UC Santa Cruz
UC Santa Cruz Electronic Theses and Dissertations

Title

Polarity and Probing: Building Clauses in Gujarati

Permalink

https://escholarship.org/uc/item/8602r66x

Author

Desai, Mansi Pranav

Publication Date

2018

Copyright Information

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

SANTA CRUZ

POLARITY AND PROBING: BUILDING CLAUSES IN GUJARATI

A thesis submitted in partial satisfaction of the
requirements for the degree of

MASTER OF ARTS

in

LINGUISTICS

by

Mansi Pranav Desai

June 2018

The Thesis of Mansi Pranav Desai
is approved:

_____

Professor Jim McCloskey, Chair

_____

Professor Jorge Hankamer

_____

Associate Professor Maziar Toosarvandani

_____

Tyrus Miller
Vice Provost and Dean of Graduate Studies

Table of Contents

Abstract

Polarity and Probing: Building Clauses in Gujarati

by

Mansi Pranav Desai

This thesis investigates a complex set of interactions in Gujarati, involving the expression of tense and negation, as well as verbal agreement and case. The focus is on the standard dialect, which has not been thoroughly studied or documented in the contemporary syntactic framework. As such, this project aims to broaden the typology of syntactic theory by examining as yet unstudied facts of the clausal structure of Gujarati. I focus on the facts of word order in both the clausal and nominal domain, and the issues of phrase headedness.

With that as the syntactic foundation, I move on to investigate the expression of tense and negation in Gujarati. The expression of negation in Gujarati provides support for the cross-linguistically possible position of the Polarity head in the functional projection. Furthermore, some expressions of negation can be analyzed as portmanteau morphemes, supporting the idea that these morphemes realize spans of independent, syntactic heads. The expression of tense and negation also shed light on possible post-syntactic movements that languages may have, specifically regarding the inversion of post-syntactic elements.

Finally, I investigate the questions that verbal agreement in Gujarati raise. Specifically, questions regarding the interactions of morphological case and agreement. In Gujarati, there is reason to believe that Ergative case is assigned as a dependent case, but it crucially interacts in the syntactic operation of Agree. This fact raises important questions about the status of dependent cases in the syntax.

Dedicated to my family, without whom none of this would have been possible.

Acknowledgments

Chapter 1

Introduction

This thesis investigates a complex set of interactions in Gujarati, focusing on the standard dialect, involving the expression of tense and negation, as well as verbal agreement and case. I first lay out the clausal syntax of Gujarati, especially focusing on the verbal spine, as well as the syntax of nominals. With that background, I focus on the two main puzzles Gujarati presents. The first puzzle is the morphosyntax of the expression of tense and negation. The forms vary in being mono- or polymorphemic, and they shed light on the possible orderings and combinations of the heads relevant to tense and polarity. The second puzzle involves questions having to do with verbal agreement in Gujarati. Specifically, questions regarding the interactions of morphological case and agreement, and differences in how probes are valued by either external or internal arguments.

In this thesis, I assume the following analytical frameworks. First, for the realization of syntactic elements, I rely on Distributed Morphology, as laid out in Halle and Marantz (1993), Harley and Noyer (1999), and references therein. Relevant to my work here is the idea of Late Insertion, where the phonological expression of syntactic nodes, Vocabulary Items, are inserted at each node. The insertion of these Vocabulary Items is determined by the features of both the syntactic node and the Vocabulary Item itself, in a cyclic process called Spell-Out. The reason the insertion is thought to be "late" is because it happens after

syntactic operations have completed at that point in the derivation. For those syntactic operations, I assume a minimalist framework, as laid out in Chomsky (2000) and Chomsky (2001). Specifically, I focus on the operation of Agree, in which a probe, some element with unvalued features, enters into a relationship with a goal, some element with valued features, on the basis that the features are the same and the goal is in the c-command domain of the probe.

The thesis is organized as follows. In Chapter 2, I lay out the empirical facts of Gujarati, especially focusing on word order, the verbal spine, and the headedness of various phrases, to build a foundational understanding of Gujarati syntax. In Chapter 3, I focus on the expression of negation, which sheds more light on the verbal spine and how the functional elements of tense and polarity are expressed. In Chapter 4, I lay out an analysis of agreement in Gujarati. The multiple instances of agreement can be accounted for with multiple probes, but the arguments that can value each probe vary. In this section, I also look at the assignment of various morphological cases in Gujarati, and the intervention effects that they display. Finally, in Chapter 5, I conclude.

Chapter 2

Background

Gujarati is a Western Indo-Aryan language, specifically part of a a group of languages that all share an ancestor in Old Western Rajasthani (Patel-Grosz and Grosz, in prep.). Standard Gujarati, the variety I focus on here, is a standardized variety spoken mainly in the southern parts of the state of Gujarat (Patel-Grosz and Grosz, in prep.; Suthar, 2006). As of a 2001 census, there are roughly 45.7 million speakers of Gujarati (Simons and Fennig, 2017). Despite the large, diverse population of speakers and despite Gujarati's status as the official language of the state of Gujarat, Standard Gujarati is largely undocumented and largely unstudied in the framework of contemporary morphosyntactic theory. One aim of this project to further broaden that typological landscape, and to measure the theoretical assumptions mentioned above against the new facts presented by Standard Gujarati.

There is also a personal connection to this work as my family speaks Gujarati and it was my first language. Although I can still understand it, I have lost the ability to speak it. As such, a personal goal of this project for me was to learn more about my heritage language. I also wanted to build a foundation for continuing research on this language, which has large populations of speakers in the United States, especially in Northern California. Because I cannot provide judgments, the examples and judgments provided in this thesis

come from my parents, who are both fluent native speakers and have had education in Gujarati. As I have said, my focus here is on the standardized dialect, but it is important to mention that I have tried to avoid prescriptive rules in eliciting judgments, aiming instead to reflect casual, spoken Gujarati. That being said, there is a great deal of variation within the language, due primarily to language contact and regional differences, so the judgments provided here are not absolute and speakers of Gujarati may vary with regard to the facts considered here.

In the remainder of this section, I lay out the empirical facts of word order and phrase headedness in Gujarati.

2.1 Word Order and Verbal Spine

The basic word order in Gujarati is Subject Object Verb (SOV). The examples in (1) show this.[1]

(1) a. *Mina-e   pustak   lakh-y-ũ.*
        Mina(F)-ERG book(N) write-Perf-N.SG
        'Mina wrote a book.'

    b. *Ramesh   saree   kahrid-t-o   che.*
        Ramesh(M) saree(F) buy-Prog-M.SG Pres.3.SG
        'Ramesh is buying a saree.'

    c. *Ramesh   saree   kharid-t-o   hoy.*
        Ramesh(M) saree(F) buy-Prog-M.SG Might.3.SG
        'Ramesh might be buying a saree.'

In Gujarati, the main verb always follows its arguments; it is never grammatical for any

---

[1] 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]. I also use the diacritic ~ to represent nasalized vowels.

In the glosses, I use the following abbreviations. 1 = first person, 2 = second person, 3 = third person, F = feminine, M = masculine, N = neuter, SG = singular, PL = plural, Past = past tense, Pres = present tense, Fut = future tense, Prog = progressive aspect, Perf = perfective aspect, ERG = ergative case, ACC = accusative case, DAT = dative case, GN = gender+number features, PN = person+number features.

argument to come after the verb. The main verb can be sentence final, as in (1a). However, if the sentence has an auxiliary, as in (1b) and (1c), then the auxiliary must come after the main verb. The main verb can never follow the auxiliaries. So, taking these facts into account, it seems that Gujarati VPs are right-headed and select their object complements on the left. As for the external argument, I assume that there is a functional head 'voice' which is responsible for licensing the external argument in transitive structures (as laid out in Kratzer (1996) and Chomsky (1995)). This voiceP would also be right-headed and select VP as its complement on the left. Auxiliaries typically express tense, as in (1b), or modality, as in (1c). So the auxiliaries seem to be expressions of the Tense head, which means TPs are also right-headed and select their complements on the left as well.

In this thesis, I focus on the tense auxiliaries as they more clearly show the functional elements that make up the Gujarati clausal spine. However, as the sentence in (1a) shows, not all Gujarati sentences need auxiliaries to express tense. Doctor (2004) describes three "simple forms" which include only the verb and no tense or modal auxiliary. The examples in (2) show the simple pres, (2a), simple future, (2b), and simple past, (2c).

(2) a. *Hu   chapo   vach-ū.*
        I.NOM newspaper(N) read-1.SG
        'lit. I read this newspaper.' (permission seeking)

     b. *Tu   pad-she.*
        You(SG).NOM fall-Fut.2.SG
        'You will fall.'

     c. *Usha-e   fal   kadh-y-ū.*
        Usha(F)-ERG fruit(N) eat-Perf-N.SG
        'Usha ate the fruit.'

examples adapted from Doctor (2004)

These "simple sentences" raise important questions about the expression of tense and aspect in Gujarati. Specifically, it seems that tense can also be encoded as an affix on the main verb, without an overt aspect marker, as seen in (2a) and (2b). We can account for

5

these "simple" forms by proposing that V raises to these Ts that end up realized as affixes in the morphology. As for the example in (2c), it is a well-observed fact that simple past tense in Western Indo-Aryan languages is usually realized without an overt auxiliary (Patel-Grosz and Grosz, in prep.). However, for my purposes here, I focus on the tense and modal auxiliaries as they show realizations of T alone (with no head movement), which is directly relevant to the questions of word order examined here.

As for the remaining functional projections, we can look to the morphological structure of the words in (1). Aspect is always expressed as a morpheme on the main verb, with verbal agreement following that morpheme. This can be accounted for in one of two ways. We could reasonably assume that V raises to the Aspect head and adjoins, via head movement, resulting in one word. Or, we could say that the information in the Aspect bundle of features includes the fact that it is prefixal. Then, in the operation of Spell-Out, as nothing intervenes between V and Asp, the two would combine due to that feature of the morpheme that realizes Asp. With either of these accounts, we see that the "main verb," made up of V and Asp, comes before the auxiliary which is the realization of T. We can then say that the complement of T is Asp, and the complement of Asp is voice. With all these facts in mind, the verbal spine of Gujarati can be represented as in (3) below. Note that in this and all following trees, I will abbreviate voice to v.

(3)

```
                         TP
                        /  \
                      /    \
                    /      \
                  /    \     T
                /    \   Asp
              /   \   v
            ...    V
```
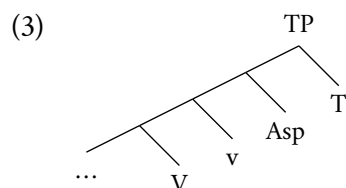
To complete the picture of the clausal spine in Gujarati, we can look at complementizer phrases. The complementizer *ke* in Gujarati is used for 'that' and 'if/whether,' as the examples in (4) show below. I have glossed it as Comp, for Complementizer.

6

(4) a. *Mane   khabar   che   ke   Ramesh-e a   saree   kharid-ø-i.*
         I.DAT knowledge be.Pres.3.SG Comp R.(M)-ERG this saree(F) buy-Perf-F
         'I know that Ramesh bought this saree.'[2]

     b. *Mane   khabar   nathi   ke   Mina-e   a   chopdi lakh-ø-i.*
         I.DAT knowledge Neg.3.SG Comp M.(F)-ERG this book(F) write-Perf-F
         'I don't know if/whether Mina wrote this book.'

Furthermore, we can look at 'if-then' conditionals, to see another example of Gujarati complementizers, in (5) below.

