Deconstructing and Reconstructing Semantic Agreement:
A Case Study of Multiple Antecedent Agreement in Indo-European

Dissertation

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Abstract

Agreement is broadly defined as the systematic covariance between the properties of one element and those of another (adapted from Steele 1978: 610, via Corbett 2006: 4). Essentially, the feature values of a target (e.g. verb, adjective, pronoun) vary according to the feature values of its syntactic controller (usually, a noun/nominalization). Central to this dissertation is the observation that the controller’s features need not be purely morphosyntactic in nature (as SYNTACTIC AGREEMENT); agreement can also proceed according to the semantic properties of the controller (as SEMANTIC AGREEMENT). This distinction is illustrated by the variation between American English The band has arrived and British English The band have arrived: the singular verb in American English reflects the morphosyntactic number feature, but in British English the plural verb reflects the semantic number of the collective noun. Several agreement constructions have been classified as semantic agreement, including pancake sentences (Enger 2004, 2013), hybrid nouns (Corbett 1991, 2006; Dahl 2000; Pesetsky 2013), and polite plurals (Comrie 1975), among others. These phenomena offer insights into the nature of the interaction of non-formal information in the agreement process, especially which features can be accessed and in what contexts.

But the term “semantic agreement” has been used broadly to characterize different types of agreement phenomena that the definition is more accurately “unambiguous non-formal agreement”, which reflects two important observations: (1) many of the features that are considered “semantic” are actually pragmatic or contextual, and (2) semantic (or pragmatic) information are not necessarily accessed to produce surface structures like The band has arrived, but they still can be—band can also be understood as a singular entity without individuation of members. However, semantic agreement with a singular conceptualization would produce the same (singular) target form as syntactic agreement.
The context of multiple antecedent agreement, or agreement with coordinated controllers, provides a case study for understanding the limits and conditions on semantic agreement. First, one of the agreement patterns that surfaces is considered a type of semantic agreement: Resolution draws on meaning-based information of the coordinated controllers. The other agreement pattern is considered a type of syntactic agreement: Partial Agreement draws on the morphosyntactic feature values of only one controller. The primary evidence for this characterization is the fact that the distribution of these patterns conforms to the typological generalizations of the Predicate Hierarchy (Comrie 1975) and the Agreement Hierarchy (Corbett 1979, 2006) However, semantic and syntactic features affect the outcome and distribution of both strategies. While Resolution primarily draws on semantic information, the rules that produce the computed target forms are language-specific and stipulated in the grammar. And while Partial Agreement produces target forms according to morphosyntactic feature values, the occurrence of Partial Agreement is still informed by semantic information (e.g. the animacy of the controllers affects the likelihood of its occurrence).

In this dissertation, I explore the role of non-formal information in the agreement process via studies of multiple antecedent agreement in three separate Indo-European languages, Latin, Ancient Greek, and Albanian. Latin and Ancient Greek were investigated via corpus studies, while an elicitation study was undertaken in Albanian (where native speakers are available). Data from these studies confirm the typological patterns observed by Corbett (2006), but the results also seem to suggest that while the characterization of Resolution as semantic agreement and Partial Agreement as syntactic agreement is not wrong from the point of view of the typological hierarchies, the reasoning behind this characterization is unclear, since similar semantic and syntactic factors affect the outcome and distribution of both strategies. Furthermore, the qualitative data of the corpus studies suggest that, in practice, the choice of one agreement pattern over the other is subject to contextual information, in much the same way that so-called “semantic agreement” really draws on
information in the local context. Yet the patterns that emerge are largely the same across languages.

On the basis of these data, I argue for a performance-based view of agreement, where the two patterns of multiple antecedent agreement draw on existing machinery in the grammar. Multiple antecedent agreement is a context that does not occur very frequently, and the problem of expressing dependencies between at least two (potentially) morphosyntactically different controllers and a target is not one that has a simple answer (it creates a kind of agreement mismatch, in that the target cannot express the feature values of all of the controllers at a single time). Under my analysis (drawing on work by Wechsler and Zlatić 2003, Corbett 2006, and Hock 2007, 2009), Resolution is actually feature assignment, while Partial Agreement falls under the category of Avoidance strategies (first discussed by Hock 2007). Importantly both strategies of agreement draw on existing machinery in the grammar to produce the observed agreement patterns, but the exact constraints on their occurrence are cumulative of the semantic, syntactic, and pragmatic information in context.

While these patterns can be reconstructed for the proto-language (though not securely) and can also be captured in a formal model of syntax that separates linear relations from structural relations and allows for featural assignment at the phrasal level (i.e. HPSG, in which I provide an analysis), there are certain context-specific features that affect the actual distribution of the strategy. In the formalism I provide, these can only be modeled as structural pressures—part of linguistic performance. I also explore the relationship between Partial Agreement, which usually draws on the morphosyntactic feature information of only the closer antecedent, and so-called “errors” of structural attraction, which results in verbs agreeing with a local but non-controlling noun. In particular, I discuss possible reasons as to why a pattern that draws on the features of local nouns is considered grammatical in one context but ungrammatical in another. This discussion focuses on the observation that many attraction errors actually have some level of acceptability. These “errors” are actually reflective of dependency relations among the construal of the subject noun phrase as
a whole and the target, rather than a failure to mark the dependency between the verb and its structural subject. I point to Acceptable Ungrammaticality as a potential concept that bridges the gap between the conventionalized strategy of Nearest Antecedent Agreement, acceptable attraction errors, and unacceptable attraction errors.

This dissertation offers three primary contributions to agreement research: (1) I add to the growing body of data on multiple antecedent agreement through corpus studies in Latin and Ancient Greek and an elicitation study in Albanian; (2) I provide a performance-based view of agreement to account for the typological patterns that emerge across these languages; and (3) I offer a potential source of these commonalities by exploring the historical, theoretical syntactic, and psycholinguistic accounts of agreement phenomena.
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Chapter 1

Introduction

(1) The band has arrived.

(2) The band have arrived.

The data above reflect a well-known pattern of variation between American English and British English: nouns like band usually co-occur with singular verbs in American English (as in (1)), but with plural verbs in certain dialects of British English (as in (2)). This variation lies in the domain of (grammatical) agreement: the systematic covariance between the properties of one element and those of another (definition adapted from Steele 1978: 610, via Corbett 2006: 4). Agreement has received considerable attention in various subfields of linguistics, including syntax, typology, psycholinguistics, morphology, and, of particular relevance to this dissertation, Indo-European studies (Corbett 2006, Hock 2007, 2009, Melchert 2013, Johnson 2014). Such research is of inherent interest in its own right within these separate domains, but agreement research also contributes to our understanding of the interaction among domains, especially the interface of morphology and syntax, inasmuch as agreement is the variation of morphological forms in a given syntactic environment. Agreement research is also at the crossroads of formal and functional approaches to language. The mechanisms of agreement can be understood within formal models of syntax (e.g. as the copying, matching, sharing, inheritance, etc. of agreement features) and/or within functional models of language production and processing (which take into consideration, e.g., cognitive resources, tracking syntactic dependencies, and the organization and encoding of morphological and semantic information).
The key observation that is fundamental to all agreement studies, as pointed out by Corbett (2006: 1), is displacement of information: one word in the construction carries the information of the properties (or features) of another word (e.g. number and gender). In the examples above, the verbs *has* and *have* carry the number information of the noun *band*, in the typical formal way. This means that in example (1) *band* is singular, while in example (2) *band* is plural—yet the form of *band* remains the same across both examples. Agreement, then, is not necessarily always a matching of features, at least in the formal morphological sense of the examples in (3–4).

(3) The dog barks.
(4) The dogs bark.

While there is a similar variation in number on the verb *bark*, this can be directly connected to the number feature of the subject noun *dog*—a singular noun conditions a singular verb, and a plural noun conditions a plural verb. Both nouns and verbs are marked for number. Yet in (2), a formally singular noun conditions a plural verb. Examples (3–4) also illustrate another aspect of agreement: it is often redundant (Corbett 2006: 11), where the information signaled by the agreeing form is already realized morphologically on the noun (hence *dog* vs. *dogs*).

Another possibility is that the forms of *band* in examples (1–2) are actually formally singular and plural, respectively. There are nouns in English that have the same plural and singular forms, e.g. *sheep*:

(5) The sheep has run away.
(6) The sheep have run away.

However, this is not the case with *band*, which has a perfectly serviceable plural form already—*bands*. Furthermore, *The bands have arrived* indicates there are multiple bands
in the discourse, while British English *The band have arrived* refers to a single band. Additional evidence can be found for this distinction in meaning when the agreeing form is a demonstrative pronoun: *this sheep/these sheep*, but only *this band*, not *these band*.\(^1\)

How then can the plural verb in (2) be explained? As mentioned above, agreement is the displacement of information. In the most “straightforward” examples of agreement, e.g. (3–4), this information is formal and redundantly expressed on the agreeing forms: the morphosyntactic features of the noun are those which are displaced on the verb, adjective, pronoun, etc. However, the information that is displaced can also be semantic. Example (2) is an instance of **semantic (ad sensum) agreement**, where the agreeing form carries the meaning-based properties of the word with which it covaries; in particular, the verb is plural according to the collective meaning of *band*. This is in contrast to examples (1) and (3–4), instances of **syntactic (ad formam) agreement**, or agreement with the morphological form of a word.\(^2\) Semantic agreement, or more generally the relationship between morphology and syntax and semantics, has received considerable attention in the literature (e.g. Comrie 1975, Zwicky 1977, Dahl 2000, Wechsler and Zlatić 2003, Enger 2004, Corbett 1979, 2006, Pesetsky 2013, among others)—for good reason, as the phenomenon is widespread within and across languages.

However, the realization of semantic agreement is not necessarily the same across languages, nor are different phenomena that are classified as “semantic agreement” the same even in a single language. For example, within Latin, both of the following examples are considered instances of semantic agreement, following Corbett’s (2006) definition of the phenomena:

(7) Semantic agreement in Latin\(^3\)

\(^1\)The fact that *these band* is not possible, even when co-occurring with the plural *have* (*These band have arrived*), is important evidence for understanding how agreement can vary according to the syntactic category of the agreeing word. I return to this point in the discussion of the Agreement Hierarchy.

\(^2\)Terminology and examples of semantic vs. syntactic agreement are adapted from Corbett 1991, Corbett 2006: 2, 155–6

\(^3\)Translation of non-English data is supplied by Perseus and/or Loeb editions of the text (for Classical languages), from the source material, or from my knowledge of the language.
a. pars certare parati
part.F.SG to-contend ready.M.PL
‘a part [= group of men] ready to contend’ (Verg. Aen. 5.108)

b. formosi sunt verris et scrofa
handsome.M.PL are boar.M.SG and sow.F.SG
‘The boar and the sow are handsome’ (Varro RR 2.4.4)

Example (7a) is similar to British English *The band have arrived*: the information carried by the participle *parati* ‘ready’ is based on the meaning of *pars* ‘part’, which refers to a subset of Aeneas’ army (all of whom are men) in this context. That is, the morphosyntactic feature values of masculine and plural correspond to the semantic properties of the *pars* in question. In example (7b), however, the semantic information of the nouns *verris* ‘boar’ and *scrofa* ‘sow’ is mediated by a rule that dictates the gender of the adjective *formosi* ‘handsome’. To understand this rule, contrast (7b) with example (8), also from Latin:

(8) murus et porta de caelo tacta erant
wall.M.SG and gate.F.SG from sky touched.N.PL were
‘the wall and gate from the sky had been struck’ (Liv. 32.29.1)

Here, the nouns have the same (formal) morphological features as in (7b), but the participle *tacta* ‘touched’ is neuter plural, in contrast with the masculine plural *formosi*. The semantic information that is carried by the adjective and the participle in these two examples is ANIMACY.4 Because animacy information is still part of the meaning-based properties of the two nouns with which the predicate agrees, Corbett (2006: 256) calls examples like these “a particular case of semantic agreement”.

However, intuitively, the semantic agreement of (7a) vs. (7b) and (8) are quite different. While the features of *parati* are directly related to the semantic make-up of the *pars* in question, the features of *formosi* and *tacta* require rules that spell out the relationship between certain semantic properties and gender features, i.e. that animacy is related to

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4For a fuller discussion of this property, see Section 2.2.3.
masculine gender, and inanimacy to neuter gender, which goes beyond connecting “male-
ness” with masculine gender and “female-ness” with feminine gender. The context of (7b) and (8) is itself a more complex context for agreement, as the agreeing form covaries with two nouns at once. Agreement with coordinated noun phrases, or MULTIPLE ANTECEDENT AGREEMENT, typically results in one of two strategies. The agreeing form can agree with “all” of the nouns (i.e. considering the properties of all nouns involved in agreement), as RESOLUTION like (7b) and (8) above, or it can seemingly agree with just one (i.e. where the form is realized according to the properties of only one of the nouns), as PARTIAL AGREEMENT.\(^5\) Partial Agreement is viewed as the “syntactic agreement” pattern, in that it agrees only with the morphosyntactic feature values of one of the nouns, as in the Latin example below.

\[(9) \text{Ibi Orgetorigis filia atque unus e filiis captus est}\]

There of-Orgetorix daughter.F.SG and one.M.SG from sons captured.M.SG was.SG

‘There the daughter and one of the sons of Orgetorix were captured.’ (Caes. Gal. 1.26)

The features of the participle *captus* ‘captured’ are masculine and singular according to the closer antecedent *unus* ‘one (of the sons)’. The following examples demonstrate that agreement is indeed with only one antecedent, and not a kind of “default” agreement pattern (whereby, e.g., the target would always be masculine and singular no matter the features of the antecedents). As is evident from these examples, Partial Agreement—at least in Latin—is with the nearest antecedent, as NEAREST ANTECEDENT AGREEMENT.

\[(10) \text{Agreement with one antecedent}\]

\(^5\)Terminology adopted from Wechsler and Zlatić (2003: 171). Corbett (2006: 151–5) defines “partial agreement” as encompassing two different phenomena: superclassing, where of the possible featural distinctions, only some are actually drawn upon (which assumes feature hierarchy), and partial agreement in features, where at least one feature agrees, but another does not (e.g. agreement in gender but not number). I favor Wechsler & Zlatić’s more succinct terminology here (in contrast to “agreement with one conjunct”, cf. Corbett 1991: 265). The term “Resolution” is used by both. The terminology and definitions are still, in some ways, misleading: multiple antecedent agreement produces agreeing forms that agree with all of the nouns involved, regardless of whether the features are chosen according to one or all of the conjuncts. I address this issue in Chapter 7.

5
The primary focus of this dissertation is an investigation of semantic agreement (in contrast to syntactic agreement) in multiple antecedent contexts, as a means of understanding how non-formal information plays a role in the agreement process. Semantic agreement is a complex phenomenon, where agreement involves the interaction of not just morphology and syntax, but also, as discussed in Chapter 2, semantics and pragmatics. Furthermore, as Corbett (1991: 307) puts it, “The relationship between meaning and form is central to linguistics”, and so the opposition and interaction of form and meaning within agreement is crucial to the development of a general theory of linguistics. Within the more complex context of multiple antecedent agreement, exploring this relationship is particularly informative: the semantic agreement found here is not a direct “translation” of semantic features into morphosyntactic features; rather, there is a mediation of this information by language-specific rules, like those based on animacy in Latin. Resolution rules are not just a translation of “maleness” (as a semantic property) into masculine gender and “femaleness” into feminine gender, as mentioned earlier. Rather, there is a language-specific way of abstracting from “animacy” (a more general property of the noun) and the morphosyntactic gender which is assigned. The variation in Resolution rules can be seen by comparing the Latin rules discussed above with the rules in most Germanic languages, e.g. Icelandic, where there typically is a single rule of assigning the agreeing form neuter plural features when
the conjoined nouns differ in gender; this rule is independent of animacy distinctions (Corbett 1991: 283). Because the connection between semantic properties and morphosyntactic genders is specific to each language and the rules must be stipulated for each language, Resolution is to some degree syntactic (i.e. formal) in nature. Likewise, there is reason to believe that the syntactic agreement pattern of Partial Agreement has access to semantic information: inanimate antecedents are more likely to show Partial Agreement (Corbett 2006: 220–1), and so Partial Agreement, although traditionally classified as “syntactic agreement”, is to some degree semantic.

Yet the classification of Resolution and Partial Agreement as semantic and syntactic agreement, respectively, is hardly disputed. Both strategies, Resolution and Partial Agreement, are found in multiple antecedent contexts across languages in the Indo-European family (e.g. Melchert 2013 for Hittite, Corbett 1991, 2006 for Slavic, Hock 2007 for Sanskrit, Hock 2009 for Germanic and Latin) and in non-Indo-European language families as well (e.g. Swahili, Corbett 1991: 265), and the standard classification is that of semantic vs. syntactic agreement for each language. This classification is hardly disputed because the two strategies follow well-attested patterns where agreement variation is a function of the syntactic category of the agreeing form (see Corbett 1979, Corbett 1991: 225–60, Corbett 2006: 206–37, and Comrie 1975). Corbett and Comrie observed that the likelihood of semantic agreement is dependent on the syntactic category of the agreeing form, summarized by Corbett’s Agreement Hierarchy (Figure 1.1) and Comrie’s Predicate Hierarchy (Figure 1.2). On the basis of corpus studies across several languages, they find, in essence, that the more noun-like the agreeing form (that is, as one moves rightward along the hierarchy), the more likely semantic agreement will occur, and these patterns also extend to multiple antecedent agreement: the more noun-like the agreeing form, the more likely Resolution will occur. Importantly, the increase in likelihood of semantic agreement is monotonic: there is no intervening decrease in the frequency of semantic agreement as one moves rightward along the hierarchies. The hierarchies and their implications are more complicated—for ex-
ample, whether they apply at the level of individual tokens or at the level of the corpus—but the general description is sufficient for now.

\[
\begin{array}{c|c|c|c|c}
\text{attributive} & \text{predicate} & \text{relative pronoun} & \text{personal pronoun} \\
\hline
\text{syntactic agreement} & \text{semantic agreement} \\
\end{array}
\]

Figure 1.1: Agreement Hierarchy

\[
\begin{array}{c|c|c|c|c}
\text{verb} & \text{participle} & \text{adjective} & \text{noun} \\
\hline
\text{syntactic agreement} & \text{semantic agreement} \\
\end{array}
\]

Figure 1.2: Predicate Hierarchy

Although these hierarchies accurately describe the data in both single and multiple antecedent contexts, they do not explain why such patterns occur, nor why they occur with regularity cross-linguistically—and indeed, these typological tools are not necessarily meant to explain the patterns that they summarize. A significant undertaking of this dissertation is to extend the utility of this description by more clearly explaining, via analyses of corpus data, the distribution of syntactic and semantic agreement in multiple antecedent contexts that has been described by Corbett and Comrie but only explained to a limited degree. Primary data for this discussion are drawn from original corpus studies of multiple antecedent agreement. There is no adequate explanation as to why such a context—where the interaction of semantics is different from the “entirely semantic” examples of (2) and (7a)—would produce the same strategies across genetically related and unrelated languages. If Resolution is a special kind of semantic agreement—but not entirely semantic agreement—and the patterns of the hierarchies still hold, then such an investigation can shed light on the role of meaning in the agreement process, since even in cases where meaning is referenced indirectly or at a higher level of abstraction, the same patterns are still found.
It is also important to note that the “syntactic” of “syntactic agreement” in the description of Partial Agreement describes only the use of formal features; it has nothing to do with syntactic structure. However, syntactic structure is important—and exceptional—in this context, since agreement often proceeds with the antecedent (or postcedent) that is closest to the agreeing form. This fact implies that linear position and proximity are relevant to agreement, in contrast to traditional notions of hierarchical structure. I include in this dissertation a discussion of formal models of agreement, for which both Resolution (as a strategy involving access to semantic information) and Partial Agreement (which in most cases relies on linear proximity) provide challenging data.

The goal of this dissertation is to provide a “deconstruction” of semantic agreement in the context of multiple antecedent agreement. To this end, I begin with background on agreement and semantic agreement in particular in Chapter 2. As evident in the classification of British English The band have arrived and Latin pars certare parati alongside the Resolution of Latin formosi sunt verris et scrofa, this terminology is problematic: the phenomena described under the rubric of “semantic agreement” carry non-formal information in different ways. In addition to these three examples of “semantic agreement”, there are several other constructions that have been similarly classified. I provide an overview of further examples of semantic agreement to lay out the space of possibilities in which non-formal information can interact in the agreement process. By defining this space, it is possible to locate which aspects of multiple antecedent agreement are within the domain of semantic agreement.

Chapters 3–4 constitute the primary data contribution of this dissertation, in the form of corpus studies of multiple antecedent agreement in Latin and Ancient Greek. In addition to these corpus studies, I undertake an elicitation study of the same context (in a different type of agreement system) in Albanian (Chapter 5) and a brief summary of the same context in other (mainly ancient) Indo-European languages (Chapter 6). Data from these studies provide a more accurate picture of the distribution of agreement strategies, taking
into consideration not just the syntactic category of the target but also the position of the target relative to the controllers and the animacy of the controllers (both features deemed relevant by Corbett 1991: 267–9, Corbett 2006: 220–1) to understand how all aspects of the context relate to the interplay of semantic information and agreement forms in multiple antecedent agreement. My analysis of these data as an opposition between assignment and avoidance of difficult contexts is in Chapter 7.

