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Verb-phrase ellipsis and complex predicates in Hindi-Urdu

Emily Manetta[1]

Abstract Complex predicates are found in diverse languages and feature multiple predicates that map to a monoclausal syntactic structure. They represent a fascinating instance of the systematic combination of syntactically and semantically independent elements to function as a unit. While complex predicates in Hindi-Urdu have received significant attention (Hook 1974; Mohanan 1994; Butt 1995), not yet addressed are the ways in which these constructions interact with verb phrase ellipsis (VPE), which has famously revealed much about the structure of the verbal domain. In head-final languages like Hindi-Urdu, the nature of the morphologically and lexically complex verb is difficult to probe; any head movement would typically be string-vacuous. The results of the investigation of VPE in complex predicates in this article suggest Hindi-Urdu features syntactic head movement of the components of the complex predicate to a functional head outside the vP. I build on Butt and Ramchand's (2005) approach to Hindi-Urdu complex predicates featuring decomposed verbal structure to develop an account of the verbal domain that captures the syntactic connectedness between components of the complex predicate. This article engages with a set of highly topical questions concerning the status of head movement as a unified phenomenon (Hartman 2011; Lacara 2016; McCloskey 2016; Gribanova and Harizanov 2016; i.a.) and develops V-stranding VPE (McCloskey 1991; Goldberg 2005; Gribanova 2013a, 2013b; Sailor 2018) as a critical tool for investigating verb-final languages under this research program. Ultimately at stake is a contribution to the far larger project of elucidating the nature of head movement in head-final languages.

Keywords Verb phrase ellipsis · Complex predicates · Hindi-Urdu · Head movement

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1 Introduction

In head-final languages such as Hindi-Urdu, there is often little direct evidence for head movement of the verb in the syntax. The verbal complex, a rigidly ordered string consisting of a verb and a number of aspectual and tense auxiliaries, is clause-final, and thus any head movement to higher functional heads would typically be string-vacuous. For this reason, although verb movement out of the vP has sometimes been assumed to take place (e.g. Kumar 2006; Bhatt and Dayal 2007; Bhatt 2008), it has been difficult to show that it must occur. In addition, Hindi-Urdu (like many Indic languages) exhibits a system of complex predicate formation, in which nouns, adjectives, and verbs can be combined with a sizeable inventory of light verbs to form a single predicating unit. The resulting complex predicates have received significant descriptive and analytical attention (Hook 1974; Bashir 1989; Mohanan 1994; Butt 1995, 2003, 2010; Butt and Lahiri 2002; Davison 2005; Butt and Ramchand 2005; Butt et al. 2008; Mahajan 2012). Yet the interaction between the components of the complex predicate and syntactic verb movement is not well understood.

In this article, I develop verb phrase ellipsis (VPE) as a crucial diagnostic for verb movement in simplex and complex predicates in Hindi-Urdu. The investigation of verb phrase ellipsis in many languages has provided important information about the nature of head movement and the shape of the verbal domain (Ross 1969; Sag 1976, 1981; Williams 1977; Hankamer and Sag 1976; Jayaseelan 1990; Hardt 1993; Fiengo and May 1994; Lobeck 1995; Johnson 2001; Kennedy 2008; inter alia). Of particular relevance is verb-stranding VPE, attested in languages as diverse as Irish (McCloskey 1991), Hebrew (Doron 1991; Goldberg 2005), Portuguese (Martins 1994), and Russian (Gribanova 2013a, 2013b), in which verbal material undergoes head movement to escape the vP-layer followed by ellipsis of the vP with its remaining contents. Evidence presented here reveals that Hindi-Urdu does indeed exhibit verb-stranding VPE (exemplified in (1)), and thus obligatory verb movement to a head outside the vP-layer (schematized in (2)).

(1)   a.   Ram-ne Chomsky-ka   naya lekh   do baar paRh-a.
           Ram-ERG Chomsky-GEN new writing two time read-PFV.M.SG
           'Ram read the new paper by Chomsky twice.'
      b.   Raj-ne   bhi __ paRh-a.
           Raj-ERG also   read-PFV.M.SG
           'Raj also read (the paper twice).'   (Simpson et al. 2013:112)

(2)
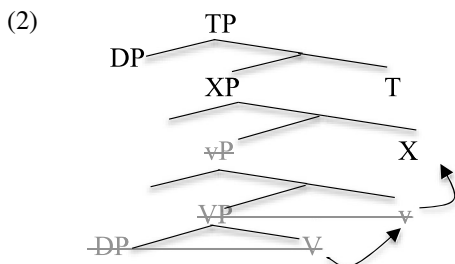
Identifying unambiguous instances of verb-stranding VPE is challenging in languages like Hindi-Urdu, as a number of other processes are available which permit the internal arguments of a clause to go missing. Hindi-Urdu is known to exhibit null object pronominals (Davison 1999, 2013), and has recently been claimed to allow the distinct process of argument ellipsis (Simpson et al. 2013), in which internal arguments may be elided independently. In this article I bring together and refine a range of tests used previously for unrelated languages (Goldberg 2005; Gribanova 2013a, 2013b; Simpson et al. 2013; Funakoshi 2016) and develop several new tests to isolate and positively identify verb-stranding VPE. If VVPE is to serve as a diagnostic of syntactic verb movement more generally (movement that is at the moment under renewed interrogation—e.g. Lacara 2016; Harizanov 2016; Gribanova and Harizanov 2016; McCloskey 2016), these tests alone represent an important contribution to the study of head-final languages.

The syntax and semantics of complex predicate formation has been an important focus of research in Indic languages (Hook 1974; Mohanan 1994; Butt 1995, 1998, 2013; Butt and Geuder 2001; Butt and Lahiri 2002; Butt and Ramchand 2005; Butt et al. 2008; Mahajan 2012). The process in Hindi-Urdu is particularly rich, in that so-called light verbs may be combined with verbal, nominal, or adjectival components to create a single composed predicate with a single set of arguments.

(3) V-V COMPLEX PREDICATE
Nadya-ne xat likh liiy-aa.
Nadya-ERG letter.M write take-PFV.M
'Nadya wrote a letter (completely).'   (Butt and Ramchand 2005:2)

(4) N-V COMPLEX PREDICATE
Nadya-ne kahani yaad k-ii.
Nadya-ERG story.F memory do-PFV.F
'Nadya remembered a story.'

(5) A-V COMPLEX PREDICATE
Nadya-ne mez saaf k-ii
Nadya-ERG table.F clean do-PFV.F
'Nadya cleaned a table.'[1]

Leading accounts of complex predicates in a number of languages have productively employed a decomposed verbal structure that presupposes a tight relation between the semantics of events and syntactic structure (as developed in Halle and Marantz 1993; Hale and Keyser 1993; Levin and Rappaport Hovav 1995; Hale and Keyser 2002; see also Ramchand 2008). This line of analysis is undertaken for Persian in Folli et al. (2005) and Megerdoomian (2012), and for Hindi-Urdu by Butt and Ramchand (2005) and to a certain extent Davison (2005). These diverse accounts share, among other things, the notion that the light verb component of the complex pred-

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[1]Though I introduce the A-V type complex predicate for completeness, it is the least-researched of the complex predicate types in Hindi-Urdu (alongside P-V complex predicates, which have received only initial description in Raza 2011), and I do not investigate their properties in detail with respect to VVPE here.

icate originates at a point in the structure dominating the non-light-verb component, and that the light verb either originates in or combines via head movement/conflation with the v head (and thereby becomes associated with the meaning CAUSE).

On the other hand, there are a number of differences amongst various accounts of complex predicates in Hindi-Urdu, including the point at which the light verb is base generated, whether or not the main and light verb combine to form a complex head, and whether or not that complex head is found in v or undergoes further movement to vP-external heads. In the case of V-V aspectual complex predicates, evidence presented here from verb-stranding VPE reveals that the light verb may not undergo head movement independently of the main verb. That is, a string in which the light verb is stranded while the main verb is elided along with other vP-internal material is unavailable in Hindi-Urdu. This result informs a new account of V-V complex predicates, building on previous work in Butt and Ramchand (2005), in which the two verbs form a complex head and move together to a projection outside vP. In this view, the semantic unification of the two predicates is accompanied by syntactic unification at this stage of the derivation, resolving in a new way the "fundamental problem" of syntactic discontinuity observed by Butt (1993).

Complex predicates consisting of a nominal and a verb are shown below to exhibit more diverse behavior under VPE. Following a preliminary investigation, we will see that the differences appear to pattern with other properties already known to vary across classes of N-V complexes (Mohanan 1994; Ahmed 2011; Ahmed and Butt 2011; Ahmed et al. 2012; Butt et al. 2012; Sulger and Vaidya 2014) and to have intriguing commonalities with pseudo-noun-incorporation in the language (Dayal 2011; Baker 2014).

The wider contributions of the present article are twofold. I first seek to establish VVPE as a one of the few reliable diagnostics for verb movement out of the vP domain in head-final languages. Second, I examine the relevance of complex predicate formation for theories of head movement (see Keine and Bhatt 2016), and in particular the interaction of V-V complex predicates with ellipsis. This effort engages with a set of highly topical questions concerning the nature head movement itself. In recent research (Hartman 2011; Lacara 2016; Harizanov 2016; Gribanova and Harizanov 2016; Sailor 2018; Jouitteau to appear; i.a.) our understanding of head movement as a unified phenomenon comes under renewed scrutiny. At issue is an old concern: what types of displacement and composition of material generated in heads occurs in the narrow syntax, and what types may be better handled in a post-syntactic component of the grammar? A distinction is drawn in this line of work between displacements of heads which either (a) exhibit interpretive effects or interactions with other syntactic processes and are thus syntactic or (b) result solely in the amalgamation of distinct morphemes and lexemes into a morphophonological unit, and proceed post-syntactically (Gribanova and Harizanov 2016).

In head-final languages like Hindi-Urdu, the nature of the composition of the morphologically and lexically complex verb is difficult to probe; any head movement would typically be string-vacuous. Since to this point no unambiguous word order or interpretive effects have been discovered, the default assumption under the research

program described above must then be that no syntactic head movement need take place. But the availability of V-stranding VPE in Hindi-Urdu suggests otherwise: in order to produce VVPE strings, Hindi-Urdu must have head movement at least to a functional head outside the vP (Goldberg 2005; Gribanova 2017; though see Sect. 5 for further discussion of this question). Further, complex predicates show that this head movement must include all verbal material in both V and v, composing a complex head comprised of multiple lexemes with profound interpretive consequences: unified predication. The present article develops V-stranding VPE as a critical tool for investigating verb-final languages under this research program. Ultimately at stake is a contribution to the far larger project of elucidating the nature of head movement in head-final languages.

The article proceeds as follows: Sect. 2 works through a range of diagnostics intended to differentiate VVPE from null pronominals and argument ellipsis in Hindi-Urdu, ultimately revealing a number of configurations which can be identified unambiguously as VVPE. Section 3 examines complex predicates in Hindi-Urdu and provides new data revealing the ways in which complex predicates interact with VVPE. From this data emerges an analysis of the syntactic structure of the verbal domain, verb movement, and complex predicates, presented in Sect. 4. Section 5 concludes the article and addresses wider implications for our understanding of verb movement.

2 When arguments go missing

Hindi-Urdu does not permit the equivalent of classic VPE in English, in which the main verb and its internal arguments are omitted, leaving behind only an auxiliary verb.

(6)   Meena bought a new car, and Manu did too.

(7)   #Meena-ne nay-ii gaaRii khariid-ii thii,   aur Manu-ne   bhii __ thii.
        Meena-ERG new-F car.F   buy-PFV.F AUX.F and Manu-ERG also   AUX.F
        Intended: 'Meena bought a new car and Manu did also (bought a new car).'
                                                    (Ghanshyam Sharma, p.c.)