(5) *Jo mane tav av-she,   to   hu   dava   lai-ish.*
     if I.DAT fever come-Fut.3.SG then I.NOM medicine take-Fut.3.SG
     'If I get a fever, then I will take medicine.'

adapted from Suthar (2006)

If Gujarati CPs were right-headed, we would expect to see the complementizers appearing after the main verb. However, we always see them appearing clause-initially, which is the order that would result from CPs in Gujarati being left-headed, and selecting their complement TPs on the right. With this last piece in place, the full clausal skeleton of Gujarati is as shown in (6) below.

(6)
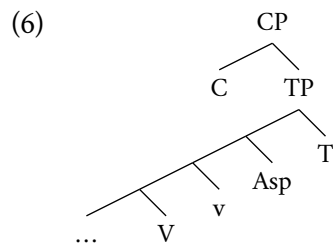
This disharmonic headedness pattern, which is reminiscent of German, will prove useful below in establishing certain properties of head movement in Gujarati, which we will see in a later chapter. In the following sections, I briefly examine two environments which can affect the word order we have so far seen for arguments.

---

[2]The perfective morpheme is typically not pronounced when the verb shows feminine agreement. This is due to what I believe is a phonological process that renders the glide silent before the feminine agreement morpheme /-i/. As this process is not relevant to the analysis presented here, I simply represent the morpheme as a null element.

2.1.1 Argument Scrambling

Gujarati allows arguments to scramble around adverbs. First, we can look at temporal adverbs, which are normally thought to adjoin high (to TP). These are adverbs such as "tomorrow" or "yesterday." The examples in (7) show this scrambling.

(7) *When will Ramesh write the paper?*

    a. *Ramesh   avtikale   kagal   lakshe.*
       Ramesh(M) tomorrow paper(M) write-Fut.3.SG
       'Ramesh will write the paper tomorrow.'

    b. *Ramesh   kagal   avtikale   lakshe.*
       Ramesh(M) paper(M) tomorrow write-Fut.3.SG
       'Ramesh will write the paper tomorrow.'

Both of these are valid responses to the question, with no focus difference between the two versions. So in Gujarati, the subject or both the subject and object can scramble around the high, temporal adverb.

There is also scrambling with lower, manner adverbs. These are typically thought to adjoin to VP. The examples in (8) below show this scrambling.

(8) a. *Pranav-e   mote-thi harmoniam   vagad-y-ũ.*
       Pranav(M)-ERG loud-with harmonium(N) play-Perf-N.SG
       'Pranav played the harmonium loudly.'

    b. *Pranav-e   harmoniam   mote-thi vagad-y-ũ.*
       Pranav(M)-ERG harmonium(N) loud-with play-Perf-N.SG
       'Pranav played the harmonium loudly.'

Again, there seems to be no focus difference between these two sentences. If the adverb 'loudly' adjoins to the VP on the left, then (8a) would be the word order with no scrambling. The word order in (8b) would be the result of the object scrambling around the adverb to a VP-edge position.

The exact landing position of these scrambled arguments, and the mechanisms that move them, are not explored here.

2.1.2 Focus Movement

The other environment that results in word order changes involves focus. Focused arguments seem to move to a pre-verbal position, as the following example, (9) shows. Again, a question is provided as context.

(9) *Who bought the saree?*

    a. *Saree   Pranav-e   kharid-ø-i.*
       saree(F) Pranav(M)-ERG buy-Perf-F
       'PRANAV bought the saree.'

Arguments seem to be the only elements that can move to this pre-verbal position as a result of focus. Looking back to the scrambling examples in (7b) and (8b), there doesn't seem to be the same focus associated with the pre-verbal element as in (9). The fine-grained work required to elicit clear judgments about this focus movement is beyond the scope of this project. The important fact here is that scrambling and focus movement are the only environments that result in changes in the word order of arguments, and that otherwise Gujarati has a fixed SOV word order.

2.2 Headedness in the Nominal Domain

Here, I look at the headedness and word order of other phrases in Gujarati, in order to round out the preliminary picture already presented. I focus primarily on the nominal domain, looking at the structure of DPs, APs, and PPs/KPs.

2.2.1 Demonstratives, Numerals, and Possessives

Gujarati doesn't seem to have definite or indefinite articles that could correspond to a Determiner (D). All the previous examples show that bare NPs in Gujarati can be translated as definite or indefinite DPs in English. This seems to be context-dependent, although the

specific interactions of new and old referents and the interpretation of the bare NP is beyond the scope of this project. Instead, to get a sense of the nominal syntax, we can look at demonstratives, numerals, and possessives.

Both distal and proximal demonstratives precede the noun. The distal demonstratives show concord with the NP in gender and number features. Some examples are shown in (10) below.

(10) a. *pel-i/aa   chokri*
          that-F/this child.F
          'that/this girl'

      b. *pel-ã/aa   chokra-o*
          that-N.PL/these child.N-PL
          'those/these kids'

There are a few different paths that we can take in order to account for the word order seen in (10). One analysis that is pursued for demonstratives is to say that they are of the same category as determiners, i.e. they are realizations of D. This is typically proposed for languages in which demonstratives and determiners are in complementary distribution, (e.g. Wiltschko (2009) for English). Another analysis that is commonly pursued is to say that demonstratives are the head of their own demonstrative phrase (DemP), which selects DP/NP. This is typically proposed for languages in which demonstrative and determiners can co-occur (e.g. McCloskey (2004) for Irish). The choice between these two analyses is not clear for Gujarati. The fact that distal demonstratives show concord can be accounted for with either analysis, as the demonstrative would always be in a position to enter into an Agree relationship with the NP. The crucial fact I want to point out is that regardless of which analysis we pursue, the DP or DemP would have to be left-headed and take NP as a right complement.

We can move on to look at numerals, which can co-occur with demonstratives. The examples in (11) show that the numeral always immediately precedes the NP, and follows the demonstrative, if there is one.

(11) a. (*pel-i*) *ek chokri*
     (that-F) one child.F
     '(that) one girl'

         b. (*pel-ā*) *char chokra-o*
            (that-N.PL) four child.N-PL
            '(those) four kids'

If we assume that the numeral is the realization of a Number head, then we can say that NumPs in Gujarati are also left-headed and take their NP complements on the right. As for the interaction with the demonstrative, again it is hard to tell which analysis to pursue. We could say that the DP or DemP takes NumP as a complement. Either of these accounts for the word order facts we have seen so far.

Finally, we can look at possessive phrases in Gujarati. The possessor precedes the NP, and shows agreement with the possessum. Numerals can intervene between the possessor and possesum. The examples in (12) below show this.

(12) a. *mar-i* (*ek*) *chokri*
     my-F (one) child.F
     'my (one) daughter'

         b. *mar-ā* (*char*) *chokra-o*
            my-N.PL (four) child.N-PL
            'my (four) children'

To account for this, we would want to say that the possessor heads a phrase, PossP, and that phrase should be in the specifier of some projection in the nominal domain. Typically, pre-nominal possessors are thought to be in the specifier of the DP. If we maintain such an analysis for Gujarati, then we also ensure that possessors can appear before the numeral phrase. The PossP could be in the specifier of DP, or DemP, depending on which analysis we pursue for the highest node in the extended nominal projection.

2.2.2 Adjectives and Degree Phrases

The final class of elements that can appear in noun phrases are adjectives and degree phrases. Some examples of both of these are shown in (13) below.

(13) a. *pel-i ghan-i sar-i chokri*
     that-F very-F good-F child.F
     'that very good girl'

b. *pel-ā   char ghan-ā   sar-ā   chokra-o*
   that-N.PL four very-N.PL good-N.PL child.N-PL
   'those four very good children'

We see that the degree phrase always immediately precedes the adjective, which means it is reasonable to assume that DegPs are left-headed and select APs on the right. The entire DegP can then left-adjoin to the NP, which gives us the order we see above. Again, either analysis for the demonstratives generates the correct word order.

We saw earlier, in §2.1.1, that arguments can scramble around adverbs. However, there doesn't seem to be any scrambling allowed in the nominal domain. The word order seen in (13) is the only possibility. Furthermore, we see that the degree phrases and adjectives in (13) show gender and number concord (or, to be more exact, a subclass of adjectives).

2.2.3   Case Markers

The final nominal element I look at here is the case marker (an element which will be of some relevance to our discussion). Case markers in Gujarati are postpositions, which are suffixes on the noun itself (Doctor, 2004; Suthar, 2006). So, if the information of a morpheme being an affix is encoded as a morphological feature on the morpheme itself, it is not immediately clear what to assume about the headedness in the PP/KP. Regardless, we know that the PP/KP must select the D/DemP, so it c-commands all elements of the noun phrase. This would ensure that the suffix will appear on the NP itself.

For reference, Table 2.1 below lists all the overt morphological case markers in Gujarati, summarized from data in Suthar (2006).

Ergative	*-e*	Accusative	*-ne*
Dative	*-ne*	Instrumental	*-thi*
Genitive	*-n-*	Locative	*-mã*

Table 2.1: Case Markers

As it is unclear what exactly the maximal nominal projection is, henceforth throughout the thesis, I will use NP as a label for the entire nominal projection.

Chapter 3

Negation

The expression of negation in Gujarati sheds more light on the structure of the verbal spine proposed above, which I have repeated below in (14).

(14)

```
                    TP
                   /  \
                  /    \
                 /      \
                /    \   T
               /     Asp
              /   \
             /    v
          ...     \
                   V
```
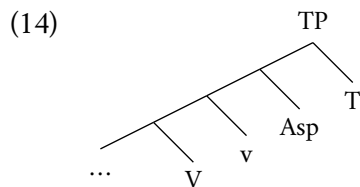
The verbal spine above makes no reference to an element which would express sentential negation. If we assume that sentential negation is at least often expressed by a head in the extended clausal projection (a possibility that we will shortly see is well-supported in Gujarati), we can look to the expression of sentential negation in Gujarati as a way of exploring in more detail the nature of the series of function heads in (14) 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.

3.1 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 Polarity is in Gujarati. In the examples in (15) and (16) below, the (a) example is the positive sentence, while the (b) example is the negated counterpart.

(15) a. *Mina-e   pustak   lakh-y-ũ   hashe.*
          Mina-ERG book(N) write-Perf-N.SG Fut.3.SG
          'Mina will have written a book.'

     b. *Mina-e   pustak   lakh-y-ũ   nahi 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-ũ nahi.*

(16) 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   nahi 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 nahi.*

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 (14). 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 (15) and (16). We can now update the verbal spine in (14) to include Pol, shown in (17) below.

(17)
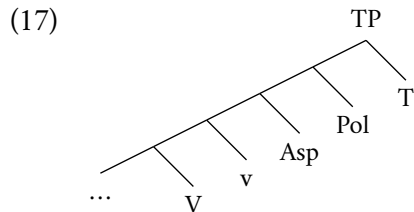
Nahi also appears in those "simple" sentences that do not have auxiliaries, as shown in (18) below.

(18) 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 this is not consistent with the idea 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 (2) and (18). This does beg the question of where the future-encoding affix in (18b) is realized, but that is a question I leave for future work.

3.2 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 both of these 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 (19) below, and note that in (19b), the negative form *nathi* conveys both negative and present tense.

(19) a. *Mina-e   pustak   lakh-y-ũ   che.*
          Mina(F)-ERG book(N) write-Perf-N.SG Pres.3.SG
          'Mina has written a book.'

  b. *Mina-e   pustak   lakh-y-ũ   <u>nathi</u>.*
          Mina(F)-ERG book(N) write-Perf-N.SG Neg.Pres
          'Mina has not written a book.'

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. *Noth-* is the only form of negation to show any agreement. This point will be explored further in Chapter 4 when we come to discuss agreement probes in Gujarati. A minimal pair with *hat-* and *noth-* is shown in (20) below, and note that in (20b), the negative form *nothũ* conveys both negative and past tense.

