

A negative portmanteau through contextual allomorphy: Evidence from ellipsis

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Abstract

When a perfect verb is negated in Bengali, the special portmanteaux negator *ni* is used instead of the usual sentential negator *na*. However for speakers who permit ellipsis of the complement of negation, when a perfect verb is elided under sentential negation, the elsewhere negator *na* is the one that appears outside the ellipsis site. This paper argues that despite the absence of *ni* with ellipsis, all of the ingredients which normally require its presence exist in elliptical constructions. It argues that the alternation between *na* in most cases and *ni* in the perfect is best understood as the result of contextual allomorphy, which is bled by ellipsis. The analysis has consequences for proposed restrictions on directionality and locality of contextual allomorphy. In particular, inward-sensitive morphosyntactically conditioned allomorphy exists, and neither structural nor linear adjacency is required to trigger allomorphy.

1 Introduction

Bengali (Eastern Indo-Aryan) has various negation strategies. This paper focuses on the alternation between *na*, the default sentential negator, and *ni*, the negator used in perfect constructions in Western dialects and the colloquial standard. The distribution of *ni* and *na* is complementary, with *ni* being required for all perfect constructions. But, one exception to this rule occurs with ellipsis. When a perfect verb is elided under negation, the negation must surface as *na*, the elsewhere form, and not *ni* the special perfect negator. I present an analysis of *ni* as an allomorph of negation in the context of a perfect, and show how ellipsis bleeds this allomorphic alternation. The analysis has implications for the nature of the operation that associates phonological content with morphosyntactic features in a Late Insertion model of the morphology. The analysis is shown to require inward sensitivity to morphosyntactic features, and so I argue for a bottom-up insertion algorithm that adds phonological content to terminals, but does not delete the abstract features. The terminal that triggers allomorphy is also shown to be neither structurally nor linearly local to the target, and so the phenomenon also informs us about possible locality restrictions on contextual allomorphy.

The paper is organized as follows: Section 2 introduces the data which shows the distributions of *na* and *ni* in basic cases as well as the obligatory use of *na* with ellipsis. It shows that the *ni* construction is a perfect, despite the absence of an overt perfect marker, and further argues that in the elliptical cases where *ni* does not appear, all of the ingredients that normally trigger its use are present. This sets up the basic puzzle at the heart of this paper: why is *ni* obligatory with overt perfect constructions and impossible with elided ones? Section 3 presents the proposal accounting for the behaviour of *na* and *ni* as the result of contextual allomorphy. It also shows how ellipsis blocks the appearance of *ni* and presents cross-linguistic empirical support for the view that ellipsis

bleeds allomorphy. Section 4 discusses the consequences the proposal has for the nature of the insertion algorithm, and for the restrictions on contextual allomorphy. In particular, it argues that the insertion algorithm must be additive, not replacive, and that adjacency is too strong a restriction on allomorphy, regardless of whether it is defined over linear strings of features, structural heads, or spans. Section 5 discusses two alternative analysis of *ni*. One analysis treats *ni* and *na* as semantically distinct negative quantifiers, while the other focuses on the historical development of *ni* in perfect constructions, and shows its origins from the negative existential verb *nei/nai*. Neither of these two approaches is suitable for a synchronic analysis of the facts in Western Bengali dialects, because of their inability to capture the elliptical data that is the empirical core of this paper. Section 6 summarizes the arguments, results, and concludes.

2 Data

The fundamental data points were established using a brief online survey. Participants in the survey were asked to read a context and rate a particular sentence in that context as one of the following: ‘Correct - I would say this’, ‘Strange, but maybe someone else would say this’, or ‘Incorrect - nobody would say this’. Only the first response, ‘Correct’, was interpreted as being accepted by the speaker. Subsequent data collection was through one-on-one elicitations with three adult native speakers of Western dialects from Ranchi and Dhanbad, India. Uncited data reflects the judgements of these speakers. The survey and raw results are provided as supplementary files.

Table 1 presents a fragment of the Bengali verbal inflection paradigm, drawn partially from Dasgupta (2003). Only the first person inflections are shown, but all other persons pattern in the same way. Verbs in Bengali agree with their subject for person and honorificity, but not number.¹

Table 1: Bengali 1st person paradigm for *kin* ‘buy’

	AFF	NEG
PRS HAB	kin-i	kin-i na
PST HAB	kin-t-am	kin-t-am na
PRS PROG	kin-ch-i	kin-ch-i na
PST PROG	kin-chi-l-am	kin-chi-l-am na
PRS PRF	kin-e = ch-i	kin-i ni
PST PRF	kin-e = chi-l-am	
PST PFV	kin-l-am	kin-l-am na

While most tense/aspect combinations are negated by appending *na* to the inflected verb, perfects are negated with the special marker *ni* instead. Trying to negate perfects with *na* overtly is not grammatical (Ramchand, 2004; Ullah, 2007a.o.), as shown in (1a). Instead, the construction in (1b) must be used, which has a verb that is not marked for tense or aspect, and uses the special negation marker *ni* instead of the regular *na*.

- (1) a. * am-ʈa kin-e = ch-i na
mango-CL buy-PRF = AUX-1 NEG
Int: ‘I have not bought the mango.’

¹The honorificity levels are glossed I for intimate, N for neutral, and H for honorific. Examples largely use IPA, with the following exceptions: underdots mark retroflex consonants, unmarked coronals are dental, ⟨c⟩ = /ʈʂ/, ⟨c̣⟩ = /ʈʂ̣/, ⟨ṣ⟩ = /ʃ̣/, and h in a cluster represents aspiration or breathy voice.

- b. am-ṭa kin-i ni
 mango-CL buy-1 NEG.PRF
 ‘I have/had not bought the mango.’

There were 64 speakers who took the survey and patterned as in (1). Of these 64 speakers, 23 permitted ellipsis of the complement of negation. This means that while ellipsis of the complement of negation is not universally possible, it is available for a non-negligible subset of Bengali speakers, and can be used to probe the structures of sentences for these speakers. For 19 of these 23 speakers, the portmanteau negative perfect is obligatorily split when eliding the complement of negation, resulting in a default *na* appearing outside the ellipsis site. This is shown in (2).

- (2) am-ṭa kin-e = ch-i, kintu kōla-ṭa na/*ni
 mango-CL bought-PRF = AUX-1, but banana-CL NEG/*NEG.PRF
 ‘I have bought the mango, but not the banana.’

For the remaining 4 speakers, ellipsis of the complement of negation is blocked when there is a negative perfect portmanteau.² No speakers permit *ni* as the form of negation outside the ellipsis site.

If the ellipsis site is structurally identical to the antecedent, then what we have in (2) can be schematically represented as something like (3).

- (3) ...kintu kōla-ṭa kin-e = ch-i na
 ...but banana-CL buy-PRF = AUX-1 NEG
 ‘...but I have not bought the banana.’

If this is so, it appears that the perfect marker and negation are subject to different restrictions in (1a) and (2), for the 19 speakers who obligatorily require the use of *ni* with overt perfect meaning, but obligatorily require the use of *na* when the perfect verb is elided. That is, when both are to be overt, they cannot co-exist. But if the perfect is silent, it can appear with the default negation *na* instead of the special perfect negator *ni*.

For this to be interesting, we have to motivate two things. Firstly, we have to establish that *ni* really does involve a perfect, given that there is no overt perfect marking in the construction in (1b) involving *ni*. Secondly, we have to establish that the structure hypothesized to be inside the ellipsis site as in (3) is actually correct. If the ellipsis site either has no structure, or specifically, not a perfect in it, there is no reason to think that the restriction that blocks (1a) should apply to (2).

Fortunately, both of these claims are well-motivated. In this section, we will see that the *ni* construction bears the hallmarks of a perfect, and that the ellipsis in (2) not only contains structure inside the ellipsis site, but specifically the structure of a perfect, diagnosed by those same hallmarks of perfectness. This means that there is indeed a puzzle at hand: why can the perfect and negation co-occur if one of them is elided when they cannot both overtly co-occur?

2.1 The hallmarks of a perfect construction

Since both the present perfect and the past perfective express some form of anteriority, it is important to distinguish the two. In Bengali, where the present perfect is growing to be used as

²These speakers warrant further attention. Due to the small number of speakers in this category, I was not able to arrange interviews with anyone who had this pattern of judgements.

the default way to indicate the past tense (Ullah, 2007), making the distinction clear is especially important. McCoard (1978) first introduces the terminology of ‘extended now’ to describe the behaviour of the perfect as opposed to the past. While present perfects do express anteriority, they also express some relation to the present. This is modelled as ‘now’ in some sense being extended to make reference to the past. Iatridou et al. (2001) formalise an ‘extended now’ theory of the perfect by proposing that perfects introduce a temporal interval, which they call the Perfect Time Span (PTS), and assert that the event in question occurred within the PTS. The right boundary of the PTS is set by tense, and the left boundary by *since*-adverbials. In Reichenbachian (1947) terms, a perfect can be thought of as changing how tense relates the reference time to the speech time. Unlike a simple past, which asserts that the whole of the reference time interval precedes the utterance time, a present perfect asserts that the right boundary of the reference time coincides with speech time.