The sentence in (7) suggests that in Hindi-Urdu, the main verb is found outside of the verbal layer at the time of ellipsis, and therefore cannot be elided under VPE. As we might then expect, Hindi-Urdu does appear to exhibit a particular kind of verb-phrase ellipsis often termed verb-stranding verb-phrase ellipsis or VVPE. In this variety, the main verb is understood to move outside the vP, and the entire vP is then elided (for claims that it is indeed the vP that is elided in VPE, see Aelbrecht 2010; Merchant 2013).

(8)   a.   Meena-ne   nay-ii gaaRii khariid-ii thii.
             Meena-ERG new-F car.F   buy-PFV.F AUX.F
             'Meena bought a new car.'
       b.   Manu-ne   bhii __ khariid-ii thii.
             Manu-ERG also   buy-PFV.F AUX.F
             'Manu also bought (a new car).'

(9) KK: Kabhi kisi-ko   dil   di-ya?
          Ever   someone-ACC heart give-PFV.M
          'Have you ever given your heart to someone?'
     Audience: ___ Di-ya!
                   Give-PFV.M
               '(I) have given (my heart to someone)!'
     KK: MaiN-ne bhi __ di-ya!
           1SG-ERG also   give-PFV.M
           'I have also given (my heart to someone)!'
                [from "Om Shanti Om" by Anand Bakshi, in the film Karz (1980)]

But as in other languages, Hindi-Urdu exhibits other independent syntactic processes
that permit internal arguments to go missing. Isolating VVPE in Hindi-Urdu thus represents a serious challenge. Similar to languages like Persian (Toosarvandani 2009),
Hindi-Urdu permits null pronominals in object position (Davison 1999, 2013).

(10)   a.   Main-ne (us-ko)   dekh-aa.
            1st-ERG 3SG-ERG see-PFV.M
            'I saw him/her.'
       b.   Alia (us-se)   mil-ii
            Alia 3SG-ERG with meet-PFV.F
            'Alia met him/her.'

We must therefore exploit known properties of ellipsis that distinguish it from other
kinds of anaphora in order to determine whether the construction of interest is true
VVPE. But Hindi-Urdu has also recently been argued by Simpson et al. (2013) to
permit a more targeted ellipsis process called argument ellipsis. Argument ellipsis
(AE), also argued to take place in a number of East Asian languages (Oku 1998; Kim
1999; Takahashi 2006) is an ellipsis operation in which just the internal argument of
a verb is elided:

(11)   a.   Amit apni   premika-ko   pyaar kar-ta   hai.
            Amit self's.F girlfriend-ACC love do-PRES.3MSG AUX
            'Amit$_i$ loves his$_i$ girlfriend.'
       b.   Ravi bhi __ pyaar karta   hai.
            Ravi also   love do-PRES.3MSG AUX
            'Ravi$_k$ also loves (his$_k$ girlfriend).'   (Simpson et al. 2013:6)

Given limited space, I will not evaluate the claim that AE is available in Hindi-Urdu
here, but instead assume that the strongest tests for VVPE will those which would
also permit us to distinguish VVPE from purported instances of AE. The string in
(8b) above then has three potential analyses: one in which the missing object is a null
pronominal, one in which it is an elided argument, and one in which it is contained
in an elided vP out of which the verb has raised (VVPE).

    In what follows I draw on a series of tests designed to tease apart argument ellipsis, null object pronominals, and VVPE developed for Hindi-Urdu in Simpson et al.
(2013), in for Russian in Gribanova (2013a, 2013b), and for Japanese in Funakoshi
(2016). By combining certain tests we can definitively establish that Hindi-Urdu does

indeed exhibit VVPE, and that we clearly distinguish VVPE from other operations in Hindi-Urdu that cause arguments to go missing.

Tests designed to distinguish VVPE from other processes typically focus on the contents of the elided vP. The reasoning is as follows: in an alleged instance of VVPE, for a given constituent XP that goes missing along with the internal arguments yet is interpreted to be within the ellipsis site, if XP cannot otherwise be elided independently in the language, then it must have gone missing by virtue of VVPE. For instance, Goldberg (2005) utilizes this strategy in Hebrew with predicates that take both a DP and PP argument. Under Goldberg's account, if both DP and PP have gone missing simultaneously, this can only be due to VVPE. Unfortunately, Hindi-Urdu permits argument PPs to go missing individually (Davison 2005), as in (12b).

(12) a. Amit-ne apni mez-par ek kitaab rakh-i.
          Amit-ERG self's table-LOC a book put-PFV.F.SG.3
          'Amit$_k$ put a book on his$_k$ desk.'
      b. Ravi-ne bhi _ ek kitaab rakh-i.
          Ravi-ERG also a book put-PFV.F.SG.3
          'Ravi$_m$ also put a book (on his$_m$ desk).'
      c. Ravi-ne bhi _ rakh-i.
          Ravi-ERG also put-PFV.F.SG.3
          'Ravi$_m$ also put a book (a book on his$_m$ desk).'

(Simpson et al. 2013:107)

This means that a context in which both argument DPs and PPs go missing, as in (12c), might be an instance of VVPE, or also potentially two separate instances of argument ellipsis, one DP-ellipsis and one PP-ellipsis. Therefore, in the case of Hindi-Urdu, as noted by Simpson et al. (2013), this test doesn't isolate VVPE. We will then turn to other complex VPs to find suitable diagnostics.[2]

2.1 Conjoined correlates

Perhaps the single most unambiguous test for VVPE in Hindi-Urdu, originally proposed for Russian in Gribanova (2013b), utilizes conjunction or disjunction in the correlate. If the correlate contains a disjunction, such as the Hindi-Urdu *yaa* 'or' in (13)–(14) below, and if we presume that there is no independent process permitting disjunction drop (Payne 1985; Winter 1995; Gribanova 2013b), we can be fairly sure that ellipsis of the larger verb phrase (containing two disjuncts in this case) must be true VVPE. In other words, neither null pronominal objects nor argument ellipsis could explain the interpretation of the elliptical structure in (13b)–(14b).

(13) a. kyaa Ram-ne Sita-ko santaraa yaa Mina-ko amruud diy-aa
          Q Ram-ERG Sita-DAT orange or Mina-DAT guava give-PERF.M
          thaa?
          AUX.PST.M
          'Had Ram given an orange to Sita or a guava to Mina?'

---

[2]In the text that follows, unless the data is specifically cited otherwise, the judgements displayed were obtained from a group of nine native-speaker consultants who assessed sentences provided on a five-point scale. When native speakers judged the sentence anything but completely acceptable, a footnote explains the grammaticality marking.

    b.   HaaN, Ram-ne   __ diy-aa   thaa.
              Yes,   Ram-ERG   give-PFV.M AUX.PST.M
              'Yes, Ram had given (an orange to Sita or a guava to Mina).' [crucially
              true even if Ram only gave a guava to Mina]   (Rajesh Bhatt, p.c.)

(14)   a.   kyaa Nadiya-ne   Mina-ko xat   yaa Sita-ko   paise
              Q   Nadiya-ERG Mina-DAT letters or   Sita-DAT money
              bhej-ee   thee
              send-PERF.PL AUX.PST.PL
              'Had Nadia sent letters to Mina or money to Sita?'
    b.   HaaN, Nadia-ne   __ bhej-ee   thee.
              Yes,   Nadia-ERG   send-PERF.PL AUX.PST.PL
              'Yes, Nadia had sent (letters to Mina or money to Sita).' [crucially, true
              even if Nadia only sent letters to Mina]   (Rajesh Bhatt, p.c.)

The structures in (13b) and (14b) feature the ellipsis of a larger VP containing two disjoined smaller VPs. Though Hindi-Urdu permits both DP and PP arguments to go missing in the absence of VVPE, there is no such independent process permitting *yaa* 'or' to be elided. For this reason, (13b) and (14b) are clear examples of true VVPE.

2.2 Adjuncts in the ellipsis site

Simpson et al. (2013) point out that under VVPE, adverbials that modify the VP can also be elided, and must therefore be interpreted in the ellipsis site. This property should not hold in a sentence with a null pronominal object, nor, importantly, in a sentence with an elided argument. For Hindi-Urdu, Simpson et al. (2013) show that temporal adverbials and VP-adverbs modifying manner can be elided and are optionally interpretable in the site of ellipsis, as in (15b) below. Simpson et al. (2013) also show that if the adverb is elided and interpreted in the ellipsis site, any VP-internal arguments must go missing as well. That is, (15c) indicates that there is no process permitting adjuncts within the VP to go missing independently without arguments doing the same (even though the reverse is certainly possible).[3] (15b) must then represent a case of true VVPE.

(15)   a.   Ram-ne Chomsky-ka   naya lekh   do baar paRh-a.
              Ram-ERG Chomsky-GEN new   writing two time read-PFV.M.SG
              'Ram read the new paper by Chomsky twice.'
    b.   Raj-ne   bhi __ paRh-a.
              Raj-ERG also   read-PFV.M.SG
              'Raj also read (the paper twice).'

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[3]A reviewer asks whether (15c) could be understood as an instance of VVPE in which the internal argument has leftward scrambled out of the vP, leaving an elided vP containing the trace of the scrambled internal argument and the adverb *twice*. If so, the "twice" reading should be available in (15c), counter to fact. However, it is likely that this analysis of (15c) would be ruled out: since short scrambling is widely understood as A-movement and does not reconstruct (e.g. Mahajan 1990; Bhatt 2003), it could not be used to compute identity between an antecedent and elliptical clause. This state of affairs is altered by contrastive focus placed on the object in Japanese (Funakoshi 2014, 2016), and may be so in Hindi-Urdu as well.

> c. Raj-ne bhi vo lekh paRh-a.
> Raj-ERG also that writing read-PFV.M.SG
> 'Raj also read the paper.' NOT communicated: 'twice'
>
> (Simpson et al. 2013:112)

VVPE must be available in Hindi-Urdu, since there is no other clear explanation for the interpretation of the ellipsis in (15b).

We can further reinforce the conclusion that (15b) is indeed an instance of VVPE by checking another important property of VVPE. As Goldberg (2005) and McCloskey (1991) show for Hebrew and Irish respectively, in cases of VVPE the verb stem in the correlate and the verb stem in the ellipsis site must match. We will assume here that this is a general property of VVPE crosslinguistically.[4] If (15b) above is in fact an instance of VVPE in Hindi-Urdu, attempting to change the verb following the ellipsis site should result in infelicity provided that we require the interpretation to include the meaning 'twice'.

(16) a. Ram-ne Chomsky-ka naya lecture do baar sun-aa.
Ram-ERG Chomsky-GEN new lecture two time hear-PFV.M.SG
'Ram heard a new lecture by Chomsky twice.'

b. Ali-ne bhi __ paRh-a.
Ali-ERG also read-PFV.M.SG
#'Ali also read (the lecture twice).' (with unmarked intonation)[5]
✓'Ali also read (it).'   (with strong contrastive intonation on the verb)

The infelicity of (16b) in the context of (16a) then confirms that this is a true instance of VVPE in Hindi-Urdu. The verb following the ellipsis site must match the verb in the correlate in unmarked contexts (for additional discussion of the verbal identity requirement under VVPE in Hindi-Urdu see Sect. 4.1).

An interesting wrinkle emerges when we consider pairs in which the elliptical clause includes negation. Consider (17b), in which the downward entailing environment means that the situations described by the reading which includes the adverbial are not a subset of the situations described when the adverbial is excluded.[6]

(17) a. Ram-ne Chomsky-ka naya lekh dhyaan-se paRh-a.
Ram-ERG Chomsky-GEN new writing carefully read-PFV.M.SG
'Ram read the new paper by Chomsky carefully.'

b. Raj-ne ___ nahiiN paRh-a.
Raj-ERG NEG read-PFV.M.SG
'Raj did not read (the new paper by Chomsky (??carefully)).'