Importantly, the languages discussed in Chapters 3–6 share several commonalities in how multiple antecedent agreement is approached. Given these commonalities, the next three chapters are devoted to understanding where such patterns originate, with the intended goal of understanding how the use of non-formal information could arise and be sustained in multiple antecedent agreement. Given the genetic relationship of the languages under discussion (i.e. they are all of the Indo-European language family), Chapter 8 discusses the possibility of an inheritance origin: whether it is possible to reconstruct Resolution, Partial Agreement, and even semantic agreement patterns more generally in Proto-Indo-European—and furthermore, whether this suffices as an explanatory source of the patterns in the daughter languages.

Chapter 9 considers the possibility that non-formal agreement can actually be completely formal in nature, i.e. that a formal model can capture all the agreement variation found in both single antecedent and multiple antecedent contexts. To this end, I evaluate existing formalisms of agreement from different syntactic theories (transformational and non-transformational) and ultimately draw on independently motivated mechanisms in Head-Driven Phrase Structure Grammar to model multiple antecedent agreement data. The model in HPSG allows for significant interaction of seemingly non-formal features, e.g. meaning and linear proximity.

Finally, Chapter 10 addresses the potential cognitive and functional dimension of the commonalities in multiple antecedent agreement. Partial Agreement—especially when agreement is with the closer antecedent—resembles attraction “errors” as investigated in the
psycholinguistic literature, yet much of the production research on attraction locates the error in the syntactic component, where phrasal features are assigned incorrectly based on a distractor noun. But the resemblance between Nearest Antecedent Agreement and attraction is obvious, even if superficial. For this reason, I consider whether conventional, grammatical agreement patterns and ungrammatical (but potentially acceptable) errors of structural attraction can originate from a common source: the grammar might be capable of producing both, but the acceptability decreases as the strength of the dependency decreases. What exactly determines the strength of the dependency relies on information that is both syntactic (whether it is truly the agreeing noun) and semantic (whether it has subject-like properties and whether it contributes to the semantic construal of the sentence) in nature.

Ultimately, I argue for a view of agreement as a process that, while having some formal component, is actually done in many cases “on the fly” by speakers, especially in more complex contexts like multiple antecedent agreement. This is supported by other constructions where the local context provides the features of agreement, as in instances of “semantic” agreement that are actually more pragmatic in nature (cf. Chapter 2). Resolution similarly provides important evidence: when Resolution is difficult (i.e. when the morphosyntactic features and the semantic features of the nouns do not match, e.g. when the nouns have different animacy values), it is the local conceptualization—the meaning of those nouns in context—that appears to dictate the agreement features. Partial Agreement data also support an “on-the-fly” view of agreement: the agreeing form is primarily determined by the local noun in terms of linear adjacency, not hierarchical structure. While the primary data for this dissertation are written, i.e. edited, texts, an “on-the-fly” view of agreement is still supported by the agreement outcomes found in the corpora. Edited texts do not necessarily mean “error-free” texts (as evidenced by the attraction errors in this dissertation that escape my own edits but are frequently and ironically pointed out by outside readers). And even more importantly, “on-the-fly” agreement does not mean “erroneous” agreement:
only that local concerns are what produce the agreeing forms. The agreeing forms that draw on contextual information are grammatical within the language, and they receive no correction in the editing process. The position I take is one that identifies the source of unexpected (but not ungrammatical) agreement patterns, which can also explain certain kinds of attraction errors (cf. Chapter 10). To be sure, there are cases of agreement that are purely formal. However, given the ubiquity of both semantic/pragmatic agreement and local attraction (both as an “error” and conventionalized strategy), a theory of agreement must allow for significant interaction of non-syntactic (and non-hierarchical) information.

This dissertation contributes to the large body of research on agreement patterns cross-linguistically, with specific focus on multiple antecedent agreement in the (ancient) languages of the Indo-European family. The goal of this dissertation is not purely typological (on which Corbett (1991, 2006) provides a compelling and complete discussion); rather, the primary goal of this dissertation is to relate previous and original agreement research in different domains (descriptive linguistics, typology, psycholinguistics, formal syntax, morphology, and historical linguistics) to provide a clearer picture of the process of agreement (and, in particular, non-formal agreement in multiple antecedent agreement).

Data are drawn primarily from ancient Indo-European languages for two main reasons: (1) some of these languages (Latin, in particular) have been analyzed previously in the typological literature, but the results of my own studies (cf. Chapters 3–4) offer more qualitative data, and (2) these ancient languages, although the data are remote in time and restricted to only what has survived, can still be used to explain phenomena of interest to synchronic linguistics, an important—but oft-ignored—fact in historical linguistics. But the use of ancient language data is also partially biographical: these languages constitute a significant component of my training as a historical linguist. While the question of language change is not of central importance to this research, the language data are still viable for

\[6\] A bibliography compiled by the Surrey Morphology Group can be found at http://www.surrey.ac.uk/LIS/SMG/projects/agreement/agreement_bib_unicode.htm.
answering synchronic questions, and the possibility of reconstruction is addressed (Chapter 8). Furthermore, in many cases (e.g. Latin and Ancient Greek), the corpora are substantial enough to provide an adequate picture of the problem. Although a typological survey would require a more global approach in the language data, my goal in this dissertation is to clearly define the role of semantics in the agreement process within multiple antecedent agreement—a question of the organization of the grammar, which can be answered by any language with the appropriate context for agreement.
Chapter 2

Deconstructing (Semantic) Agreement

2.1 Background

As briefly discussed in Chapter 1, agreement can be broadly defined as the systematic covariance of the morphosyntactic feature values of a particular word (the target) given another word (the controller) in some syntactic context (Steele 1978: 610, via Corbett 2006: 4). Syntactic context can be defined positionally as Noun-Phrase-internal or Noun-Phrase-external, but these particular categories are not necessarily “real” in practice: attributive adjectives and relative pronouns, for example, are both Noun-Phrase-internal, but they behave differently with respect to semantic and syntactic agreement (Corbett 2006: 228–30). For this reason, Corbett (1979) argues for a classification of targets according to their position and syntactic category: attributive, predicative, relative pronoun, and personal pronoun.

Agreement controllers are typically nouns or nominalizations. The set of morphosyntactic features that are relevant to agreement (i.e. “in what respect there is agreement”, Corbett 2006: 4) is particular to each language: some languages have rich agreement morphology, with several features (e.g. gender, number, person) and feature values (e.g. within gender, masculine, feminine, and neuter) to account for, while others have significantly less (and some have none at all). Controllers have inherent (or “classificatory”) features, e.g. gender or noun class (Corbett 2006: 123); these features tend to be lexical and usually do not vary. While features like number are also inherent on nouns, this property generally
varies according to the real-world properties of the referent.\footnote{The exception to this are nouns with lexical number, i.e. \textit{plurale tantum} nouns like \textit{scissors} or \textit{singulare tantum} nouns like \textit{health}, cf. Corbett 2006: 130.} These same features, gender and number, while inherent to the controller, are contextual on the target, i.e. they are dictated by the syntax (ibid.). Section 2.2 provides a discussion of features (morphological, morphosyntactic, semantic, or a combination thereof) and feature values as they pertain to grammatical agreement.

Targets encompass a wide variety of syntactic categories, including adjectives (attributive, predicative), participles (“verbal adjectives”), verbs, and pronouns (relative, personal, reflexive). There is some debate as to whether pronouns should be considered agreement targets, summarized by Corbett (2006: 227–8). I follow Corbett (who observes that agreement realizes the same features on pronouns as on adjectives and in the same way) and consider them to be part of agreement, not, for example, within a separate domain of anaphoric relations. However, as is important to the discussion of semantic vs. syntactic agreement in the analysis of Chapter 7, pronouns are more contentful and are not always structurally dependent on an antecedent.

Agreement targets differ as to which features require realization: while (non-periphrastic) verbs in Latin, for example, agree in person and number but not gender, relative pronouns agree in gender and number but not person. Target specification also differs across languages: Russian, for example, requires gender and number agreement on past tense verbs (the “l-participle”, though now used as a verb to signify a simple past meaning), but Latin does not. As mentioned in Chapter 1, Corbett (1979) and Comrie (1975) both find that the syntactic category of the target is related to the likelihood of semantic vs. syntactic agreement. This might also have to do with the typical syntactic \textbf{position} of each target type relative to the controller, e.g. attributive adjectives are almost always adjacent to their controllers, while predicative participles can be similarly close or rather distant, and personal pronouns can be several sentences removed from their antecedents. Corbett (2006:}
discusses the relationship between agreement type and “real distance”, a point which is addressed in Chapter 7.

Typically, agreement (and here I specifically mean SINGLE ANTECEDENT AGREEMENT, when there is only a single controller) results in an overlap of the target’s feature values with the controller’s feature values. If a controlling noun is masculine, singular, and nominative, the targets usually have the same features, to the extent that each target expresses such features, as in the following example:

(11) sit Scipio clarus
    be.3.SG Scipio.M.SG illustrious.M.SG
    ‘Let Scipio be illustrious.’ (Cic. Cat. iv.21)

In this example, Scipio is masculine, singular, and not a discourse participant (i.e. not first person or second person) and serves as the agreement controller. The target verb sit agrees in person and number as third person and singular, while the target adjective agrees in gender and number as masculine and singular. Case agreement is also evident in this example because the verb is a form of esse ‘to be’: Scipio is nominative, as the subject, from which clarus is also nominative, as the predicative adjective. I exclude a discussion of case in this dissertation, since this is usually understood as part of government, not agreement (see Corbett 2006: 133–5), though there are instances of straightforward case agreement within attributive adjective agreement; however, there is usually no difference between the attributive adjective case and the controller case (there is no “split”, as there is in gender agreement), and so I do not consider these examples in my discussion of agreement. There are also instances case attraction, where the case of a relative pronoun matches the case of the antecedent, for example, rather than the case required by the syntactic function of the relative pronoun. Case attraction is a pattern that more closely resembles agreement. It should be noted that such examples are interesting and do occur in Latin and Ancient Greek (Corbett 1979: 215), the languages that provide much of the primary data in this dissertation; however, the issue of case attraction is outside the scope of this study.
The agreement process that gives rise to the overlap of features in (11) has been formally described in the literature, e.g., as feature copying, feature matching, etc. An important observation with respect to these theories is that not all features are expressed on each target, and in some cases, a feature that is realized on the target is not a formal feature of the controller, e.g. when the controller is a pronoun that does not distinguish gender (like Latin *ego* ‘I’) and the target must still agree in gender (Corbett 2006: 115). This poses a problem for theories of feature copying but is important data for formal descriptions that include semantic and pragmatic information. The question of the formal description of features and their realization in agreement is taken up in Chapter 9.

The agreement process can also result in a mismatch between the feature values of the controller and the feature values of the target; one special type of agreement mismatch is semantic agreement, where some or all of the feature values of the target overlap with the semantic properties of the controller, which are not the same as the morphological features of the controller (Corbett 2006: 168–70). Section 2.3 describes this phenomenon in greater detail.

### 2.2 Features

As Corbett (2006: 114) puts it, “Features are the key underpinning for linguistic description”, and indeed, most theories of agreement take featural descriptions as preliminary to a full analysis. In the same book, Corbett provides a thorough typology of features (his Chapter 4), from which the following facts relate to the present discussion of semantic agreement:

First, agreement features should be distinguished from purely morphological features. Morphological features are those that are only related to morphological exponence. The prototypical morphological feature is inflectional class. Inflectional class differences are “internal to morphology” (p. 122), i.e. they are formal, not featural differences. For example,
there are traditionally five inflectional classes of nouns in Latin, and each inflectional class
has a unique set of endings.

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Table 2.1: Latin inflectional classes of nouns

Although gender and declension class are strongly interrelated (Corbett 1982a: 197),
morphological features such as declension class are not relevant to syntax. As such, they
are not part of agreement, and therefore designations like inflectional class should not af-
fect agreement outcomes. This is the property of morphology-free syntax (Zwicky
1996: 301): syntax cannot “see” morphological properties or rules, only morphosyntactic
features/properties like gender. This principle is fairly standard within theories of mor-
phology and syntax. Further discussion of this principle in relation to an analysis of hybrid
nouns by Dahl (2000) is given in Section 2.3. Suffice it to say that this means that a formal
feature of a controller is not the realization of the endings (e.g. -a for Class 1 nominative
singular nouns in Latin in Table 2.1), but rather the gender of a controller as an inherent morphosyntactic property. For example, nouns like *nauta* ‘sailor’ in Latin are formally masculine, even though they are members of Class 1, which contains predominantly feminine nouns ending in the phonological/morphological form -a.

Second, Corbett finds that “the three indisputable agreement features are gender, number and person” (p. 125), which also happen to be inherent features of nouns, or features that are not required by a given syntactic context but might be syntactically relevant (cf. Booij 1996: 2; in contrast, contextual features are those that are only dictated by syntax, e.g. features that appear on targets). These features also happen to be direct features, or features that express intrinsic content (see Zwicky 1992: 378). Intrinsic content directly relates to semantic content (and therefore semantic agreement).

Last, Corbett (2006: 104) argues that agreement markers can have descriptive content, as evidenced by semantic agreement. Zwicky (1977: 714) also discusses the relationship between morphosyntactic and semantic features: “there is a considerable tendency for the morphosyntactic categories to line up or correlate with the semantic ones”, but the categories of “morphosyntactic features” and “semantic properties” are distinct. A theory of agreement must determine to what extent the formal features relevant to agreement also have semantic correlates that can influence the observed patterns. This linking (or abstracting) between morphosyntactic feature and semantic property is invaluable in understanding semantic agreement.

This dissertation focuses primarily on issues of agreement related to gender and number, since in the data collected on multiple antecedent agreement in Latin, Greek, Albanian, and other languages, person agreement is fairly trivial (the result is usually third person, as most controllers are noun phrases).\(^2\) Furthermore, both of these features have semantic correlates in real-world properties of referents. To this end, I discuss only number and gender in the

\(^2\)I briefly consider an agreement “mismatch” in person features in Section 2.5 and person resolution in Section 2.6.
following sections. I also describe the property of animacy, both as a “sub-gender” (Corbett 2006: 120) and a semantic condition.

### 2.2.1 Number

As one of Zwicky’s (1992) direct features, number is related directly to semantic content. Number is an inherent feature on controllers but a contextual feature on targets (Booij 1996). Number is the most semantically transparent of the agreement features: an opposition between singular and plural (and dual and paucal and so on) is concrete with respect to real-world referents, especially more so than gender (Corbett 2006: 220). There are certain nouns, e.g. pluralis tantum nouns like scissors or pants (mentioned in the first footnote of this chapter), where number is lexical and conventional but still semantically explainable (there are two “parts” to scissors and pants). This is in contrast to gender, which, although usually part of a system with a semantic core (or, according to Corbett 1991: 8–32, always with a semantic core), is often not obviously tied to real-world notions of gender and/or biological sex, since grammars must also assign gender to inanimate nouns. However, while number is usually transparently semantic, agreement (and semantic agreement in particular) often depends on the manner in which speakers conceptualize the number of particular entities in a given context.

Within multiple antecedent agreement, number agreement is usually straightforward. The target’s number can be plural (or dual, if there are only two controllers), since more than one noun serves as the agreement controller and number resolution “follows the semantics of the number feature transparently” (Corbett 2006: 242). Otherwise, it has the same number value as only one of the nouns, as the outcome of Partial Agreement. There are certain complications related to this description: if number resolution is highly transparent, then instances where same-gender antecedents do not resolve for number are unexpected—yet several of these examples can be found in Latin and Ancient Greek, as discussed in Chapters 3–4, in spite of the relative transparency of number and number agreement.
2.2.2 Gender

According to Corbett (2006: 126), gender is “the canonical agreement feature” and also “provides a good deal of relevant data” (p. 214), since it is observable on nouns only via agreement patterns. Spencer (2002: 280) differentiates gender from category types like number (it is not a “meaning-bearing inflectional category”) and case (it is not “purely inflectional”). Rather, gender is an inherent property of controllers (or “classificatory”, ibid.) that triggers patterns of agreement (or different contextual feature values) on targets. That is, genders are differentiated for classes of nouns by virtue of different resulting behaviors on target forms. This implies that gender is inherent on nouns but inflectional on targets (Corbett 1991: 154).³ The nature of gender systems has received much attention in the literature (especially a monograph by Corbett (1991)). For the purposes of this dissertation, the primary background I address in this section is of the semantic nature of gender and gender assignment.

As mentioned above, Corbett (1991: 8–32) argues that gender always has a semantic core.⁴ In some cases, this is obvious, as in “natural gender systems”, where gender is a direct reflection of the sex of the noun’s referent (Corbett 1991: 9). Spencer (2002: 282) similarly argues that gender systems tend to be based on conceptual categories, e.g. animacy, humanness, sex, or some other physical characteristic. Zwicky (1977: 715) proposes the following statement of correlation regarding gender as a semantic property and gender as a morphosyntactic feature: “if there is a morphosyntactic category corresponding to the semantic category female, then call this morphosyntactic category ‘feminine’”; i.e. there is a basic linking between the referential and morphological properties. Such a correlation represents an abstraction of real-world information into grammatical information, an important step in gender assignment (and, as is argued in Chapter 7, an important step in

³Spencer 2002 argues that there is a subset of nouns that do have inflectional gender, namely (Russian) deadjectival nouns that refer to animate entities, but these are the exception, not the rule.

⁴An argument that is not without controversy. For a summary of the debate on the semantic nature of gender, see Kilarski 2007b.
gender resolution in multiple antecedent agreement).

Importantly, semantic gender classification is often specific to languages: while common semantic properties are used across languages, some puzzling classifications can be explained by culture-specific conceptualizations (cf. the discussion of animate/inanimate gender in Algonquian (Kilarski 2007a) and Section 2.2.3). Additionally, gender systems can be more or less semantic: for example, Algonquian languages have stronger semantic gender systems than do Indo-European languages (Kilarski 2007a: 334).

To be sure, not all gender is semantic in nature. Inanimate nouns that are assigned feminine gender, for example, are not necessarily conceptualized as female in any way; Corbett (1991: 23) gives the example of table ‘table’ in French, which is feminine but not understood as female. However, assignment systems proceed first via semantic information, and secondarily via form. In this way, the gender of a noun is always predictable according to semantic and/or formal assignment rules (Corbett 2006: 130), especially when declension class information is also given (Corbett 1982a). The basic semantic relationship between the gender of a noun and its meaning for most Indo-European languages is biological sex: higher-order beings that are biologically male behave differently with respect to their agreement patterns from higher-order beings that are female (and these both often behave differently from inanimates). However, because gender is a lexical property and because assignment can be semantic or formal, gender often produces lexical mismatches: nouns which are formally one gender but refer to a person with the opposite sex (e.g. Russian *vраč* ‘doctor’, formally masculine but often with feminine agreement when referring to a woman). These mismatches provide important data for the interaction of form and meaning in agreement and are addressed in Section 2.3. For now, what is important is that many of the underlying

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5There are, of course, studies where grammatical gender is reported to have semantic consequences on the conceptualization of objects, e.g. Boroditsky et al. 2003, though Brian Joseph (p.c.) suggests that this is more likely due to the grammatical terminology overlapping with the terminology used to describe biological sex, i.e. as metalinguistic information. However, Hope Dawson (p.c.) suggests that viewing “feminine” and “masculine” with their semantic implications as only metalinguistic information ignores the naturalness of categorization and analogy across lexical items that behave in similar ways, grammatically speaking.
principles of gender system organization are also relevant in other aspects of morphology and syntax (Corbett 1991: 31), i.e. agreement. Gender assignment systems are directly linked to gender resolution in multiple antecedent agreement (Corbett 2006: 260).

Another type of semantic assignment discussed by Corbett (1991: 75) is “semantic analogy”, where gender is assigned according to semantically related words. This is problematic, however, because one can usually find a word of any gender that is semantically related. For example, the gender of the borrowed ‘Chicago’ in Russian is unexpectedly masculine. According to the norms of gender assignment, it should be neuter, as it is indeclinable and inanimate (Corbett 1982a: 216). The standard explanation is that masculine gender is assigned via semantic analogy according to the masculine Russian noun _gorod_ ‘city’—but why not analogy to neuter _mesto_ ‘place’ or other semantically associated nouns? In order to avoid _ad hoc_ explanations of gender agreement, the semantic assignment rules I argue for in Chapter 10 draw on existing semantic principles in the language, especially the typical gender of nouns/pronouns that refer to mixed-gender groups.