This understanding of the perfect gives rise to two differences between a perfect and a past perfective. Firstly, the ability to set the left boundary of the PTS using *since*-adverbials is unique to perfects, because, according to Iatridou et al. (2001), PTSs are unique to perfects. Secondly, since present perfects assert that the PTS runs until speech time, some ‘current relevance’ of the completed event to the current time is required for using a present perfect instead of a past. For telic predicates, this is interpreted as a requirement that the resulting state described by the event hold until the end of the PTS (as in (Brugger, 1997)). The grammatical forms which give rise to perfect of result meaning overlap the experiential perfect, as Pancheva (2003) shows. This makes it somewhat tricky to isolate the resulting state requirement, since experiential perfects do not always instantiate it, as shown in (4). In the absences of adverbials indicating otherwise, Bengali speakers seem to prefer the perfect of result interpretation, and so I will simply note that contexts can be devised which make the resulting state requirement disappear.

- (4) a. I have built a sandcastle \leadsto *The sandcastle is currently standing*
 b. I have built a sandcastle once before $\neg \leadsto$ *The sandcastle is currently standing*

First we observe that present and past perfects both admit *since* adjuncts, but simple pasts do not.

- (5) a. 2012 theke (sudhu) 3 bar has-er ðim khe-e = ch-i
 2012 since (only) 3 times duck-GEN egg eat-PRF = AUX-1
 ‘I have (only) eaten duck egg thrice since 2012.’
 b. 2012 theke mangso kha-i ni
 2012 since meat eat-1 NEG.PRF
 ‘I have/had not eaten meat since 2012.’
 c. */? 2012 theke mangso khe-l-am na
 2012 since meat eat-PST-1.PST NEG
 Int: ‘I did not eat meat since 2012’³

Secondly, present perfects built on perfective roots often impose the requirement that the result state of the completed event hold up to speech time. This contrasts with simple pasts, which have no such requirements. In (6) and (7) we see that both affirmative perfects and *ni* constructions require the resulting state to hold to the end of the PTS, but neither affirmative, nor negative pasts do.

³One consultant accepted this, but only in narrative contexts.

(6) Context: I attempted to extinguish a flame. It went out briefly, but re-lit. You ask me what happened.

- a. # nib-e = ch-e, kintu abar jol-e
 extinguish.ITER-PRF = AUX-3, but again light.ITER-PRF
 uṭh-e = ch-e/uṭh-l-o
 rise-PRF = AUX-3/rise-PST-3.PST
 ≈ ‘(It) has gone out, but has started burning again.’
- b. nib-l-o, kintu abar jol-e
 extinguish.ITER-PST-3.PST, but again light.ITER-PRF
 uṭh-e = ch-e/uṭh-l-o
 rise-PRF = AUX-3/rise-PST-3.PST
 ≈ ‘(It) went out, but has started burning again.’

(7) Context: Pointing to a currently lit stove⁴

- a. # unun-ṭa jol-e ni. deslai die
 stove-CL light.ITER-3N NEG.PRF. match with
 jal-a-l-am/jal-i-e = ch-i
 light.ITER-CAUS-PST-1.PST/light.ITER-CAUS-PRF = AUX-1
 ‘The stove hasn’t turned on. I (have) lit it with a match.’
- b. unun-ṭa jol-l-o na. deslai die
 stove-CL light.ITER-PST-3N.PST NEG. match with
 jal-a-l-am/jal-i-e = ch-i
 light.ITER-CAUS-PST-1.PST/light.ITER-CAUS-PRF = AUX-1
 ‘The stove didn’t turn on. I (have) lit it with a match.’

In summary, an understanding of the perfect as the introducer of an interval whose right boundary is manipulated by tense predicts two ways in which perfects should diverge from past perfectives, which, like perfects, convey anteriority. The first is admitting temporal *since*-adjuncts, and the second is showing some relevance of the event to the right boundary. Both the Bengali affirmative perfect and *ni* constructions pass all three tests (modulo the morphological confound for the future auxiliary in Bengali), and so we can conclude that *ni* constructions are in fact negative perfects despite their lack of overt perfect morphology.

2.2 Ingredients for *ni* are present with ellipsis

In investigating the structure of the ellipsis site in the cases of splitting *ni*, we have to convince ourselves of two things to ensure that the apparent splitting is actually interesting. We know

⁴An anonymous reviewer on a previous version of the manuscript notes that adding a temporal positional to the negative perfect makes the sentence acceptable.

- (1) unun-ṭa kal jol-e ni tai aj deslai die jal-a-l-am
 stove-CL yesterday light.ITER-3N NI so today match with light.ITER-CAUS-PST-1.PST
 ‘The stove hadn’t turned on yesterday so I lit it with a match today.’

This becomes acceptable because the perfect in this example can be interpreted as a past perfect, with the positional ‘yesterday’ specifying the duration of the PTS. The resulting state requirement only lasts to the end of the PTS, and so at all points beyond the end of the yesterday, the resulting state does not have to hold. This means the stove could have been lit today with a match, since today is not part of the time when the resulting state needs to have held. The absence of overt tense marking in negative perfects means that care has to be taken when testing tense-sensitive properties of negative perfects. This is discussed shortly in the main text.

that *ni* seems to arise from sentential negation interacting with the perfect, so we first need to be sure that (2) where *ni* is seemingly split into default sentential negation and a silent perfect does actually involve default sentential negation, rather than constituent negation on the remnant. Then we need to convince ourselves that the ellipsis site contains a perfect. If it did not contain a perfect, we would have no reason to think that the restriction on the co-occurrence of the perfect and negation should have any effect at all. Both of these things are relatively straightforward to confirm.

With respect to constituent negation, the question is whether the actual structure of (2) is (8a) or (8b).

- (8) a. ...kintu kōla-ṭa khe-e=eh-i na
 ...but banana-CL eat-PRF=AUX-1 NEG
 b. ...kintu [kōla-ṭa na] khe-e=eh-i
 ...but [banana-CL NEG] eat-PRF=AUX-1

Constituent negation of the sort required in (8b) seems to not be possible in Bengali, as shown in (9). To avoid any potential confound with the perfect, a simple past is used.

- (9) * am-ṭa na khe-l-o
 mango-CL NEG eat-PST-3.PST
 Int: ‘(S)he/they did not eat a mango/ate no mango.’

Placing negation immediately after the object with the intent to have a very low constituent negation on it is not grammatical. This means that (8b) is not an option for the parse of (2), and so we are left with only the sentential negation option in (8a).

The question of whether there is a perfect inside the ellipsis site can be answered with a bit of reasoning about the contents of ellipsis sites. If the ellipsis site contains no complex structure at all, obviously it will not contain the features of a perfect that are responsible for forming the portmanteau to begin with. So we first need to confirm that the ellipsis in (2) is not non-structural or a silent pronoun. Whether there is structure inside an ellipsis site can be diagnosed on the basis of connectivity tests (Merchant, 2018), which show some dependency crossing into an ellipsis site. If we think the dependency requires structure at both ends, then the fact that it can cross into an ellipsis site is an indication that the ellipsis site contains structure. In Bengali, this can be shown with case matching and island sensitivity. The profile of a case matching example is that the remnant of ellipsis has to match in case with its corresponding item in the antecedent, as shown in (10).

- (10) a. Rubai party-te Rati-ke dekh-e=chi-l-o, kintu Rimi-*(ke) na
 Rubai party-LOC Rati-OBL see-PRF=AUX-PST-3.PST, but Rimi-*(OBL) NEG
 ‘Rubai had seen Rati at the party, but not Rimi.’
 b. masi-r miṣṭi-gulo bhalo leg-e=ch-e, kintu meso-*(r) na
 aunt-GEN sweet-PL good feel-PRF AUX-3N, but uncle-*(GEN) NEG
 ‘Auntie has enjoyed the desserts, but Uncle hasn’t.’ (Lit. ...‘not Uncle’)⁵

Human objects in Bengali are marked with the oblique case marker *-ke*. Example (10a) shows that this has to be the case, even when the verb that the remnant is an object of is elided. Example (10b) shows another case matching example. Certain predicates require their experiencers to

⁵The term *masi* specifically refers to the speaker’s mother’s sister, and *meso* is her male spouse.

have genitive case. If such a predicate is elided but leaves behind an experiencer remnant, that remnant has to still have genitive case. These two examples show that case marking on a remnant is obligatory, even when the case assigner is missing due to ellipsis. If the ellipsis site were a silent pronoun that copied the meaning from the antecedent, and did not actually contain a case assigner, the case matching requirement would need stipulation to model. However, if the ellipsis site contains an unpronounced case assigner, the fact that case matching is required follows straightforwardly from whatever normally enforces case marking.