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[4]The crosslinguistic picture may be somewhat more complex. There is mounting evidence that focus plays an important role in the (in)felicity of verb mismatch (Gribanova 2013b, 2015). Although I don't investigate this property for Hindi-Urdu here, ultimately these facts will be important in determining precisely how the identity requirement of ellipsis is ultimately characterized.

[5]Out of nine native speaker informants, eight judged this sentence "unacceptable in this conversation" and one judged this sentence "barely acceptable, unnatural in this conversation" when required to include the interpretation that Ali read the lecture *twice*.

[6]I'm grateful to an anonymous reviewer for bringing this question to my attention.

The sentence in (17a) asserts that Ram read the paper with care, but many speakers have difficulty obtaining the reading which includes the adjunct in (17b). Thus (17b) has a dominant reading in which Raj did not read the paper at all. If the null adjunct reading were indeed completely unavailable in these environments (as opposed to just strongly dispreferred), this would suggest that the process at work in (17) could not be VVPE.

As it happens, the same observation has been made in a number of unrelated languages (as early as Oku 1998 for Japanese) and the judgements are not at all straightforward, even for native speaker linguists. In Persian, Rasekhi (2016) claims that the null adjunct reading is not available in downward entailing environments, though a footnote (fn. 7) admits that some speakers can obtain these readings with very strong contrastive stress on the equivalent of the adverb "carefully." On the other hand, Toosarvandani (2016:18) states the null adverb interpretation is indeed available in these environments in Persian without further discussion. Turning to Russian, Vera Gribanova (p.c.) observes that the null adjunct reading is relatively difficult to obtain in the Russian equivalent of (17b) (Bailyn 2014 suggests that it is impossible), though Russian has been argued quite convincingly to feature VVPE (Gribanova 2013a, 2013b, 2017). In Japanese, Oku (1998) claims that the null adjunct reading is not present at all (though this claim is hedged in a footnote), while Funakoshi (2016) disagrees.

Helpfully, Funakoshi goes further, claiming we can facilitate the null adjunct reading (a) if the antecedent sentence is also negated (see also Takahashi 2008); (b) if the antecedent and elliptical clauses are contrasted using the equivalent of *but* (Funakoshi 2014); or (c) if rich context is provided. It seems that these strategies also facilitate the reading in Hindi-Urdu, as in (18)–(20).[7]

(18) a. Ram-ne Chomsky-ka naya lekh dhyaan-se nahiiN
          Ram-ERG Chomsky-GEN new writing carefully NEG
          paRh-a.
          read-PFV.M.SG
          'Ram did not read the new paper by Chomsky carefully.'

      b. Raj-ne   bhii nahiiN paRha.
          Raj-ERG also NEG   read-PFV.M.SG
          'Raj also did not read (the new paper by Chomsky carefully).'

(19) Ram-ne Chomsky-ka naya lekh dhyaan-se paRh-a   magar
      Ram-ERG Chomsky-GEN new writing carefully read-PFV.M.S but
      Raj-ne   nahiiN paRh-a.
      Raj-ERG NEG   read-PFV.M.SG
      'Ram read the new paper by Chomsky carefully, but Raj did not read did not read (the new paper by Chomsky carefully).'

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[7]Thanks to Ayesha Kidwai for judgements and discussion. She reports that for her simply knowing about Raj's habitual carelessness is sufficient to facilitate the null adjunct reading in (17b).

(20) Ram and Raj wash their parents' cars to get their allowance. Ram was thorough in his work, while Raj was not.

    a.   Ram-ne   gaaRi dhyaan-se dhoy-ii.
         Ram-ERG car.F carefully wash-PFV.FSG
         'Ram washed the car carefully.'

    b.   Raj-ne   nahiiN dhoy-ii.   Yeh gaaRi jis-ko.   Raj-ne
         Raj-ERG NEG   wash-PFV.FSG that car.F REL-ACC Raj-ERG
         dhoy-aa   abhii bhii thooRi thooRi ganDi rah gay-ii.
         wash-PFV.MSG now also little   little   dirty.F stay go-PFV.FSG
         'Raj did not wash (the car carefully). The car Raj washed still remained a bit dirty.'[8]

Crucially, if the internal argument is not missing, the null adjunct reading cannot be drawn out by any means and remains unavailable.

(21) Ram-ne Chomsky-ka   naya lekh   dhyaan-se paRh-a   magar
     Ram-ERG Chomsky-GEN new writing carefully   read-PFV.M.S but
     Raj-ne   naya lekh   nahiiN paRh-a.
     Raj-ERG new writing NEG   read-PFV.M.SG
     'Ram read the new paper by Chomsky carefully, but Raj did not read did not read the new paper (NOT included: 'carefully').'[9]

Since it is possible to make the null adjunct interpretation more accessible in Hindi-Urdu, we can conclude that the elliptical clauses in (18)–(21) also represent true instances of VVPE, in which the elided VP includes both the internal argument and an adverbial. A detailed investigation of the crosslinguistic phenomenon in which the downward entailing elliptical environment makes the null adjunct reading less accessible is beyond the scope of the present article (though see Manetta 2018 for an overview of the landscape and a preliminary account), but we have at the very least established here that these pairs do not provide a clear argument against VVPE analyses of elliptical strings in these languages. This conclusion allows us to continue to use the adverb test to isolate the VPE reading throughout the argumentation that follows.

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[8]A reviewer makes a related observation concerning the degraded status of following clauses containing pronouns which reference the missing internal argument in the alleged VVPE site. Without going into great detail here, these judgements are unsurprisingly subject to the same variability and facilitation as in the adverbial clauses in (18)–(20).

[9]An additional data point comes courtesy of Jim McCloskey (p.c.) who suggests that if the "low" (restitutive) reading (Johnson 2004) is available for a missing adverb like *again* (in Hindi-Urdu, *dubara*) in an alleged VVPE site, then that reading must be the one obtained from inclusion in the VP-ellipsis. As (i) illustrates, the restitutive reading does seem to be available. Thanks to Ayesha Kidwai and Rajesh Bhatt for their judgements.

(i)   Ram-ne apnaa darwazaa dubara khol-aa,   magar Raj-ne   nahiiN khol-aa.
        Ram-ERG self's door   again open-PFV.M but   Raj-ERG NEG   open-PFV.M
        'Ram opened his door again, but Raj did not (open his door again)' = Raj did not return his door to the open state.

2.3 Deep and surface anaphora and islands

As Hankamer and Sag (1976) famously demonstrated, ellipsis generally is an instance of surface anaphora, requiring a linguistic, and not just a pragmatic, antecedent. This is illustrated with English VPE in (22).

(22)   a.   [Hankamer attempts to stuff 9-inch ball through a 6-inch hoop]
           Sag: #It's not clear that you'll be able to __.
           Sag: It's not clear that you'll be able to do it.
    b.   Hankamer: I'm going to stuff this ball through this hoop.
           Sag: It's not clear that you'll be able to __.

<div align="right">Hankamer and Sag (1976:392)</div>

A second well-known property of VPE in English is that it is permitted within islands that exclude the antecedent.

(23)   a.   Meena won't put the pig back in the barn.
    b.   Don't worry, Jorge knows [a student [who will ___]].

Gribanova (2013a) provides detailed discussion concerning the fact that in Russian, null object pronominals are relatively unacceptable inside of islands. Though space does not permit a thorough review of the equivalent evidence which is explored in significant detail elsewhere, the example in (24) below illustrates that the same holds true for Hindi-Urdu (see also fn. 11).

A test for VVPE laid out in detail for Russian in Gribanova (2013a) exploits these two properties of VVPE (available in islands, requiring a linguistic antecedent) to create a context in which a felicitous sentence cannot be produced. If an alleged instance of VVPE in Hindi-Urdu is embedded within an island (ruling out a null pronominal analysis), but not provided with a linguistic antecedent (ruling out the ellipsis analysis), the result should be unacceptable.[10] This is indeed the case, as illustrated in (24):

(24) [Meena pulls up to the curb in a shiny vehicle while the two conversants watch]
      Speaker: #aap yeh baat jaante   haiN ki Manu-ne   bhi __ kharid-ii thii?
                 2PL that fact know-HAB.PL AUX that Manu-ERG also   buy-PFV.F AUX.F
                 'Do you know the fact that Manu also bought (a new car)?'

---

[10]The fact that (24) is unacceptable indicates that VVPE, argument ellipsis, and null pronominals are all prohibited in these contexts. We can see from the improvement resulting from the provision of a linguistic antecedent in (25) below, that VVPE is certainly possible within islands. As we might expect, a version of (24) in which the gap is not embedded within an island is judged by the informants in this study to be significantly better (the ? label indicates that not all informants judged these to be fully acceptable).

  (i)   [Meena pulls up to the curb in a shiny vehicle while the two conversants watch]
      Speaker: ?Kyaa Manu-ne   bhi __ kharid-ii   thii?
              Q   Manu-ERG also   buy-PFV.F AUX.F
              'Did Manu also buy (a new car)?'

As a reviewer points out, null pronominals that are embedded, but not within an island, are certainly acceptable. I take this to mean that like in Russian, Hindi-Urdu does not permit null pronominal objects inside of islands. For more on why this might be so, see Gribanova (2013a) and references cited therein.

However, argument ellipsis is also an instance of ellipsis, and therefore should pattern with VVPE with respect to both the deep/surface distinction and islandhood, so this test alone does not rule out argument ellipsis as an analysis for (23)–(24). For our purposes in the case of Hindi-Urdu, we shall need to further complicate the structure by adding an adverbial in the correlate that is also interpreted to be within the ellipsis site. This will ensure that we are testing structures that are only potentially VVPE.

If we now provide a linguistic antecedent, as in (25), the resulting ellipsis in (25b) is fully grammatical.

(25)   a.   Meena-ne   nayii gaaRii aaj   kharid-ii thii.
                  Meena-ERG new.F car.F   today buy-PFV.F AUX.F
                  'Meena bought a new car today.'
        b.   kyaa aap yeh baat jaante   haiN ki Manu-ne bhi _
                  Q   2PL that fact know-HAB.PL AUX that Manu-ERG also
                  kharidii   thii.
                  buy-PFV.F AUX.F
                  'Do you know the fact that Manu also bought (a new car today)?'

In sum, in comparing (24) with (25), we see that a pragmatic antecedent alone (without a linguistic antecedent) is not sufficient for this elliptical structure when embedded in an island. However, once a linguistic antecedent is provided, the sentence is markedly improved. Since this cannot be argument ellipsis due to the inclusion of the adverbial in the interpretation of the ellipsis site, nor can it be a null pronominal since it requires a linguistic antecedent, it must be understood as true VVPE.

This section of the article has argued that Hindi-Urdu does indeed exhibit VVPE. At least three distinct constructions above identify unambiguous instances of VVPE: ellipsis of a conjoined VP as in (13b), ellipsis of both an internal argument and an adverbial as in a number of clauses in Sect. 2.2, and ellipsis within an island with a linguistic antecedent in (25b). We can now turn to VPE in complex predicate constructions.

3 Complex predicates and VPE

Hindi-Urdu has a wide range of complex predicates formed when a so-called light verb combines with a verb, noun, adjective, or preposition to create a single composed predicate with a single set of arguments. In the case of complex predicates featuring two verbs, as in (26), the so-called light verb (a term attributed to Jespersen 1965) typically contributes to the *aktionsart* of the overall predication. In noun-verb complex predicates as in (27), the light verb serves as a verbalizer. In each case, it is the light verb that carries inflection.

(26)   V-V COMPLEX PREDICATE
          Nadya-ne   xat   likh liiy-aa.
          Nadya-ERG letter.M write take-PFV.M
          'Nadya wrote a letter (completely).'

(27)   N-V COMPLEX PREDICATE
      Nadya-ne   kahani yaad   k-ii.
      Nadya-ERG story.F memory do-PFV.F
      'Nadya remembered the story.'

