

Who Saw Who? Exploring Direct-Inverse Marking in Blackfoot

An Agree-Based Approach

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Abstract

This senior essay concerns the phenomenon of direct-inverse marking within the Algonquian language family as a whole, with a primary focus on the Blackfoot language. Direct-inverse marking in Algonquian is a well-documented phenomenon (Bliss 2013; Bruening 2005; Oxford 2019) in which the order of transitivity of the agents in a construction is indicated by a morpheme, such that the constructions such as *I am looking at him* and *He is looking at me* differ by only one morpheme. While some forms of this infix clearly agree with objects, and have specific morphological exponents for first-person, second-person, and third-person objects (Oxford (2017)), we see that in cases for which the subject object order follows configurations such as third-person subject on first-person object (to name an example), a particular morpheme is exponed that cannot be clearly explained using person features (Oxford (2019)).

Several accounts have been developed to deal with direct-inverse marking within the Algonquian language family (Bliss 2013; Oxford 2019). Other tools have also been posited to be able to predict the correct forms of the markers. Feature gluttony as proposed by Coon and Keine (2021) provides a framework through which probes can copy multiple features. In addition, the Interaction-Satisfaction model of Agree as proposed by Deal (2022b) reinterprets Agree as being a process through which a probe interacts and is satisfied by goals. This senior essay examines the claims of these proposals as it attempts to develop a comprehensive account for the data in Blackfoot.

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List of abbreviations

1	first person
2	second person
3	third person proximate
3'	third person obviative
s	singular
p	plural
PERS	person
PROX	proximate
PART	participant
TA	transitive animate
SPKR	speaker
ADDR	addressee
DIR	direct
INV	inverse
AUX	auxiliary
ERG	ergative
DAT	dative
ABS	absolutive
ASP	aspect

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Chapter 1

Introduction

The direct-inverse marking system of the Algonquian language family has presented an intriguing path of inquiry for the further development of certain mechanisms for Agree. The system in question, found across the language family, presents cross-linguistically variant paradigms of markers which distinguish the order of transitivity of agents within the utterance, demonstrating thematic roles. Consider the Blackfoot examples in 1¹:

(1) a. *kitáíssammawa*

kit- áíssamm **-a** -wa

2- look.TA **-DIR** -3s

‘you are looking at him/her’

b. *kitáíssammoka*

kit- áíssamm.TA **-ok** -a

2- look **-INV** -3s

‘s/he is looking at you’

¹Data not otherwise sourced comes from Natalie Weber (pc)

The emphasized examples in 1 demonstrate two exponents of the direct-inverse marker (also known as the theme sign) within Blackfoot. We see that in 1a, the marker *-a* is used in the case in which a second-person subject acts upon a third-person object. In the second case, *-ok* is used to denote the reverse. Other exponents will be described in later sections. It is this paradigm, repeated again and again across the language family, that this senior essay hopes to explore. If such a distribution of markers is based in Agree (Oxford 2017, 2019), and if Agree’s syntactic utility is to remove uninterpretable material from the syntax via matching with interpretable goals, then our question lies in outlining this process for such a system. What is the shape of the probe? The goal? How does the probe match with a goal such that a paradigm such as that in 1 is produced? We have some paths forward in Oxford’s Multiple Agree account Oxford (2019), as well as in Feature Gluttony first described in Coon and Keine (2021). These are where we will begin our analysis.

1.1 Blackfoot as the Object of Study

This senior essay focuses its analysis primarily on Blackfoot, supplemented by examples from various sources of other Algonquian languages. The reasons for focusing primarily on Blackfoot are threefold, given in 2:

- (2) a. To contribute to the syntactic literature of Blackfoot
- b. Certain deviations identified that pose problems for previous analyses of Algonquian direct-inverse marking
- c. The existence of Blackfoot Words as a significant source of Blackfoot lexical forms

With regards to 2a, Blackfoot is a relatively well-documented language Frantz (2017), but for which there are not many comprehensive syntactic accounts Bliss (2005, 2013). As a result, the analyses presented here aim to contribute to the syntactic knowledge of Blackfoot, and provide a resource for further scholarship. Off of this point, 2b alludes to the presence

of differences in the direct-inverse patterning of Blackfoot when compared with previous languages used as the loci of Algonquian direct-inverse marking analyses. While these will be discussed in more detail in §3, Blackfoot demonstrates a person hierarchy that is variant from the person hierarchy derived for Algonquin in Oxford (2019). Additionally, evidence indicates that Infl may pattern differently for Blackfoot when compared to other languages (in which, as in Oxford (2019) it is often analyzed as indexing the logical subject of the utterance).

Perhaps most interestingly is Blackfoot's expanded distribution of the inverse marker. For many languages, the only place in which the inverse marker is found is configurations in which a third-person subject acts on a first or second-person object. Going forward, these cases will be referred to as "mixed" configurations. Local configurations refer to those in which both subject and object are in the conversation (i.e. speaker and addressee), and non-local configurations refer to those in which both participants are third person. In Blackfoot, the inverse marker is used in many more cases, including the local configuration of second-person subject on first-person object. Whether this is the result of syncretism is to be discussed in later sections. The expanded paradigm is of note as it indicates significant diachronic change since the time of Proto-Algonquian. Because the Oxford (2019) analysis relies primarily on Algonquin, a language preserving much of the Proto-Algonquian paradigm, as the locus for Algonquian direct-inverse agreement, it is of interest to see how the Multiple Agree account withstands diachronic change. Because distributions are so different between the two languages, not only could this analysis provide important historical-linguistic perspective, we may also see that standing analyses do not predict the current forms of Blackfoot.

Finally, with regards to 2c, this paper takes many forms taken from Blackfoot Words, a database described in Weber et al. (2022). The database contains tens of thousands of Blackfoot lexical forms from sources spanning over 300 years. Access to this database provides a rich source of data upon which analyses of Agree can be applied. While this paper uses only a fraction of the forms provided by Blackfoot Words, the accessibility of

the database makes it possible to find forms pertinent for syntactic analyses. Along these same lines, Blackfoot has a number of illuminating resources, in particular the Frantz (2017) grammar, which has proven to be an invaluable resource for identifying paradigms.

1.2 Roadmap

The rest of this senior essay will proceed as follows: §2 will provide the existing theoretical approach to direct-inverse marking. The chapter begins with an introduction to some of the necessary tools (Agree and feature geometries), before exploring Oxford's proposal for direct-inverse marking in Algonquin. §3 will introduce Blackfoot, starting with the basics of the transitive animate constructions before highlighting some key differences between Algonquin and Blackfoot. We will then attempt to fit Oxford's account to the Blackfoot data, and discuss some motivations for finding a new approach. §4 will first introduce some tools for beginning a new analysis of Blackfoot (namely feature gluttony and the concept of Interaction and Satisfaction Agree), before proposing a syntactic analysis of the data, and stepping through some derivations and highlighting some issues observed. §5 concludes.

Chapter 2

The Necessary Background

Prior to the introduction of a Blackfoot analysis, it is necessary to outline the current state of the toolbox from which we draw from. This chapter will begin in §2.1 with an introduction to the Agree mechanism and the minimalist framework from which it is derived. §2.2 will define the concept of feature geometries, first described in Harley and Ritter (2002). This will close out the cross-linguistic tools used in the analyses described later. The next subsection will introduce the verbal template of Algonquin, a language preserving the direct-inverse paradigm of Proto-Algonquian. These subsections will provide the context for the foundational framework this senior essay takes the torch from: Oxford's Multiple Agree, outlined in Oxford (2019). The mechanism will be outlined for Algonquin, and the following subsection will describe some immediate issues with the analysis.

2.1 On Agree

The ultimate goal of this senior essay will be to describe a comprehensive account of the system of direct-inverse marking in Algonquian languages with a particular interest in Blackfoot, using an Agree-based approach. Given this, it is necessary to begin with a brief discussion on the background and current understanding of the Agree mechanism of natural language,

beginning with the seminal introduction to the mechanism in Chomsky (2000) and Chomsky (2001). Past this introduction, we will move to alternative conceptions agree, particularly that of Interaction-Satisfaction model proposed by Deal (2022b).

Following the notion that language is acquired through the processing of linguistic data from an initial state (S_0 , following Chomsky (2004)), we take the human “Faculty of Language” (FL) to be the component of the mind that produces human language (Chomsky 2000). By providing data to FL, a human acquires a language L , with its own set of features and parameters. Assuming a baseline S_0 , the question then becomes how FL functions such that, given the correct data, a human can acquire one of many languages $\{L\}$. How is FL specified such that it is able to allow for the specifications of Indonesian in one person, and English in another? In 3, we reproduce the Uniformity Principle from Chomsky (2004)

- (3) In the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances.

Given 3, we must assume that FL must be flexible enough to satisfy the properties of all languages $\{L\}$, while also being computationally efficient. Following Chomsky (2004), we also know that FL must satisfy interface conditions, such that any the information of any expression produced by L is accessible to the sensorimotor and and conceptual-intentional system.

The challenge then becomes specifying the architecture of FL such that it is capable of producing $\{L\}$. Leaving aside questions of the phonological interfaces, we will focus on the operations of pure syntax. Chomsky (2001) identifies the Merge as the indispensable operation of FL that creates complex linguistic structures. Merge is specified as the recursive operation that produces a syntactic object γ from the combination of the objects $\{\alpha, \beta\}$.

Merge allows for the infinite recursivity of language, and thus allows for the production of higher-order thought (Deal 2022a). However, Merge has strict locality conditions that preclude it from capturing all the specifications of language. Merge creates syntactic objects

via the combination of phrases, but cannot operate within those phrases. Enter Agree. Agree, in the conception developed by Chomsky (2001), is an operation arising out of the need to delete LF-uninterpretable Inflectional features from the syntax. LF must be able to provide a symbol for every item in the derivation, and as such, the uninterpretable features in a derivation, if left alone, will cause the derivation to crash. Agree arises as a solution for this problem Chomsky (2001).

The basic Agree mechanism is laid out in 4, from Chomsky (2000):

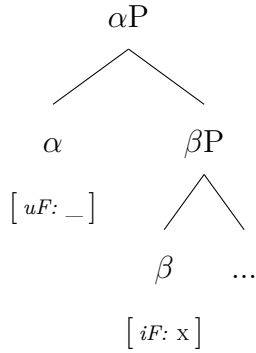
- (4) a. An active syntactic item α enters the derivation with LF-uninterpretable features (uF). This object is known as the *probe*
- b. An additional active syntactic item β enters the derivation with a ϕ -complete set of LF-interpretable features. This object is known as the *goal*.
- c. The uninterpretable features of the probe are valued by the goal.
- d. The uninterpretable features of the probe are deleted from the narrow syntax.

As such, we see that Agree creates a relation through which uninterpretable features are deleted from the narrow syntax. We see in 4 that there are some necessary properties of probes and goals, provided in 5 and taken from Deal (2022a):

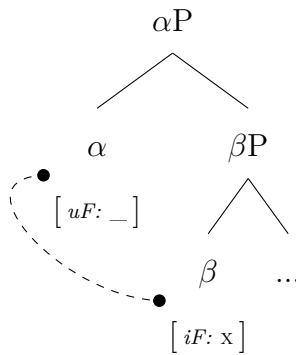
- (5) a. Both probe and goal must be active
- b. The goal must be c-commanded by the probe
- c. The features of the probe and goal must match
- d. A probe enters Agree with the closest goal possible

(4)–(5) is schematized in 6

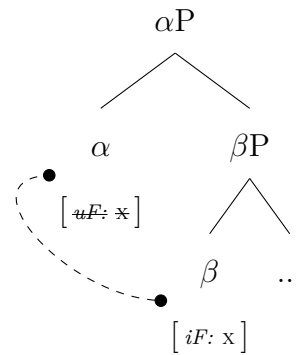
(6)



(7)



(8)



We see, then, that the Agree operation, by establishing long-distance dependencies in the manner outlined in 4, results in the realization of features (such as tense, gender, number, etc.) that provide information to the hearer at the point of utterance. If, as has been stated previously, that Merge serves to allow for the construction of higher-order thought through infinite recursivity, then the redundancy of Agree relations serves an alternative purpose: to facilitate communication and relation in the presence of the “noise” of natural language (Deal 2022a). This allows for efficient information transfer.

2.2 On Hierarchy Effects and Feature Geometries

What follows in this paper will be various analyses of direct-inverse marking using an Agree-based approach. For any of these to be salient, it is necessary for there to be certain entailment relationships of features within natural language. As such, we can look to Harley and Ritter (2002) for the concept of feature geometries. This section provides a motivating example for the necessity of feature geometries as a resolution for hierarchy effects, and defines the representation.