Another test for structure in ellipsis sites is island sensitivity. The profile of an island sensitivity test is that placing the correlate of the remnant inside an island in the antecedent results in ungrammaticality. Simpson & Bhattacharya (2003) observe that complex NPs and adjuncts are islands for wh-movement in Bengali.⁶ The example in (11b), adapted from Simpson & Bhattacharya (2003), shows the inability to extract out of an adjunct.

- (11) a. Jonaki_i party cher-e col-e gɛ-l-o [karon keu o_i-ke opoman
Jonaki_i party leave-PRF go-PRF go-PST-3.PST [because someone 3_i-OBL insult
kor-l-o]
do-PST-3.PST]
Jonaki left the party because someone insulted him?’
- b. *Jonaki_i ke_j party cher-e col-e gɛ-l-o [karon t_j o_i-ke opoman
Jonaki_i who_j party leave-PRF go-PRF go-PST-3.PST [because t_j 3_i-OBL insult
kor-l-o]
do-PST-3.PST]
Int: *‘Who did Jonaki leave the party because insulted him?’

And we see in (12) that attempting to elide an island leaving a remnant from inside the adjunct likewise results in ungrammaticality.

- (12) *Jonaki party cher-e col-e gɛ-l-o karon ek nimɔntrito o-ke opoman
Jonaki party leave-PRF go-PRF go-PST-3N.PST because one guest 3N-OBL insult
kor-l-o, kintu nimɔntrɔnkɔrta na
do-PST-3N.PST, but host NEG
Int: *‘Jonaki left the party because a guest insulted him, but not because the host
insulted him.’

The ungrammaticality of having the correlate of the remnant inside an island is taken as an argument for the existence of structure inside the ellipsis site. If there was structure parallel to the antecedent inside the ellipsis site, the remnant would have needed to move out of an island to avoid being elided, and incurred an island violation, accounting for the ungrammaticality. If there is no structure inside the ellipsis site, it is unclear why an island the antecedent should affect the possibility of ellipsis. So island sensitivity is another piece of evidence in favour of analysing stripping sites in Bengali as containing structure.⁷

⁶Bengali is commonly thought of as wh-in-situ language, but Simpson & Bhattacharya (2003) show that in fact wh-items do move. The landing site is a position below the matrix subject so the movement is not visible in monoclausal constructions. With long-distance wh-questions, the movement becomes evident. See their paper for more information on the wh-moving status of Bengali.

⁷Bhattacharya & Simpson (2012) observe that sluicing in Bengali seems to be subject to case matching, but not be island sensitive. An anonymous reviewer on a previous version of this manuscript took this to mean that island sensitivity is not a reliable test of structure inside ellipsis sites. This is one interpretation when case matching and

But it is not enough to just establish that there is structure inside the ellipsis site. If the structure is not that of a perfect, but, say a past perfective for example, the ingredients of the negative perfect portmanteau would not be present in the ellipsis case. The apparent divisibility of the perfect marker *ni* would just an illusion. To show that there is a perfect inside the ellipsis site, we can return to the two tests for perfects the previous section.

The first test was permitting *since*-adverbials to modify the left boundary of the PTS, which is of course only possible if there is a PTS introduced by a perfect. The second test was a resulting state requirement, which arose because the present perfect, unlike the past perfective, has some relevance to utterance time because the right boundary of the PTS is set by tense.

If an ellipsis site under identity with a perfect can be modified by a *since*-adverbial, it would indicate that the ellipsis site could contain a perfect, despite the absence of *ni*. This is shown in (13).

(13) Context: Have you had anything to eat or drink before your blood test?

- a. jol khe-e = ch-i, kintu khabar, sokal theke na
water ingest-prf = aux-1, but food, morning since neg
'I have had some water, but not any food since the morning.'⁸
- b. ?? jol khe-l-am, kintu khabar, sokal theke na
water ingest-pst-1.pst, but food, morning since neg
Int: 'I had some water, but not any food since the morning.'

The acceptability of (13a) shows that it is possible to have a perfect inside the ellipsis site, even when the negation appearing outside it is *na* and not *ni*.

With respect to the resulting state requirement, if we elide a perfect, we expect the resulting state requirement to still hold, but if we elide a non-perfect under loose identity with a perfect, we do not expect to have any resulting state requirement evident. This means, if the resulting state requirement is present in an ellipsis site, it is evidence that the ellipsis site is interpreted as a true perfect. We see in Bengali that this is indeed the case.

(14) Context: Pointing to two lit stovetop burners

- a. # choṭo unun-ṭa jol-e = ch-e, kintu boro-ṭa na. deslai die
small stove-CL light. ITR-PRF = AUX-3N, but big-CL NEG. match with
jal-a-l-am/jal-i-e = ch-i)
light. ITR-CAUS-PST-1.PST/light. ITR-CAUS-PRF = AUX-1
'The small stove has turned on, but not the big one. I (have) lit it with a match.'
- b. choṭo unun-ṭa jol-l-o, kintu boro-ṭa na. deslai die
small stove-CL light. ITR-pst-3.pst, but big-CL NEG. match with
jal-a-l-am/jal-i-e = ch-i)
light. ITR-CAUS-PST-1.PST/light. ITR-CAUS-PRF = AUX-1
'The small stove has turned on, but not the big one. I (have) lit it with a match.'

island sensitivity come apart. The other alternative, argued for by Barros (2014), is that island-insensitive sluices have non-identical sources regardless of case matching requirements. That is, the ellipsis site never contained an island to begin with - it was a copular construction or a cleft - and case matching is a surface requirement. I take no sides on this issue, but simply note that in the stripping cases that of interest here, both case matching and island sensitivity hold. This means that there is little doubt about the existence of structure inside the relevant ellipsis sites, regardless of which test you take to be a better reflection of the existences of structure inside the ellipsis site.

⁸The same verb *kha* is used in Bengali for eating and drinking, so it accurately translated as 'ingest', but I will gloss it as *eat* in most cases if solids and liquids are not both involved in the example.

So we can conclude from this that not only is there articulated syntactic structure inside the relevant ellipsis sites in Bengali, but that the ellipsis site really does contain a perfect, even in cases where the negation we see outside the ellipsis site is *na* instead of the expected *ni*.

2.3 Summary of the facts

In Bengali, perfect verbs cannot be negated with the usual sentential negation marker *na*. Instead, the verb appears without any tense or aspect marking, and a special negator *ni* is used. However, if an ellipsis boundary separates negation from the inflected verb, this alternation does not apply. Sentential negation is realised in its usual default form.

This fact is not enough to conclude that *ni* is an elliptically divisible portmanteau. Two alternatives have to be eliminated. Firstly, if *ni* did not actually involve a perfect, ellipsis of a perfect would not be expected to have any interaction with the appearance of *ni*. Secondly, if the ellipsis site parallel to a perfect did not contain the structure of a perfect, we would also not expect the conditions for *ni* to appear to be present. Both of these alternatives were shown to not be correct.

Perfected in Bengali permit *since* adverbials, and have a requirement that the resulting state hold until the end of the Perfect Time Span. Both of these properties are active in the *ni* construction as well, indicating that at least semantically, it is a perfect. Case matching was used to argue for the existence of structure inside the relevant ellipsis sites. Moreover, the patterns of *since* adverbials and resulting state requirement was also shown to be the same with ellipsis as with overt perfects, indicating that the silent structure is interpreted as a perfect. So we can conclude that in sentences in like (2), all of the ingredients to form *ni* are present, despite the fact that *ni* does not form. So if all of the ingredients for *ni* are present with ellipsis, why does it not form?

3 Proposal

The proposal assumes a Late Insertion model of morphology. On this view, syntax operates over abstract morphosyntactic features, and a post-syntactic operation called insertion is responsible for associating phonological exponents with the morphosyntactic features. I adopt the Distributed Morphology framework (Halle & Marantz, 1993, 1994, a.o.) for the analysis.

The basic idea of the analysis consists of the following two parts. Firstly, the portmanteau *ni* is the result of two cases of contextual allomorphy, a mechanism for portmanteaux first proposed by Trommer (1999). Secondly, contextual allomorphy is blocked by ellipsis, meaning that if a trigger is elided, the target will no longer undergo suppletion. Taken together, these two ideas predict that if part of the portmanteau *ni* is elided, the other part should surface as its default form, which is exactly what the data shows.