Gender and number are typically independent of one another: a noun has a lexical gender which typically does not vary according to number. However, particular sets of agreement rules can reveal a dependency between the two features. This requires a separation between controller gender and target gender. Controller gender does not vary; it is a lexical property of the noun. Target gender, however, can vary according to other categories and rules, e.g. the systems described by Corbett (1991: 154–8). Gender might also only be visible under a particular set of conditions: for example, gender in languages like Russian and German is

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6Example and discussion courtesy of Andrea Sims and the OSU Morphology discussion group.

7There are exceptions to this. Brian Joseph (p.c.) points out that Latin _locus_ ‘place’, for example, is masculine in the singular, but neuter in the plural. There are also instances of heteroclisis, where the singular and plural decline according to two different inflectional classes, and such differences can also be observed in the resulting agreement patterns when different genders are prototypical of those classes. Heteroclites suggest that gender is perhaps lexically assigned to stems, rather than nouns, as heteroclites are often suppletive in the plural (suggesting there are different declension class and/or gender assignments for each stem). The issue of whether the noun or noun stem carries gender and how examples like Latin _locus_ and heteroclisis should be accounted for is interesting, important, and highly relevant to a theory of gender and morphology, but outside of the scope of this dissertation.
only distinct for targets in the singular; there is neutralization in the plural (Corbett 2006: 79).

Gender—and gender agreement—is of central importance to this dissertation. The classification of nominals (and I would add, the assignment of gender in Resolution) has, as Kilarski (2007a: 346) puts it, significant structural, functional, cognitive, and cultural implications for the analysis and description of linguistic systems. Likewise, gender resolution in multiple antecedent agreement is “varied and interesting” according to Corbett (2006: 243); understanding the source and type of variation in this context is key to understanding multiple antecedent agreement.

2.2.3 Animacy

Animacy can be both a semantic property (as a description of real-world properties of nouns) or a grammatical property (in distinguishing types of nouns). Both properties can be relevant for the grammar: real-world semantic distinctions might constrain the application of certain rules, but this distinction might not be formally expressed on controllers. For example, Resolution rules in languages often rely on animacy distinctions, but, e.g. for Latin, animacy is not a lexical feature on nouns. In most instances of single antecedent agreement, the target does not vary according to whether the controller is animate or inanimate. In fact, animacy need not be lexically specified at all, since it is usually predictable from semantic information and gender information (e.g. as in Russian, Corbett 1982a: 198).

On the other hand, as a grammatical property, it can surface in noun classification, i.e. as a gender. For example, gender in Cree is based on animacy, and this property therefore is relevant for selecting morphosyntactic forms of controllers and targets (Joseph 1979b). But animacy as a semantic property that conditions certain morphological or morphosyntactic patterns is not necessarily simply a distinction between nouns that are “living/breathing” and nouns that are not: Joseph (1979b: 351) gives the example of the noun ospwākan ‘pipe’ in Cree, classified as animate gender within the grammar, in the
same noun class as living/breathing entities; likewise, ‘raspberry’ in Algonquian languages is also animate gender (Kilarski 2007a: 335). Furthermore, the Slavic classification of animacy has been slowly expanding since the earliest attested texts, which means such categories and distinctions are subject to reanalysis and semantic analogy (Andrea Sims, p.c.). This highlights the importance of understanding the gender system and semantic property through the lens of the particular language in question; that is, as Corbett (1991: 32) argues, “world view” often determines the categories for gender, and the criteria for classification might not be obvious or universal. To be sure, some of the classification is likely idiosyncratic and non-semantic, but a Western bias cannot be ignored in determining which nouns are semantically assigned gender and which are not for a given language.

The interaction of animacy can be even more complicated. Returning to the analysis of Cree gender, Joseph (1979b) shows that grammatical gender based on animacy is, first of all, not entirely semantic. Yet the basic definition of semantic animacy as an opposition between “living/breathing” and “not living/breathing” is relevant in the selection of certain suffixes; e.g. the suffix -ipan ‘former’ cannot be used with grammatically inanimate nouns or non-living grammatically animate nouns. In this case, the semantic property of animacy crosscuts the grammatical distinction in gender, and it is the semantic rule that is relevant in this grammatical context. This example from Cree and the Resolution rules in Latin illustrate the point made by Corbett (1991: 31) on the semantic nature of gender, that although not all gender assignment is semantic, “several of the criteria which underlie gender systems also turn up regularly in other aspects of morphology and syntax”.

Animacy can also affect the realization of both controller and target forms indirectly. In such cases, animacy is a “sub-gender”: agreement patterns differ for only a small proportion of the target forms (Corbett 1991: 163). A well-known example occurs in Bosnian/Croatian/Serbian (BCS), where patterns of controller and target syncretism are determined by animacy rules: for class I masculine singular nouns, when animate, the form of the accusative is the same as the genitive for both the controller and target; in con-
trast, masculine inanimate nouns show a pattern of syncretism between the accusative and nominative cases (ibid.). This example illustrates how a semantic feature can manifest in morphosyntactic patterns in systematic ways. Although this pattern of syncretism is widely observed in the declensional system, the fact that not all nouns are subject to this pattern of morphosyntactic expression makes animacy a sub-gender rather than a full gender.

Animacy thus enjoys an interesting and important position in the featural system of languages. It has a strong semantic basis, though there is some unpredictability in grammatical assignment. Pure semantic distinctions can also affect the output of certain rules or constrain the selection of particular forms, without actually manifesting on controllers or targets. Animacy is particularly relevant in multiple antecedent agreement, and the connection between animacy and Resolution (in terms of the ease of gender assignment) is central to the discussion of the patterns found in Latin and Ancient Greek (Chapters 3–4).

2.3 Semantic Agreement

As briefly discussed in Chapter 1, semantic agreement produces a target (or targets) with features that reflect the meaning of the controller. This is a kind of agreement mismatch: the target values do not straightforwardly match the morphosyntactic values of the controllers. It is important to note, as Corbett (2006: 143) observes, that the idea of a mismatch between controller and target is “based only on our expectations as linguists”. That is, linguists give primacy to syntactic agreement patterns, even though agreement often proceeds according to semantic information. To expect one pattern over another based on intuitions about the “logic” of language often leads the researcher to minimize the role of unexpected patterns. Within the realm of multiple antecedent agreement, this is true in ranking Resolution as more natural or default over Partial Agreement, even though Partial Agreement is a widespread phenomenon within and across languages, as discussed in Chapter 7. However, Andrea Sims (p.c.) points out that considering Resolution more natural contradicts the
general assumption that syntactic agreement (in general) is more natural, inasmuch as semantic agreement is considered to be a kind of agreement mismatch.

Any feature that has a semantic correlate (cf. Section 2.2) has the potential to show semantic agreement. The following example from Latin, repeated from Chapter 1, is a “typical” instance of semantic agreement: the features of the target \textit{parati} are based directly on the natural sex and number of the discourse-relevant referent. That is, all of the features on the target are a direct “translation” of the semantic properties of the referent.

\begin{verbatim}(12) pars certare parati part.F.SG to-contend ready.M.PL ‘a part [= group of men] ready to contend’ (Verg. Aen. 5.108)\end{verbatim}

A similar example is found in Greek:

\begin{verbatim}(13) tò stratópedon en aitíai échontes tôn Âgin anechóroun the army.N.SG at fault holding.M.PL the Agis returned ‘the army [= a collection of men] returned, holding Agis at fault’ (Thuc. 5.60)\end{verbatim}

And another example is found in Hittite, an Indo-European language of ancient Anatolia. Hittite has a slightly different gender system from the rest of Indo-European: Hittite distinguishes between common gender (which is semantically associated with animates) and neuter gender (semantically associated with inanimates). In the example below, the controller is a neuter noun, but the meaning is semantically animate. The target is common gender, reflecting the semantic—not the formal—property of the controller.

\begin{verbatim}(14) a(ntulšatar] kuinna apel ANA URU=ŠU EGIR-pa [(pehjutet)] populace.N.SG each.C.SG his DAT city=his back lead ‘…he led back the population [=inanimate, but composed of animate beings], each one to his own city’ (KUB 19.11 iv 14–5, from Hoffner and Melchert 2008: 239)\end{verbatim}

Semantic agreement is only apparent when one or more semantic properties differ from the morphological properties of that word, i.e. when there is a “choice” (Corbett 2006: 27).
Returning to example (1) of *The band has arrived*, the morphological, i.e. formal, number of band is singular, but the semantic number of this (collective) noun is plural, as a band is typically composed of multiple members. The syntactic agreement outcome (1) represents agreement according to the singular morphological property of band, while example (2) of *The band have arrived* demonstrates semantic agreement with the referential number of band. The number value is different depending on whether the speaker chooses to agree with the formal properties or the semantic properties of the noun.

However, American English speakers still recognize that a band has more than one member. For example, a speaker might not use plural verb agreement, but he might refer back to the band in the discourse using the plural personal pronoun they, rather than it. Likewise, a British English speaker can still view a band as a single unit, even though the agreement patterns indicate the compositionality of the group. Because general semantic information regarding bands is still available to both American and British English speakers, the distinction between American and British English agreement patterns might be better understood as a “ranking” of semantic vs. syntactic factors, rather than a difference in the representation of the meaning.\(^8\) In American English, the formal features are given precedence; in British English, the semantic conceptualization of the collective noun as a plural entity is.

The distinction between semantic and syntactic agreement is not always apparent: syntactic and semantic agreement often produce the same agreeing form; e.g. in example (15), provided by Corbett (2006: 155), the morphological number and semantic number of the controller *Mary* are both singular. The singular verb could therefore be a product of semantic agreement or syntactic agreement (or in some way, both).

\begin{equation}
\text{(15)} \quad \text{Mary has arrived.}
\end{equation}

\(^8\)This description as a “ranking” of factors lends itself to an Optimality Theory analysis, but as is discussed in Chapter 9, transformational theories do not seem to elegantly capture the details of agreement.
Because the agreement type is indistinguishable, examples like (15) are not considered viable sources of data for understanding semantic agreement (Corbett 2006: 157). However, this does not account for the possibility that even “indisputable” examples of syntactic agreement like (1) could actually be the outcome of semantic agreement. A collective noun can be conceptualized semantically as plural—as a group composed of multiple members, as in (2)—or as singular—as a collection of people acting in a like manner. Corbett (2006: 275) actually acknowledges this fact directly: “it is suggested that the agreement options permit expression of different perspectives: a committee [his collective example] may be viewed as an entity (singular agreement) or as a set of individuals (plural agreement)”.

This poses an important problem for the discussion of semantic agreement: how do we know that all agreement is not semantic, especially when dealing only with semantically transparent features like number in English?

There is reason to believe that syntactic agreement is an actual phenomenon, i.e. that not all agreement is semantic. When the gender of an agreeing noun is formal, but the word has semantic gender, i.e. is animate, the split between semantic (16a, repeated from above) and syntactic (16b) agreement is obvious:

(16) Semantic vs. syntactic agreement in Latin

a. pars certare parati
   part.F.SG to-contend ready.M.PL
   ‘a part [= group of men] ready to contend’ (Verg. Aen. 5.108)

b. quorum pars maxima est inter Mosam ac Rhenum
   of-whom part.F.SG greatest.F.SG is.SG between Meuse and Rhine
   ‘the greatest portion of whom [= his men] lie between the Meuse and the Rhine’
   (Caes. Gal. 5.24.4)

9See also Corbett (2006: 2): these same nouns “…may be conceptualized as an entity or as several individuals”. However, in spite of this suggestion, he refers to the American English The band has arrived only as syntactic agreement. This is a consequence of his definition of semantic agreement, which I return to in the discussion of hybrid nouns below.
The adjective *maxima* in (16b) is feminine and singular, even though the context specifies that *pars* here refers to a group of men. On the other hand, in (16a), the participle *parati* is masculine and plural according to the referent of *pars*, also a group of men, despite the fact that morphologically, *pars* is a feminine singular noun.

Even though the distinction between syntactic and semantic agreement must be real, the notion of semantic agreement is still problematic. In particular, the term “semantic agreement” has been used as a kind of catch-all term to encompass a large range of constructions across languages, but many of these constructions differ as to the semantic properties that are relevant for agreement (e.g. whether these properties include number, gender, animacy, etc., and also whether it is the case that if one feature is the product of semantic agreement, then so too must the other features of the noun) and/or the extent to which the semantics plays a role in the agreement process (if it is possible that some of this semantic information is mediated by formal rules, and perhaps if even some of this information is formally built into the model of agreement). If not all agreement is semantic in nature, then the question that remains is how much of agreement is semantic (or more properly, non-formal) in nature? This is the question I address in this dissertation through an investigation of multiple antecedent agreement.

In spite of examples like (16b), it has been argued that all of agreement is semantic in nature, an idea espoused by Dowty and Jacobson (1988: 96): for them, agreement is purely semantic, i.e. there are “no mechanisms of the linguistic theory at all . . . involved in linking an agreement controller to the agreeing form”. However, this position requires them to say that certain formal features like gender are part of the meaning of the noun—that a speaker’s representation of the meaning of, e.g., Latin *pars* ‘part’ also includes the non-semantic information that it is a feminine noun, regardless of the fact that such information is not related to the literal or contextual meaning of the word, only its classification in the grammar of Latin. Or, as Corbett (2006: 2) summarizes, a “real world” semantic property of Latin *pars* is the word *pars* itself, with all of its feature specifications. This position redefines
what is considered semantic information vs. morphological/morphosyntactic information, an undesirable consequence, and in fact, the conclusions of Dowty and Jacobson 1988 are no longer accepted by Dowty, at least.\textsuperscript{10}

Furthermore, it is not always obvious whether all features on a target are the result of semantic agreement, or just a subset of those features. Returning to the “typical” semantic agreement examples (12–14), all three examples of semantic agreement involve the “conversion” of certain semantic features into morphosyntactic feature values, but there is a difference between the examples from Latin and Greek and the one from Hittite: the target *kuinna* in Hittite appears to show only semantic gender agreement, but not semantic number agreement, even though the controller is a plurality. The examples from Latin and Greek both have masculine and plural targets to reflect the collective meaning of *pars* and *tò stratópedon*. This raises the question of whether number and gender agreement can operate independently: whether agreement of one feature might be semantic, while the other syntactic. A similar question arises in the discussion of Resolution rules by Corbett (2006: 257): Resolution rules are independent in their formulation (gender resolution rules do not differ according to whether the noun is singular or plural, for example), but they do depend on one another: “they operate as a set or not at all”.

If the same is to be believed of semantic agreement, then it is necessary to explain why the Hittite target of (14) does not show the same semantic features as the Latin and Greek collective nouns. In all three languages, these nouns are groups of animate beings, which results in masculine gender and plural number in Latin and Greek, but animate gender and singular number in Hittite. If collective nouns are usually viewed as collections of beings, then why is the target in Hittite singular and not plural? The context of the noun’s usage is important, in that the meaning of the Hittite target *kuinna* is the quantifier ‘each’, which has an individuating effect. Furthermore, as discussed above, collective nouns can be viewed as semantically singular (as a group lacking individuation of the members). The

\textsuperscript{10}See http://www.ling.ohio-state.edu/~dowty/papers/agreement-note.html
singular number therefore has both a syntactic and semantic explanation. However, it is not possible to claim that number agreement is semantic only on the basis of a proposed implicational relationship between semantic gender agreement and semantic number agreement. There is no independent evidence to argue that such a dependency between semantic feature agreement exists, and the singular target, even if a result of semantic agreement, is indistinguishable from syntactic agreement. My goal here is to provide a possible semantic explanation for singular agreement, not to argue that it is indisputably semantic number agreement.

The Hittite example demonstrates how complex even a straightforward example of semantic agreement can be, both in terms of the operation and analysis of the process: there is no reason to believe that semantic agreement with collective nouns always produces the same outcome (as such a noun produces plural agreement in Latin and Greek, but singular agreement in Hittite). Instead, the conception of the noun in a given context is what determines how semantic agreement proceeds. A similarly ambiguous example occurs in Latin with the same controlling noun as (12), pars:

(17) magna pars ... raptae
   great.F.SG part.F.SG ... seized.F.PL
   ‘a great part [of the maidens] were seized’ (Liv. i. 9)

For the target raptae, semantic gender agreement is indistinguishable from syntactic agreement because pars is lexically feminine and the referent of the noun is a group of women (in this passage Livy is discussing the episode of the Rape of the Sabine women), but the plural number of the participle—unpredictable from the formal number of the controller—makes it likely that the target is wholly the result of semantic agreement. The feminine singular attributive target magna is ambiguous in the opposite direction. Gender agreement here could be due to the meaning of the form of pars, but since the number is singular, the simpler solution is that this is wholly syntactic agreement, even though the singular target can be explained semantically as reflecting the fact that the maidens are
seized as a singular entity. This example also illustrates that different targets **within the same sentence** can be the outcome of different agreement types. That is, semantic agreement can occur for one target but not another. This fact is widely discussed in the context of the Predicate Hierarchy and Agreement Hierarchy (briefly mentioned in Chapter 1), both of which find different patterns of agreement—even in the same sentence—dependent on target type.

It is obvious from the previous two examples that distinguishing between semantic and syntactic agreement can be problematic. Semantic agreement is only a phenomenon when there is a “choice” in features: when the formal features differ from the semantic features. However, it is not clear that the choice is always semantic vs. formal; in some cases, the choice is semantic vs. semantic (so-called “meaning-meaning mismatches” discussed by Corbett 2006: 161–3, 165).

So much for the “typical” examples of semantic agreement. A wide range of other constructions have also been termed “semantic agreement”, though the connection to the meaning is often more indirect than the conversion or abstraction of semantic features into morphosyntactic feature values. Enger (2004, 2013), for example, describes Scandinavian (here, Norwegian) pancake sentences as semantic agreement, on the basis that such sentences conform to the Agreement Hierarchy. In particular, Enger finds that there is a split in agreement patterns. Attributive adjectives are plural, agreeing, ostensibly, with the plural form of the noun. Predicative adjectives and pronouns are neuter singular, unexpected according to the form of the controllers that can participate in this construction. Enger discusses how the semantics are able to produce a singular target, as in the following data.\(^\text{12}\)

\begin{align*}
(18) \text{Pannekaker} & \quad \text{godt/*gode} \\
\text{pancakes.PL is/are good.N.SG/*PL} \\
\text{‘Pancakes are good’}
\end{align*}

\(^{11}\) The discussion of semantic agreement that follows draws on joint work with Brian Joseph, cf. Johnson and Joseph (2013a,b, 2014).

\(^{12}\) Gender is not marked on plural targets in the following example because there are no gender distinctions in the plural in Norwegian.
In this example, the controller is syntactically plural, but the target is singular and neuter. Neuter singular targets are also found unexpectedly with singular mass nouns of masculine gender, e.g. *vodka* ‘vodka’.

(19) Vodka er sunt/*sunn
    vodka.M.SG is/are healthy.N.SG/*M.SG
    ‘Vodka is healthy’

Both examples represent a kind of semantic agreement in Enger’s view, because the neuter gender of the target reflects the fact that all controllers that produce such targets are low on the individuation scale, which Enger adapts from Sasse (1993) (Figure 2.1 below).