The semantic and syntactic properties of these complex predicates have been the subject of extensive research (Hook 1974; Mohanan 1994; Butt 1995; Butt and Lahiri 2002; Davison 2005; Butt and Ramchand 2005; Butt et al. 2008; Mahajan 2012), as they are an emblematic feature of many Indic languages.

In Hindi-Urdu, all light verbs are form-identical to a main verb in the language. As Butt (1995) shows with careful testing, sentences with complex predicates are monoclausal. Yet it is clear from evidence including the potential for reduplication of the light verb and combinatory restrictions that light verbs are distinct from aspectual and tense auxiliaries (Butt and Geuder 2001; Butt 2003, 2010; Butt and Ramchand 2005). As these claims are uncontroversial and thoroughly reviewed elsewhere, I refer the reader to the cited literature for the detailed diagnostics.

A dominant analysis of light verbs within the Minimalist framework is that they are instantiations of the head v (Adger 2003; Butt and Ramchand 2005; Bhatt 2008; Mahajan 2012). However, there are some important differences in the way in which the light verb is treated across several of these approaches. These differences will be explored in Sects. 4.2 and 4.3, to determine whether the interaction of VVPE with complex predicates favors any particular analysis. For the purposes of this section, we will assume that the light verb is found in v prior to the verb movement that must precede VVPE. This is consistent with all of the leading accounts of complex predicates in Hindi-Urdu in the current framework.

To this point we have demonstrated that VVPE does occur in Hindi-Urdu with simple main verbs. To my knowledge the interaction between VPE and complex predicates has not yet been addressed in the literature. VVPE is indeed available in these complex predicates in Hindi-Urdu, as in (28) below, in which the main and light verb are stranded together while vP-internal material is missing:

(28)   a.   Kabir-ne   us kitaab-ko pahli baar paR liiy-aa.
           Kabir-ERG this book-ACC first   time read take-PFV.M
           'Kabir managed to read this book for the first time.'
      b.   Meena-ne   bhi _ paR liiy-aa.
           Meena-ERG also   read take-PFV.M
           'Meena also managed to read (this book for the first time).'

                                            (Ghanshyam Sharma, p.c.)

Toosarvandani (2009) observes a slightly different manifestation of VPE in complex predicates in Persian. In this version the light verb, understood to be in v, is stranded, and the lexical projection complement to v, VP, is elided. Persian features only N-V (not V-V) complex predicate structures. The vVPE construction in Persian is shown in (29):

(29) Sohraab piranha-ra otu na-zad vali rostam [~~piranha-ra otu~~] zad.
      Sohrab   shirts-ACC iron NEG-do but Rostam shirts-ACC iron do

PERSIAN

'Sohrab did not iron the shirts but Rostam did (iron the shirts).'

(Toosarvandani: (4))

Toosarvandani provides the following tree illustrating the clausal structure that feeds vVPE in complex predicates in Persian (see also Karimi 1999a, 1999b; Folli et al. 2005).

(30)

The question is whether Hindi-Urdu also permits the equivalent of this variety of VPE, in which light verb alone is stranded, and whether it does so with N-V and V-V complex predicates. Native speakers of Hindi-Urdu were provided with VPE contexts in which the light verb in the complex predicate was stranded while the main verb and its internal arguments were elided. To ensure that it is the properties of VPE and not null pronominals that are under investigation, I have used correlates containing adverbs (interpreted in the elliptical site) and correlates containing disjunction. The results are quite uniform. In the case of V-V complex predicates, speakers' judgements on elliptical clauses stranding only the light verb to express the desired meaning ranged from "barely acceptable, unnatural" to "unacceptable." I have marked these sentences (the (c) examples in (31)–(34)) with the symbol ?*. This is in sharp contrast to the VVPE versions of the same sentences in the (b) examples in which both main verb and light verb were stranded. These were universally judged fully acceptable are thus unmarked below.

V-V COMPLEX PREDICATES

(31) a. Kabir-ne   us kitaab-ko pahli baar paR liiy-aa.
          Kabir-ERG this book-ACC first   time read take-PFV.M
          'Kabir managed to read this book for the first time.'
      b. Meena-ne   bhi __ paR liiy-aa.
          Meena-ERG also   read take-PFV.M
          'Meena also read (this book for the first time).'
      c. ?*Meena-ne bhi _ liiy-aa.

(32) a. Kabir ek baat kal   samajh   gay-aa.
          Kabir a   fact yesterday understand go-PFV.M
          'Kabir understood a fact yesterday.'
      b. Meena bhi __ samajh   gay-aa.
          Meena also   understand go-PFV.M
          'Meena also understood (a fact yesterday).'
      c. ?*Meena bhi __ gayaa.

(33) a. Nadiya-ne   xat   pahli baar me likh   liiy-aa.
          Nadiya-ERG letter first   time on write take-PFV.M
          'Nadiya wrote a letter on the first attempt.'

      b. Yeh baat ki Samir-ne bhi __ likh liiy-aa   dilchasp
          This fact that Samir-ERG also   write take-PFV.M interesting
          hai.
          BE.PRS.3S
          'The fact that Samir also wrote (a letter on the first attempt) is interest-
          ing.'

      c. ?*Yeh baat ki Samir-ne bhi ___ liiy-aa dilchasp he.

(34) a. Nadiya-ne xat   Mina-ko yaa paise Sita-ko bhej diiy-ee
          Nadiya-ERG letters Mina-DAT or   money Sita-ACC send give-PFV
          thee?
          AUX.PST.PL
          'Had Nadiya sent letters to Mina or money to Sita?'

      b. haaN Nadia-ne __ bheej diiy-ee   thee.
          Yes, Nadi-ERG   send give-PFV.PL AUX.PST.PL
          'Yes, Nadia had sent (letters to Mina or money to Sita).'

      c. ?*haaN Nadia-ne ___ diiy-ee thee.   (judgement Rajesh Bhatt, p.c.)

In the case of N-V complex predicates, the larger picture is a bit more fragmented, as
there seems to be more than one class or type of N-V complex predicate that respond
differently to a range of diagnostics (Ahmed and Butt 2011). These differences are
addressed directly in Sect. 4.3 below, but preliminarily we can observe that the N-V
predicate *yaad kar* 'remember' patterns much like the V-V complex predicates above.

N-V COMPLEX PREDICATES

(35) a. Kabir-ne   kahani asaani-se yaad   k-ii.
          Kabir-ERG story.F easily   memory do-PFV.F
          'Kabir remembered a story easily.'

      b. Meena-ne   bhi __ yaad   k-ii.
          Meena-ERG also __ memory do-PFV.F
          'Meena also remembered (a story easily).'

      c. ?? Meena-ne bhi __ k-ii.

What emerges clearly here is that unlike in Persian, Hindi-Urdu V-V complex predi-
cates (and some N-V complex predicates) do not seem to permit vVPE. In structural
terms, for these predicates there is no process by which the main verb/nominal and
its internal arguments can be elided, stranding only the light verb.

   The novel data concerning VPE presented in this section raises several important
questions. First, does the availability of VVPE but not vVPE have any ramifications
for existing approaches to the syntax of complex predicates in Hindi-Urdu and if so,
does it favor one approach over others? Indeed, do these facts suggest that the dis-
parate lexical items in V-V complex predicates are more syntactically unified than
previously thought? Second, does the availability of VVPE but not vVPE have any-
thing to tell us about verb movement in a verb-final language like Hindi-Urdu? This
question becomes especially relevant in the context of the line of research that seeks

to tease apart the processes of (a) the composition of the verb stem with inflectional morphology and (b) syntactic movement of the verb to higher functional heads resulting in interpretive and word order effects. As we will see below, VVPE with complex predicates reveals that verb movement in Hindi-Urdu must include all verbal material in both V and v, composing a complex head comprised of multiple lexemes that predicates as a unit. The following section explores these questions and what we can learn from the interaction of VPE and complex predicates in Hindi-Urdu.

4 Verb movement in Hindi-Urdu

4.1 The verbal structure and the role of VVPE

The availability of VVPE and the unavailability of vVPE reveal important properties of the verbal complex in Hindi-Urdu, including the potential for verb movement out of the verbal layer and the fine structure of complex predicates.

The Hindi-Urdu verbal complex is clause-final and rigidly ordered, and consists of a main verb followed by the light verb and a number of auxiliaries.

(36)   Main verb (light verb) (passive aux) (aspectual morphology/aux) (tense aux)

Following a range of previous work (Bhatt 2003, 2005; Kumar 2006; Butt and Ramchand 2005; Manetta 2011; among many others), I adopt the widely-assumed basic structure below for a simple Hindi-Urdu clause as in (37).

(37)
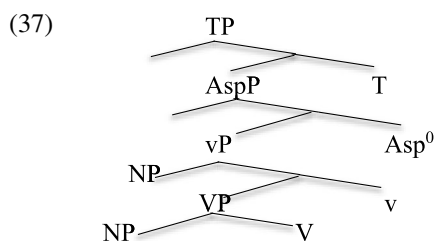
In a typical Hindi-Urdu sentence, any verb movement out of the vP would be string-vacuous, as all the heads of the verbal complex appear on the right. A number of researchers have assumed some degree of verb movement for various reasons (e.g. Kumar 2006; Bhatt and Dayal 2007; Bhatt 2008). Kumar (2006), for instance, argues for obligatory successive head movement via adjunction for the purposes of better analyzing word order with respect to negation and the combination of aspectual morphology with the verb stem. Bhatt and Dayal (2007) assume optional verb movement to the head of the aspectual projection (over negation when present) in order to create VP-remnant structures that can subsequently be displaced. However, it is challenging to find direct evidence that verb movement has taken place, and tests for positioning of adverbs, post-verbal material, and subjects relative to the verb are unrevealing when the verb string is clause-final (Pollock 1989; McCloskey 1991; Depiante and Vicente 2012). The position of negation has the potential to be more

useful, but as sentential negation can appear either immediately preceding or imme-
diately following the inflected verb in the verbal string in Hindi-Urdu, these tests have
not provided unambiguous information (Kumar 2006).

As other researchers working on head-final languages have suggested (Otani and
Whitman 1991; Koizumi 2000; Simpson and Syed 2014), VVPE has the potential
to provide just such evidence. The availability of VVPE in Hindi-Urdu demonstrates
that at least the main verb and the light verb must be able to move out of the target of
VPE. The question then remains: what is the size of that target constituent? A con-
sensus has emerged in more recent work that the size of the constituent that is elided
in English-style VPE is vP (Merchant 2013; Aelbrecht 2010), and work on VVPE
in other languages has also claimed that ellipsis of vP is at work (McCloskey 1991;
Goldberg 2005; Gribanova 2013a). A test which attempts to identify the lower bound
of the constituent targeted by VPE exploits the two interpretations of the lexical item
again: the repetitive reading and the restitutive reading. Johnson (2004) follows pre-
vious work in assuming that restitutive *again* is adjoined lower (at the VP layer), and
repetitive *again* is adjoined higher (at the vP layer). In English VPE contexts, when
again modifies the elliptical clause, only the repetitive reading remains, which results
in infelicity if the repetitive reading is rendered unavailable (in (38)). The same is true
in Hindi-Urdu, in (39).

(38)   The wind shut the door. No one opened it. #Finally, Raj did again.

(39)   Hawa-ne   darvaaza band kar diy-aa.   Kisi-ne   bhi nahiiN
        wind-ERG door   close do give-PFV.M Anyone-ERG also NEG
        khol-aa.   #MaiN ye baat jaanta huN ki Raj-ne   dubaara
        open-PFV.M 1SG   this thing know AUX that Raj-ERG again
        khol-aa.
        open-PFV.M
        'The wind closed the door. No one opened it. I know the fact that Raj opened
        again.'   (Rajesh Bhatt, p.c.)