Hierarchy effects refer to phenomena in language in which constructions are grammatical or ungrammatical based on the ranking (ordering) of DPs within the construction, seemingly based on an implicit hierarchy of features. We can see one manifestation of hierarchy effects in the Person Case Constraint (PCC). The example we will draw from here uses the Strong

Person Case Constraint exemplified in Basque. Under the Strong Person Case Constraint, a DP referring to a participant in the discourse (i.e. either the speaker or listener) cannot be outranked by another DP. This is exemplified in the examples in 9 from Coon and Keine (2021)¹:

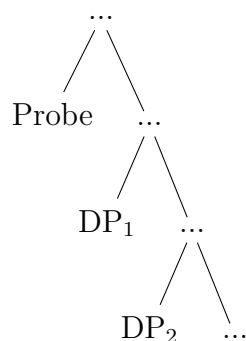
- (9) a. Zu-k harakina-ri liburua saldu d-i-o-zu
 You-ERG butcher-DAT book-ABS sold 3-ABS-AUX-3DAT-2ERG
 ‘You have sold the book to the butcher’
- b. Zu-k ni-ri liburua saldu d-i-da-zu
 You-ERG me-DAT book-ABS sold 3ABS-AUX-1DAT-2ERG
 ‘You have sold the book to me’
- c. *Zu-k harakina-ri ni saldu n-(a)i-o-zu
 You-ERG butcher-DAT me-ABS sold 1-ABS-AUX-3DAT-2ERG
 Intended: ‘You have sold me to the butcher’
- d. *Haiek ni-ri zu saldu z-ai-da-te
 They-ERG me-DAT you-ABS sold 2ABS-AUX-1DAT-3ERG
 Intended: ‘They have sold you to me’

(Coon and Keine 2021:2)

A generalized tree schema for the c-command relationship between the indirect object (DP₁) and the direct object (DP₂) is illustrated in 10:

¹Examples 3(a,d) are from personal communication with Jon Adler Mendia, and 3(b,c) can be found in (Laka 1993:27)

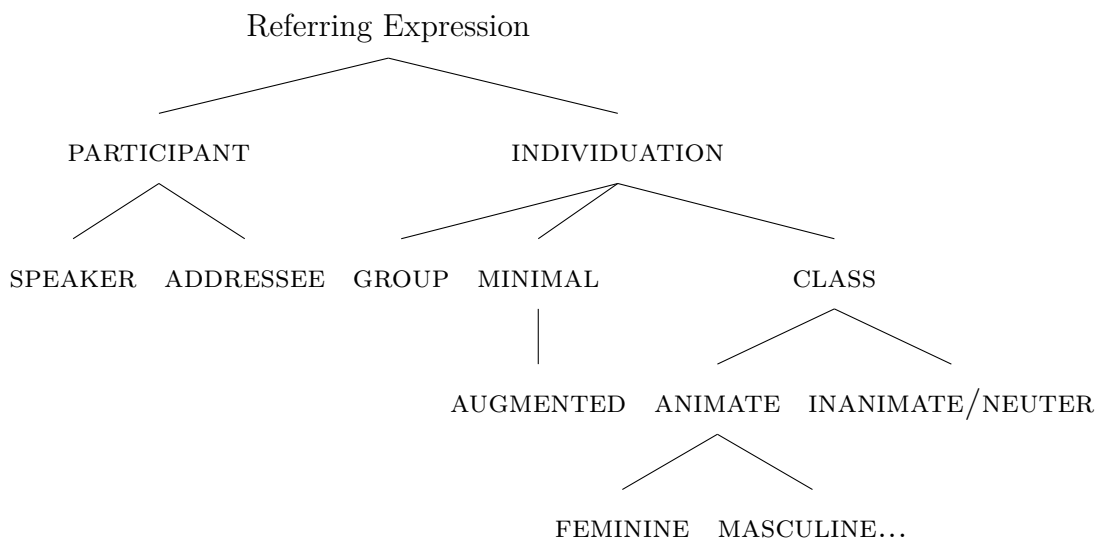
(10)



Based on the schema in 10 and the examples in 9, we can now posit that there are certain restrictions as to which types of DPs can occupy which positions. We see from 9a-9b that 3>3 and 1>3 configurations of $DP_1 > DP_2$ are permissible, but 3>1 and 1>2 are not. Ultimately, there is a hierarchy for what sorts of DPs can be c-commanded by others. In general, it seems as though participants can never be c-commanded by non-participants. Already, this move is a step: is being [+PART] implicit in some sort of hierarchy? How can we generalize this phenomenon to account for this data?

An answer comes to us in Harley and Ritter (2002), which draws from other entailment data across a broad range of languages to create the feature geometry illustrated in 11

(11)



If we accept the features of DP to be organized in such a structure, with node B entailing its mother node A (which immediately dominates B), we can develop an idea of what it means to be “specified.” The further down on a node, the more features above which are entailed. Thus, a second-person DP has the features [ADDR, PART, PERS] (assuming that a bare referring expression refers to third person). Following this, we can see how the analysis in Coon and Keine (2021) falls into place: participants are more specified than non-participants. As such, the Strong PCC restricts configurations in which a DP which is more specified than another, is in a lower position on the tree (such as being a direct object, or DP₂ in 10) than the less-specified DP.

Building on this, we can expand the notions of first, second, and third-person into bundles of features, with third-person defined by [PERS], second-person defined by [PERS[PART[ADDR]]], and first-person by [PERSON[PART[SPKR]]]. These will be significant for the following accounts of Agree-based direct-inverse marking.

It should be mentioned that there is a body of work detailing shortcomings of the approach taken by Harley and Ritter (2002), such as Cysouw (2011) and McGinnis (2005). However, for the purposes of this senior essay we will continue to use the geometry proposed by Harley and Ritter (2002), and leave questions of revision for later work.

2.3 A Brief Account of the Algonquian Verbal Template

This subsection will introduce the account of direct-inverse agreement proposed by Oxford (2019) by a brief elaboration of the verbal template of Algonquian, and discuss Blackfoot deviations in later sections. The Southwestern Ojibwe example in 12 for *we see them* provides a gloss for the three loci of agreement:

(12) Verbal Inflection for *we see them*

(Infl)	Root	v	Voice	(Neg)	Infl	C
ni-	wāp	-am	-ā		-nān	-ik
1-	see.TA	TRANS	DIR		-1p	-3p

(Oxford 2017:415)

We can first begin by recognizing that the Inflection template for transitive verbs in Algonquian involves placing many prefixes and suffixes on a stem, here this stem being *wāp*. Within the template, we see three main slots of agreement: what’s referred to as Voice, Infl, and C. We can note here that across the Algonquian language family, there is the possibility for more agreement slots, but we follow Oxford (2014) in an analysis of these extra slots as heads split by the fission, or the splitting of a single node into multiple terminal nodes with distinct features (Noyer 1997). Because this analysis does not have bearing on direct-inverse agreement, we leave it out here. We can also ignore C for the purposes of this analysis, as it only occurs in the presence of a third-person argument in general, and thus does not affect the distribution of the direct-inverse markers.

Infl and Voice will be necessary for Oxford’s analysis. Infl here seems to agree with the logical subject, although this is not the case for the table in 13, in which it agrees with the logical object.

(13) Southwestern Ojibwe verbal Inflection for *they see us*

(Infl)	Root	v	Voice	(Neg)	Infl	C
ni-	wāp	-am	-īko		-nā	-ik
1-	see.TA	TRANS	INV		-1p	-3p

(Oxford 2017:415)

Here, Infl agrees with the same first-person speaker as before, now the logical object, and the only difference in the template is a change in the exponent of Voice (now the inverse

marker). We see that there is much explaining to do with regards to Infl- if it is a probe, what is its goal? How can it change which argument in the sentence it agrees with? How we solve these problems will depend on the mechanisms we employ, and what their demands are of the grammar.

2.4 Oxford's Account

An account deriving the distribution of the inverse marker via impoverishment (a Distributed Morphology mechanism to delete features from a morpheme (Halle and Marantz 1993)) has been put forth by Oxford (2017), and then elaborated upon in Oxford (2019). This account relies upon a single generalization restated from Oxford (2017) below:

(14) Whenever Voice is spelled out as the inverse marker, Infl agreement targets the object.

Under this generalization, it is then assumed that in other cases, Voice generally agrees with the logical object. In Algonquin, a dialect of Ojibwe that Oxford uses for his analysis, these forms are *-i*, *-in*, *-a*: for first, second, and third person, respectively. The analysis takes the inverse marker to be an elsewhere exponent of Voice, in the case in which Infl agrees with both the subject and object. The Algonquin paradigm as given by Oxford is presented in 15 (this paper will primarily focus on the independent order). Note that the term 'local' refers to configurations in which a speech act participant (either first or second person) interacts with another SAP. Mixed configurations refer to the interaction of an SAP with a third-person participant. Non-local configurations refer to the interaction of two non-SAPs.

(15)

Configuration		Theme sign	
		Conjunct	Independent
Local	2→1	-i	-i
	1→2	-in	-in
Mixed	1/2→3	-a:	-a:
	3→1	-i	-igw
	3→2	-in	-igw
Non-local	3→3'	-a:	-a:
	3'→3	-igw	-igw

(Oxford 2019:961)

Oxford’s analysis takes Infl and Voice to be two probes with the specifications for the Independent order² in 16:

- (16) a. **Independent Infl:** [*uPers*, *uProx*, *uPart*]
b. **Independent Voice:** [*uPers*]

In any derivation under this analysis, Voice undergoes object agreement and, because Voice is minimally specified, takes the features of *any* goal in object position. Crucially, Oxford then posits that this object agreement creates a configuration in which the object (or object’s features) are moved to a position such that Infl is equidistant from both the subject and object³.

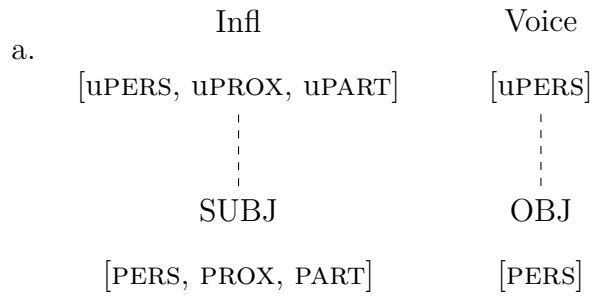
At this point, Infl has the opportunity to agree with *either* the subject or object. In non-local cases, one of these agents is [PERS[PROX[PART]]] and the other is [PERS] or [PERS[PROX]], such that Infl, specified as in 16a, is only capable of agreeing with one goal. In the direct case, this leaves Voice free to agree with the object with no complications. In the inverse case, Voice agrees with the object. Here, Infl and Voice end up with the same feature valuations. It is proposed that Infl and Voice having the exact same feature valuation is disallowed. To

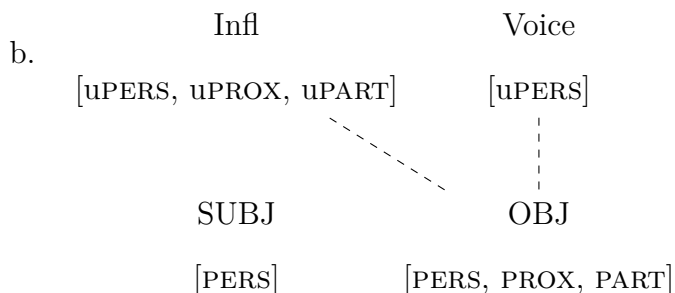
²Oxford’s analysis of direct-inverse marking also has consequences for the conjunct order present in many other Algonquian languages. However, this order is notably absent in Blackfoot. It has been alluded that a rarer order in Blackfoot, the subjunctive, has a similar construction. However, data for this construction has not been found, and we only allude to its existence in the current state of this paper.

³see (Oxford 2017, 2019) for further elaboration on the locality of Infl

remedy this, an impoverishment rule is triggered to delete the features on Voice, and, having no features, forces it to be spelled out as the inverse marker. An illustration of this is given in 17:

(17)

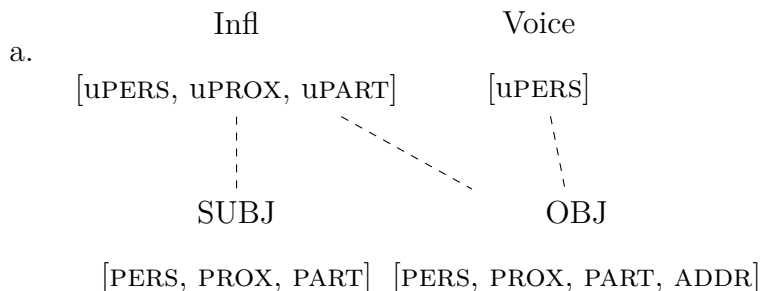




In 31a, each probe agrees with one goal, is valued by the features of that goal, and is spelled out accordingly. In 17b, both Infl and Voice take the feature bundle of the object, and because both have identical feature bundles, impoverishment is triggered on Voice, deleting the bundle.

In local configurations, the situation is slightly different, illustrated in 18, where we see that both the subject *and* the object are capable of agreeing with Infl:

(18)



In situations such as 18, regardless of the configuration of the two local DPs, we see that Infl, being equidistant from and equally well-matched by both DPs, will agree with both of them, causing its feature bundle to include two bundles corresponding to the features of Infl *and* Voice. In these cases, Voice will still only agree with the object, and have one feature bundle corresponding to that of the object. Thus, the features will not be exactly the same on Infl and Voice (Infl has *both* a first-person and second-person feature bundle), such that impoverishment will *not* be triggered. This correctly predicts the phenomenon attested in Algonquin.

2.5 Interim Summary

This chapter has provided us with the theoretical apparatus necessary to begin to analyze Blackfoot in the context of work on other Algonquian languages (namely Algonquin). Beginning with a basic summary of Agree, we've established Agree as a mechanism for interpreting features, and have come to understand features as geometries in which lower nodes entail higher nodes. Such a framework allows us to understand direct-inverse marking in Algonquian as arising depending on whether the subject is more or less 'specified' than the object. Using this, we were able to take a look at Oxford's account for Algonquin.

In the next section, we will take Oxford's analysis and attempt to derive a related account for the Blackfoot data. Taking our understanding of feature geometries and person agreement, we are now in a position to determine what must be true in order for an analysis such as Oxford (2019) to be salient.

Chapter 3

Analyzing Blackfoot

The previous section has given us ground to stand on to begin our analysis of Blackfoot. We will begin with an introduction to the Blackfoot grammar, highlighting specifically those instances in which Blackfoot differs from the languages used in Oxford (2019). The next section will highlight general concerns with Oxford's analysis. Then, we will attempt to fit Oxford's analysis to Blackfoot data before exploring other avenues in our final chapters.

