg not go-Perf.M.Sg
'Ravi had to go to school but he didn't go.'

c. rɑvi=ko skul ja-na **cahiye ho-g-a**
Ravi.M.Sg=Dat school.M.Sg.Obl go-Inf.M.Sg need.Sg be-Fut-M.Sg

mɑgɑr vo nɑhĩ ja-e-g-a
but Pron.3.Sg not go-3.Sg-Fut-M.Sg
'Ravi will have to go to school but he won't go.'

5.3 Discussion and Analysis

Hacquard (2009, 2010) proposes to tie the different interpretation possibilities of modals to syntactic structure, generally following proposals in the line of Cinque (1999). In her analysis, root modals are situated just above the VP, whereas epistemic modals occur right above TP. The difference in semantics is related to how the modals are evaluated. Hacquard proposes that modals situated just above VP are evaluated with respect to the event of the VP; modals situated above TP are evaluated with respect to a speech or attitude event (thus giving rise to epistemic

readings). The interaction with aspect comes about because modals situated above VP are bound by the aspectual projection that appears above the VP and the modal. She can thus explain Bhatt's Actuality Entailment and why root modals in general display the Actuality Entailment.

Looking at Urdu and Hindi, the root modals *sak* 'can' and *pa* 'find' behave as predicted by Hacquard. The epistemic modal *cahiye* 'need' and the epistemic reading of *ho* 'be' also conform to theory. The root reading of the modal construction with *ho* 'be' does not show an Actuality Entailment. This at first glance would appear to be contrary to expectation. However, recall that the clauses with *ho* 'be' as a modal do not contain any aspect (cf. (32)). If there is no aspect in the clause, then aspect cannot interact with the VP and cannot bind it. And if there is no interaction with aspect, then Actuality Entailment is not expected, so the behavior of this verb can be interpreted as expected in Hacquard's system.

However, it is not clear why the Actuality Entailment for *paṛ* 'fall' is insensitive to aspect and always exists. The modal contribution of *paṛ* 'fall' differs from the other modals in that it predicates of a participant that the event described by the VP had to be performed by the participant so that the participant had no choice in the matter. That is, it does not seem to open up the possibility of several possible worlds, but only allows for a single actual world with respect to which the modal must be interpreted. In essence, this is parallel to the conditions that the perfective creates and which Bhatt factored in as part of the Actuality Entailment.

Unlike with the perfective, which can be argued to be encoded structurally at a projection like AspP, accounting for the difference in behavior with respect to just *paṛ* 'fall' would appear to be difficult if one only had recourse to a structural syntactic explanation. Instead, it seems likely that a difference is encoded at the lexical level by which the entry for *paṛ* 'fall' contains lexical information which predicates an obligation ('bearer-of-obligation') to perform a certain action with no choice in the matter. That is, the modal force is evaluated with respect to just one specific possible world, but not with respect to multiple possible worlds.

Interestingly, Ramchand (2011) argues that rather than tying the different interpretive possibilities to a structural configuration, the different interpretive possibilities should be triggered by encodings in the lexicon. She distinguishes between *indexical* ($\approx$ epistemic) and *anaphoric* ($\approx$ root) modals, following Kratzer (2008) in claiming that propositions are not sets of possible worlds, but sets of situations. Modal operators therefore quantify directly over situations. She follows Hacquard's event evaluation/anchoring idea for modals in that modals then differ in how they resolve what the situation denoted by the proposition refers to, i.e., with respect to what it must be evaluated. Indexical modals require the proposition situation to be evaluated with respect to the current utterance situation, which means they are speaker-oriented (epistemic). Anaphoric modals can bind the proposition situation to any number of other situations (certain laws, cultural values, etc.) — this makes the interpretation circumstantial and results in a root reading.

We could thus see *paṛ* 'fall' as being lexically identified as an anaphoric modal in Ramchand's sense and as being interpreted via a two-place modal operator that

evaluates a proposition with respect to just one specific situation, rather than a set of situations. This special restriction with respect to *paṛ* 'fall' would thus not follow from a specialized structural configuration, but from a particular restriction with respect to its lexical content.

6 Conclusion

Our survey of Urdu/Hindi modals revealed interesting patterns that have not as yet been noted or accounted for in the general literature on modality. For one, Urdu/Hindi contains just two dedicated modal verbs — the bulk of modal expressions are formed constructionally out of a combination of a verb, a certain type of case on the subject and a particular morphosyntactic form of the embedded verb. We explored the structures of these different types of modal constructions and concluded that while some of the modal constructions can be analyzed as raising constructions (the expected case for modals), others must be seen as instances of functional control. A closer look at the functional control cases also showed that there is solid evidence for a two-place modal operator in Urdu/Hindi.

We then investigated whether the Actuality Entailment that has been long documented in the context of modality also holds in Urdu/Hindi. We found that it does, but with some interesting deviations from what would be expected under the generalization formulated by Hacquard (2009, 2010), who proposes a structural explanation of differences between epistemic and root readings with respect to the Actuality Entailment. We therefore propose an analysis by which differences in modal verbs are encoded at the lexical level and, in particular, follow Ramchand's (2011) analysis which distinguishes between indexical and anaphoric modals in terms of lexical encoding.

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