(20) a. *Mina-e   pustak   lakh-y-ũ   hat-ũ.*
          Mina(F)-ERG book(N) write-Perf-N.SG Past-N.SG
          'Mina had written a book.'

  b. *Mina-e   pustak   lakh-y-ũ   <u>noth-ũ</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-*, seem 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 (21). In the tree below, I use dotted lines to show the insertion of one morpheme at two heads.

(21)
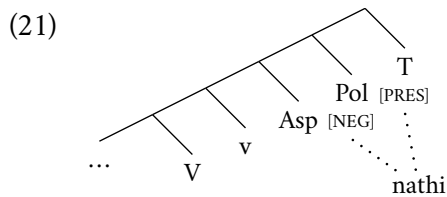
This leaves the matter of the positive auxiliaries, all of which I had previously assumed to be expressions only of T. But in the context of the analysis of the negative auxiliaries just introduced, we can correspondingly assume that the present tense auxiliary *che* and the past tense auxiliary *hat-* 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 (22) show.

(22) 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 (23) below show.

(23) 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 (24).

(24) 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* $\langle Pol_{[NEG]} \rangle$

We will return to the issue of verbal agreement appearing on both *noth-* and *hat-* when we discuss agreement interactions in Chapter 4. For now, there is one remaining complexity concerning the expression of negation that we must confront.

3.3 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 (25) show below.

(25) 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.'

As we saw earlier, 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 (15b), (19b), and (20b). 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.

So far, however, the analysis presented here accounts only for the post-verbal position. Looking at the verb and negation of (25b), the syntax actually generates the linear order schematized below in (26), which is exactly the word order seen in (19b) above.

(26)   *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 (26) above. The two elements, which undergo the transposition seen in (25), 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, affecting 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, we have seen in §2.1, that 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.

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 (26), 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.

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 (27) show.

(27)　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 (28) below.

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

Having established an understanding of the expression of tense and negation in Gujarati, we can keep this in mind as the syntactic foundation for the agreement interactions we now turn to.

Chapter 4

Agreement

We now move to the case and agreement interactions which have the syntax developed in the previous sections as their foundation and which will be our main focus here. We can start by laying out the empirical facts of agreement and case in Gujarati.

4.1 Agreement: The Core Facts

First, we can look at the basic pattern of agreement and case morphology. Specifically, we will look at the markers that encode agreement, the alignment split, and case intervention effects.

4.1.1 Agreement Markers

Gujarati shows verbal agreement in gender, number, and person features. There is both grammatical and natural gender, and there are three genders: feminine, masculine, and neuter. There are two numbers: singular and plural. And there is first, second, and third person (Doctor, 2004; Suthar, 2006).

The markers that show verbal agreement fall into two sets. The first set combines gender and number features (GN) into a single form. These markers are seen in Table 4.1

below.

	Singular	Plural
Masculine	*-o*	*-a*
Feminine	*-i*	
Neuter	*-ũ*	*-ã*

Table 4.1: Gender + Number (GN) Markers

The second set combines person and number features (PN) into a single form. These are seen in Table 4.2 below. There is one more "set" of markers, which encode PN as well as future tense. Since they encode PN, I have included them in Table 4.2 below.

	Singular		Plural	
First	*-ũ*	*-ish*	*-ie*	*-ishũ*
Second	*-e*	*-she*	*-o*	*-sho*
Third	*-e*	*-she*	*-e*	*-she*

Table 4.2: Person+Number (PN) Markers

These markers differ in which elements they appear on. The GN markers always appear on the "main verb," after the aspect marker[1]. The PN markers, on the other hand, appear on the tense/modal auxiliaries. With this in mind, we move on to consider, empirically, how case is assigned about how the verbal agreement actually looks.

4.1.2 Alignment Split

Gujarati, like many Indo-Aryan languages, has an alignment split determined by aspect (Suthar, 2006). The split shows in case assignment and verbal agreement. In the perfective aspect, the alignment is Ergative-Absolutive. An important point to note is that Standard Gujarati, unlike the other languages that come from Old Western Rajasthani, has

---

[1] It is worth mentioning here that the GN markers are also the markers that encode concord in the nominal domain, as seen in §2.2. As my focus here is on verbal agreement, I leave this observation aside, although this does raise the question of whether the operations that determine concord are in some way related to the gender+number verbal agreement we will see shortly.

maintained overt ergative case marking, both in the pronouns and non-pronominal DPs (Patel-Grosz and Grosz, in prep.). So, the transitive subject is marked ergative, while the transitive object and intransitive subject are unmarked. In this alignment, the transitive object and intransitive subject control verbal agreement. Some examples of this alignment can be seen in (29) below.

(29) Perfective:

    a. *Mina   dariya-ma   tar-ø-i   che.*
       Mina(F) ocean(M)-in swim-Perf-F Pres.3.SG
       'Mina has swum in the ocean.

    b. *Mina-e   pustak   lakh-y-ū.*
       Mina(F)-ERG book(N) write-Perf-N.SG
       'Mina wrote a book.'

In non-perfective clauses, the alignment is Nominative-Accusative. "Non-perfective" here groups together future tense and progressive aspect, both of which show this pattern of alignment. In this alignment in Gujarati, the transitive subject and intransitive subject control verbal agreement. However, there is no overt case marking on any of the arguments; all three argument types are morphologically unmarked in this alignment. (The form of these arguments is identical to the absolutive arguments previously seen in the Erg-Abs alignment.) Some examples of this pattern can be see in (30) below.

(30) Non-perfective:

    a. *Ramesh   tar-t-o   che.*
       Ramesh(M) swim-Prog-M.SG Pres.3.SG
       'Ramesh is swimming.'

    b. *Ramesh   saree   kahriid-t-o   che.*
       Ramesh(M) saree(F) buy-Prog-M.SG Pres.3.SG
       'Ramesh is buying a saree.'

4.1.3 Effects of Case

Before moving on, I want to touch on the facts of case intervention in Gujarati. There are two facts pointed out in Deo and Sharma (2002), which I want to explore here. First is the fact that in many Indo-Aryan languages case feed agreement, and that in Gujarati specifically, different cases vary as to whether they block agreement or not. Above in (29b), we saw that agreement with the ergative subject is impossible, and instead there is agreement with the unmarked object. That is to say, ergative NPs neither agree nor do they give rise to agreement-intervention. In comparison, the unmarked subjects in (29a) and (30) are able to control verbal agreement.

There is another difference between subject case intervention versus object case intervention. The first example of this is in dative experiencer constructions, as seen in (31) below.

(31) a. *Mina-ne   sapnũ   av-y-ũ.*
          Mina(F)-DAT dream(N) come-Perf-N.SG
          'lit. A dream came to Mina.'

      b. *Mane tav   av-she.*
          I.DAT fever(M) come-Fut.3
          'lit. A fever will come to me.'   *adapted from Suthar (2006)*

We see that in the Erg-Abs alignment example, in (31a), the object *sapnũ* 'dream' controls verbal agreement, not the dative subject. This is what we would expect as the transitive object always controls agreement in the Erg-Abs alignment. However, interestingly, in the Nom-Acc alignment example, (31b), the dative subject also cannot control agreement on the verb. It is important to note that we cannot tell here whether the verb is agreeing with the third person object *tav* 'fever' or if it is showing default agreement. This issue will be explored further when the agreement analysis has been developed, in §4.2.

So it seems that when the "subject" has overt case marking, of any kind, it cannot control verbal agreement. However, we will see that this is not true for overt case on the

"object." When the object has overt case marking, it can still control verbal agreement. However, so far we have only seen unmarked objects, in the Erg-Abs alignment and in the Nom-Acc alignment. So, we must now ask when overt morphological case appears on objects in Gujarati. The examples in (32) and (33) below show examples with and without what could be thought of as accusative case.

(32) Perfective:

    a. *Ramesh-e   Mina-ne   jo-y-i.*
       Ramesh(M)-ERG Mina(F)-ACC see-Perf-F
       'Ramesh saw Mina.'

    b. *Ramesh-e saree jo-y-i.*
       Ramesh(M) saree(F) see-Perf-F
       'Ramesh saw a saree.'

(33) Non-Perfective:

    a. *Hu   Mina-ne   jo-ish.*
       I.NOM Mina(F)-ACC see-Fut.1.SG
       'I will see Mina.'

    b. *Hu   saree jo-ish.*
       I.NOM saree(F) see-Fut.1.SG
       'I will see a saree.'

The crucial observation here is that the animate objects, in (32a) and (33a), must have this overt case. On the other hand, the inanimate objects, in (32b) and (33b), cannot have this overt case. This pattern corresponds to the appearance of what is called "accusative case" on objects in Hindi (Mohanan, 1994).[2]

---

[2]It is worth mentioning here that Mohanan (1994) brings up a few other issues that affect the appearance of accusative case on objects in Hindi. Specifically definiteness interacts with non-human, animate objects. This seems to hold true for Gujarati as well, as the examples in (34) show below.

(34) a. *Hu   biladi-ne jo-y-i.*
        I.NOM cat(F)-ACC see-Perf-F
        'I saw the cat.'

    b. *Hu   biladi jo-y-i   ane kutro jo-y-o.*
        I.NOM cat(F) see-Perf-F and dog(M) see-perf-M.SG
        I saw a cat and a dog.   *(continued in footnote on next page)*

Relevant to my work here, this case in Gujarati is not incompatible with agreement. In (32a), the accusative marked object still controls agreement on the verb. This fact was pointed out in Deo and Sharma (2002), who also mention that it sets Gujarati apart from most other Indo-Aryan languages, e.g. Hindi where accusative blocks agreement. So it seems that some cases in Gujarati, specifically ergative and dative, render the NP so marked incapable of entering into agreement relations or triggering intervention effects, while others, what is called accusative here, do not prevent agreement relations with the marked NP.

With these facts in mind, we can start to build an analysis of Gujarati case and agreement.

4.1.4 Accounting for Multiple Agreement

With regard to agreement, there is one additional fact that I have not pointed out, which we can observe in (35) below.

(35) a. Nom-Acc Alignment:

Hu   chopdi   lak-t-o   hoish.
I(M).NOM book(F) write-Prog-M.SG Fut.1.SG
'I will be writing a book. (*speaker is male*)'

b. Erg-Abs Alignment:

Me   saree   kahrid-ø-i hashe.
I(M).ERG saree(F) buy-Perf-F Fut.3.SG
'I will have bought a saree. (*speaker is male*)'

In the examples of (35), as well as in all Gujarati sentences that have tense or modal auxiliaries, there are two instances of verbal agreement present in the sentence. One in-

---

With this in mind, it might be more accurate to characterize the case seen in (32a), (33a), and (34a) as a form of Differential Object Marking. As my focus here is on case intervention effects, and the appearance of accusative case does not block verbal agreement, I do not explore these issues here. However, there is a great deal of work to be done regarding the interactions of accusative case-marked/bare NPs and (in)definiteness in Gujarati.

stance is on the main verb, and one is on the auxiliary. In the Nom-Acc alignment of (35a), both instances of agreement are controlled by the nominative argument. In the Erg-Abs alignment of (35b), both are controlled by the absolutive argument. So, the first question we should ask is how to account for these multiple occurrences of agreement. As a starting point, we can look to an analysis of multiple agreement in a related dialect, Kutchi Gujarati.

4.1.5 Multiple Probes in a Closely Related Dialect

Directly relevant to the question posed above for Standard Gujarati is the data presented by Patel-Grosz and Grosz (in prep.) for Kutchi Gujarati, a related but distinct dialect. Kutchi Gujarati also shows two instances of agreement, as the example in (36) shows below.