3.1 Introducing Blackfoot

Blackfoot, in many ways, looks similar to Algonquin constructions. However, the Oxford verbal template including Infl and Voice has not yet been attested for Blackfoot. In particular, Bliss (2013) analyzes the locus of direct-inverse marking agreement to be a functional head known as Point-of-View (or POVP), and abstracted further to be an AspP. However, this proposal has significant similarities with Oxford's as both AspP and Voice are functional heads sitting between vP and IP Bliss (2013); Oxford (2019). Additionally, Oxford's conception of InflP as the site of the verbal prefixes is contested, particularly in Ritter and Wiltschko (2014). Bliss (2013) does suggest that these prefixes may indeed be in spec, IP (for our purposes, InflP). If we adopt this notion, the two models of the Algonquian verbal template

are comparable, and so as to contribute to the cross-linguistic analysis of Algonquian direct-inverse marking, we will attempt to analyze Blackfoot using the Oxford (2019) template.

Consider the examples in (19)–(20), marked in the translation for transitivity:

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(19) a. <i>kitáíssammawa</i></p> <p>kit- áíssamm.TA -a -wa</p> <p>2- look -DIR -3s</p> <p>‘you are looking at him/her’</p> <p>b. <i>kitáíssammoka</i></p> <p>kit- áíssamm.TA -ok -a</p> <p>2- look -INV -3s</p> <p>‘s/he is looking at you’</p> | <p>(20) a. <i>kitáíssammo</i></p> <p>kit- áíssamm.TA -o</p> <p>2- look -DIR</p> <p>‘I am looking at you’</p> <p>b. <i>kitáíssammoki</i></p> <p>kit- áíssamm.TA -ok -i</p> <p>2- look -INV -1²</p> <p>‘you are looking at me’</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(19)–(20) demonstrate the configurations mentioned above (i.e. the local and mixed direct and inverse). However, we see a few other locations where there are theme signs of interest. One of these configurations is the situation in which a third-person proximate subject acts upon a third-person obviative object. This configuration is demonstrated in 21. The reverse (3’>3) is illustrated in 22

- (21) *ikákomimmiiwa nohkówa kitáni*
- ikákomimm.TA -ii -wa n- -ohkó -wa k- -itán -i
- love -DIR -3s 1- son -3s 2- daughter -4s
- ‘My son loves your daughter’

(Frantz 2017:58)

(22) *Otsikákomimmoka nohkówa otáni*

Ots- ikákomimm.TA -ok -a n- -ohkó -wa o- -tán -i
 3s- love -INV -3s 1- son -3s 3- daughter -4s

‘Her daughter loves my son’

(Frantz 2017:62)

Here, we see two additional markers for the 3>4 and 4>3 combinations. From this information, we can begin to formulate a table for the paradigms as in 23:

(23)

Configuration		Marker
	1>2	-o
Local	2 > 1	-ok
	1/2>3	-a
Mixed	3>1/2	-ok
	3>3’	-ii
Nonlocal	3’>3	-ok

From this paradigm, we can see that Blackfoot deviates in some clear respects from other Algonquian languages. These deviations are given in 24:

- (24) a. 1 outranks 2
- b. The distribution of the inverse marker is much more comprehensive across inverse configurations
- c. Blackfoot does not display the same robust portmanteau configurations that other Algonquian languages do³

With regards to 24a, the direct-inverse marking analysis of Algonquin put forth in Oxford

³see footnote 2 of Chapter 2

(2019), assumes that the local direct hierarchy is 2>1. Here, however, we can see that there is one inverse marker used across the paradigm, and since this is the case, the fact that the 1>2 configuration is one out of the two local configurations that a marker that does *not* look like the inverse marker (-o), we are inclined to believe that this is indeed the direct form. Consider the table in 25, which demonstrates the direct-inverse paradigms for a number of Algonquian languages:

(25)

Verb form	Exponents of Voice ^o by language and inflectional paradigm					
	Proto-Algonquian conjunct	Lac Simon Algonquin conjunct	Plains Cree conjunct	Munsee Delaware conjunct	Proto-Algonquian independent	Blackfoot
1/2→3	*-ā 3OBJ	*-ā 3OBJ	*-ā 3OBJ	*-ā 3OBJ	*-ā 3OBJ	*-ā 3OBJ
1→2	*-eθ 2OBJ	*-eθ 2OBJ	*-eθ 2OBJ	*-eθ 2OBJ	*-eθ 2OBJ	*-eθ 2OBJ
2→1	*-i 1OBJ	*-i 1OBJ	*-i 1OBJ	*-i 1OBJ	*-i 1OBJ	*-ekw INV
3→1s	*-i 1OBJ	*-i 1OBJ	*-i 1OBJ	*-i 1OBJ	*-ekw INV	*-ekw INV
3→2s	*-eθ 2OBJ	*-eθ 2OBJ	*-eθ 2OBJ	*-ekw INV	*-ekw INV	*-ekw INV
3→1p	*-i 1OBJ	*-i 1OBJ	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV
3→2p	*-eθ 2OBJ	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV
3'→3	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV	*-ekw INV

(Oxford 2017:416)

24b potentially poses the most issues for the analysis proposed in Oxford, in which the asymmetrical split analysis for the direct-inverse markers is used. In the previous analysis, Oxford (2019) proposes 4 markers, of which 3 correspond to first, second, and third person objects, and an elsewhere form for Voice. As we see in 23 however, the inverse marker appears in all 3 types of configurations, such that it would be impossible for (assuming the marker is the exponent of Voice) to agree with the logical object in every case. Rather, -ok seems to be a *true* inverse, appearing in any case in which the object “outranks” the subject. This, along with the configuration of 1>2 as direct, will lead to questions about the features that specify first and second person for Blackfoot in later sections. As a brief note to 24c, Oxford’s analysis for Algonquin was made robust to another construction found in many Algonquian

languages. Within the conjunct order of these languages, inverse marking is replaced with a phenomenon known as *portmanteau morphology*. Consider briefly the Algonquin examples in 26:

- (26) a. wa:bam -*in* -**ag**
 see.TA -*3OBJ* -**1sg>3**
 ‘I see her’
- b. wa:bam -*i* -**yaminj**
 see.TA -*1OBJ* -**3sg>1pl**
 ‘She sees us (excl.)’

(Oxford 2019:966)

In 26, we see that, in both the direct *and* inverse constructions, Voice seems to be agreeing with the object, and rather than have one of the markers outlined for the Independent order, we have an exponent of Infl that is a new morpheme, one that encodes both the subject and object. Oxford’s Agree analysis needed to reckon with this fact, and by allowing Infl to agree with multiple goals, the analysis was able to predict these effects. However, such an order is not attested in Blackfoot, leaving a lack of attestation in the language for Agree being able to have multiple goals.

3.1.1 Number Agreement in Blackfoot

There is another pattern within Blackfoot that is not attested in Oxford’s data. In (21)–(22), we see the suffixes *-wa* and *-a*⁴. These indicate that there is some form of number agreement within Blackfoot. Consider the following examples using plural third person:

⁴Going forward these will be considered to be the same morpheme with phonological deletion, following Frantz (2017)

(27) a. *kitsikákomimmawa nitána*
 kits- ikákomimm -a -wa nit- án -a
 2- love.TA -DIR -3s 1- daughter -3s
 ‘You love my daughter’

b. *kitsikákomimmayi nitániksi*
 kits- ikákomimm -a -yi nit- ániksi
 2- love.TA -DIR -3p 1- daughter
 ‘You love my daughters’

c. *nitsikákomimmayini otáni*
 nits- ikákomimm -a -yini ot- án -i
 2- love.TA -DIR -4s 4- daughter -4p
 ‘I love his daughter’

(Frantz 2017:56)

27 shows that there are morphemes encoding number in mixed and non-local configurations. 28 shows that we also have some cases of number agreement in our first and second-person DPs.

(28) a. *nitsikákomimmokinnaani kitániksi*
 nits- ikákomimm -ok -innaani kit- án -iksi
 1- love.TA -INV -1p 2- daughter -3p
 ‘Your daughters love us’

b. *kitsikákomimmokoaayi kitániksi*

kits- ikákomimm -ok -okoa -yi kit- án -iksi
2- love.TA -INV -2p -2p -3p 2- daughter
'Your daughters love you(pl.)'

(Frantz 2017:61)

Here, we see that there are additional morphemes for first and second person plural DPs. The picture gets even fuzzier when we look at local configurations, as in 29

(29) a. *kitsikákomimmo*

kits- ikákomimm -o
2- love.TA -DIR
I love you(2s)

b. *kitsikákomimmohpoaawa*

kits- ikákomimm -o -hp -oaawa
2- love.TA -DIR -CT -2p
'I love you(2p)'

c. *kitsikákomimmohpinnaana*

kits- ikákomimm -o -hp -innaana
2- love.TA -DIR -CT -1p
'We love you(2s/2p)'

(Frantz 2017:65)

Crucially, between 29a and 29b, we see that the second-person plural suffix *-oaawa* appear when the second person is plural. However, as we see in 29c, if the first person DP is plural, the first-person plural suffix *-innaana* is used instead, and there is no way to identify

the number feature on the second person DP. Additionally, we see that in the local plural configurations, the morpheme *-hp* appears.

3.2 Some Issues with Oxford’s Analysis

Before we attempt to fit Oxford’s analysis to the Blackfoot data, we must note some preliminary concerns that lead us to question whether a different analysis of the Blackfoot data should be used.

First, the impoverishment rule on Voice seems to be arbitrary, and does not seem to have an empirical justification. If Voice agrees before Infl, it isn’t clear why Infl, having received its features later than Voice, should not undergo the impoverishment. Additionally, it is not clear whether or not this impoverishment rule violates locality constraints. Halle and Marantz (1993) attests that impoverishment rules can only be triggered on structurally adjacent morphemes (i.e. a morpheme can only trigger impoverishment if it governs the morpheme to be impoverished), due to the locality constraints on such mechanisms. This poses an issue for impoverishment on Voice, as we see the subject originating between Voice and Infl. Additionally, we can see even in Oxford’s verbal template, reproduced in 30, a Neg head occurring between Voice and Infl:

(30) Verbal Inflection for *we see them*

(Infl)	Root	v	Voice	(Neg)	Infl	C
ni-	wāp	-am	-ā		-nān	-ik
1-	see	TRANS	DIR		-1p	-3p

(Oxford 2017:415)

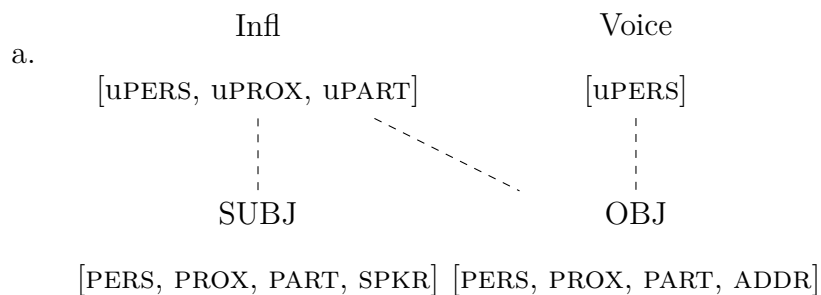
As it stands, then, there certainly seems to be a head blocking Infl and Voice, and as such structural adjacency between the two seems unlikely. Oxford (2019) does address issues with the conception of adjacency within the paper, and posits that “strict” ad-

jacency may be too strong of a constraint for the data. However, if this is the case then we are again left to wonder the legitimacy of the impoverishment rule on Voice.

3.3 Fitting Oxford’s Analysis

Assuming the same probes as Oxford’s we can begin with an illustration of the local configurations of Blackfoot, as in 31. Note that we included [SPKR] and [ADDR] features.

(31)



In 31, we have only included the 1>2 as the illustration will yield the same agreement of Infl on both the subject and object and Voice on the object, rather than both probes agreeing with one goal as in Oxford’s derivations of Algonquin. We see that assuming the Multiple Infl agree analysis Oxford (2019) puts forth, Infl should agree with both goals. Since the feature bundles for Infl and Voice overlap (as opposed to being exactly the same), we should assume that Infl carries both speaker bundles and Voice should be spelled out as the object, following Oxford’s proposal that impoverishment only occurs when feature bundles are exactly the same. Let’s reproduce an example representing the local configurations in 32:

(32) a. *kitáíssammo*
 kit- áíssamm -o
 2- look -DIR
 ‘I am looking at you’

b. *kitáíssammoki*
 kit- áíssamm -ok -i
 2- look -INV -1
 ‘you are looking at me’

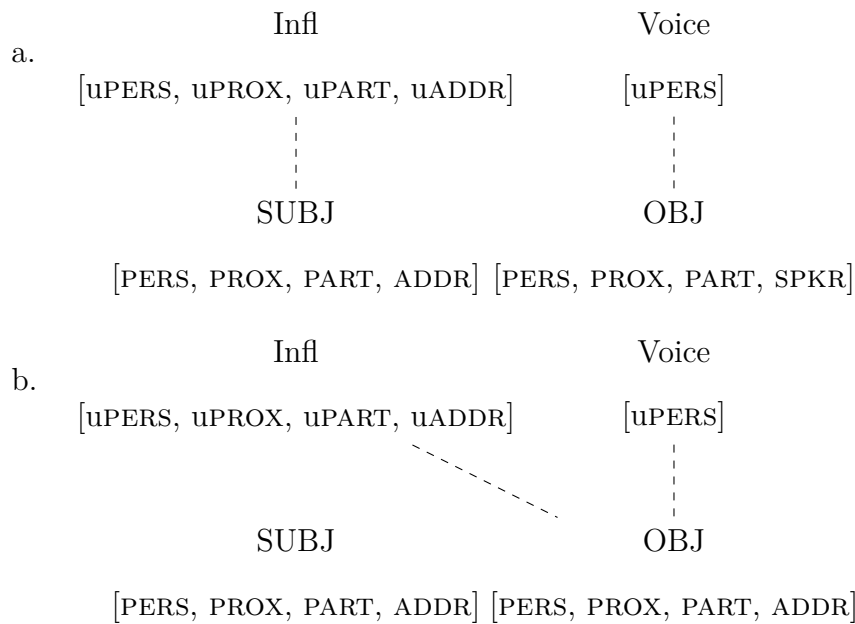
Within the local configurations, we see some issues that may give us pause. In both cases, we see Infl spelled out as *kit-*. This is interesting to note, as Infl *should* have the feature bundles of first person and second person, so under this account we have little motivation for only the second person morpheme being spelled out. While this may suggest to us that Infl should be more highly specified to ADDR, or alternatively, first-person DPs should be specified only up until part, we can see that this would be in conflict with the theme sign hierarchy we have established for Blackfoot.

