

Layers of Aspect

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August 2008

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December 1, 2008

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Tense and Aspect in Urdu

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3.1 Introduction

This paper studies a non-European language, namely Urdu,¹ and provides a basic sketch of the tense/aspect system. The data and analyses discussed in the paper are primarily drawn from our native speaker intuitions as well as grammars (Beames, 1872–79, Kellogg, 1893, Platts, 1909, Glassman, 1976, Schmidt, 1999) and other published work on Urdu/Hindi tense/aspect (Nespi-tal, 1980, 1981, Montaut, 1991, 2003, 2006, Bubenik, 1997). This paper differs from existing work in that it situates the analysis with respect to insights made available from the perspective of modern formal semantic theories. It also, unlike previous work, organizes the phenomena from the “bottom-up”, that is, with respect to the actual morphosyntax involved, rather than “top-down”, i.e., presupposing categories and then arranging the data into those categories regardless of the precise morphology involved.

For the semantics, we use a version of Reichenbach’s approach that is commonly assumed in formal semantic theories of tense/aspect, in particular Kamp and Reyle (1993), Ehrich (1992) (but also see Hornstein 1990, Smith 1991, Giorgi and Pianesi 1997, Deo 2006, de Swart 2007); for our syntax, we rely on the crosslinguistic experiences gathered within the framework of the Parallel Grammar (ParGram) project (Butt et al., 1999, 2002), which works with Lexical-Functional Grammar (LFG) (Dalrymple, 2001, Bresnan, 2001). The brief sketch of the Urdu tense and aspect system presented here shows that the existing formal understanding of tense/aspect needs to be extended.

¹Urdu is an Indo-Aryan South Asian language spoken in Pakistan as a national language and in India as one of the 18 official languages. Urdu and Hindi, which is primarily spoken in India, are structurally almost identical.

Section 3.2 first presents some basic tools available with respect to tense/aspect, the next sections then move on to the Urdu data. In section 3.3 we present the Urdu morphology that can be said to fulfill the function of what is usually analyzed as tense in other languages. Section 3.4 moves on to aspect, section 3.5 discusses the encoding of continuation in general, section 3.6 briefly touches on complex predicates, which are often taken to be instantiations of verbal aspect and section 3.7 presents examples of aspectual verbs. Section 3.8 then concludes the paper by summarizing the features needed for a basic sketch and making a first proposal for an extended encoding of tense/aspect within the context of ParGram's multilingual grammar development environment.

3.2 Basic Tense/Aspect Analyses

The seminal work of Reichenbach (1947) introduced the idea that tense and aspect could be analyzed via stating relationships between event time (E), speech time (S) and reference time (R). His original proposals were not able to deal with the full range of English tense/aspect phenomena and have been revised in several versions since (Kamp and Reyle, 1993, Hornstein, 1990, Giorgi and Pianesi, 1997). The consensus that has emerged is that the relation between E and S is indirect and mediated by R. Additionally, the relation between R and S tends to be contextually influenced, for example, by temporal relations. An example for this is illustrated in (1) from German, where the morphological present tense can be interpreted as present or as future, depending on the semantics of the temporal adverbial.

- (1) a. Ich fahr-e jetzt nach Paris.
 I drive-Pres.1.Sg now to Paris
 'I am driving to Paris now.'
- b. Ich fahr-e morgen nach Paris.
 I drive-Pres.1.Sg now to Paris
 'I will drive to Paris tomorrow.'

For the brief sketch of Urdu presented here, we assume the slightly extended version of the system proposed by Ehrich (1992) for German ((1)). The notation "S,R" signifies that these two stand in a relation to one another. This relation could be either temporal overlap ($S \circ R$) or temporal precedence, as determined by contextual information such as temporal adverbials (cf. (1)).²

²A fuller set of relations is defined by Hornstein (1990) and Giorgi and Pianesi (1997).

		Contextually Determined Relations		
		S,R	R < S	R > S
Intrinsic	E,R	Present	Past	Future
Relations	E < R	Perfect	Past Perfect	Future Perfect

In this system, the relationship between R and S can be said to express tense, while the relationship between R and E expresses aspect.

In addition, the existence of operators such as *Cul* (culmination of event) or *Hold* (event holds over a given time) are generally assumed (Parsons, 1990). We will not explicitly define tense/aspect operators, but will simply informally state what additional information needs to be expressed in this basic sketch of the Urdu system.

3.3 Tense and Related Uses

This section examines whether one can identify present, past and future tenses in Urdu, discusses other uses of the morphology involved and gives some brief background on the diachronic origin of the morphology.

3.3.1 Present, Subjunctive and Imperative

Identifying the present tense in Urdu poses a first problem. It is usually assumed that tense cooccurs with finiteness and that finiteness in turn correlates with person and number morphology on the verb. However, in Urdu there is only one verbal paradigm that codes person and number morphology. This paradigm, shown for the verb *mar* 'hit' in (1), is used in subjunctive contexts as in (2) and with questions in the 1st and 3rd person concerning the immediate present, as in (3). The 2nd person cannot be used as in (3), rather in conjunction with the 2nd person, this morphology expresses imperatives (see below).

