Complex Aspectual Structure in Hindi/Urdu

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1 Introduction

South Asian languages are well known for possessing a large number of complex verbal constructions containing either a verb, a noun or an adjective as main predicator and a "light verb" as the part of the construction which carries the tense and agreement morphology.[1] Light verbs in these languages have long intrigued grammar writers (e.g., Kellog 1893, Chatterji 1926, McGregor 1968) and linguists, as the contribution of the light verb to the complex construction does not appear to be a purely functional one. This is especially evident with V-V sequences (main verb followed by a light verb) where the contribution of the light verb has often been characterized via aspectual terms such as perfectivity (Hook 1991, Singh 1994) or inception/completion (Butt 1995), but also via semantically less well defined terms like forcefulness, suddenness, volitionality, benefaction, etc. The range of meanings is broad and appears to be related to the basic lexical semantics of the base verb that is involved (i.e., 'take' vs. 'give' for benefaction, 'fall' for suddenness, 'hit' for forcefulness).[2]

While the morphological and syntactic properties of these verbal complex constructions have been described in some detail for the South Asian language Hindi/Urdu (e.g., Mohanan 1994, Butt 1995), the precise semantic characterization of the role of light verbs remains the subject of investigation and debate. This paper proposes to take a fresh look at the issue from a perspective which presupposes a tight mapping between syntactic structure and semantic combinatorial possibilities. We aim to show that the morphosyntax of predicational structures is closely correlated with aspectual and event-structure notions in semantic representation. Our primary language of investigation is Hindi/Urdu,[3] for which we examine three distinct syntactic types of V-V collocations. We argue that these morphosyntactically distinct types correlate exactly with three distinct semantic modes of combination, thus lending support to our view of the syntax-semantics interface.

In the following sections we first outline some basic facts about the morphological and syntactic structure of Hindi/Urdu and introduce the three different types of V-V constructions that we will be dealing with. We then go on to make the point that light verbs must be clearly distinguished from auxiliaries (as argued for in Butt and Geuder 2000), and proceed from there to a detailed discussion of the morphosyntactic and semantic differences between the types of V-V constructions examined in this paper. In section 6.1, we introduce a theory of semantic representation involving event variables and motivate a framework for expressing aspectual relationships within such a theory.

[1] A version of this paper was presented at the LAGB in Durham, September 2000. We would like to thank the members of the audience for detailed feedback and questions. Individuals who discussed the issues at hand with us in even more detail were Raffaella Folli, Willi Geuder, Shin-Sook Kim and Chris Piñón. We would like to thank them for their feedback and criticisms, which we have tried to take to heart. Miriam Butt's contribution to this paper was made possible by the financial support obtained from the DFG (Deutsche Forschungsgesellschaft) via the SFB 471 at the University of Konstanz.

[2] See Hook 1974 for a detailed description, Butt and Geuder 2000 for a detailed examination of the range of uses of the light verb 'give'.

[3] The South Asian languages Urdu and Hindi are closely related. Both are among the 16 official languages of India and are spoken primarily in the north of India. Urdu is the official language of Pakistan. The data presented in this paper are drawn primarily from the dialect of Urdu spoken in Lahore, Pakistan, as well as from examples cited in the literature on both Urdu and Hindi.

With this framework in hand, we make a specific proposal about the mapping between the syntax and semantics of these constructions, showing how the analysis accounts for the properties of the constructions as described in the previous sections. In doing this, we offer a view of the mapping between syntactic predication and event structure that we hypothesise to be part of Universal Grammar. We argue that Urdu/Hindi makes for a particularly good case study of event building as the language provides very explicit morphosyntactic clues which can help guide the understanding of aspectual structures crosslinguistically. In the conclusion, we examine the implications of our proposal for other languages and the syntax-semantics interface in general.

2 The Basic Data

Hindi/Urdu is an SOV (head-final) language with a mixed system of periphrastic constructions and tense/aspect inflections. The verb either inflects by itself or co-occurs with inflecting auxiliaries which carry tense and aspect information. This is summarised in the table below for the verb *maar-* 'hit'.

(1)

	Pres	**Past**	**Fut**	**Impf** Pres/Past	**Perf** Pres/Past	**Prog** Pres/Past
Urdu		maaraa	maareegaa	maartaa + Aux (be)	maaraa + Aux (be)	maar rahaa + Aux (be)

maar- 'hit' — 3.Sg.M

Independent of this basic tense/aspect paradigm, there are three distinct classes of verbal construction that will concern us in this paper. These constructions all superficially consist of the structure V1 followed by V2, where only V2 inflects.

- **Type 1**: $V1_{stem}$ V2 structures formed from what looks like the stem form of the main verb and an inflecting light verb.
- **Type 2**: $V1_{inf.obl}$ V2 constructions where the main verb is in the oblique form of the infinitive.[4]
- **Type 3**: $V1_{inf}$ + casemarker V2 constructions where the infinitive or gerund also bears a case marker identical to those found on nominal arguments.[5]

In Type 1, the two verbs clearly predicate jointly and there is a great temptation to analyze these constructions as lexicalized constructions. However, their formation is entirely productive and the two verbs are independent prosodic words. Another idea has been to view the V2 in these constructions as a subtype of auxiliary (e.g., Hook 1991). We show in the next section that auxiliaries must be distinguished very clearly from this type of construction.

In contrast, the V2 in Types 2 and 3 is predicationally clearly more independent than in Type 1. We attach some significance to the fact that the infinitive/gerund never appears with a case marker in Type 2 and argue that Type 2 is an instantiation of complex predication, while Type 3 is not. All three types of V-V collocations will be shown to involve aspectual properties, such as completiveness, causation or inception. We will argue that the aspectual part of the meaning is a direct result of the combinatoric nature of the syntax-semantics interface.

[4]The infinitive also functions as a verbal noun (Butt 1993).

[5]Case markers in Urdu are clitics. The clitic *koo* fulfills both dative and accusative functions. The phonologically null case is consistently glossed as nominative. For a detailed discussion of the case system of Urdu see Butt and King (1999).