The theme sign distribution is interesting in this case, as well. If Voice agrees with the object, then in either case we see that this isn’t true: in the 1>2 case, Voice ostensibly agrees with the first-person subject, or is somehow spelled out as direct. In addition, as previously mentioned, the 2>1 configuration spells out the inverse morpheme, which *is* consistent with the Blackfoot data, but not with Oxford’s analysis: if the inverse marker is the result of Voice having an empty feature bundle, then in the case here, in which Voice has *two* feature bundles, should Voice be spelled out as elsewhere? As it currently stands, the analysis proposed by Oxford, for the reasons above, does not seem tenable.

In thinking of ways to rescue this analysis, there is a temptation to adjust the feature bundles, such that first person is more highly specified ([PERS, PROX, PART, SPKR]) than

second person ([PERS, PROX, PART]). This, however, does not provide recourse for the fact that Infl seems to prefer to agree with second person. Additionally, further specifying Infl to seek [SPKR] also does not account for the preference of second person. The only other option available, then, would be to assume a direct configuration, as well as a further specified probe on Infl, as in 33:

(33)



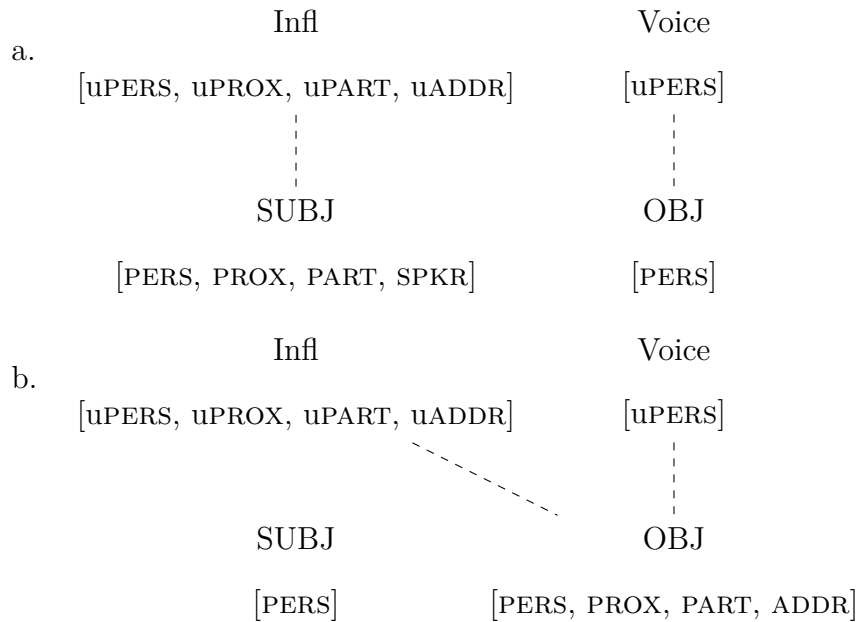
In this case, we see that in 33a (the direct case) we would correctly predict the spellout of Infl as second person, and posit the spellout of a first-person object of Voice as *-ok*. In the inverse case in 33b, Infl would agree with the object, leaving Voice to also agree with the object, but by the same impoverishment rule that Oxford (2019) applies, Voice’s features are deleted and is left to be spelled out as *-o*.

While this analysis correctly predicts the local forms, it raises a few questions. First, one may wonder why *-ok* is now the exponent of a first-person object when it seems to be attested as inverse. While not optimal, this can be “rescued” by assuming that this is a syncretic form, or a form that is phonologically the same, and that the inverse morpheme is simply spelled out with the same phonology. This move seems difficult to justify, however, with

the fact that the inverse marker appears similarly in two other cases (mixed and nonlocal). Insisting that this configuration is direct seems to be an arbitrary move to bend the data to fit the analysis.

As further proof of concept, we can take this succeeding analysis, and apply it to mixed cases in 34:

(34)



A nonlocal analysis will turn similarly to 34, so we omit the illustration currently. Some eyebrows may be raised at a [SPKR] feature agreeing with [ADDR], but if we assume the Best Match does not have to be strictly matching in features we can leave this aside for now. Here, we would similarly predict an inverse marker spellout.

3.4 Motivations for New Predictions

While we have forced the Oxford analysis to be tenable for Blackfoot, we have seen that this comes with many stipulations surrounding the data that should not be so easily made. Putting aside the theoretical concerns of Oxford's approach briefly, we can see that there

are many aspects to Blackfoot that the account is not able to account for without significant stipulation. We highlight several of these concerns below.

3.4.1 Tensions Between Infl and Voice

As we have seen with the exponents of the local configurations in 32, the presence of a second-person DP in either the subject or object triggers Infl to be exponed as *kit-*. This seems to suggest a preference of second-person within the Infl probe. However, this is in direct tension with the data we have seen in 23. The data provided seems to suggest that Blackfoot should rank first-person over second-person.

While there is a temptation to resolve this issue by using the fact that the local inverse is spelled out by *-oki* rather than simply *-ok*, so as to say that *-oki* is the second-person object agreement marker on Voice, this does not seem tenable with the data. Rather, we may need to simply recognize that there may be conflicting person hierarchies within Blackfoot, and this is in fact attested in the literature (Macaulay 2009; Zúñiga 2008).

3.4.2 Number Agreement in Blackfoot

As we have seen in previous sections, Blackfoot also displays a system of number agreement. Third-person DPs always have a morpheme indicating number, and plural second and first person DPs have a morpheme indicating plurality. Interestingly, as we have seen with the construction *We love you*, only a first-person plural morpheme will be spelled out in the case that two speech act participants are plural. In this case, it seems as though there is yet another tension: number agreement *also* prefers a first person hierarchy. While Algonquin has a suffix indicating third-person agreement Oxford (2019), this is not nearly as robust as Blackfoot's paradigm, and thus we are led to believe that the number agreement should be included in conversations about the direct-inverse marker.

Chapter 4

Other Avenues for Prediction

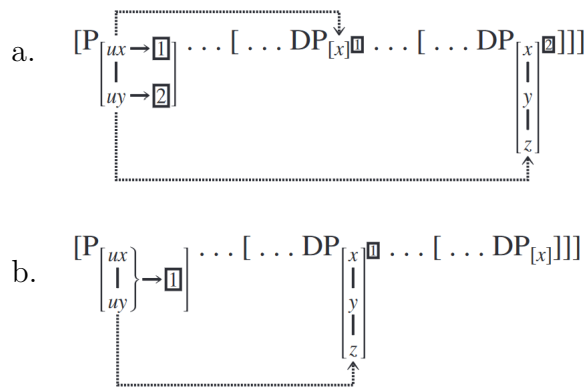
While questions were raised in the last chapter on the tenability of Oxford’s analysis accounting for Blackfoot, this chapter seeks to explore other mechanisms for predicting the paradigms seen in Blackfoot. We will begin with briefly introducing two new concepts: Feature Gluttony as proposed by Coon and Keine (2021), as well as Interaction-Satisfaction as proposed by Deal (2015), and the concept of dynamic interaction from Deal (2022b). The final section of this chapter will attempt to reckon with the data using these new mechanisms, and see how far a new analysis goes in predicting the data.

4.1 Feature Gluttony

Coon and Keine (2021)’s seminal work on feature gluttony takes some of its inspiration from the Basque Strong Person Case Constraint discussed briefly in §2.2, in which a first or second-person cannot be a direct object underneath a third-person indirect object. Whereas many analyses of hierarchy effects describe PCC effects as being the result of failed agreement, Coon and Keine argue, rather, that PCC effects are the result of a surplus of agree. Their analysis (also drawing from German copula constructions, cliticization, etc.) involves probes that themselves encode feature geometries, not unlike how the Infl probes in Oxford’s analyses

looked for goals that were a specified a certain amount. The difference with Coon and Keine’s approach, rather, is that every node of the probes themselves search for goals, and look for matches individually. Integral to their approach also is the idea that probes can be *gluttonous*: if a feature finds a goal, it copies the entire feature geometry to the probe, and can continue to accumulate feature geometries to itself. Below are figures from Coon and Keine (2021) that demonstrate this phenomenon:

(35)



In 35a, we can clearly see that each part of the probe (represented by ux , uy , etc., these can be better thought of as the individual features PERS, PART, etc.) individually finds a matching feature. Because ux matches with DP_1 , and uy matches with DP_2 , the feature bundles of both DPs will be copied over to the probe’s feature bundle. Contrast this with 35b, in which both features are fully satisfied by the feature bundle on DP_1 , and thus the feature bundle is copied over once, and there is no gluttonous probe.

Gluttony, then, only comes about when the goal that is further away specified more of the probe’s features than the closer DP. In these cases, the probe ends up with multiple feature bundles. Note too, however, that this is not necessarily bad, and will not necessarily crash the derivation. Rather, Coon and Keine have developed an *observational* mechanism. It must be emphasized that simply being a gluttonous probe does not mean that the derivation will crash. Crucially for this analysis, Coon and Keine (2021) posits that Feature Gluttony may

be used to predict the direct-inverse marking system of Algonquian languages. Indeed, Algonquian inverse-marking and the environments for which it is triggered seem to be governed by hierarchy effects, similar to the Strong PCC in Basque.

4.2 Interaction-Satisfaction and Dynamic Interaction

The final mechanism for agree that we will discuss is interaction-satisfaction, coined in Deal (2015) and expanded upon in Deal (2022b). Unlike the previous agree conceptions, Interaction-Satisfaction rejects the idea that probes are hosts for uninterpretable or unvalued features, a sharp turn from traditional literature on Agree. Interaction-Satisfaction was first proposed to account for Nez Perce data. One example of note is in the 1/2 symmetry of complementizers. As a preliminary, note that in Nez Perce complementizers, there is no agreement on complementizers in the case of all arguments being third person, but there *is* agreement on complementizers if either the object or subject are second or first person. Now, take 36 below:

- (36) a. Ke-m kaa pro_{subj} cewcew-teetum pro_{obj}
 C-2 then PRO.2SG telephone-TAM PRO.1SG
 ‘When you call me’
- b. Ke-m-ex kaa pro_{subj} cewcew-teetu pro_{obj}
 C-2-1 then PRO.1SG telephone-TAM PRO.2SG
 ‘When I call you’

(Deal 2015:6)

We can see in 36a that complementizer agreement occurs with both arguments when the first-person DP “outranks” the second-person DP.

Deal resolves this issue through the development of an interaction-satisfaction model.

Rather than having probes be hosts for unvalued features, Deal instead posits that probes are instead specified for different features for *interaction* and *satisfaction*. Interaction features are ones that the probe sees and is able to copy to its own feature bundle as it moves through the derivation. However, crucially, this does *not* indicate that it stops. An unsatisfied probe can interact forever. Rather, the satisfaction specification tells the probe which feature values it. Once a probe is valued, it stops scanning downwards and agreeing.

With regards to the Nez Perce data, Deal analyzes C as being a probe that is specified for interaction with [PART], and is satisfied by [ADDR]. Below are figures that demonstrate the mechanism using the Nez Perce data from 36:

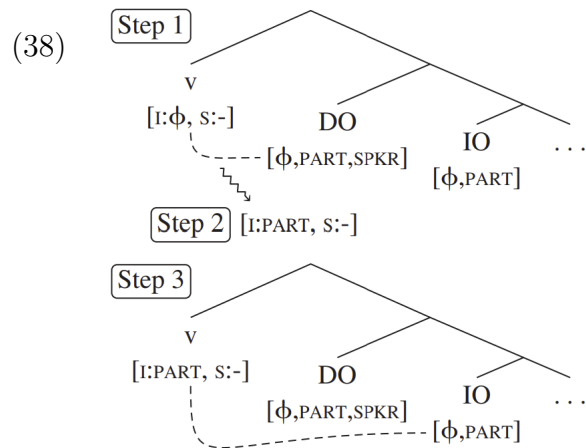
- (37) a. $\left\{ \begin{array}{c} \text{--- [PART, ADDR] ---} \\ \text{ke-m} \quad \text{kaa} \quad \text{pro}_{subj} \quad \text{cewcew-téetum} \quad \text{pro}_{obj} \\ \text{C-2} \quad \text{then} \quad \text{PRO.2SG} \quad \text{call-TAM} \quad \text{PRO.1SG} \\ \text{2sg/1sg: when you call me} \end{array} \right\}$
- b. $\left\{ \begin{array}{c} \text{----- [ADDR] -----} \\ \text{----- [PART] -----} \\ \text{ke-m-ex} \quad \text{kaa} \quad \text{pro}_{subj} \quad \text{cewcew-téetu} \quad \text{pro}_{obj} \\ \text{C-2-1} \quad \text{then} \quad \text{PRO.1SG} \quad \text{call-TAM} \quad \text{PRO.2SG} \\ \text{1sg/2sg: when I call you} \end{array} \right\}$

(Deal 2015) 37a demonstrates the example in which there is only agreement with the subject. Because we know that the subject is a second-person DP, we know that is satisfied both [PART, and ADDR]. As a result, the first DP that C interacts with, it is satisfied by. The feature bundle is copied over and C is exponed by the second-person agreement suffix.