(3)	Urdu 'Subjunctive' Paradigm				
	Sg	Pl	Rude (tu)	Familiar (tūm)	Respect (ap)
1st	mar-ū	mar-ē			
2nd			mar-e	mar-o	mar-ē
3rd	mar-e	mar-ē			

mar- 'hit'

(4) agar mē a-ū, to acc^ha ho-g-a
 if I.Nom come-1.Sg so good be-Fut-M.Sg
 'If I were to come, that would be good.'

(5) mē ab^hi a-ū?
 I.Nom now come-1.Sg
 'Should I come (over) now?'

Note that Urdu has three degrees of politeness for addressing others, as the paradigm in (3) indicates. With the respectful form *ap*, the verbal morphology is generally identical to that of the plural 1st and 3rd persons. Despite the inherent plural marking, all of the 2nd person pronouns are generally assumed to be singular. If a plural is meant, the following expressions are preferred: *tum log/sare* ‘you people/all’ (for both *tu* and *tum*), *ap log/sare* ‘you (polite) people/all’.

Returning to the paradigm in (3), there is exactly one verb in Urdu which uses this paradigm to express a simple present tense. This verb is *ho* ‘be’ and the paradigm is shown in (1). An example is given in (2).

(6) **Present of Urdu ‘be’**

	Sg	Pl	Rude (tu)	Familiar (tum)	Respect (ap)
1st	hū	hē			
2nd			hε	ho	hē
3rd	hε	hē			

ho- ‘be’

- (7) *nadya* *lambi* *hε*
 Nadya.F.Sg.Nom tall.F.Sg be.Pres.3.Sg
 ‘Nadya is tall.’

For this one verb, therefore, the verbal morphology indicates a straightforward present tense and can be analyzed as $E \circ R \ \& \ R \circ S$. With respect to the subjunctive and the question, other formal semantic tools must be brought to bear in terms of modality and possible worlds (Kamp and Reyle, 1993, Kratzer, 1981).

As already mentioned, and as shown in (1), the same 2nd person morphology from (3) is used for imperative forms. These again come in various degrees of respectfulness. (1) provides an example, (2) provides an additional example, but with a 1st person plural referent.

(8) **Imperative Forms**

	Rude (tu)	Familiar (tum)	Respect (ap)	Polite (ap)
2nd	dek ^h	dek ^h -o	dek ^h -ē	dek ^h -i-ye

dek^h- ‘see’

- (9) *k^hana* *k^ha-o*
 food.Nom eat-2.Fam
 ‘Eat (your) food.’

- (10) *aye* *k^hana* *k^ha-ē*
 come food.Nom eat-1/2.Resp
 ‘Come, let’s eat.’ (Schmidt 1999:98)

In addition to the paradigm in (8), there is special imperative morphology that conveys extra-politeness. However, this is confined to the handful of stems ending in vowels, and original ढ in Sanskrit, as in present-day *kar* ‘do’.

(11)	Special Imperative Forms				
	le ‘take’	de ‘give’	kar ‘do’	pi ‘drink’	si ‘sew’
ap (Respect)	li-jiye	di-jiye	ki-jiye	pi-jiye	si-jiye
		‘please do do X’			

The situation with respect to ‘present tense’ morphology in Urdu is therefore odd when compared to languages such as English, German or Romance. Questions that arise are the following.

- Is it crosslinguistically odd not to have a “real” present tense?
- There is a clear historical affinity between present, subjunctive (modality) and imperative. Can formal semantic analyses reflect this affinity and even predict the historical changes that led to the current situation in Urdu?

The first question can only be answered in light of more crosslinguistic research. With respect to the second question — that the imperative morphology be related to the present tense is not generally discussed in tense/aspect theories, but follows logically from the fact that event time and reference time usually overlap with the speech time when an imperative is issued. A connection between future and modality/subjunctives can easily be drawn as these both involve possible worlds (Kamp and Reyle, 1993), however a connection between present tense and the subjunctive does not seem to follow naturally. But as there is also a close connection between present and future interpretations in many languages (cf. the German example in (1), perhaps a connection can be drawn via the Urdu future (section 3.3.2). Before moving on to that, we here provide a brief summary of the historical development that led to the present situation.

Historical Development Urdu is a New Indo-Aryan (NIA; 1000 CE – present) language that ultimately descends from a version of the Old Indo-Aryan (OIA; 1700–200 BCE) Sanskrit. Sanskrit was a highly inflected, free word order language much like Latin. In Middle Indo-Aryan (MIA; 200 BCE – 1000 CE) a large part of the inflectional morphology was lost, leading to a serious reorganization of the tense/aspect system (Deo, 2006, Hewson and Bubenik, 1997, Montaut, 1996).