2.1 Type 3: V1_Infinitive+Case V2

A number of examples of Type 3 constructions are given below. Many Type 3 constructions are similar to obligatory object-control structures in other languages, with verbs such as 'tell' or 'force' being used (see examples (2) and (3) respectively).[6]

(2) anjum=nee saddaf=koo [xat **likʰ-nee]=koo kah-aa**
Anjum.F=Erg Saddaf.F=Dat letter.M=Nom write-Inf.Obl=Acc say-Perf.M.Sg
'Anjum told Saddaf to write the letter.'

(3) a. raadʰaa=nee mohan=koo [kitaab paṛʰ-nee]=**koo** majbuur
Radha.F=Erg Mohan.M=Dat book.F=Nom read-Inf.Obl=Acc force
ki-yaa
do-Perf.M.Sg
'Radha forced Mohan to read a book.'

b. raadʰaa=nee mohan=koo [kitaab paṛʰ-nee]=**par** majbuur
Radha.F=Erg Mohan.M=Dat book.F=Nom read-Inf.Obl=on(Loc) force
ki-yaa
do-Perf.M.Sg
'Radha forced Mohan to read a book.'

c. raadʰaa=nee mohan=koo [kitaab paṛʰ-nee]=**kee liiyee** majbuur
Radha.F=Erg Mohan.M=Dat book.F=Nom read-Inf.Obl=for force
ki-yaa
do-Perf.M.Sg
'Radha forced Mohan to read a book.'

The case marker used on the V1 infinitive in the case of 'tell' is the accusative one; the case-marker when the V2 is 'force' seems to be subject to variation with little apparent difference in meaning.

2.2 Type 2: V1_Infinitive.Oblique V2

In Type 2 constructions, inflected infinitives in combination with another verb, but no case marker, give rise to inceptive ((4a)), and permissive ((4b)) readings.

(4) a. vo **ro-nee lag-ii**
Pron.Nom cry-Inf.Obl be.attached-Perf.F.Sg
'She began to cry.

b. kis=nee kuttee=koo gʰar kee andar **aa-nee dii-aa**
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)

[6] Note that the expression for 'force' is actually a N-V complex predicate, but this fact does not make a difference for the purposes of this discussion.

2.3 Type 1: V1_Stem V2

Type 1 constructions are possibly the most difficult to characterise semantically. Traditionally, the addition of the light verb has been said to contribute a range of meanings such as completion, inception, benefaction, force, suddenness, etc. (see Hook 1974 for a detailed study).

(5) a. naadyaa=nee xat **lik^{h} lii-yaa**
Nadya.F=Erg letter.M.Nom write take-Perf.M.Sg
'Nadya wrote a letter (completely).'

b. naadyaa=nee makaan **banaa dii-yaa**
Nadya.F=Erg house.M.Nom make give-Perf.M.Sg
'Nadya built a house (completely, for somebody else).'

The common denominator of all these different types of meanings is the bounded or telic event that the construction seems to describe. Indeed, it is sometimes claimed that this class of light verbs is really just a class of aspectual auxiliaries giving rise to perfectives in the language (e.g., Hook 1991). However, as we show in the next section, the light verbs in question do not pattern with auxiliaries either syntactically or morphologically. While it is true that the light verb seems to create accomplishment predicates, this is crucially different from the role of an actual perfective tense form or auxiliary (see Butt and Geuder 2000 for detailed argumentation). In particular, the resulting accomplishments are not necessarily perfective, but occur in all the tense/aspect forms of the language (see (6b) for an example of the accomplishment predicate derived by a Type 1 construction occuring in the past continuous tense).

(6) a. mariam iimeel lik^{h} rah-ii t^{h}-ii
Miriam.F.Nom e-mail.F.Nom write PROG-F.Sg be.Past-F.Sg

jab vilii kamree=mẽẽ a-yaa
when Willi.M.Nom room.M.Obl=in come-Perf.M.Sg
'Miriam was writing an e-mail when Willi came into the room.'

b. mariam iimeel lik^{h} maar rah-ii
Miriam.F.Nom e-mail.F.Nom write hit PROG-F.Sg

t^{h}-ii jab vilii kamree=mẽẽ a-yaa
be.Past-F.Sg when Willi.M.Nom room.M.Obl=in come-Perf.M.Sg
'Miriam was dashing off an e-mail when Willi came into the room.'

Significantly, the effect of the Type 1 construction is to create a different kind of *aktionsart*, a distinction traditionally taken to be encoded within lexical items. This is a further factor in the impression that complex predicates of Type 1 are more tightly bound as a unit than the other two types.

3 Light Verbs Are Not Auxiliaries

Light verbs in Hindi/Urdu appear to make a functional contribution to the sentence as they signal the inception or completion of an event (among other things). For these reasons, light verbs have often been classed as a type of auxiliary. However, there is good evidence that Hindi/Urdu does possess auxiliaries, and that light verbs are syntactically and distributionally distinct from them in

number of ways. There are three uncontroversial auxiliaries in Hindi/Urdu, as shown in the table below.[7]

(7)

Urdu Auxiliaries			
Form	**Meaning**	**Inflection**	**Defective Cells**
hoo	to be	Pres/Fut/Impf/Perf	Past
t^h-aa/ii/e/ĩ	be (Orig. stand)	Past	All Others
rah	Progressive	Perf	Pres/Past/Prog
	(Orig. stay)	(Fut/Impf only with special morphology)	

It should be noted that the ordering within the Hindi/Urdu verbal complex is strict and requires a distinction to be made between main verbs, light verbs, the progressive auxiliary and the 'be' auxiliary.

(8) Main Verb (Light Verb) (Progressive) (Be Auxiliary)

This is not in itself enough to argue that light verbs are not part of the subclass of auxiliaries. However, the V2 in the constructions we are examining are different from the auxiliaries above in the certain other important respects as well. Firstly, light verbs do not form a subclass of the tense/aspect system — they inflect according to *all* tenses and aspects, rather than forming a subclass of the possibilities. Secondly, unlike auxiliaries, light verbs do not have defective paradigms. Thirdly, auxiliaries and light verbs show distinct syntactic behaviours with regard to (at least) case marking, reduplication and topicalisation, as itemized below. For a detailed discussion, see Butt and Geuder 2000.

- Auxiliaries do not have an effect on the Case marking of the subject, light verbs do.
- Light verbs may be reduplicated, just like main verbs, auxiliaries may not.
- The main verb may be topicalised away from a light verb, but not from an auxiliary verb.