In 37b, rather, we see that the first DP that C interacts with is the first person DP, which is specified for [PART]. This matches the interaction rule, and so the probe is able to copy the feature bundle and continue, until it is satisfied by the 2nd DP, the second-person. This bears [ADDR], and so C is satisfied and is able to stop probing. Because C now has two feature bundles, we can posit that Nez Perce allows for both to be exponed, and so both

suffixes are added onto C^1 .

Dynamic interaction is an expansion to I&S posited by Deal (2022b) in which interaction conditions on a probe can change as features from goals are added to it. In other words, when a probe interacts with a goal, when the goal's features are copied to the probe, they are added to the interaction features of the probe. An illustration of this taken from Deal (2022b) is shown in 38 below:



(Deal 2022b:31)

4.3 Before the Analysis

§4.1 and §4.2 provide us with some additional tools that may be useful in developing an account of direct-inverse marking in the next section. Feature gluttony provides an account for the person hierarchy effects, and Interaction & Satisfaction provide an understanding of Agree that is useful for situations in which interaction and satisfaction *are* specified differently.

The next chapter will bring us back to the initial differences between Blackfoot and Algonquin, and will begin to posit solutions. After laying down the theoretical framework

¹This is a simplified analysis for brevity, and in fact Deal does demonstrate that this analysis of the phenomenon needs to be revised. However, as it stands this is not relevant for the current analysis, so we leave it up to the reader to explore this topic in more detail.

that will be used to derive the Blackfoot constructions, we derive a handful of derivations not predicted by an account based off of Oxford (2019). Finally, we will close the section with some data that still proves to be a challenge for the analysis

4.4 Applying the Analyses

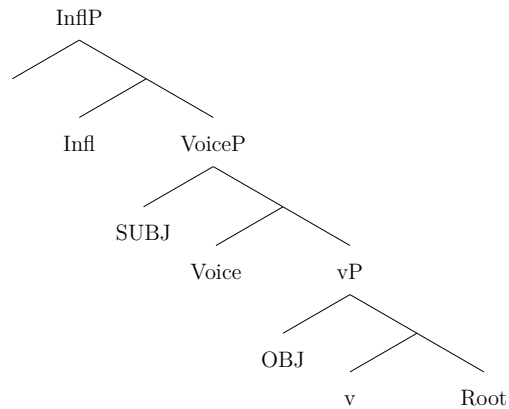
When comparing the Blackfoot and Algonquian data, the following challenges must be accounted for:

- (39)
- a. The person hierarchy in relation to voice seems to be $1 > 2 > 3$
 - b. Infl seems to have its own person hierarchy that prefers a second-person exponent
 - c. Blackfoot needs a robust mechanism for number agreement
 - d. In local plural constructions, Blackfoot seems to rank first-person plurals above second-person plurals

Addressing 39a, this can be resolved by taking Voice to be a probe with dynamic interaction following Deal (2022b). In this way, a fully specified first-person object will change the interaction features of the probe such that agree will fail upon reaching the subject. This will be the beginning of our analysis.

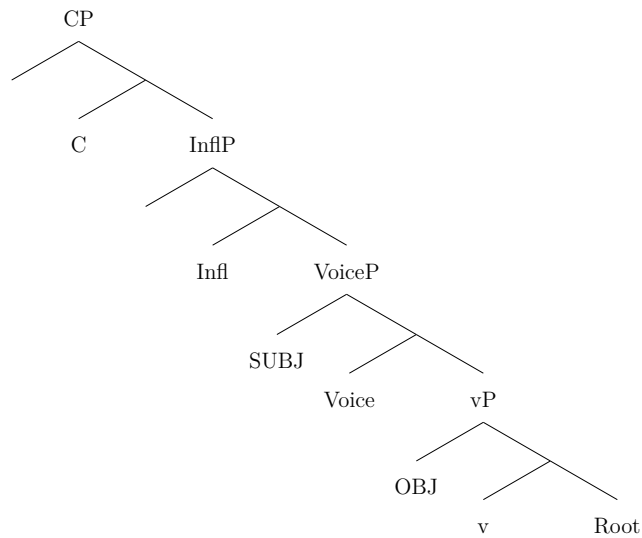
Oxford (2014) proposes the following tree diagram for Algonquian transitive animate verbs:

(40)



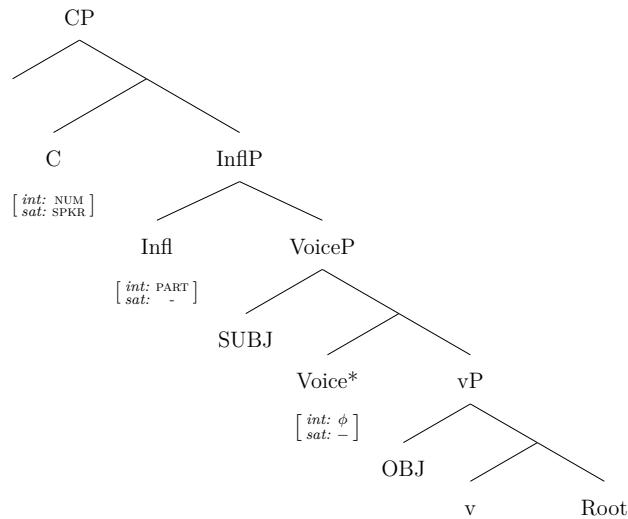
As was previously mentioned, this verbal template for Blackfoot is unattested, but bears enough similarity with existing analyses that we will use it for the purposes of this analysis. However, other syntactic analyses of Blackfoot now put us in a position to continue reckoning with the rest of our challenges. In particular, 39c questions how we can account for number agreement in Blackfoot. Bliss (2013) suggests that number agreement may sit in a higher function head, namely in spec, CP. We follow this analysis of the Blackfoot functional heads, and adjust our tree to contain the overarching CP, as in 41:

(41)



42 illustrates the probe specifications we propose for Blackfoot:

(42)



Using this tree, we attempt to resolve 39b and 39d by specifying satisfaction probes on Infl and C, respectively, that encode the desired feature.

We can begin with derivations of the mixed configuration to demonstrate the various Agreement processes occurring.

4.4.1 Mixed Configurations

Consider the following example:

(43) *kitáíssammawa*

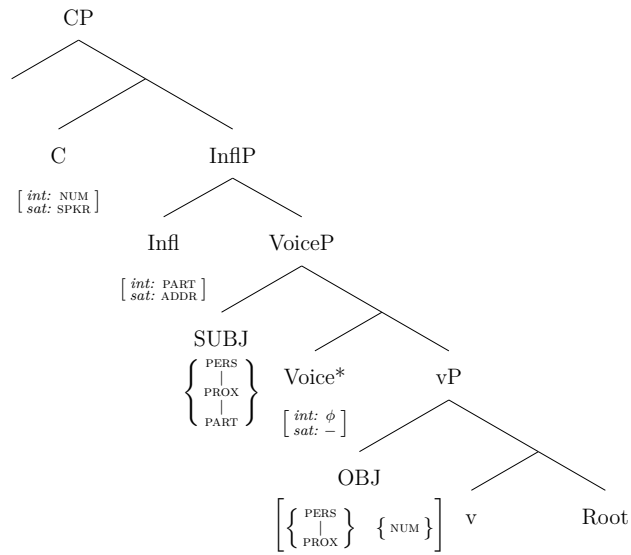
kit- áíssamm.TA -a -wa

2- look -DIR -3s

‘you are looking at him/her’

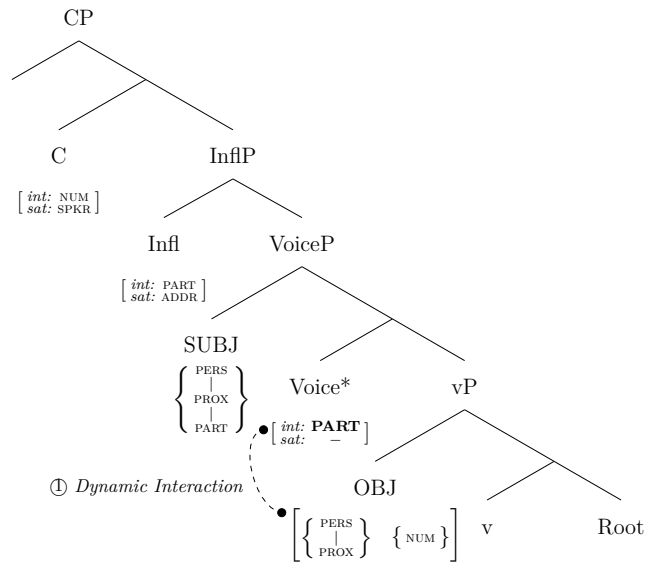
The tree specification for this example is as follows:

(44)

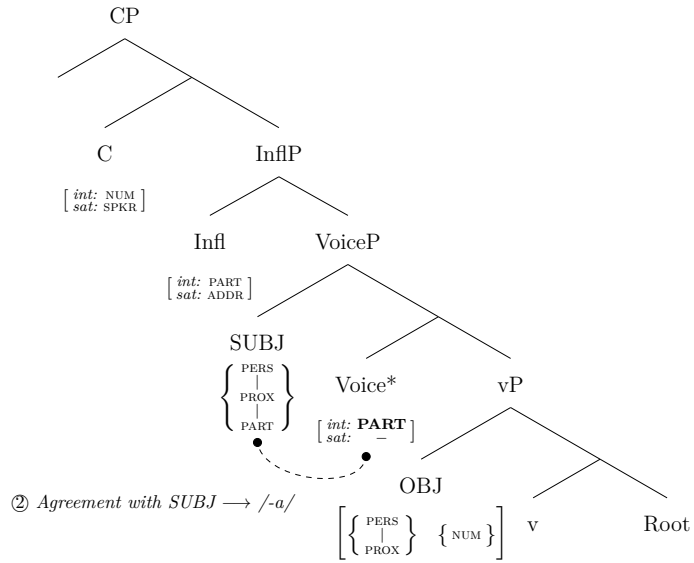


Crucial to this analysis will be the fact that all third person DPs will have a feature specification for number. The derivation proceeds as follows:

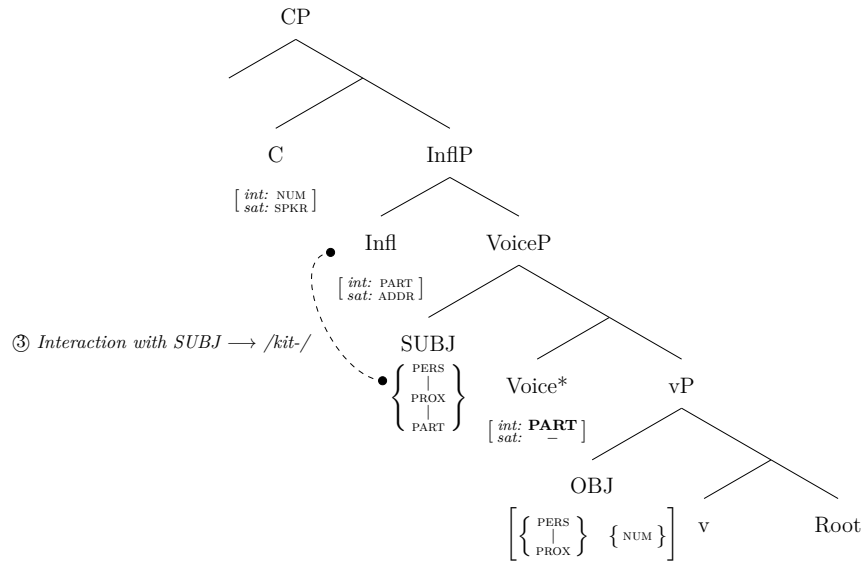
(45) a.



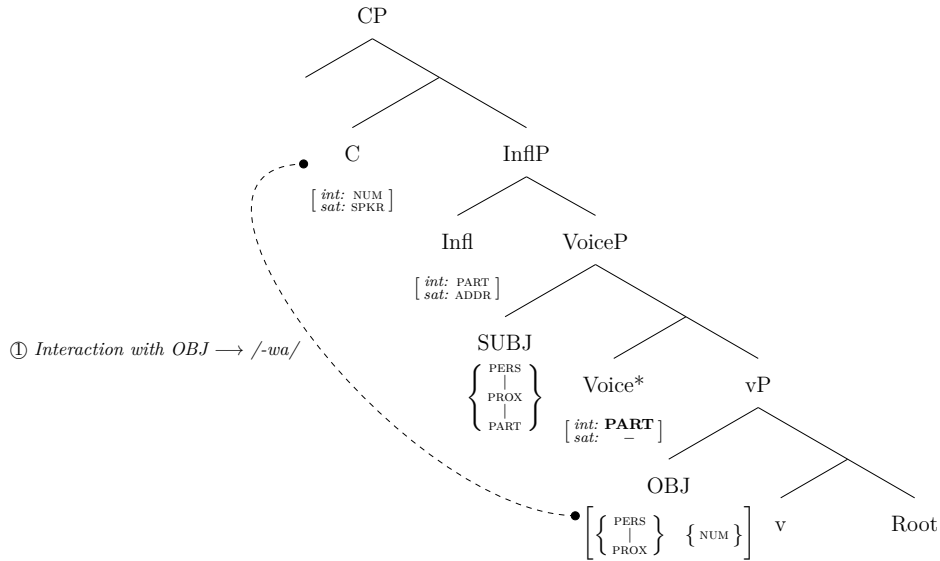
b.



c.



d.