The modern subjunctive/present morphology is a remnant of the old Sanskrit/Prakrit present and imperative morphology (the two collapsed in MIA). This is in fact the only part of the original tense morphology that has survived into the modern ages. The extra-polite imperative is generally taken to derived from an OIA optative in *-yā*, which became *-eyya* in early MIA and then is supposed to have “hardened” in later MIA to *-ejja-*, *-ijja-* (Kellogg,

1893, Beames, 1872–79, Chatterji, 1926).³

3.3.2 Future and Related Uses

Unlike the present, the future applies regularly across the entire verbal inventory. However, it would seem to be crosslinguistically unusual in that it marks number twice — once as part of the number/gender morphology and once as part of the person/number morphology, the latter of which is also exactly identical to the subjunctive paradigm in (3).

(12)	Urdu Future Paradigm				
	Sg M/F	Pl M/F	Rude M/F	Familiar M/F	Respect M/F
1st	mar-ū-g-a/i	mar-ē-g-e/i			
2nd			mar-e-g-a/i	mar-o-g-e/i	mar-ē-g-e/i
3rd	mar-e-g-a/i	mar-ē-g-e/i			
mar-	'hit'				

These unusual features of the Urdu future follow directly once its historical development is considered. The future marker *-g-* is derived from a Sanskrit participle of the verb *gā* 'go' (Kellogg, 1893, Beg, 1988, McGregor, 1968). This historical development is not unusual, since many languages innovate new futures by reanalyzing 'go' as a tense auxiliary and then incorporating it into the morphology (Bybee et al., 1994) (cf. the English 'going to' future). If the *-g-* indeed comes from an old participle, then the appearance of gender and number agreement morphology (*a/i/e*) on the future is regular synchronically in that it is also found on the perfect (section 3.4.1), imperfect (section 3.4.2) and and progressive (section 3.5.1) forms, all originally descended from participles.

The semantic interpretation of the absolute future in (12) is straightforward in terms of Reichenbachian relations: $E \circ R \ \& \ R > S$. Furthermore, the future perfect is formed, as might be expected, in conjunction with perfect morphology (section 3.4.1) and the future form of 'be' ((1a)).

- (13) a. nadya a-yi ho-g-i
 Nadya.F.Sg.Nom come-Perf.F.Sg be.3.Sg-Fut-F.Sg
 'Nadya will have arrived/Nadya will probably have arrived.'
- b. nadya a-ti ho-g-i
 Nadya.F.Sg.Nom come-Impf.F.Sg be.3.Sg-Fut-F.Sg
 'Nadya should be arriving.'

³An alternative analysis proposed by Aditi Lahiri (p.c.) is that the source of the modern *-j-* is an allomorphic variant of the original Sanskrit verb *gā* 'go' (cf. modern Urdu *ja-/ga-* 'go'). The person endings of the indicative are simply remnants of the original inflections that this verb carried. The *-j-* caused vowel raising on the stem vowel.

- b. nadya a rah-i ho-g-i
 Nadya.F.Sg.Nom come stay-Perf.F.Sg be.3.Sg-Fut-F.Sg
 ‘Nadya should be in the process of arriving./Nadya must surely be
 in the process of arriving.’

This periphrastic construction also gives rise to another interpretation, namely that of a probability/dubitative/presumptive reading. As illustrated in (0b–c), this reading also obtains with other periphrastic combinations, i.e., an imperfect in (0b) and a progressive in (0c). Crucial is the presence of the future form of ‘be’. This use of the future morphology in periphrastic constructions follows straightforwardly from a combination of the future in general (possible, but not necessarily realized worlds) with different types of aspect.

In addition to the inflectional *-g-* morpheme, there are at least two other strategies to express the futurate in Urdu. One of these is simply via the perfect morphology (section 3.4.1), as shown in (1). This use can be classified as an *immediate future* and the perfect morphology in combination with temporal adverbials like ‘now’, ‘in a second’ can be understood in a straightforward compositional manner: the perfect signals that the event has already taken place ($E < R$), the temporal adverbial situates the reference time as overlapping or just beyond the speech time ($R \geq S$), yielding a combination of $E < R$ & $R \geq S$.⁴

- (14) mē ab^{hi} a-yi
 I.Nom now came-Perf.F.Sg
 ‘I’ll be right there (come right away).’

Another way to express imminently impending actions is by combining an infinitival phrase (the morphology is identical to that of verbal nouns) with the verb ‘be’. This can be done in further combination with the clitic *-vala* ‘one’ (as in ‘the egg-eating-one’), or the dative/accusative case clitic *ko* (see Butt and King 2005 for a summary of the Urdu case system). Examples are shown in (1)–(2).

- (15) kiḷti ḍub-ne=**vali** he
 boat.F.Sg.Nom drown-Inf.Obl=one.F.Sg be.Pres.3.Sg
 ‘The boat is about to sink.’ (Lit. ‘The boat is a sinking one.’)
 (Schmidt 1999:139)

- (16) a. is laṛki=ki ḷadi ho-ne=**vali** he
 this girl.F.Sg=Gen.F.Sg marriage.Nom be-Inf.Obl=one.F.Sg be.Pres.3.Sg
 ‘This girl’s wedding is taking place soon.’
 (Lit. ‘This girl’s wedding is a being one.’) (Schmidt 1999:140)

⁴Cf. Hornstein (1990), Giorgi and Pianesi (1997) for an analysis of the “proximate future”.