(36) *John mane   jo-th-o   ha-se.*
      John me.DOM see-IPFV-M.SG AUX-FUT.3.SG
      'John will see me.' *(speaker is female)*

(11a) in Patel-Grosz and Grosz (in prep.)

The analysis presented by Patel-Grosz and Grosz (in prep.) crucially relies on two distinct probes. One probe is in v, which is responsible for the agreement seen on the "main verb" in (36) above. And one probe is in T, which is realized on the auxiliary in (36) above.

Earlier, in §4.1.1, we saw that Standard Gujarati has two sets of agreement markers, one set that encodes gender and number features (GN), which appear on the main verb, and one set that encodes person and number features (PN), which appears on the auxiliary. Looking at (36) above, we see that this distinction in features is present in Kutchi Gujarati as well. Patel-Grosz and Grosz (in prep.) propose that the two probes vary in what features they probe for. Specifically, the lower probe in voice/Asp probes for GN features, and

those features are then realized on the main verb. The higher probe in T probes for PN features, and those features are then realized on the auxiliary.

We have already seen that there is reason to believe the auxiliaries in Standard Gujarati are realizations of T. As such, it is reasonable to assume that Standard Gujarati also has a higher probe in T, and the exact mechanics of how that probe is valued will be explored shortly. However, first I want to focus on the lower probe. Patel-Grosz and Grosz (in prep.) do not distinguish the voice head from an Asp head. However, there is reason to think that the lower probe should actually be on Aspect, a point I elaborate on in the section which follows.

4.1.6   Location of the Lower Probe

In §2.1 and Chapter 3, I proposed that the extended causal projection in Gujarati is as in (37):

(37)
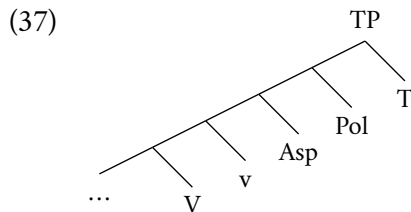
There are two main reasons to separate voice from Asp. The first reason was the introduction of the eternal argument. I proposed that voice was the head responsible for merging the external argument into the structure (Kratzer, 1996; Chomsky, 1995). It seems likely that voice should be responsible for this, as the difference between active and passive, and the difference between transitive and intransitive, can be encoded onto different voice heads, determining whether or not it introduces an external argument. Aspect does not seem to play a role in the distribution of external arguments.

The second reason was based on the morphological makeup of the "main verb," which always includes an aspect marker followed by the morpheme that encodes agreement.
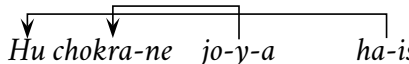
31

Since these two elements always end up adjacent, we can propose that the exponent of the head Asp is also responsible for the exponence of the agreement features. In fact, this aligns with the analysis presented in Noyer (1997) for the realization of agreement in a Distributed Morphology framework. In this framework, agreement is realized by the insertion of AGR nodes at various heads in the structure. If Asp is the head that triggers insertion of an AGR node, as a result of it being a probe and therefore ending up with valued features, then we derive the adjacency of the aspect marker and the agreement morpheme always seen as the last element in the "main verb."

The other head that would trigger the insertion of an AGR node would be T, because it is the higher probe. This way of understanding the "higher" agreement aligns with the fact that we always see the second occurrence of agreement on the auxiliary, which, on the analysis developed earlier, is a realization of T, in (37).

So, it seems likely that the lower probe is actually in Asp, which is separate from v, and the higher probe is in T. With this foundation in mind, we can now ask how the probes are valued.

4.2   Disagreement Between Probes

The important distinction between these probes is which arguments can value them. There is an agreement pattern that Patel-Grosz and Grosz (in prep.) point out for Kutchi Gujarati, which they refer to as "nested agreement." This pattern is shown in (38) below.

(38)   *Hu chokra-ne   jo-y-a   ha-is*
         I   boys-DOM see-PFV-PL AUX-FUT.1SG
         'I will have seen the boys' *(speaker is female)*

                                                                  (12b) from Patel-Grosz and Grosz (in prep.)

The important observation here is the fact that the probes differ in which argument they agree with. The lower probe (the GN probe), realized on the main verb, is agreeing

with the transitive object. The higher probe in T (the PN probe), realized on the auxiliary, is agreeing with the transitive subject.

It is important here to note that Kutchi Gujarati also has an alignment split with regard to agreement. In the perfective aspect, the alignment is Erg-Abs, so typically the transitive object controls agreement. In non-perfective sentences, the alignment is Nom-Acc, so the transitive subject controls agreement. The lower probe, realized on the main verb, follows the alignment split in Kutchi Gujarati. The exception to the alignment is that, in Kutchi Gujarati, the probe in T is always valued by the subject, as shown in (38) above. (Patel-Grosz and Grosz, in prep.).

We have established that Standard Gujarati has the same two probes, with the same distinction of feature probing, and we have seen that it has the same alignment split. So at this point we should look to a comparable example in Standard Gujarati, shown in (39) below, to see what arguments the two probes agree with. Here, and in many of the examples that follow, I use the present tense auxiliary *che*, instead of the future tense auxiliary *hashe*, because the meaning and judgments are clearer (for reasons that remain obscure but seem to have to do with a modal interpretation that *hashe* allows).

(39)   *Me   chokra-ne   jo-y-ã   che.*
       I.ERG children-ACC see-Perf-N.PL Pres.3
       'I have seen the children.'

First, we should note that the sentence is in the perfective aspect, therefore in the Erg-Abs alignment, and as such we would expect the object to control agreement. We see that this is indeed the case for the lower probe in Asp, realized on the main verb. As for the higher probe in T, it is less clear. The auxiliary is certainly not agreeing with the first person subject. However, in Gujarati, third person singular is used to mark default (Suthar, 2006). Furthermore, there is syncretism between third person singular and third person plural forms (§4.1.1), which means that in (39), it is not immediately obvious whether the auxiliary is actually agreeing with the transitive object or is showing default agreement,

therefore not actually entering into an agreement relation with one of the arguments.

In order to make a cleaner comparison to the "nested agreement" example from Kutchi Gujarati, we need to change the object argument to a second person plural argument. This form is distinct from the default form, which will allow us to clearly see what agreement appears on the auxiliary, and therefore on the probe in T. The example (40) below shows a sentence of Standard Gujarati, in the Erg-Abs alignment, with a second person plural object.

(40) *Me   tam-ne   jo-y-ã   che.   /*cho*
      I.ERG you(PL)-ACC see-Perf-N.PL Pres.3 *Pres.2.PL
      'I have seen y'all.'

Again we see that the main verb in (40) shows agreement with the object in GN features, and again we see that the auxiliary is not agreeing with the transitive subject. Furthermore, now we can clearly see that the auxiliary cannot agree with the transitive object. Instead, we now know that the auxiliary is appearing with default agreement, realized as the third person agreement form.

At this point, I want to point out that the auxiliary, the probe in T by hypothesis, need not always show default agreement. We can look at the Nom-Acc equivalent of the sentence in (40), shown in (41) below.

(41) *Hu   tam-ne   jo-t-i   chũ.   /*che*
      I.NOM you(PL)-DOM see-Perf-F Pres.1.SG *Pres.3
      'I am watching y'all.' (*speaker is female*)

Here we see an instance in which the auxiliary, and therefore the probe in T, does agree with the subject and cannot surface in default form. So it seems that the probe in T can only be valued by unmarked subjects, while the lower probe in Asp can be valued by either argument (depending on the alignment of the sentence). At this point, one obvious question to ask is what happens in intransitive sentences. I want to leave that discussion for a later section, §4.4, when I actually lay out the mechanism of how the probe in T gets

34

valued. For now, there remains a larger issue which I want to confront. That issue is the cause of the default agreement seen in (40), and, related to this, why Standard Gujarati does not show the nested agreement pattern that Kutchi Gujarati does. Directly relevant to this question is the observation that in the Standard Gujarati example above, (40), the subject has overt ergative case marking. In comparison, in the Kutchi Gujarati example, (36), the subject is in the Nominative case. It seems that the difference in overt ergative case marking is causing the difference between Kutchi Gujarati and Standard Gujarati. It is the appearance of ergative case that I now want to account for.

4.3   Ergative Case

Earlier, in §4.1.3, we saw how different cases in Gujarati vary according to their interaction with agreement. As the contrast between (40) and (41) show, ergative case in Standard Gujarati must render the marked NP invisible to agreement interactions, and furthermore, not block agreement with a lower NP.

4.3.1   Kutchi vs. Standard

There is a crucial difference between the Erg-Abs alignment seen in Kutchi Gujarati and that in Standard Gujarati, as described by Patel-Grosz and Grosz (in prep.). Kutchi Gujarati, unlike Standard Gujarati, has undergone Ergative Case Attrition, and is in what is described as the Final Attrition Stage (Verbeke (2010) in Patel-Grosz and Grosz (in prep.)). This means that Kutchi Gujarati no longer marks ergative case, either on pronouns or on non-pronominal NPs. Standard Gujarati, on the other hand, is in the Pre-Attrition Stage, which means that both pronouns and non-pronominal NPs show ergative case marking.

At this point, it is important to mention how Patel-Grosz and Grosz (in prep.) account for the nested agreement seen in Kutchi Gujarati, and not seen in Standard Gujarati.

They follow a downward valuation system of agreement, which means the goal values all probes in its c-command domain (Zeijlstra, 2012; Patel-Grosz and Grosz, in prep.). This is different from the traditional system of probe-goal interactions in which goals are in the c-command domain of the probe. Instead, in this downward valuation system, the goal can spread its features down to value all the probes in its c-command domain. With this in mind, the subject must always raise to specifier of T, and is thus always in a position to value the probe in T. Since the subject in Kutchi Gujarati is in Nominative case, it is always able to value that probe. (In the object agreement cases, the object raises above the lower probe, generating the nested agreement pattern.) Following this logic, in Standard Gujarati, the subject must raise to the specifier of T, but because of its ergative case marking, cannot value the probe in T. As the object is too low, the probe in T shows default agreement.

However, this begs the question of how ergative case is assigned in Standard Gujarati. Even if we maintain the downward valuation system, we would need to ensure that ergative case is assigned to transitive subjects in perfective sentences, thereby rendering it (somehow) invisible to the probe in T. In the next section, I explore the possible ways we can account for ergative case in Standard Gujarati.

4.3.2 Dependent vs. Independent

For languages with ergative case, there are two analyses that are typically pursued to account for the appearance of ergative case.

The first is the Inherent Case Theory (ICT), which treats ergative case as a special case assigned by a verb to one of its arguments. In this system, ergative case would be assigned by voice to the argument in its specifier, alongside that argument's theta role (Baker and Bobaljik (2017) and the references therein). Specifically, ergative case would be assigned by v to an Agent argument. Note that this would be the only theta role to receive ergative, as

we already saw that Experiencers receive dative case. This has been proposed for ergative case in Hindi, as some unergative subjects can optionally have ergative marking (Marantz, 2000; Baker and Bobaljik, 2017). Related to the ICT is the Ergative Case Generalization, as defined in Marantz (2000), which states that ergative case will never appear on derived subjects. This is directly relevant to the linking of ergative with the Agent theta role, as the sole argument of an unergative verb would be Agent, and as such be licensed in the thematic subject position. So, assuming either one or both of these generalizations, we would expect to see ergative case on the subjects of unergatives. However, this is not what we see in Gujarati.

In Gujarati, the subjects of unergatives, shown in (42), and the subjects of unaccusatives, shown in (43), both appear in the unmarked (presumably Nominative) case.

