

Finiteness, negation and the directionality of headedness in Bangla

Andrew Simpson · Saurov Syed

Received: 3 October 2011 / Accepted: 1 August 2013 / Published online: 31 December 2013
© Springer Science+Business Media Dordrecht 2013

Abstract This paper investigates a pattern in the South Asian language Bangla which strongly resembles the finite/non-finite positioning of verbs in English and French reported in Pollock (1989). In finite clauses in Bangla, verbs precede negation, as in English, while in non-finite clauses verbs follow negation, as in French. The paper considers whether the analysis of (leftwards) movement of the verb to Tense/Agreement in finite clauses argued for by Pollock for French should be assumed to operate in the SOV language Bangla as well, potentially supporting a Linear Correspondence Axiom (LCA) head-initial analysis of Bangla, which has elsewhere regularly been taken to be a head-final language. Considering other patterns in the language relating to negative polarity item (NPI) licensing and quantifier scope in finite and non-finite clauses, it is argued that a leftwards head-movement analysis is unable to account for such patterns. A different analysis of the alternating position of negation and verbs is then suggested, which attributes this to the realization of negation either in the specifier or head position of NegP, drawing on Pollock's (1989) analysis of the dual location of negative morphemes in French and on much recent work on alternations between specifier and head lexicalization (van Gelderen 2004 and others).

Keywords Negation · Bangla · LCA · Verb-movement · NPI licensing

1 Introduction

The linguistic phenomenon of finiteness is regularly described as manifesting itself in a number of ways—the potential overt licensing of nominative subject NPs, the

A. Simpson (✉) · S. Syed
University of Southern California, Los Angeles, USA
e-mail: andrew.simpson@usc.edu

S. Syed
e-mail: saurovsy@usc.edu

occurrence of tense and agreement morphology on verbs in finite clauses, and the ability for a finite clause to stand alone as an independent assertion (Crystal 2003; Matthews 1997; Nikolaeva 2007). Finiteness also plays a major role in the licensing or restricting of a range of other syntactic patterns and dependencies such as, for example, the licensing of anaphor-antecedent relations (Chomsky 1981), long-distance *wh*-movement (not possible from finite clauses in certain languages, Rudin 1988), clitic-climbing and other restructuring phenomena (Rizzi 1978; Cinque 2006), and scrambling in nominalization structures (Lapointe and Nielsen 1996). The presence versus the absence of finiteness in a clause in such instances provides a revealing testing ground for the investigation of how other syntactic processes operate in a language. One of the most influential studies of the late Government and Binding era, in terms of its effect on the development of subsequent models of transformational syntax, was Pollock's (1989) analysis of differences in the placement of finite and non-finite verbs with respect to negation (and certain adverbials) in English and French, resulting in the Split-Infl Hypothesis and much subsequent work exploring the functional structure of clauses.

The primary goal of the present paper is to investigate a pattern in the South Asian language Bangla which strongly resembles the finite/non-finite clause alternations in English/French considered in Pollock (1989). In finite clauses in Bangla, the verb precedes negation while, in non-finite clauses, the verb follows negation, as in French. The paper considers whether the analysis of (leftwards) movement of the verb to Tense/Agreement in finite clauses argued for by Pollock for French (and by others for other west European languages; see for example Rohrbacher 1994) should be assumed to operate in the SOV language Bangla as well. If this were the case, there would be significant consequences for the general analysis of the directionality of headedness of Bangla, which has most regularly been taken to be head-final, offering instead a clear argument for an underlying head-initial analysis, in support of Kayne's (1994) LCA approach to surface SOV languages. Finite verbs in Bangla would need to be analyzed as moving leftwards over negation to a higher T^0 position in a head-initial TP projection. A consideration of patterns relating to finiteness and negation in Bangla therefore has the potential to provide broader insights into the general underlying architecture of the language and to bear on the controversial issue of whether surface SOV languages may in general be justifiably assumed to relate to underlying head-initial SVO structures.

Examining a variety of other phenomena which link up with the possibility of verb-movement in finite clauses and the variable position of negation, the paper ultimately argues for an analysis of the finite/non-finite clause distinctions which does not in fact involve leftwards movement of tensed verbs over negation, and instead takes advantage of another idea already present in Pollock's (1989) paper, and later generalized significantly further in Cinque (1999), that there are two positions, the specifier and head of a phrase, in X' phrasal expansions that may host strongly related or even identical elements. The paper develops an alternative view of the apparent leftwards 'movement' of verbs in Bangla finite clauses: that what may appear to be movement of an element between two positions is in fact a mirage, and the result

of the alternating lexicalization of two related positions in a phrase in different environments (finite, non-finite) relative to another, negation occurring in the specifier of NegP in non-finite clauses, and in the head Neg⁰ in finite structures. Such a view is shown to relate to a more general hypothesis of specifier-head alternations explored in van Gelderen (2004) and Simpson and Wu (2002) and to provide an account of differences in the ability of negation to license elements in subject positions in finite and non-finite clauses.

Concerning the notion of finiteness assumed in the paper, we adopt the now quite common position (Nikolaeva 2007; Vincent 1998; Sells 2007) that finiteness is in essence a property of clauses which may often, but not always, be secondarily manifested in the presence of overt tense and agreement morphology on verbs (and in some languages on the complementizers of finite clauses, for example Irish, Adger 2007, and West Germanic, Carstens 2003). Finite clauses are taken to be those which can potentially stand as independent main clauses, while non-finite clauses are necessarily dependent clauses. Finiteness may also frequently, but not always, correlate with the possible presence of an overt subject in the nominative case, and induce certain effects of syntactic opacity.

The structure of the paper is as follows. Section 2 provides initial background information on the position of verbs in finite and non-finite clauses in Bangla and other South Asian languages and describes the central issue under investigation. Section 3 considers different types of evidence that generally bear on the occurrence of verb-movement in SOV languages. Section 4 then explores both a head-initial and a mixed-headed analysis of the finiteness and negation paradigm in Bangla, before arguing that such approaches are unable to account for the full range of the patterns found. The section goes on to develop an analysis which is in essence head-final and proposes that the lexicalization of NegP is subject to variation in Bangla finite and non-finite clauses, this resulting in the different structural licensing properties that negation appears to have in finite and non-finite clauses. Section 5 considers properties of the analysis proposed from a general cross-linguistic perspective and provides further arguments from within Bangla in support of the alternating lexicalization hypothesis. The paper is closed in Sect. 6 with a review of the conclusions drawn in the paper.

2 Negation and the position of verbs in finite and non-finite clauses

The position of elements encoding clausal negation in South Asian languages is commonly restricted to being either pre-verbal, as for example in Hindi, or post-verbal, as in Malayalam and other Dravidian languages, and does not show pre- vs. post-verbal alternation within a single language, as illustrated in examples (1) and (2).¹

¹ Abbreviations: Nom = Nominative, Acc = Accusative, Loc = Locative, Gen = Genitive, Cp = Conjunctive Participle, Q = Question particle, Emph = Emphatic particle, Pres = Present, Fut = Future, Cont = Continuative, Ind = Indicative, Inf = Infinitive, Cond = Conditional, Ger = Gerund, Decl = Declarative, C = Complementizer, Cl = Classifier, Neg = Negation, Hab = Habitual, Top = Topic, Asp = Aspect.

- (1) a. Ram nahiⁿ aayegaa. b. *Ram aayegaa nahiⁿ. *Hindi*
 Ram Neg come.Fut.3ms Ram come.Fut.3ms Neg
 'Ram will not come.'
- (2) a. Avan van-n(u) illa. b. *Avan illa van-n(u). *Malayalam*
 he come-Past Neg he Neg come-Past
 'He did not come.' (Amritavalli and Jayaseelan 2005:181 (4b))

Bangla, however, interestingly shows a mixed pattern with regard to the location of the negative morpheme *na*, which is critically a function of the finiteness of the clause in which negation occurs. In finite clauses, which can stand as independent assertions and contain verbs necessarily inflected for tense and agreement, *na* is always found to occur in an immediately post-verbal position, as it does in Dravidian languages in all clause types. This obligatory post-verbal positioning of negation in finite clauses is shown in example (3).

- (3) a. ami khabar khelam na. b. ami ophiš-e jabo na.
 I food eat.Past.1 Neg I office-Loc go.Fut.1 Neg
 'I didn't eat.' 'I will not go to the office.'
- c. še kaj korche na. d. Ram aram korchilo na.
 3sg work do.Pres.Cont.3 Neg Ram rest do.Past.Cont.3 Neg
 'He is not working.' 'Ram was not resting.'

In dependent non-finite clauses, by way of contrast, where verbs typically (but not always—see below) lack tense and agreement inflection, negation regularly precedes the verb. This pre-verbal positioning of *na* in Bangla is illustrated in a range of different non-finite clauses in examples (4)–(7). Example (4) is an instance of the conjunctive participle form, (5) has the verb in the embedded clause in the *-te* infinitive form, (6) is an example of the conditional verb form in which the stem of the verb combines with the conditional marker *-le* and no tense/agreement marking, and (7) illustrates the gerundival noun form of the verb. In all such instances of non-finite clauses, negation may only precede and never follow the verb.

- (4) ami na khey-e kaj-e gelam. [*na* > conjunctive participle]
 I Neg eat-Cp work-Loc go-past-1
 'I went to work without eating.'
- (5) Ruma česta korlo [ogyan na hote]. [*na* > infinitive]
 Ruma try do-past.3 senseless Neg be-Inf
 'Ruma tried to not faint.'
- (6) ami khabar na khe-le, ama-r matha ghurbe.
 I food Neg eat-Cond, I-Gen head spin-Fut-3
 'If I do not eat, my head will spin.' [*na* > conditional participle]

- (7) [Hindi na bōla] šokto. [*na* > gerundival noun]
 Hindi Neg say-Ger tough
 ‘It’s tough to not speak Hindi’.