4 Light Verb Constructions Are Not All The Same

Light verb constructions are thus clearly differentiable from simple auxiliary cases. However, as mentioned previously, light verb constructions themselves do not form a unified class. As was already seen, even a superficial inspection of the morphology revealed that the three types of V-V construction are distinct. In this section, we describe the main syntactic and morphological properties of the three construction types and argue that simple phrase structural differences underlie those properties.

In all three types, V2 carries the inflectional morphology for the construction according to the standard inflectional paradigms of the language. Recall that **Type 1** in our classification consists of a V1 and a V2 where the form of V1 (the main verb) is the uninflected stem. In **Type 2**, the main verb V1 takes the form of the "inflected infinitive". The inflected infinitive is a nominal form of the verb (see Butt (1993, 1995) for argumentation) which carries, in addition to the nominalising morphology *-n-*, a suffix identical to the suffix found on masculine nouns ending in *-aa*.[8] The

[7] Modals are ignored for the purposes of this discussion, as they function more like main verbs.

[8] This oblique suffix is obligatory when a masculine noun ending in *-aa* is followed by a case marker. It shows up here obligatorily on the infinitive even though there is no overt case marker present.

infinitive *-n-* generally shows agreement inflection for gender and number like other nouns in the language. **Type 3** also has a V1 in the inflected infinitival form, this time together with an actual case marker on the infinitive.

In the case of Types 2 and 3, two distinct events are more clearly distinguishable although one argument is obligatorily shared, while in Type 1 it is more difficult to see the light verb as introducing its own event at all. Further, in Type 3, the nominalised verb actually bears case suggesting that it bears a theta-role from the higher verb, V2. The morphology here may indeed be suggestive, but in any case it points to the nature of the questions to be asked here: we need to establish what the relationship is between the two verbal heads in the construction. Specifically, do they project independent clauses with distinct complete functional complexes (CFCs) or do the verbal heads in question in some way *jointly* determine a simplex CFC for the sentence? In investigating the monoclausal or biclausal status of these constructions in this sense, certain diagnostics from the literature can be applied, particularly for Hindi/Urdu (Butt 1995, Mohanan 1994).

Here we summarise the results based on the phenomena of anaphora, control, verb agreement, scrambling possibilities and the scope of negation to establish the syntactic patterns (further details may be found in the references cited above).[9]

(i) Light verb constructions of **Type 1** are monoclausal from the point of view of agreement, control and anaphora, and in addition exhibit integrity with respect to scrambling and adverbial modification.

(ii) **Type 2** constructions are monoclausal from the point of view of agreement, control and anaphora, but give evidence of separability with respect to scrambling and adverbial modification.

(iii) **Type 3** constructions appear to be biclausal according to all of the diagnostics available in the language, without actually constituting separate tense domains.

5 The Syntax

We would like to make some very minimal assumptions about the phrase structural syntax that underlies the three different types of construction examined here. We believe that given any articulated set of assumptions in syntactic theory, these diagnostics put some fairly unambiguous constraints on how they must be represented. The theory we will be using for the purposes of this paper is a simple binary branching phrase structural system within a generally minimalist framework (Chomsky 1993, 1995). We will also assume an articulation of the lexical syntax of the clause (generally following Hale and Keyser 1993), which involves the postulation of a main verbal head V, as well as a causative verbal head which introduces the external argument of the predication (Larson 1988, Kratzer 1996). Following current practice, we represent this causative verbal head as v (little v). vP as a whole thus represents the structuring of predicate argument relationships and is the thematic core of every complete functional complex. Sitting on top of vP we assume that there is a functional super-structure associated with the syntax of each clause (tense, external aspectual auxiliaries, Case-checking projections etc.). Since our concern will be more with the internal structuring of vP, we will not articulate the details of the functional structure associated with

[9]The agreement test relies on the fact that agreement is clause bounded in this language. The anaphora test exploits the subject-oriented nature of the reflexive to probe the number of distinct 'subjects' in the structure, and the control tests are similar in that it is well known that control is generally only possible from a 'subject' position. Scrambling is quite free in Hindi/Urdu but certain predicate scramblings are disallowed. Adverbial modification can produce ambiguity when the two different 'verbs' are separately modifiable.

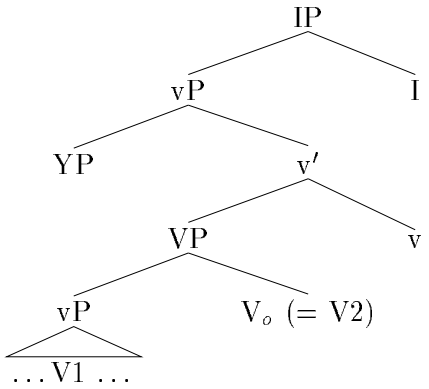
the sentence, but will use the catch-all projection label IP to represent each functionally complete clause in this sense, compressing all further details of articulation when convenient.

5.1 Type 3 — True Subordination

The most straightforward case is represented by the Type 3 constructions. Recall that Type 3 is unambiguously biclausal according to all of the diagnostics we examined. In addition, this is the construction where the V1 nominalised verb bears actual case-marking morphology. Thus, it seems clear that Type 3 must be treated as an instance of true subordination in which the V1 projects its own functionally complete phrase. This projection in turn then functions as the theta-marked argument of the higher verb V2. We remain agnostic here about the precise categorial nature of the V1 projection. As the projection of V1 is overtly case-marked, there is some reason to represent the projection as a DP. However, as the subordinate projection also determines its own complete functional complex and has the internal constitution of a verbal projection, a vP analysis would also be reasonable. We do not propose to resolve the naming problem with respect to this well-known issue in the treatment of gerunds/infinitives, but will stick to a vP label for concreteness.

Type 3

(9)



In these constructions, we will assume for concreteness that the little v head is filled by a default lexical item (causal head) in the language.[10] The other option would be for the V to possess the relevant features that would allow it to raise to the little v position. We believe this choice may vary from language to language or from verb to verb, but a decision here should not seriously affect the arguments we wish to make in this paper.