In the preceding derivation, we see Voice* dynamically interact with the third person object. Having copied its features, Voice* interacts with the subject and, being the last thing to agree, spells out the 1>2 exponent of the voice marker, *-a*. Then, Infl interacts with the subject² and spells out *kit-*. Finally, C agrees with the third-person object and spells out the 3s form *-wa*.

A similar story can be told for the mixed inverse configuration, as in the example below³:

kitáíssammoka

kit- áíssamm.TA **-ok** -a

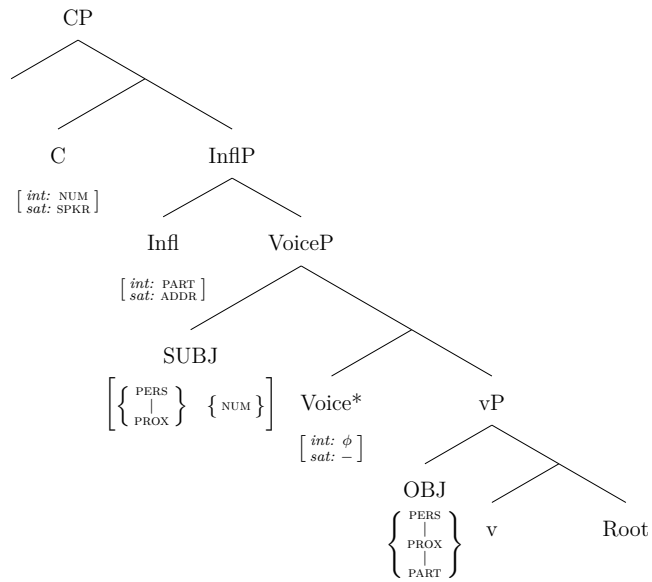
2- look **-INV** -3s

‘s/he is looking at you’

²One stipulation this model makes is that goals can agree with multiple probes

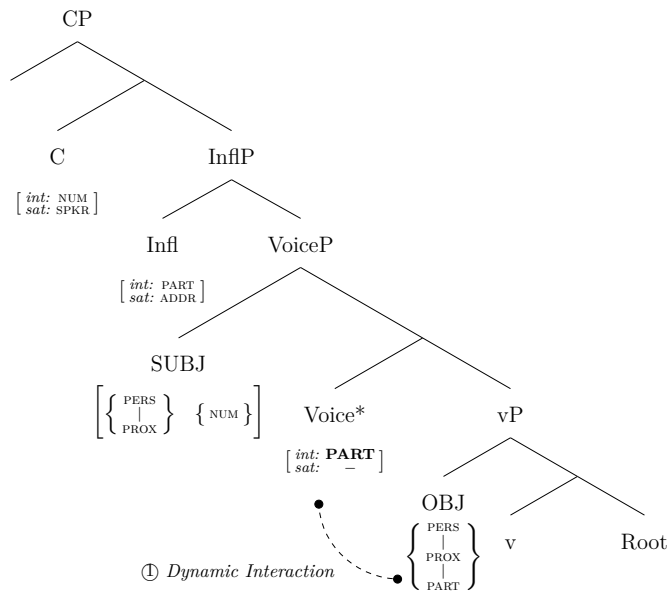
³*-a* here is thought to be *-wa* with a phonological deletion

(47)

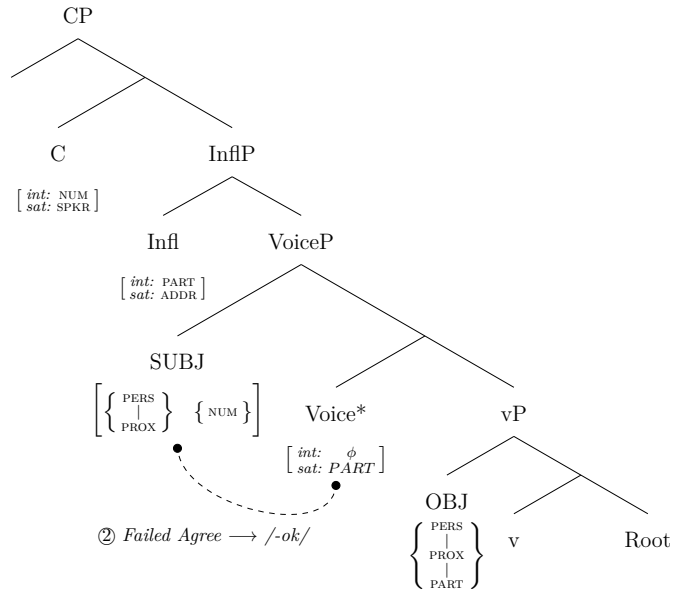


The derivation proceeds as follows:

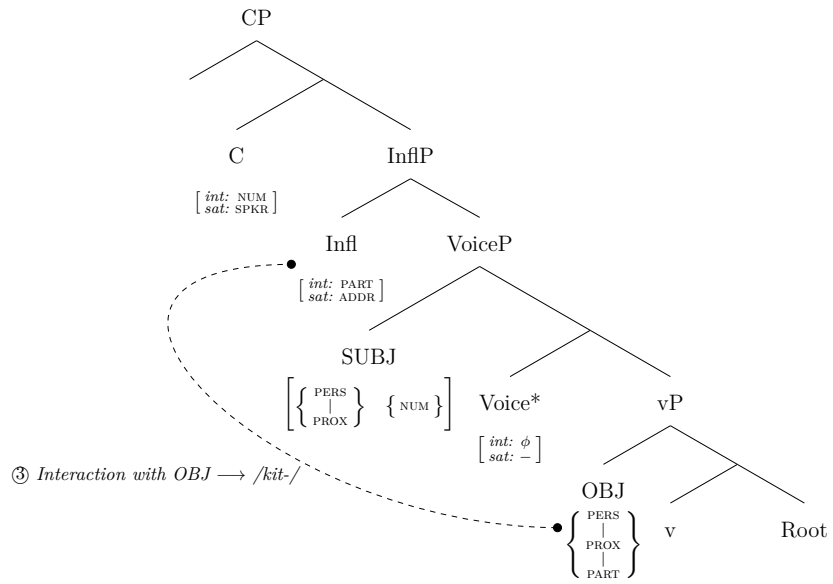
(48) a.



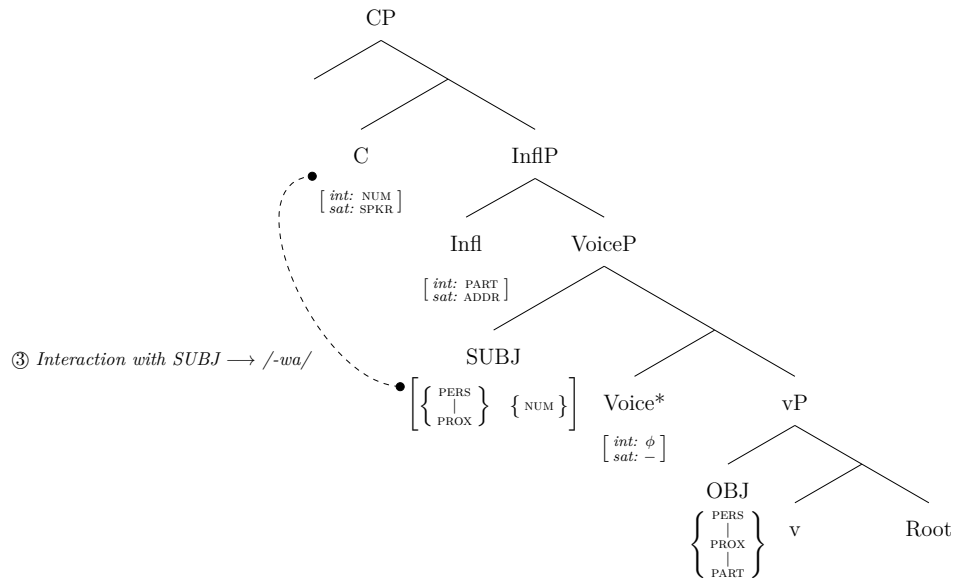
b.



C.



d.



The main difference in the mixed inverse derivation is the dynamic interaction between Voice and the object that triggers a failure to Agree in Voice, leading it to be spelled out as the elsewhere morpheme *-ok*. Infl then agrees with the object, and C agrees with the subject. This nicely accounts for the mixed data. However, let's now turn to the local data.

4.4.2 Local Configurations

Consider the local configurations in 49

(49) a. *kitáíssammo*

kit- áíssamm -o

2- look.TA **-DIR**

'I am looking at you'

b. *kitáíssammoki*

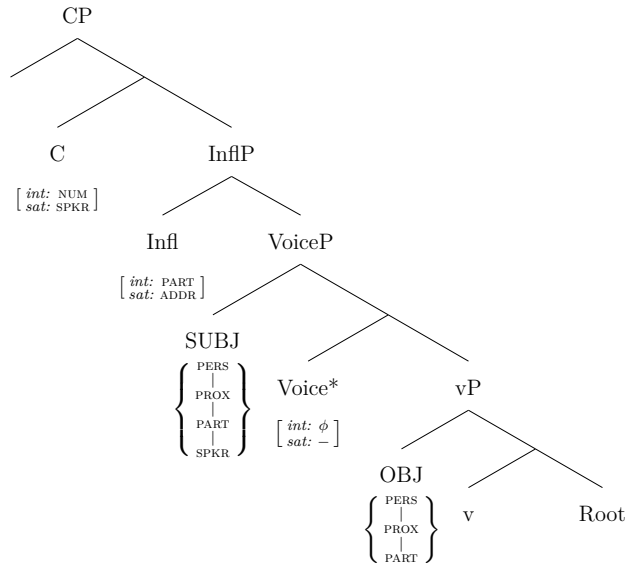
kit- áíssamm.TA -ok -i

2- look **-INV** -1

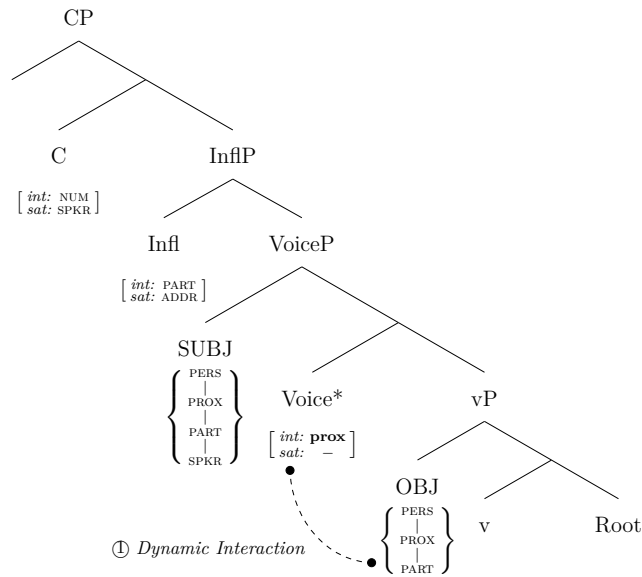
'you are looking at me'

Beginning with 49a, we can proceed through the derivation step by step, following the probe/goal structure in 50:

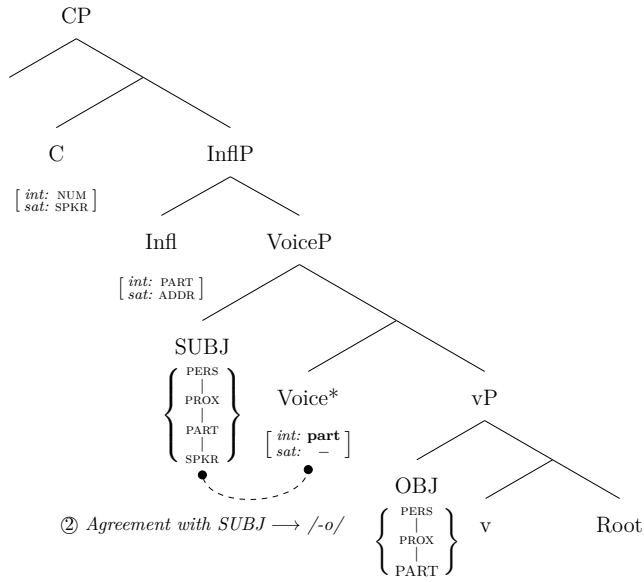
(50)



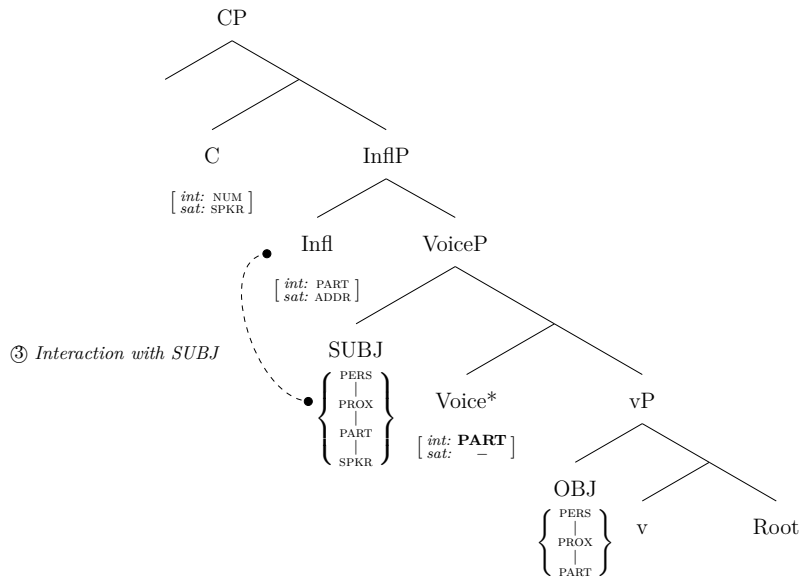
(51)