In addition to the above range of non-finite environments, in which verbs clearly lack tense and agreement morphology, the occurrence of pre-verbal *na* negation is also found with a second kind of dependent, conditional clause involving the complementizer element *jodi* ‘if’. In *jodi* clauses, the verb does appear to be inflected for tense and agreement, as illustrated in (8) and (9):

- (8) ami jodi ama-r bhai-ke na dekhi, dukkho pabo.
 I if my brother-Acc Neg see.Pres.Hab.1 sorrow get.Fut.1
 ‘If I don’t see my brother, I will be sad.’
- (9) Ram jodi boi-ta na kin-to, ami khuši hotam.
 Ram if book-Cl Neg buy-past.Hab.3, I happy be-past.Hab.1
 ‘If Ram had not bought the book, I would have been happy.’

As necessarily dependent clauses which could not occur as independent assertions, *jodi* conditional clauses thus pattern with all other non-finite verb forms for the purposes of the placement of negation with respect to the verb. We view the occurrence of overt tense and agreement morphology in such conditional clauses as an instance of the phenomenon observed in a number of languages where clauses which are otherwise identified as non-finite (via the criteria of ability to stand alone as an independent declaration and various other syntactic patterns) do in fact project verbs inflected with tense and agreement morphemes. This is similar to the case of West Greenlandic, where Nikolaeva (2007:3) notes that the ‘contemporative mood’ present on verbs in certain dependent, non-finite complement clauses also results in the occurrence of tense and agreement marking on the verb:

- (10) niriursui-vunga [aqagu urni-ssa-llutit].
 promise-Ind-1sg tomorrow come.to-Fut-Cont.1sg.2sg
 ‘I promise to come to you tomorrow.’

With regard to Bangla, we see *jodi* clauses as environments in which, as in West Greenlandic, the projection of overt verbal morphology does not signal that the clause is finite, and note that the ‘tense’ morphology which occurs on verbs in *jodi* clauses does not communicate the temporal meaning associated with such morphology elsewhere, hence is defective in a certain way. Specifically, the only tense-agreement inflections that are licensed to occur in *jodi* clauses are those which elsewhere communicate the occurrence of a habitual action—either habitual present or habitual past—yet the habitual aspect component of meaning is fully absent from the use of such morphology in conditional clauses. It can further be noted that when habitual present/past tense forms genuinely do encode a present/past habitual action, negation occurs following the verb, as in other finite clauses. The patterning of habitual present tense morphology on verbs in *jodi* conditionals is therefore clearly different from the presence of this morphology on verbs in finite clauses. We consequently treat the

morphological ‘tense’ in *jodi* clauses as special forms of dependent tense and continue to assume that *jodi* clauses are indeed non-finite just like the other clause types illustrated in (4)–(7).

Returning to the general patterns observed above in (3)–(8), the systematic alternation in the location of negation in finite and non-finite clauses in Bangla shows a clear resemblance to the positioning of negation in French, where the negative morpheme *pas* precedes the verb in non-finite clauses (11), but follows tensed verbs within finite clauses (12):²

- (11) Jean (ne) veut pas ce cadeau.
 Jean (Neg) want Neg this present
 ‘Jean does not want this present.’

- (12) Il vaut mieux [ne pas aller là bas].
 it value better Neg Neg go there
 ‘It is better not to go there.’

In Pollock (1989), the finiteness-dependent positioning of negation in French is analyzed in terms of verb-movement—verbs inflected for tense are analyzed as moving to T^0 , while non-finite verbs do not undergo such movement, as schematized in (13)–(14).

- (13) Subject [_{TP} V_{+FINITE-i} [_{NegP} Negation [_{VP} t_i Object]]]
- 

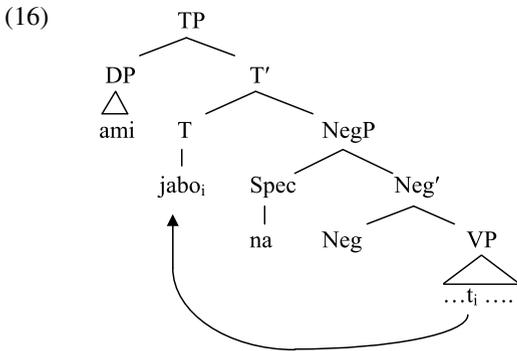
- (14) Subject [_{TP} [_{NegP} Negation [_{VP} V_{NON-FINITE} Object]]]

This raises the interesting question of whether the similar variation in the positioning of negation in Bangla in finite and non-finite clauses should also be attributed to overt movement of the verb to T^0 when the verb is finite. If this were to be the correct analysis for Bangla, like French, it would have a potentially important consequence for issues relating to the assumed directionality of headedness in the language. If tensed verbs undergo leftward movement over negation to T in finite clauses, it would seem that TP must be assumed to be a head-initial projection in Bangla. Such a hypothetical derivation is shown in (15) and (16)

- (15) ami [_{TP} jabo_i [_{NegP} na [_{VP} t_i]]]
- 

- I go-Fut.1 Neg
 ‘I will not go.’

²In French, negation is often realized by two morphemes *ne* and *pas*. The former, *ne*, is a clitic which attaches to and moves with the verb, hence it does not indicate the underlying location of negation, which is signaled by the morpheme *pas*. In colloquial French, the clitic *ne* is regularly optional but *pas* is not.



However, elsewhere Bangla has often been characterized as a head-final language, as it appears to show fairly typical head-final patterns in a broad range of constituents including VPs, PPs, AdjPs, and CPs (see Bayer 1995 among others).

The patterning of negation in finite and non-finite contexts in Bangla thus presents an interesting challenge to traditional assumptions about the underlying structure of the language and its head-final alignment. In what follows, we set out to examine the broad case for overt verb-movement in Bangla and how the distinctive, variable position of negation may both be accommodated in and support either a head-initial or a head-final analysis of the language. The discussion in Sect. 4 in particular illustrates the tensions involved in achieving a plausible uniform analysis in either a Kaynean SVO perspective of Bangla or a more traditional SOV head-final approach, and develops an approach in which the patterns of negation in Bangla are ultimately not due to any leftwards movement of the verb in finite clauses but result from the realization of the negative element *na* in different base positions within the NegP projected in finite and non-finite clauses.

3 Syntactic clues to verb-raising in SOV/head-final languages

As has been well noted in the literature (for example, Han et al. 2007), clear evidence for overt verb-movement in (descriptively) verb-final languages is often difficult to uncover. Common head-final analyses assume that verbal and TAM (tense, aspect, mood) heads are clustered immediately adjacent to each other at the end of clauses, and elements in specifier and phrasal adjunct positions never linearly intervene between such clause-final head positions. Inspection of the surface positioning of specifiers and adjuncts relative to verbs in head-final languages is consequently not available as a means to detect head-movement, unlike the situation in head-initial languages, where verb-movement is revealed by the overt displacement of verbs leftwards over XPs in specifier and adjunct positions (Pollock 1989; Rohrbacher 1994).

Furthermore, due to the Head Movement Constraint (HMC), verbs will never raise over other c-commanding heads (e.g. Aspect, Negation, etc.), and so the relative positioning of verbs and other TAM elements should never reveal verb-movement in verb-final (or verb-initial) languages. Finally, in a sequence of verbal/TAM morphemes in clause-final position in SOV languages, it is not always clear which elements are

independent X^0 words in separate head positions, and which elements are affixes attached to a root in a single head position. Other patterns therefore have to be considered as ways to identify the potential occurrence of verb-movement in languages where verbal elements cluster together in clause-final position.

3.1 Other syntactic means to detect verb-movement in verb-final languages

Certain phenomena such as quantifier/negation scope, the licensing of NPIs by clitic/affixal negation, and the licensing of strict/sloppy interpretations in ellipsis structures have been argued to support analyses of verb movement in verb-final languages such as Japanese and Korean (Otani and Whitman 1991; Koizumi 2000; Choi 1999). Here we will consider how these diagnostics pattern with regard to Bangla.

3.1.1 *Strict/sloppy interpretations of elided objects*

Otani and Whitman (1991) make use of VP-ellipsis as a means to probe for overt verb movement in Japanese. It is assumed that VP ellipsis creates a syntactic configuration which may permit either strict or sloppy interpretations of objects that have been elided along with verbs. Consider first VP ellipsis in the English example (17):

(17) Professor Smith praised his students, and Professor Jones did [_{VP}] too.

In (17) both strict and sloppy interpretations of the understood object in the second clause are available, the strict interpretation being that Professor Jones praised Professor Smith's students, and the sloppy interpretation being that Professor Jones praised his own students. Verb-final languages such as Japanese and Korean pattern like English in allowing strict and sloppy interpretations when objects are null. Because it can be shown that overt pronominal elements in such languages do not allow sloppy interpretations, only strict interpretations, Otani and Whitman conclude that null objects in Japanese and Korean are not null pronominals (*pro*) but result from the occurrence of VP ellipsis, and it is this operation which results in the possibility of a sloppy interpretation. As the verb in Japanese and Korean is clearly not elided during the hypothesized VP ellipsis, a further conclusion is that verbs in Japanese and Korean raise overtly out of VP to some higher position before the ellipsis takes place. An example of this is given in (18).

- (18) a. John-wa [zibun-no tegami-o] suteta.
 John-Top self-Gen letter-Acc discarded
 'John_i threw out his_i own letters.'
- b. Mary-mo [e] suteta.
 Mary-too discarded
 'Mary did too.'
 = Mary also threw out John's letters. (strict)
 = Mary also threw out her own letters. (sloppy)

Turning now to Bangla, the same patterning as in Japanese and Korean is found—both strict and sloppy interpretations are possible when objects are not realized overtly. Consider (19):

- (19) a. Ruma nijer chatroder bok-lo.
 Ruma self-Gen students chide-past.3.
 'Ruma chided her students.'
- b. Ram-o [e] bok-lo.
 Ram-also chide-past.3
 'Ram also chided.'