- b. 1s laṛki=ki ʃadi ho-ne=**ko** he
 this girl.F.Sg=Gen.F.Sg marriage.Nom be-Inf.Obl=Acc be.Pres.3.Sg
 'This girl's wedding is taking place soon.' (Schmidt 1999:140)
- c. 1s laRki=ki shadi ho-ni he
 this girl.F.Sg=Gen.F.Sg marriage.Nom be-Inf.Obl be.Pres.3.Sg
 'This girl's wedding will take place.'
 (Lit. 'This girl's wedding is to be.')

As far as we are aware, there is no good analysis of verbal nouns/infinitives being used to express tense. As can be seen from the literal glosses, the expressions are basically predicative ones which are being reinterpreted as yielding in *imminent future* reading, which can be stated as in (1).

- (17) **Imminent Future:** E○R & R > S & the event will take place with great certainty, i.e., minus the modal readings the future usually carries.

The role of the case marker in (0b), however, poses a puzzle. As shown below (section 3.3.3), it can also be used in other contexts with verbal nouns/infinitives to express tense. Despite existing work on the future system of Urdu/Hindi (Nespital, 1981), we are not aware of a serious analysis of these constructions. A possible direction of analysis is opened by Deo (2006), who proposes that the MIA verbal system ended up making no tense distinctions whatsoever anymore and that all the NIA languages had to innovate tense forms. Interestingly, OIA also already contained nominal constructions for the expression of futures — whether the modern forms are a reintroduction of the older construction remains to be investigated.

In summary, given that the subjunctive morphology in (3) was the only piece of finite morphology to survive into NIA and that this piece of morphology is now involved in marking present tense, subjunctives, imperatives and futures, all of these uses should be able to form a semantically coherent class. The connection between subjunctives and future is clear as the two share an inherent modality across languages. The connection between subjunctives and imperatives is also clear, as a polite imperative can be expressed as a subjunctive. With respect to the connection between present tense and the others, we suggest that the original subjunctive/imperative forms were able to be pressed into service to denote present tense because of the imperative, which can be much like a present tense in terms of E, R and S because they can all overlap.

3.3.3 Past

Like with the present, there is no morphology that can be identified as exclusively past tense and there is exactly one verb *t^h*- (originally from 'stand') that functions as the past copula/auxiliary. This verb stands in a suppletive paradigm with *ho* 'be', for which there is no simple past form. It is marked

for gender and number because it is derived from an old participial form.

(18)	Past of Urdu <i>be</i>				
	Sg M/F	Pl M/F	Rude (tu) M/F	Familiar (tūm) M/F	Respect (ap) M/F
1st	t ^h -a/ī	t ^h -e/ī			
2nd			t ^h -a/ī	t ^h -e/ī	t ^h -e/ī
3rd	t ^h -a/ī	t ^h -e/ī			
t ^h - 'be'					

Just as with the present tense, the past tense of 'be' also allows a combination with verbal nouns to express an action in the near vicinity of the speech time. However, given that this is a past form, the action is situated in the immediate past, rather than the immediate future. Examples are in (1)

- (19) a. jāb ḍaḳṭar sahib **bol-ne=ko** t^h-e
 when doctor sahib.M.Nom speak-Inf.Obl=Acc be.Past-M.Pl
 to sab log cūp ho gε-ye
 though all people.Nom quiet become go-Perf.M.Pl
 'When the doctor was about to speak, everybody fell quiet.'
 (Glassman 1986:233)
- b. mem-sahiba cai **bana-ne=ko** t^h-ī
 Madam.F.Nom tea.F.Nom make-Inf.Obl=Acc be.Past-F.Pl
 'Madam was just about to make tea.' (Glassman 1986:233)

To express actions in simple past tense with other verbs ((2)), the perfect morphology is used. This is formed with the verb stem and the general gender/number morphemes *a/i/e*. There used to be a *-i-* or *-y-*, descended from an OIA past participial form in *-tā* (e.g., *the eaten apple*), which explicitly marked this tense/aspect, but this morpheme has disappeared over the last few hundred years, leaving just the gender/number morphology. This morphology is variously termed perfective or perfect (with a preference for "perfective"). We will not discuss perfective vs. imperfective aspect in this paper. Contrary to what is generally assumed in the Slavic-based literature (Pořizka, 1967–1969), Urdu does not encode this distinction morphologically, in stark contrast to what has been observed for Slavic languages (see Butt and Geuder 2001 for some discussion of perfective in Urdu).