3.1 Negating perfects in Bengali

Before discussing the details of the analysis of the distribution of *na* and *ni*, we need a working theory of how *ni* forms in the first place. To build this, we need to understand the structure of the spine in Bengali. Finite verbs in Bengali have the following pieces (based on Ullah, 2007):

- (15) Verb root + (Aspect) + (Tense) + Agreement + (Polarity)

Brackets in the template in (15) are meant to show that the exponent of certain feature values may be null. It is not a claim that the categories are optional in the language. To determine syntactic structure from the order of morphemes, we can use Baker's (1985) Mirror Principle.

According this principle, syntactic structure is isomorphically mapped to morphological structure, which in turn reflects linear order. Given a root and two higher terminals, the exponent of the furthest terminal cannot appear closer to the root than the exponent of the nearer terminal. If all of the pieces in question are aligned on the same side of the root, then it is possible to read the syntactic structure off the order relatively easily. But to do so, we have to make a choice about the representation of agreement. It could either be an independent head outside of T, or it could be the result of φ features being fissioned out T into complex head consisting of two separate terminals, or it could be a dissociated morpheme (Embick, 1997) that is sprouted post-syntactically onto T.⁹ It will turn out that the choice will not really matter for the analysis of perfects, though I will briefly discuss each possibility at the relevant point in the analysis. For simplicity, I will denote T + Agr as a single head for now. So, from the template in (15) and the knowledge that negation appears after the inflected verb, we can conclude that verbal complex looks as follows:

- (16) [[[[root] Asp] T + Agr] Neg]

Perfect verbs have an extra piece that we need to account for as well: the auxiliary *ch(i)*, as in (17).

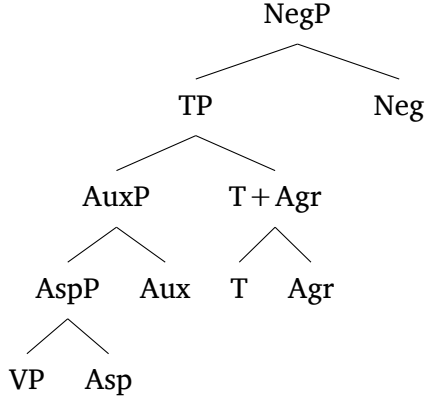
- (17) a. likh-e = ch-o
 write-PRF = AUX-2N
 ‘You have written.’
 b. bol-e = chi-l-e
 say-PRF = AUX-PST-2N.PST
 ‘You had said.’

Lahiri (2000:85-86) argues that this auxiliary is a reduced form of the copula *ach-*, which is grammaticalized as a part of the perfect construction from an earlier stage of the language where perfects were constructed with a participle and an inflected copula.¹⁰ This raises the question of whether *ch(i)* should be treated as a head that selects a PerfP as its complement in the modern language too, or whether it no longer syntactically selects a complement, but is inserted late to prevent stranded inflectional morphology (something like the stray affix filter), as Bjorkman (2011) proposes is the case for auxiliaries generally. This is another non-crucial choice point. I will represent trees with Aux in them so we can see where they would have to be if they were present all along, but this is not critical to the analysis, and will note where the analysis would need to differ to accommodate a view where the auxiliary is not structurally present all along. So our final spine for Bengali looks as in (18).

⁹The final option is relatively common in the Distributed Morphology tradition. It does require agreement itself to be a post-syntactic process, but this has been argued to be the case anyway by Bobaljik (2008), for example.

¹⁰The same copula is also grammaticalized as the progressive marker, though it is at a different stage of grammaticalization on that trajectory. See (Lahiri, 2000:78-84) for discussion of its use in the progressive.

(18)



With this spine in mind, we can now turn to accounting for how negative perfects are formed. The table below compares affirmative and negative perfects of *likh* ‘write’ inflected in the first person, to see what the alternating pieces are.

	Root	Asp	Aux	T	Agr	Neg
Affirmative Present Perfect	likh	-e	= ch		-i	
Affirmative Past Perfect	likh	-e	= chi	-l	-am	
Negative Perfect	likh				-i	ni

Descriptively, negative perfect differs from an affirmative one in the following five ways:

- (19) a. The perfect marker is missing
 b. The auxiliary is missing
 c. Tense marking is missing
 d. Agreement allomorphy is neutralized
 e. The negation marker appears as *ni*

Items (19c) and (19d) can be accounted for separately from the rest, so let us begin with those. While tense is not overtly marked in the negative perfect, recall that by managing contexts and the resulting state requirement, in section 2.1, we were able to conclude that the *ni* construction could really contain a past tense feature, even though it was not evident on the surface. The agreement morphemes in Bengali show allomorphy for tense, but in negative perfects, the agreement always has its ‘present’ form. So, I assume the ‘present’ forms are the underspecified elsewhere forms of agreement, arising in a past context because their trigger has been deleted. This means that (19c) and (19d) can be simultaneously accounted for if we assume that tense undergoes impoverishment in the context of perfect and negation, and that the vocabulary items for agreement show contextual allomorphy for tense:

(20) PST \rightarrow {PST} / _ [PRF], [NEG]

- (21) a. $\varphi : 1 \rightarrow$ -am / [PST]_
 b. $\varphi : 1 \rightarrow$ -i

Once tense has undergone impoverishment in the context of negation and a perfect, agreement will be realised as its elsewhere form since the PST feature will have been deleted. This accounts for (19c) and (19d).

Before getting to the account for (19a), (19b) and (19e), we can note that the elsewhere forms of the perfect, auxiliary, and negation are quite straightforward, as in (22).

- (22) a. PRF \rightarrow -e¹¹
 b. AUX \rightarrow ch(i)
 c. NEG \rightarrow na

Now we can turn to the heart of the problem: how to model the portmanteau. In the morphology literature assuming Late Insertion, a variety of mechanisms has been proposed to model portmanteaux including: Fusion (Halle & Marantz, 1993, 1994; Halle, 1997), non-terminal Insertion (Caha, 2009; Radkevich, 2010; Svenonius, 2016; Haugen & Siddiqi, 2016; Ostrove, 2018), and contextual allomorphy (Trommer, 1999). For Bengali, the pieces that we are trying to combine into the portmanteau are the perfect, negation, and possibly an auxiliary. But the structure of the spine in (18) means that Neg is not structurally local to Asp (or Aux if it is present). There is at least an impoverished T head and agreement intervening. We might not worry about the T head if we assume that an impoverishment leads to it not intervening for matters of structural locality (something like Pruning as in Embick (1997) might apply for example). But the agreement morpheme, even if it is sprouted post-syntactically on T, would intervene between the higher Neg and lower Asp (and Aux). The fact that the pieces of the portmanteau are not structurally local to each other means that Fusion and non-terminal Insertion are off the table as candidates for how to model this portmanteau. Fusion is conceived of as applying to sister terminals and replacing them with a single terminal that contains the union of their features. In order to get the PRF feature to be a sister of NEG to apply Fusion, the Asp head will have to head-move past T + Agr in violation of the Head Movement Constraint (Travis, 1984).¹² Non-terminal Insertion approaches fare no better. Phrasal insertion (Caha, 2009; Radkevich, 2010) will not do since Asp and Neg are not part of a subtree that contains nothing else. Spanning will not do either, since any span (structural as in Svenonius (2016) or linear as in Haugen & Siddiqi (2016); Ostrove (2018)) that contains Asp and Neg will also contain T and the independently exponed Agr. So we are left with the analysis of a portmanteau as two cases of allomorphy, as in Trommer (1999).

How exactly we want to account for (19a), (19b) and (19e) depends on what we think Aux is. If it is the head of its own phrase, then we could say that the structural (or linear) span ⟨PRF, AUX⟩ are realised by a zero allomorph in the context of negation. If we think Aux is inserted post-syntactically for morphological well-formedness reasons pertaining to inflectional material being blocked from the verb by the realisation of PRF, the situation is simpler. If PRF is null in the context of negation, it would not block inflection from reaching the verb, and so insertion of the auxiliary would not be triggered in the first place. So either the span ⟨PRF, AUX⟩ or just PRF itself needs to be null in the context of negation. I represent both possibilities in the vocabulary insertion rules below by placing the Aux in brackets to represent the optionality in theoretical assumptions:

- (23) a. PRF,(AUX) \rightarrow \emptyset / _ NEG
 b. NEG \rightarrow ni /PRF,(AUX)_

On this account, *ni* is just the realisation of negation in the context of a silent perfect. But why not the reverse instead, where *ni* is the realisation of a perfect in the context of negation,

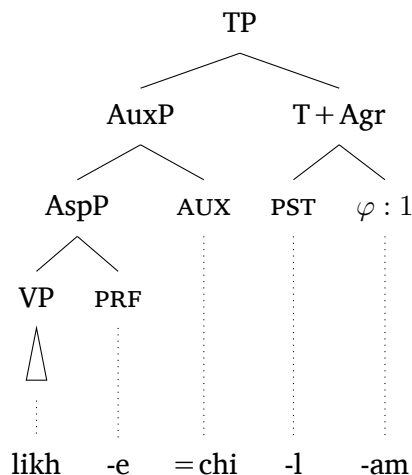
¹¹The overt exponent of the perfect triggers raising of the vowel in the verb root by a regular morphonological rule, and so technically, the exponent likely has a floating high feature that anchors on the verb. See Sanyal (2012) for a discussion of the vowel system in Bengali and Worbs & Zimmermann (2016) for an analysis of similar facts in neighbouring Assamese, which should straightforwardly extend to Bengali. This will not be discussed in detail as the phonology of the perfect is not the subject of this article.