In (19b), an overt object is not present, and the interpretation of the sentence is either that 'Ram also chided Ruma's students' (strict), or that 'Ram also chided his own students' (sloppy). If Otani and Whitman's interpretation of the occurrence of sloppy readings of null objects in Japanese and Korean is correct, the presence of similar patterns in Bangla may therefore be taken to potentially support an analysis of overt verb movement in this language, as in Japanese and Korean.

3.1.2 NPI licensing

The licensing of NPIs has also figured as a potential diagnostic for verb-movement in certain verb-final languages. In English, it is well known that NPIs are not licensed in subject position, as shown in (20).

- (20) *Anyone did not help me.

A common explanation of this patterning, which contrasts with the observation that NPIs are licensed in object positions, is that NPIs must be overtly c-commanded by negation in order to be licensed, and this fails to occur in (20). When it comes to NPIs in head-final languages like Japanese and Korean, the observation has been made (Kato 1991; Kuno 1999; Suh 1990; Choi 1999) that, unlike English, NPIs regularly are licensed in subject positions, as illustrated in Korean (21) and Japanese (22).

- (21) amuto kwaca-lul an mek-ess-ta.
 anyone cookie-Acc Neg eat-past-Decl
 'No-one ate cookies.' (Han 2007:328 (13a))

- (22) dare-mo-ga ko-na-katta.
 who-too-Nom come-Neg-Past
 'No-one came.'

In Choi (1999), it is suggested that NPI licensing in Korean is the result of movement of the verb together with the cliticized negation marker *an* to a higher position from which negation can scope over and license both the object and the subject position. If we now consider NPI licensing in Bangla, it is found that NPIs are indeed licensed in subject position, as in Japanese and Korean, as illustrated in (23). Such a patterning might therefore again be taken as potential support for (some form of) verb-movement analysis of Bangla.

- (23) keu apel khelo na.
 anyone apple eat-Past-3 Neg
 'No one ate an apple.'

3.1.3 The scope of negation

Along with strict/sloppy interpretations of null objects and NPI licensing patterns, a third potential test for verb movement in verb-final languages is to check the scope of negation with regard to other quantificational elements, and to see, specifically, whether negation scopes over the position of the subject. If it does, this may also point towards movement of the verb with cliticized negation to a position c-commanding the subject. When the interaction of negation with quantificational subjects is examined in Bangla, it is found that negation obligatorily takes scope over the subject. Consider example (24).

- (24) šɔbai apel khelo na.
 all apple eat-Past-3 Neg
 ‘Not everyone ate apple.’

The interpretation of (30) is ‘Not everyone ate an apple’, (hence some people did eat apples), and not ‘Everyone did not eat an apple’, indicating that negation clearly does scope over the subject. As with NPI licensing, this high clausal positioning of negation could well be attributed to movement of the verb with cliticized negation to a higher head position, c- or m-commanding the subject.³

3.2 Three issues/questions

The patterns discussed above, involving strict/sloppy interpretations of null objects, NPI licensing, and the scope of negation relative to subject QPs, have been used as evidence for overt movement of verbs to T^0 in SOV languages such as Korean, but such movement has critically been assumed to be *rightward* movement to a head-final T^0 position. However, the Bangla negation patterns presented in Sect. 2 which initiated the investigation of verb-movement in Bangla suggest the possibility of *leftward* verb-movement to a head-initial T^0 position. An obvious question which now arises is whether there is any way that the data and patterns in Sect. 2 can be reconciled with those in Sect. 3.1. A second question which needs to be asked is whether the *pre-verbal* occurrence of negation in non-finite clauses in Bangla should be assumed to occupy the same underlying position as post-verbal negation in finite clauses, as is indeed commonly assumed with French *pas* in examples such as (11) and (12). Finally, it has been argued that, in the case of Korean, the affixal/clitic-like properties of the negative particle allow it to raise up to a higher position as part of the moving verbal complex. A third question which needs to be answered is therefore whether negation in Bangla has clitic-like (or affixal) properties as well, which might permit movement along with the verb.

Considering the third question first, it can be noted that the negation morpheme *na* cannot be separated from the verbal complex in Bangla when in post-verbal position,

³For reasons which will shortly become clear, we do not consider an alternative potential explanation of these patterns, that NegP is high in Bangla (and possibly in Japanese and Korean), dominating the position of the subject in SpecTP. Such an assumption about the position of negation in Bangla will fail to capture contrasts in the scope of negation in finite and non-finite clauses, to be discussed in Sect. 3.2.

and hence would seem to be clitic-like in behavior. This contrasts with the distribution of *na* in pre-verbal position, however, where *na* can be separated from the verb by both adverbs and objects. Hence *na* is not a verbal affix or clitic in non-finite clauses. This patterning is shown in examples (25) and (26). In (25) the adverb *bhalo* ‘well’ separates negation from the non-finite verb, and in (26) the object *bhat* ‘rice’ intervenes in a similar way.

- (25) ami jodi conference-e na bhalo boli, kosto pabo.
 I if conference-Loc neg good talk.Pres.1, pain get.Fut.3
 ‘If I do not speak well in the conference, I will feel bad.’
- (26) a. ami na bhat khel-e ama-r matha ghurbe.
 I Neg rice eat-Cond I-Gen head spin-Fut-3
 ‘If I don’t eat rice, my head will spin.’
 b. ami jodi na bhat kha-i, ama-r matha ghurbe.
 I if Neg rice eat-1.Pres, I-Gen head spin-Fut-3
 ‘If I don’t eat rice, my head will spin.’

Turning to the second question, whether pre- and post-verbal *na* should be assumed to occupy the same underlying position, significantly it is found that there is a difference in the licensing ability of *na* in its two surface positions, and occurrences of *na* in pre-verbal position do not permit the licensing of NPI subjects, though NPI objects may occur. Examples (27a)–(27b) show the latter patterning. (27c)–(27d) demonstrate that where the overt subject of a non-finite clause can be licensed with accusative case under Agree (with no associated EPP movement) by a higher clause predicate, in an instance of an Exceptional Case Marking (ECM) configuration, this subject cannot occur as an NPI licensed by the pre-verbal negation *na*, although a non-NPI subject is fine (27e). Example (27g) shows that if the pre-verbal negation in the non-finite clause in (27f) is repositioned in the matrix clause, it will c-command and license an NPI in the subject position of the non-finite clause. Note that, as in English, the positioning of negation in an embedded non-finite clause requires a certain context to sound natural. Once appropriate contexts are supplied, the examples in (27a, b, e, g) are all fully acceptable.

- (27) a. Ruma [kono boi na por-e] phir-e el-o.
 Ruma any book Neg read-Cp return-Cp come-Past.3
 ‘Ruma came back without reading any book.’
 b. ami dekh-lam [Ram-ke kono otithi apyaon na kor-te].
 I see-Past.1 Ram-Acc any guest greet Neg do-Inf
 ‘I saw Ram greet no guest.’
 c. *ami dekh-lam [kau-ke kono otithi apyaon na kor-te].
 I see-Past.1 anyone-Acc any guest greet Neg do-Inf
 Intended: ‘I saw no-one greet any guest.’
 d. *///ami [(chupi-chupi) kau-ke bari-te na je-te] dekh-lam.
 I (secretly) anyone-Acc home-to Neg go-Inf see-Past.1
 Intended: ‘I saw no-one go home.’
 e. ami [(chupi-chupi) Ram-ke bari-te na je-te] dekh-lam.
 I (secretly) Ram-Acc home-to Neg go-Inf see-Past.1

- 'I saw Ram secretly not go home.'
- f. */??ami [kau-ke Ram-ke apyaon na kor-te] dekh-lam.
I anyone-Acc Ram-Acc greeting Neg do-Inf see-Past.1
Intended: 'I observed that no-one greeted Ram.'
- g. ami [kau-ke Ram-ke apyaon kor-te] dekh-lam na.
I anyone-Acc Ram-Acc greeting do-Inf see-Past.1 Neg
'I did not see anyone greet Ram.'

In contrast to the patterns seen in finite clauses (see 24), it is also found that pre-verbal negation in non-finite clauses does not have the same wide scope property with respect to the subject as post-verbal negation in finite clauses does. This is shown in the range of examples in (28). In (28a) and (28c), the ECM subject of the non-finite clause *šobai-ke* takes wide scope over the negation in the non-finite clause. If this negation is shifted to the main clause, as in (28b), the scopal relations are reversed, and negation takes scope over the subject of the non-finite clause. Examples (28d)–(28f) illustrate similar patterns in *jodi* conditional clauses. In (28d) and (28f), the subject *šobai* takes scope over the pre-verbal negation in the clause, whereas in (28e), it is seen that this pre-verbal negation takes scope over an object *šobai-ke* in the clause:

- (28) a. ami [šobai-ke Ram-ke apyaon na kor-te] dekh-lam.
I everyone-Acc Ram-Acc greeting Neg do-Inf see-Past.1
'I observed that no-one greeted Ram.' EVERYONE > NEG
Not: 'I observed that not everyone greeted Ram.' NEG > EVERYONE
- b. ami [šobai-ke Ram-ke apyaon kor-te] dekh-lam na.
I everyone-Acc Ram-Acc greeting do-Inf see-Past.1 Neg
'I didn't observe that everyone greeted Ram.' NOT > EVERYONE
Not: 'I observed that no-one greeted Ram.' EVERYONE > NEG
- c. pulis [kal-ke švechchay šobai-ke ophis na jete] dekh-lo.
police yesterday deliberately everyone-Acc office Neg go-Inf see-Past.3
'The police observed that yesterday everyone by their own decision did not go to work/no-one went to work.' EVERYONE > NEG
Not: 'The police observed that not everyone went to work.' NEG > EVERYONE
- d. jodi šobai kaj-e na jai, tahole plan kaj kor-be.
if everyone work-to Neg go then plan work do-Fut.3
'If everyone does not go to work, the plan will be successful.' EVERYONE > NEG
Not: 'If not everyone goes to work, the plan will be successful.' NEG > EVERYONE
- e. jodi tumi šobai-ke na dako, Ruma dukkho pa-be.
if you everyone-Acc Neg call Ruma sorrow get-Fut.3
'If you don't invite everyone, Ruma will be upset.' NEG > EVERYONE
Not: 'If you invite no-one, Ruma will be upset.' EVERYONE > NEG
- f. jodi šobai guptokotha na phanš kore, amra beche ja-bo.
if everyone secret Neg reveal do we survive go-Fut.1
'If no-one reveals the secret, we will be safe.' EVERYONE > NEG
Not: 'If not everyone reveals the secret, we will be safe.' NEG > EVERYONE

The contrastive patterning in finite and non-finite clauses with regard to subject NPI licensing and the scope of negation relative to subject QPs suggests that *na* in non-finite clauses occurs in a structurally lower surface position than *na* in finite clauses, which might naturally be attributed to raising of *na* with the verb in finite clauses and an absence of such movement in non-finite clauses.

The third potential diagnostic for overt verb-movement in finite clauses—the licensing of sloppy readings in instances where an object is omitted—further supports the conclusion that there may be overt movement of the verb in finite clauses but not in non-finite clauses. In example (29), only the strict reading of the null object is possible in the non-finite clause, which may be taken to suggest that there is no VP ellipsis licensing a sloppy interpretation, and that this is in turn because there is no movement of the verb out of the VP in non-finite clauses. When no VP-ellipsis occurs, the object position is realized with a *pro* which only permits a strict and not a sloppy interpretation.

- (29) ami [ama-r bhai-ke na dekh-te pele] dukkhko pa-bo.
 I I-Gen brother-Acc Neg see-Inf get-Cp sorrow get-Fut.1
 ‘I will be sad if I don’t get to see my brother.’

Ruma-o [[e] na dekh-te pele] dukkhko pa-be.
 Ruma-too Neg see-Inf get-Cp sorrow get-Fut.3
 ‘Ruma will also be sad if she doesn’t get to see (him).’ (strict only)

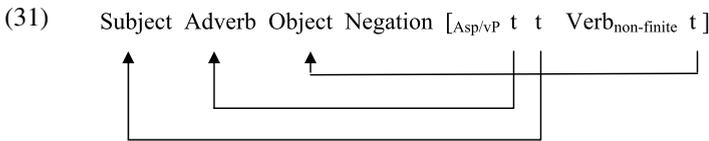
What the general patterning in finite and non-finite clauses seems to suggest, therefore, is that verb-movement may occur in finite clauses in Bangla, but not in non-finite clauses. Given the differences observed here in licensing and interpretation in finite and non-finite clauses, we now turn to the first challenging question raised above, namely how the linear positioning of negation relative to finite and non-finite verbs can be reconciled with other patterns bearing on its structural height and the potential overt movement of finite verbs. In approaching this issue, we will examine two different, opposing perspectives on the directionality of headedness in Bangla, as well as a mixed-headedness view, to see how each may be able to capture the range of hierarchical and linear patterns discussed in Sects. 2 and 3.

4 Exploring two potential analyses of the patterns

4.1 A head-initial analysis

One possible approach to modeling the negation phenomena in Bangla is to make the assumption that Bangla is underlyingly a uniform head-initial language and conforms to Kayne’s (1994) Linear Correspondence Axiom, despite the range of surface head-final properties it seems to exhibit. In a head-initial analysis, the negation element *na* might be assumed to occupy a unique position in the specifier of NegP, similar to French *pas*, in both finite and non-finite clauses, and the different surface orders of

However, such an approach cannot so easily be assumed to account for the patterns with negation in finite and non-finite clauses in Bangla. In finite clauses, the verb could certainly be analyzed as raising to T^0 , followed by remnant movement of AspP/vP leftwards to SpecTP, but there are difficulties in making such an analysis extend to non-finite negative clauses. Here, because the verb remains to the right of Negation/*na*, it is not possible to assume that the whole AspP/vP complement of T^0 moves leftwards. However, all non-verbal material in AspP/vP regularly does appear to the left of Negation/*na*. In order to account for this pre-negation distribution, it may have to be assumed that all AspP/vP-internal elements undergo leftward movement in separate instances of raising, as shown in (31) (and proposed for Dutch in Zwart 1997). Yet, while it may be possible to motivate the movement of direct and indirect objects in terms of case-features, it seems difficult to identify a plausible trigger for the movement of all adverbial adjuncts from below T^0 .



A second serious disadvantage of a head-initial analysis is the noted differences in NPI licensing and scope of negation in finite/non-finite contexts. In finite clauses, it was seen that negation is able to license NPIs in subject position and to take scope over the subject position, but in non-finite clauses NPIs are not licensed by negation in subject position and negation does not scope over the subject position. If *na* is assumed to occur in the same SpecNegP position in finite and non-finite clauses—the ‘uniform’ analysis of *na*/negation, which is the principal theoretical advantage of the head-initial approach—these licensing differences are unexpected, as *na* maintains the same structural position, like French *pas* in SpecNegP and, in both finite and non-finite clauses, the subject (and object, and adverbs) raises over Negation/*na*.

4.2 A mixed-headed analysis

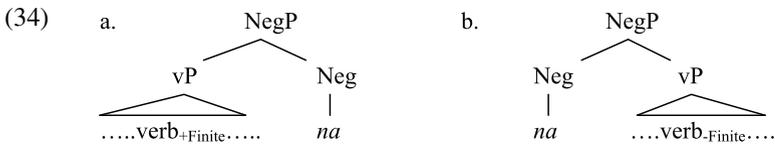
A second potential approach to the negation phenomena is to entertain the possibility that NegP in Bangla might be a category that displays ‘mixed headedness’, along the lines of Bayer (1999). Bayer suggests that while languages are in essence either head-initial or head-final, there may be some exceptions to these strong tendencies, and certain individual projections may be mixed in their headedness. In ‘hybrid’ languages, it is argued that both orders of certain heads and their complements may be attested. For example, Bayer considers the category CP in Bangla, and points out that both C–TP and TP–C linear orders occur. With the complementizer *bole*, a TP > C sequence is found, whereas when the complementizer *je* occurs, this element necessarily precedes its complement TP: C > TP.

- (32) a. chele-ṭa [CP [TP or baba aš-be] bole] šuneche. TP–C
 boy-CL his father come-Fut.3 C hear.Past.3
 ‘The boy has heard that his father will come.’

- b. chele-*ta* *šuneche* [CP *je* [TP *or* *baba* *aš-be*]]. C-TP
 boy-Cl hear.Past.3 C his father come-Fut.3
 ‘The boy has heard that his father will come.’

From such observations, Bayer suggests CP in Bangla may be a category allowing mixed headedness—both head-final and head-initial orders—and there is no movement deriving one order from the other—both types of overt sequencing of TP/C are base-generated. In extending such an approach to the different linear orders of finite/non-finite verbs and negation, it might be suggested that NegP permits two different base orders, as in (33) and (34):

- (33) a. vP–Neg head-final, in finite contexts
 b. Neg–vP head-initial, in non-finite contexts

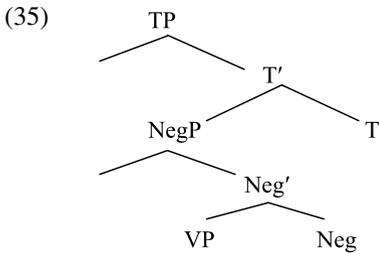


However, such a mixed-headedness approach would not seem right, for two reasons. First, Bayer suggests that the possibility of both head > complement and complement > head only occurs in a phrasal projection when the lexical instantiation of the head is different—it is the lexical property of the head which is responsible for the different linear orders of projection. As noted above, in Bangla CPs, the C head *bole* results in the ‘regular’ head-final order of TP > C, while the C head *je* ‘exceptionally’ results in the head-initial order C > TP. But in NegP, the linear ordering of negation and its complement vP/AspP involves the same lexical head element *na*, not two different lexical heads. Accordingly, NegP is expected to allow for only one ordering of head and complement, not two.

Second, hierarchically, the structures in (34a) and (34b) are equivalent, and *na*/Neg⁰ stands in the same c-command relations with members of its complement in both structures. Such underlying structures therefore fail to account for the observed asymmetries in licensing of NPIs in subject/object positions and different scopal relations between *na*/Neg and subjects in finite and non-finite clauses.