(20)	Urdu Perfect/Past Paradigm				
	Sg M/F	Pl M/F	Rude M/F	Familiar M/F	Respect
1st	mar-a/ī	mar-e/ī			
2nd			mar-a/ī	mar-e/ī	mar-e/ī
3rd	mar-a/ī	mar-e/ī			
mar- 'hit'					

- (21) α njum aj s**u**b**a**h sk**u**l c**a**l-i
 Anjum.F.Sg.Nom today morning school.F.Sg.Loc walk-Perf.F.Sg
 ‘Anjum walked/went to school this morning.’

Montaut (2006) further points out that the perfect morphology in isolation is also used to express a mirative meaning. That is, it tends to be used in contexts when the speaker expresses surprise about something, as in (1).

- (22) are dek^h-o harg**o**j n**i**kl-a!
 hey look-Imp.Fam rabbit.M.Nom emerge-Perf.M.Sg
 ‘Hey look, a rabbit is coming out!’

Montaut (2006) shows that perfect morphology and mirativity go together in Nepali as well and speculates that the reason for this association could be the fundamentally non-tensed nature of the perfect morphology. We find Montaut’s suggestions interesting, but as they are preliminary, there is clearly a need for more detailed research into this issue.

3.4 Aspect

As perfect morphology has already been introduced as part of the last section, it is perspicuous to continue the paper with an examination of the encoding of aspect in Urdu. As in the section on tense, this section examines whether one can identify perfect and imperfect aspect in Urdu, discusses other uses of the morphology involved and gives some brief background on the diachronic origin of the morphology.

3.4.1 Perfect

The perfect morphology *a/i/e* was already introduced in section 3.3.3. As shown in (1) and (2), this morphology in combination with the ‘be’ auxiliary yields standard present and past perfect readings.

- (23) α njum=ne adnan=ko dek^h-a h**e**
 Anjum.F.Sg=Erg Adnan.M.Sg=Acc see-Perf.M.Sg be.Pres.3.Sg
 ‘Anjum has seen Adnan.’ (E<R & R \circ S)
- (24) α njum=ne adnan=ko dek^h-a t^h-a
 Anjum.F.Sg=Erg Adnan.M.Sg=Acc see-Perf.M.Sg be.Past-M.Sg
 ‘Anjum had seen Adnan.’ (E<R & R < S)

In addition to being used for the past tense and mirative expressions (section 3.3.3), this morphology also plays a role in forming the progressive (section 3.5.1) and, interestingly, in conjunction with an imperative is used to command/forbid the general/habitual practice of an action ((1)).

- (25) a. mat bol-a kar-o
 not speak-Perf.M.Sg do-2.Fam
 ‘You shouldn’t keep speaking (saying things when you shouldn’t)!’

- b. ml-n-e a-ya kār-o
 meet-Inf-Obl come-Perf.M.Sg do-2.Fam
 ‘You should keep coming to visit.’

Alice Davison (p.c.) analyzes the verbs (‘speak’, ‘come’) in (0) as nouns. Under this interpretation, the doing of a certain thing, namely “speaking” or “coming” is commanded/forbidden and it is the nominalization which gives the sense of continuation/habituality.

3.4.2 Imperfect

The modern Urdu verbal morphology *-t-* is generally termed the imperfective or imperfect (with a preference for “imperfective”). It is ultimately derived from the Sanskrit present participle *-ant*. In combination with the gender and number morphemes (which are associated with it, just as with all of the old participles), it is used in continued narratives (Schmidt 1999:118) and is often referred to as the “literary imperfect” (Montaut, p.c., October 2003).

(26)	Urdu Imperfect Paradigm				
	Sg M/F	Pl M/F	Rude M/F	Familiar M/F	Respect M/F
1st	mar-t-a/i	mar-t-e/i			
2nd			mar-t-a/i	mar-t-e/i	mar-t-e/i
3rd	mar-t-a/i	mar-t-e/i			
mar-	‘hit’				

In combination with the ‘be’ auxiliaries this morphology yields a habitual present/past reading. The connection between habituals and imperfect or present morphology is crosslinguistically quite usual. In a sense, Urdu works like English because in order to express non-habitual actions in the present, the present progressive (section 3.5.1) must be used.

- (27) ʌnjum adnan=ko mar-t-i hε
 Anjum.F.Sg.Nom Adnan.M.Sg=Acc hit-Perf.f.Sg be.Pres.3.Sg
 ‘Anjum hits Adnan.’

- (28) ʌnjum adnan=ko mar-t-i t^h-i
 Anjum.F.Sg.Nom Adnan.M.Sg=Acc hit-Perf.F.Sg be.Past-F.Sg
 ‘Anjum used to hit Adnan.’

A further use of the imperfect morphology in isolation is to express unfulfilled wishes, as shown in (1). We have no straightforward explanation for this reading — further research is needed.

- (29) (ʌgʌr) mε tala lag-a-t-i ...
 if I.Nom lock be.attach-Caus-Impf-F.Sg
 ‘Had I put on a lock, ...’ (Schmidt 1999:118)

A detailed study of the development of the imperfect and progressive forms in NIA does, however, exist (Deo, 2006). Deo analyzes the reorganization of the OIA tense/aspect system into the modern one in terms of semantic subsumption and blocking. Unfortunately, providing a detailed summary of her ideas would take us beyond the scope of this paper, we therefore simply point the reader to her work and move on to discussing the various shades of continuation semantics in Urdu in the next section, as these are not discussed as such in Deo's work.