5.2 Type 2 — Head-to-Head Relationship within the same Extended Projection

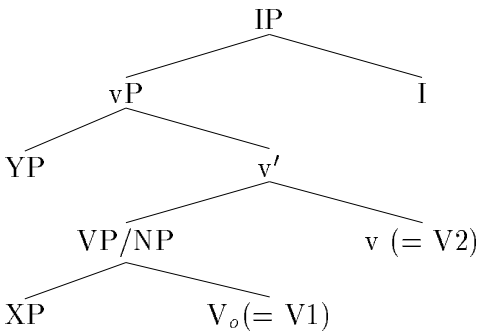
Turning now to constructions of Type 2, we take seriously the facts concerning the monoclausality of these predicational structures and are therefore committed to structures which contain only one CFC in our sense. Further, because the V2 verb is the one which inflects, and because it most clearly affects the interpretation and thematic status of the external argument, we assume that V2 is a hierarchically higher verbal head than V1 within the lexical structure. Indeed, it seems a plausible hypothesis to entertain that V2 in these structures is actually generated under little v and we argue later on that the semantics of V2 in Type 2 constructions is consistent with these

[10] In fact there are reasons to believe that this is the case since specific light verbs may also be used in this position instead of the default causing head, but we do not have the space to go into these arguments here.

light verbs being none other than lexically specific instantiations of a head which introduces the 'causer' argument.

Type 2

(10)



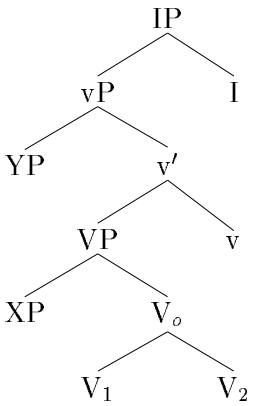
Because the V1 in these cases is inflected with the oblique infinitive suffix we assume that V1 again projects projects to a gerundive construction and label this as VP/NP. The VP label reflects the idea that the V1 does not project to a complete functional complex of its own, rather it must combine with the light verb in v(=V1); the NP label reflects its gerundive nature.

5.3 Type 1 — Co-Predication

With regard to constructions of Type 1, we are once again committed to only one complete functional complex from the syntactic behaviour we have witnessed. But, in addition, the evidence from negation and adverbial modification shows that the separation of the event into subparts which we would expect to be possible if each of V1 and V2 were its own head in the predicational structure, does not seem to be possible here. The scrambling evidence too, points to a syntactic relationship between the two heads which is not easily disrupted syntactically or semantically. On the other hand, phonologically and prosodically, V1 and V2 appear to be distinct (i.e. they are clearly not incorporated, or form one phonological word in any sense) despite being syntactically and semantically unified. A structure one might propose for this situation is that of co-heads in the same VP projection. Indeed, this is essentially the treatment proposed by Butt 1995 for the Urdu complex predicates within an LFG analysis.

Type 1: Co-heads?

(11)



From the point of view of the minimalist phrase structure we have been using so far, this is not obviously a theoretically viable alternative. However, Baker and Stewart (1999) propose a double-headed structure very much like (11) for resultative serial verb constructions in Edo and point out that double-headed structures emerge as a natural consequence of the minimalist approach when two phrases combined by Merge are identical or nearly identical in syntactic features.

We could therefore in principle reasonably choose to adopt the co-head approach in (11). However, a consideration of further constructions crosslinguistically appears to indicate that the co-head approach disguises too many important questions concerning the structuring of events and the sharing of argument structures.[11] Verb-particle constructions in English and Scandinavian, Korean and Chinese resultatives (Geuder and Kim 2001, Scott 1996) and Scottish Gaelic verb-particle constructions (Ramchand 2000) seem to be similar to the Urdu V-V complex predicate in that they seem to project a single CFC with an attendant semantic resultative interpretation. We do not believe this to be accidental. In fact, the crosslinguistic regularity of this phenomenon will be predicted by the syntactic representation of event structure which we believe underlies the possibilities of verbal meanings in natural language. The proposal we make for these Hindi/Urdu constructions will have obvious extensions to these other cases, although a detailed examination of the data from other languages is beyond the scope of this paper.

While we do not specifically want to defend an analysis of verb particle constructions in this paper, the syntactic controversy surrounding them raises its head for our cases of complex predicates as well. In particular, within the verb-particle debate many researchers have favoured a small clause approach (Kayne 1985, den Dikken 1995, Svenonius 1996), while others have argued for a complex predicate approach (Neeleman 1994, Neeleman and Weerman 1993) and still others for a lexical approach (Stiebels and Wunderlich 1994). With respect to our Type 1 complex predicate, a lexical approach is clearly out of the question. The complex predicate approach of Neeleman (1994) involved theta-role percolation to model the effect of co-predication. The small clause analysis on the other hand attempts to represent the argument structure relationships in an explicitly syntactic way. In principle, we are in agreement with the intuition behind the complex predicate approach, but find that it begs too many questions with respect to the building of events as guided by the syntax-semantics interface. For this reason, we will attempt to articulate our analysis in terms of the more explicit small clause structure. In the following section we therefore discuss our view of the syntax and semantics of events before returning to a discussion of the treatment of event building within complex predicates.

6 The Syntax and Semantics of Events

6.1 Background Assumptions

We adopt a neo-Davidsonian semantic representation (Davidson 1967, Higginbotham 1985, Parsons 1990) to tease out the differences in meaning among the different verbal collocations possible in Hindi/Urdu. Under this view, every verb contains an event position in its theta-grid, available for modification and theta-binding. Further, thematic roles are represented as separate relations connecting the event to an individual. See the representation of the simple sentence in (12).[12]

[11] Note that in a framework like LFG, where argument structure relationships and the semantic interpretation of events are expressed in a separate modules of the grammar, and not via hierarchical relationships, this is not an issue, and the co-head solution taken by Butt 1995 may indeed be the most accurate and sensible one within such a theory.

[12] Note that we will have nothing to say about the number and type of theta roles that are available in this system, and we will also be abstracting away from the mechanisms of tense interpretation.

(12) Miriam drank 5 whiskies in the pub last night.
∃e[drinking(e; 'Miriam','5whiskies') & last-night(e) & in-the-pub(e) & Cul(e)]

In addition, we subscribe to the decompositional view of Hale and Keyser (1993) and others, whereby the head which introduces the external argument is the implicit predicate of 'causation'. Consider the English example below.