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proper name | human | animal | inanimate/concrete | abstract | mass
---|---|---|---|---|---
       | — highly individuated | less individuated —
```

Figure 2.1: Continuum of Individuation (Sasse 1993)

Importantly, these controllers are almost always not marked as definite in the singular, which is the norm for subjects (Enger 2004: 11)—another indicator of low individuation.13 A neuter singular target cannot be used when *vodka*, for example, is definite:

(20) Vodkaen er sunn/*sunt
    vodka.M.SG.DEF is/are good.M.SG/*N.SG
    ‘The vodka is healthy’

There are also restrictions on the target that imply low individuation: targets can only be adjectives that imply some kind of subjective evaluation (Enger 2004: 13). The following sentence with ‘pancakes’ shows the expected plural agreement because the target is an objective description of the controller.

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13 As Hope Dawson (p.c.) points out, this is very similar to pairs of sentences in English, where the presence of a definite article changes the sentence from a generalization to a description of specific individuals, e.g. *Dictators are irresponsible* vs. *The dictators are irresponsible.*
(21) Pannekaker er gule/*gult
pancakes.PL is/are yellow.PL/*N.SG
‘Pancakes are yellow’

Low individuation indicates that the semantic interpretation of these nouns is likely
that of a singular, collective group. Furthermore, although pancake sentence subjects can
be interpreted as propositions (one can paraphrase (18) as ‘To eat pancakes is good’; (19)
as ‘To drink vodka is healthy’), subjects can also be abstract nouns, e.g. grammatikk
‘grammar’ in Enger’s third example below.

(22) Grammatikk er morsomt/*morsom
grammar.M.SG is/are fun.N.SG/*M.SG
‘Grammar is fun’

The features of the target reflect the fact that all of these subject types are semantically
inanimate (thus neuter gender) and not highly individuated (thus singular number, as a
mass reading). But the semantic agreement in these examples is more indirect: the choice of
features is according to general properties that are correlated with morphosyntactic values,
rather than a “real-world translation” of biological gender; i.e. there is a higher degree of
abstraction from semantic property to morphosyntactic feature value.

In contrast to Enger’s view, Corbett (2006: 150, 224) analyzes the adjective form as
a “default” form, agreeing with the action associated with the pancake sentence subject.
Default agreement is found elsewhere in languages: when agreement occurs with “prob-
lematic” controllers, speakers can use a separate, “neutral” form for the target. This target
form can be unique to this context or syncretic with another form and is often semantically
motivated (Corbett 2006: 79). However, Enger (2004: 11, 25–6) argues that the default
analysis is not sufficient to explain all the details of pancake sentences, as there is positive
evidence to suggest that the semantic properties of the subject and the semantic core of
neuter gender (where “neuter is the inanimate gender par excellence in Norwegian”, p. 26)
are relevant to the agreement process. Furthermore, example (22) is particularly telling: it is not clear what the associated action with *grammatikk* would be.

Pancake sentences are similar to nouns in English that are plural but take primarily singular agreement, e.g. *news* and *mathematics*. In American English, not only is singular agreement preferred but plural agreement is usually ungrammatical, despite the fact that the plural number on the noun is semantically explainable. The semantic agreement in pancake sentences therefore operates in an opposite way to the semantic agreement of so-called **committee nouns**, e.g. *band*, and the patterns introduced in Chapter 1 and discussed earlier in this section. In British English, where *The band are playing tonight* is grammatical, a committee noun is conceptualized as a plural entity, composed of multiple members.

However, upon closer inspection, the British English pattern is dependent on contextual information; i.e. the target is not plural in all situations, but is subject to interpretation in a particular discourse context. When presented with a situation where the band in question has only one member, speakers of a semantic agreement dialect can **only** say *The band has arrived*. Pancake sentences and the variability in semantic agreement found for committee nouns demonstrate that semantic agreement does not apply in only one direction. However, Corbett (2006: 165) argues that this should not be considered evidence that agreement is only a matter of semantics, as this does not account for variable feature values on targets of different syntactic categories. In particular, *these committee* is never acceptable, even if the fuller context is *these committee are meeting tomorrow*.

Corbett further argues that even though multiple outputs of agreement could be termed “semantic” in nature, the label itself should be reserved for outcomes that have a greater semantic justification, where the feature values more closely match the semantic properties

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14 Enger (2004: 22–3) describes pancake sentences as “mirror images” of the typical semantic agreement examples, like committee nouns and similar hybrid nouns discussed later.

15 Native semantic agreement judgments are courtesy of Peter Trudgill, via Brian Joseph, and Rory Turnbull.
of the referent (p. 156). But this raises the question: how do we decide that plural agreement is more semantically justified than singular agreement? Why is the plural conceptualization of *band* more semantically motivated than the singular conceptualization? Is it only because the syntactic agreement is also singular? Corbett does not give criteria for deciding which outcome is more semantically justified, especially when a strong case can be made for both.

Bock et al. (2006), on the other hand, do provide empirical evidence that the semantic (or “notional”) conception of number for collective nouns is plural for British English speakers;\(^{16}\) i.e. there is no variation in the underlying conceptualization of collective nouns and the notional number is lexically controlled. However, cases of “one-man bands” and singular notional agreement show that the local context in which the noun occurs is relevant to the conceptualization—and therefore to the agreement patterns.

An example of one target having “more” semantic justification over another (according to Corbett) is the following situation in the Indic language of Konkani (Corbett 2006: 215), spoken along the western coast of India (cf. Lewis et al. 2013).

(23) ˇjonici awoy aylë
John.POSS-F.SG mother.F.SG came.N.SG
‘John’s mother came’

The neuter outcome is taken to be an example of semantic agreement, since neuter gender can be used to denote women who are younger than the speakers as a more general rule in the language. This does not preclude the possibility that the feminine agreement on the possessive is also semantic agreement since the controller is biologically female, yet Corbett refers to feminine agreement for these nouns only as syntactic agreement. However, just because this noun can make use of this alternate semantic assignment rule does not mean that all other agreement possibilities are syntactic—to assume that they are further reveals an analytic bias towards syntactic agreement. And it is not clear why neuter agreement has “greater semantic justification”; it is only that neuter is also semantically justified and in

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\(^{16}\)They argue that the notional number is plural for American English speakers as well, on the basis of attraction errors.
conflict with the formal features. It appears, then, that the pattern that is labeled semantic agreement is the one that produces a target with features that differ from the formal features of the controller, even if a target with features that match the formal features of the controller could still be semantically justified. This means that “semantic agreement” is actually defined as “unambiguous non-formal agreement”.17

Putting aside this problematic definition for the moment, there are several other constructions that are categorized as “semantic agreement”. Committee nouns are a type of hybrid noun, nouns for which a formal property differs from a semantic property. Boat nouns are another example of hybrid noun: in English, modes of conveyance, especially boats, ships, and cars, are lexically assigned feminine gender by cultural convention, but are semantically inanimate. Corbett (1991: 180–1) provides the following example:

(24) The Canberra, which/*who has just docked, is a fine ship. It/She sails again on Friday.

In example (24), the formal gender is feminine. Importantly, feminine gender is not a semantic property, with the animate feature values that “female-ness” entails, as the relative pronoun cannot be who.18 Feminine gender can only surface on gendered pronouns, either personal pronouns (24) or reflexive (The Canberra righted herself). This means there is at least one domain where gender is lexical and not semantic in English.

Other hybrid nouns across languages are those where the formal gender can be “overridden” by semantic information. For example, profession terms in Russian, e.g. врац ‘doctor’, are lexically masculine, but agreement targets can surface as feminine if the actual referent is female. There are certain implicational patterns, however, regarding feminine agreement and target type: according to Corbett (2006: 210) and Pesetsky (2013), if the sentence

17Andrea Sims (p.c.) points out that this is not the case when gender resolution is assumed in cases of same-gender antecedents producing a plural target of the same gender; in such a case, semantic agreement (i.e. Resolution) is given priority over syntactic agreement (i.e. Partial Agreement) in the analysis.

18Hope Dawson (p.c.) points out that who is not just an animate pronoun, but an animate human pronoun, as some speakers are unable to use who for animals, without significant personification.
contains both an attributive adjective and a predicative target (e.g. a past tense verb, which has gender specification in Russian), then if the attributive adjective is feminine, the predicative target must be feminine. However, if the attributive adjective is masculine, the predicative target can be masculine or feminine.\footnote{Corbett (2006: 210) observes, however, that a feminine attributive adjective is dispreferred in general. Masculine verbs are also highly dispreferred by speakers. That is, the preferred sentence is \textit{molodoj[M] vrac\v c pri\v sla[p]}.}

(25) Implicational agreement for Russian hybrids

\begin{itemize}
\item a. molodaja vrac\v c pri\v sla/*pri\v sel
young.F.SG doctor came.F.SG/*M.SG
\item b. molodoj vrac\v c pri\v sla/pri\v sel
young.M.SG doctor came.F.SG/M.SG
\end{itemize}

‘The young (female) doctor came.’

In considering this particular hybrid noun, Dahl (2000) proposes that Corbett’s distinction between “semantic agreement” and “syntactic agreement” is inadequate to account for the patterns observed, arguing instead that the distinction should be between “lexical gender”, assigned according to semantic generalizations, idiosyncratic rules, and/or formal properties, and “referential gender”, which is determined contextually according to the properties of the controller’s referent; these two types of gender are then responsible for Corbett’s patterns of syntactic and semantic agreement, respectively. Dahl argues that in many examples, gender assignment on the target is not actually a formal vs. semantic split, but rather can proceed by two different semantic routes or two different lexical routes. For example, he interprets the description of the hybrid noun \textit{vrac\v c} by Corbett (1991: 183–4) as making reference to formal assignment rules in gender agreement, i.e. that the rule of gender assignment on the target must refer to the declension type of the noun when it produces a masculine target for a semantically female \textit{vrac\v c}.
However, this interpretation is not warranted by Corbett’s discussion elsewhere (2006: 122–3) of morphosyntactic vs. purely morphological features of controllers, where he argues that “only morphosyntactic features are involved in agreement... hence the notion of ‘morphology-free syntax’” (p. 123). Thus, declension type, as an inflectional class, is not involved in agreement. Dahl appears to interpret syntactic agreement as formal gender assignment on the target, rather than the overlapping of morphosyntactic features (as opposed to semantic features) of the controller and the target. It is not the case that a target adjective is assigned masculine gender when vrač is a semantically female doctor because of its declension class; rather, the declension class is related to (but not necessarily directly reflective of) the formal gender of the hybrid noun itself. Formal gender is an inherent property of the lexeme, which can be overridden by semantic information, especially in contexts more susceptible to semantic agreement.

Dahl’s criticism raises important issues regarding the role of context and semantic agreement. Corbett (1991: 183–4) argues that vrač has a composite nature: when the referent is semantically male, it is simply masculine (semantic agreement is not “visible”, in the same way that semantic singular agreement is not visible in Mary has arrived), but when the referent is semantically female, it is a hybrid noun. However, this overcomplicates the picture by requiring two separate lexical entries for vrač; the more judicious approach would be to allow for not just semantic agreement, i.e. drawing on broader meaning-based properties of the noun (for example, doctors are animate), but also pragmatic properties of the referent (for example, that the discourse-relevant doctor is female). In fact, other kinds of so-called “semantic agreement” can be better described as pragmatic agreement, a point I return to in Section 2.4.

Hybrid nouns like vrač are found in other languages. For example, German Mädchen ‘girl’ is lexically neuter (a result of the diminutive -chen, which derives a neuter noun), but it is, of course, semantically female (Corbett 1991: 228).
(26) Schau dir dieses Mädchen an wie gut sie/es Tennis spielt.  
‘Do look at this girl, see how well she plays tennis.’

However, in much the same way that committees or bands composed of one member show semantic singular agreement for British English speakers, when the referent of Mädchen is a male, pronominal agreement can be masculine as well.20 Spencer (2002: 291) argues that hybrid nouns must be represented as a single lexical item, not as two (or even three, in the case of German Mädchen) lexical entries with separate gender specifications. The variation is not in the formal properties of the lexical item, but rather in the assignment of gender on the target. The explanation for these patterns therefore must lie within a theory of agreement, not a theory of the lexicon.

There is an even more complicated example of semantic agreement found in English (Corbett 2006: 65):

(27) These kind of people are untrustworthy

Here, Corbett argues that the demonstrative pronoun is agreeing not with the syntactic head of the noun phrase, kind, but rather the semantic head, people. However, he also shows that there need not be an overt plural genitive modifier to induce plural agreement, e.g. These kind are untrustworthy. That is, semantic agreement might not just be available in tracking semantic dependencies between the controller and the target, but also in tracking dependencies between the semantic construal (which might rely on nouns that are not the structural controller) and the target. The plural force of this example is obvious, not just in the interpretation but also in the acceptability of plural demonstrative pronouns (as compared to the unacceptability of these band). Traditionally, this example might be considered a kind of attraction error with the local noun, but the plural construal appears

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20 For example, in a situation where a male tennis player performs a weak serve and the ball hits the net, a spectator might comment pejoratively: ‘That girl can’t hit anything. He is terrible.’ (Judgments elicited from a native German speaker, via Alec Buchner.)
to make it more acceptable to native speakers. I discuss the role of examples like (27) in bridging the gap between grammatical agreement and attraction in Chapter 10.

Another type of semantic agreement described in the literature is associative agreement: Corbett (2006: 155, 158, 209–10) describes this phenomenon in the Talitsk dialect of Russian.

(28) Moj brat tam toža žyl’i
  my.m.sg brother.m.sg there also live.pl
  ‘My brother and his family also lived there.’

An “entourage” reading of the controller brat is coerced by the plural (predicative) target. While the controller is formally singular, in this context, it refers to the group that includes moj brat. The target therefore shows agreement with the referential properties of the controller.

Many Indo-European languages also have “polite plurals”, where plural number is used for reasons of politeness or formality when the referent is singular. Examples like the one below from Russian are classified as a type of semantic agreement, in that the targets require reference to the meaning; however, the meaning is social and cultural in nature, not literal. The plural feature comes from pragmatic rules of politeness in the language, not from the referential features of the controller (else we would expect syntactic agreement and semantic agreement to be indistinguishable, where both are singular).

(29) Vy videli
    you.pl see.pl
  ‘You [sg] saw.’ (Comrie 1975: 408)

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21 The attributive target can only show syntactic agreement.
22 Note, however, that the form of the target verb can be explained as straightforward syntactic agreement with the pronoun, and the pronoun itself has no antecedent in this context.
In languages with polite plurals, agreement often also depends on target type. In the Polish example below, the pronoun and verb are plural but the predicate adjective is singular. Agreement on the predicate adjective is with the actual properties of the referent, and so it could also be classified as semantic.

(30) Wy będzicie chora
you.PL will-be.PL ill.SG
‘You will be ill.’ (Barlow 1999: 193 from Makarski 1973)

Joseph (1979a) describes a similar agreement pattern to polite plurals, which he calls “nursely we”: a second person singular referent (the addressee) agrees with a first person plural pronominal agreement target. These are also referred to by Zwicky (1977: 716) as the “phoney inclusive” we, where the first person plural pronoun is used with the same effect as the second person singular pronoun, “but for which we would not want to claim additional meanings”.

(31) We seem a bit displeased with ourself/ourselves/*yourself, don’t we?

There is nothing in the semantic properties of the second person referent that would warrant the morphosyntactic feature values of first person and plural; rather, the features are chosen according to empathy and solidarity—both pragmatic concerns. The reflexive pronoun shows an interesting pattern of agreement variation: for some speakers, only ourselves is appropriate, matching the formal person and number features of the personal pronoun. Some speakers can also accept ourself, where number agreement is semantic according to the singular referent of the pronoun—but only on the -self part of the reflexive. Here, the pronominal part of the reflexive shows syntactic agreement (we - our), but -self shows semantic agreement—an interesting mismatch, where agreement operates differently within the same word, albeit a compound word.

In any case, the fact that agreement with the meaning properties is dependent on social and cultural rules—in contrast with the examples above—suggests that these types
of “semantic” agreement should be categorized differently. This issue is addressed in the following section.

2.4 Pragmatic Agreement

Both polite plurals and norsesy *we* constructions require pragmatic meaning to enter into the agreement process, and Corbett (2006: 4) himself argues that some agreement is a “matter of pragmaties” on the basis of polite second person plural agreement in Russian. Rather than general semantic properties, the speaker makes reference to the socio-cultural context, i.e. rules of appropriate address according to the present situation, which includes reference to features such as formality, solidarity, empathy, and politeness. Corbett (2006: 137) describes this pragmatic information as “respect”, a condition on agreement—not a feature that is to be agreed with. However, the pragmatic reach of agreement goes beyond just the use of different target forms according to the level of respect that the discourse referent is accorded.

In fact, many of the typical examples of semantic agreement (e.g. the examples with Latin *pars*) also involve pragmatic meaning, but a different kind of pragmatic meaning, namely the features of the discourse-relevant referent. In the semantic agreement examples with Latin *pars* and Russian *vrač*, the feature values of the target are not reflective of the general semantic properties that are part of the literal meaning of each noun; rather, the feature values are in accordance with the natural properties of the referent in question. Enger (2013: 278) similarly argues that certain “semantic” agreement patterns actually proceed according to the referent’s properties in a particular discourse context. For example, for languages with words for children that are grammatically neuter gender (e.g. Greek *teknon*), the semantics of such a word can motivate the grammatical gender of the noun. That is, children are generally not considered sex-differentiable pre-puberty; neuter gender is appropriate semantically. However, the fact that we can and do get “semantic agree-
ment” according to the biological sex of the referent indicates that the terminology is not appropriate because agreement is with the features of the particular child in the context, not general semantic information.

In this respect, Enger follows the distinction between “lexical” and “referential” agreement laid out by Dahl (2000). Dahl’s distinction is problematic, as discussed above, but the characterization of certain agreement patterns as referencing “contextual features” is well-supported by the examples discussed in the previous section. I adopt the term **pragmatic agreement** for instances of agreement where a speaker must make reference to the local discourse context or the larger socio-cultural context. Corbett (2006: 156) discusses the possibility of using the term “pragmatic agreement”, but only in the context where there is a meaning-meaning mismatch, i.e. when there are multiple agreement outcomes that are semantically justified. “Pragmatic agreement”, for Corbett, could be used to describe the outcome that has more semantic justification, i.e. has features more closely matching the referential properties of the controller. However, Corbett ultimately rejects the use of this term, as it would not be appropriate for distinguishing some meaning-meaning mismatches. Furthermore, with regard to the data discussed above, this definition would not include polite plurals or nursely *we*. However, Wechsler and Zlatić (2003: 8–9) use the term pragmatic(ally triggered) agreement to describe those patterns where the sex of the referent is reflected by the features of the target. This definition captures those instances described above where the local context is used in assignment of agreement features. This definition does not encompass instances of polite plural agreement.

If most of the “semantic agreement” phenomena discussed above are actually agreement with the referential features of the controllers, one might speculate that all instances of “semantic agreement” are actually instances of pragmatic **local context** agreement. And indeed, this seems to be the case for many of the constructions above, including the straightforward examples where the natural sex of the referent determines the gender feature value with, e.g., Latin *pars*. Pragmatic agreement also captures at least some of the
hybrid nouns, especially lexical items like Russian врач, where gender agreement, when “semantic”, is actually according to the referential sex of the doctor relevant to the discourse. Other hybrid nouns involve what seem like more general semantic properties: for example, German Mädchen shows feminine semantic agreement, but the speaker need not take note of the referential properties of the discourse-relevant girl: it is a general property of Mädchen that the referent is female. The same can be said for collective nouns like band: it is a general property that bands tend to be composed of multiple people, as also suggested by the fact that single-member bands are described with a special term (one-man band). The same is true for boat nouns: boats are categorically inanimate. This distinction between semantic agreement and pragmatic local context agreement can be understood according to the classical distinction between “sense” and “reference” as two distinct components of the meaning of a lexical item.

However, just because speakers do not need to make reference to referential properties does not mean that they do not, and in fact, as discussed above, when speakers are given more contextual information, the semantic agreement outcome changes: when speakers of a band are dialect are told that the band is composed of only a single member, they can only say band is; and when German speakers are given a context in which Mädchen is used insultingly to refer to a man, masculine pronoun agreement is possible. Thus, general semantic properties can be overridden by local information.