3.5 Continuation

While Urdu has no prototypical present or past, it makes intense use of various ways of expressing a continuing action (beyond the habitual and narrative detailed above). Sections 3.5.1 to 3.5.3 illustrate increasingly complex continuative, iterative and habitual expressions.

3.5.1 Progressive

A general progressive meaning is achieved by combining the verb stem with a progressive auxiliary *rah* 'stay' and further combining this with a present or past auxiliary ('be'). The progressive auxiliary *rah* is morphologically perfect, a fact which remains to be accounted for.

- (30) a. anjum adnan=ko mar rah-i he
 Anjum.F.Sg.Nom Adnan.M.Sg=Acc hit stay-Perf.F.Sg be.Pres.3.Sg
 'Anjum is hitting Adnan.'
 (E ○ R & R ○ S & the event is a continuing one)
- b. anjum adnan=ko mar rah-i t^h-i
 Anjum.F.Sg.Nom Adnan.M.Sg=Acc hit stay-Perf.F.Sg be.Past-F.Sg
 'Anjum was hitting Adnan.'
 (E ○ R & R < S & the event is a continuing one)

The progressive auxiliary is a relatively recent innovation of the language and can be combined productively and in a clearly semantically compositional manner with other aspect forms. The next sections illustrate a portion of the data. Note that while the *rah* 'stay' cannot occur with tense/aspect morphology other than the perfect in simple progressive contexts, it can do so in the more complex constructions presented below.

3.5.2 Iteration and Longer Continuation with the Progressive

The progressive with a main verb in the imperfect expresses iteration of the event. In this case, when the progressive appears with perfect morphology, as in (1a), the result is a past tense interpretation. When the progressive appears with imperfect morphology, as in (0b), the result is a present tense interpretation along with a sense that the event continued over a long time.

- (31) a. *kotta* *b^hōk-t-a* *rah-a*
 dog.M.Sg.Nom bark-Impf-M.Sg stay-Perf.M.Sg
 ‘The dog kept on barking.’
 (E ○ R & R < S & the event iterates over a give time span)
- b. *kotta* *b^hōk-t-a* *rah-t-a*
 dog.M.Sg.Nom bark-Impf-M.Sg stay-Impf-M.Sg
 ‘The dog keeps on barking.’
 (E ○ R & R ○ S & the event iterates and continues over a long
 time span, along with some condition, e.g., whenever that dog sees
 a man)

In both cases the iteration would seem to be contributed by the imperfect morphology on the main verb, the progressive/continuative sense by the progressive auxiliary and the past vs. present interpretation by the form of the progressive auxiliary. Note that this means that the contribution of the progressive auxiliary and the other aspect forms are systematic but also context-dependent — the meaning depends on exactly how the various auxiliaries and verbal morphology are combined in a given periphrastic construction.

3.5.3 Iteration and Longer Continuation with ‘go’ and ‘walk’

Besides its functions as a main verb, *ja* ‘go’ functions as a passive auxiliary and as a light verb (section 3.6). It does not usually function as a tense/aspect auxiliary, except for in the construction in (1). The difference between (1) and (0) is that the dog is considered to be willfull and that the time span over which the event happens is longer.

- (32) *kotta* *b^hōk-t-a* *ja-t-a* (hε)
 dog.M.Sg.Nom bark-Impf-M.Sg go-Impf-M.Sg be.Pres.3.Sg
 ‘The dog keeps on barking (willfully, over a very long time, in many
 iterations).’

As if this were not enough, yet another motion verb, namely *cal* ‘walk’ can be added.⁵ As shown in (1), this verb bears perfect morphology and has the effect that the duration of the barking event is considered to be longer than in (0).

- (33) *kotta* *b^hōk-t-a* *cal-a* *ja-t-a*
 dog.M.Sg.Nom bark-Impf-M.Sg walk-Perf.M.Sg go-Impf-M.Sg
 (hε)
 be.Pres.3.Sg
 ‘The dog keeps on barking (willfully, over a long time).’

⁵These data arose in discussions with the machine translation group at CRULP (Center for Research on Urdu Language Processing) in Lahore. They are not discussed in the otherwise very comprehensive work of Nespital (1981).

To this already complex construction, the progressive auxiliary can be added. The difference this makes is that the barking is now considered to be happening continuously, i.e., is still going on.

- (34) kotta b^hök-t-a cal-a ja rah-a
 dog.M.Sg.Nom bark-Impf-M.Sg walk-Perf.M.Sg go stay-Perf.M.Sg
 (hε)
 be.Pres.3.Sg
 ‘The dog keeps on barking (willfully, over a long time, continuously).’

