The Morpho-Syntax of Polarity in Gujarati

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Abstract

This paper explores the various expressions of polarity and tense in Gujarati, focusing on the standard dialect. The expressions of negation in Gujarati provide support for the cross-linguistically possible position of the Polarity head in the functional projection. I propose that some expressions of polarity can be analyzed as portmanteau morphemes, which gives support to the idea that these morphemes are in fact realizations of spans of independent, syntactic heads. Furthermore, there is some variability in the position of these forms of negation, which sheds light on possible post-syntactic movements that languages may have, especially regarding the inversion of post-syntactic elements.

1   Expressions of Negation

Gujarati has three distinct forms of negation, shown below in (1).[2]

(1) a. *Mina-e   pustak   lakh-y-ū   nahi hashe.*
         Mina-Erg book(N) write-Perf-N.Sg Neg Fut.3.Sg

         'Mina will not have written a book.'

     b. *Mina-e   pustak   lakh-y-ū   nathi.*
         Mina(F)-Erg book(N) write-Perf-N.Sg Neg

         'Mina has not written a book.'

     c. *Mina-e   pustak   lakh-y-ū   noth-ū.*
         Mina(F)-Erg book(N) write-Perf-N.Sg Neg
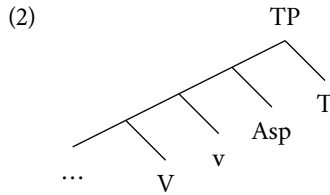
         'Mina had not written a book.'

We will explore each form shortly. First, there are a few observations to note. Gujarati is a head final language, with an SOV word order. Aspect is realized as an affix on the "main verb," while tense/modality is expressed through a separate auxiliary. These facts lead me to assume the following functional projection for Gujarati, shown below in (2).[3]

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[2]In this paper, I use an informal romaniziation, based on spellings used by Gujarati speakers in the US. Most letters are transparently the same as the corresponding IPA symbol. The exceptions are as follows: *kh* = [kʰ], *sh* = [ʃ], *y* = [j], *ch* = [tʃ], *th* = [θ], *j* = [dʒ]. Finally, I use the diacritic ~ to represent nasalized vowels.

[3]For reasons of length, I do not discuss the arguments for the functional elements and the order of those elements proposed here. Please see Desai (2018) for a full proposal and discussion of this analysis.

(2)

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                          TP
                        ╱    ╲
                      ╱        T
                    ╱      Asp
                  ╱      v
                ╱    ╱
              ···   V
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At this point, the verbal spine above makes no reference to an element which would express sentential negation. If we assume that sentential negation is at least often expressed by a head in the extended clausal projection (a possibility that we will shortly see is well-supported in Gujarati), we can look to the expression of sentential negation in Gujarati as a way of exploring in more detail the nature of the series of function heads in (2) above (Klima 1964). There are, in fact, three forms of negation in Gujarati, and their appearance is dependent on the tense or modality of the sentence. As tense and modality are expressed through auxiliaries, we can say that the appearance of each form of negation is dependent on the auxiliary. In the following sections, I will look at each form of negation, accounting for its appearance and form.

2 The Elsewhere Negation

The first form of negation we can look at is *nahi*, which can be descriptively characterized as the "elsewhere" form. The reason for this characterization is that *nahi* appears in the most varied range of tense/modal environments, which is to say with the largest array of auxiliaries. When *nahi* appears, it co-occurs with the auxiliaries, which provides clear evidence of where the functional element Polarity is in the Gujarati verbal spine. In the examples in (3) and (4) below, the (a) example is the positive sentence, while the (b) example is the negated counterpart.