Even pancake sentences are not fully semantic: while it is a general semantic property of pancakes and vodka and grammar to be low on the individuation scale, in many cases the availability of the “pancake reading” is dependent on the context. Enger (2004) gives several examples where subjects that are not typical subjects for pancake sentences can be interpreted as such with more contextual information.

Note, however, that these are all exceptional cases. A better view of the split between semantic agreement and pragmatic local context agreement is collective experience: for items like Latin pars and profession terms (independent of social gender biases), the target
gender must come from the natural sex of the referent. For committee nouns, boat nouns, and German *Mädchen*, collective experience with such nouns biases the semantic properties towards plural number, neuter gender, and feminine gender, respectively. But this general information can be overridden with contextual information, as the exceptional cases illustrate.

If agreement can be so affected by contextual information, then can all of agreement be described as pragmatic? Barlow (1999) describes agreement as a purely discourse phenomenon in his formal model, where agreement is defined as a linking between properties and referents: in many instances, the agreement morphology itself signifies how the speaker is classifying and conceptualizing the referent. It is not the morphosyntactic properties of the controller that provide this information, but the agreement relation: by virtue of using a feminine target with Russian *vrač*, it is understood that the referent is female. The contribution of agreement information to the conceptualization is particularly evident with the associative agreement in Talitsk of example (28), where the entourage reading is signaled by the unexpected plural target. However, to relegate all of agreement to pragmatic relations ignores certain facts about grammatical gender, namely, that it is an arbitrary and classificatory property of nouns in most contexts. Such a theory also assumes that there is no interface between the morphosyntactic domain and the discourse domain, i.e. that agreement must be all morphosyntactic or all pragmatic. Yet agreement variation implies that there is a choice. Moreover, in some cases, pragmatic information informs morphosyntactic agreement, as described in Section 2.4.1 below.

At the very least, there is a clear split between pragmatic agreement that relies on local contextual information and pragmatic agreement that relies on the larger social and cultural norms and conventions of the language. The process of pragmatic agreement for Russian *vrač* is distinct from the process that yields the formal *vy* in the Russian polite plural *vy videli*. In the latter case, the agreement is not semantic (as the general properties of a single person do not include plurality) or pragmatic in the local context (as the referential number
of the individual is not plural). Rather, it is the awareness of rules of politeness that yields the plural target form. Associative agreement in Talitsk is also pragmatic in the larger socio-cultural context: the referent of the controller is the person and the conventionally associated group, i.e. a person’s family.

Pragmatic agreement in the larger socio-cultural context more indirectly relates controllers and feature values, as agreement is mediated by extralinguistic information, rather than general semantic properties or referential properties. The final agreement process can thus end up as more syntactic in nature, once the relationship between the controller and certain socio-cultural conventions is established. This process is exemplified by the interpretation and agreement patterns of elliptic duals in Vedic Sanskrit discussed in the following section.

2.4.1 Elliptic Duals

Dual forms in Vedic Sanskrit are typically translated with a “numerical” dual reading, i.e. as signifying two of something. The following example is a typical dual form in the language:

(32) aśvā(u)
    horse.M.DU
    ‘two horses’

By contrast, elliptic duals in Vedic Sanskrit are interpreted as standing in for a conventional pair in the language. Importantly, there is a limited set of elliptic duals in the language, approximately twenty forms in total (Oliphant 1912).23

(33)  a. Mitrā
      Mitra.M.DU
      ‘Mitra and Varuṇa’

      b. dyāvā
         heaven.M.DU
         ‘Heaven and Earth’

23The data in these examples are taken from Oliphant (1912) and Kiparsky (2012).
The interpretation of these dual forms as a conventional pair is supported by the pragmatics (in the larger socio-cultural context): numerical dual readings of the examples in (33) are infelicitous. There is only one god Mitra in the Vedic pantheon—never two of him—and there is only a single concept of Heaven (here, personified as a deity like Mitra)—again, never two. A parallel to this is found in Dutch, where certain singular nouns lack a plural form because a plural would be pragmatically infelicitous (Booij 1996).

Elliptic duals are most plentiful in Vedic Sanskrit, but they are not limited to this language: Wackernagel (1905), for example, claims that the Homeric Greek form in (34a) is an elliptic dual, referring not to two Ajaxes, but rather to Ajax and the person he often fights alongside, his brother Teucer. Importantly, in this context, a numerical reading of ‘the two Ajaxes’ would not be infelicitous. This particular dual form occurs in the Iliad, where there are two characters with the name Ajax: Ajax the Lesser and Ajax the Greater, both of whom fight for the Greeks. However, the elliptic reading is supported by the larger pragmatic context: it is more likely to discuss Ajax and Teucer as a pair than the unrelated but homonymous Ajax the Lesser and Ajax the Greater.24

Example (34b) is an elliptic plural found in Latin. The interpretation follows the same pattern as the Vedic Sanskrit and Greek examples (in that it refers to the pair Castor and Pollux, not a plural number of Castors), but the form is plural because Latin lost the dual number.

\[
\begin{align*}
(34) & \quad \text{a. Aíante} \\
& \quad \text{Ajax.M.DU} \\
& \quad \text{‘Ajax and Teucer’} \\
& \quad \text{b. Castorēs} \\
& \quad \text{Castor.M.PL} \\
& \quad \text{‘Castor and Pollux’}
\end{align*}
\]

24It should be noted that Oliphant, however, rejects Wackernagel’s analysis, nor does he believe in the elliptic plurals present in other languages.
Returning to the Vedic Sanskrit data, there are at least two examples of dual forms that are ambiguous as to the reading: the compounds below, both composed of the words for ‘father’ and ‘mother’, can be interpreted numerically or elliptically:

(35) Variable numerical/elliptic duals

a. pitarā
   father.M.DU
   ‘two fathers’/‘parents’

b. mātārā
   mother.F.DU
   ‘two mothers’/‘parents’

Interestingly, this variability is found across an even greater number of languages, including modern Indo-European languages. For example, Spanish padres and French pères can mean ‘(multiple) fathers’ or ‘parents’. Oliphant (1912: 54) finds that this is the most common type of elliptic dual across languages, citing the Avestan dual pitara, and the plurals Greek patres, Latin patres/parentes, Lithuanian tēvai, Gothic berusios, all of which mean ‘father and mother’.

Elliptic duals are not just odd as to their interpretation; the following agreement patterns, attested in Vedic texts, are also unexpected:

(36) Agreement with elliptic duals

a. pūrvaje pitarā
   before-born.F.DU father.M.DU
   ‘the parents born before us’

b. ubhā mātārā
   both.M.DU mother.F.DU
   ‘both parents’

c. ubhe dyāvā
   both.F.DU heaven.M.DU
   ‘both Heaven and Earth’
In examples (36a) and (36c), the ending of the elliptic dual is the typical ending for masculine nouns. And in fact, the same form of pitṛ ‘father’ is found when the form is a numerical dual. However, for both of these examples, the target adjectives are feminine. A similar pattern is found for (36b): although the lexical gender of mātr is feminine (at least, as evidenced in other contexts of agreement), the agreement target is masculine. What is notable about this agreement pattern is that the gender of the target matches the gender of the missing member of the pair: that is, the target in (36a) is feminine dual, matching the gender of the “missing” mātr. The same is true for (36c): the missing member is prthivī, a feminine noun. The opposite pattern holds for (36b), where the missing member is pitṛ; a masculine noun.

These facts of agreement have received much attention in the literature on elliptic duals, but not much explanation. Kiparsky (2012: 322), for example, identifies this agreement pattern as unexpected, but only comments that “the ‘missing’ conjunct is sometimes modified by an adjective, as detectable by a gender mismatch”. This is not a serious shortcoming in Kiparsky’s account, since the focus of his analysis is primarily historical, in explaining the origin of the form. He treats the elliptic dual ending as not a “true” dual ending, but instead a derivational ending that originated from an original instrumental ending. This ending produces what he calls an “associative dual”. Although this solution has its merits, in terms of a synchronic analysis, such an ending would not only have to account for the exceptional meaning of this form but also the gender and number agreement patterns. That is, if this ending is to be taken seriously as a synchronic derivational account (in the traditional sense) of elliptic duals, it would have to derive a noun that is dual in number and the same gender as the missing member with the meaning of the associated pair. This ending would thus behave differently for each noun: in some cases, it changes the gender to masculine; in others, to feminine; and in others still, there is no gender change.

However, Johnson and Joseph (2013b, 2014) argue that Kiparsky’s morphological account is still better than a syntactic account, where the second member is elided via a
syntactic rule. This is in part due to the presence of full dvandva (coordinative) compounds in the language that express the same meaning: the elliptic dual form Mitrā is matched by the compound in (37a), where both members of the pair are overtly expressed. The same is true of the other elliptic dual forms. The presence of corresponding pairs that are the same except in whether the second morpheme of the compound appears or does not appear supports a view of the relationship between the two forms as morphological, and not syntactic.

(37) Vedic dvandva compounds

a. Mitrāvaraṇā
   Mitra-Varuṇa.M.DU
   ‘Mitra and Varuṇa’

b. dyāvāprthī
   heaven-earth.F.DU
   ‘Heaven and Earth’

c. pitarāmātārā
   father-mother.F.DU
   ‘parents’

d. mātārāpitarā
   mother-father.M.DU
   ‘parents’

And in fact, native Sanskrit grammarians (e.g. Pāṇini) describe elliptic duals as dvandva ekaśeṣa, or ‘dvandva compounds with one remaining member’. This terminology implies an awareness on the part of native (Classical) Sanskrit speakers that such a connection existed between elliptic dual forms and dvandva compounds in Vedic Sanskrit. Importantly, these dvandva compounds are not typical in their form: the dvandva compounds in (37) have generally been analyzed as dual forms of the first members, in spite of the fact that the meaning of the compound is that there is only one of each member of the pair. This is where Kiparsky’s derivational/historical account is most compelling, as the ending is
likely not a true dual form, and in fact, the -ā ending in Vedic Sanskrit is homophonous among several different endings with a multitude of different functions (e.g. neuter plural nominative a-stem nouns often end in -ā as well). This raises an important point: if the first member is not a true dual form, then it is also possible that the elliptic dual is not a true dual form. Even if this is the case, the agreement patterns still require explanation beyond just describing the problem itself. It is not enough to say that the ending is derivational in nature and then not explain where the gender agreement originates from. Furthermore, synchronically it appears to be a type of dual form, as suggested by Pāṇini’s description above. This is a more general point that I address in this dissertation: it is not enough to merely describe the phenomenon, though, to be sure, significant understanding of the typology of morphological systems, morphosyntax, and semantics have come about from such discussions. The purpose of this dissertation, however, is to investigate why such patterns occur and from where they originate—e.g. as a matter of direct inheritance, the interaction of semantic/pragmatic features within the syntactic planning, and/or from general cognitive behaviors, among other possibilities.

With respect to elliptic duals, the account espoused by Johnson and Joseph (2013b, 2014) is one of zero allomorphs: elliptic duals and dvandva compounds are allomorphs; thus, both forms have the same feature specifications. In elliptic duals, the second compound member does not surface phonologically. This allomorphy is conditioned pragmatically, which accounts for the limited number of elliptic duals in Vedic Sanskrit. Elliptic duals only occur when the larger socio-cultural (especially, religious) context is great enough that the interpretation is straightforward. That is, given knowledge of the religious tradition, it is easy—and obvious—to identify the meaning and the relationship to the corresponding full compound. The texts in which these forms occur are highly ritualized, constrained by poetic style and metrics, and in a register that is both formal and very specific to the genre, which might also contribute to the ease of connecting the elliptic dual to the dvandva compound; i.e. elliptic duals might only have been used in the context of the
Rig Veda. An additional factor in the ease of interpretation is that most instances of the elliptic dual include—somewhere in the context—reference, either directly or indirectly, to the unexpressed member of the pair (Oliphant 1912: 55–6). Additionally, the elliptic duals in Vedic Sanskrit have an infelicitous numerical reading (excluding elliptic duals for ‘father and mother’ discussed above), supporting the requirement of sufficient socio-cultural information in order to “delete” the second member of the dvandva compound.

This case study of Vedic Sanskrit elliptic duals illustrates how pragmatic information can indirectly affect agreement patterns. Here, the socio-cultural context establishes the connection between the dual form and its corresponding dvandva compound to explain the aberrant agreement patterns. The agreement is syntactic agreement, but it is explainable only through knowledge of the larger socio-cultural context. The interaction of contextual information and agreement patterns can therefore be quite complex.

2.5 Other Agreement Phenomena

There are other constructions that might be added to the list of semantic or pragmatic agreement phenomena, but can be dealt with outside of these domains by existing morphosyntactic mechanisms. For example, so-called “Unagreement”, such as the examples below from Spanish, can have a semantic/pragmatic basis, but the data are also explainable without reference to these mechanisms.

(38)  a. Los jugadores queremos ir a París
the players.PL want.1.PL to-go to Paris
‘We the players want to go to Paris’ (Bosque and Moreno 1984: 166)

b. ¡Qué desgraciadas somos las mujeres!
how unfortunate.F.PL be.1.PL the woman.F.PL
‘How unfortunate we women are!’ (Corbett 2006: 132, from Harmer and Norton 1957: 270)
c. Las mujeres denunciamos las injusticias
   the woman.f.pl. denote.1.pl. the injustices
   ‘We women denounced the injustices’ (Hurtado 1985: 187, Höhn 2012: 1)

In these examples, there is an apparent mismatch in the person features of the controller and targets. Corbett (2006: 132) takes this as evidence that noun phrases are not necessarily third person. For him, this is similar to vocative “controllers”, as in the following example from Czech (originally from Sgall et al. 1986: 285):

(39) Chlapče, který jsi statečný, zachra tonoucího.
   boy.m.sg.voc who.m.sg.nom be.2.sg brave save.imp drowning-person
   ‘[You] boy, who are brave, save the drowning person.’

However, both of these agreement phenomena can be explained without, first of all, giving up the assumption that all noun phrase subjects are third person, and second, without classifying these as instances of semantic or pragmatic agreement. For the Spanish examples, the noun phrases (los jugadores and las mujeres) could instead be analyzed as in apposition to an unexpressed pronominal subject. And indeed, Spanish is a pro-drop language; thus, the agreement controller is not actually the noun phrase, but, in each case, an unexpressed first person plural pronoun.

For the Czech example, the verb in the main clause is imperative; imperative clauses are usually analyzed as having an unexpressed second person subject. The vocative noun is therefore not the controller of the verb or the relative pronoun targets in example (39). Rather, the vocative is an appositional address to the unexpressed second person subject. The unexpressed second person subject is what serves as the agreement controller.

2.6 Resolution as Semantic Agreement

As mentioned in Chapter 1, “Resolution is a particular case of semantic agreement”, at least according to Corbett (2006: 256). This implies that Resolution makes reference to
semantic information. For number resolution, this is obvious: if a dual feature value exists in the language, then a combination of two singular nouns, when Resolution applies, gives rise to a dual target, as a result of basic addition; otherwise, the target is plural (Corbett 1983: 178). Resolution is also straightforward for person once precedence relations are recognized. The ordering of person is considered to be a universal (at least in terms of referential person; cf. Zwicky 1977): first person is given precedence over second, and second person is given precedence over third (Corbett 1983: 175–6). While number resolution and person resolution tend to show the same patterns across languages, this is not the case for gender resolution. Gender resolution is “the most complex type of resolution” (Corbett 1982b: 375), and there is more variation in the rules. The reason is semantic justifiability: person and number resolution are more easily justified according to the semantics (Corbett 1983: 178), and there exists “a close relationship” between grammatical person and number and real-world person and number (Corbett 1982b: 352). For example, in person resolution in English and many other languages, any controller phrase that contains the speaker has a resolved target in the first person; otherwise, if the controller phrase contains the addressee, the target is second person; and if the controller contains neither the speaker nor the addressee, it resolves to the third person. The same relationship between grammatical and semantic features is not necessarily present for gender. While gender systems always have a semantic core (cf. Section 2.2.2 above and Corbett 2006: 259), not all gender is semantic. However, Wechsler (2009: 584) points out that “the fact that gender need not have a direct semantic basis... does not mean that semantics can be safely ignored”. This is obviously the case with gender resolution: in spite of the non-semantic nature of gender in many agreement constructions, gender resolution typically has some semantic basis.

In an earlier discussion of gender resolution, Corbett (1991: 269–94) distinguishes between semantic and syntactic resolution systems. Others following him (e.g. Wechsler 2009)

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25 Zwicky (1977) discusses an apparent exception to this precedence ordering in Algonquian, but he shows that the unexpected ordering of second person over first person is actually a failure to distinguish between referential person and morphosyntactic person.
have made the same distinction. Essentially, semantic resolution “involves reference to the
meaning of the conjoined elements even if this implies disregard for their gender”, while
syntactic resolution “operates according to the gender of the conjoined items irrespective of
their meaning” (Corbett 1991: 269). However, in later work, Corbett (2006: 258–63) argues
instead for the importance of understanding gender assignment ahead of gender resolution,
where “gender resolution directly reflects gender assignment” (p. 260). Since all gender
systems have a semantic core, on which at least some assignment rules are based, then it
follows that gender resolution might have a similar semantic basis, which can be supple-
mented by formal information. And in fact, for Corbett, gender resolution mandatorily
includes semantic resolution, with the possibility of formal resolution, to the extent that
the assignment system uses formal information.

As the data from Chapters 3–6 show, this is true for languages of the Indo-European
family. Most languages rely on animacy distinctions—a semantic notion—in determining
resolved forms. These semantic considerations are sufficient for classifying Resolution as
part of semantic agreement; there is, after all, reference to semantic information in the
selection of target feature values—most obviously in person and number, but still to some
degree for gender. However, there is more reason for including Resolution under the rubric of
semantic agreement: Resolution vs. non-Resolution (more specifically, Partial Agreement)
conforms to the Agreement Hierarchy and the Predicate Hierarchy (Figures 1.1 and 1.2,
respectively). That is, Resolution patterns like semantic agreement in other agreement
constructions, e.g. polite plurals (Comrie 1975), hybrid nouns (Corbett 1979; Dahl 2000);
see also the dedicated chapters to the description and implications of the hierarchies in

In this respect, the classification of Resolution as semantic agreement is accurate: oper-
ationally, the rules for Resolution apply with the same adherence to the Agreement Hierar-
chy that other “semantic agreement” phenomena do. However, as has been the overarching
theme of this chapter, semantic agreement does not have a singular, uniform definition;
rather, the term encompasses a variety of different constructions that use semantic (or pragmatic) information in different ways. And Resolution is also different from the “typical” cases of semantic agreement, where the features are abstracted directly from the properties of the referent. Resolution rules are language-specific: although the conditions on the rules might be the same across languages (e.g. animacy as a condition across Indo-European), the outcome is specific to the language itself. For example, Latin and Greek resolve animate antecedents to the masculine plural, but Gothic resolves the same kinds of nouns to the neuter plural. Formally, this has been described as a function of the gender system and how the genders are specified (or unspecified) (see Chapter 9 and, e.g., Wechsler 2009). But it is problematic to call Resolution semantic agreement when the rules are stipulated for each language, i.e. when they are, to some degree, syntactic. This problem might be explained according to semantic analogy within each language: the gender used for mixed-sex groups is usually the same gender used in Resolution (Corbett 1982b: 370; Corbett 1983: 200; Corbett 1991: 292; Wechsler 2009: 575). And just as the syntactic agreement of, for example, *The band has arrived* is problematic, in that semantic information might contribute to the agreement patterns, so too is the syntactic agreement strategy of Partial Agreement, which is affected by semantic conditions. In particular, inanimate antecedents are more likely to show Partial Agreement than Resolution (Corbett 2006: 220–1).

Multiple antecedent agreement therefore provides a context where the problem of distinguishing between semantic and syntactic agreement is pronounced, where the same questions raised by the analysis of hybrid nouns, for example, are also at issue, but where the opposition and distribution of the two strategies have received less attention. The remainder of this dissertation therefore investigates this particular case study of multiple antecedent agreement to more clearly locate the place of non-formal information in the agreement process.

This is a significant contribution because, as is evident from the previous discussion, the term “semantic agreement” is applied too broadly. A range of phenomena, all loosely
related to each other, have been classified as semantic agreement, yet the interaction of semantics differs in many of the examples—both in terms of the degree and type of interaction. Furthermore, the definition of semantic agreement exists only in opposition to syntactic agreement, even though targets that happen to have the same formal features as the controller could still be the product of semantic agreement. Thus, as pointed out above, semantic agreement is actually defined as “unambiguous non-formal agreement”, rather than a principled application of semantic information in the agreement process. The data in the following chapters show that such a definition is not sufficient for distinguishing between Resolution and Partial Agreement, and despite the fact that both strategies often co-occur, co-occurrence is not always necessary—Albanian, for example, has only a productive Partial Agreement strategy in the context of nyje particles.