The differences in the shades of meaning between the above examples are difficult to capture. However, another set of examples may help understand the contrasts more precisely. The examples in (1) show how the contrasts play out with respect to a different situation, namely that of swimming. (1a) just contains a simple imperfect form in conjunction with the present tense auxiliary. This yields a simple present tense habitual.

- (35) a. vo ter-t-a hε
 Pron.3.Sg.Nom swim-Impf-M.Sg be.Pres.3.Sg
 ‘He swims (e.g., daily).’
- b. vo ter-t-a ja-t-a hε
 Pron.3.Sg.Nom swim-Impf-M.Sg go-Impf-M.Sg be.Pres.3.Sg
 ‘He keeps on swimming.’
 (e.g., 20 minutes duration, 3–4 times daily)
- c. vo ter-t-a cal-a ja-t-a
 Pron.3.Sg.Nom swim-Impf-M.Sg walk-Perf.M.Sg go-Impf-M.Sg
 hε
 be.Pres.3.Sg
 ‘He keeps on swimming.’
 (e.g., 1–2 hours duration, 3–4 times daily)
- d. vo ter-t-a cal-a ja
 Pron.3.Sg.Nom swim-Impf-M.Sg walk-Perf.M.Sg go
 rah-a hε
 stay-Perf.M.Sg be.Pres.3.Sg
 ‘He keeps on swimming.’
 (e.g., 1–2 hours duration, 3–4 times daily and is still continuing)

In (0b) the ‘go’ with imperfect morphology has been added. This has the effect of specifying the habitual swimming, namely that it happens often, perhaps several times daily. The further addition of ‘walk’ with perfect morphology in (0c) has the effect of increasing the purported duration of each of the swimmings. So, for example, if we assume about 20 minutes for (0b), then the duration of the swimmings would have to be greater in (0c), for example, 1–2 hours. Finally, in (0d) the further addition of the progressive auxiliary has

the effect that the long duration of the swimings with their many iterations are still continuing right now.

Beyond the examples presented in this section, a long list of further combinations with various forms of the future and participial forms of 'be' and some of the other auxiliaries are also possible. The Urdu tense/aspect system is therefore quite complex and badly in need of a detailed formal semantic analysis that goes beyond the first brief sketch provided in this paper.

3.6 Light Verbs

As mentioned previously, *light* or *vector* verbs as they are also known (Hook, 1974), are often taken to be part of the aspectual system of Urdu (Hook, 1991, Nespital, 1996). Quite a huge literature exists on Urdu/Hindi light verbs. Again, we cannot do justice to it here, but confine ourselves to presenting some of the basic data in (1) and pointing the reader to some of the research.

As is evident from the patterns in (1), the light verb is the verb final one and is marked for tense/aspect. The main verb is bare, but is responsible for the main predication. The constructions, analyzed as complex predicates in Butt (1995, 2003), can occur in any tense or aspect.

- (36) a. nadya=ne xat **lik^h li-ya**
 Nadya.F=Erg letter.M.Nom write take-Perf.M.Sg
 'Nadya wrote a letter (completely).'
- 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).'
- c. nadya makan **bana par-i**
 Nadya.F.Nom house.M.Nom make fall-Perf.F.Sg
 'Nadya fell to building a house.'
- d. nadya **gir par-i**
 Nadya.F.Nom fall fall-Perf.F.Sg
 'Nadya fell (down, suddenly).'
- e. nadya **gir ge-yi**
 Nadya.F.Nom fall go-Perf.F.Sg
 'Nadya fell (down).'
- f. nadya **bol ut^h-i**
 Nadya.F.Nom speak rise-Perf.F.Sg
 'Nadya spoke up/broke into speech (suddenly, forcefully).'

As the examples in (0) show, the semantic contribution of the light verb includes a range of meanings that go beyond the purely aspectual: e.g., benefaction, force, suddenness (see Hook 1974 for a detailed study). Aspectual meanings such as completion and inception are also among the contribution

of the light verbs; however, Butt and Geuder (2001) show that these must be analyzed as serving to modify the internal event semantics of the main verb, rather than situating the event as a whole with respect to a temporal and aspectual situation. That is, an analysis in terms of the Reichenbachian E, R and S would prove to be inadequate. Rather, the light verbs contribute more information about the E that is involved. Working within Minimalism, for example, Butt and Ramchand (2005) analyze the light verbs as being part of the First Phase, in which the basic event is built up and where the light verbs force the overall event to be interpreted as *telic* (this accounts for both completion and inception in Butt and Ramchand (2005)).