(13) John built the house.
∃e[building(e; 'John', 'the house') & Cul(e)]

Traditionally this is represented in a Davidsonian system with a single event position. But if Hale and Keyser are correct then this can be potentially decomposed into two subevents related by causation where e_1 is the causing or instigating force and e_2 is the event of house-building (we follow their notation in using $\rightarrow$ to represent the relationship between the subevents in (14)). Note that in the following representation and in the one which follows, the existential binding of the macro-event variable e should be thought of as a short-hand for the existential binding of all the subevent variables as well. We omit the extra existential quantifiers for ease of presentation.

(14) ∃e: e = $(e_1 \rightarrow e_2)$[building(e; 'John', 'the house') & Cul(e)]

We assume that all events that are not unaccusative have their external argument generated in this way, with the attendant 'causing event' position.[13]

In addition, we are concerned with one of the ways in which telicity is constructed in natural language since this too can involve relations between event positions. Following much recent work (see Parsons 1990 and Higginbotham 1999, Levin and Rappaport 1998 for an analysis in terms of a differing kind of lexical decomposition) we assume that accomplishment predicates (in the Vendler 1967 sense) are actually complex in that they consist of two subevents of process and telos respectively in their representation. In (15) we show a representation of the subevents process (e1) and telos (e2) as based on proposals by Higginbotham (1999).[14]

(15) 'cross the street'(e = $<e_1, e_2>$)
where e_1 = the process of crossing the street
and e_2 = the state of being on the other side of the street

The event pair in angled brackets shown above can be called an 'accomplishment event structure', or a 'telic pair'. We will only use the angled brackets when we mean that the event positions in question are related in this very specific aspectual way.

It is already known that individuals within our ontology can potentially contain sub-entities that also count as individuals, where each individual variable has exactly the same status as any other in terms of semantic type. In other words, the individual 'apple' could have systematic and relevant subparts (skin, core seeds etc.) which could be labelled as individuals in their own right, but this does not mean that 'apple' is anything other than an ordinary individual within the semantics. Similarly, the macro-event corresponding to a predication is just an event which happens to have

[13]Some languages, like English, do not have an explicit morphological spell-out for this (default) causational head giving rise to causative-inchoative alternations such as that found in 'break'. However, some languages (like Hindi/Urdu in fact) have an overt morphological indicator of the complexity of the predicate in this case. We assume that these differences are irrelevant, and that the same underlying predicate argument architecture is present in all these languages.

[14]Note that we follow Bach (1986) in considering states a subtype of eventualities.

sub-parts. For some linguistic purposes (anchoring to tense, adverbs and intersentential effects) this event is the only event variable manipulated or 'seen' by the logical relations. However, the evidence from aspectual semantics and internal morphology of verbs indicates that eventive sub-structure is linguistically real and follows certain strict syntactic and semantic generalisations.

It is important to appreciate that unlike previous work in the literature, we are actually decomposing an event into a maximum of *three* potential subevents: causing event (e_1), caused process (e_2) and caused telos (e_3). The full potential decomposition of a lexical accomplishment would thus look as in (16). (We assume in addition that a macro event position e exists which interacts with external processes of modification and tense interpretation and certain higher level adverbials.)

(16) e: $e = e_1 \rightarrow < e_2, e_3 >$

Higginbotham (1999) argues that telicity needs to be linguistically represented, and moreover that the process of 'telic pair formation' is not just a lexical decompositional fact but can take place constructionally in the syntax. Folli (2000) argues this process to be at work in Italian path of motion constructions. She argues that while it is possible to have verbal predicates that are lexically specified as accomplishments, it is also possible to form accomplishment interpretations by the addition of prepositional phrases in Italian, where it can be shown that neither the motion verb by itself nor the locative preposition independently have accomplishment interpretations (again, compare Levin and Rappaport 1998 who formulate a similar proposal, though not in Neo-Davidsonian terms). Folli (2000) represents the Italian example as follows (using the Higginbotham 1999 system).

(17) La palla rotoló sotto il tavolo.
the ball rolled under the table
'The ball rolled under the table.'
$\exists e$: $e = < e_1, e_2 >$[roll(e_1; 'the ball') & under(e_2, 'the table')]

In addition, Ramchand and Svenonius (2000) argue that it is this process that is partially responsible for the distinctive syntactic and semantic properties of particle constructions in Celtic and Germanic. A Higginbothomic representation of an English particle construction would be as in (18) below.

(18) The judges handed in the results/handed the results in.
$\exists e$: $e = < e_1, e_2 >$[hand(e_1; 'the judges', 'the results') & in(e_2;)]

Higginbotham's (1999) representation omits a full indication of argument structure in (17), and by extension an indication of the argument structure of the preposition in (18). The notation in (19) amends this and makes the identity of argument positions between the internal argument of *hand* and the argument of the preposition explicit.

(19) $\exists e$: $e = < e_1, e_2 > \exists x$[hand($e_1$; 'the judges', x) & in($e_2$; x) & 'the results'(x)]

We will exploit these ideas of event structure decomposition in what follows, but use the three types of Hindi/Urdu V-V constructions as a test-bed for the formulation of an explicit set of syntactic conditions on the ways that event building can occur in the grammar. We believe that causation and telic pair formation are the fundamental semantic combinatoric operations available in the grammars of natural language and that they are more primitive than other sorts of semantic relationships that can obtain between events. Other relationships between events are possible, as

we will see, but they do not give rise to single (albeit complex) event structures or monoclausal predication.

The intuition behind our analysis is that verbal event positions interact in different ways in the different types of construction in Hindi/Urdu. These semantic combinatoric differences correlate with differences in morphology on the one hand and differences in syntactic structure on the other.

6.2 Type 3: Head-Complement Relationship

Recall that Type 3 is the most straightforward of the three constructions, being unambiguously biclausal by all the syntactic diagnostics. In particular, the evidence points to there being two different argument structure grids intact with two different subject positions. Thus we assume that we are dealing with two distinct complete functional complexes. In the cases that we are crucially concerned with, the infinitive, moreover, is marked with the accusative case. We take this construction to be a case of true subordination. In other words, the accusative marked infinitive really is a complement of the higher verb, containing a PRO subject which is controlled by the dative object of the higher verb. In the representation that follows we abstract away from event decompositions which are irrelevant here and focus on the relationship between the macro event variable e′ introduced by the 'write' verb and the macro event position e introduced by the 'tell' verb: here e′ is simply an argument of the verb that introduces e.