This case study of multiple antecedent agreement provides three main contributions to morphosyntactic research. The first is typological: the data collected add to the body of corpus studies conducted for this context. The second contribution is descriptive and theoretical: I investigate the role of formal and non-formal information in this context to provide a better definition of semantic vs. syntactic agreement. Finally, the third is explanatory: I discuss the origin of these strategies, in terms of historical reconstruction, formalization, and psycholinguistic experiments.
Chapter 3

Multiple Antecedent Agreement in Latin

3.1 Background

As discussed in the previous chapter, multiple antecedent agreement is an important—although peripheral—context of study within agreement research. Multiple antecedent agreement produces an agreement mismatch, where the target “cannot match both the form and the meaning of such phrases, since they contain singular forms and yet the meaning is of a plurality” (Corbett 2006: 168). The context also produces a mismatch in that the target cannot agree with both controllers at the same time: in Latin, only one set of morphosyntactic feature values can be expressed at a time. Corbett argues (p. 175) that mismatches are of central importance in understanding how agreement works; straightforward agreement patterns are enlightening as to the agreement system, but exceptional examples reveal the limits of that system. Moreover, the peripherality of this construction at least makes it no less informative than any other area of the grammar; in fact, cf. Joseph (1997) on the informativeness of marginal patterns.

As discussed in the previous two chapters, there are two outcomes of multiple antecedent agreement in Latin (and in Ancient Greek and much of Indo-European, for that matter): Resolution, the so-called “semantic agreement” outcome, and Partial Agreement (here, Nearest Antecedent Agreement, or agreement with the closer conjunct), the “syntactic agreement” outcome. In this chapter, and in Chapters 4–6, I present data, collected via corpus studies and elicitation, to investigate the nature of the interaction of meaning, form,
and syntactic structure on the outcome of agreement when the controller is a coordinated noun phrase.

In this chapter, I present data and results from a study of Latin multiple antecedent agreement, based on a corpus of 770,687 words. Data from Latin were collected from primary Latin texts, but some examples were also drawn from secondary sources, i.e. grammar handbooks. The grammar handbooks themselves present an interesting problem in the description of multiple antecedent agreement in Latin: most handbooks and textbooks address this construction for predicate and pronominal forms,\(^1\) but they are not consistent in how they describe the distribution of the strategies.

For example, *Menge and Thierfelder* (1953: 6) describe the rules as follows:\(^2\) when the controllers are animate, the target is masculine plural via Resolution; if the controllers are inanimate, then Nearest Antecedent Agreement is usually ("gewöhnlich") the preferred strategy, with Resolution to the neuter plural more rare ("seltener"). When the controllers differ in animacy, the target is plural and the gender can be masculine, feminine, or neuter. This is the same story as *Kühner and Stegmann* (1962), according to *Hock* (2007).

Some grammarians ignore the question of which strategy is more frequent: *Hoffman and Szantyr* (1965: 444–5) address only multiple antecedent agreement with inanimate controllers, where either Resolution to the neuter plural or Nearest Antecedent Agreement can occur, with no discussion of which strategy is more likely. *Roby* (1896: 26), on the other hand, discusses only Nearest Antecedent Agreement as a strategy for any multiple antecedent context. Finally, *Lindsay* (1936: 4–5) finds that “we have *often* a Sing. Verb with two subjects” and “*occasionally*... a Plural Verb with ‘A cum B’” (emphasis mine).\(^3\)

As evidenced by the descriptions of *Menge and Thierfelder* (1953: 6) and *Lindsay* (1936):

\(^1\)An exception is *Pinkster* (1990: 71–2), who addresses only NP-internal agreement; however, according to Harm Pinkster (p.c.), grammatical agreement of subjects and predicates will be addressed in a forthcoming book. Multiple antecedent agreement is similarly not addressed in Woodcock 1985.

\(^2\)I continue to use the terminology “Resolution” and “Partial Agreement”/“Nearest Antecedent Agreement”, although each handbook does not necessarily use these terms.

\(^3\)A table presenting the statements from standard grammar handbooks and school grammars is given in Appendix A.
frequency adverbs are often used in such statements, but they are rarely defined in any precise way. Even when these adverbs are viewed in relative terms, it is not clear what it means for Nearest Antecedent Agreement to be “more rarely” employed than Resolution—nor is it explained as to why this would be the case. It is not expected that grammar handbooks should provide this information: these texts are meant as reference books, not as in-depth studies of linguistic phenomena. However, the use of these frequency adverbs raises a question that should be addressed in an investigation of multiple antecedent agreement. While the Latin student can be sure that such descriptions are the result of careful and prolonged study of the Latin language, a more nuanced and precise definition of frequency terminology is in order, especially when relating these patterns typologically to other languages. That is, if the frequency of the strategy is important to the analysis, then there is more motivation for an empirical study of the Latin corpus, beyond confirming the statements in the grammar handbooks.

School grammars also vary in their descriptions of the frequency of each strategy: Allen and Greenough (1888: 165–6) describe the situation such that Resolution and Nearest Antecedent Agreement are options for all contexts (animate, inanimate, and mixed-animacy controllers); they also add that Nearest Antecedent Agreement is “often” employed. This is in contrast to Arnold et al. (1897: 47), who find that while both strategies can occur for animate and inanimate controller contexts (mixed animacy is not addressed), Nearest Antecedent Agreement is “more rarely” employed. Furthermore, Bennett (1895) and Gildersleeve and Lodge (1894) do not even mention Nearest Antecedent Agreement as a strategy for animate and inanimate controller contexts. Gildersleeve does not mention this strategy at all; Bennett offers it only as an option for mixed animacy environments.

Finally, in addition to the handbooks, Corbett (2006: 252) (following Kühner and Stegmann 1962: 44–52) describes the rules for Latin as follows: Nearest Antecedent Agreement is “often preferred”; when Resolution is employed, the resolved gender distinguishes humans (masculine) and nonhumans (neuter). With mixed-animacy groups, Nearest An-
Nearest Antecedent Agreement is usually preferred, but Resolution to the neuter plural is possible. This is very similar to the consistencies found in the grammar handbooks and school grammars, but the animacy distinction of human vs. nonhuman is a different characterization of the split and is not supported by the data in my corpus study below. Likewise, the issue of mixed animacy is more complex than just a choice between Nearest Antecedent Agreement and Resolution to the neuter gender, as is discussed in Section 3.4.

These inconsistencies thus provide a secondary motivation for this portion of the dissertation: a more precise discussion of the facts is necessary, for both descriptive and, in the case of school grammars, pedagogical purposes. It is important to note that despite the inconsistencies in mentioning Nearest Antecedent Agreement (and the extent to which it can occur), there is overlap in many of the descriptions. For example, it is uncontroversial that, when Resolution occurs, it is either to the masculine plural or the neuter plural, with the gender dependent on the animacy of the controllers. And when mixed-animacy contexts are addressed, most grammar books recognize the variation that can occur—both variation in strategy (both Resolution and Nearest Antecedent Agreement can occur) and in Resolution outcomes (where the target can be masculine plural or neuter plural, and in some cases, even feminine plural). The latter variation appears to be a product of conceptualization—once again demonstrating the importance of meaning (and often, meaning in context) in agreement.

While all of the descriptions of multiple antecedent agreement in Latin share common threads, the analysis and description of the phenomenon differ in small but significant ways. The corpus study presented below aims to, in part, offer a more complete description of Resolution and Nearest Antecedent Agreement in Latin.
3.2 Corpus and Coding

The corpus consists of approximately 770,000 words, containing material from Old Latin and Classical Latin. The tables below provide information on the make-up of the corpus, including the author, author’s lifespan, estimated (or actual) time of publication (when known), and word count, separated by Old Latin (Table 3.1) and Classical Latin (Table 3.2).

<table>
<thead>
<tr>
<th>Lifespan</th>
<th>Author</th>
<th>Work</th>
<th>Publication Date</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>254–184 BC</td>
<td>Plautus</td>
<td>Rudens</td>
<td>c. 211 BC</td>
<td>11,983</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poenulus</td>
<td>195–189 BC</td>
<td>11,665</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pseudolus</td>
<td>??</td>
<td>10,787</td>
</tr>
<tr>
<td>234–149 BC</td>
<td>Cato</td>
<td>De Agricultura</td>
<td>???</td>
<td>18,537</td>
</tr>
</tbody>
</table>

Table 3.1: Old Latin corpus
<table>
<thead>
<tr>
<th>Lifespan</th>
<th>Author</th>
<th>Work</th>
<th>Publication Date</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>116–27 BC</td>
<td>Varro</td>
<td><em>Rerum Rusticarum</em></td>
<td>???</td>
<td>37,220</td>
</tr>
<tr>
<td>100–44 BC</td>
<td>Caesar</td>
<td><em>Commentarii de Bello Gallico</em></td>
<td>58–49 BC</td>
<td>46,738</td>
</tr>
<tr>
<td>106–43 BC</td>
<td>Cicero</td>
<td><em>De Divinatione</em></td>
<td>44 BC</td>
<td>28,588</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>De Amicitia</em></td>
<td>44 BC</td>
<td>9,638</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Cato Maior de Senectute</em></td>
<td>44 BC</td>
<td>8,619</td>
</tr>
<tr>
<td>70–19 BC</td>
<td>Vergil</td>
<td><em>Aeneid</em>: 1–4, 7</td>
<td>29–19 BC</td>
<td>24,390</td>
</tr>
<tr>
<td>64/59 BC–17 AD</td>
<td>Livy</td>
<td><em>Ab urbe condita libri</em></td>
<td>29–19 BC</td>
<td>516,947</td>
</tr>
<tr>
<td>43 BC–17/18 AD</td>
<td>Ovid</td>
<td><em>Ars Amatoria</em></td>
<td>2 AD</td>
<td>14,907</td>
</tr>
<tr>
<td>c. 69–122 AD</td>
<td>Suetonius</td>
<td><em>De vita Caesarum</em></td>
<td>121 AD</td>
<td>30,668</td>
</tr>
</tbody>
</table>

Table 3.2: Classical Latin corpus

The works were selected either to be representative of a particular author (e.g. Caesar’s commentary on the Gallic Wars, for Caesar) or genre (e.g. selected books from Vergil’s *Aeneid*, for a sample of epic poetry). In cases where the texts are not the author’s most famous work, e.g. the selected dialogues from Cicero, these were chosen for the sake of varying genre, for completeness of the corpus.

In each text, examples were collected of any sentence that contained more than one controller and a non-attributive target. Attributive targets always show Nearest Antecedent Agreement (cf. Johnson 2008), as in example (40) below, so they were largely excluded from this study.
Tokens were coded for the animacy of the controllers (animate human, animate non-human, inanimate concrete, and inanimate abstract), the syntactic category of the target (verb, adjective, participle, relative pronoun, demonstrative pronoun, personal pronoun), and the position of the target relative to the controllers (precede, intervene, follow, or next sentence). In coding animacy, gods and goddesses were classified as animate humans because they behave like humans, i.e. there is no special grammatical or semantic effect related to gods but not non-divine humans.

Previous studies of multiple antecedent agreement by, e.g., Corbett (1991, 2006) and Mambrini and Passarotti (2012), search for tokens by picking out sentences that have two **singular** subjects. The ratio of Resolution to Partial Agreement is based on the number of tokens that occur with a plural target vs. a singular target (and often these targets are just verbs). While this strategy allows for a faster, larger corpus search, this excludes any instance where (at least one, if not both of) the controllers are plural. Examples with plural controllers can be problematic, i.e. ambiguous, in certain contexts: when the controller closest to the target is plural and the gender is the gender that would result from Resolution (i.e. either masculine or neuter), then it is impossible to tell whether the target is a product of Resolution or Nearest Antecedent Agreement, as in example (41). However, there are plenty of instances where plural controllers do not result in ambiguity.

(40) **maiore strepitu et tumultu**

    ‘with a greater noise and commotion’ (Caes. Gal. 6.7.8)

(41) **clausa habere ostia ac fenestras**
    closed.N.PL have doors.N.PL and windows.F.PL

    ‘the doors and windows [should] be kept shut’ (Varr. R.R. 2.7.10)

Searching only by controller and target number also implies that number resolution and gender resolution are linked, i.e. one cannot operate without the other. This dependency was discussed in Section 2.3 and directly addressed by Corbett (2006: 257): the form of a
gender resolution rule does not depend on the number of the controllers involved, but there is an operational dependency, where number resolution and gender resolution apply as a set or not at all. However, in contexts where gender resolution is straightforward (or even a non-issue), there are still instances of apparent Nearest Antecedent Agreement. That is, when singular controllers of the same gender are conjoined, the target can either be singular (42a) or plural (42b).

(42) a. Ubi vindemia et oletas facta erit
   when vintage.f.sg and olive-harvest.f.sg done.f.sg is
   ‘when the vintage and the olive harvest are over’ (Cato. Agr. 68)

   b. fuerant Naxiosque relictæ / Et Paros et Clario
   were Naxios.f.sg-and passed.f.pl / and Paros.f.sg and by-Clarian
   Delos amata deo
   Delos.f.sg loved by-god
   ‘Naxos and Paros had been passed, and Delos loved by the Clarian god’ (Ov.
   Ars 2.79–80)

The opposition between (42a) and (42b) raises important questions about the interaction of gender resolution and number resolution. If Corbett is correct in arguing that the rules apply as a set or not at all, then there cannot be gender resolution in example (42a), but there must be gender resolution in (42b). Minimally, this requires a Resolution rule for same-gender antecedents, stated generally as “controllers of the same gender have targets of that same gender”. This rule varies across languages: in Slovene, two neuter controllers induce a masculine target in Resolution (Corbett 2006: 244). The question that is relevant to my analysis (see Chapter 7) is why Resolution would not occur here. Both number resolution and gender resolution are straightforward in same-gender contexts when the rule simply produces a plural target of the same gender. In the case of number resolution, there is, as in all instances of Resolution, semantic justifiability of the plural target outcome. For gender resolution, there is no need to “compute” features in Latin—only to carry over the same gender value, even if the process can be described by a rule. I discuss this issue
in more detail in Chapter 7, where the occurrence of Nearest Antecedent Agreement for same-gender controllers is an extension of the strategy into a less complex environment.

Returning to the Latin corpus, there are other sources of strategy ambiguity. Namely, patterns of syncretism can create a context where the gender of the resolved form is indeterminate, and it is often impossible to say whether Resolution has taken place, and if so, to what gender. In example (43), the target is an ablative plural participle. The ablative case shows gender neutralization in the plural: all genders have the same ending. This example very clearly shows number resolution—the participle is marked as plural—but gender resolution is indeterminate as to which gender the target actually is.

(43) relictis Romae uxore et filio
   left.?pl in-Rome wife.F.sg and son.M.sg
   ‘he lefts his wife and son in Rome’ (Suet. Tib. 10.2)

Here, the controllers are both human: *uxore* ‘wife’ and *filio* ‘son’. Thus, if the consistencies in the descriptions by the grammar handbooks are to be believed, it can be assumed that the target is masculine, for human/animate nouns. However, because the gender is not clearly marked in the form, I exclude these examples from the study.

In order to provide a more thorough report of the problem in Latin, I searched for tokens by hand. This allowed me to include tokens that contain a plural controller and to more easily separate the ambiguous tokens from the non-ambiguous tokens. Furthermore, a manual search also allowed for closer engagement with the data; the resulting qualitative data provide much of the evidence in Section 3.4. Searching by hand also avoided problems related to distance between controllers and targets: in many cases, the target can be far removed from the controllers, and these dependencies are hard to capture in automated corpus studies, especially ones that are not syntactically and/or morphologically tagged. Last, there are examples where the conjunction of controllers is not overt, but where a target still modifies two nouns within the sentence, as in example (44).
(44) Hoc bello cum Hirtius in acie, Pansa paulo post ex vulnere
this war when Hirtius.m.sg in battle, Pansa.m.sg little after from wound
perissent, rumor increbruit ambos opera eius occisos
perished, rumor spread both.m.pl work his strike
‘As Hirtius lost his life in battle during the war, and Pansa shortly afterwards from
a wound, the rumor spread that he had caused the death of both’ (Suet. Aug. 11.1)

Here, there is no overt conjunction (e.g. et, atque, -que); rather, subject nouns from two
separate clauses serve as the agreement controller for a third clause, but the two controllers
are never directly conjoined. These examples would not immediately show up in automated
searches of texts.

3.3 Quantitative Results

The following tables present the distribution of Resolution and Nearest Antecedent Agree-
ment according to animacy (Table 3.3), position (Table 3.5), and syntactic category (Table
3.6). Although the corpus contains over 770,000 words, there were not many tokens, as
multiple antecedent agreement is a rare context. Certain subsets of the data are even rarer,
e.g. agreement with controllers that differ in animacy values. For completeness, a chi-square
test of significance was conducted on the tables below, but much of the discussion in Chap-
ter 7 actually relies on the qualitative data in each language and the general typological
patterns of Resolution (e.g. resolved genders in each language). The quantitative data and
chi-square tests are meant to support the analysis of specific tokens.
The distribution of the strategies according to animacy shows the expected patterns: Resolution occurs more frequently for animate antecedents; Nearest Antecedent Agreement occurs more frequently for inanimate antecedents. Excluding cases of mixed animacy, $\chi^2 = 27.2492$, $p < .05$. This confirms Corbett 2006: 220–1. As discussed in Section 3.1, Corbett follows Kühner and Stegmann (1962: 44–52) by describing the Resolution rules as distinguishing between human and nonhuman. However, Table 3.4 suggests (owing to the lack of data) that when animacy distinctions are finer-grained, nonhuman animate controllers appear to pattern with humans, not inanimates.

### Table 3.3: Distribution of strategies by animacy

<table>
<thead>
<tr>
<th>Controller Animacy</th>
<th>Nearest Antecedent Agreement</th>
<th>Resolution</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animates</td>
<td>7</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>Inanimates</td>
<td>32</td>
<td>12</td>
<td>44</td>
</tr>
<tr>
<td>Mixed Animacy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>49</strong></td>
<td><strong>89</strong></td>
</tr>
</tbody>
</table>

### Table 3.4: Distribution of strategies by fine-grained animacy

<table>
<thead>
<tr>
<th>Controller Animacy</th>
<th>Nearest Antecedent Agreement</th>
<th>Resolution</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans</td>
<td>3</td>
<td>34</td>
<td>37</td>
</tr>
<tr>
<td>Nonhumans</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Animates, mixed</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Concrete</td>
<td>13</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Abstract</td>
<td>19</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>Inanimates, mixed</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Mixed Animacy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

While Corbett (1991: 267) argues that targets that follow controllers favor Resolution
(though he describes this in terms of the controllers’ positions), the difference between the use of the strategies for targets that precede vs. follow is not very high, as shown in Table 3.5.

<table>
<thead>
<tr>
<th>Target Position</th>
<th>Nearest Antecedent Agreement</th>
<th>Resolution</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precede</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Intervene</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Follow</td>
<td>26</td>
<td>33</td>
<td>59</td>
</tr>
<tr>
<td>Next Sentence</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>49</td>
<td>89</td>
</tr>
</tbody>
</table>

Table 3.5: Distribution of strategies by position of target relative to controllers

Furthermore, \( \chi^2 = 7.194, p > .05; \) target position is therefore not statistically significant. Rather, what is remarkable about these data is the fact that Nearest Antecedent Agreement does not occur when the target is in the following sentence, at least in this corpus. It is possible that the sentence boundary is significant: local information cannot “cross” sentences. Alternatively, in many ways, target position correlates with target type, a point I return to in the discussion of Table 3.7. First, Table 3.6 shows the distribution of strategies according to the type of syntactic category of the target.
Table 3.6: Distribution of strategies by syntactic category of target

<table>
<thead>
<tr>
<th>Target Category</th>
<th>Nearest Antecedent Agreement</th>
<th>Resolution</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate Adjective</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Participle</td>
<td>27</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>Personal/Demonstrative Pronoun</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Relative Pronoun</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Verb</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>49</td>
<td>89</td>
</tr>
</tbody>
</table>

These data do not necessarily conform Agreement Hierarchy, but it appears as though the distribution of strategies is dependent on the type of syntactic category: $\chi^2 = 10.9447$, $p < .05$. The pattern that is most obvious according to the raw numbers is that Resolution is favored when the target is a pronoun. With regard to predicative targets (adjectives and participles, which have similar functions in Latin; consider also participles as “verbal adjectives”), the split between Resolution and Nearest Antecedent is not very pronounced. A more accurate description of the patterns might therefore be framed in terms of the likelihood of semantic agreement and whether the target is a pronoun, as opposed to the likelihood of semantic vs. syntactic agreement—in this framework, there is a preference for semantic agreement over syntactic agreement after a certain point along the hierarchy, but both strategies can occur to the left of that point.

When target type is viewed in terms of target position, some reasons for the strategy distribution become clear, as shown in Table 3.7.
In particular, the majority of pronoun targets follow the controllers, either in the same sentence or the next. In contrast, very few predicative targets occur in the next sentence. The position of the target is dependent on target category: $\chi^2 = 33.8132$, $p < .05$. The data also suggest a weak connection between target type and distance: non-relative pronouns are more likely to surface at a greater distance from the controllers. Corbett (2006: 236) claims that “real” distance can affect agreement choices: “as the distance between controller and target increases, so does the likelihood of semantic agreement”. The relationship between distance, syntactic category, and contextual information is central to my analysis of multiple antecedent agreement patterns, the topic of Chapter 7.

### 3.4 Qualitative Data

In addition to the distribution of the strategies detailed above, certain patterns emerge when tokens are viewed in more detail. For example, there is an instance of Resolution that occurs across speakers. In (45), the target appears in a separate speaker’s line, but with the proper resolved form for animate beings, masculine plural.

(45) Han.: Patrem atque matrem viverent vellem tibi.
father.M.SG and mother.F.SG living wish for-you

<table>
<thead>
<tr>
<th>Target Category</th>
<th>Precede</th>
<th>Intervene</th>
<th>Follow</th>
<th>Next Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate Adjective</td>
<td>4</td>
<td>0</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Participle</td>
<td>11</td>
<td>4</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Personal/Demonstrative Pronoun</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Relative Pronoun</td>
<td>1</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Verb</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3.7: Distribution of target types by position