This evidence suggests that in Hindi-Urdu VPE also targets (at least) a vP-sized con-
stituent and not something smaller, as schematized in (40):

(40)
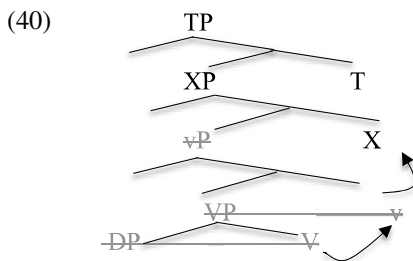
The task is now to identify the functional head X to which the verb moves in Hindi-
Urdu. In Sect. 3 above, we saw evidence that both a main verb and a light verb in a
V-V complex predicate must escape the ellipsis site. If the light verb is indeed base
generated in or must combine with the v head, and the ellipsis site is at least vP-
sized, then both the main verb and the light verb must move to a functional head

outside the vP. Since this movement is string vacuous, it is not entirely obvious to which functional head the V+v complex may move. Previous accounts of VVPE have posited that ellipsis is preceded by V-to-T movement (McCloskey 1991; Goldberg 2005). Gribanova (2013a) argues for Russian that the verb moves into the Aspect head located between V and T. There are several reasons to believe that V-to-Asp^0 movement might also be at work in Hindi-Urdu.

Previous claims that Hindi-Urdu has overt verb movement into Asp^0 have cited the morphological composition of the verb (Kumar 2006; Bhatt and Dayal 2007). Hindi-Urdu has a number of dependent aspectual morphemes that combine with the verb root, including the imperfective/habitual suffix *-ta/ti/te* and the perfective suffix *-a/i/e*. Under the assumed framework, these components of verbal morphology are indeed syntactically independent, but are combined via head movement to produce a single morpho-phonological unit. In addition, the tense auxiliary *ho*, when present, follows the aspectually suffixed verb form as in (41)

(41) a. Khushboo gaane gaa-tii   haiN.
          Khushboo songs sing-HAB.F AUX.PRS
          'Khushboo sings songs.'
      b. Khushboo kal   aay-ii.
          Khushboo yesterday come-PFV.F
          'Khushboo came yesterday.'

Once combined, the inflected verb and the auxiliaries of the verbal complex (and sentential negation when present) cannot typically be separated by displacement, though they can be displaced as a unit (see Butt 1995 and Sect. 4.4 below).[11] The word order of these components would suggest that the composed verb form is located in Asp^0 while the independent tense auxiliary is in T. I will therefore propose, along with others (Bhatt 2005; Bhatt and Dayal 2007), that in general in Hindi-Urdu the material in the V head, the v head, and the Asp^0 head combine via syntactic (string-vacuous) head movement.[12] Note that I have also assumed here that the subject will move to the specifier of TP (along with Bhatt 2003, 2005; Manetta 2011).

A second compelling argument for verb movement to at least Asp^0 in Hindi-Urdu can be made by examining conditions on verbal identity under VPE. Crosslinguistic research on VVPE has revealed that many languages require strict identity between

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[11]A reviewer provides the following (marked) example in which a constituent can intervene between the main verb and the light verb within the verbal complex.

(i) tum kitaab paRh kyoN nahiiN let-e   ho?
     2SG book read why NEG   take-HAB.MPL AUX
     'Why don't you read the book?'

Butt et al. (2016) propose that this marked word order is prosodic in nature, for the purposes of placing primary focal stress on the main verb (see also Bhatt and Dayal 2007; Manetta 2012; Butt 2014). The present account is not inconsistent with a leftward displacement-based account of verbal focus.

[12]Kumar claims (contra Mahajan 1990) that the head hosting negation is found above the aspectual head in Hindi-Urdu. I follow Dwivedi (1991) and Bhatt and Dayal (2007) in the claim that the verbs move to an aspectual head above vP, and that head dominates negation when present. Though space does not permit a detailed discussion of negation in Hindi-Urdu, the interaction of negation with some complex predicates is discussed in Sect. 4.3.

the stranded verb in the elliptical clause and the verb in the antecedent (Goldberg 2005 for Hebrew; McCloskey 2011 for Irish; Gribanova 2013a, 2013b for Russian). Crucially, inflectional morphology originating outside the ellipsis domain may vary freely. We have already seen evidence above in Sect. 2.2 that true VVPE in Hindi-Urdu is likewise constrained by the verbal identity requirement. We can further show here that not only simplex verbs but also complex predicates are subject to this requirement in the absence of strong verbal focus. Neither main verb (in (42)–(44)) nor light verb (in (45)–(46)) may vary under VVPE. The pronominal is required for grammaticality if the verb is altered in the elliptical clause in (42)–(44), and in (45)–(46) the light verb must remain invariant. This suggests that both main verb and light verb originate within the domain of VPE (here understood to be vP) (Goldberg 2005). By contrast, aspectual morphology may vary quite naturally between the elliptical clause and the correlate, indicating that the head in which this morphology is generated is outside the elliptical domain (as in (47)).

(42)   Sita-ne   ghar beech-a.   Aap jaan-te   haiN   yeh baat ki
       Sita-ERG house sell-PFV.M 2PL know-HAB.PL AUX.PL the fact that
       Ram-ne   bhi beech-a?
       Ram-ERG also sell-PFV.M
       'Sita sold a house. Did you know that Ram also sold (a house)?'

(43)   Sita-ne   ghar-ko   beech-a.   Aap jaan-te   haiN   yeh baat ki
       Sita-ERG house-ACC sell-PFV.M 2PL know-HAB.PL AUX.PL the fact that
       Ram-ne   ?*(us-ko) bhi banaay-aa   thaa?
       Ram-Ram-ERG 3SG-ACC also build-PFV.M AUX.M
       'Sita sold the house. Did you know that Ram also built it?'

(44)   Bacce   skool meN kavitaaN paRh rahe   haiN.   Yeh baat ki vo
       children school in   poems   read PROG.PL AUX.PL this fact that 3PL
       ?*(un-ko) likh rahe   haiN   bhi bahut achcha hai.
       3PL-ACC write PROG.PL AUX.PL also very good   be.3SG
       'The children are reading poems at school. The fact that they are writing
       them is also very good.'

(45)   MaiN-ne ek nayaa ghar khareed liy-aa.   Aap-ne   sunn-aa   yeh
       1SG-ERG a new   house buy   take-PFV.MSG 2PL-ERG hear-PFV.M this
       baat ki Sita-ne bhi khareed liy-aa/*diy-aa?
       fact that Sita-ERG also buy   take-PFV.MSG/give-PFV.MSG
       'I bought a new house. Did you hear the fact that Sita also bought (a new
       house)?'

(46)   Shyaam-ne Mina-ko   xat   ya Sita-ko   kavitaaN likh diy-ee
       Shyaam-ERG Mina-ACC letters or Sita-ACC poems   write give-PFV.PL
       thee? HaaN, Shyaam-ne likh diy-ee/*mar-ee   thee.
       AUX.PL yes, Shyaam-ERG write give-PFV.PL/hit-PFV.PL AUX.PL
       'Had Shyaam written letters to Mina or poems to Sita? Yes, Shyaam had
       written (letters to Mina or poems to Sita).'

(47) Shyaam-ne Mina-ko xat   ya Sita-ko kavitaaN likh diy-ee
      Shyaam-ERG Mina-ACC letters or Sita-ACC poems   write give-PFV.PL
      thee?   NahiiN, par Ali abhi likh de   raha hai.
      AUX.PL no,   but Ali now write give PROG AUX.SG
      'Had Shyaam written letters to Mina or poems to Sita? No, but now Ali is
      writing (letters to Mina or poems to Sita).'

Evidence both from adverbial modification (by *again*) and from the verbal identity
requirement point to the conclusion the elided constituent in VVPE in Hindi-Urdu
is likely vP, and that the main verb and light verb move to at least the functional
head Asp^0, escaping ellipsis. This conclusion is consistent with other widely held
assumptions about the size of the constituent elided in VPE crosslinguistically and
the verbal domain in Hindi-Urdu.

   With this in place, we can now detail the head movement and ellipsis process re-
quired to create the VVPE in the complex predicate in (48b) in the schematic in (49).

(48) a. Kabir-ne   us kitaab-ko pahli baar paR liiy-aa.
          Kabir-ERG this book-ACC first time read take-PFV.M
          'Kabir managed to read this book for the first time.'
      b. Meena-ne   bhi __ paR liiy-aa.
          Meena-ERG also   read take-PFV.M
          'Meena also read (this book for the first time).'

(49)
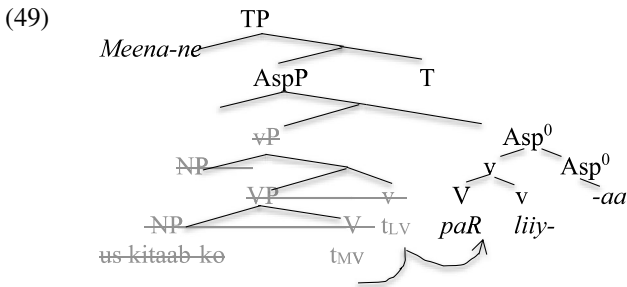
4.2 Implications of VVPE for the syntax of complex predicates

The ungrammatical string in which the light verb is stranded in the absence of a main
verb in a V-V complex predicate could be derived in one of two ways. Either the
constituent that is the complement to v could undergo ellipsis in the absence of any
head movement (as in Toosarvandani's 2009 account of Persian above), or the entire
vP could be elided after only the v head alone has moved out.

   In Hindi-Urdu both of these derivations must be ruled out, as the resulting strings
are ungrammatical. We have already seen evidence in Sect. 4.1 that the constituent
that is elided in VVPE is at least vP-sized, thus we can conclude that Hindi-Urdu does
not have an operation eliding the smaller constituent VP. In order to also exclude the
second derivation in which the v head alone moves out of vP, we must claim that
V-to-Asp^0 movement is obligatory in Hindi-Urdu, and that this movement proceeds
through v, forming a complex head consisting of the main verb, light verb (when

present), and the aspectual morphology. In this way, a structure in which the light verb is stranded outside the domain of ellipsis (vP) independent of the main verb cannot be generated. In Sect. 5, I turn to how verb movement in Hindi-Urdu can be situated in (and ideally inform) the wider body of recent research on the nature of head movement (e.g. Lacara 2016; Harizanov 2016; Gribanova and Harizanov 2016; McCloskey 2016), but first I will turn to the implications of this conclusion for the syntax of complex predication in Hindi-Urdu.

VVPE structures provide evidence for obligatory movement to Asp^0 in Hindi-Urdu. The conclusions reached here are thus incompatible with any account of complex predicates in Hindi-Urdu which prohibits movement of the main verb out of vP under certain circumstances (e.g. Mahajan 2012—for more detailed discussion see Manetta 2016). A dominant approach to complex predicates crosslinguistically is one that employs a decomposed verbal structure that presupposes a tight relation between the semantics of events and syntactic structure (as developed in Halle and Marantz 1993; Hale and Keyser 1993; Levin and Rappaport Hovav 1995; Hale and Keyser 2002; see also Ramchand 2008). This line of analysis is undertaken for Persian in Folli et al. (2005) and Megerdoomian (2012), and for Hindi-Urdu by Butt and Ramchand (2005) and to a certain extent Davison (2005).

The syntax for Hindi-Urdu V-V complex predicates of the type examined here proposed by Butt and Ramchand (2005) is situated in a framework termed 'first phase syntax' (Ramchand 2008) which relies on event structure decomposition.[13] Crucial to the present account is the notion that vP introduces the causation event (also licensing the subject/causer), VP specifies the nature of the change or process (and any entity undergoing the change/process), and the result phrase or RP introduces the 'result state' of the event (licensing the entity that holds the result state) (Butt and Ramchand 2005).