(3)   a. *Mina-e   pustak   lakh-y-ū   hashe.*
           Mina-Erg book(N) write-Perf-N.Sg Fut.3.Sg

           'Mina will have written a book.'

    b. *Mina-e   pustak   lakh-y-ū   <u>nahi</u> hashe.*
           Mina-Erg book(N) write-Perf-N.Sg not   Fut.3.Sg

           'Mina will not have written a book.'

    c. * *Mina-e pustak lakh-y-ū <u>nahi</u>.*

(4)   a. *Mina   pustak   lakh-t-i   hoy.*
           Mina(F) book(N) write-Prog-F might.3.Sg

           'Mina might be writing a book.'

    b. *Mina   pustak   lakh-t-i   <u>nahi</u> hoy.*
           Mina(F) book(N) write-Prog-F not   might.3.Sg

           'Mina might not be writing a book.'

    c. * *Mina pustak lakh-t-i hoy <u>nahi</u>.*

If the auxiliaries are the realization of T, and *nahi* is the realization of the negative Polarity head, Pol$_{[NEG]}$, the crucial observation here is that *nahi* can only precede the auxiliary. It can never follow the auxiliary, as the ungrammatical (c) examples above show. We can reasonably assume, then, that Pol is lower than T in the verbal spine shown in (2). This aligns with one of the two typical positions of Pol seen cross-linguistically. The two positions are above (selecting for) T, or below (selected by) T (Zanuttini 2001). *Nahi* provides evidence for Pol in

Gujarati being in the latter position, below T. Keeping in mind that both TPs and PolPs in Gujarati are right-headed, this generates exactly the word order seen above in (3) and (4). We can now update the verbal spine in (2) to include Pol, shown in (5) below.

(5)
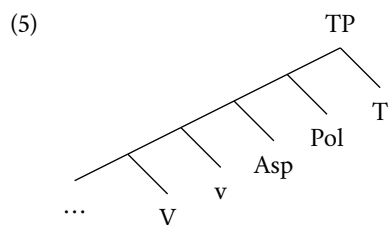
Until this point, we have only seen sentences that have auxiliaries to express tense. Gujarati also has so-called "simple" sentences that do not have any auxiliaries. In those cases, *nahi* is the form of negation that appears, shown below in (6).

(6) a. *Hu   chapo   vach-ū   nahi.*
         I.Nom newspaper(N) read-1.Sg not
         'lit. I do read this newspaper.' (habitual)

     b. *Tu pad-she   nahi.*
         You fall-Fut.2.Sg not
         'You will not fall.'

     c. *Usha-e   fal   kadh-y-ū   nahi.*
         Usha(F)-Erg fruit(N) eat-Perf-N.Sg not
         'Usha did not eat the fruit.

Note that the position of *nahi* in the examples above is not consistent with the possibility that V raises to these affixal Ts. Even if Pol does not block head movement (which is seen e.g. for Pol in English, as auxiliaries can raise to T around Pol), we would still end up with the incorrect word order. Instead, we could propose that there is no T in examples like (6) (and their corresponding positive sentences). This does beg the question of where the future-encoding affix in (6b) is realized, but that is a question I leave for future work.

3   Negative Auxiliaries

The remaining two forms of negation can be descriptively characterized as "negative auxiliaries." The reason for this characterization is two-fold. The first reason is that, unlike *nahi* above, these two negative auxiliaries appear in complementary distribution with the corresponding tense auxiliary in the positive sentence. The second reason is that these two negative auxiliaries encode both polarity and tense information.

The first negative auxiliary is *nathi*, which appears in complementary distribution with the present tense auxiliary *che*. A minimal pair is shown in (7) below, and note that in (7b), the negative form *nathi* conveys both negative and present tense, as well as agreement.

(7) a. *Mina-e   pustak lakh-y-ū   che.*
         Mina(F)-Erg book(N) write-Perf-N.Sg Pres.3.Sg
         'Mina has written a book.'

     b. *Mina-e   pustak lakh-y-ū   nathi.*
         Mina(F)-Erg book(N) write-Perf-N.Sg Neg.Pres
         'Mina has not written a book.'