(42) Unergative:

    a. *Hu   ek sau   kilometer   dod-ø-i.*
       I.NOM one hundred kilometers run-Perf-F
       'I ran one hundred kilometers.'

    b. *Kutro   bas-y-o.*
       Dog(M) bark-Perf-M.SG
       'The dog barked.'

(43) Unaccusative:

    a. *Hu   Santa Cruz-ma pochi ga-y-i.*
       I.NOM Santa Cruz-in   reach go-Perf-F
       'I reached Santa Cruz.'

    b. *Baraf pigli   ga-y-i.*
       Ice(F) melted go-Perf-F
       'The ice melted.'

So it seems that the generalizations above do not hold for Gujarati. Neither the fact that the subjects in (42) bear the Agent theta role, nor the difference between thematic subjects and derived subjects affect the appearance of ergative case in Gujarati.

Furthermore, if ergative case is linked to the Agent theta role, we might expect to see it appear invariably on Agent arguments. This would make ergative case comparable to dative marking on experiencers, seen cross-linguistically, including Gujarati as discussed in §4.1.3. However, since Gujarati has a split alignment, there are many instances in which an Agent argument, presumably in a thematic subject position, will receive nominative case or ergative case depending solely on the aspect, and therefore the alignment, of the sentence. The examples in (44) below show this.

(44) a. *Hu   ta-ne   mar-t-i   chū.*
          I.NOM you-ACC hit-Prog-F Pres.1.SG
          'I am hitting you.'

      b. *Me   ta-ne   mar-ø-i   che.*
          I.ERG you-ACC hit-Perf-F Pres.3.SG
          'I have hit you.'

In both examples, the subject presumably has the Agent theta role, having been merged into the appropriate thematic position. However, it is only in (44b) that the subject actually bears ergative case. In fact, we can compare the ergative case marking to the accusative case marking also seen in (44) above. The accusative case that appears on the objects in both sentences is a clearer example of an inherent case. The animate, human object in both sentences, *tane* 'you,' bears accusative case. The assignment of accusative case is dependent on those animacy features, so it does not change even when the aspect, and therefore the alignment, changes. This shows that while accusative case in Gujarati can certainly be thought of as inherent, in the sense that it is associated with particular semantic properties (animacy especially), we should not assume the same for ergative.

The other analysis that is typically pursued for the appearance of ergative case is the Dependent Case Theory (DCT). Baker and Bobaljik (2017) provide the following formalization of this view:

(45)　a. If NP₁ c-commands NP₂ and both are contained in the same domain (say, clause), then value the case features of NP₁ as ergative.

　　　b. Otherwise NP is nominative/absolutive.

(2) from Baker and Bobaljik (2017)

The formalization above would exist in languages which have ergative case, especially when the distribution of ergative case is understood to be "dependent." Specifically, this would be in languages where the distribution of ergative case seems to be dependent on the presence of two NPs in a single domain. We have already seen that the ICT cannot account for the facts of Gujarati, but this formalization of the DCT above seems more promising. First, we saw that subjects of intransitives always remain unmarked. This aligns with the formalization in (45) because there would only ever be one NP in the relevant domain. As there is never a second nominal argument in the intransitive structures, no NP can receive the dependent case ergative. This also renders the distinction between Agent versus non-Agent arguments, and thematic versus derived subjects, correctly irrelevant for the appearance of ergative case.

The other reason to pursue the DCT for Gujarati is related to the actual morphological cases that appear. Notice that in the formalization in (45), the difference between Nominative case and Absolutive case is collapsed. These two cases are the "elsewhere" cases, so to speak, assigned when there is no ergative case to be assigned.

So far, I have been glossing subjects in the Nom-Acc alignment as Nominative. However, it is not entirely clear that Nominative case in Gujarati should be thought of as distinct from the other unmarked cases. We can look to the examples in (46) below to review what the morphological shape of the cases in Gujarati actually are.

(46)　a. Nom-Acc Alignment:

　　　Ramesh　saree　kharid-t-o　hat-o.
　　　Ramesh(M) saree(F) buy-Prog-M.SG Past-M.SG
　　　'Ramesh was buying a saree.'

39

b. Erg-Abs Alignment:

Ramesh-e   saree   kharid-ø-i hat-i.
Ramesh(M)-ERG saree(F) buy-Perf-F Past-F
'Ramesh had bought a saree.'

The crucial observation here is that only one argument in (46) above is overtly marked, and that is the ergative marked subject in (46b). The subject and object of (46a) as well as the object of (46b) are all unmarked. In fact, despite referring to the alignment seen in (46a) as Nominative-Accusative, we have seen in §4.1.3 and earlier in this section that Gujarati has overt accusative case, but that that case is assigned not on the basis of alignment pattern, but rather on the basis of inherent semantic properties (namely animacy) of the relevant argument.

Instead, it is reasonable to assume that all three unmarked arguments bear the same case, which I will call absolutive. The DCT formalization in (45) above gives us a way of understanding this. We simply need to say that in Gujarati, ergative is assigned to the higher NP, NP_1, and otherwise absolutive case is assigned. This also aligns with the fact that the intransitive subjects in (42) and (43) are unmarked, and by hypothesis bear the same absolutive case.

At this point it is important to note that I am looking solely at morphological case, and not discussing the notion of abstract Case. The reason for this is that morphological case seems to be the most relevant notion for the facts of agreement in Gujarati. In fact, the distinction between abstract Case and morphological case (if there is such a distinction) is not immediately clear in Gujarati, as we saw in §4.1.3 that morphological cases vary depending on whether they enter into agreement relations. One could propose an account of abstract Case that accounts for the fact that overt, morphological case marking on objects does not cause intervention effects, while overt, morphological case on subjects does. However, we observed that the difference between Kutchi Gujarati's "nested agreement" and Standard Gujarati's default agreement, in §4.1.5, could be descriptively characterized

as due to the difference in overt ergative case marking. Assuming that morphological case is more relevant to the facts of agreement in Gujarati gives us a way of understanding this difference in the theory. The exact mechanism of how the agreement works, and its relationship to morphological case, is explored in detail in a later section, §4.4.

Before getting there, the remaining issue of ergative case assignment is the question of what the domain of dependent case assignment is in Gujarati. In asking this question, we must keep in mind that we cannot use the domain of "clause" (whatever precisely this means) as given in (45), because Gujarati has an alignment split, which means in the Nom-Acc alignment, the two NPs cannot be construed as being in the same domain. The question of what the domain should be, and how to account for the alignment split, is the focus of the next section.

4.3.3   Domain of Dependent Case

We have seen that ergative case in Gujarati is contingent on two factors: transitivity and aspect. It is reasonable to assume, then, that the voice head and the Aspect head are relevant to the assignment of ergative case. Furthermore, as mentioned above, my focus is on ergative case as a morphological case, which means the assignment process should be taken to be part of the post-syntactic derivation, one aspect of Spell-Out.

Keeping these two ideas in mind, I want to propose that voiceP is the domain in which ergative case is assigned. So, dependent ergative case would be assigned, in the case in which two NPs appear in the voiceP domain.

If voiceP is the domain of ergative case assignment, then we need a way for both NPs to remain in voiceP in the Erg-Abs alignment, and for only one NP to end up in voiceP in the Nom-Acc alignment. So far, I have been proposing that the structure of Erg-Abs and Nom-Acc alignment patterns are entirely symmetrical. The only difference is the form the Aspect marker takes and the overt realization of ergative. Typically, to account for

languages with an alignment split, an extra functional layer is proposed in the Nom-Acc alignment (Coon, 2010). This would result in the two NPs of a transitive sentence appearing in different domains, which would mean that ergative case is not assigned to either NP. As both NPs are the highest in their respective domains, there is no ergative case assigned. Typically this extra functional layer is motivated by the appearance of an extra element appearing in Nom-Acc structures, for example an auxiliary (Coon, 2010). However, we have seen that in Gujarati, each tense/modal auxiliary can appear in either alignment. Furthermore, there are structures in both alignments that do not need auxiliaries. So, there is no reason to believe that the Nom-Acc structure has any additional functional material that an Erg-Abs structure does not have.

With this in mind, we need a way for the higher NP to vacate voiceP in the Nom-Acc structures. This would ensure that dependent case is assigned in those instances. For this, I propose that there is a class of Asp heads that bears an EPP feature. This class would include all the Asp heads that result in Nom-Acc structures, which as we have seen includes progressive, imperfective, and future tense. Crucially, the Nom-Acc alignment comes out of structures that have $Asp_{[-PERF]}$. To account for this, we can say that the class of elements that bears EPP is $Asp_{[-PERF]}$. This EPP feature would raise the highest NP in the c-command domain of Asp (that is voiceP). In a transitive sentence, the highest NP would be the external argument. This would ensure that the voiceP, at the point of Spell-Out, would have only one NP in the Nom-Acc alignment, ensuring that no argument ends up with ergative case. It is important to point out that this means voiceP cannot undergo Spell-Out until after Asp is merged into the structure. This is why I also want to propose that Asp is a phase-defining head, which makes AspP a phase. This would then mean that the complement of AspP, voiceP, is a spell-out domain in the sense explained in (Chomsky, 2000, 2001). So this would separate from the idea of spell-out domains in DM. In DM, every node is a spell-out domain, but here I want to propose that spell-out domains are phrasal

domains which undergo the operation of Spell-Out once that phrase is built. If we think of AspP as being a 'strong phase,' in the sense of Chomsky (2001), then we would ensure that Spell-Out operates once the AspP is complete. This ensures that the operations which characterize Spell-Out will not apply until the AspP is complete. And crucially, the domain of ergative case assignment is voiceP, not AspP. Below, in (47), I have schematized the movement that would take place in the Nom-Acc alignment. I assume that the lower occurrence of the raised external argument is eliminated at this point of transfer.

(47)

```
                              TP
                        ┌──────┴──────┐
                      PolP            T
                  ┌────┴────┐
                AspP        Pol
            ┌────┴────┐
          NP         Asp'
                  ┌───┴───┐
                 vP       Asp
              ┌───┴──┐   [-PERF]
              t      v'   [EPP]
                  ┌───┴───┐
                 VP        v
              ┌───┴───┐
             NP       V
```
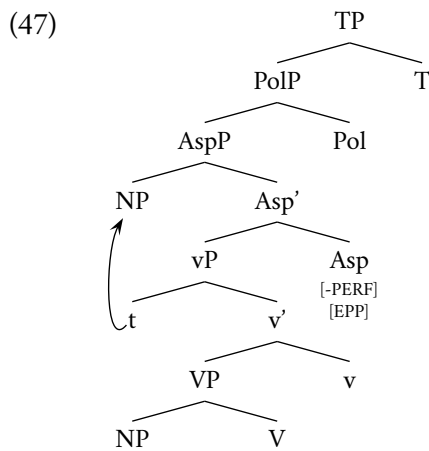
We of course need to now seek independent evidence for the movement postulated in (47). Unfortunately, in a right-headed language like Gujarati, with all arguments to the left of the verb, it is notoriously difficult to find such evidence. Nonetheless, the proposal presented here has a number of things to recommend it.

First, it locates the crucial parametric choice in the appropriate position, and in harmony with the Borer-Chomsky conjecture that major points of grammatical differences reflect selectional properties of functional heads. This is an aspect-based alignment split, so the relevant differences revolve around properties of the Asp head. Second, it depends on a device (local EPP-driven movement), whose usefulness and properties are well understood and well established. Third, it does not require a dubious appeal (as we have seen) to functional projections whose existence and properties are hard to justify. It maintains

the evidence of syntactic parallelism between perfective and non-perfective clauses, while accounting for the differences in Case-marking patterns that they exhibit.

I now turn to the valuation of the two agreement probes proposed for Gujarati, which will interact with these case assignment mechanisms in important ways.