¹²Readers might be wondering about a possible alternative where Fusion precedes sprouting of agreement. If that were the case, in order to not violate the Head Movement Constraint, T would need to part of the fused perfect-negation complex, and agreement would be predicted to appear on *ni* rather than the verb. So this alternative cannot be correct.

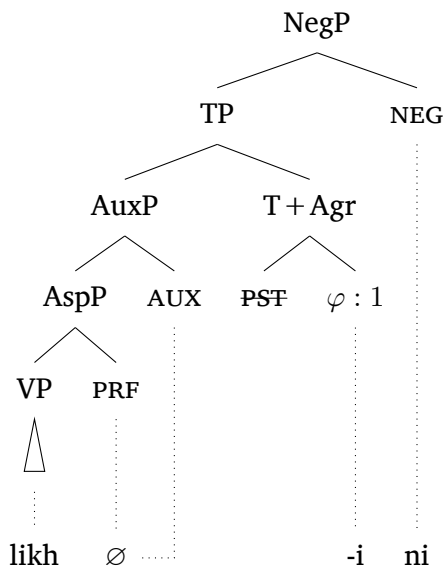
and negation is silent? Doing so would mean that Agr would be realised by a terminal further from the root than *ni*, which on this view is the exponent of the perfect. Since the actual order of agreement and *ni* that we see is the reverse, with agreement on the verb followed by *ni*, we would need to adopt some kind of Local Dislocation rule to get the pieces in the right order. So while it is possible to analyse *ni* as the realisation of the perfect, getting the order of the exponents correct on that view requires an extra operation that is not needed if we assume *ni* is the realisation of negation. I will adopt the view that requires fewer stipulations.

Example (24) shows the affirmative past perfect with lexical items inserted. Example (25) shows how insertion differs if there is a negative feature in the structure.

(24) Affirmative past perfect



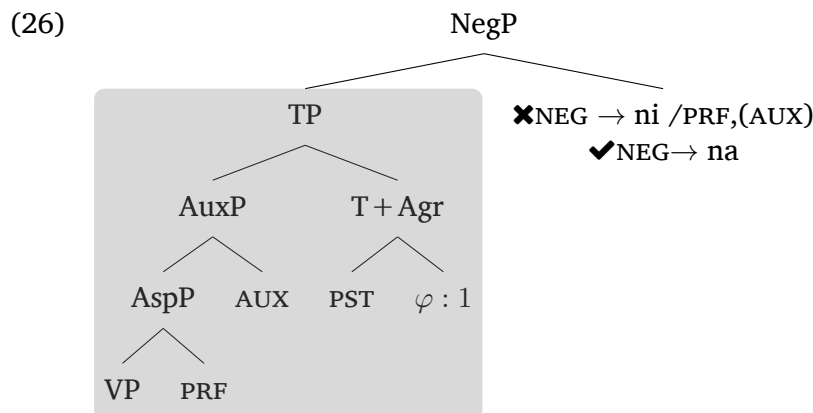
(25) Negative past perfect



3.2 How ellipsis interacts with negative portmanteaux

Since *ni* is analysed as a contextual allomorph of negation, its appearance in elliptical contexts can easily be blocked if the context for its insertion is eliminated by ellipsis. That is, if ellipsis of the complement of negation means that the PRF feature is no longer visible to the computation when insertion is targeting negation, insertion will have no choice but to choose the elsewhere allomorph *na*.

In the tree below, I represent the ellipsis site in grey. As long as the grey indicates material that is no longer visible to the insertion algorithm when it is targeting NEG, the result will be as shown.



Several different proposals about the mechanism of ellipsis are compatible with this proposal. Baltin (2012) proposes that ellipsis involves deletion in the syntax. If this is so, the PRF will never make to the post-syntactic component to be seen by insertion, and so we expect to get *na* outside of ellipsis sites. Aelbrecht (2010) and Sailor (forthcoming) propose the idea of Segregated Transfer, where ellipsis sites are sent to PF independently of the rest of the cycle, and fail to be pronounced. This view means that the material outside the ellipsis site is evaluated in a PF cycle in which there is no access to the material inside the ellipsis site. As a result, insertion would not have access to the PRF feature in the PF cycle where it inserts for NEG, and so PRF could not condition at insertion at NEG. Murphy (2016) proposes that ellipsis involves deletion as well, but unlike Baltin (2012), proposes that it is post-syntactic. In this approach, ellipsis involves impoverishment of all the terminals inside the ellipsis site prior to insertion applying. This means, like in the case of Baltin’s (2012) analysis, that when insertion targets NEG, there is no PRF feature left in the structure, and so we expect the elsewhere allomorph. Basically, any approach to ellipsis silencing that involves material outside the ellipsis site being evaluated for insertion without access into the ellipsis site will be sufficient to capture the behaviour of negation and perfects in Bengali under the analysis proposed.

This account of how ellipsis blocks the presence of *ni* predicts that contextual allomorphy should always be bled by ellipsis of the trigger. This stance has recently been argued for by several researchers. I briefly discuss one example here and note the others. Ronai & Stigliano (2020) argue that nominal ellipsis in Hungarian bleeds allomorphy of the accusative marker. In Hungarian, the accusative case marker *-(V)t* is normally obligatory. However, in the presence of a 1st or 2nd person possessor agreement marker, it becomes optional. This is shown in (27).

- (27)
- | | |
|--|---------------------------------|
| <p>a. Mari kölcsönkért egy toll{-at/*-∅}
 Mari borrowed a pen-ACC
 ‘Mari borrowed a pen.’</p> | Ronai & Stigliano (2020) ex. 1a |
| <p>b. Mari kölcsönkért egy toll-am{-at/-∅}
 Mari borrowed a pen-POSS.1SG-ACC
 ‘Mari borrowed a pen of mine.’</p> | Ronai & Stigliano (2020) ex. 1b |

Ronai & Stigliano (2020) analyse this as the result of optional contextual allomorphy. That is, the accusative marker has an ∅ allomorph that is available, but not obligatory in the context of a 1st or 2nd person possessor marker.

This allomorphy interacts with nominal ellipsis in Hungarian, which can elide nominals and leave case affixes behind on remnant adjectives. This bleeds the optional allomorphy and forces the realisation of the accusative case as $-(V)t$ on an adjectival remnant, regardless of the form of the accusative marking on the antecedent, as shown in example (28).

- (28) Mari kölcsönkért egy piros toll-am{-at/- \emptyset }, Zsuzsi pedig egy kék{-at/*- \emptyset }
 Mari borrowed a red pen-POSS.1SG-ACC, Zsuzsi and a blue-ACC
 ‘Mari borrowed a red pen of mine, and Zsuzsi a blue one.’ Ronai & Stigliano (2020) ex. 2

Ronai & Stigliano (2020) note that the only interpretation possible for (28) is that Zsuzsi borrowed a blue pen belonging to the author, not just any blue pen. This means that the elided nominal in the second clause contained a possessor, which has been silenced along with the head nominal, as shown schematically in (29).

- (29) ...Zsuzsi pedig egy kék toll-am{-at/*- \emptyset }
 ...Zsuzsi and a blue pen-POSS.1SG-ACC

Despite the presence of an unpronounced possessive marker, the accusative cannot be null. This shows that eliding the lower trigger (the possessive marker) bleeds allomorphy of a higher target (the accusative marking). Similar behaviour has been observed in various other languages.

Bavarian complementizer agreement is bled by right node raising and comparative deletion (Fuß, 2014:59-60). That is, complementizer agreement appears to need an overt inflected verb in the same clause in order to appear. Weisser (2019) argues that complementizer agreement in West Germanic generally is the result of allomorphy triggered either by a linearly adjacent subject (as is the case in various Dutch dialects) or by a structurally adjacent T head which has agreed with phi features of the subject (as is the case in Bavarian). If this is correct, the absence of complementizer agreement with right node raising and comparative deletion is an example of allomorphy being bled by ellipsis.

Bennett et al. (2019) observe that in Donegal and Mayo dialects of Irish, the conditional verbal marker suppletes based on the pronominal status of the subject. Responsive ellipsis, which they take to involve stranding an inflected verb in Pol and eliding TP, bleeds this allomorphy of the conditional marker (Bennett et al., 2019:93, ex. 55).