Ag.: An mortui sunt?

Han.: A father and mother I only wish were alive for you this day

Ag.: Are they dead?’ (Plaut. Poen. 5.2.1066-1067)

Resolution rules are salient enough that speakers who do not utter the controllers can refer to the same features and produce the target form warranted by the discourse context.

As expected from the variation in the discussion of rules by Latin grammar handbooks, mixed-animacy conditions present an interesting set of data. The three tokens from the corpus study show all three target possibilities: Resolution to the masculine plural (46a), Resolution to the neuter plural (46b), and Nearest Antecedent Agreement (46c).

(46) Mixed Animacy

a. Masculine Plural

rex regiaque classis una profecti

‘The king and the royal fleet departed together’ (Liv. 21.50.11)

b. Neuter Plural

natura inimica... liberam civitatem et regem
by-nature hostile.N.PL free state.F.SG and king.M.SG

‘by nature a free state and a king are hostile’ (Liv. 44.24.1)

c. Nearest Antecedent Agreement

legatos sortesque oraculi exspectandas
envoys.M.PL lots.F.PL-and oracle to-be-awaited-for.F.PL

‘[determined] to wait for the return of their embassy with the oracular reply’
(Liv. 5.15.12)

The variation suggests that there is no hard and fast rule for the mixed-animacy condition. This is not surprising: the mixed-animacy condition is rare—a speaker, in general,
does not often describe dissimilar nouns in the same way. Corbett (2006: 239), in fact, finds that particular combinations, i.e. conjoining controllers of different animacy values, are actually avoided in many languages because of the high degree of semantic difference. That is, coordination usually occurs with “like” nouns—perhaps as evidence for an extension of the general property of syntactic coordination, where “like” categories are coordinated. With regard to coordinating semantically “like” items, this amounts to the rarity of describing animate nouns and inanimate nouns in the same way. Since descriptions that can apply to both animates and inanimates at the same time are highly restricted, the examples in (46) might actually not be instances of mixed animacy, but instead, instances where a “lexically” animate or inanimate noun is conceptualized as the opposite animacy value. For example, in (46a), the controllers are rex ‘king’ and classis ‘fleet’. A king is an animate human being. A fleet, as a group of ships, is technically inanimate. However, these ships are necessarily operated by men—animate beings. Hence it is a fleet of humans too. Both controllers can be conceptualized as animate entities, and therefore Resolution to the masculine plural is not unexpected.

Example (46b) shows the same process, but in the opposite direction. The controller civitatem ‘state’ is inanimate, while regem ‘king’ is usually animate (as it was in the previous example). However, here, the use of ‘king’ appears to be more metaphorical, representing a regency, rather than a particular (animate, human) being. Both controllers can be conceptualized as inanimate, and the Resolution to the neuter plural would be the expected pattern.

Finally, the issue of mixed animacy is avoided altogether in the last example (46c) by employing Nearest Antecedent Agreement: the author need not concern himself with animacy distinctions, since the target is the same when Nearest Antecedent Agreement applies, regardless of how the controllers are conceptualized.

Although there are instances of coordination of “unlikes”, where, for example, prepositional phrases are conjoined with adverbs as in He walked quickly and to the bar.
Another context that is rare and therefore difficult to characterize is when the target intervenes between the two controllers, i.e. it follows one controller but precedes the other(s). The data are sparse, but three of the four occurrences show Nearest Antecedent Agreement, and only one shows Resolution of same-gender antecedents. The problem, however, is that in this context it is unclear if the controllers that follow the intervening target are “afterthoughts”, such that agreement is not necessarily expected to be with both conjuncts. That is, in instances where the intervening target agrees with only one controller, it might be that the original intention of the sentence was to have only a single controller, and the following conjuncts were added secondarily. Compare, for example, the sentences in (47a) and (47b),

(47) a. unde Troia videri
     from-there Troy.F.SG be-seen

     et Danaum solitae naves et Achaica castra
     and Greek accustomed.F.PL ships.F.PL and Achaean camps.N.PL

     ‘from there all Troy and the Greek ships and the Achaean camps were accustomed to be seen’ (Verg. A. 2.461–2)

b. Neuter Plural

     Quas ob res triumphus ei decretus est multique
     which on-account-of things triumph.M.SG to-him voted.M.SG be many-and
     et magni honores
     also great honors.M.PL

     ‘Consequently a triumph was voted him and many high honors’ (Suet. Tib. 17.1)

In the second example, (47b), the first controller triumphus ‘triumph’ is masculine and singular, and the target decretus ‘voted’ has the same features. Even though both a triumph and many honors were voted to Tiberius (the recipient referred to by ei), the first controller is more specific than the second controller: a triumph, a particular kind of award, was given
to Tiberius. The other honors are not specifically named, which implies that these honors have a less important status and may be mentioned only as an afterthought. As such, agreement with only the first, specified controller would not be unexpected—though such an explanation is admittedly post hoc.

On the other hand, the target *solitae* ‘accustomed’ in example (47a) agrees with the second controller (out of three). However, the first controller occurs on a previous line, which means the first conjunct is not only more distant but also separated by a metrical boundary. This example is special in that there is also a third controller—on the same line as the target—which does not contribute agreement information. While this could be viewed as another “afterthought”, it might also be the case that the placement of the target, intervening between the second controller and its genitive modifier, *Danaum* ‘Greek’, gives it more syntactic relevance to the controller *naves* ‘ships’.

The other two examples of intervening targets are part of similar constructions. In example (48), the target occurs between the first controller and its genitive modifier, with the two other controllers following after. This is similar, conceptually, to example (47a), where the target intervenes between two words where there are noun phrase-internal dependencies.

(48) tempore iam ex illo *casus* mihi *cognitus* urb{is

Troianae nomenque tuum regesque Pelasgi

of-Troy name.n.sg-and your kings.m.sg-and Achaean

‘And since that hour I oft have heard the tale of fallen Troy, of thine own noble name, and of Achaean kings.’ (Verg. A. 1.623-624)

Example (49) is the only instance of Resolution for intervening targets. The controllers constitute a list of specific locations, not a combination of a specific item and a more general term (as in (47b)). Likewise, all controllers are of the same gender, and they all fall under the same semantic category: islands. Islands in Latin, like cities and countries, are typically
feminine. Thus, if the list is specifically for islands, then it is not surprising that Resolution occurs: very little syntactic calculation of the features needs to take place.

(49) fuerant Naxosque relictae
    were Naxos.F.SG-que passed.F.PL

    Et Paros et Clario Delos amata deo
    and Paros.F.SG and Clarian Delos.F.SG loved by-god

    ‘Naxos and Paros had been passed, and Delos loved by the Clarian god’ (Ov. Ars 2.79–80)

While a consistent pattern is hard to identify for instances with intervening targets, each individual example can be understood with reference to the immediate syntactic or semantic (and sometimes, in the case of specificity and ordering of items, pragmatic) context.

There are also instances of Nearest Antecedent Agreement with multiple targets. In the examples I found where one target precedes and the other target follows the controllers, each target ends up sharing the same feature values as its closer conjunct, but the context suggests that the targets modify both controllers. In (50), the target *eadem* ‘same’ is feminine and singular on account of the conjunct *alacritate* ‘ardor’, while the target *quo* is neuter and singular on account of the conjunct *studio* ‘zeal’.

(50) non eadem alacritate ac studio quo in pedestribus uti proeliis
    not same.F.SG ardor.F.SG and zeal.N.SG which.N.SG on foot to-use battles
    devised used

    ‘our men did not all exert the same vigor and eagerness which they had been wont
    to exert in engagements on dry ground’ (Caes. Gal. 4.24.4)

Example (50) is also the only instance where Nearest Antecedent Agreement is found for a relative pronoun: it is possible that the lack of Resolution here is due to a carrying over of the strategy from the initial target. Whatever the explanation for Nearest Antecedent Agreement on each target, what is important about this example is that agreement must be
relying on linear relationships, rather than hierarchical ones, an important theme in Chapter 7. Example (50) in particular causes problems for many syntactic formalisms where one conjunct dominates another in a coordinate phrase. If features percolate up the tree, then only one set of feature values should be available for agreement—but here we find that both sets are available and employed. I return to these data in Chapter 9.

As some of the previous examples show (see, for instance, example (47b)), Nearest Antecedent Agreement also occurs in contexts where the genders of the controllers are the same, as in (42a); another example is given below in (51).

(51) si speras tibi hoc anno multum futurum sirpe et
if hope you this year much will-be.NSG silphium.NSG and
laserpicium
silphium-juice.NSG
‘if you hope to have a good supply of silphium and silphium juice this year’ (Plaut. Rud. 3.2.630)

Table 3.8 shows that Nearest Antecedent Agreement is not a rare occurrence in same-gender contexts.\(^5\)

<table>
<thead>
<tr>
<th>Gender Values</th>
<th>Nearest Antecedent Agreement</th>
<th>Resolution</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>27</td>
<td>21</td>
<td>48</td>
</tr>
<tr>
<td>Same</td>
<td>13</td>
<td>28</td>
<td>41</td>
</tr>
</tbody>
</table>

Table 3.8: Distribution of strategies by gender values of controllers

There are two possible analyses: first, that these examples represent semantic number agreement to the singular. Number resolution does not take place because the controllers are viewed as a singular unit, in much the same way that a band or committee can be conceptualized as a singular unit, despite the fact that it is composed of multiple members.

\(^5\)Note, however, that there is a relationship between matching or mismatching gender values and the resulting strategy; \(\chi^2 = 5.3827, p < .05\).
An alternative explanation is that Nearest Antecedent Agreement is more of a default strategy than the handbooks suggest, applying also in instances where gender resolution is trivial. I discuss these two possibilities when considering Nearest Antecedent Agreement (and Partial Agreement more generally) as instances of avoidance in Chapter 7.

The qualitative data include “difficult” or atypical instances of multiple antecedent agreement, which are better explained by looking at local considerations: the placement of the target in context, the specificity of the controllers, the conceptualization of one or both of the controllers, etc. This is in line with the discussion of semantic agreement in Sections 2.3–2.4 above, where many of the examples actually relied on the local discourse context or the interpretation of the controller given other pragmatic information. This comparison serves as the theme for the explanation of the patterns discussed in this chapter and for Greek (Chapter 4) and Albanian (Chapter 5), where agreement—especially multiple antecedent agreement, a more difficult context for agreement (as there are more than one feature value sets to agree with)—is part of performance, relying on information that is specific to the discourse context.
Chapter 4

Multiple Antecedent Agreement in Greek

4.1 Background

I extend the study of multiple antecedent agreement to Ancient Greek in order to offer a point of comparison to the data from Latin. First, it should be noted that the description of multiple antecedent agreement in Greek by standard grammar handbooks and school grammars is comparable to the description of the phenomenon in Latin, though there is more consistency in the Greek rules. Of the standard grammar handbooks selected for this study, Kühner and Gerth (1904: 57–8) and Schwyrzer (1950: 611) give the same rules: Resolution for animates is to the masculine plural, for inanimates, to the neuter plural, and for mixed-animacy contexts, to either the masculine or neuter plural. Both descriptions also indicate that Nearest Antecedent Agreement can occur in any context, but the frequency of this strategy is not discussed. The school grammars by Goodwin and Gulick (1930: 202) and Smyth and Messing (1956: 277) give the same rules. Only Humbert (1945: 10–19) gives a slightly different description, focusing on the semantic conceptualization of the controllers, where controllers that are understood as totalities show singular agreement (perhaps Nearest Antecedent Agreement), but controllers that are understood as pluralities show plural agreement (as Resolution).1

If a high degree of consistency exists in the Greek data and grammar descriptions, then the reason for an additional study might be unclear. However, Greek offers a similar but not quite identical grammatical system in which multiple antecedent agreement must also

1A more complete summary of these descriptions is found in Appendix B.
be dealt with. While there are the same gender values in Greek as there are in Latin (i.e. masculine, feminine, and neuter), there is an additional number value: dual, mentioned in the discussion of elliptic duals in Section 2.4.1 above. However, this particular difference affects only the nature of the Resolution rules for number: if two singular controllers are conjoined and Resolution is employed, the target is dual, rather than plural, cf. example (52). When there are more than two controllers, the Resolution rules are the same as in Latin.

(52) póteron oûn Aîtê mên kai Tyrreniâ gnórima
whether certainly Aîtna.F.SG PCL and Tyrrhenia.F.SG well-known.F.DU
‘What! are then Aîtna and Tyrrhenia such well-known places’ (Strab. 1.2.14)

In addition to this featural difference, there is also a different strategy available in Greek according to Goodwin and Gulick (1930: 202): Partial Agreement can surface as agreement with the most prominent controller, a strategy dependent on focus and discourse relevance, rather than position. And indeed, it is possible to interpret some of these sentences such that the second controller is an afterthought, rather than as a controller on the same level as the one with which the target shares the same features values. I address the particular example they give in Section 4.4 below.

Greek also offers a different kind of controller type: as discussed in Chapter 2.1, controllers tend to be nouns or nominalizations. For Latin, these are either common/proper nouns or nominalizations from participles or adjectives. Greek offers the same types of controllers, but with an added nominalization type: articular infinitives. The articular infinitive is a construction whereby infinitive verbs are converted into nouns via the addition of a preceding neuter definite article, as in example (53).

(53) tò sigân
the.N.SG be-silent
‘silence’ (lit. ‘the holding silent’)
This particular controller type, when conjoined with another articular infinitive or a different type of controller, raises important questions about the outcome of multiple antecedent agreement: first, and most importantly, which agreement strategy would be more frequent; second, how would the definite article behave in this context—would the article remain singular as *to*, according to the gender and number of the infinitive, or would the neuter plural *ta* be used as in Resolution? The conjoining of articular infinitives is similar to the problem of conjoining *that*-clauses in English, as in example (54). In this example, it is unclear whether *that* should be repeated, or if it can “scope” over both clauses; furthermore, number agreement is variable: both singular and plural verbs appear to be acceptable to most speakers.

(54) That Leslie likes apples and [that] Robin likes bananas is/are known to us all.

Finally, there is an additional agreement pattern in Ancient Greek that has the potential to interact in multiple antecedent agreement: as in Hittite, Vedic Sanskrit, and Avestan, neuter plural controllers control a singular target verb. Compare the two sentences in Greek vs. Latin (a language which does not observe this rule) in example (55).

(55) ta zŏa tréchei
    the animals.N.PL run.SG

   animalia currunt
   animals.N.PL run.PL

   ‘animals run’

Given that neuter plural is the resolved form for inanimate antecedents according to standard grammar handbooks and the corpus data, this raises the question of how multiple antecedent agreement targets would surface when the context consists of inanimate controllers (of any gender and number). That is, if the controllers consist of a masculine singular inanimate entity and a feminine singular inanimate entity, and Resolution normally
produces a neuter plural target, would the resulting agreement be affected by the singular agreement rule that is conditioned by neuter plural controllers? I investigate whether different targets behave differently: the agreement rule of neuter plural controllers only specifies targets that are verbs; adjectives, for example, are typically neuter plural as expected. However, if the investigation is limited to verbs, then this is problematic: if a singular verb surfaces as the target for multiple antecedent agreement of inanimates, then it would be impossible to say whether this was indeed reference to this additional agreement rule or if it is simply the product of Nearest Antecedent Agreement. For this reason, I narrow my search to instances where there is both a verb target and an adjective or participle target to compare the features to.

Overall, the differences in Greek grammar allow for an investigation of a more difficult agreement context, from which much can be learned regarding the agreement process. For this reason, I focus on particular qualitative differences in the Greek and Latin data. I briefly discuss the quantitative results of the study in Section 4.3; however, because the corpus of Greek is smaller compared to the Latin corpus and because the patterns are largely the same, I focus more on qualitative data as they contrast with the Latin and what these particular examples imply for a theory of agreement in Section 4.4.

4.2 Corpus

The Greek corpus consists of 66,539 words. Just as in the composition of the Latin corpus, a range of genres was chosen, including histories, plays, and philosophical works. The corpus includes both poetry (e.g. Hesiod’s *Theogony*) and prose (e.g. Herodotus’ *Histories*). The corpus includes works whose dates range from c. 700 BC to later Ancient Greek, c. 7 BC.
<table>
<thead>
<tr>
<th>Lifespan</th>
<th>Author</th>
<th>Work</th>
<th>Publication Date</th>
<th>Word Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>between 750–650 BC</td>
<td>Hesiod</td>
<td><em>Theogony</em></td>
<td>c. 700 BC</td>
<td>6,968</td>
</tr>
<tr>
<td>c. 484–425 BC</td>
<td>Herodotus</td>
<td><em>Histories:</em></td>
<td>c. 440 BC</td>
<td>2,638</td>
</tr>
<tr>
<td>c. 497/6–406/5 BC</td>
<td>Sophocles</td>
<td>Oedipus Rex</td>
<td>c. 429 BC</td>
<td>9,903</td>
</tr>
<tr>
<td>c. 480–406 BC</td>
<td>Euripides</td>
<td>Bacchae</td>
<td>c. 405 BC</td>
<td>8,208</td>
</tr>
<tr>
<td>c. 430–354 BC</td>
<td>Xenophon</td>
<td><em>Anabasis:</em></td>
<td>???</td>
<td>9,870</td>
</tr>
<tr>
<td>c. 424/423–348/347 BC</td>
<td>Plato</td>
<td><em>Plato:</em></td>
<td>c. 380 BC</td>
<td>5,800</td>
</tr>
<tr>
<td>64/63 BC–c. 24 AD</td>
<td>Strabo</td>
<td><em>Geographica:</em></td>
<td>7 BC</td>
<td>23,152</td>
</tr>
</tbody>
</table>

Table 4.1: Ancient Greek corpus

Noticeably absent from the corpus are any Homeric Greek texts. Homeric Greek texts were not included because of the irregularities they present with respect to the rest of Ancient Greek, containing elements of several dialects and being subject to the meter. This corpus is also significantly smaller than the Latin corpus, for two reasons: first, this corpus was built years after the Latin corpus was begun; second, the goal of the Greek corpus was to investigate issues that go beyond what is available in Latin grammar, issues that are in contrast to what is found in Latin or highlight something about the agreement process that cannot be found in Latin. That is, this corpus study should only be viewed in conjunction with the one undertaken in Latin, as the numbers are too small to present a complete picture of multiple antecedent agreement patterns in Greek. Because the grammar handbooks are consistent in their description of the problem, I take the rules regarding Resolution and Nearest Antecedent Agreement as standard; the quantitative data (cf. Section 4.3) are, generally speaking, in line with what happens in Latin and what is described for Greek by grammarians.
Greek tokens were coded in the same manner as Latin tokens, with controllers marked for animacy and gender, and targets marked for position, category, and strategy employed. The results in Section 4.3 also indicate instances when the strategy was ambiguous, as this was a frequent occurrence in the data. Ambiguous strategies were separated into two categories: instances where the target has the predicted resolved form based on the animacy values of the controllers which overlap with the features of the nearest antecedent, and instances where the target is either singular according to Nearest Antecedent Agreement or the special neuter plural rule mentioned in the previous section. All of the latter ambiguous sentences had a verb as the target and inanimate nouns as the antecedent.

4.3 Quantitative Results

First, the patterns for animacy are as expected, as detailed in Table 4.2: animate antecedents show more instances of Resolution, while inanimate antecedents show more instances of Nearest Antecedent Agreement. There are only two instances of controllers that differ in animacy, and one of the two shows strategy ambiguity. When the mixed-animacy context is excluded, $\chi^2 = 21.5163$, $p < .05$. The other, which shows Nearest Antecedent Agreement, is discussed in the following section.

<table>
<thead>
<tr>
<th>Controller Animacy</th>
<th>NAA</th>
<th>Resolution</th>
<th>Ambiguous w/ Nearest</th>
<th>Ambiguous w/ NPl</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animates</td>
<td>5</td>
<td>23</td>
<td>11</td>
<td>0</td>
<td>39</td>
</tr>
<tr>
<td>Inanimates</td>
<td>9</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>Mixed Animacy</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>29</td>
<td>19</td>
<td>10</td>
<td>73</td>
</tr>
</tbody>
</table>

Table 4.2: Distribution of strategies by animacy
More refined animacy distinctions are not informative, as there are not many tokens in each category, cf. Table 4.3.

<table>
<thead>
<tr>
<th>Controller Animacy</th>
<th>NAA</th>
<th>Resolution</th>
<th>Ambiguous w/ Nearest</th>
<th>Ambiguous w/ NPI</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans</td>
<td>5</td>
<td>21</td>
<td>10</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>Nonhumans</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Animates, mixed</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Concrete</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Abstract</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Inanimates, mixed</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mixed Animacy</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.3: Distribution of strategies by fine-grained animacy

With regard to target position, the patterns are not very clear. Table 4.4 shows that there is a slight preference for Resolution when the target follows, but there is little that can be said about when the target precedes the controllers, the more decisive context with respect to strategy variation. Furthermore, there appears to be no dependency between the target position and strategy type: $\chi^2 = 16.1658$, $p > .05$. 
<table>
<thead>
<tr>
<th>Target Position</th>
<th>NAA</th>
<th>Resolution</th>
<th>Ambiguous w/ Nearest</th>
<th>Ambiguous w/ NPl</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precede</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Intervene</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Follow</td>
<td>7</td>
<td>23</td>
<td>15</td>
<td>6</td>
<td>51</td>
</tr>
<tr>
<td>Next Sentence</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>29</td>
<td>19</td>
<td>10</td>
<td>73</td>
</tr>
</tbody>
</table>

Table 4.4: Distribution of strategies by position of target relative to controllers

With target category (Table 4.5), there is a dependency between target type and strategy: $\chi^2 = 38.4626, p < .05$.

<table>
<thead>
<tr>
<th>Target Category</th>
<th>NAA</th>
<th>Resolution</th>
<th>Ambiguous w/ Nearest</th>
<th>Ambiguous w/ NPl</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate Adjective</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Participle</td>
<td>5</td>
<td>12</td>
<td>4</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Pronoun</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Relative Pronoun</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Verb</td>