4.4 Valuation of Two Probes

Now, we can finally return to the issue of the disagreeing probes. As a reminder, we have seen that only unmarked transitive subjects can value the probe in T. As such, in Nom-Acc alignment, the probe in T is valued by the subject, but in Erg-Abs alignment, the probe in T appears with default agreement. As for the probe in Asp, it seems to "follow the alignment," being valued by the transitive subject in the Nom-Acc alignment, or the transitive object in the Erg-Abs alignment.

In the following section, I will show that these differences arises from the structural difference between subject and object (i.e. external and internal arguments), as well as the EPP feature on Asp$_{[\text{-PERF}]}$. I will walk through the derivation of a sentence in each alignment.

4.4.1 Nom-Acc Alignment

Here, I will walk through the derivation, focusing on the case and agreement facts, of the sentence in (48) below.

(48) *Mina   pustak   lakh-t-i   che.*
Mina(F) book(N) write-Prog-F Pres.3
'Mina is writing a book.'

So, the internal argument is merged as a complement of V, while the external argument is merged as the specifier of the voice head. Then, when the Asp$_{[\text{PROG}]}$ head is merged into the structure, two operations apply. First, since Asp is a probe for gender and number

features, it probes its c-command domain. As the external argument is the most promi-nent NP in that domain, the Asp probe's gender and number features are valued. This will be realized as agreement on the main verb, due either to head movement or the combina-tion of the Aspect marker and the verbal root. The second operation that applies is that the EPP features on the Asp$_{[-PERF]}$ head find the most prominent NP in the voiceP domain, which is the external argument, and raise that argument to the specifier of Asp. These two operations are shown in (49). In this and all following trees, I will represent the operation of feature valuation (Agree) with a dotted line, whereas movement will be represented by a solid line.

(49)
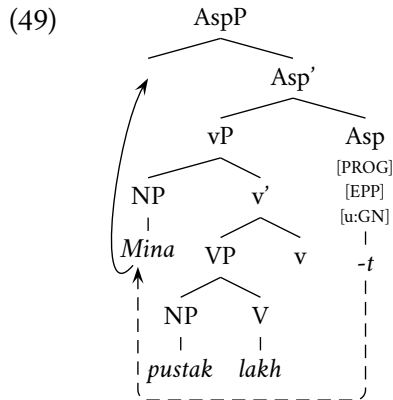
At this point, we know that when Spell-Out operates on the domain of voiceP, the un-raised internal argument will not receive ergative case, since in the post-syntactic deriva-tion it is the sole case-less NP still in the spell-out domain of voiceP. The dependent case al-gorithm of (45) will therefore determine it to be absolutive. The external argument, which has already raised out of the domain of voiceP, will also receive absolutive, when it under-goes the operation of Spell-Out as part of a higher spell-out domain.

Moving on in the derivation, the remaining functional structure will be merged in. The next relevant point for our purposes is when T is merged. T is a probe for person and number features, so after it is merged, it will probe its c-command domain to find an element that can value those features. At this point, the notion of Asp being a phase

becomes relevant. By virtue of Asp being a phase, its complement, voiceP, is inaccessible to the probe in T. However, the elements at the phase-edge, namely the Asp head and the specifier of Asp, can be accessed. This means that the external argument, after having raised to the specifier of Asp, is in a position to value the probe in T. This is exactly what happens, in the Nom-Acc alignment, the unmarked subject values the probe in T.

We have already seen that the probe in Asp is a set of unvalued number and gender features. The probe in T, by contrast, is a set of unvalued number and person features. So even if the lower probe (in Asp) is still active and accessible, by virtue of being at the phase-edge, it will not match the probe in T (assuming that maximal matching is required between probe and goal, an assumption that will be further supported when looking at a possible third probe in Gujarati, in §4.6).

This final step of agreement is shown in (50) below. For the purposes of this derivation, I assume head movement of V to Asp.

(50)
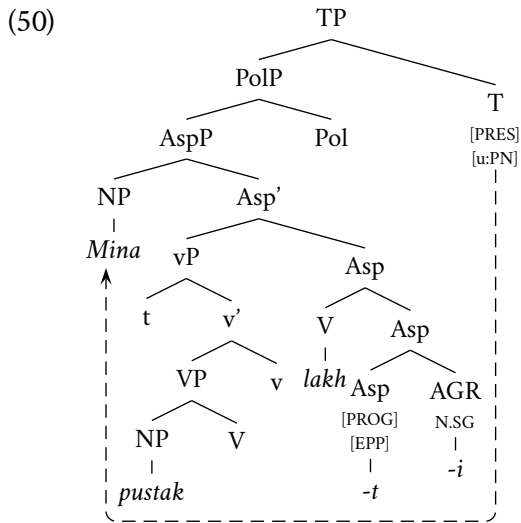
As mentioned above, it is difficult to independently tell what the final positions of the arguments are based on the actual linear order. Specifically, it is difficult to tell whether the subject undergoes further raising to spec,TP or not. In fact, both possibilities are compatible with and independent of our proposals about agreement and case. For this reason,

I do not include that movement in this derivation. When the T probe is valued, it will be realized with third person singular features, realized as *che*. At that point, we have correctly generated the case and agreement facts seen for a transitive sentence in the Nom-Acc alignment.

We can now turn to intransitive structures, asking, in particular, if there is a difference between those determined by unergative and unaccusative verbs. Given the system laid out above, we would expect that the EPP on Asp$_{[-PERF]}$ would raise the intransitive subject (no matter its First Merge position) to its specifier, and then the probe in T would always be valued by that argument. Default agreement is not predicted to be possible in this case, because the probe in T can always be valued by the DP in the specifier of Asp. And, in fact, this is what we see in (51) below.

(51)   a.   Unergative:

          Somvare,   hu dod-t-i   hoish.   /*hashe
          On Monday, I   run-Prog-F Fut.1.SG *Fut.3
          'On Monday, I will be running.'

    b.   Unaccusative:

          Somvare,   hu Santa Cruz ma pochi joish.   /*jashe
          On Monday, I   Santa Cruz in reach go.Fut.1.SG *go.Fut.3
          'By Monday, I will reach Santa Cruz'

In both cases, the auxiliary shows person number agreement with the subject, while default agreement is ungrammatical.[3] With the Nom-Acc alignment accounted for, we can move on to consider the Erg-Abs structures.

[3]The auxiliary seen in (51b) does have the meaning 'go' and can be used for that. However, when it is used as an auxiliary, as in (51b), it does not appear to have the same Agentive meaning. We can be certain of this by looking back to the example (43) in §4.3.2, where it is used with the unaccusative predicate "melt," which is presumably difficult to construe as agentive.

4.5 Derivational Timing in the Erg-Abs Alignment

Consider (52) below.

(52) *Me   tam-ne   jo-y-ã   che.*
I.ERG you(PL)-ACC see-Perf-N.PL Pres.3
'I have seen y'all.

Again, the internal argument (the second person plural pronoun of (52)) is merged as a complement of V, while the external argument is merged as the specifier of the voice head. Then, the Asp[PERF] head is merged into the structure. This time, there is no EPP feature, so no arguments will be raised. This stage of the derivation is shown in (53) below.

(53)
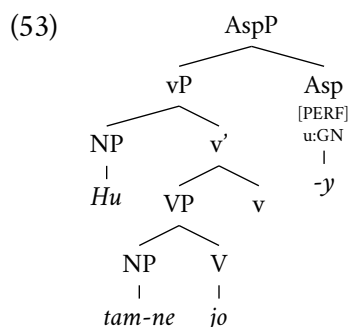
We now run into a problem with the valuation of the probe in Asp. At this point in the derivation, Asp probes for gender and number features. Since both arguments are, at this point in the derivation, accessible to the probe, Asp should be valued by the most prominent NP, the unmarked external argument. However, looking back at the facts of (52), we see that we need the Asp probe to agree with the object. The ergative case on the subject must be somehow present on the NP at this point, which would then ensure that the probe in Asp gets valued by the features of the internal argument instead, bypassing the ergative-marked (and therefore inaccessible to agreement) external argument.

We now seem to have an extreme derivational timing problem. It seems to be a fact that ergative case on the external argument is what renders it inactive for the agreement interaction whose probe is in Asp. But in the system we have so far built, the licensing

or assignment of ergative case is crucially a post-syntactic matter. At this point, we have run into a central issue of morphostyntax of Indo-Aryan languages, namely that ergtive case must be present in the syntax despite the fact that classic treatments of dependent case assignment take the relevant operations to be post-syntactic. While I will not have a definitive solution to this problem to offer here, I want to lay out three possible options for an analysis that could account for the range of facts we have so far seen.

4.5.1 Possible Solutions

There seem to be three options that we could pursue for an account that unifies the facts of ergative case assignment and agreement that we have seen.

The first option would be to depart from the formalization of dependent case presented in Marantz (2000). Rather than viewing the appearance of ergative case as an operation of Spell-Out, crucially applying post-syntactically, we could think of ergative case appearing as a result of being licensed in the syntax by some functional head. This process would have to be sensitive both to the position of the NP that would receive ergative case (as it would have to be the external argument) as well the number of NPs in a given domain (as it is only the external argument when there is more than one NP in the structure). This, of course, begs the question of what head is responsible for this licensing. At first glance, the obvious choice seems to be voice, as it is the head responsible for merging the external argument. However, by proposing that voice is the licensing head, we create a new puzzle - why different heads are responsible for determining the licensing and realization of ergative case.

The second option, somewhat related to the option sketched above, is to divorce the idea of case licensing from the actual process of case marking. Again, we would need to have a system of case licensing. The difference, however, would be that the case that is licensed can be realized ("marked") differently in the post-syntax depending on factors such

as the aspect of the structure. Crucial to an account of this type would be that this licensing mechanism would have to be enough to render the ergative NP invisible to agreement. The fact that both NPs end up unmarked in the Nom-Acc alignment would be a product of the (presumably post-syntactic) case marking operation, and would not render either NP invisible to agreement. The facts of agreement in the Nom-Acc alignment would follow from regular mechanisms of Agree based on proximity of the goal to the probe.

The third option would be to maintain the post-syntactic formalization of dependent ergative case assignment, and in addition, posit that agreement is also a post-syntactic operation. The appearance of ergative case, and lack thereof in Nom-Acc structures, would proceed as laid out in the previous sections. However, the difference would be cached out in the valuation of the probes on Asp and T.

Rather than view agreement as a syntactic operation relevant to only hierarchical relations, it would be sensitive to a fusion of c-command, case marking, and linear adjancency. Thinking through this logic for an Erg-Abs structure, we could propose that the phase AspP is spelled out, and therefore linearized, without the gender and number features on Asp being valued. At this point, ergative will have been assigned to the transitive subject. Asp could then be valued by the most linearly adjacent, unmarked NP, which would be the transitive object. There is, in fact, some evidence for viewing agreement, of this type at least, in Gujarati as post-syntactic when we consider what happens when coordinated NPs control verbal agreement. In the section that follows, I walk through the facts of agreement with these coordinated NPs.

4.5.2 Closest Conjunct Agreement

So far, we have only seen examples of Gujarati where one NP controls agreement on the verb and auxiliary. When arguments are coordinated, Gujarati has two strategies for determining the form that the agreement will take. The first is to agree with the coordi-

nated NPs as a single item. The form that agreement on the verb and auxiliary will take is the "resolved" form (Corbett, 1983). Suthar (2006) fully lays out what the resolved forms look like for gender, person, and number features; relevant to the examples we will see is that neuter plural is the resolved form for gender and number agreement. The other option for agreement with coordinated NPs is to agree with only the closest of the two conjuncts. This process is called Closest Conjunct Agreement (CCA) and has been observed in many other languages, including Hindi (Bhatt and Walkow, 2011). The examples in (54) below show an example of resolved agreement, in (54a), and CCA, in (54b).