(50)
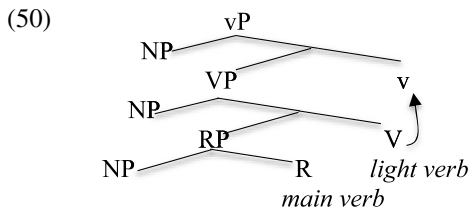
In Butt and Ramchand's approach to V-V complex predicates of this type, the main verb is hosted in the Result (R) head, as it represents the result/final state of the predicate. The light verb originates in the V head (associated with the change in state). The light verb then moves independently to the v head to become associated with causation. In their view, then, V-V complex predicates of this type are accomplishment predicates that happen to be made up of two distinct lexical heads.

The final V-to-v movement of the light verb alone is not fully compatible with the account of VPE in the present article, as it could potentially generate an ungrammat-

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[13]Butt and Ramchand (2005) also examine V-V constructions of the so-called 'let' type in which the main verb is in its infinitival form. I do not investigate these types of constructions, though their interaction with verb phrase ellipsis should be part of a wider, more comprehensive approach to complex predication in the language.

ical structure in which VVPE strands the light verb yet elides the main verb. I thus replace Butt and Ramchand's short light verb movement with the account of verb movement I have proposed here, in which V-to-Asp^0 (or indeed, R-to-Asp^0) is routine in Hindi-Urdu. This would then allow the light verb to pass through the v head and acquire the causal semantics Butt and Ramchand elaborate, and would combine the distinct lexical items into a single complex head, deriving all and only the grammatical strings associated with VVPE.

We have then arrived at an account of VVPE in V-V complex predicates that is schematized in the tree below.

(51)
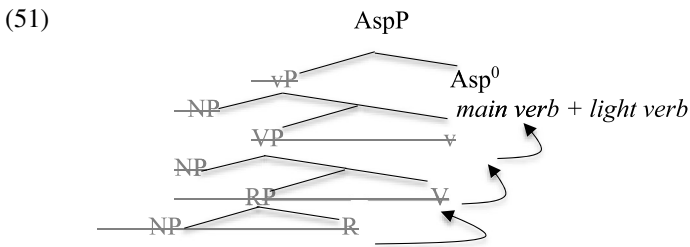
4.3 The structure of the N-V complex predicate

As mentioned above, Persian permits vVPE in the context of N-V complex predicates in which the light verb/verbalizer is stranded but the nominal component of the complex predicate is elided along with any internal arguments. As we can see from the direct comparison below, the Hindi-Urdu equivalent of this structure is dispreferred in the case of the N-V complex predicate *yaad kar* 'remember'.

(52)　Sohraab piranha-ra otu na-zad　vali rostam [~~piranha-ra otu~~] zad. PERSIAN
　　　Sohrab　shirts-ACC iron NEG-do but　Rostam shirts-ACC iron　do
　　　'Sohrab did not iron the shirts but Rostam did (iron the shirts).'

(Toosarvandani: (4))

(53)　a.　Kabir-ne　kahani asaani-se yaad　k-ii.　　　　　HINDI-URDU
　　　　　Kabir-ERG story　easily　memory do-PFV.F
　　　　　'Kabir remembered a story easily.'
　　　b. ??Meena-ne　bhi __ k-ii.
　　　　　Meena-ERG also __ do-PFV.F
　　　　　Intended: 'Meena also remembered (a story easily).'

The relative unacceptability of (53b) should be contrasted both with the naturalness of the VVPE version of this sentence in which the nominal component of the complex predicate is stranded alongside the light verb, and of course with the full acceptability of (52). The question then becomes whether the contrast between (52) and

(53b) stems from a difference in the syntax of N-V complex predicates in Persian and Hindi-Urdu.[14]

Mohanan (1994) demonstrates that there must be multiple classes of N-V complex predicates that have different properties with respect to primary agreement. A recent line of corpus-based work (Ahmed 2011; Ahmed and Butt 2011; Ahmed et al. 2012; Butt et al. 2012; Sulger and Vaidya 2014) has further refined our understanding of those classes and identified additional properties of N-V compounds and restrictions on N-V combinations. Ahmed 2011 initially identifies at least two classes of N-V complex predicates, using the term Class 1 and 2, though subsequent research suggests that additional subclasses might exist. Indeed, it appears that there may be instead something more akin to a continuum of N-V complex predicates, with some falling clearly in one class or another, and others exhibiting less cohesive or less stable sets of properties across varieties or speakers (Miriam Butt, p.c.). In what follows I will review several of these properties and address how VVPE fits into this picture. Corpus-based research into N-V complex predicates is ongoing, but this discussion has the potential to establish a new and important tool to probe the nature of N-V complexes crosslinguistically.

Hindi-Urdu is a split ergative language. Primary agreement is typically with the unmarked external argument in non-perfective aspects. In perfective aspects, primary agreement is with the internal argument when it is unmarked for case (absolutive) and defaults to third person masculine singular agreement when the internal argument is case-marked. For predicates like *yaad kar* 'remember', the inflected verb *kar* does not agree with the N that is part of the complex predicate (*yaad*, feminine) in ergative structures but with the DP argument of the complex predicate when unmarked, as in (54a). When that DP is marked with accusative case, verb agreement is the default, as in (54b). By contrast N-V complex predicates like *sawaal kar* 'ask, question' feature primary agreement with the nominal that is a part of the complex predicate structure, as in (55).

(54) a. Nadiya-ne   kahani yaad   k-ii.
          Nadiya-ERG story.F memory.F do-PFV.F.SG
          'Nadiya remembered a story.'

      b. Nadiya-ne   kahani-ko yaad   kiy-aa.
          Nadiya-ERG story-ACC memory.F do-PFV.M.SG
          'Nadiya remembered the story.'   (Ahmed 2011)

(55) Anjum-ne Nadiya-se   sawaal   ki-ee.
      Anjum-ERG Nadiya-INST questions.M.PL do-PFV.M.PL
      'Anjum asked Nadiya questions.'   (adapted from Ahmed 2011)

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[14] A reviewer suggests that the situation in Persian may also be more intricate than it might seem from Toosarvandani's analysis. Though Toosarvandani provides a wide range of complex predicates (intransitive, (di)transitive, with multiple light verbs) that do undergo vVPE, there may some N-V predicates in Persian that resist vVPE strings. If it is the case that Persian N-V predicates have a wider range of behaviors under VPE than was previously thought, Persian might be subject to the analysis proposed in the present article for Hindi-Urdu N-V complex predicates. There is clearly further careful empirical work to be done.

Some N-V complex predicates also permit the nominal to be modified, as in (56), whereas this is not available for other predicates, as in (57).

(56) Anjum-ne Nadiya-ko kai achhe savaal kiy-ee.
      Anjum-ERG Nadkia-ACC several good.MPL question.MPL do-PFV.M.PL
      'Anjum asked Nadiya several good questions.'   (Ahmed 2011)

(57) *Nadiya-ne kahani-ko achhi yaad kiy-aa.
      Nadiya-ERG story-ACC good memory do-PFV.M.SG
      Intended: 'Nadiya had a good memory of the story/remembered the story
      well.'

Notably the complex predicate actually alters the argument structure of certain verbs when they are used in their capacity as light verbs. Compare (58) and (59) below. In (58), *de* 'give' is used in its capacity as a main verb of giving, and can take a recipient. In (59), on the other hand, *de* is functioning as a light verb in a complex predicate, and a recipient is impossible for this action.

(58) Nadiya-ne Yasin-ko jhaRu d-ii.
      Nadiya-ERG Yasin-DAT broom.F give-PFV.F.SG
      'Nadiya gave the broom to Yasin.'

(59) Nadiya-ne (*Yasin-ko) kamreN-meN jhaRu d-ii.
      Nadiya-ERG Yasin-DAT room-LOC broom.F give-PFV.F.SG
      'Nadiya swept the room.'   (Ahmed et al. 2012)

As we might expect, various complex predicates seem to behave differently in VPE environments. As we have seen above, N-V predicates like *yaad kar* 'remember' resist vVPE just at do V-V complex predicates; the VVPE structure is preferred. The complex predicate *shuruu kar* 'start, begin' seems to behave similarly. However, for other predicates, vVPE-like strings are more readily available, as in (60b) and (61b). Informants uniformly judged the vVPE-like strings for these predicates acceptable.[15] Note that the vVPE-like strings in the (c) examples below look much like the equivalent sentences in Persian.

(60) a. Anjum-ne Nadiya-se jaaldise sawaal kiyaa.
          Anjum-ERG Nadiya-INST quickly question.M do-PFV.M
          'Anjum quickly asked Nadiya a question.'

                                          (adapted from Ahmed 2011)

      b. Salim-ne bhi ___ (sawaal) kiy-aa.
          Salim-ERG also   question.M do-PFV.M
          'Salim also asked (Nadiya a question quickly).'

                                          (Tafseer Ahmed, p.c.)

(61) a. Nadiya-ne Ali-ko jaaldise ishara di-ya.
          Nadiya-ERG Ali-ACC quickly signal give-PFV.M
          'Nadiya quickly signaled Ali.'

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[15]Thanks to Tafseer Ahmed and Miriam Butt for helpful discussion of these data.

b. Meena-ne   bhi __ (ishara) di-ya.
   Meena-ERG also   signal   give-PFV.M
   'Meena also signaled (Ali quickly).'   (Tafseer Ahmed, p.c.)

Given that certain N-V complex predicates in Hindi-Urdu, like V-V complex predicates, do not readily allow vVPE-like strings, while others seem to permit them, we can explore implications for the difference in the syntax of the underlying structures of N-V and V-V complex predicates.[16]

Folli et al. (2005) propose the following syntax for a Persian complex predicate of the type we saw above (*otu zadan* = 'iron hit' = 'iron') in which the nominal component is hosted in an NP complement to the main v containing the light verb. This is the structure employed by Toosarvandani (2009) in his approach to vVPE:

(62)
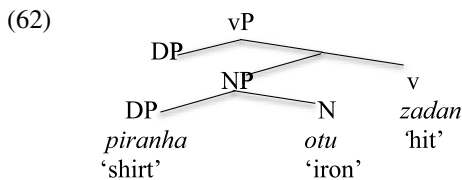
Crucially for our purposes here, Folli et al's proposal (as used in Toosarvandani 2009) and a slightly refined version found in Megerdoomian (2012) have in common the fact that the light verb is ultimately found in v and that the nominal component remains in the head N. This means that in the case of vVPE in Persian, the nominal component of the complex predicate will be elided along with other VP-internal material, stranding the light verb alone.

Turning now to Hindi-Urdu, I propose that the difference between N-V predicates that only permit VVPE and those that also allow vVPE stems in part from the nature of the head into which the nominal component may be merged. For those N-V complex predicates permitting only VVPE and resisting vVPE, we adopt precisely the structure proposed V-V complex predicates in Hindi-Urdu, based on Butt and Ramchand (2005). I have reproduced that structure below; in the head R we find merged category-neutral root *yaad* 'memory'. This root happens to take an NP argument (*kahani* 'story'). As above, the light verb (in this case *kar* 'do') is found in V.

(63)

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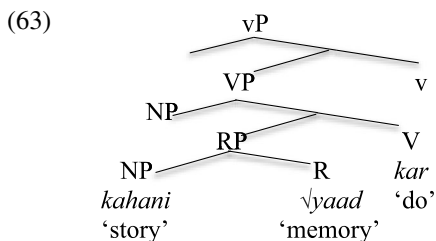
[16]Miriam Butt (p.c.) observes that those complex predicates in which the inflected light verb is more semantically "contentful" (e.g. with *de* 'give') seem better able to support vVPE strings compared to those which are less "contentful," (e.g. with *ho* 'be').

Just as before, R-to-Asp^0 head movement in Hindi-Urdu is obligatory, so the root in R will first undergo movement and head adjunction to the head found in V (the light verb). These together will move to v and subsequently to Asp^0. If the vP is then elided, as in VVPE, we will only be able to produce the VVPE string, not the dispreferred vVPE-like string. This is because the root in R will always be found too high to be included in the domain of verbal projection ellipsis.