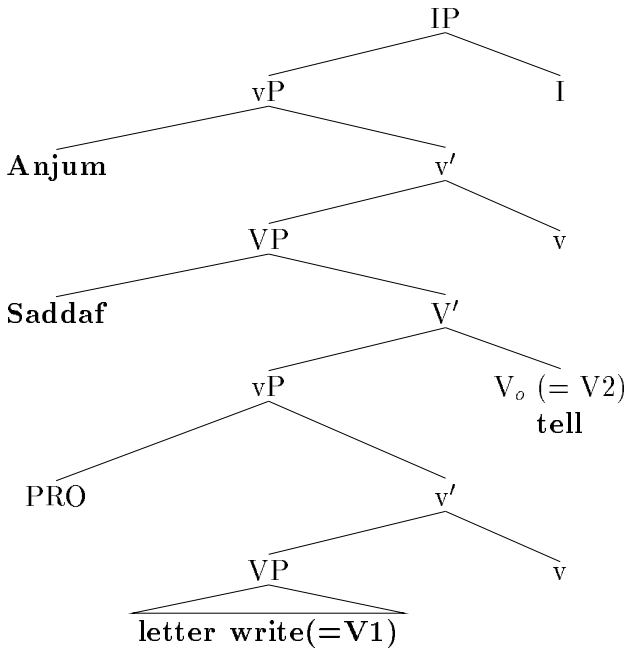
(20) anjum=nee saddaf=koo [PRO xat **lik^{h}-nee]=koo** **kah-aa**
Anjum.F=Erg Saddaf.F=Dat letter.M.Nom write-Inf.Obl=Acc say-Perf.M.Sg
'Anjum told Saddaf to write the letter.'

(21) V1 = write (e; x, 'letter') V2 = tell (e′; y, z, e″)
∃e∃e′∃x[telling(e; 'Anjum', 'Saddaf', e′) & writing(e′; x, 'the letter') & Saddaf(x)]
'Anjum is the agent of a telling event to Saddaf which brings about Saddaf writing the letter.'

The matrix V (V2) is instantiated by the 'tell' verb, a ditransitive verb whose subject and indirect object are realized in the outer shell. It also takes an event argument, which is syntactically a vP, as shown in (22). The event e′ is introduced by the 'write' verb, which also has an object and a PRO subject.[15]

[15] In the semantic representations, we represent the existence of a PRO subject with a variable in the thematic grid which is then tied by predication to the DP that 'controls' it. This is a mere notational convention to make the relationship between the syntactic representation and our logical representations more transparent.

(22)



6.3 Type 2: Verbal Instantiation of v

Recall that Type 2 constructions showed syntactic evidence for monoclausality while still maintaining the two verbs as separable elements. We therefore cannot assume a direct theta-marking relationship between the event introduced by V1 and that introduced by V2 for the Type 2 constructions, since that would give rise to two distinct predicational domains. Furthermore, if we inspect the permissive structures in (23) closely, we can observe a number of interesting semantic characteristics.

(23) a. naadyaa=nee anjum=koo nikal-nee dii-yaa
nadya.F=Erg anjum.F=Dat emerge-Inf.Obl give-Perf.M.Sg
'Nadya let Anjum get out.'

b. anjum=nee saddaf=koo xat lik^h-nee dii-yaa
Anjum.F=Erg Saddaf.F=Dat letter.M.Nom write-Inf.Obl give-Perf.M.Sg
'Anjum let Saddaf write a letter.'

In all these cases, the arguments related to V1 include everything but the subject. The subject, on the other hand, is the external agent or causer of the whole V1 event. Moreover, the specific mode of causation (facilitation in the examples above) depends on the specific choice of V2.

Interestingly, Hindu/Urdu also possesses explicit derivational morphemes (*-aa/-vaa*) which indicate general causation.[16] When the V1 verbs in the examples above are causativised using this morpheme, they can give rise to the same argument structure and case marking pattern as in the light verb constructions: compare (23a) with (24a) and (23b) with (24b).

[16] With the *-vaa* causative it is also possible to have an optional instrumental marked argument, either in addition to the *-koo* marked argument, as in (ii) below, or instead of it as in (i). This instrumental can be interpreted as a demoted agent.

(i) naadyaa=nee (anjum=see) xat lik^h-vaa-yaa
nadya.F=Erg (Anjum.F=Inst) letter.M.Nom write-Caus-Perf.M.Sg
'Nadya had the letter written (by Anjum).'

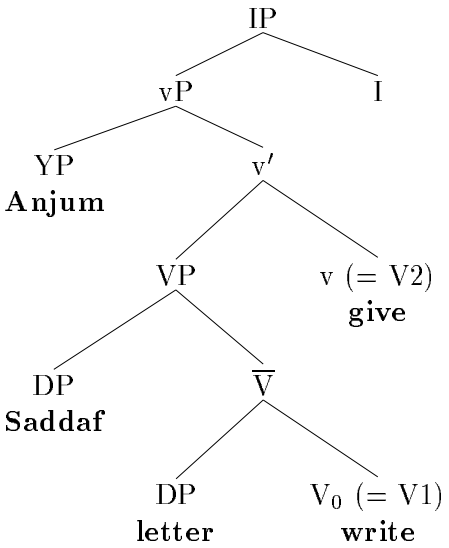
(24) a. naadyaa=nee anjum=koo nikaal-aa
Nadya.F=Erg Anjum.F=Acc emerge.Caus-Perf.M.Sg
'Nadya pulled Anjum out.'

b. anjum=nee saddaf=koo xat lik^{h}-vaa-yaa
anjum.F=Erg saddaf.F=Acc letter.M.Nom write-Caus-Perf.M.Sg
'Anjum had the letter written for Saddaf/taught Saddaf to write the letter.'

For these reasons, we assume that constructions of Type 2 are complex lexical structures where the light verb (V2) is an overt instantiation of little v, and V1 is the main verbal predicate. Following the notation of Hale and Keyser (1993), the macro event 'write-let' is decomposed into two subevents, that of instigating an action (e_2, the cause), which introduces an agent and implies the caused event e_1, namely, the writing.