3.7 Aspectual Verbs

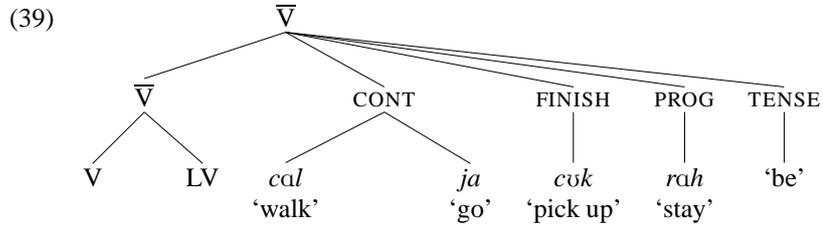
In addition to the light verbs, Urdu also contains some *aspectual verbs*: *çuk* ‘pick up’, *lag* ‘be attached’. Examples are given in (1) and (2), respectively. *çuk* combines with the bare form of the main verb, whereas *lag* embeds an infinitival form. Both aspectual verbs can appear in any of the tense/aspects discussed above. The semantic effect of *çuk* ‘pick up’ is to signal the finishing of an event, *lag* ‘be attached’ signifies the beginning/undertaking of an event.

- (37) a. nadya makan bana çuk-i
 Nadya.F.Sg.Nom house.M.Nom make pick.up-Perf.F.Sg
 he
 be.Pres.3.Sg
 ‘Nadya has built a house (finished it completely, already).’
- a. nadya ga çuk-i he
 Nadya.F.Sg.Nom sing pick.up-Perf.F.Sg be.Pres.3.Sg
 ‘Nadya has sung (completely, already).’
- (38) nadya makan bana-n-e lag-i
 Nadya.F.Sg.Nom house.M.Nom make-Inf-Obl begin-Perf.F.Sg
 ‘Nadya began building a house.’

It is tempting to analyze the Urdu aspectual verbs on a par with light verbs (section 3.6), particularly *çuk*, since the morphosyntax looks so similar. However, they must both be carefully distinguished from light verbs. Whereas light verbs typically impose selectional restrictions on the main verb they combine with, the aspectual verbs are compatible with every main verb there is. Furthermore, aspectual verbs do not contribute additional shades of meaning such as benefaction, as the light verbs do. Finally, the syntax of *lag* ‘be attached’ is exactly that of control verbs like ‘want’ in Urdu, but very much unlike the light verbs in section 3.6.

The syntax of *çuk* ‘pick up’ is more difficult to analyze; however, a consideration of the larger interacting patterns of verbal morphology, light verbs,

aspectual verbs and auxiliaries (not all of which have been shown in this paper) suggest that the following verbal complex could be assumed for Urdu (where LV stands for light verb).



This syntactic analysis of the verbal complex in Urdu must be understood as being developed within LFG, which posits two main syntactic representations: the c(onstituent)-structure and the f(unctional)-structure. The c-structure represents and respects constituency structure and linear order. Functional information is encoded at the f-structure. Given this division of labor, LFG does not need to postulate a series of functional projections to represent the contribution of temporal and aspectual information. This is very much unlike other approaches taken in the literature, which tend to be based on Minimalist ideas (e.g., Giorgi and Pianesi 1997).

3.8 Summary and Outlook

In terms of the semantics of the tense/aspect system of Urdu, this paper has hoped to demonstrate the following. For one, much more work needs to be done on Urdu (and similar languages) in order to arrive at a good crosslinguistic understanding of what types of tense/aspect systems exist and how these are encoded in the morphosyntax of the language. For another, information about at least the Reichenbachian relations must be encoded, as well as information about the duration, continuity, iteration and telicity of the event. These are all clearly pieces of the semantic analysis, however, since the semantic information can be gleaned systematically and compositionally from the morphosyntax of the language, a basic representation within the syntactic analysis would also seem to be called for — the full semantic interpretation can be assumed to be keyed off this basic information.⁶

A concrete proposal for a representation of the relevant feature space at f-structure is shown in (1). This proposal follows the general guidelines established for multilingual grammar development in the ParGram project (Butt et al., 1999, King et al., 2005), but expands the available information contained under the TENSE and ASPECT features considerably.

⁶Indeed, Glasbey (2001) independently concludes that temporal (and discourse) information is well placed at the level of f-structure within LFG.

(40)

TNS-ASP	TENSE	R-S DISTANCE	precede/follow/overlap standard/far/close
	ASPECT	E-R DISTANCE TELIC DUR CONT ITER	precede/follow/overlap standard/far/close +/- +/- +/- +/-

Within the ParGram project (and also traditionally within theoretical LFG analyses), basic tense/aspect information is encoded in terms of simple features like [TENSE present] or [PROG +]. In contrast, the proposal in (40) involves a replacement of these very basic features with more sophisticated and detailed information that takes the Reichenbachian E, R and S relations into account. The relation between R and S is taken to code tense, the relation between E and R encodes aspect. So, a present perfect, for example, will contain the information that R and S overlap within the TENSE feature and that E precedes R under the ASPECT feature. Additionally, one can specify whether the event is in the distant or immediate future/past via the DISTANCE feature. This is needed to account for immediate future and past readings. Finally, further information about the nature of the event, whether it is telic, is of long duration, is iterated or continues can be encoded via a series of features.

Note that this feature representation will also ultimately have to contain some information about Aktionsart and modality, but as the paper did not discuss examples illustrating these additional phenomena, we leave these aside for now and hope that the paper as is has managed to provide a useful overview of some of the basic Urdu phenomena.

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