4.3 A head-final analysis

As neither a head-initial nor a mixed-headed analysis of NegP in Bangla is arguably able to provide a satisfactory account of the linear and hierarchical properties of negation in finite and non-finite clauses, we will now consider a third and final logical possibility, the hypothesis that NegP (and TP) in Bangla is head-final, as represented in (35):



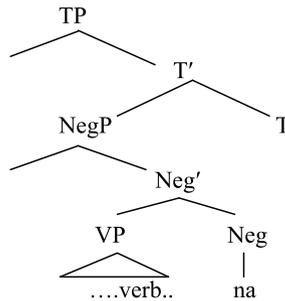
At first sight, a head-final analysis may seem to fare no better than a head-initial or mixed-headed analysis and not to be able to account for the patterns found in finite and non-finite clauses. The linear properties of such clauses which need to be captured are schematized in (36):

- (36)
- a. Finite clauses: ... Sub Ob V Neg/*na*
 - b. Non-finite clauses: ... Sub Ob Neg/*na* V

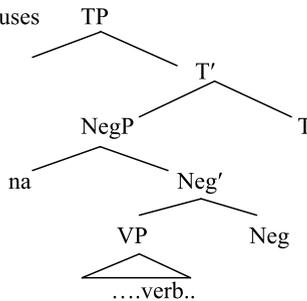
A head-final modeling of NegP and TP in Bangla might indeed seem to lead to an odd analysis of the patterns in (36), namely that non-finite verbs raise rightwards over negation to T, whereas verbs inflected for tense remain in VP to the left of negation. Such a patterning would be the opposite of what is expected, given the cross-linguistic observation that tensed verbs frequently raise to T/Infl, while non-tensed verbs do not exhibit similar movement to T/Infl. What we would now like to explore here is how a particular view of the lexicalization of NegP can successfully supplement a head-final approach to provide a full account of both the linear and hierarchical properties of negation in Bangla finite and non-finite clauses. Specifically, we would like to exploit and adapt a second idea present in Pollock's seminal (1989) work on verb movement in finite clauses, that sentential negation projects a NegP which may be overtly lexicalized with elements in both the head and the specifier position. In French, it is suggested that the head of NegP, Neg⁰, may be overtly realized by means of the word-level particle *ne*, and that the specifier position of NegP is instantiated with the element *pas*, a phrasal projection. Such ideas that negative particles may actually come in two positions and two phrase structural 'sizes' has been widely adopted in further studies of the syntactic behavior of negation, and in certain languages it has been argued that sentential negation is overtly present in the form of a negative element base-generated in Neg⁰ (for example, English *n't*, Haegeman 1995; and negation in the Finno-Ugric languages, Mitchell 2006) and in others that negation/NegP is overtly realized with a negative particle in SpecNegP (Paduan, Piedmontese, Zanuttini 1997b; and English *not*, Haegeman 1995). In French, the two negative elements projected in Neg⁰ and SpecNegP are distinct in their overt form, and both may and do occur in the same single instance of negation (exemplifying a certain point in Jespersen's Cycle of the development of negation). However, there is nothing in principle which would require that the potential overt realization of SpecNegP and Neg⁰ should necessarily be with elements that are different in form, and we would here like to explore just such a possible hypothesis for Bangla, namely that the element *na* may in fact occur as a realization of either Neg⁰ or the specifier of NegP, with this alternation relating to the finiteness of a

clause: in finite clauses, we suggest that *na* occurs in the head of NegP, Neg⁰, and in non-finite clauses in the specifier of NegP, as schematized in (37) below. Combined with the assumption that NegP and TP are head-final projections, such a hypothesis of the Spec-head alternation of *na* in finite and non-finite clauses will be shown to lead to a full account of the linear and structural patterns found with negation in the different clause types, in a way that is not possible in head-initial or mixed-headed analyses. In Sect. 5, we will return to the broader issue of the theoretical status of the assumption that there is alternation in the lexicalization of the Spec and head position of a phrase (here NegP), and discuss both challenges and additional support for such a (somewhat) novel approach. For the present, we will examine how such a view provides a solution to the problems which seem to escape a satisfactory treatment in the other approaches considered. In doing this, we will first present an initial hypothesis, see that this requires certain modifications, and then proceed to a final solution.

(37) a. Finite clauses



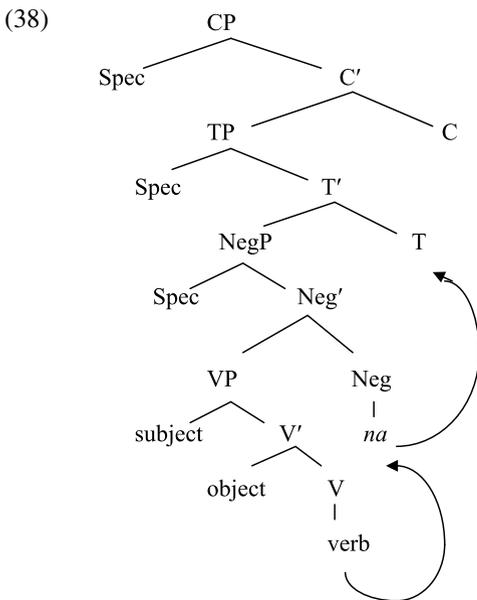
b. Non-finite clauses



First of all, the assumption that the negative element *na* is projected in the specifier of NegP in non-finite clauses and in Neg⁰ in finite clauses provides a straightforward way of capturing the linear sequencing of negation and verbs in finite and non-finite contexts. In non-finite clauses, *na* in SpecNegP will occur to the left of the verb, whereas in finite clauses, *na* in the Neg⁰ head of a head-final NegP will be base-generated to the right of the tensed verb, and this relative positioning might naturally be assumed to map onto the surface order observed.

In addition to the linear properties of verbs and negation, which can be modeled with the structures in (37), Sect. 3 also noted certain important hierarchical properties that any analysis of negation in Bangla needs to capture. Specifically, in the data pre-

sented in (27a)–(27h) and (28a)–(28f), it was noted that negation licenses object NPIs in both finite and non-finite clauses, but subject NPIs only in finite clauses, and that negation scopes over the subject in finite clauses but not in non-finite clauses. A natural question is whether the structures in (37) are able to capture such patterns more successfully than a head-initial or a mixed-headed pattern, both of which leave the differing scope ordering with respect to negation in finite and non-finite clauses unexplained. In (37a) and (37b), both SpecNegP and Neg⁰ c-command the contents of the VP, which implies that in the underlying structure, the different positions of *na* in finite and non-finite clauses are not in fact distinguished in terms of their c-command relations relative to material in the VP. This may therefore incorrectly predict that the licensing potential of *na* in the Spec and head of NegP will be the same if determined solely by the positions they occupy in (37). However, if it is assumed that finite verbs undergo movement to T⁰ via Neg⁰, such movement of the verb may attach *na* in Neg⁰ and bring *na* to a higher structural position with a broader licensing domain than *na* in SpecNegP. Such movement of the verb via Neg⁰ to T⁰ is schematized in (38) below. Note that we assume that the affixal tense and agreement elements of verbs in Bangla are morphologically attached to the verb stem in the lexicon and licensed under movement to T (Chomsky 1995 and subsequent works), while negation *na* is a clitic, which attaches to the verb complex as part of the process of movement of the verb to T, resulting in the occurrence of *na* outside the verb’s tense morphology.



Developing such an analysis, we can now examine the hypothesis in (39) below and how it may allow for the NPI and scope patterns to be captured:

- (39) **Hypothesis I:** The subject and object are base-generated in the VP/vP complement of Neg⁰.

In the case of non-finite clauses, the subject raises leftwards to the specifier of some higher functional projection (which we take here to be SpecTP), and in the derived structure, negation neither c-commands nor m-commands the surface subject position. The lack of either such a structural relation between negation and the subject will account for the observation that negation does not take scope over QPs in subject position, nor license NPI subjects.

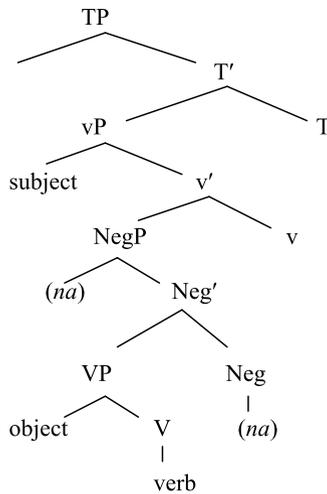
With finite clauses, the subject also raises to SpecTP. However, additionally, the tensed verb raises to Neg⁰, attaches *na* and moves higher to T⁰ (or higher) and to a position from which the verbal complex incorporating negation m-commands the derived subject position, which can be suggested to result in the scope of negation over QP subjects and the licensing of NPI subjects.

However, while such derivations will successfully capture the core licensing and scopal properties of negation and subject DPs observed in (27) and (28), they seem to leave unexplained the interaction of negation with object DPs. In particular, it was noted that in non-finite clauses, NPI objects are licensed by negation, yet such objects regularly occur to the left of *na* (examples (27a) and (27b)). The fact that NPI objects may legitimately precede negation and occur outside its surface m-command domain therefore requires a revision of the assumption that it is the surface position of negation and NPIs which is responsible for NPI licensing, and instead it must be assumed that subject and object NPIs are licensed prior to their surface positions. Given such a conclusion, the question remains how the subject/object asymmetries in NPI licensing and scope can be captured. If subjects, like objects, are base-generated in VP/vP (as assumed by the VP-Internal Subject Hypothesis), it might be expected that subject NPIs in both finite and non-finite clauses would regularly be licensed in SpecVP/vP prior to movement to SpecTP, but the observation in (27) has been that subject NPIs are only licensed in the former type of clause. The simple structural solution forced by such patterns is therefore to assume that the subject is not in fact base-generated in a position m-commanded by negation, either in SpecNegP or in Neg⁰, and that the base position of the subject is higher than NegP, in a vP split by NegP as represented in (40) and stated in Hypothesis II in (41).

- (40) **Hypothesis II.** NegP is low in Bangla, occupying a position between vP, where the subject is base-generated, and VP, where the object is base-generated.⁵

⁵There exist clear cross-linguistic precedents for such a split-vP analysis. Travis (2010) argues that an AspP occurs within vP, above VP, and Zanuttini (1997a) argues for four different positions of negation in Italian dialects, some being high and some being low.