(25) V1=V=write(e; y, z) V2=v=Cause$_{allow}$(e′; x, e″)
$\exists$e: e = $e_2 \rightarrow e_1$ [write(e_1; 'Saddaf', 'letter') & Cause$_{allow}$(e_2; 'Anjum', e_1)]
'Anjum is the causer/allower of a subevent of Saddaf writing a letter.'

(26)



Recall that Type 2 also exhibited some aspectual constructions whose existence is not immediately predictable under other approaches. Under our conception of event building via the syntax-semantics interface, however, a more specific kind of aspectual interpretation via little v is expected, given that more than one type of verb can plausibly appear in this position. In inceptive examples as in (27), we find two verbal heads but only one argument (as opposed to the permissive above, where the v clearly makes an independent contribution to the argument structure).

(27) naadyaa roo-nee lag-ii
Nadya.F.Nom cry-Inf.Obl be.attached-Perf.F.Sg
'Nadya began to cry.

(ii) naadyaa=nee anjum=koo (yassin=see) xat lik^{h}-vaa-yaa
nadya.F=Erg Anjum.F=Acc (Yassin.M=Inst) letter.M.Nom write-Caus-Perf.M.Sg
'Nadya had the letter written for Anjum/taught Anjum to write the letter (by Yassin).'

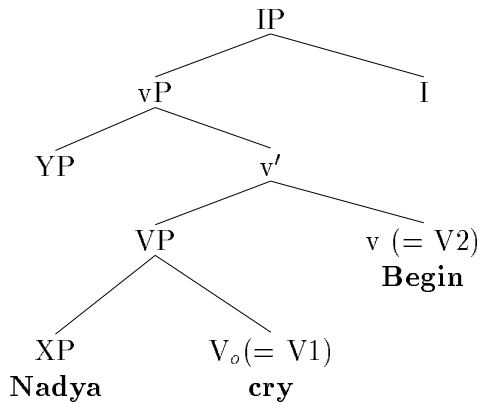
We will have nothing to say about these constructions here, noting only that the case marking pattern which parallels the complex predicate can also be found with causatives. See Butt (1998) and Saksena (1980, 1982) for a more detailed discussion of causativization patterns in Hindi/Urdu.

For this case, we assume the same lexical structure as before, but posit that v is occupied by the aspectual verb *lag*. However, as opposed to the analysis for the permissive, and as shown in (29), v has no specifier here. This translates into the fact that there is no perceived external causer of the event, but that there is some situation e_2, as expressed by the v head, which brings about the e_1 event. The aspectual verb in v is still consistent with the general semantics of causation, but lexically provides a more specific semantics, that of inception.

(28) V1=V=cry(e; x) V2=v=Begin(e′; e″)
$\exists$e: e = $e_2 \rightarrow e_1$ [crying(e_1; 'Nadya') & Begin(e_2; e_1)]
'Nadya begins to cry'

Since the specifier of vP is assigned no theta-role, the argument of 'cry' raises through that position to the normal Spec position higher up in the clause and is grammatically realised as a subject.

(29)



We expect that due to Saussurean arbitrariness, there is nothing in principle which limits how specific the semantics of the light verb instantiating v can be. The only constraint is that it be some sort of mode of causation. Only the null or default little v will have pure and maximally general causational semantics.

6.4 Type 1: Telic Pair Formation

In this section we return to the question of the representation of Type 1 constructions. Recall that these V-V sequences exhibited the greatest degree of syntactic and semantic integrity of the three types we examined. Thus, we are once again committed to a monoclausal structure. In addition, Type 1 constructions seem to construct accomplishment interpretations. Semantically, then, Type 1 is a classic example of accomplishment formation in the syntax where the event positions contributed by each predicate combine by telic pair formation to create a bounded process.[17]

(30) a. naadyaa=nee xat **lik^h lii-yaa**
Nadya.F=Erg letter.M.Nom write take-Perf.M.Sg
'Nadya wrote a letter (completely).'

[17] As mentioned, light verbs in Type 1 constructions contribute many other semantic dimensions (e.g., benefaction, forcefulness, suddenness) to the predication. Butt and Geuder (2000) treat the contribution of this additional information as a type of adverbial modification, an approach that is compatible with the approach taken in this paper. However, we do not specify a treatment of these extra semantic dimensions here as our focus is on the mechanisms of event building.

b. naadyaa **gir ga-yii**
Nadya.F.Nom fall go-Perf.F.Sg
'Nadya fell (down).'

Recall also that the light verb (V2) determines the case marking of the subject. We take this as an indication that the SpecvP position should be theta-marked. We analyze this type of construction semantically as was represented in 6.1 and repeated here.

(31) e: e = $e_1 \rightarrow < e_2, e_3 >$

The contribution of the V2 is to provide the causing and process part of the event while V1 represents the final state achieved. A sample analysis of (30a) in terms of this notation would look as in (32).

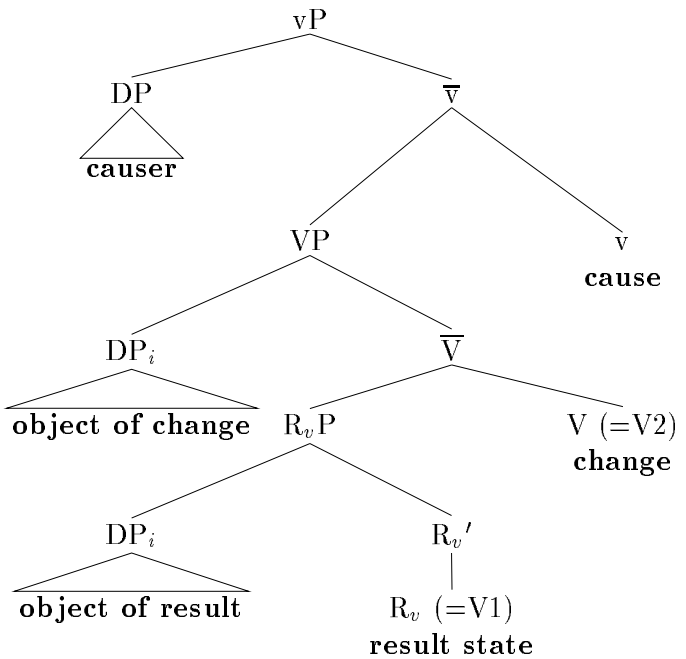
(32) V1 = written (e; y) V2 = CAUSE-PROCESS (e′(=$e_1 \rightarrow e_2$); x,y)
∃e: e = $e_1 \rightarrow <e_2\ e_3>$[Cause-Process($e_1 \rightarrow e_2$; 'Nadya', 'letter') & written(e_3; 'letter')]
'Nadya instigates a process affecting a letter which has the result that the letter comes to be written.'