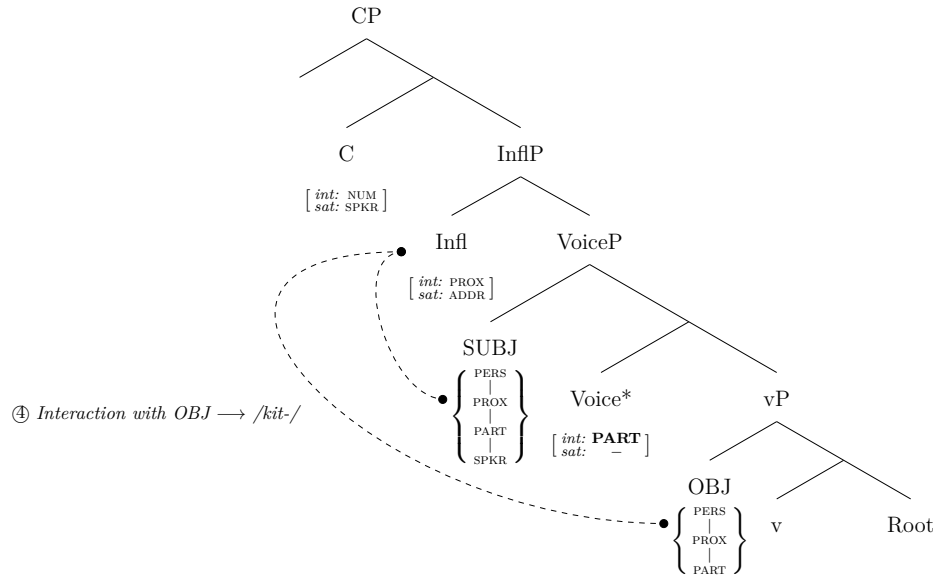
a.



b.



c.



In the preceding two derivations, we take a look at the interaction proceedings of Infl. We have seen in previous sections that Infl prefers the second-person prefix when available. However, to account for the preference of first-person on Voice, evidence suggests that second-person DPs are not more specified than first-person DPs. As a result, to achieve the spell-out of *kit-*, we must stipulate that Infl, having copied the same feature bundle of the subject as Voice, must undergo an impoverishment rule that leaves the second-person feature bundle remaining. As a result, Infl is spelled out as *kit-*. In the final step of the derivation of the local direct configuration, we must reckon with C agreement. Here, however, neither our subject nor our object is specified for number. As a result, C, not needing to be satisfied, is spelled out as a null morpheme, thus yielding the correct derivation.

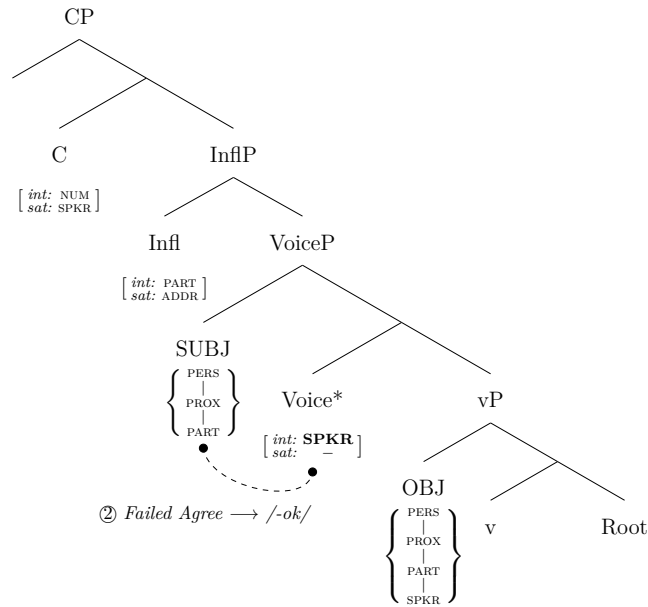
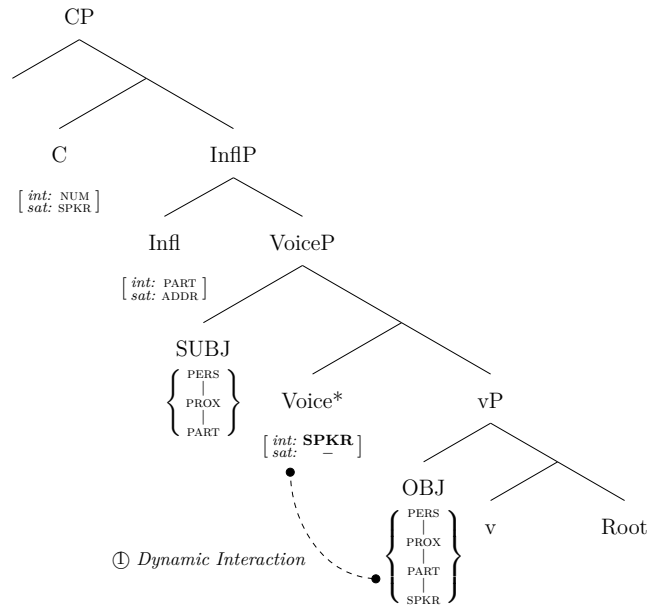
We can now turn our attention to the local inverse, reproduced in 52:

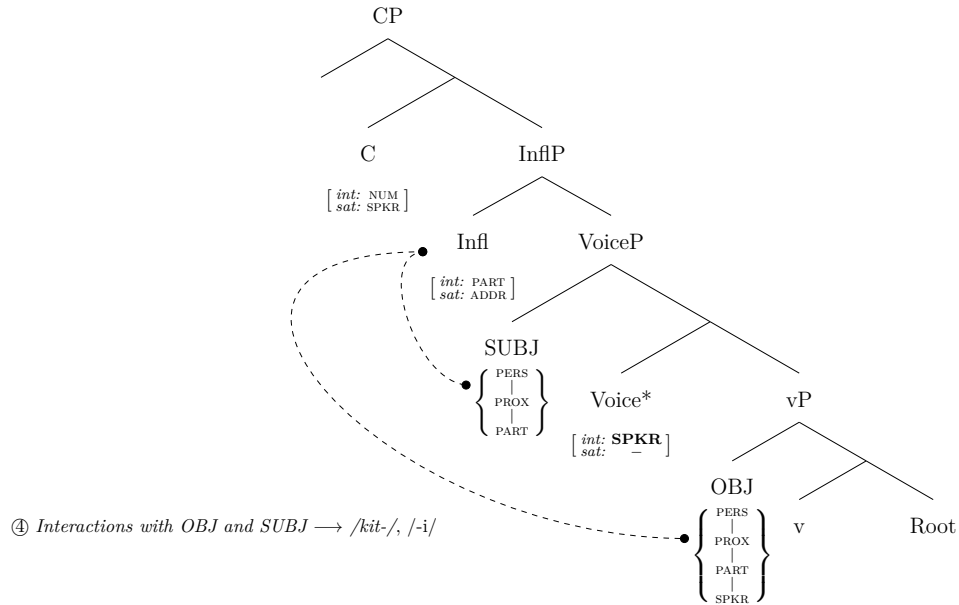
(52) *kitáíssammoki*

kit- áíssamm -ok -i
 2- look.TA -INV -1
 ‘you are looking at me’

The first steps of the derivation are provided below:

(53)





In the preceding step, we see that Infl meets the interaction conditions of both the SUBJ and OBJ. Since agreement on Voice* failed, we have no triggers for impoverishment. As a result, we may assume that Infl spells out *both* the subject and object exponents. In this case, Infl undergoes fission, and spells out two morphemes that circumfix the root, namely *kit-* and *-i*. Again, no DPs are specified for number and so C is exponed as a null morpheme.

4.4.3 Nonlocal Configurations

Consider the transitive animate verb in the nonlocal direct form below:

(54) *ikákomimmiiwa nohkówa kitáni*

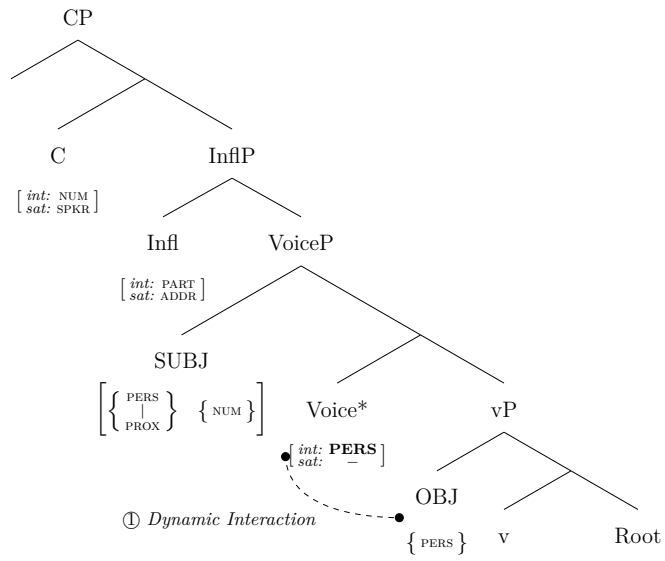
ikákomimm.TA -*ii* -wa n- -ohkó -wa k- -itán -i
 love -**DIR** -3s 1- son -3s 2- daughter -4s

‘My son loves your daughter’

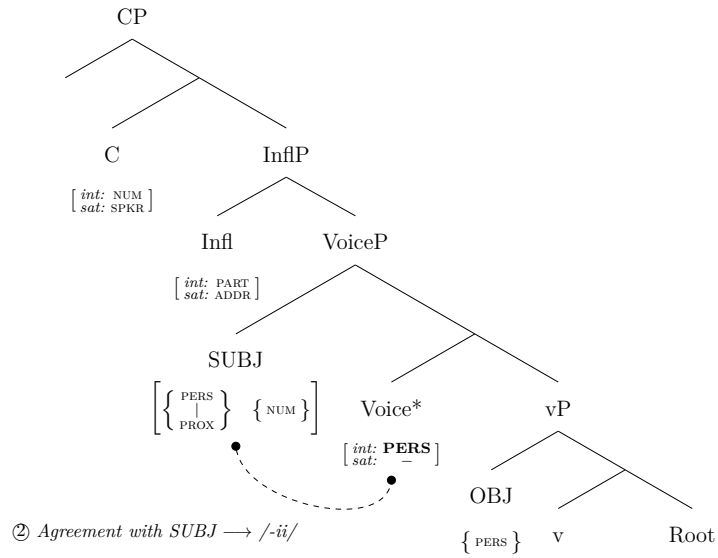
(Frantz 2017:58)

The derivation proceeds as follows:

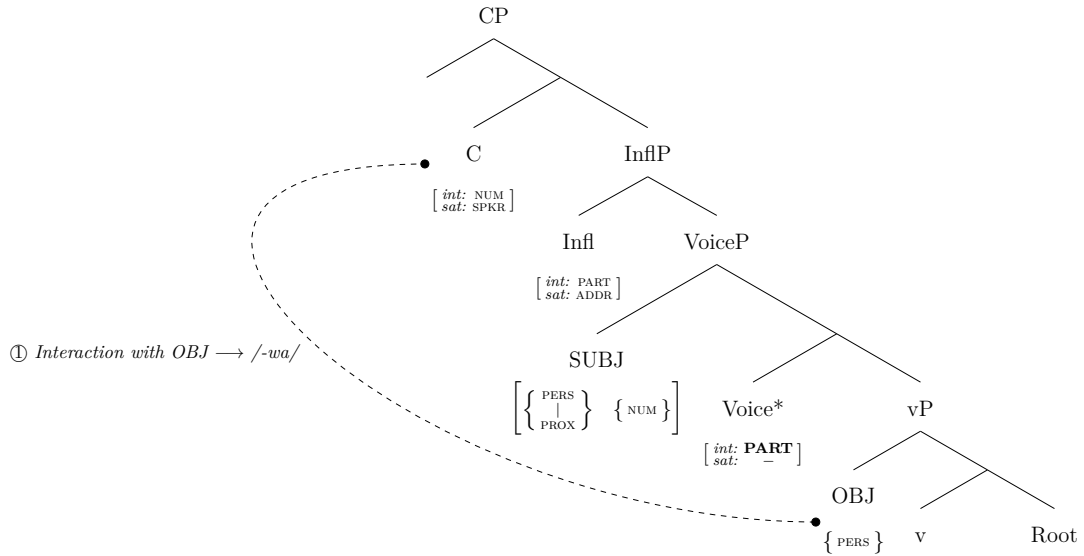
(55) a.



b.



c.



The the preceding steps, we see that most notably, Infl, having nothing to interact with, does not have a feature set and thus is exponed as a null morpheme, which is what we would predict.