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The second negative auxiliary is *noth-*, which appears in complementary distribution with the past tense auxiliary *hat-*. In this case, both the positive auxiliary *hat-* and the negative auxiliary *noth-* show gender and number agreement. It is also interesting to note that *noth-* is the only form of negation to show any agreement. A minimal pair with *hat-* and *noth-* is shown in (8) below, and note that in (8b), the negative form *nothū* conveys both negative and past tense.

(8) a. *Mina-e   pustak   lakh-y-ū   hat-ū.*
         Mina(F)-Erg book(N) write-Perf-N.Sg Past-N.Sg
         'Mina had written a book.'

     b. *Mina-e   pustak   lakh-y-ū   <u>noth-ū.</u>*
         Mina(F)-Erg book(N) write-Perf-N.Sg Neg.Past-N.Sg
         'Mina had not written a book.'

So far, I have been assuming that each auxiliary is the expression of T in the verbal spine. The two forms of negation seen here, *nathi* and *noth-*, appear to take the place of the tense expression, while also conveying negative polarity. Since they seem to be monomorphemic, they can be thought of as portmanteau morphemes, a fused expression of tense and negation (Hockett 1947). Crucially, these forms cannot be morphologically decomposed into smaller morphemes. In fact, we can contrast this with the morphological makeup of the "main verb," which clearly contains smaller morphemes (namely, the verbal root, the aspect marker, and the agreement morpheme). With that understanding of these "negative auxiliaries," we now have a way to account for their distribution, by appealing to a spanning analysis. Svenonius (2012) defines a span as a complement sequence of heads and, crucially, assumes further that morphemes always realize spans. In this case, the portmanteau morphemes *nathi* and *noth-* are two possible realizations of the span of T and $Pol_{[NEG]}$. Specifically, *nathi* is the realization of $T_{[PRES]}$ and $Pol_{[NEG]}$, while *noth-* is the realization of $T_{[PAST]}$ and $Pol_{[NEG]}$.

A visualization of this process is shown below in (9). In the tree below, I use dotted lines to show the insertion of one morpheme at two heads.

(9)
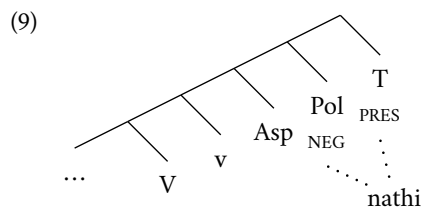
This leaves the matter of the positive auxiliaries, all of which I had previously assumed to be expressions only of T. But in the context of the analysis of the negative auxiliaries just introduced, we can correspondingly assume that the present tense auxiliary *che* and the past tense auxiliary *hat-* are portmanteau morphemes as well, realizations of the span of T and $Pol_{[POS]}$. However, we still want to maintain that the auxiliaries that co-occur with *nahi* are realizations only of T. Whenever $T_{[PAST]}$ or $T_{[PRES]}$ is in the structure, we know it will get realized as part of a span. Otherwise, for any other T, when it selects for $Pol_{[NEG]}$, *nahi* will be inserted as the realization of Pol alone.

There may also be independent reasons to distinguish *che* and *hat-* from the other auxiliaries, as realizations of both Pol and T, because both of these auxiliaries are also used in copular constructions, as the examples in (10) show.

(10) a. *Mina   bhashagnya che.*
　　　　Mina(F) linguist   Pres.3.Sg
　　　　'Mina is a linguist.'

　　　b. *Mina   bhashagnya hat-i.*
　　　　Mina(F) linguist   Past-F
　　　　'Mina was a linguist.'

The negative counterparts of these sentences predictably use the corresponding negative auxiliaries, as the examples in (11) below show.

(11) a. *Mina   bhashagnya nathi.*
　　　　Mina(F) linguist   Neg.Pres
　　　　'Mina is not a linguist.'

　　　b. *Mina   bhashagnya noth-i.*
　　　　Mina(F) linguist   Neg.Past-F
　　　　'Mina was not a linguist.'

So it seems reasonable to distinguish these four auxiliaries, and propose that they encode positive polarity as well as tense. This difference can be cached out with the different feature specifications of the Vocabulary Items as shown below, in (12).