Sailor (forthcoming) notes two cases of allomorphy being bled by ellipsis. The first is a gemination process in certain Italian dialects, known as *reddoppiamento*, and the second is tone sandhi in Taiwanese. Sailor (forthcoming) demonstrates that both involves reference to morphosyntactic structure, and are not purely phonological processes. Both of these processes are bled if their triggers are elided, which Sailor (forthcoming) takes as evidence in favour of ellipsis separating the ellipsis site from the rest of the structure early.

By analysing *ni* as a contextual allomorph of negation, its absence in elliptical constructions can easily be understood as long as we believe ellipsis eliminates the trigger for allomorphy prior to insertion of the target, NEG. Various theoretical approaches to ellipsis are compatible with this result. Empirical evidence from various languages supports the view that ellipsis does indeed bleed contextual allomorphy, putting this analysis on solid empirical and theoretical footing.

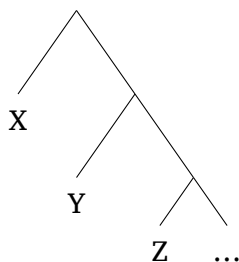
4 Consequences

4.1 For the insertion algorithm

The direction of sensitivity in cases of contextual allomorphy has been a point of debate in the morphology literature. That is, in a structure such as the one below, what kinds of content in X

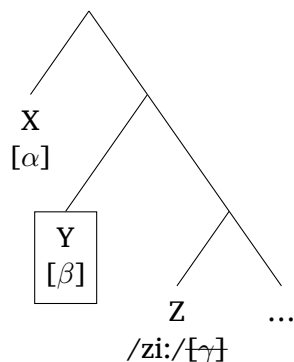
and Z are visible to and relevant for condition the insertion of Y.

(30)



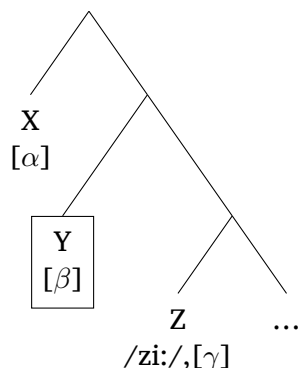
Bobaljik (2000) has proposed that the vocabulary insertion algorithm operates root-outward and is replacive, making clear predictions that all inward (i.e. toward the root) sensitivity should be to phonological features (or class diacritics) only, and all outward sensitivity should be to morphosyntactic features only. This is because at any point, a node below the current point of insertion has already undergone insertion and so its morphosyntactic features have been replaced by its phonological exponent. Nodes further away from the root than the current target of insertion have not undergone insertion yet, so they only host morphosyntactic features. In the tree below, the target of insertion is shown in the box.

(31)



An additive insertion algorithm would preserve more information lower in the tree. Since an additive insertion operation would not delete morphosyntactic features when inserting phonological ones, terminals below the one targeted for insertion would still retain their morphosyntactic features. This means terminals both higher and lower in the tree than the current target of insertion could morphosyntactically condition allomorphy, but only lower terminals could phonologically condition allomorphy.

(32)

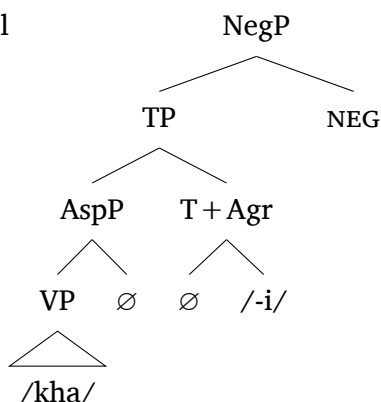


The Bengali negative perfect *ni* seems to show that a replacive Insertion algorithm makes too restrictive predictions. Suppose insertion were replacive and so inward sensitivity was possible only to phonological features. Consider the options available for insertion to Neg in a negative present habitual as in (33a) versus a negative perfect as in (33b).

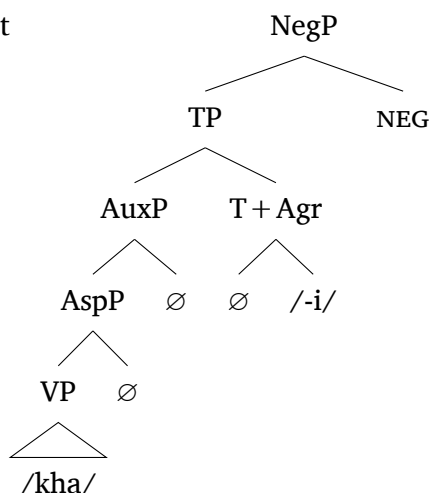
- (33) a. am kha-i na
 mango eat-1 NEG
 ‘I do not eat mango.’
 b. am kha-i ni
 mango eat-1 NEG.PRF
 ‘I have/had not eaten mango.’

If insertion were replacive, when NEG was the target of insertion, the structures would look as follows:

- (34) a. Negative habitual



- b. Negative perfect



Whether the feature hosted by Asp was PRF or HAB, after a replacive insertion algorithm inserted \emptyset into the terminal, the feature would be lost. And so at the point of insertion for NEG how are we to choose whether to insert *na* as is required by a negative habitual, or *ni* as required by a negative perfect? The number of projections in the two structures may be different if we assume the perfect involves a structural AuxP, but insertion in classical DM is not sensitive to the amount of structure, only to the features in the environment. And the only features present are the same phonological features in both structures: *kha-i*.

If insertion were replacive, we would have deleted the only information that would let us distinguish these two options. This means that the insertion algorithm has to be additive, and not replacive. With an additive insertion algorithm, the Asp head would retain the morphosyntactic features it had after insertion applied to it, and so at the point of insertion for NEG, Asp would still host either a PRF or HAB feature which could then condition the insertion of the negative marker.

As noted, an additive insertion algorithm is slightly less restrictive than the replacive one proposed by Bobaljik (2000), in that it allows inward-sensitive morphosyntactically-conditioned contextual allomorphy. Is this a desirable result? It appears so, since inward sensitivity to morphosyntactic features appears to be attested in other languages as well. Bonet & Harbour (2012) catalogue the types of attested contextual allomorphy and find that inward sensitivity to morphosyntactic features in Kiowa (Tanoan).

In Kiowa, the future is marked with a modal suffix that varies in form based on transitivity of the verb in question. The transitivity markers and the modal marker can be separated by several intervening affixes and still condition one another, as shown in (35).

- (35) a. héfb-e-guꞥ-mɔɔ-tɔɔ/*t!ɔɔ
 enter-TR-DISTR-NEG-MOD.TR/*MOD.ITR
 ‘will not bring in at different times/locations’ (Bonet & Harbour, 2012:44) ex. 50a
- b. héfb-é-guꞥ-mɔɔ-t!ɔɔ/*tɔɔ
 enter-ITR-DISTR-NEG-MOD.ITR/*MOD.TR
 ‘will not come in at different times/locations’ (Bonet & Harbour, 2012:44) ex. 50b

As shown in (35), the modality marker has different forms depending on whether the verb is marked as transitive by the suffix *-e* or intransitive by the suffix *-é*. The transitivity markers are separated from the modal suffix by the distributive and negative suffixes, but the modal marker nonetheless shows sensitivity to the transitivity of the verb. See Wu (2018) for a similar case in Kannada, where an agreement marker undergoes contextual allomorphy for a structurally and linearly distant tense marker.

Based on these examples, it appears that inward-sensitivity to morphosyntactic features can indeed condition contextual allomorphy, as is the case in Bengali. These examples, like Bengali, indicate that the insertion algorithm cannot be replacive, but instead has to be additive. This way, it preserves the morphosyntactic features of lower terminals after they have undergone insertion and lets them condition subsequent allomorphy higher up.¹³

4.2 For the locality of contextual allomorphy

How far can a trigger of allomorphy be from the target and still cause allomorphy? Answers proposed in the literature have varied, though most work has focussed on root suppletion, not affixal suppletion as is the case here. Embick (2010) argues that linear adjacency of overt items is what is crucial for condition allomorphy. Null intervening material is deleted by the process

¹³Carstairs-McCarthy (2001) notes another case of inward sensitivity to morphosyntactic features in Latin agreement. The form of agreement is sensitive to the aspect of the verb, which appears as a suffix closer to the root than agreement, but is adjacent to it. Adger et al. (2003) propose a particular mechanism for labelling that captures these kind of very local inward sensitivities to morphosyntactic features without having to abandon a replacive insertion algorithm on the whole. Müller (2007) also presents an analysis for such very local inward sensitivity in German, Archi, and Timucua. But these proposal are designed specifically for cases where the trigger is immediately adjacent to the target of allomorphy. That situation does not seem to apply in Bengali, since at the points of insertion of NEG, it is separated from the perfect at least by agreement. So, the approaches developed for very local inward sensitivity will not apply to the Bengali situation (or Kiowa or Kannada).

of ‘pruning’ during the derivation and so does not intervene, but overt interveners can block allomorphy on his view. This is clearly too restrictive for Bengali. Even if the impoverished tense head in negative perfects is pruned, agreement has to exist in the representation by the time insertion of NEG happens if the insertion algorithm proceeds bottom-up. This means that NEG will definitely not be linearly adjacent to PRF by the time it is targeted for insertion.¹⁴

Merchant (2015) notes that Embick’s (2010) adjacency requirement is too strong for Greek as well. In Greek, roots undergo allomorphy for both voice and aspect. The exponent of voice is adjacent to the root, but aspect is separated from the root by voice. He proposes the relevant notion is span adjacency. That is, allomorphy can be conditioned by features that form a structural span that is adjacent to the target. This means that if X is the target of allomorphy, and adjacent to X is the span $\langle Y, Z \rangle$, allomorphy can be triggered by Y alone, or both Y and Z together, but not by Z alone. Once again, this is too restrictive for Bengali. The span containing PRF and NEG will need to include agreement at the point of insertion of NEG, but negation does not undergo allomorphy for agreement.¹⁵ So, the trigger for negative allomorphy in Bengali is not span adjacent to the target.