(54) a. Resolved Agreement:

Me kakhro ane keri khad-ø-ã hatā.
I.ERG khakro(M) and mango(F) eat-Perf-N.PL Past.N.PL
'I had eaten khakro *(large, thin cracker)* and mango.'

 b. CCA:

Me khakro ane keri khad-ø-i hati.
I.ERG khakro(M) and mango(F) eat-Perf-F Past.F
'I had eaten khakro and mango.'

Unlike in Hindi, CCA in Gujarati is optional, and only allowed as an option in certain environments. It is those environments that lend evidence to the idea that agreement in Gujarati can be thought of as post-syntactic. In an effort to find those environments in which speakers accept CCA, I created and conducted a survey.

First, I will briefly walk through the design and results from said survey. The items consisted of sentences in both the Nom-Acc alignment (with coordinated subjects) as well as the Erg-Abs alignment (with coordinated objects). Each sentence was missing the verb, and if needed, the auxiliary. The task for the participants was to choose the form of the verb and auxiliary that best completed the sentence. The choices differed only in which features the agreement form took (e.g. neuter plural or feminine). In each item, the choice of the verb with neuter singular agreement would be resolved agreement, while the choice

of feminine would be CCA (the conjunct closest to the verb, the rightmost, was consistently an NP with feminine gender features). Also, the sentences and answers were in the Gujarati script, so there was no confound from romanization. The survey was distributed to members of my extended family and members of my Gujarati community, from areas in Northern California and India. The total number of participants was 88, all of whom were self-reported native speakers.

CCA was never an option for the sentences in the Nom-Acc alignment. In the Erg-Abs alignment, the item that had the highest number of CCA responses was the sentence in (54b) above. The fact that CCA was allowed only in the Erg-Abs alignment lends evidence to the idea that agreement in Gujarati can be thought of as post-syntactic. In the Erg-Abs alignment, the agreement controller (the transitive object) is linearly adjacent to the agreement target (the "main verb"). Furthermore, assuming that the structure of a coordinated NP is asymmetric, as argued for in Hindi by Bhatt and Walkow (2011), the NP that ends up as the rightmost conjunct is in a less prominent position than the NP that ends up as the leftmost conjunct. As such, the rightmost conjunct only becomes accessible by the probe in Asp in the post-syntax, when it is the most adjacent NP.

So, it seems that any account of CCA in Gujarati would have to operate post-syntactically. This lends independent evidence to the idea that agreement in Gujarati could generally be thought of as operating post-syntactically, which would bring together the facts of ergative case assignment and agreement (with coordinated and non-coordinated NPs). However, it is important to note that any account of these agreement facts could not be determined by only linear adjacency. The reason for this comes from the intransitive Nom-Acc sentences, which were included in the survey. In those instances, the agreement controller (the intransitive subject) is linearly adjacent to the agreement target (the "main verb"). However, CCA was never chosen for those sentences in the survey. As such, linear adjacency alone cannot account for the CCA facts in Gujarati.

Also, in the Nom-Acc alignment, even with no coordination, the transitive object would still be the closest element to the verb, but it is still the transitive subject that controls agreement. So the operation of agreement would have to be sensitive to a fusion of c-command relations and linear adjacency. A system of agreement that is sensitive to both hierarchical and linear relations is proposed for Hindi by (Bhatt and Walkow, 2011), but a more careful examination of the facts of CCA in Gujarati would need to be conducted in order to fully understand whether such a system can account for Gujarati.

4.5.3 Returning to Default Agreement

With these various options sketched out, I want to briefly return to the valuation of the probe in T in the Erg-Abs structure. For the purposes of illustration, I will assume that the Asp probe is valued by the internal object as a result of one of the accounts described above. This is shown in (55), with ergative overtly shown on the external argument to illustrate that it is invisible to all agreement probes.

(55)
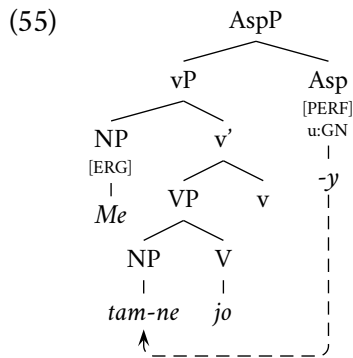
The next relevant point in this derivation is the point at which the T is merged. We want to ensure that the probe in T cannot be valued by either NP, thus resulting in default agreement appearing on the auxiliary. We see that this is indeed the expected outcome, by virtue of AspP being a phase. Both the external and internal arguments are contained within the complement of Asp, voiceP, and are therefore both inaccessible to the probe

in T. The only element at the phase-edge is the Asp head, whose probe is defined by the combination of gender and number features, which therefore cannot value the person and number probe in T. As a result, the probe in T cannot be valued by any element in the structure, and so appears with default agreement as a last resort in the operation of Spell-Out. This final step is shown in (56) below.

(56)

```
                            TP
                         ／    ＼
                      PolP        T
                    ／    ＼      [PRES]
                 AspP      Pol    [u:PN]
               ／    ＼            |
             vP       Asp         ↓
           ／  ＼    ／   ＼     3.SG
         NP    v'   V     Asp
        [ERG]  ／＼  |   ／   ＼
         |   VP  v  jo Asp    AGR
         Me ／＼     [PROG]  [N.PL]
          NP   V    [EPP]     |
          |         |        -ã
        tam-ne     -y
```
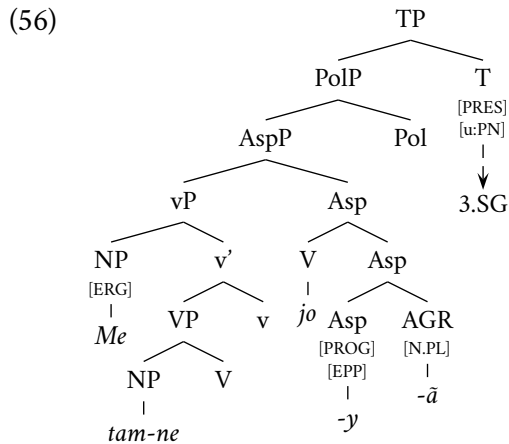
We can now turn again to intransitive structures, asking if the facts are different in the Erg-Abs alignment than in the Nom-Acc alignment. Earlier, for the Nom-Acc alignment, we saw that the probe in T can never surface in default form; it always agrees with the intransitive subject. However, the facts for Erg-Abs intransitive structures are less clear. Consider the examples in (57) below.

(57) a. Unergative:

Somvar sudhi ma, hu ek   sau   kilometers dod-ø-i   {hoish.   / hashe.}
By Monday,   I   one hundred kilometer run-Perf-F {Fut.1.SG / Fut.3}
By Monday, I will have run one hundred kilometers.

b. Unaccusative:

Monday sudhi ma, hu Santa Cruz ma pochi ga-y-i   {hoish.   / hashe.}
By Monday,   I   Santa Cruz in   reach go-Perf-F {Fut.1.SG / Fut.3}
'By Monday, I will have reached Santa Cruz.'

The important observation is that there is some variation in the form that the auxiliary

can take. It seems that the auxiliary is able to show overt agreement with the subject, or it can show default agreement. Furthermore, there is no difference between unergative and unnacusative subjects.

This is not predicted by an account which relies on the agreement process applying in the syntax, as laid out in the previous section, because AspP is a phase and both NPs remain within this phase. Therefore, default agreement should be the only option available for the probe in T. However, the judgments provided here are not robust, and careful work looking at whether one option is preferred would be helpful in teasing apart the predictions of the two accounts of agreement. Also, there was a confound with the data gathered from the survey on CCA. All the coordinated NPs were in third person, so it remains unclear whether the higher probe in T can participate in CCA or not. Further work looking at these two issues would shed some light on this remaining puzzle.

There is one remaining issue regarding agreement in Gujarati which we now turn to, regarding the cases in which negation shows agreement

4.6   When Negation Agrees

Earlier, in §3.2, we briefly saw a form of negation that shows verbal agreement, *noth-*, some examples of which are shown in (58) below.

(58)   a.   Erg-Abs Alignment:

   Ramesh-e   chopdi   lakh-ø-i   nothi.
   Ramesh(M)-ERG book(F.SG) write-Perf-F Neg.Past.F
   'Ramesh hadn't written a book.'

   b.   Nom-Acc Alignment:

   Ramesh   chopdi   lakh-t-o   notho.
   Ramesh(M) book(F.SG) write-Prog-M.SG Neg.Past.M.SG
   'Ramesh was not writing a book.'

The crucial observation here is that this negative auxiliary, which we said earlier, §3.2,

is the realization of both Pol and T, does not behave like the agreeing auxiliaries we have seen so far.

There are two important differences. Above, we saw that the probe in T, which is realized on the auxiliaries, always shows person and number agreement, and always agrees with unmarked subjects. This negative auxiliary, on the other hand, behaves like the probe in Asp. The negative auxiliary shows gender and number agreement, and "follows" the alignment of the sentence. Looking again at (58) above, the negative auxiliary shows agreement with the transitive object in the Erg-Abs alignment, (58a), and with the transitive subject in the Nom-Acc alignment, (58b).

It is reasonable, then, to group the probe that results in agreement on the negative auxiliary with the Asp probe. I propose that there is another gender and number probe in Gujarati, in Pol. This aligns with the observation made in Patel-Grosz and Grosz (in prep.), which is that cross-linguistically, probes in v show gender and number agreement, while probes in T show person and number agreement. For Gujarati, it seems that probes in T show person and number agreement, while any lower probes show gender and number (GN) agreement.

We can say that both the positive and negative versions of Pol are GN probes. This is because the positive version *noth-*, the past tense auxiliary *hat-*, also shows GN agreement, which follows the alignment of the sentence, shown in (59) below.

(59) a. *Ramesh-e   chopdi   lakh-ø-i   hati.*
          Ramesh(M)-ERG book(F.SG) write-Perf-F Past.F
          'Ramesh had written a book.'

      b. *Ramesh   chopdi   lakh-t-o   hato.*
          Ramesh(M) book(F.SG) write-Prog-M.SG Past.M.SG
          'Ramesh was writing a book.'

It is important to note that Pol, generally, is not a probe. It is only those Pol heads that are selected by the T$_{[PAST]}$ head, which, unlike the other Ts, is not a person and number

probe. This also gives us further evidence to believe that *hat-* is the realization of the span of Pol and T, as it must realize both functional elements, which will now include the AGR node on Pol.
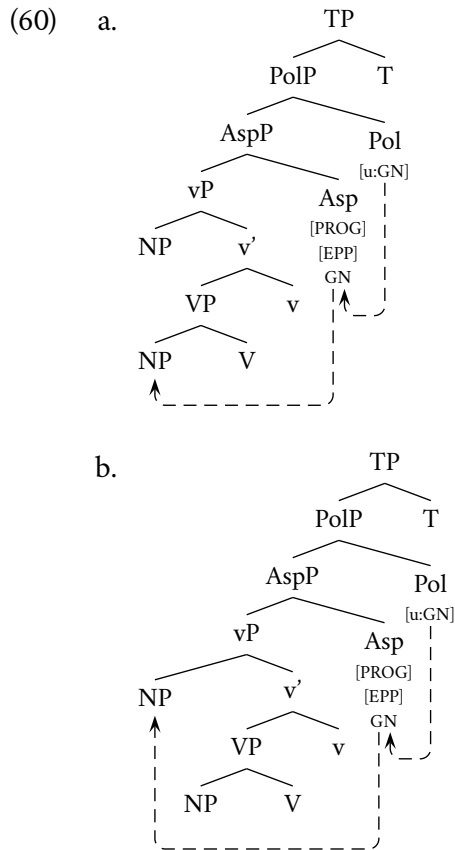
Now, the only remaining issue is how to value the probe in Pol, which will be discussed below.