(41) Bangla negation



Hypothesis II with the corresponding structure in (41) is now able to account for both the linear and the hierarchical properties of negation, finite/non-finite verbs, adverbs and subjects/objects in Bangla. First, in non-finite clauses, the subject in Spec v P (or perhaps raised to SpecTP) will never occur in the m-command domain of *na* in SpecNegP, hence negation will not take scope over QPs in subject position, nor license NPI subjects. Second, in finite clauses, the subject will raise from Spec v P to SpecTP, and the finite verb can be assumed to raise to Neg⁰, attach to *na* and move higher to T⁰ (or higher still) to a position which will enlarge the licensing and scope domain of negation, resulting in the scope of negation over QP subjects and the licensing of NPI subjects. Third, objects within VP will always occur within the licensing domain of negation as NegP dominates VP. Consequently, objects in both finite and non-finite clauses can be licensed as NPIs prior to any movement to higher positions.

A head-final analysis of the Bangla negation patterns is consequently able to model the full range of linear and hierarchical patterns discussed, whereas head-initial and mixed-headed approaches face significant difficulties in capturing the latter kind of information. If such an analysis of negation is indeed correct for Bangla, it is natural to ask whether it may also be appropriate for other related South Asian languages, for example Hindi. In Hindi, the distribution of the negative particle *nahiiⁿ* is different from *na* in Bangla, and Hindi *nahiiⁿ* is uniformly pre-verbal, regardless of clause type. Hindi *nahiiⁿ* might thus be expected to occur in SpecNegP, on a par with Bangla *na* in non-finite clauses. This being the case, if the same clausal structure as hypothesized for Bangla in (41) occurs in Hindi, it is expected that NPI subjects in Hindi would not be licensed by negation, as *nahiiⁿ* in SpecNegP would not raise to T⁰ with any movement of the verb. However, NPI subjects regularly are licensed, as shown in (42):

- (42) koi bhii nahiiⁿ aayaa.
 anyone Neg came
 ‘No-one came.’ (Lahiri 1998)

The head-final approach to NegP and TP can therefore be suggested to be descriptively more adequate than a head-initial or mixed-headed approach, and also involves less complex assumptions relating to movement and the motivation for movement than a putative head-initial analysis. However, the proposal may also appear somewhat unorthodox and novel in its suggestion that there is an alternation in lexicalization of the specifier and head of NegP and one might ask whether it is unnatural to assume that the same lexical item may occur both in the specifier and the head of a single projection. In this section we discuss the theoretical status of the proposal further and present various precedents for such an approach, both from previous work on other languages, and also certain additional supporting evidence and patterns from within Bangla itself. Finally we discuss the technical issue of constraining the approach to prevent over-generation.

5.1 On the lexicalization of specifiers and heads

The key innovation which has been used to derive an account of the patterning of negation in finite and non-finite contexts has been the suggestion that NegP in Bangla instantiates a particular development in the language in which both the specifier and the head of a projection may be overtly lexicalized by means of the same element (*na*). We believe that such an alternation in the overt instantiation of specifier and head of a single projection is a patterning that is not simply a theoretical possibility made available by current conceptions of Spec-head relations, but is an alternation that is actually anticipated and predicted to occur given the way that elements in specifier and head positions share properties with each other both synchronically and during diachronic change. First of all, it can be emphasized that the original motivation for positing the occurrence of the Bangla negative particle in the specifier and the head of NegP was indeed Pollock's (1989) analysis of French in which both specifier and head positions may be lexicalized with negative particles, this paving the way for many subsequent analyses in which the specifiers and heads of NegP in different languages have been argued to contain overt instantiations of clausal negation. More recently, long-established assumptions about the special connection of specifier to head positions, referred to often as "Spec-head agreement", have been articulated in a highly developed way in Cinque (1999). There it is argued at length that specifier positions are reserved for elements which share key properties with the associated head of the phrase, hence that adverbial elements in Spec positions share featural properties of the related head. The central idea underlying such work is that an element projected in the specifier of a phrase may well be quasi-identical or even fully identical with the lexicalization of the head of a phrase, so that in certain instances it may not be possible to predict (without further information about word/phrase-level size and diachronic development) which position in a phrase will be lexicalized by an element with a particular semantic content. The varied cross-linguistic lexicalization of NegP via elements in either the specifier or the head of NegP is a good case in point here, with various languages projecting negative particles in the head of NegP and others in the specifier position, and this largely being a distribution which is unpredictable and in need of careful investigation for each language. Given such cross-linguistic fluctuation in the lexicalization of specifiers and heads of a single phrasal

type, it is not unreasonable to expect the occurrence of certain language-internal fluctuation and alternation in Spec-head lexicalization patterns, both diachronically, as will be noted below, and also synchronically, as hypothesized for Bangla negation and quite possibly a set of other elements in the language.

Work on the historical development of various functional morphemes has in fact identified a range of cases where it is argued that a phrasal element in the specifier of a functional projection has either been fully reanalyzed as the head of the projection, or is currently alternating between occurrence as a phrase in the specifier position and as an X^0 in the head position, with increased tendency to be realized in the latter position as a head. Many such cases are described and cited in van Gelderen (2004), and include the changes and alternations in (45):

- (45)
- a. The reanalysis of demonstrative pronouns in SpecCP as relative clause complementizers (van Gelderen 2004:82–87; Heine and Kuteva 2002);
 - b. The reanalysis of demonstrative pronouns in SpecCP as complementizers embedding complement clauses (van Gelderen 2004:89–92; Hopper and Traugott 1993);
 - c. The reanalysis of demonstrative and possessive elements in the specifiers of DP-internal functional projections as the heads of these functional projections (van Gelderen 2004:27–28; Wood 2003);
 - d. Alternation in the projection of pronouns in English, Arabic and French as the specifiers or heads of functional projections (van Gelderen 2004:19–25);
 - e. Alternation in the projection of the Korean negative morpheme *an* as specifier or head of NegP (van Gelderen 2004:26–27);
 - f. Reanalysis of a *wh*-pronoun in SpecCP as an instantiation of C^0 (Bayer 1995, Bangla *je*; Aoun and Li 2003, English *which*; Heine and Kuteva 2002, Spanish *que*);
 - g. Alternation in the projection of adverbs in Mandarin and Hokkien Chinese in specifier or head positions (Fu 1994; Soh 2001; Chen 1987; Simpson 2014, to appear).

A wide variety of syntactic and also phonological evidence has been given as support for the changes and alternations in Spec-head projection noted in (45), for example, the observation of new co-occurrence restrictions on DP-internal demonstratives, possessives and determiners (45c), co-ordination restrictions on pronouns (45d), the necessary use of light verbs as support for one form of Korean negation (45e), differing reconstruction effects with English relative pronouns and *which* in relative clauses (45f), and tone sandhi differences in the occurrence of Hokkien adverbs in specifier and head positions. It is also relevant to point out that in several of the instances of Spec-head alternation examined in (45), the overt form of the element identified as fluctuating in its occurrence as either specifier or head on the basis of syntactic and phonological criteria is the same in both Spec and head realizations; hence it appears that a single element may realize either the specifier position or the head position as hypothesized for Bangla *na*. The alternations (and ultimate changes) in (45a, b, c, f, g) all have this property. In other instances, there may be differing forms which realize Spec and head positions, for example some (but not all) instances of pronoun

alternations (45d). Finally, it can be noted that where such Spec-head alternations result in a full change in the way that an element is syntactically projected, this regularly seems to result in the reanalysis of a phrasal element projected in a specifier position to that of an X^0 projected in the head of a functional projection, as noted in van Gelderen's (2004:18) *Spec to Head* or *Head Preference Principle* and Simpson and Wu's (2002:308) principle of *Spec-Head Reduction*.

What the above indicates is that there are indeed many precedents in the literature for the hypothesis applied to Bangla negation that a single morpheme may occur in two positions within a single projection, and that alternations in the lexicalization of specifier and head positions may be a synchronic fluctuation which precedes a change towards a stabilized reanalysis of a phrasal element as the head of a functional projection.⁷ While good descriptions of the patterning of negation in earlier forms of Bangla are not readily available, it is nevertheless possible to find examples of early Bangla, illustrated by (45) below, which show that negation originally preceded the verb in finite clauses as well as non-finite clauses, as in Sanskrit and modern Hindi, suggesting that the modern pattern of alternating pre- and post-verbal negation is a development which has arisen from an earlier pattern in which negation was regularly pre-verbal in non-finite and finite clauses. Such a development is consistent with the view argued for in van Gelderen (2004) that phrasal elements base-generated in the specifier positions of functional projections may over time come to lexicalize the head position of the functional projection, and pass through a period in which there is alternation in the overt realization of specifier and head. In the case of Bangla negation, the earlier lexicalization of negation uniformly in SpecNegP would give way to the current pattern in which both the specifier and head of NegP alternate in their lexicalization in different finite/non-finite environments.⁸

- (46) robi sosi nohi chilo, nohi chilo rati din.
 sun moon not was not was night day
 'The sun and the moon were not present, there was neither day nor night.'

Finally, within Bangla, it can be observed that there are also other instances of functional morphemes in the language which alternate in their surface positioning in a way which clearly resembles the alternating position of negative *na*, adding further potential support for the analysis of spec-head realization being examined here. In the three cases illustrated below, a single functional morpheme is found to occur either in a final, post-verbal position, or in some position in the pre-verbal domain. The first of these is the yes/no question particle *ki*, the second the conditional morpheme *jodi*, and the third the emphatic marker *na*. Examples (46) and (47) both show the variable distribution of *ki*. It is seen that yes/no *ki* occurs either in some non-initial position in the pre-verbal domain, or sentence/clause-finally following the verb.⁹

⁷See van Gelderen (2004) for discussion of some of the pressures which may sustain the fluctuation between Spec and head lexicalization and delay a full change to the reanalysis of phrasal elements as heads.