Let us now turn to N-V complex predicates in Hindi-Urdu which permit vVPE strings in which the light verb is stranded but the nominal component is elided. I claim here that the nominal component in these predicates cannot be merged into R, but instead must be merged into an N head within an NP, as in Folli et al.'s (2005) approach to Persian.[17] I have provided the underlying structure for a typical vVPE-permitting predicate in (64), in which the nominal component *sawaal* 'question' is merged within an NP. The light verb is merged into V, as before.

(64)

$$
\begin{array}{c}
vP \\
\diagup \diagdown \\
VP \qquad v \\
\diagup \diagdown \\
DP \qquad \diagup \diagdown \\
\textit{Nadiiya-se} \quad NP \qquad V \\
\text{'Nadiya'} \quad \textit{sawaal} \qquad \textit{kar} \\
\text{'question'} \qquad \text{'do'}
\end{array}
$$
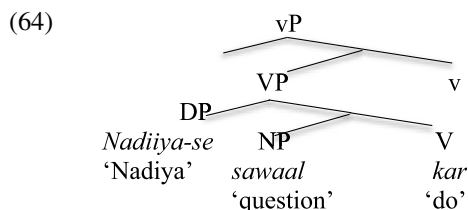
Head movement proceeds from V (in the absence of R) to Asp^0 as above. We will assume here that head movement is restricted to the extended projection of the head (see for instance the discussion in Williams 2009). Given that N is not part of the extended projection of V that includes v and Asp^0, it will not participate in routine V-to-Asp^0 movement in the language (though see the discussion of pseudo noun incorporation below). The nominal may thus stay within the vP and be elided in VPE, creating the vVPE-like string as in Persian in which only the light verb is stranded.

Since vVPE-like strings are unavailable for predicates like *yaad kar* 'remember' it must be the case that these roots contain a type specification that requires them to be merged into the result predicate R, much like the main verbs in V-V complex predicates. On the other hand, roots like *sawaal* 'question' do not have this specification, and thus can only be merged into nominal functional structures (Hale and Keyser 2002; Butt and Ramchand 2005; Harley 2005). Thus, predicates formed with roots like *yaad* 'memory' will never appear in vVPE-like strings.

The present proposal does not yet explain how it is that roots like *sawaal* 'question' seem to also permit VVPE-like strings stranding N+V, as in (60b). I will suggest that the process by which the NP containing *sawaal* 'question' and the light verb *kar* 'do' combine is much like the well-researched phenomenon of pseudo-incorporation of bare nominals in Hindi-Urdu (Mohanan 1994; Butt 1995, 2010; Dayal 2003, 2011; Baker 2014). Dayal (2011) claims that in pseudo-incorporation in Hindi-Urdu, the verb combines with a phrasal NP containing a bare noun:

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[17] In contrast to Megerdoomian's structure in (70) in the text above, I maintain that the noun in Hindi-Urdu heads an NP as in Folli et al. This claim is based on a number of important properties of the nominal that are not unlike properties of incorporated nouns in Hindi-Urdu (Mohanan 1994; Butt 1995, 2010; Dayal 2003, 2011) and which are discussed in further detail below.

(65) anu puure din cuuhaa pakaR-tii rahii.
      Anu whole day mouse catch-IMP PROG
      'Anu kept mouse-catching the whole day.'   (Dayal 2011:(16b))

She further demonstrates that the nominal in such structures can be modified, as in
(66), is the target of agreement in ergative structures as in (67), and need not be found
immediately adjacent to the incorporating verb, as in (68).

(66) Anu sirf puraan-ii kitaab bec-egii.
      Anu only old-F   book.F send-FUT.F
      'Anu will only sell old books.'   (Dayal 2011:(26a))

(67) puure din maiN-ne (apne kamre meN) kitaab paRh-ii.
      all   day 1SG-ERG self's room in   book.F read-HAB.F
      'The whole day I read books in my room.'   (Dayal 2011:(25))

(68) Anu bacca nahiiN samhaal-egii.
      Anu child NEG   look after-FUT.F
      'Anu will not look after children.'   (Dayal 2011:(28a))

These same three properties are shared by the nominal in vVPE-permitting N-V
complex predicates: the nominal can be modified as in (69), is the target of agreement
in ergative structures as in (70), and can be non-adjacent to the verb as in (71) (see
also the data in (58) and (59) above).[18]

(69) Anjum-ne Nadiya-ko kai   achhe   savaal   kiy-ee.
      Anjum-ERG Nadkia-ACC several good.MPL question.MPL do-PFV.M.PL
      'Anjum asked Nadiya several good questions.'   (Ahmed 2011)

(70) Anjum-ne Nadiya-se sawaal   ki-ee.
      Anjum-ERG Nadiya-INST questions.M.PL do-PFV.M.PL
      'Anjum asked Nadiya questions.'   (adapted from Ahmed 2011)

(71) Nadiya-ne Ali-ko   ishara nahiiN di-ya.
      Nadiya-ERG Ali-ACC signal NEG   give-PFV.M
      Intended: 'Nadiya did not signal Ali.'

Baker (2014) provides a linearization-based account of the syntax of pseudo noun
incorporation (PNI) in Hindi-Urdu (building on Dayal 2011) which accommodates
quite neatly the properties of both pseudo-incorporated nominals and certain types of
N-V complex predicates. PNI under his account is head movement (via head adjunc-
tion) of the head N to incorporate with V; this movement forms a structure interpreted
as a complex predicate at LF, as in Dayal's (2011) semantics. Indeed, Baker asserts
that we can interpret X and Y as a complex predicate at LF iff X and Y form a
complex head (an X^0). Importantly, this understanding of the relation between the
syntax and semantics of complex predicates is entirely consistent with our claims in

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[18]In contrast, Megerdoomian (2012) reports that in Persian while adjectives do appear adjacent to the
nominal in complex predicates, the modification is interpreted as adverbial or a modification of the event
described by the complex predicate.

the present article concerning V-V and N-V complex predicates in Hindi-Urdu, and is consistent with our wider discussion of head movement in Sect. 5.

Based on linearization constraints elaborated below, Baker suggests that in Hindi-Urdu the lower copy of the N may be pronounced, even if the V moves into a higher functional head (Asp^0/T). In a negated clause, for instance, the derivation can be schematized as follows (adapted from Baker 2014:(50)):[19]

(72)

> [TP Anu [XP [VP child watch] NEG] Tense+AGR]
> [TP Anu [XP [VP child child+watch] NEG] Tense+AGR] (NI)
> [TP Anu [XP [VP child child+watch] NEG] watch+Tense+AGR] (VtoAsp/T)
> PF: [TP Anu [XP [VP ~~child~~ child+~~watch~~] NEG] watch+Tense+AGR]

The derivation in (72) allows the nominal and the verb in the Hindi-Urdu PNI structure to be non-adjacent in a limited way (that is, negation may intervene).

A small extension of Baker's account here will permit us to understand the behavior of this type of complex predicate under VPE. If the pseudo-incorporated noun can optionally also be carried with the verb via verb movement to a position outside of vP (that is, if what is further moved to Asp^0 is the maximal complex head V^0 that includes material head-adjoined to it (Baker 2014)), then exclusively in the case of VPE the higher copy may be realized at PF. In non-elliptical contexts, this would not be possible under Baker's proposals concerning linearization, since he claims that head movement for PNI neither checks features nor results in a complex morphological object (two motivations for pronouncing higher copies (Nunes 2004)). Instead, he suggests that the ordering statements relevant to both copies of the nominal in PNI must be respected, while still uttering the lexical item only once (the movement is in general string vacuous), as in (72) above. On the other hand, just in the case in which the entire verbal projection goes unpronounced, stranding the N+V at its right edge, no ordering paradoxes will arise from pronunciation of the higher copy of N that has head-moved to Asp^0 along with the verb.

Therefore, ellipsis in this type of complex predicate may also generate VVPE-like strings in which it is the N+V complex that is stranded.

(73)
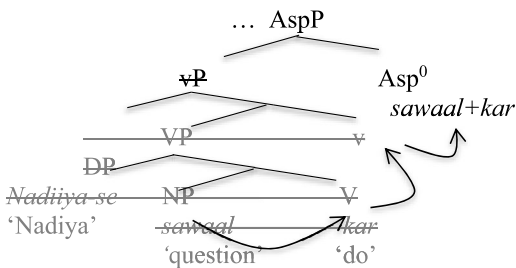
In adopting Baker's account of PNI and N-V complex predicate formation, we would then presume that in those scenarios in which PNI occurs but the nominal does not move with the verb to Asp^0, VPE will result in vVPE-like strings (stranding only

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the light verb). In those scenarios in which the nominal is optionally carried with the maximal V^0 to Asp^0, VPE will result in strings stranding N+V.

In essence, the proposal advanced here suggests that the split in the behavior of N-V complex predicates can be attributed to the idiosyncratic properties of roots in the lexicon, and the two distinct syntactic structures into which they may be merged based on those properties. Some roots are specified with features such that they must necessarily be merged into the result head R, and these will only permit VVPE structures. Others must be necessarily merged into an NP, and will permit vVPE-like strings, stranding only the light verb, when the nominal remains within vP, or VVPE-like strings stranding N+V when the nominal undergoes pseudo-incorporation with the light verb and the complex leaves the vP via regular head movement.

The difference in structure proposed here can also explain the other distinct properties of certain groups of N-V complex predicates. Recall that in ergative clauses the inflected verb may agree in gender and number with the nominal component of the complex predicate only in with some predicates such as *sawaal kar* 'question'—those that also may permit vVPE-like strings. In the structure for these N-V predicates proposed above, the nominal component is an NP, presumably with a full set of phi-features available for agreement just like any other nominal. Adjectival modification is also then expected for these nominals. On the other hand, under the account advanced here, the apparent nominal in complex predicates like *yaad kar* 'remember' is in fact merged into the R head. It would seem reasonable to assume that it does not have a full set of noun-like phi-features, since it does not head an NP, and therefore will not be modified by adjectives, nor be the target of verbal agreement. Unsurprisingly, it also cannot be relativized, cannot be questioned, and cannot be varied in number (Mohanan 1994; Montaut 2004).

Further new support for the account explored here comes from the position of sentential negation in clauses with N-V complex predicates. Bhatt (2003) points out that although sentential negation must normally be immediately adjacent to the inflected verb as in (74a), it can be separated from the main verb by the noun in an N-V complex predicate as in (74b).

(74)   a.   Nadiya-ne   kahani-ko yaad   nahiiN kiy-aa.
             Nadiya-ERG story-ACC memory NEG   do-PFV.M.SG
             'Nadiya remembered the story.'
      b.   Nadiya-ne kahani-ko nahiiN yaad kiy-aa.

However it seems that only certain predicates comfortably permit this configuration. Compare (74) with (75) (judgements Rajesh Bhatt, p.c.):

(75)   a.   Nadiya-ne   Ali-ko   ishara nahiiN di-ya.
             Nadiya-ERG Ali-ACC signal NEG   give-PFV.M
             Intended: 'Nadiya did not signal Ali.'
      b.   *Nadiya-ne Ali-ko nahiiN ishara di-ya.

Recall that *yaad kar* 'remember' is a predicate that resist vVPE-like strings. We can initially observe that this predicate is also one in which negation can be positioned preceding the N-V complex, as opposed to intervening between the N and V components.

As mentioned above, I follow Dwivedi (1991) and Bhatt and Dayal (2007) in the claim that negation in Hindi-Urdu heads a right-headed maximal projection NegP which is located between vP and AspP. The verbal complex moves over negation into Asp^0 when present, typically creating the word order neg + verbal complex (also Baker 2014).