(12) a. *che* $\langle T_{[PRES]}, Pol_{[POS]} \rangle$　　　　　　d. *nathi* $\langle T_{[PRES]}, Pol_{[NEG]} \rangle$

　　　b. *hat-* $\langle T_{[PAST]}, Pol_{[POS]} \rangle$　　　　　　e. *noth-* $\langle T_{[PAST]}, Pol_{[NEG]} \rangle$

　　　c. *hoy* $\langle T_{[MIGHT]} \rangle$　　　　　　　　　　　f. *nahi* $\langle Pol_{[NEG]} \rangle$

4   Another Position for Negation

So far, we have only seen negation following the main verb. However, all three forms of negation can also occur in a pre-verbal position, as the examples in (13) show below.

(13) a. *Mina-e   pustak <u>nahi</u> lakh-y-ū   hashe.*
　　　　Mina-Erg book(N) not   write-Perf-N.Sg Fut.3.Sg
　　　　'Mina will not have written a book'

　　　b. *Mina-e   pustak <u>nathi</u>   lakh-y-ū.*
　　　　Mina-Erg book(N) Neg.Pres write-Perf-N.Sg
　　　　'Mina has not written a book.'

　　　c. *Mina-e   pustak <u>noth-ū</u>   lakh-y-ū.*
　　　　Mina-Erg book(N) Neg.Past-N.Sg write-Perf-N.Sg
　　　　'Mina had not written a book.'

At this point, it is important to mention that Gujarati does have a pre-verbal focus position for arguments. However, the examples above do not have a focus interpretation distinct from the post-verbal examples in (3b), (7b), and (8b). Nor have any other interpretive contrasts so far been observed between the two ordering possibilities. So it seems that both positions are freely available for negation.

The analysis presented here, however, so far only accounts only for the post-verbal position. Looking at the verb and negation of (13b), the syntax actually generates the linear order schematized below in (14), which is exactly the word order seen in (7b) above.

(14)   *lakhyū*   *nathi*
        [V$_{[MAIN]}$ + Asp$_{[PERF]}$]   [Pol$_{[NEG]}$ + T$_{[PRES]}$]

There are a few reasons to think that the operation which accounts for the pre-verbal position for negation is post-syntactic, rather than, for example, the result of head movement in the syntax.

First, we can look back to the two elements of (14) above. The two elements, which undergo the transposition seen in (13), have very different derivations, on the analysis under development here. The "main verb" *lakhyū* is created as the result of V combing with Asp, either via head movement or due to the affixal feature of the realization of Asp. The negative auxiliary, on the other hand, is a single portmanteau morpheme realizing a span of multiple heads, evidenced by the fact that the forms cannot be morphologically decomposed further. So a syntactic analysis, for example one where the V+Asp complex head undergoes raising to T would not work, because that complex head raising to T would affect the realization of T as part of the span. This would then affect the insertion of the portmanteau morpheme. Instead, an analysis of this sort would have to propose that first V raises to adjoin to Asp, and then that V+Asp complex head raises further to an even higher position, perhaps C. However, CPs in Gujarati seem to be left-headed, which would mean that the V+Asp complex head would be realized in a clause-initial position, before the arguments, which of course does not align with the word order actually observed. Some examples of CPs in Gujarati are shown in (15) below.

(15) a. *Mane khabar   che   ke   Ramesh-e   pustak   khariid-y-ū.*
         I.Dat knowledge be.Pres.3.Sg Comp Ramesh(M)-Erg book(N) buy-Perf-N.Sg
         'I know that Ramesh bought a saree.'

      b. *Mane khabar   nathi   ke   Mina-e   a   pustak lakh-y-ū.*
         I.Dat knowledge Neg.Pres Comp Mina(F)-Erg this book(N) write-Perf-F
         'I don't know if/whether Mina wrote this book.'