⁸Note that the negative morpheme in the early Bangla example (45) is *nohi* and that the second clause makes use of the post-verbal positioning of the subject of the verb, as is not uncommon in colloquial Bangla or poetic writing.

⁹The use of *ki* in these different linear positions does have some effect on the focus and interpretation of the yes/no question. If *ki* occurs in sentence-final position, the speaker has no particular expectations

- (47) a. tomra biye-r rat-e gan gai-be ki?
 you.Pl wedding.Gen evening-Loc song sing-Fut.2 Q
 'Will you sing songs on the night of the wedding?'
- b. tomra ki biyer rat-e gan gaibe?
 you.Pl Q wedding.Gen evening-Loc song sing-Fut.2
 'Will you sing songs on the night of the wedding?'
- c. tomra biyer rat-e ki gan gaibe?
 you.Pl wedding.Gen evening-Loc Q song sing-Fut.2
 'Will you sing songs on the night of the wedding?'
- (48) a. æk ʔaka-te boi-ʔa deben ki?
 1 rupee¹⁰-with book-Cl give.Fut.2 Q
 'Will you give me the book for 1 rupee?'
- b. æk ʔaka-te ki boi-ʔa deben?
 1 rupee-with Q book-Cl give.Fut.2
 'Will you give me the book for 1 rupee?'
- c. æk ʔaka-te boi-ʔa ki deben?
 1 rupee-with book-Cl Q give.Fut.2
 'Will you give me the book for 1 rupee?'

The same pre- and post-verbal distribution is also observed in case of the conditional morpheme *jodi* and the emphatic marker *na* as well, as illustrated in (49)–(50).¹¹

- (49) a. ami na bhat kha-i jodi, ama-r matha ghur-be.
 I Neg rice eat-Pres.1 if my head spin-Fut.3
 'If I don't eat rice, my head will spin.'
- b. ami jodi na bhat khai, ama-r matha ghurbe.
 I if Neg rice eat-Pres.1 my head spin-Fut.3
 'If I don't eat rice, my head will spin.'
- c. jodi ami na bhat khai, ama-r matha ghurbe.
 if I Neg rice eat-Pres.1 my head spin-Fut.3
 'If I don't eat rice, my head will spin.'
- (50) ama-ke na jete-i ho-be.
 I-Acc Emph go-Inf-i be-Fut.3
 'I have to go!'

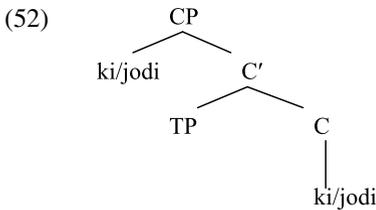
concerning whether the answer to the question will be positive or negative. Where *ki* occurs following the subject in (46b), the natural interpretation is that the temporal PP which follows *ki* is in focus and the speaker wishes to know whether the singing that the hearer is expected to carry out will occur on the wedding night or some other time. In (46c), the natural interpretation of the sentence is that the speaker knows that the hearer will be present at the wedding, and is asking whether s/he will be singing there, hence the predicate following *ki* is naturally in focus. Such factors therefore seem to influence the speaker's placement of *ki* in yes/no questions and use of *ki* in the different positions that the syntax makes available.

¹⁰Rupee is Indian currency.

¹¹Note that in addition to clause-final and clause-medial positions, the element *jodi* may also occur in clause-initial position, as illustrated in (49c). The yes/no particle *ki* and the emphatic particle *na* may not appear in fully clause-initial position, a restriction which can be suggested to be due to the enclitic nature of these particles, requiring some element to precede them for phonological support. The negative particle *na* does not share this enclitic property, and can occur in sentence-initial position, as illustrated in footnote 6.

- (51) boso na.
 sit-imp Emph
 ‘(Please) sit!’

The above data point towards a recurring pattern in Bangla in which certain functional morphemes are able to surface in a range of positions, one of which is immediately right-adjacent to the verb. This repeated occurrence of the variable linearization of grammatical morphemes in Bangla emphasizes the need to recognize a mechanism which allows for the projection of a single element in different positions, and indicates that the case of alternating *na* is not an isolated phenomenon in the language. Rather, there seems to be the toleration of interesting fluctuation in the positioning of a number of functional elements in Bangla. Consequently, if the structural and linear arguments relating to negation/*na* favor the spec-head realization analysis proposed in Sect. 4 over other possible movement approaches, this does not result in the assumption of a syntactic mechanism which is exceptional but rather of one which may be responsible for several other patterns of alternation in the language. We therefore suggest that for the three other oscillating particles *ki*, *jodi* and (emphatic) *na*, there may also be a single head-final projection in each case, with post-verbal *ki*, *jodi* and *na* projected in the head positions of these projections, and pre-verbal *ki*, *jodi* and *na* being the optional projection of such elements in leftward specifier positions, as schematized for *ki* and *jodi* in (52).¹²



A last important issue which needs to be considered is how the alternating overt realization of negation in Bangla is formally constrained to occur in the way that it does—with *na* appearing pre-verbally in non-finite clauses and post-verbally in finite clauses—and how finiteness ultimately comes to be the crucial factor determining such an asymmetric distribution. We suggest that the restriction of *na* to the head of

¹²Note that both the specifier and the head of the C-domain projections housing yes/no *ki* and conditional *jodi* will c-command the base positions of both objects and subjects, hence subject NPIs are licensed by both the pre-verbal and post-verbal occurrence of *ki/jodi*, as shown in (i) and (ii).

- (i) a. keu ki boi-ṭa kin-lo?
 someone Q book-Cl buy-Past.3?
 ‘Did anyone buy the book?’
 b. keu boi-ṭa kin-lo ki?
- (ii) a. keu jodi aṣ-e, ami k^huṣi ho-bo.
 someone if come.3 I happy be.Fut.1
 ‘If anyone comes, I will be happy.’
 b. keu aṣe jodi, ami k^huṣi ho-bo.

NegP in finite clauses, and its occurrence in SpecNegP is a reflection of an agreement-like relation between T^0 and Neg^0 , which has an overt manifestation much in the way that the functional heads C^0 and T^0 have been observed to agree overtly with each other in various languages (Carstens 2003). We suggest that Neg^0 in Bangla actually has two potential instantiations, a form which agrees in finiteness with a finite T^0 , which is spelled out as *na*, and a second phonetically null form \emptyset which occurs in Neg^0 in non-finite clauses selected by a non-finite T^0 (covertly) expressing agreement with non-finite T^0 . We view such alternating overt and covert instantiations of Neg^0 as similar to the claim developed in Rizzi (1990: Chap. 2) that English C^0 may have two, alternating instantiations in certain subordinate clauses, either the overt form *that* or a covert form \emptyset , with the latter being an agreeing form of C^0 and the former a non-agreeing realization of C^0 . In Bangla, we take both *na* and \emptyset to agree with T^0 , though for different finite/non-finite specifications of T^0 . In finite clauses, *na* will be selected to occur in Neg^0 as the instantiation of Neg^0 agreeing with a finite T^0 , and the occurrence of a second pre-verbal *na* in SpecNegP will not be an option due to redundancy, NegP already being lexicalized once in the head position. In non-finite clauses, \emptyset will be selected to occur in Neg^0 as the instantiation of Neg^0 agreeing with a non-finite T^0 , but NegP will still require some overt lexicalization identifying its presence in the clause, triggering the insertion of *na* in the specifier position, and the occurrence of pre-verbal negation. The alternating realization of *na* in head and specifier positions as determined by the finiteness of the clause can therefore be attributed synchronically to a selection relation existing between T^0 and the lower clausal head Neg^0 and the way that Neg/T agreement is overtly manifested in the presence of finite and non-finite T^0 .¹³

As for how the current synchronic pattern of agreeing Neg^0 has developed, with *na* as the instantiation of Neg^0 in finite clauses, and SpecNegP lexicalized via *na* when the null form of Neg^0 \emptyset is projected in non-finite clauses, we believe that it will be possible to broach this issue only upon careful investigation of the diachronic development of negation in Bangla, a project which is beyond the scope of the present paper. However, if the post-verbal patterning of negation in finite clauses did indeed develop from pre-verbal negation as speculated earlier on, such a development might naturally be attributed to the general patterning argued for in van Gelderen (2004) in which elements projected as phrases in specifier positions may over time become reanalyzed as heads of the projections they lexicalize as an effect of (increased) grammaticalization. Quite generally, processes of grammaticalization and the development of functional Tense/Aspect/Mood heads are often associated with the high frequency use of certain morphemes (Bybee et al. 1994; Hopper and Traugott 1993), and with regard to Bangla negation, it is clear that the use of finite negation is much more frequent in its occurrence than the occurrence of negation in non-finite clauses, with an approximate ratio of 3:1 revealed by a recent random search of negation in Bangla

¹³Concerning the relation of T to Neg, and the assumed absence of a selection relation between T and *na* in SpecNegP, it can be noted that heads may select for other heads but not for elements in the specifier positions of lower phrases. While NegP is not the direct complement of T^0 , it is often assumed that certain non-local selection between heads is possible, as, for example, when C potentially selects properties of T across intervening Topic and Focus phrases in the C-domain. Hence [+finite] T may be suggested to select for and be satisfied by a particular form of Neg^0 , but not an instantiation of SpecNegP.

texts of a range of types carried out by the authors. The higher frequency of negation in finite clauses is therefore naturally compatible with the view that post-verbal *na* is a head form of NegP which may well have developed from its earlier uniform occurrence as preverbal phrasal negation projected in SpecNegP. It is to be hoped that diachronic studies of negation in Bangla (of which there are currently none, to the best of our knowledge), will shed more light on this matter and, like investigations of Jespersen's Cycle of negation in various languages, this would be a most welcome topic for future research.