Once again we assume that the light verb is generated in V but either raises to v, or that a default null v is inserted.

Note that as opposed to the analysis for Type 3, there is only one macro event involved, reflecting the tighter relationship between V1 and V2 in Type 1 as compared with Type 3. The question here is how this kind of semantic interpretation maps on to the syntax in such a way as to explain the tightly knit behaviour of this collocation (and indeed other accomplishment inducing pairs such as V-particle in Germanic for example).

To represent the accomplishment decomposition into process and telos, we propose a further articulation of the lexical syntax as follows, where R_vP stands for ResultPhrase.

(33)



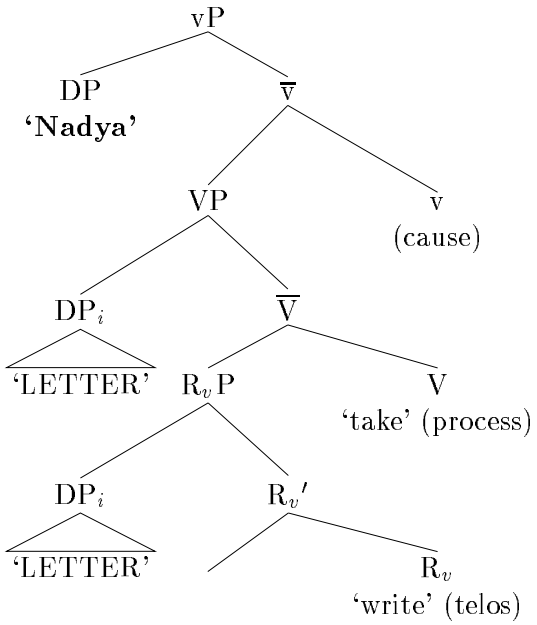
The accomplishment reading of complex predicates of this type can be described by saying that the agent causes some change that brings about the letter achieving the resultant 'written' state. Indeed, in a closely related language, Bengali, the very same class of accomplishment complex predicates is found but in this language the V1 in the combination shows up with explicit perfect participle morphology (34).

(34) Ruma cithi-ṭa **lekh-e** **phello**
Ruma letter-DEF write-PERFPART threw-3RDPAST
'Ruma wrote the letter completely.'

The important thing about the semantics of this construction is that the argument that is said to undergo the change is the very same as the argument that achieves the final state, and this identification is obligatory. We surmise that the identification of the specifier positions of R_vP and VP is a pre-condition for the semantic combinatoric operation of telic pair formation.

Thus, we represent the lexical structure for example (30a) as shown below.

(35)



Under this view, the V2 verb *liyaa* -take is the spell out of the head which is base generated in V and moves up to v, while the V1 verb '*likh*-write is base generated under R_v. We remain agnostic at the point of writing this paper as to the correct way of representing the specifier identity of R_vP and VP: it does not seem to us to be equivalent to any of the relations already given in the standard framework. The word order facts of the language also make it impossible to show exactly where the DP in question is located at S-structure, since in principle either location would be consistent with preverbal order.[18]

This analysis is like the small clause analysis of particle constructions in that it explicitly represents the arguments of the preposition in a full predicational structure. It is similar to the complex predicate analysis of these constructions in that it argues that the two argument structures

[18] Under the complex head analysis available in LFG, the argument structure identity of the object of the result predicate and the object of the dynamic predicate would have to be stated in a separate module of argument structure. The aspectual facts would be stated in semantic structure, with correspondences stipulated among the three levels of representation. We do not pursue this type of analysis any further in this paper.

are unified within the same complete functional complex within one verbal projection. Crucial to our proposal is that idea that verbal predication decomposes (maximally) into these three distinct heads with very specific semantic and argument structure connections. In some languages, with some verbs, this full articulation of lexical semantic structure can be projected by a single listed item in the lexicon (e.g. *build* in English). For other languages, the separate heads in the structure can be separately and productively lexically instantiated. We have seen this to be case for both v and V, and v/V and R in Hindi/Urdu; particle constructions are another example in Germanic languages where V and R can be separately and productively expressed.[19]

7 Conclusion

In this paper, we have argued that there are three distinct types of V1-V2 collocation in Hindi/Urdu. Using the syntactic diagnostics made available by the language, we argued that one type, Type 3, was a case of genuine syntactic and semantic subordination. The other two types are what we would call "complex predicates" in the sense that V1 and V2 combine to form a single complete functional complex. In Type 2, we argued that V1 and V2 were lexical instantiations of V and v in the lexical structure respectively. In Type 3, we found that V1 and V2 instantiate R_v and V/v respectively, where R_v was the head of the projection representing the final state achieved by the direct object. We were able to account for the (sometimes surprising) aspectual readings within the Type 1 and Type 2 constructions precisely because our view of event building allows us to posit a more complex interaction between parts of the syntax and the semantics.

If our analysis is correct, complex constructions in Hindi/Urdu therefore offer striking syntactic, semantic and morphological evidence in favour of an event structure decomposition of the form 'causation $\rightarrow$ < process, telos >' which can be seen to underlie verbal predication in natural language. We have also suggested that the same basic event building structures might underlie superficially dissimilar constructions in other languages, such as resultatives in Korean and particle-shift constructions in English and Scandinavian. We leave these extensions to further research.

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[19] There is (at least) one obvious semantic difference between particle constructions and the Type 1 constructions in Hindi/Urdu. In particle constructions the result state is expressed with a highly underspecified predicate, giving a very general and contextually sensitive meaning for the final state achieved. In accomplishment complex predicates of Type 1 in Hindi/Urdu, the final state achieved is very specific, while the action that brings it about is expressed by the 'light' verb and is highly underspecified. We don't think that this makes a difference to the structural and aspectual relations involved, or militates against the similarity of structure that we have argued for.

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