Furthermore, the class of "negative markers," which are the only elements subject to this re-ordering, is not defined as a class until Vocabulary Insertion has applied. The elsewhere form of negation, *nahi*, is a morpheme that is the exponent of the Polarity head alone. The other two forms, *nathi* and *noth-*, are portmanteau morphemes which are an exponent of a span of the syntactically autonomous heads, Polarity and Tense. The logic of this analysis then entails that we view the transposition as a postsyntactic operation, since it is only at that point that the relevant items are viewed as a single class.

To account for all these facts, we can look to the operation of Local Dislocation Merger (Embick and Noyer 2001). Local Dislocation Merger (LDM) is a type of Morphological Merger that changes the linear order and adjunction relations between string-adjacent elements, and crucially it applies post-syntactically after linearization and after Vocabulary Insertion (Embick and Noyer 2001). However, there is one addition we must make to the theory. Embick and Noyer (2001) propose that LDM can dislocate units of a linearized structure. In their system, those units would be morphosyntactic words (MWds) or subwords (SWds). Looking back to the linear order schematized in (14), the elements that we want to undergo the dislocation are actually the exponents of the syntactic nodes. The exponent of V+Asp and the exponent of negation are string adjacent, which would allow them to be manipulated by LDM. But crucially, we would have to add to the types of elements that LDM can operate on to include the actual exponents themselves.

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Embick and Noyer (2001) further specify that LDM is an operation that occurs when an order change is Vocabulary sensitive, meaning it is sensitive to some property that is specific to the Vocabulary Items involved. In Gujarati, it is only negative markers that can undergo this word order variation. For example, the "positive" auxiliaries can never move to a pre-verbal position, as the examples in (16) show.

(16) a. * *Mina-e   pustak   hashe   lakh-y-ū.*
          Mina-Erg book(N) Fut.3.Sg write-Perf-N.Sg

   b. * *Mina-e   pustak   che   lakh-y-ū.*
          Mina-Erg book(N) Pres.3.Sg write-Perf-N.Sg

   c. * *Mina-e   pustak   hatū   lakh-y-ū.*
          Mina-Erg book(N) Past.N.Sg write-Perf-N.Sg

So Local Dislocation Merger in Gujarati would have to make reference to negative features, because it is only those items with negative features that move. One question that arises is how to make reference to this feature, when LDM is operating on the exponents themselves. One way would be to specify the lexical items that undergo this dislocation, but this would lose the generalization that the elements that undergo this dislocation are all negative. Otherwise, we would have to say that that even while LDM operates on adjacent exponents, it can still make reference to the featural makeup of the morphemes. LDM would then switch the order of the verb and the negative item. This results in the order in (17) below.

(17)   *nathi*   *lakhyū*
          $[Pol_{[NEG]} + T_{[PRES]}]$ $[V_{[MAIN]} + Asp_{[PERF]}]$

5   Conclusion

Here, I hope to have sketched an analysis that can help us understand the distinct forms of negation in Gujarati. The co-occurrence of *nahi* with most tense and modal auxiliaries lends evidence that our understanding of the realization for the functional heads Pol and T is on the right track. Furthermore, analyzing the "negative auxiliaries" as spans allows us to bring together the distribution of these forms as well as the semantic information that these forms encode. This also leads to a better understanding of the two "positive auxiliaries" that appear in complementary distribution with their negative counterparts. Classifying all four of these elements as portmanteau morphemes allows us to understand the difference in their distribution with the remaining tense/modal auxiliaries as well as the "elsewhere" form of negation.

With this work as a starting point, much remains to be done regarding the expression of tense and polarity in Gujarati. There are many auxiliaries in Gujarati that I do not investigate here. The interaction between those auxiliaries, and therefore the functional elements they realize, would lead to a better understanding of the extended projection in Gujarati. Relevant to this is the question of the structure of the "simple" sentences, in which there is only affixal tense marking on the "main verb," rather than a separate auxiliary. The structure of these constructions, as well as which forms of negation they allow, would give further insight into the functional projection of Gujarati and the elements that can realize each element.

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