6 Summary

Cross-linguistic investigations of the phenomenon of finiteness focus both on the apparent direct manifestations of finiteness itself (for example, the licensing of overt subjects, the occurrence of certain types of verbal morphology), and on the ways that distinctions in the finiteness of clauses may provide valuable insights into other aspects of morpho-syntax which are found to pattern differently in finite and non-finite environments—finiteness used as a revealing 'testing ground' for the examination of various connected morpho-syntactic patterns. Engaging in the latter direction of enquiry, the principal issue under consideration in the current study was whether the distribution of markers of negation relative to the verb in finite and non-finite clauses in Bangla should be analyzed as fully parallel to Pollock's (1989) analysis of French, and result from leftwards movement of tensed verbs over Negation to T^0 . The broader potential consequence of such an analysis, if determined to be correct for Bangla, would be that a head-initial LCA-type perspective of Bangla would be supported for this SOV language which has otherwise commonly been assumed to be head-final.

The actual conclusion of the investigation was that movement of verbs is indeed involved in finite clauses in Bangla, but this movement does not relocate the verb leftwards to a head-initial functional projection, but rather rightwards to a head-final TP, passing through a head-final NegP en route to T^0 . It was argued that such an analysis is able to account for both the differing linear and hierarchical properties of negation in finite and non-finite clauses in a way that other head-initial and mixed-headed approaches cannot obviously do. A major feature of the analysis involved the idea that the specifier and head of a projection may exhibit an alternating pattern of lexicalization, drawing both on Pollock's (1989) analysis of the dual location of negative morphemes in French and much recent work on alternations between specifier and head lexicalization in van Gelderen (2004) and others. Such Spec-head alternations have been argued to be manifested through an array of different evidence in head-initial languages, ranging across co-occurrence restrictions, reconstruction phenomena, and tone sandhi patterns. In head-final structures, the alternating lexicalization of the specifier and head of a functional projection may have the interesting effect of giving the appearance of leftwards movement of material contained within the complement of the head of the functional projection. In the instance of negation/NegP as examined in Bangla, this gives rise to the impression that there may be leftwards movement of tensed verbs over negation in its base position. The analysis developed and defended here, however, is that finite clause verbs in fact cliticize the negation

marker in Neg⁰ and undergo movement rightwards to a head-final T⁰, in a virtual mirror-image patterning of French and the raising of finite verbs to T⁰ through Neg⁰ with the cliticization of the negative morpheme *ne*. In this way, the patterns in Bangla, as in French, illustrate neatly how the finiteness of a clause may become intertwined with the properties of other clausal functional projections such as negation/NegP, as feature-related dependencies are constructed between T⁰ and V⁰ across intervening NegPs, resulting in Neg⁰ heads which are selected by and manifest agreement-like properties of higher finite and non-finite T⁰s.

References

- Adger, David. 2007. Three domains of finiteness: a minimalist perspective. In *Finiteness*, ed. Irina Nikolaeva, 23–58. Oxford: Oxford University Press.
- Amritavalli, R., and K. A. Jayaseelan. 2005. Finiteness and negation in dravidian. In *The Oxford handbook of comparative syntax*, eds. Guglielmo Cinque, and Richard S. Kayne, 880–902. Oxford: Oxford University Press.
- Aoun, Joseph, and Yen-Hui Audrey Li. 2003. *Essays on the representational and derivational nature of grammar: the diversity of wh-constructions*. Cambridge: MIT Press.
- Bayer, Josef. 1995. *Directionality and logical form: on the scope of focussing particles and wh-in-situ*. Dordrecht: Kluwer.
- Bayer, Josef. 1999. Final complementizers in hybrid languages. *Journal of Linguistics* 35: 233–271.
- Bybee, Joan, Revere Perkins, and William Pagliuca. 1994. *The evolution of grammar*. Chicago: University of Chicago Press.
- Carstens, Vicki. 2002. Antisymmetry and word order in serial verb constructions. *Language* 78(1): 3–50.
- Carstens, Vicki. 2003. Rethinking complementizer agreement: agree with a case-checked goal. *Linguistic Inquiry* 34(3): 393–412.
- Chen, Matthew. 1987. The syntax of Xiamen tone sandhi. *Phonology Yearbook* 4: 109–149.
- Choi, Young-Sik. 1999. Negation, its scope, and NPI licensing in Korean. In *ESCOL 1999*, eds. Rebecca Daly and Anastasia Riehl. Ithaca, NY, 25–36. Cornell: CLC Publications.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge: MIT Press.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads: a cross-linguistic perspective*. Oxford: Oxford University Press.
- Cinque, Guglielmo. 2006. *Restructuring and functional heads*. Oxford: Oxford University Press.
- Crystal, David. 2003. *A dictionary of linguistics and phonetics*. Oxford: Blackwell.
- Fu, Jingqi. 1994. On deriving Chinese derived nominals: evidence for V-to-N raising. University of Massachusetts dissertation, Amherst.
- Haegeman, Liliane. 1995. *The syntax of negation*. Cambridge: Cambridge University Press.
- Haegeman, Liliane. 2000. Remnant movement and OV order. In *The derivation of VO and OV*, ed. Peter Svenonius, 69–96. Amsterdam: John Benjamins.
- Han, Chung-hye. 2007. In search of evidence for the placement of the verb in Korean and Japanese. In *Japanese/Korean linguistics*, eds. Naomi Hanaoka McGloin and Junko Mori. Vol. 15, 324–335.
- Han, Chung-hye, Jeffrey Lidz, and Julien Musolino. 2007. V-raising and grammar competition in Korean: evidence from negation and quantifier scope. *Linguistic Inquiry* 38(1): 1–47.
- Heine, Bernd, and Tania Kuteva. 2002. *World lexicon of grammaticalization*. Cambridge: CUP.
- Hopper, Paul, and Elizabeth Traugott. 1993. *Grammaticalization*. Cambridge: CUP.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge: MIT Press.
- Kato, Yasuhiko. 1991. Negative polarity in Japanese and levels of representation. *The Tsuda Review* 36: 151–179.
- Kuno, Susumu. 1999. Negative polarity items in Japanese and English. In *Harvard working papers in linguistics*, ed. Samuel D. Epstein. Vol. 5, 165–197. Cambridge: Harvard University.
- Koizumi, Masatoshi. 2000. Strong vacuous overt verb-raising. *Journal of East Asian Linguistics* 9: 227–285.
- Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6: 57–123.

- Lapointe, Steven and Sarah Nielsen. 1996. A reconsideration of type III gerunds in Korean. In *Japanese/Korean linguistics Stanford*, eds. Noriko Akatsuka, Shoichi Iwasaki, and Susan Strauss, 305–319. Stanford: CSLI.
- Matthews, Peter. 1997. *The concise Oxford dictionary of linguistics*. Oxford: Oxford University Press.
- Mitchell, Erika. 2006. The morpho-syntax of negation and the positions of NegP in the Finno-Ugric languages. *Lingua* 116: 228–244.
- Nikolaeva, Irina. 2007. Introduction. In *Finiteness*, ed. Irina Nikolaeva, 1–19. Oxford: Oxford University Press.
- Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22: 345–358.
- Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 3: 365–424.
- Rizzi, Luigi. 1978. A restructuring rule in Italian syntax. In *Recent transformational studies in European languages*, ed. Samuel Jay Keyser, 113–158. Cambridge: MIT Press.
- Rizzi, Luigi. 1990. *Relativized minimality*. Boston: MIT Press.
- Rohrbacher, Bernhard. 1994. The Germanic VO languages and the full paradigm: a theory of V to I raising. University of Massachusetts dissertation, Amherst.
- Rudin, Catherine. 1988. On multiple *wh* questions and multiple *wh* fronting. *Natural Language & Linguistic Theory* 6: 445–501.
- Sells, Peter. 2007. Finiteness in non-transformational syntactic frameworks. In *Finiteness*, ed. Irina Nikolaeva, 59–89. Oxford: Oxford University Press.
- Simpson, Andrew, and Zoe Wu. 2002. Agreement, shells and focus. *Language* 78(2): 287–313.
- Simpson, Andrew. 2014. Syntax and prosody. In *Handbook of Chinese linguistics*, eds. C.-T. James Huang, Yen-Hui Audrey Li, and Andrew Simpson. Oxford: Blackwell. To appear.
- Soh, Hooi Ling. 2001. The syntax and semantics of phonological phrasing in Shanghai and Hokkien. *Journal of East Asian Linguistics* 10: 37–80.
- Suh, Jin-Hee. 1990. *Scope phenomena and aspects of Korean syntax*. Los Angeles: University of Southern California dissertation.
- Travis, Lisa. 2010. *Inner aspect: the articulation of VP*. Dordrecht: Springer.
- van Gelderen, Elly. 2004. *Grammaticalization as economy*. Amsterdam: John Benjamins.
- Vasishth, Shravan. 1999. Word order and negation in Hindi. In *Proceedings of formal grammar*, eds. Geert-Jan M. Kruijff and Richard Oehrle, 165–176.
- Vincent, Nigel. 1998. On the grammar of inflected non-finite forms (with special reference to Old Neapolitan). In *Clause-combing and text structure*, eds. Iørn Korzen and Michael Herslund, 135–158. Copenhagen: Samfundsliteratur.
- Wood, Johanna. 2003. *Definiteness and number*. Phoenix: Arizona State University dissertation.
- Zanuttini, Rafaella. 1997a. *Negation and clausal structure: a comparative study of Romance languages*. Oxford: Oxford University Press.
- Zanuttini, Rafaella. 1997b. Negation and verb movement. In *The new comparative syntax*, ed. Liliane Haegeman, 214–245. London: Longman.
- Zwart, C. Jan-Wouter. 1997. *Morphosyntax of verb movement: a minimalist approach to the syntax of Dutch*. Dordrecht: Kluwer.