4.6.1   When Probes Agree

Earlier, we saw that T and Asp could not enter into an agree relationship because they probe for different features. However, both Asp and Pol probe for the same features, namely gender and number. As such, it is reasonable to assume that they can enter into an agreement relation with each other, thereby valuing the gender and number features on Pol.[4]

Under the assumption that agreement operates in the syntax, we saw that Asp is merged into the structure and then is valued by either the subject or the object depending on the alignment. Then, the Pol head would merge into the structure. At this point, Asp is a phase and so any arguments that are still in voiceP are inaccessible to Pol. However, the Asp head itself is still at the phase-edge, in either alignment. As such, we can say that Pol probes and finds the gender and number features on the Asp head. Because the subset of features are the same, Asp is able to value the gender and number features on Pol and we ensure that the two will always show agreement with the same argument. This is schematized in (60) below.

---

[4]It is important to note here that the facts of Gujarati case and agreement do not seem to support the Activity Condition (Chomsky, 2000, 2001). In fact, it seems to be evidence that the mechanism of case assignment should be divorced from the mechanism of agreement, and that one goal can value multiple probes (namely the probe in Asp and the probe in T). Furthermore, when a probe is valued, it must still be "active" in some way, namely to be available as a goal for the higher probe in Pol.

(60)   a.

```
                    TP
                 ┌──┴──┐
              PolP      T
            ┌───┴───┐
         AspP        Pol
       ┌───┴──┐     [u:GN]
     vP       Asp      ┊
   ┌──┴──┐  [PROG]     ┊
  NP     v' [EPP]      ┊
       ┌──┴──┐  GN     ┊
      VP      v  ┊↑┄┄┘
    ┌──┴──┐      ┊
   NP     V      ┊
   ↑┄┄┄┄┄┄┄┄┄┄┄┘
```

b.

```
                    TP
                 ┌──┴──┐
              PolP      T
            ┌───┴───┐
         AspP        Pol
       ┌───┴──┐     [u:GN]
     vP       Asp      ┊
   ┌──┴──┐  [PROG]     ┊
  NP     v' [EPP]      ┊
   ↑   ┌──┴──┐  GN     ┊
   ┊  VP      v  ┊↑┄┄┘
   ┊┌──┴──┐       ┊
   ┊NP     V      ┊
   ┊┄┄┄┄┄┄┄┄┄┄┄┄┘
```

It is important to note that we could incorporate the agreement relation between Asp and Pol into a post-syntactic account. To start to understand this, I borrow from the account of post-syntactic CCA laid out in Bhatt and Walkow (2011) for Hindi. In their account, the probe and goal enter into a relationship in the syntax which is based on matching features, however, there is no valuation. In the linearized structure, the two elements that were matched can now undergo the process of valuation. When a probe is confronted with a coordinated element, it is the features of the element that is the most linearly proximate that values said probe. This would presumably be the process responsible for valuing Asp, but it would also be the process responsible for valuing Pol. As both Asp and Pol have unvalued gender and number features, they could enter into a "match" relationship in the syntax. Then, in the linear order, Asp and Pol would be linearly adjacent, which would result in Asp valuing the features on Pol. Whether the agreement process is in the syntax,

or post-syntactic, we see that Pol and Asp must enter into an agreement relation in order to derive the facts we see for Gujarati.

Chapter 5

Conclusion

With this thesis, I hope to have established an understanding of two main aspects of Gujarati syntax. This involved looking at three main pieces. First was the outline of the extended projection in Gujarati, and the realizations of those functional elements. Second was the morphosyntax of polarity, both positive and negative, which is taken to involve portmanteaux forms that express tense and polarity in a single morpheme. And finally was establishing a thorough picture of the intricate facts of case and agreement. Here, I want to briefly summarize my findings, and then discuss future directions that this project can continue in.

5.1   Summary of Results

First, in Chapter 2, I established an understanding of the clausal and nominal syntax of Gujarati. In the clausal domain, with the exception of CP, all phrases are right-headed. This follows from the word order of the arguments (SOV) and helps us understand the morphological makeup of the verbal elements in the clause, specifically the auxiliaries that encode tense or modality. In contrast, the phrases that make up the structure of nominals all seem to be left-headed. This follows form the fact that elements such as demonstratives

60

and numerals always precede the noun itself. While the selectional relationships between the functional elements in the nominal domain are still not clear, the facts regarding the order of elements paint a clear picture of left-headedness.

Directly related to the realization of functional clausal elements are the facts of negation discussed in Chapter 3. The co-occurrence of the form *nahi* with most tense and modal auxiliaries lends evidence that our understanding of the realization of 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 the "negative auxiliaries." 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.

Moving on to the interaction of case and agreement in Chapter 4, I hope to have explored a broad array of agreement facts in Gujarati, bringing them together in a clear way. First, I lay out the core facts of agreement, which become the foundation for the complex interactions that I focus on. Building on those preliminary facts, there are three main observations to unify. The first is that the appearance of ergative case in Gujarati should be thought of as a result of a Dependent Case Theory mechanism. Building on that, is the derivational timing with regard to agreement. The facts of Gujarati clearly show that the domain of case assignment/marking and agreement must be examined in a careful manner. Agreement in Gujarati seems to lend evidence toward an agreement operation that is sensitive to linear adjacency, which the facts of Closest Conjunct Agreement make even clearer. And related to both of these issues, is the multiple appearances of agreement in Gujarati clauses, which is clearly due to multiple probes that are unvalued for different subsets of features. Gujarati clearly has distinct probes with distinct, but interacting,

domains of agreement. The higher probe in T will show default agreement in the Ergative-Absolutive alignment, due to the phase boundary that AspP creates. On the other hand, the lower probe in Asp is always able to be valued by some argument in the structure, due to its proximity, and therefore no interaction from the phase boundary. Furthermore, it must be possible that a valued probe and unvalued probe can enter into an agreement relation, as we always see the probe in Pol consistently showing the same agreement as the probe in Asp. The fact that the probes in Pol and Asp share the same subset of features, gender and number, while the probe in T has a different subset, person and number, tells us that the featural makeup of various probes is crucial to the interaction those probes will have with elements in the structure.

5.2   Future Directions

With this work as a starting point, much remains to be done regarding Gujarati syntax and agreement. Here, I want to touch on the future directions for this project.

The first is related to the murkiness of the nominal domain. There are clearly interpretative effects for the various nominal structures discussed in Chapter 2. A careful investigation of the interaction of these effects would shed light on the remaining mysteries involving the structural makeup of nominal phrases in Gujarati, as well as understanding the interesting relationship between what seems to be "accusative case," animacy, and specificity.

Next is related to the intricate facts of Closest Conjunct Agreement (CCA), which lead to many interesting typological and theoretical questions. First, the acceptance of CCA is marginal to begin with, which was represented in the survey I conducted. Even for the items that CCA was allowed for some speakers, overall the choice of CCA was in the minority. This might be due to prescriptive pressure to use the resolved form. However, it is clear that some speakers allow CCA as an option. This sets Gujarati apart from Hindi,

where resolved agreement doesn't seem to be allowed (Bhatt and Walkow, 2011). This seeming optionality must be studied further, of course. The interaction between the multiple probes, the form of the coordinated NPs, and the presence or absence of intervening material would all probe to be useful moves forward to better understand the facts of CCA in Gujarati.

Finally, 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 better understanding of the extended projection of Gujarati. Relevant to this is the question of the structure of the "simple" forms briefly discussed, in which there is only affixal tense marking on the "main verb," with no separate auxiliary. The structure of those constructions could shed more light on the distinction between the "higher" and "lower" probes that Gujarati apparently has.

I hope to have created an initial foundation that future work might build on. By specifically focusing on the standard dialect, I hope further work that looks at the variation within Gujarati, and work on related dialects, can use this thesis as a starting point.

Bibliography

Baker, Mark C., and Johnathan David Bobaljik. 2017. On Inherent and Dependent Theories of Ergative Case. In *The Oxford Handbook of Ergativity*, ed. Jessica Coon, Diane Massam, and Lisa Travis.

Bhatt, Rajesh, and Martin Walkow. 2011. Asymmetries in conjunct agreement. *Proceedings of the 34th Annual Penn Linguistics Colloquium* 17:9–20.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: the framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–156. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, Mass.: MIT Press.

Coon, Jessica. 2010. Rethinking Split Ergativity In Chol. *International Journal of American Linguistics* 76:207–253.

Corbett, Greville. 1983. Resolution rules: agreement in person, number, and gender. In *Order, concord and constituency (Linguistic Models)*, ed. Gerald Gazdar, Ewan Klein, and Geoffrey Pullum, volume 4, chapter 8, 175–206. Dordrecht: Foris.

Deo, Ashwini, and Devyani Sharma. 2002. Typological variation in the ergative morphology of indo-aryan languages. Master's thesis, Stanford.

Doctor, Raimond. 2004. *A Grammar of Gujarati*. Munchen, Germany: LINCOM GmbH.

Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.

Frampton, John, and Sam Gutman. 2000. Agreement is Feature Sharing. Master's thesis, Northeastern University.

Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The View from Building 20*, ed. Ken Hale and Samuel Jay Keyser, 111–176. Cambridge, Mass.: MIT Press.

Harley, Heidi, and Rolf Noyer. 1999. Distributed morphology. *Glot International* 4:3–9.

Hockett, Charles. 1947. Problems of morphemic analysis. *Language* 23:321–343.

Klima, Edward. 1964. Negation in English. In *The structure of language: Readings in the philosophy of language*, ed. Jerry A. Fodor and Jerrold J. Katz, 246–323. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase structure and the lexicon*, ed. Johan Rooryck and Laurie Zaring, 109–137. Dordrecht: Kluwer.

Marantz, Alec. 2000. Case and Licensing. *Arguments and case: Explaining Burzio's generalization* 11–30.

McCloskey, Jim. 2004. Irish nominal syntax 1:Demonstratives. URL `http://ohlone.ucsc.edu/ jim/PDF/demon.pdf`.

Mohanan, Tara. 1994. *Argument Structure in Hindi*. Stanford, California: CSLI Publications.

Noyer, Rolf. 1997. *Features, Positions and Affixes in Autonomous Morphological Structure*. New York, NY: Garland Publishing.

Patel-Grosz, Pritty, and Patrick Grosz. in prep. Deriving Ergative Object Agreement in Western Indo-Aryan: A Case Study .

Simons, Gary, and Charles D. Fennig. 2017. Ethnologue: Languages of the World, Twentieth edition. http://www.ethnologue.com.

Suthar, Babubhai. 2006. Agreement in Gujarati. Doctoral Dissertation, University of Pennsylvania.

Svenonius, Peter. 2012. Spanning. Master's thesis, University of Tromsø, CASTL.

Verbeke, Saartje. 2010. Postpositions and agreement in Rajasthani languages: a comparative analysis of alignment features in Marwari and Harauti. *INDOGERMANISCHE FORSCHUNGEN* 115:35–64.

Wiltschko, Martina. 2009. What's in D and how did it get there? In *Determiners: universals and variation*, ed. Jila Ghomeshi, Ileana Paul, and Martina Wiltschko, 25–66. John Benjamins.

Zanuttini, Raffaella. 2001. Sentential negation. In *The Handbook of Contemporary Syntactic Theory*, ed. Mark Baltin and Chris Collins, 511–535. Blackwell Publishers.

Zeijlstra, Hedde. 2012. There is only one way to agree. *The Linguistic Review* 29:491–539.