Bobaljik (2012) proposes that the condition on root suppletion is structural, like Merchant (2015), but does not require spans. Instead, he proposes that the strongest requirement on allomorphy supported by cross-linguistic data from comparatives is that it is restricted to complex heads. A word-internal head boundary does not block allomorphy, but a phrasal boundary does. In other words, periphrasis of comparatives leads to regularization. Root suppletion in Hiaki (Bobaljik & Harley, 2017) and Korean (Choi & Harley, 2019) appear to be compliant with this requirement. Whether or not Bengali complies with this requirement is not entirely clear. The negator *ni* and the verb root in Bengali can be separated by the additive and emphatic clitics but no phrasal material, as shown in (36).

- (36) a. *ciṭhi-ṭa lekh-e-o/i* *ni*
 letter-CL write-3-ADD/EMPH NEG.PRF
 ‘(S)he/they haven’t/hadn’t even/at all written the letter.’
 b. * *lekh-e ciṭhi-ṭa ni*
 write-3 letter-CL NEG.PRF
 Int: ‘(S)he/they haven’t/hadn’t written the letter.’

It is possible NEG in these cases is part of the same complex head as the verb, and that the additive and emphatic particles can be inserted into the middle of the head. It is also possible that NEG is located on a separate head and the exponent *ni* is prosodically specified as a clitic which requires a verbal host to its left. Given the uncertainty, we cannot make any definite claims about whether the complex head requirement of Bobaljik (2012) is too strong for Bengali or not, but only note that it may be compatible with the Bengali facts.

Moskal (2015) proposes an entirely different kind of structural restriction on contextual allomorphy, based on a notion of accessibility domains. According to this view, categorizing heads like *v* and *n* in a world where roots are acategorical act as barriers for contextual allomorphy. Only one head structurally beyond a category label can influence the realisation of material lower than the categorizing head. For roots, this makes reasonably strict predictions about which other terminals might condition suppletion. But for affixes like the ones in Bengali, there is no categorizing

¹⁴If agreement is dissociated, it may not intervene between PRF and NEG when the former is the target of insertion, because it has not yet been sprouted. But by the time insertion is targeting NEG, it must already have inserted an exponent for agreement, and so agreement will intervene between NEG and PRF by this point.

¹⁵See the previous footnote for why agreement might intervene between PRF and NEG only as for insertion at NEG.

head intervening, and so they are predicted to be able to condition each other freely. So, the Bengali facts are definitely compatible with an accessibility domain-based approach to locality restrictions on contextual allomorphy.

In summary, the complex head restriction is the strictest locality restriction that the Bengali data may comply with, though further investigation is required to decide whether this is the case. Stronger restrictions like linear adjacency and span adjacency, are clearly too strong for Bengali. Weaker restrictions on locality, like accessibility domains, are definitely weak enough to permit the kind of long-distance allomorphy observed in Bengali.

5 Alternatives

5.1 A semantic account

Ramchand (2004) presents a semantic account of the distribution of *ni* and *na*. On her view, both are negative quantifiers, but with differing semantics. This places restrictions on their positions and distributions, accounting for why *ni* is required to negate perfects instead of *na*. For the semantics of the perfect, Ramchand (2004) adopts the analysis of English perfects from Parsons (1990), according to which the culmination of every event leads to a resulting state of the event having culminated, which holds forever after. Readers will recognize this as an *extended-now* theory of the perfect. While Ramchand (2004) does not provide lexical entries for either negative form, she does describe them.

(37) Descriptions of *ni* and *na* (Ramchand, 2004:45)

- a. *na* “is a binder of the event variable of an utterance”
- b. *ni* “is a binder of the time variable of an utterance”

Furthermore, the negation of events appears to scope under tense, as per the truth conditions Ramchand (2004) gives for an example sentence, repeated below in (38).

(38) ram am-ṭa khe-l-o na
 Ram mango-CL eat-PST-3N.PST NEG
 ‘Ram didn’t eat the mango.’
 $\exists t : [t < t_*] \neg \exists e [t_f \in \tau(e) = t] [\text{eating}(e) \wedge \Theta_1(e, \text{Ram}) \wedge \Theta_2(e, \text{the mango})]$ (Ramchand, 2004:46) ex. 23

In (38), t_f refers to the final moment of $\tau(e)$, the runtime of the event. So this states that there is some past time, at which no event exists matching the description that the final moment of the event is at the past time, and it is an eating event with ‘Ram’ and ‘the mango’ as participants. Crucially, the negation must scope under tense because Ramchand (2004) assumes that in its absence, there is existential quantification over events before below tense.

This account of the semantics of *na* as an event quantifier combined with a view of perfects as introducing a resulting state straightforwardly predicts that *na* should be incompatible with perfects. (Ramchand, 2004:46) presents the following example to illustrate why.

(39) * ram am-ṭa khe-e = ch-e na
 Ram mango-CL eat-PRF = AUX-3N NEG
 Int: ‘Ram hasn’t eaten the mango.’
 $\exists t : [t = t_*] \neg \exists s [\tau(s) \circ t] [\exists e [s = R - \text{state}(e) \wedge \text{eating}(e) \wedge \Theta_1(e, \text{Ram}) \wedge \Theta_2(e, \text{the mango})]]$
 (Ramchand, 2004:46) ex. 25

The truth conditions in (39) assert that there does not exist a state overlapping the present that is the resulting state of an event, however it asserts that the event does exist. This incoherence in the system, since every culminated event has a resultant state. So, negating a perfect with *na* is impossible.

While this account captures the basic distribution of *ni* and *na* in Bengali, it runs into issues with the ellipsis data. This account rules out *na* with perfects by means of semantic incoherence. This is problematic given that in ellipsis construction, we see that *na* is able to co-occur with the meaning of a perfect. It was established in section 2 that the ellipsis site contains the structure of a perfect, and so the semantic account cannot explain why *na* is not only acceptable, but required with an elided perfect if it semantically ruled out with an overt perfect.

But it is not entirely smooth sailing for the allomorphic account of negation proposed in this paper. Ramchand (2004) finds interpretive differences between using a construction with *na* vs. one with *ni*. For her, these differences are accounted for by the different semantics of the two negators. But if the two negators are allomorphic, these interpretive differences will need to be reanalysed. The three differences she finds are: discourse coherence, interaction with time adverbials, and interaction with negative polarity items.

The facts about discourse coherence and interaction with negative polarity items might have other sources than the type of negation. I am not able to reproduce the difference with time adverbials.¹⁶ With respect to discourse coherence, Ramchand (2004) reports that correlative constructions involving *when-then* sentences are not possible with *ni*, as in (40), with adapted translations.

- (40) a. jɔkhon Mary am-ʈa khe-l-o na, tɔɛkhon John khub reg-e
 when Mary mango-CL eat-PST-3.PST NEG, then John very anger-PRF
 gɛ-l-o
 go-PST-3.PST
 ‘John got very angry when Mary didn’t eat the apple.’ (Ramchand, 2004:13), ex. 35
- b. *jɔkhon Mary am-ʈa kha-e ni, tɔkhon John khub reg-e gɛ-l-o
 when Mary mango-CL eat-3 NEG.PRF, then John very anger-PRF go-PST-3.PST
 Int: ‘John got very angry when Mary hasn’t eaten the apple.’ (Ramchand, 2004:13), ex. 36

For Ramchand (2004), this difference is accounted for by the fact that *ni* binds off the time variable in the *when*-clause, so the time variable in the *then*-clause cannot associate with it in whatever way it normally does. But the ungrammaticality of (40b) is not a particular property of *ni*. Affirmative perfects are also bad in *when*-clauses, as shown in (41).