In the account of N-V complex predicates proposed here, the ability of certain N-V strings like *yaad kar* to appear to the right of negation is expected, since the root located in R will undergo obligatory head movement along with the inflected light verb to Asp^0. On the other hand, *ishara de* 'signal' is a predicate that readily permits vVPE-like strings. We have proposed here that in this class of N-V predicates, the nominal component is housed in an NP. According to the linearization account adopted from Baker (2014), we would then expect that negation would necessarily intervene between the nominal and verbal elements of the predicate and would not be able to appear preceding *ishara* 'signal', as the lower copy of the N will be pronounced (the copy such that PNI is string vacuous). Note that in the case of both standard PNI structures and this type of complex predicate structure, the word order in (75a) (N+Neg+V) is the only grammatical order for sentential negation (Dayal 2011).

To summarize this section, vVPE seems widely available for complex predicates in Persian but vVPE strings are only available for a subset of N-V complex predicates in Hindi-Urdu. The analysis proposed here attributes this to two factors. The first is the obligatory nature of V-to-Asp^0 movement in Hindi-Urdu, meaning that all material in the verbal heads will vacate the elided vP. The second is the idiosyncratic properties of roots in the lexicon, and thus the two distinct syntactic heads into which they may be merged. There is certainly empirical work to be done to better document the diversity of N-V complex predicates in Hindi-Urdu. This section suggests that VPE can serve as a useful diagnostic for the degree and nature of connectedness between the nominal and verbal elements, allowing better classification of nominal complex predicate types.

4.4 A note on marked word orders and the verbal complex

A familiar fact concerning the verbal complex in Hindi-Urdu is that the inflected verb, aspectual affixes/auxiliaries, and tense auxiliaries cannot typically be separated by any kind of displacement, though they can be displaced as a unit. The examples below are from Butt (1995:44):

(76) a. Anjum haar   banaa rah-ii   hai.
          Anjum necklace make PROG-F AUX.PRES
          'Anjum is making a necklace.'
      b. *anjum haar rahii banaa hai
      c. *anjum haar rahii hai banaa
      d. *anjum hai haar banaa rahii
      e. *anjum rahii hai haar banaa
      f. *anjum banaa haar rahii hai[20]

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[20]A reviewer suggests that (76f), while degraded, is not fully ungrammatical when provided with an appropriate context. Though this clashes with Butt's original judgements, there could certainly be varieties

Butt and Ramchand ([2005]) report that in V-V complex predicates, it is not possible to displace the main verb away from the light verb and rest of the verbal complex unless it moves to clause-initial position.[21]

(77)   a.   **likh** to nadya xat-ko   **le-gi.**
                 write TOP Nadya letter-ACC take-FUT.F
                 'Nadya will write a letter.'
     b.   *nadya **likh** xat-ko **legi**

Though Butt and Ramchand do not offer a complete explanation for the contrast between ([77]a) and ([77]b), they attribute this difference to different types of movement (topicalization in the case in ([77]a) vs. scrambling in ([77]b)).[22] I won't provide an account of discourse-sensitive verb movement in Hindi-Urdu here (though see, for instance, Butt et al. [2016]), but it is worth pointing out that there are ways to analyze these marked word orders that are not inconsistent with the account presented here (see Keine and Bhatt [2016]; Gribanova [2017]). Further, the availability of discourse-sensitive head movement in Hindi-Urdu is relevant to the discussion of the wider research program on head movement addressed in Sect. 5.[23]

5 Conclusion

5.1 Results of this investigation

Though verb phrase ellipsis and its diverse manifestations have been investigated for a range of languages, little was known about the potential for the verb phrase to go missing in Hindi-Urdu. This article reveals that Hindi-Urdu, like Irish, Hebrew, and Russian, does indeed exhibit VVPE. This finding provides a rare instance of strong empirical support for obligatory V-to-Asp^0 movement in the head-final language.

Research into the interaction of VVPE with complex predicate structures is new, and to my knowledge has not been previously undertaken for Indic languages. The present article has discovered that V-V complex predicates do not permit verb phrase

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[21]In the case of a complex predicate consisting of a nominal (*ghussa* 'anger'), a main verb (*aa* 'come'), and a light verb (*jaa* 'go'), the main and light verb may be displaced to sentence-initial position as a unit without the nominal (Butt [1995]:105).

(i)   **aa gay-aa** aanjum-ko **ghussa.**
         come go-PFV.M Anjum-ACC anger
         'Anjum became angry.'

[22]Thanks to Rajesh Bhatt, Anoop Mahajan, and participants of the 2016 International Conference on Hindi Studies (Paris) for their engaged discussions of this question.

[23]There is other interesting data relevant to this section that I set aside here, due to the fact that native-speaker linguists seem to disagree. Butt ([1995]:101) claims that coordination of two main verbs (and their complements) underneath a single light verb is ungrammatical (as expected under the present account), but Mahajan ([2012]: fn. 6) claims that it is possible. My informants are also not uniform in their judgements on this point.

that permit marked word orders for the purposes of establishing contrastive focus (again, see Butt et al. [2016]).

ellipsis patterns that strand the light verb alone, in contrast to complex predicates in Persian (Toosarvandani 2009), suggesting a relatively tight connection between the light and main verbs in syntactic structure. The account proposed here adopts Butt and Ramchand's (2005) basic syntax for to V-V complex predicates, with the modification that the root in the R head must undergo head movement to and through V and v up to Asp^0, forming a complex head interpreted as a single predicate. This analytical proposal (and the empirical observations which ground it) nicely capture the observation made by Butt and Ramchand (2005:144) that V-V complex predicates have "properties that indicate integrity with respect to determining argument structure and event structure properties, just as one would expect from a single lexical item."

Recent research had suggested that there are multiple types or classes of N-V complex predicates in Hindi-Urdu (Mohanan 1994; Davison 2005; Ahmed 2011; Ahmed and Butt 2011; Ahmed et al. 2012; Butt et al. 2012; Sulger and Vaidya 2014). Novel evidence presented here from VVPE supports this distinction, as certain N-V complex predicates seem to pair with V-V complex predicates in not permitting the light verb to be stranded alone, while others permit the nominal component and internal arguments to be elided while stranding the light verb. Analytically, we are then able to propose distinct basic structures for these two different types of N-V complex predicates, consistent with the differences in case-marking, agreement, and adjectival modification that were found to distinguish categories of N-V complex predicates in previous work, as well as new evidence from negation presented here. This line of investigation interacts productively with recent work on linearization and pseudo-incorporation crosslinguistically (Baker 2014). This proposal has desirable consequences not only for better understanding the syntax and semantics of N-V complex predicates, but also situating them in the context of a crosslinguistic approach to the ways in which complex predicates are formed.

5.2 Implications for head movement

Head movement has recently come under renewed investigation. At issue is the question of whether head movement is a phenomenon of the narrow syntax or of a post-syntactic component (Chomsky 2001; Roberts 2010; Hartman 2011; Lacara 2016; McCloskey 2016; Keine and Bhatt 2016). A new proposal (Gribanova and Harizanov 2016; Harizanov and Gribanova 2017) holds that head movement of verbs is not a unitary phenomenon, and that only some verb movement is truly syntactic. In this view, syntactic verb movement has identifiable interpretive effects, whereas verb displacement that serves only to combine the verb with dependent inflectional morphology introduced in separate functional heads is relegated to the post-syntactic morphological component. This article makes two contributions to this line of work. First, we have positively identified a new (and perhaps unexpected) instance of syntactic head movement, and new ways for probing for head movement in head-final contexts. Second, the article reveals the importance of emergent research on complex predicates for our understanding of the role of head movement in the grammar. These two outcomes are described in further detail below.

Up to this point there has been relatively little evidence for verb movement presented for head-final Hindi-Urdu; the primary argument in favor of head movement

to a functional head like Asp^0 was the combination of dependent tense and aspect morphemes with the verb. Under the research program described above, this type of combinatory process might be understood to take place post-syntactically. However, complex predicates and their interaction with VPE provide a new empirical testing ground for syntactic verb movement. Hindi-Urdu V-V complex predicates have long been understood to function as a semantic unit, as a single predicate, yet how this semantic unification was effected for syntactically independent verbs remained a puzzle approached in a variety of ways (e.g. Mohanan 1994; Butt 1995, 2003, 2010; Butt and Lahiri 2002; Davison 2005; Butt and Ramchand 2005; Butt et al. 2008; Mahajan 2012). Although in unmarked word order the main verb and light verb are found immediately adjacent to one another and cannot typically be separated in unmarked discourse environments (see the discussion in Sect. 4.4), this is also the default order of the right-edge heads in the syntax, and no obvious displacement is necessary to achieve it. But evidence from VVPE introduced in the present article shows that both components of the V-V complex predicate must escape the elided VP together, and thus syntactic composition of the two components and subsequent movement as a complex to the Aspect head must be routine. Further, for this instance of verb movement, the interpretive effects are profound: two independent verbs combine to predicate as a single unit.

As addressed in detail in, for instance, Butt (2010), complex predicates have diverse properties crosslinguistically. Keine and Bhatt (2016), in their recent work on verb-verb sequences in German, have independently arrived at the conclusion that multiple lexically distinct verbs must form a complex head via head adjunction in the narrow syntax. In their analysis, formation of a complex verb-verb head in German is driven by the need for distinctness (Richards 2010): clustering of the verbs avoids a violation of distinctness in which there are multiple V heads within a single Spellout domain. While it is not yet clear whether this account could be extended to Hindi-Urdu V-V complex predicates, it serves as further confirmation that interpretive effects arise when verbs undergo head movement to form a complex head.

For the wider research program investigating a potential dichotomy in the nature of head movement, complex predicates (and in particular verb-verb sequences) present a rich set of phenomena to be investigated for attestation of syntactic head movement. The present article illustrates that there are a number of distinct properties that point to syntactic head movement in the formation of V-V complex predicates. Syntactically, we see restrictions on adjacency of the two verbs and the requirement that they escape an elided vP as a unit. Semantically, we see single predication. Moving forward, a productive line of inquiry should take in a wider crosslinguistic sample of verb-verb complex predicates in search of additional evidence of syntactic head movement.

A pointed disagreement has emerged in the literature as to whether the verb movement feeding V-stranding VPE is an instance of syntactic or post-syntactic displacement of the verb. Goldberg (2005) argues, based on the verbal identity requirement in Hebrew, that the verb movement is indeed syntactic and then obligatorily reconstructs. Schoorlemmer and Temmerman (2012) argue instead that this same verb movement occurs at PF, explaining why the verb heads appear to surface outside of the ellipsis site despite the fact that they are interpreted to be within it. Gribanova

and Harizanov ([2016](#)) list V-to-Asp in Russian (which feeds VPE) as post-syntactic, noting that it has properties which are suggestive of morphologically motivated post-syntactic displacement—it is obligatory and results in the formation of a verbal complex. On the other hand, Gribanova ([2017](#)) maintains that Russian V-to-Asp is a syntactic movement based on proposed MaxElide effects. The syntactic and interpretive effects visible when routine V-to-Asp includes complex predicates in Hindi-Urdu (and potentially other languages) then becomes an important additional argument for the syntactic nature of the verb movement that feeds VVPE.

This article reveals a number of open avenues for ongoing research. Within Hindi-Urdu, the rich inventory of N-V complex predicates and their properties is still under investigation, and complex predicates consisting of adjectives and prepositions have received very little attention. Further, we would hope that a more comprehensive study of complex predicates and verb phrase ellipsis crosslinguistically would prove fruitful, ideally revealing a limited set of patterns conditioned by two factors: (a) whether the language has regular syntactic verb movement out of the verbal phrase to the inflectional layer, and (b) the syntactic structure of the complex predicate which determines the tightness of the connection between its separate components. This is important work, as complex predicates represent an intriguing instance of the systematic combination of syntactically and semantically independent elements to function as a unit.

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