However, consider the 3'>3 case, reproduced below:

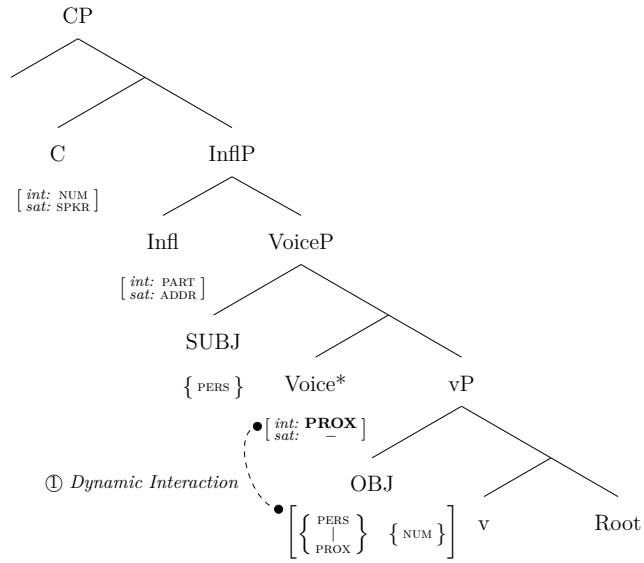
(56) *Otsikákomimmoka nohkówa otáni*

Ots- ikákomimm.TA -ok -a n- -ohkó -wa o- -tán -i
 3s- love -INV -3s 1- son -3s 3- daughter -4s
 ‘Her daughter loves my son’

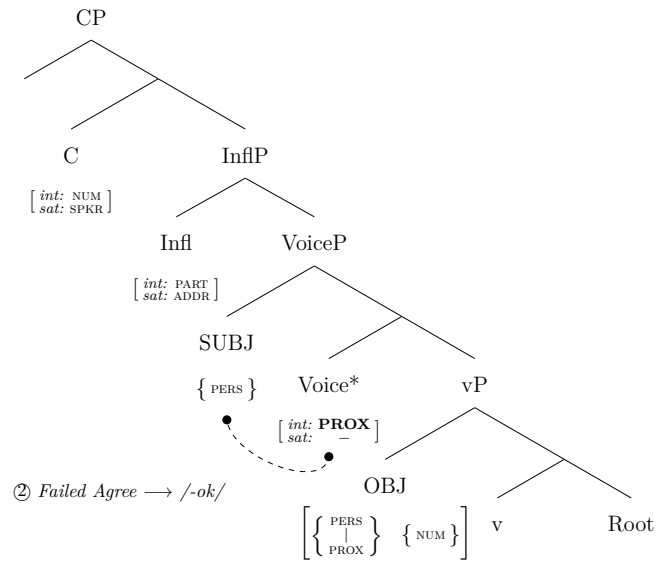
(Frantz 2017:62)

The derivation proceeds as follows:

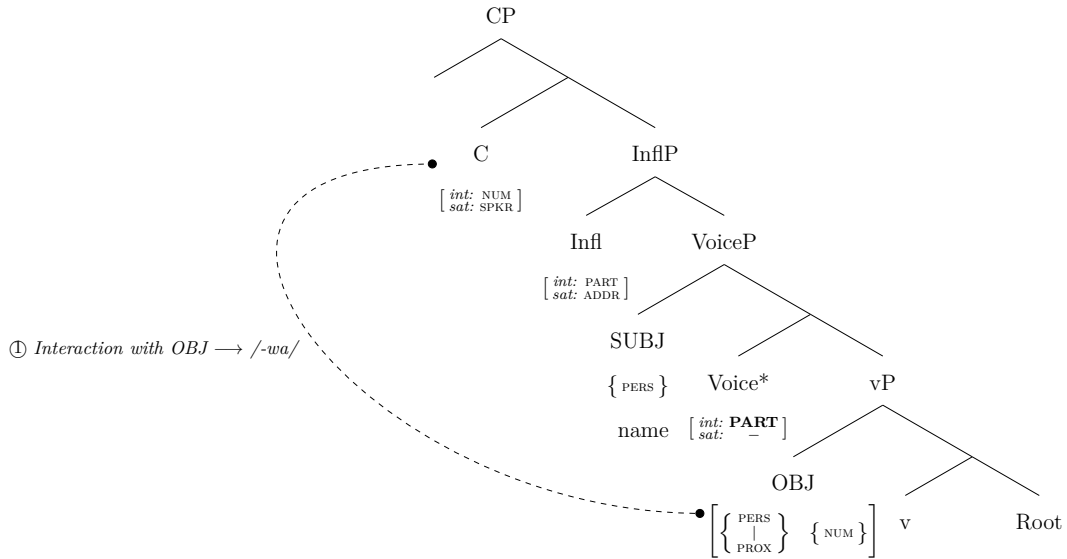
(57) a.



b.



c.



This derivation patterns extremely similarly to the nonlocal direct. However, note that this does *not* predict the form given to us in 56. The nonlocal inverse has an additional prefix *ot-* that is not predicted by our data. Since Infl is not specified for PERS (and in fact cannot be without triggering spell-out in the nonlocal direct form), the only plausible place for the exponent of this prefix would be in C.

While it would be possible to specify a NUM feature for the 3' DP and allow this to be an interaction that becomes spelled-out in C, this does not feel tenable as we do not see a number exponent for 3' in the direct form. Rather, we may need to stipulate the presence of another head to account for this morpheme.

4.4.4 Number Agreement on CP

To demonstrate number agreement using CP, we can use the following two example in 58:

(58) *Kitsikákomimmokihpinnaana*

Kits- ikákomimm -ok -i -hpinaana

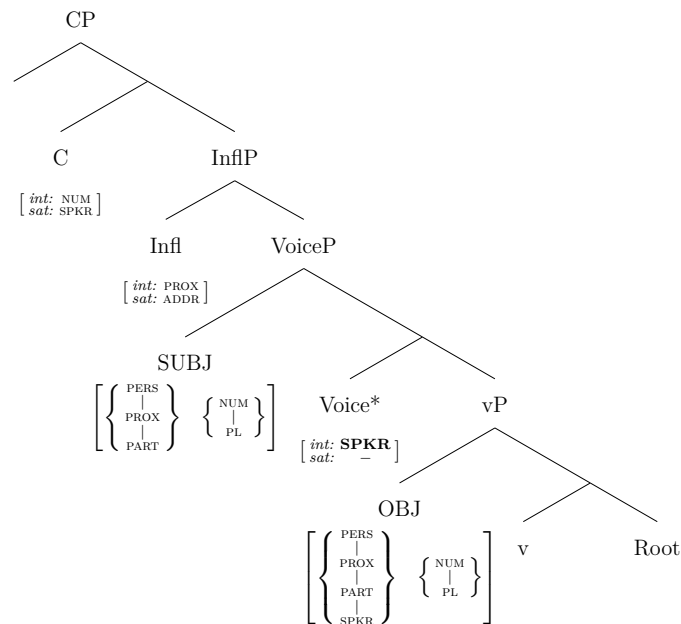
2- love.TA -INV -1 -1p

‘You(2p) love us’

(Frantz 2017:66)

The initial state of the tree is as in 59:

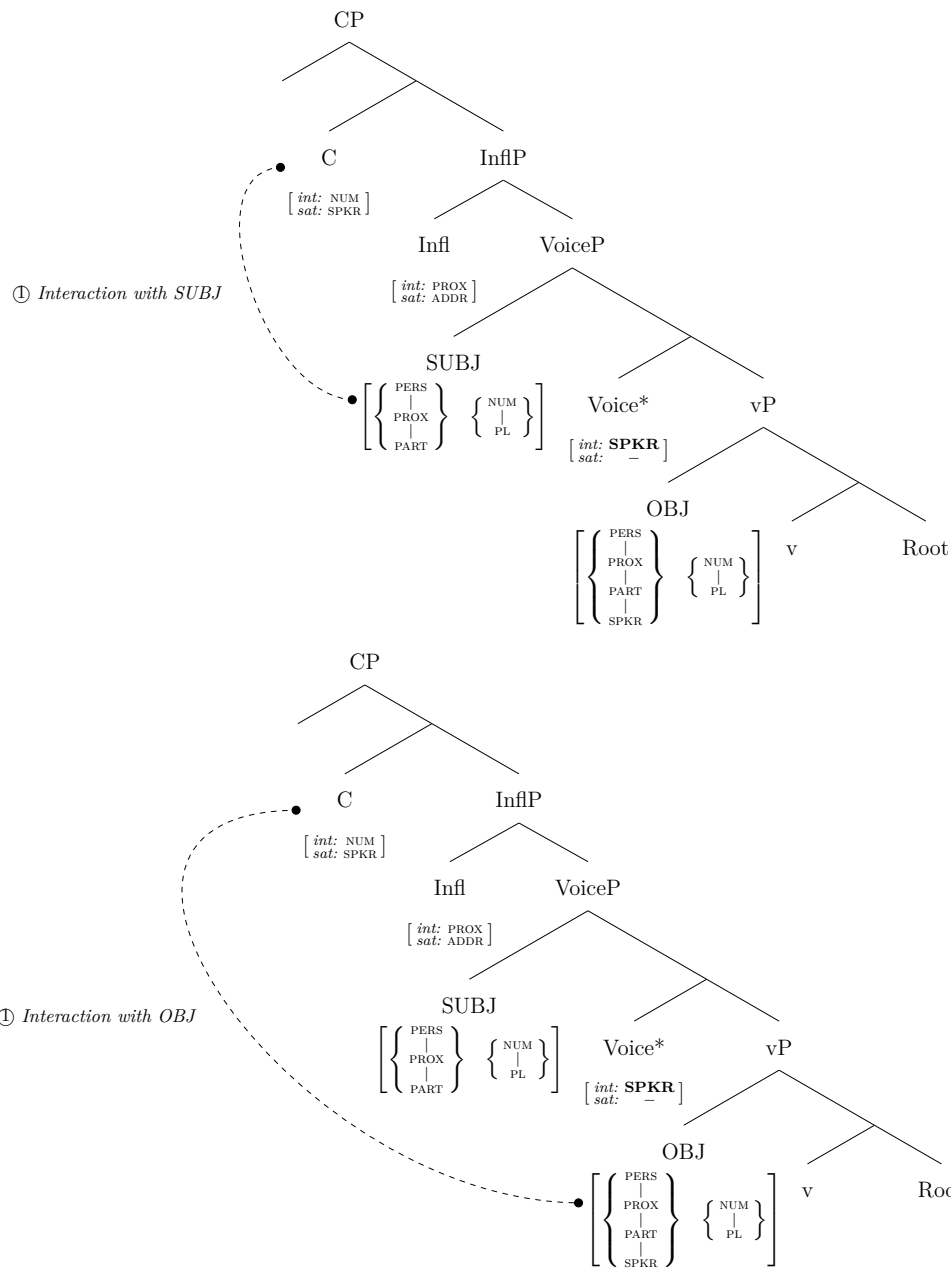
(59)



In 59, note first that, in these cases, the SUBJ and OBJ, being plural, are now specified for number features as well. This analysis adopts the stipulation that first and second person DPs are not specified for NUM until there is an argument in the derivation which is explicitly plural. This is different than for third-person DPs, which we will assume have a NUM feature at all times.

For brevity, we can assume that the beginning steps of the derivation proceed in a similar fashion to the local inverse and proceed immediately to C agreement in 60:

(60)



The preceding steps indicate that C interacts with both the subject and the object. Crucially, the exponent of C here must account for *both* the formative *hp* as well as the first-person plural exponent *-inaana*. To account for this, we can adopt an assumption from Coon and Keine (2021) in which a head may have *two* different probes. In this case, we may specify that C contains a bundle for person features, as well as a bundle for number features. Firstly, we can assume that, knowing that the C favors the first person plural, we can assume that the OBJ

feature bundle, being more fully specified, satisfies the number probe for C. Additionally, we can posit that, since the SAP feature geometry is fully specified by the combination of SUBJ and OBJ, the person-feature probe for C is fully specified, and may be spelled out with a special morpheme, *-hp*. As a result, we get a clitic-like exponent of agreement for C, with *-hp* and *-inaana* both attaching to the derivation at the end. However, attaching a suffix that does not relate to number seems excessively stipulative.

4.4.5 Issues with the Analysis

While the derivations provided above have proven to have the predictive power needed to account for the Blackfoot data in most cases, we see that there are significant places where the derivation falls short. In the case of the 3' $>$ 3 configuration, we see the appearance of a special prefix *ot-* which cannot be explained by Infl, and does not make empirical sense to attach to C. Similarly to this, the number agreement derivation for a 2pl $>$ 1pl configuration leads to the spellout of a morpheme *-hp* which was analyzed as being the clitic-like exponent of the *person* features of the C probe. While Coon and Keine (2021) does suggest for the possibility of one head having multiple probes for different items, and these probes then splitting into clitics, the derivation of *hp-* is a bit contrived and thus does not seem tenable.

Finally achieving the preference of *kit-* on Infl without making the second-person DP more highly specified than the first-person DP involved some impoverishment rules that felt a bit contrived.

Chapter 5

Conclusion

We have seen that Oxford's model for Algonquin does not fully align to the Blackfoot data without certain stipulations. Namely, the Algonquin data that Oxford's analysis was based on did not display the same tension between Infl and Voice that the Blackfoot data does. In addition, the Algonquin data does not have a number-agreement morpheme, particularly not one with a preference for first-person DPs.

It is the belief of this author that Interaction-Satisfaction models and feature gluttony had a tremendous impact on the saliency of the data, as interaction-satisfaction allowed for the specification of dynamic probes, which very easily lend themselves to the spelling-out of elsewhere morphemes on Voice. The stipulation in Coon and Keine (2021) that probes can be split into different feature bundles also seems to have some power with the correct specifications. In general, the specifications outlined for the Blackfoot analysis was not fully salient, and it is the belief of the author that there may need to be at least one more functional head to achieve the desired agreement, but that these frameworks are very helpful in specifying what is necessary to create a robust account of direct-inverse marking in Blackfoot.

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