- (41) *jɔkhon Mary am-ʈa khe-e = ch-e/chi-l-o, tɔkhon John khub reg-e
 when Mary mango-CL eat-PRF = AUX-3/AUX-PST-3.PST, then John very anger-PRF

¹⁶With respect to time adverbials, Ramchand (2004) reports that *ni* is consistently preferred with time adverbials of duration. She provides example (1), with the reported judgement shown.

- (1) ?? tin ghonta dhore ami kichu bol-l-am na
 3 hour for I something say-PST-3.PST NEG
 Int: ‘For three hours I didn’t say a thing.’ (Ramchand, 2004:14) ex. 39

But (Ullah, 2007:33) notes that he is not able to reproduce this judgement, and neither are my consultants. Since I cannot reproduce the data with my consultants, I cannot comment on this possible difference.

ge-l-o
go-PST-3.PST

Int: 'John got very angry when Mary has/had eaten the apple.'

It seems that perfects generally interfere with the ability of a *then*-clause to identify with the event time of the *when*-clause. So on the view of *ni* as an allomorph of *na*, the ungrammaticality of (40b) can be accounted for in whatever way the ungrammaticality of (41) is, without needing to make reference to the form of negation.

With respect to negative polarity items, Ramchand (2004) claims that *kakkhono* 'ever' is marginal with *na* as in (42).

- (42) ? ami kakkhono am khe-l-am na
I ever mango eat-PST-3.PST NEG

Int: 'I never ate mangoes.'

(Ramchand, 2004:15) ex. 46

But (Ullah, 2007:34) notes, it is possible with future events, and in fact with past habituals as well.

- (43) a. ami kakkhono ja-b-o na
I ever go-FUT-1.FUT NEG

'I will never go.'

(Ullah, 2007:34) ex B.

- b. ami kakkhono am khe-t-am na
I ever mango eat-PST.HAB-3.PST NEG

'I never used to eat mangoes.'

Since *na* is in fact possible with *kakkhono* 'ever', whatever causes (42) to be marginal, it is not the type of negation. Rather, it seems that the past perfective *-l* and the temporal properties of *kakkhono* are somehow incompatible. Understanding what this interaction is, is left as an open question for those with more expertise in temporal semantics.

So we see that the differences between *na* and *ni* reported by Ramchand (2004) that can be reproduced actually seem to arise because of something other than the form of negation. The discourse coherence facts seem to be linked to properties of the perfect generally, and the NPI licensing facts appear to have to do with the temporal semantics of the past perfective. Since the apparent differences between *na* and *ni* constructions can be accounted for based on properties other than the type of negation, the approach to treat them as allomorphs can be maintained.

5.2 A diachronic account

Ullah (2007) investigates the development of the perfect paradigm and presents an account of *ni* as a negative existential over states. The evidence in favour of this account comes from the historical development of the negative perfect, and Eastern dialects, where the negation used in negative perfects is the same as the negative existential. As was noted by Lahiri (2000), the auxiliary *ch(i)* used in the perfect construction is a grammaticalized form of the existential copula *ach*. Ullah (2007) notes that *ach* is defective itself, in that it cannot be negated like most verbs. Instead of appending *na* to a clause containing *ach*, a negative existential portmanteau (*nai* in Eastern dialects (Ullah, 2007:35), *nei* in Western ones) has to be used, as in (44).

- (44) a. *o kolkata-e ach-e na
3SG.N Kolkata-LOC exist-3 NEG

Int: 'He is not in Kolkata.'

- b. o kolkata-e nei
 3SG.N Kolkata-LOC NEG.EXIST
 ‘He is not in Kolkata.’

Could it be that the inability to negate perfects with *na* is linked to the inability to negate the existential copula with *na*, given that the copula is grammaticalized in perfect? Ullah (2007) argues that it is, and that the modern negative perfect is derived from the negative existential copula. Ullah (2007) traces the historical development of the perfect paradigm and shows how it developed from a result state description involving past participle form combined with an existential copula. The inability to negate this copula in the usual way to lead this construction being negated with the negative existential. When the copula became a grammaticalized part of the perfect construction, its morphology quirks about negation were also imported into the perfect (Ullah, 2007:40-41).

Support for analysing the negative perfect marker as a negative existential comes from the literary standard, *Sadhu Bhasha*, which based on a 15th century dialect (Ullah, 2007:13), as well as Eastern dialects, where we see the same negative form in negative existential and negative perfects.

- (45) a. Ram dhaka-e nai
 Ram Dhaka-LOC NEG.EXIST
 ‘Ram is not in Dhaka.’ (Ullah, 2007:35) ex. A
- b. Ram am-ṭa kha-e nai
 Ram mango-CL eat-3 NEG.EXIST
 ‘Ram has not eaten the mango.’¹⁷ (Ullah, 2007:35) ex. B

But unfortunately this unification of the negative perfect and negative existential does not seem to be possible for Western dialects. For my consultants, the negative perfect *ni* and the negative existential *nei* are not interchangeable, as shown in (46).

- (46) a. Ram dhaka-e nei/*ni
 Ram Dhaka-LOC NEG.EXIST/*NEG.PRF
 ‘Ram is not in Dhaka.’
- b. Ram am-ṭa kha-e ni/*nei
 Ram mango-CL eat-3 NEG.PRF/*NEG.EXIST
 ‘Ram has not eaten the mango.’

While the negative existential *nei* and the negative perfect *ni* may have the same origin as Ullah (2007) argues, in Western dialects, the synchronic representation of these two forms in the minds of speakers is clearly not identical. Most importantly for our purposes, such an approach provides no foothold to understand the alternation between *ni* and *na* in elliptical constructions. My consultants find splitting the negative existential *nei* into *na* and a silent copula in elliptical contexts to be degraded, as shown in (47). This makes it dissimilar to the negative perfect *ni*, which does readily split as a result of ellipsis.

¹⁷Ullah (2007) gives the translation as ‘Ram did not eat the mango at all.’, but the semantics he provides is $\neg\exists t : [t = t*][\exists e[\exists s : [\tau(s) \circ t][s = R - \text{state}(e) \wedge [\text{eating}(e) \wedge \Theta_1(e, \text{Ram}) \wedge \Theta_2(e, \text{the mango})]]]]]$. If I am not misunderstanding, this says that there is no time equal to the present which overlaps with the resulting state of an event of Ram eating the mango. In other words, exactly what a negative perfect would mean on an extended-now model of the perfect. That is why I provide a present perfect as the translation rather than the one which Ullah (2007) provides.

- (47) Context: I don't want to eat vegetarian food at all. I would prefer fish. Is this restaurant suitable?

menu-te amis ꣳd to ach-e, kintu mach nei/?na
 menu-LOC non-veg item PRT exist-3, but fish NEG.EXIST/*NEG

'There are indeed non-vegetarian items on the menu, but not fish.'

The allomorphic proposal put forth in this paper is meant to be an analysis of the synchronic facts in Western dialects. Given an appropriate theory of how reanalysis occurs, I see no reason why Ullah's (2007) analysis of the diachronic development of *ni* should be incompatible with the synchronic analysis of *ni* as an allomorph of the regular negator *na* in Western dialects.

6 Conclusion

This paper explored the distribution of two negative forms in Western dialects of Bengali: *na* and *ni*. The former is the default realisation of sentential negation, while the latter is a special portmanteau perfect negator. The empirical focus of the paper was on examples involving ellipsis where a perfect verb was elided under negation. Instead of the special perfect negator *ni*, these sentences required the use of the default negator *na*.

The hallmarks of a perfect construction are detectable with *ni*, despite the absence of overt perfect marking. This led to the conclusion that *ni* is a portmanteau of the perfect and negation. This, in combination with evidence for the existence of a perfect inside the relevant ellipsis site set up the core puzzle of the paper: why do the perfect and negation form a portmanteau when both are overt, but not when the perfect is inside an ellipsis site?

The proposed answer was that the portmanteau negative perfect is actually the result of two cases of contextual allomorphy: the perfect is null in the context of negation, and the negation is realised as *ni*. Ellipsis is independently known to block contextual allomorphy in a variety of languages, so the fact that ellipsis blocks this portmanteau readily follows from the known interaction of ellipsis and allomorphy.

Analysing *ni* as two cases of contextual allomorphy led to two consequences for the nature of the contextual allomorphy. Firstly, forming *ni* through contextual allomorphy requires inward sensitivity to morphosyntactic features. If the insertion algorithm that associates abstract features with phonological exponents operates root-outward, this means it must add the phonological features without destroying the morphosyntactic ones. In other words, insertion must be additive, not replacive. Secondly, the pieces participating the allomorphic interaction are not structurally or linearly adjacent. This means that some of the strictest proposed locality restrictions on contextual allomorphy cannot be correct for this case. The strongest restriction that Bengali might support is that allomorphy is restricted to occur within complex heads.

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