<td>5</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>29</td>
<td>19</td>
<td>9</td>
<td>73</td>
</tr>
</tbody>
</table>

Table 4.5: Distribution of strategies by syntactic category of target

The Agreement Hierarchy is once again not observed as robust as suggested by Corbett’s typological generalizations. In particular, all non-relative pronouns show Resolution, and there are more instances of Nearest Antecedent Agreement for verbs. However, this might have something to do with the relationship between target type and syntactic position, cf. Table 4.6. It might be that target position is related to target type, and thus the
high number of preceding and intervening verbs accounts for the unexpected occurrence of Nearest Antecedent Agreement in verbal contexts. However, the distribution of target type and position is not dependent: $\chi^2 = 10.7779$, $p > .05$.

<table>
<thead>
<tr>
<th>Target Category</th>
<th>Precede</th>
<th>Intervene</th>
<th>Follow</th>
<th>Next Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate Adjective</td>
<td>3</td>
<td>0</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Participle</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Personal/Demonstrative Pronoun</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Relative Pronoun</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Verb</td>
<td>6</td>
<td>4</td>
<td>13</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.6: Distribution of target types by position

Finally, as is the case in Latin, there are several instances where same-gender antecedents show Nearest Antecedent Agreement, even though gender resolution in such cases is not a complicated matter of computation. Table 4.7 shows that, although there are more instances of Resolution when the genders of the targets are the same, there are still eight instances where Nearest Antecedent Agreement occurs. Furthermore, there is no dependency between gender match/mismatch and strategy observed: $\chi^2 = 5.4685$, $p > .05$.

<table>
<thead>
<tr>
<th>Gender Values</th>
<th>NAA</th>
<th>Resolution</th>
<th>Ambiguous w/ Nearest</th>
<th>Ambiguous w/ NPI</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Same</td>
<td>8</td>
<td>22</td>
<td>12</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.7: Distribution of strategies by gender values of controllers
4.4 Qualitative Data

While the patterns that emerge from the data are not very clear from a quantitative perspective, individual tokens show that local context is a strong driving force in the agreement strategy observed for those tokens. For example, all of the unambiguous tokens where the target intervenes between the controllers show Nearest Antecedent Agreement, rather than Resolution. This could be taken as a global pattern, whereby intervening targets always show Nearest Antecedent Agreement. However, the data suggest that the reason that there are no instances of Resolution is really due to the discourse prominence of one controller over another, as in example (56) below.

(56) ἡ τινὶς Ἰππολίτου τοῖς παιδίσκης κατακεκλαμμένην καὶ τὰς χεῖρας καὶ τοὺς πόδας τὰς ἑπετῶν εἰς τὴν κοιλίαν τοῦ πατέρα." (Hdt. 1.119.5)

In this example, the target κατακεκλαμμένην ‘concealed’ is feminine singular, sharing the same features as only the first controller ῬεβίλSubjects/Names/fix ‘head’. Nearest Antecedent Agreement in this context could more accurately be described as agreement with the most prominent antecedent, as dictated by the pragmatic context: it is the head that must be concealed in order to hide the identity of the body from the father—hands and feet would not immediately identify the remains as belonging to his son. Given also the fact that the second and third controllers follow the target, it is unsurprising that the intervening target agrees only with the first controller, and the second and third controllers are afterthoughts: not immediately relevant, but information that is conveyed nonetheless, a phenomenon also discussed in Section 3.4. However, because the two strategies are indistinguishable in this example, this does not give us any evidence for the existence of a Partial Agreement strategy that operates according to prominence.
In (57), the second controller also reads as if it were an afterthought. While the target is a verb and the features of the verb are compatible with either controller (both controllers are singular), Phaortes is a named controller; *stratōs* ‘the army’ is less specific.

(57) ho Phraórtēs autós te diephtháreí, árxaś die dýo kai èfikosi étea, the Phraortes.m.sg himself pcl died.3.sg having-begun two and twenty years kai ho stratōs autoī ho pollós, and the army.m.sg himself the greater-part.m.sg ‘Phraortes himself perished, after he had reigned twenty-two years, and most of his army too.’ (Hdt. 1.102.2)

As a named controller, Phaortes has more specificity and perhaps more prominence over the second controller. Likewise, the second controller, which refers to an army, is necessarily subordinate to the commanding Phaortes in the discourse: he is the general of the army, and thus it is his actions that matter more in this section of the histories.

These data are related to, but not necessarily evidence for, the claim that Greek has an additional Partial Agreement strategy, by which the target can agree with not just the nearest antecedent but rather the most prominent (Goodwin and Gulick 1930: 202). In order to show that prominence is the relevant feature and not proximity, Goodwin and Gulick offer the following example (58), where agreement occurs with the more distant controller:

(58) Brasídas kai tò plēthos ... boulómenos Brasidas.m.sg and the bulk.n.sg ... wishing.m.sg ‘Brasidas and the bulk [of his troops turned towards the upper part of the city] wishing [to capture it completely]’ (Thuc. 4.112.3)

This example is very similar to example (57), in that the first controllers are both commanders of armies—and those armies are the second controllers. While this is the only example of agreement with the most prominent controller that is offered by the grammar handbooks (and no unambiguous examples were found in the corpus study), the fact that
one example exists at all indicates that the pragmatic context—and not just notions of linear distance of words—can affect the agreement outcome, where issues of focus, specificity, agentivity, and relevance to the actual action should be taken into account. In this example, Brasidas, as the general of the army, is the agent of the construction: it is his wishes that matter in terms of the actions of his troops. Thus, locality matters in two ways: proximity and prominence in context. I address this duality in Chapter 7.

Next, as described in Section 4.1, there is an additional controller type to deal with in Ancient Greek: the articular infinitive, where infinitive verbs are nominalized by adding a preceding neuter singular definite article. The question raised was how such a controller, which is secondarily derived but has no overt gender markings on the noun itself (only on the determiner), would behave in multiple antecedent agreement. The following example (59) occurs in my corpus.

(59) τὸ σωφρονεῖν δὲ καὶ σέβειν τὰ τῶν θεών
the be-sound-of-mind.N.SG PCL and to-be-revered.N.SG the-things of-the of-gods
καλλίστον
best.N.SG

‘Soundness of mind and reverence for the affairs of the gods is best’ (Eur. Ba. 1150–1)

Although there is only one instance of conjoined articular infinitives in my corpus (as this represents a particularly rare context), this example answers at least some of the questions that were raised. First, the definite article occurs only once: it is not repeated, as one might not repeat the complementizer that in a conjoined that Leslie likes apples and Robin likes bananas. Second, the target καλλίστον ‘best’ is neuter singular, ostensibly the result of Nearest Antecedent Agreement. The use of Nearest Antecedent Agreement might be due to the fact that this represents a particularly difficult and rare context: as a construction that does not occur very often, it is not entirely clear how to deal with the problem of computing gender on the target.. An alternate analysis is that the neuter singular target could be interpreted as more noun-like in this context, i.e. where the translation is more
accurately ‘soundness of mind and reverence for the affairs of the gods is the best thing’.
Because the choice between these two options is not obvious, this is not clear evidence for
Nearest Antecedent Agreement for articular infinitives.

There is, however, another example that occurs with infinitives in Greek: example (60)
has three infinitive controllers with no overt gender marking (and no definite article), and
here the strategy employed is Resolution to the neuter plural.

(60) paideúosi dè toûs paídas apò pentaéteos arxámenoi méchri eikosaéteos
educate PCL the boys from five beginning as-far-as twenty
tría moîna, ichneúein kai toxéúein kai aléthízésthâi
three.N.PL only.N.PL hunt.INFIN and archery.INFIN and speak-truth.INFIN
‘They educate their boys from five to twenty years old, and teach them only three
things: riding and archery and honesty.’ (Hdt. 1.136.2)

However, this example is also problematic, as the target tría moîna ‘three only’ precedes
the controllers, which follow in an appositional-like context. But even if the infinitive
controllers actually exist in apposition to the target, this still indicates that infinitives
are understood as neuter entities. That is, if tría moîna is indeed a nominalization from
original determiners/adjectives, it still has no inherent gender in this context. The gender
is dependent upon the conceptualization of the three actions that are being listed. If the
three things were actually animate beings, then masculine plural would be expected on the
nominalization, to match the semantic conceptualization of what is being listed.

Another example in the same vein as (59–60) has a sentence controller conjoined with
an articular infinitive controller. This example (61) shows Resolution to the neuter plural
as well.

(61) pótera tên alétheian autò phêsomen einâi haplôs hoûtos kai tô apodidónai
whether the truth self we-will-say to-be singly thus and the give-up.N.SG
án tís ti pará tou lábei, è kai autâ taúta éstin
anyone anything from one received or and very.N.PL things.N.PL are
énôte mèn dikaßos
sometimes indeed just

93
‘are we to affirm thus without qualification that it is truth-telling and paying back what one has received from anyone, or may these very actions sometimes be just...?’

(Plat. R. 331c)

The syntactic context is similar to example (59): the target follows the controllers and is used predicatively. However, the target is neuter and plural; the features are actually descriptive of the controllers. This indicates that these abstract controllers are, at the very least, firmly neuter in their gender. While no broad generalization can be made about articular infinitives, these data emphasize the general semantic connection between inanimacy (or at least “lack of animacy”) and neuter gender.

Additionally, as in Latin, there are severals instances of Nearest Antecedent Agreement when the controllers match in gender (cf. Table 4.7). The examples are much the same as they are in Latin. In (62), both controllers and target are masculine and singular, despite the fact that gender need not be resolved.

(62) sidérōi ḍe ouδ’ argýrói chréontai oudén: oudè gàρ ouδé sphi esti en tēi chōrēi, iron PCL nor silver use not: not for not them is in the country ho dê chrusōs kai ho chalkōs āpletos the PCL gold.M.SG and the bronze.M.SG boundless.M.SG

‘But they never use iron and silver, for there is none at all in their country, but gold and bronze abound’ (Hdt. 1.215.2)

Again, examples like these raise an important question: if gender resolution does not need to occur, then why do all same-gender contexts not show number resolution, a semantically justifiable process? In Greek, however, there is an alternative possibility: that the singular target is actually due to the additional agreement rule discussed above, where neuter plural subjects regularly control singular targets in certain Indo-European languages, including Greek. However, Smyth and Messing (1956: 277) find the targets that agree in number and gender (e.g. adjectives) show expected Resolution outcomes (neuter and plural), while targets that agree only for number (e.g. verbs) observe the singular rule. The
following example (63) is illustrative of this point, where the adjective prótera ‘prior’ is
neuter plural, but the verb eἰε is singular.

(63) dóxa dè kai epiméleia kai noûs kai tēchnē kai
opinion.f.sg therefore and attention.f.sg and reason.m.sg and art.f.sg and
nómōs sklērōn kai malakōn prōtera àn eĩē
law.m.sg hard and soft prior.n.pl pcl be.sg
‘Opinion, therefore, and attention and reason and art and law must be prior to
things hard and soft.’ (Plat. Lg. 892b)

If Smyth’s grammar can be believed, example (62) should be analyzed as an instance
of Nearest Antecedent Agreement, and not the special agreement rule for neuter plural
subjects. But example (63) is important in demonstrating that different agreement rules
can be used for different targets, a fact which also receives support from the Agreement
Hierarchy. As mentioned previously, the Agreement Hierarchy captures the typological
generalization whereby the choice of strategy depends on the syntactic category of the target:
pronouns are more likely to show Resolution than are (attributive) adjectives. Example (63)
shows an instance of two different rules applying for different target types—within the same
sentence.

As is evident from the earlier discussion of Table 4.5, there are several instances of
ambiguity for target verbs where the singular outcome is either the product of Nearest
Antecedent Agreement or the special neuter plural rule. These are instances when both
controllers are inanimate and the target is a singular verb. There are occasions when the
controllers are animate and a singular verb is found, as in example (64), but this is more
than likely due to target placement—here, the target intervenes after the most prominent
controller, Hermes (having a higher placement in the Greek pantheon).

(64) tôn Hermáon akákēta geínato kai Throniē
the Hermes.m.sg gracious brought-forth.sg and Thronia.f.sg
‘whom gracious Hermes and Thronia . . . brought forth’ (Strab. 1.2.34)
But when restricting the context to inanimate controllers, there are a number of examples where the verb follows the controllers and is singular, like (65) below.

(65) éris kai neikos en athanátoisin òrëtai
\[\text{strife.F.SG and quarrel.N.SG in immortals arise.SG}\]
‘strife and quarrel arise among the deathless gods’ (Hes. Th. 783)

It is impossible to say which rule applied here; however, the fact that both rules produce the same target might be indicative of a kind of “conspiracy”, where the overlap in outcome strengthens the application of one rule or the other. Strategy ambiguity more generally might have the same kind of effect, where the overlap in Resolution and Nearest Antecedent Agreement outcomes strengthens the position of the more “unexpected” strategy of agreeing with a closer controller.

The data in this section, in conjunction with the qualitative data in Latin, contribute to the overall picture of agreement as a performance-based process, which I discuss below in Chapter 7. The basic idea that I expand upon is that there are several moving parts within agreement: effects of controllers, targets, syntactic context, additional agreement rules, relevant pragmatic information, and other conditions that make “straightforward” agreement much more difficult to deal with as a speaker. As such, the speaker utilizes existing grammatical tools—existing notions of feature assignment and contextual meaning—that lead to the target outcomes observed in the collected data. These contexts are rare, as evidenced by the small number of tokens from the corpus study in this chapter and Chapter 3. But they do occur; as such, a speaker must have some way of dealing with the problem. The simplest explanation is to use tools available in other areas of the grammar.
Multiple Antecedent Agreement in Albanian

In contrast to Latin and Ancient Greek, Albanian is attested rather late, with the first recorded text from 1462 AD—and this early text is only a single-line baptism formula; the first real (extended) text is from 1555 (Fortson 2010: 447). However, fortuitously unlike Latin and Ancient Greek, Albanian is not a dead language, with fluent and native speakers in Albania and other parts of the Balkans (e.g. Kosovo, Macedonia, Greece, etc.), the United States, Italy (e.g. speakers of the Arbëresh dialect in the south), and to a more limited degree, in various other European countries (Lewis et al. 2013). Although there are two distinct dialects of Albanian (the Northern Geg and the Southern Tosk variety, which is the basis for the standard), the primary differences are phonological and morphosyntactic—but the morphosyntactic variation seems not to involve agreement, but rather phenomena like the formation of infinitive and future forms. When viewed in the context of the larger dialect area of the Balkan peninsula, there are significant areas of morphosyntax shared across Albanian and other languages of the Balkan Sprachbund (Fortson 2010: 448), but again, these shared features have no direct bearing on patterns of multiple antecedent agreement.

Morphosyntax therefore represents a relatively secure and stable context for study; coupled with the fact that there are living native speakers, Albanian provides a testing ground for addressing questions regarding the production and interpretation of agreement patterns, in contrast to the important (but static) data from the corpus studies of Latin and Ancient Greek. These two types of data are discussed in conjunction in Chapter 7, as the
patterns that emerge in all three languages point to the same solution: agreement relies on linguistic performance as affected by contextual information.

5.1 Agreement in Albanian

Albanian has a much more limited set of agreement morphology than other languages of the Indo-European family. Verb agreement is robust, but only for person and number. Gender agreement is limited to adjectives, but adjectives in Albanian distinguish number and gender in only very few instances, as there is widespread syncretism in the paradigms of “unarticulated” and “articulated” adjectives.

<table>
<thead>
<tr>
<th>'normal'</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine</td>
<td>normal</td>
<td>normalë</td>
</tr>
<tr>
<td>Feminine</td>
<td>normale</td>
<td>normale</td>
</tr>
</tbody>
</table>

Table 5.1: Unarticulated adjectives

<table>
<thead>
<tr>
<th>'white'</th>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine</td>
<td>e bardhë</td>
<td>e bardhë</td>
</tr>
<tr>
<td>Feminine</td>
<td>e bardhë</td>
<td>e bardha</td>
</tr>
</tbody>
</table>

Table 5.2: Articulated adjectives

The distinction between the two adjective types in the above tables is both morphological (the forms have different endings) and syntactic: articulated adjectives require a linking element between the head noun and the adjective—some form of the e that occurs in Table 5.2 above—while unarticulated adjectives do not. This linking element, commonly referred to as the nyje particle, also surfaces between head nouns and genitive modifiers. Nyje particles are a unique feature of Albanian; no other Indo-European language has or requires
such a linking element between nouns and their modifiers (Toena 2009: 316). These particles can also function as nominalizers (with neuter nouns, e.g. \textit{ti dhēna} ‘that which is given, i.e. data’, ordinal numbers, e.g. \textit{tretē} ‘the third’, etc.), though the nominalizing function can be viewed as an extension of its usage before articulated adjectives and genitive modifiers (pp. 349–50).

There are four distinct forms of nyje particles: \textit{i}, \textit{e}, \textit{sē}, and \textit{tē}. These forms are conditioned by the morphosyntactic properties of the head noun, though \textit{sē} is also conditioned morphophonologically as an assimilated variant of the elsewhere particle \textit{tē}. \textit{Sē} occurs following the feminine nouns in the genitive/dative/ablative singular, a form that always ends in [s].

The morphosyntactic properties relevant to the selection of nyje particles include case, gender, number, and definiteness, all of which are morphologically marked; however, not all sets are uniquely defined. For example, while \textit{i} is selected for masculine, singular, nominative nouns (that is, it is conditioned by a certain set of case, gender, and number feature values), \textit{e} is selected for feminine nominative nouns (requiring in this instance only a particular gender and case realization, though there are also other combinations of morphosyntactic feature values that give rise to this particle). The distribution of nyje particles is summarized in Table 5.3.

\footnote{This is true at least in terms of the morphosyntactic distribution and function of the nyje particles. Romanian, for example, has a linking particle \textit{cel} that signals a restrictive reading of the adjective that is linked to the noun, cf. Marchis and Alexiadou (2009: 162–3).}
Because the form of the nyje particle depends on the morphosyntactic feature values of the head noun, the variation of nyje particles can be considered a type of agreement. Toena (2009: 348) also implies there is a close relationship between nyje particles and agreement patterns: “they serve as markers of the adjective’s gender, number and case, while also being connected with the preceding noun”. These nyje particles are non-referential and are there only to satisfy the requirements of the grammar, namely, that such a linking element is required for modifiers of the head noun, in much the same way that agreement morphology in Latin and Ancient Greek surfaces to satisfy the requirements of the grammar. Compare, for example, the constructed noun phrases in Albanian with their equivalents in Latin.2

The ending of the adjective *e mirë* does not vary in any of the examples, but the nyje particle does.

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2Note also that Albanian differs from Greek and Latin by expressing definiteness morphosyntactically (rather than via a determiner or not at all); although this means that there is an extra agreement feature in Albanian, it does not seem to complicate the picture any more than, e.g., Greek having one more number feature value than Latin and Albanian (i.e. the dual).
Furthermore, the Albanian word *nyje* is translated as ‘particles of concord’ by Newmark et al. (1980), and Morgan (1984: 236) calls these linking elements part of Albanian’s “healthy agreement system”. Thus, from a functional and historical perspective, there is good reason to believe that this represents an analogous context of agreement. It is therefore possible to investigate issues of multiple antecedent agreement for nyje particles. The problem of multiple antecedent agreement in Albanian was addressed quite early by Morgan (1984): in his data, the nyje particle is always chosen on the basis of the closer antecedent, à la Partial Agreement. A possible Resolution strategy is not addressed.
The purpose of this Albanian study is therefore twofold: first, to test the claims of nyje particle agreement with native Albanian speakers some thirty years after Morgan’s initial study, and second, to contribute to the typology of multiple antecedent agreement as a case study for understanding semantic vs. syntactic agreement. Given the widespread presence of both Partial Agreement and Resolution in the world’s languages, it is possible that Albanian allows for both as well—even if one is strongly preferred or if one is only accepted but never produced.

5.2 Methodology

To this end, five native Albanian speakers were asked to both produce and judge nyje particles in various grammatical and semantic/pragmatic contexts. The elicitation included both an active production task and a passive judgment task. The goal of having two different tasks is to investigate whether speakers accepted different possibilities than what they actually produced, or vice versa. And indeed, the results (see Section 5.3) seem to indicate that, at least for one subject, this is the case.

All Albanian speakers in this study are native Albanian speakers who are fluent and highly proficient in English (some fluent in several other languages, including, e.g., Italian) who grew up in Albania primarily speaking the Southern Tosk variety that is the basis for the standard language. Thus, dialectal differences should not be considered meaningful explanations for any observed variation. For the production task, subjects were presented with stimuli like those in example (70).

(70) Production Task

a. Një vëlla dhe një kushëri ___ Agimit po vijnë.  
   a brother.M.SG.IND and a cousin.M.SG.IND ___ of-Agim PROG come.3.PL
   ‘A brother and a (male) cousin of Agim are coming’

---

3The full set of Albanian stimuli is given in Appendix C.
b. Vellai dhe kushēriri ___ Bardhit po vijnē.
    brother.m.pl.def and cousin.m.pl.def ___ of-Bardh prog come.3.pl

‘The brothers and the (male) cousins of Bardh are coming’

The modifier in the stimuli was always a genitive noun: while articulated adjectives also require a linking element, these targets were avoided as they also require (albeit limited) morphosyntactic expression of gender and number, and it is possible that this extra agreement requirement would influence the outcome of the nyje particle.

In many contexts, the nyje particle that is the outcome of Resolution is the same as the nyje particle that is the outcome of Partial Agreement, as in example (71). Partial Agreement results in the nyje e because the closer noun is feminine and nominative. Resolution also results in the nyje e because the two conjoined nouns form a plural, definite, nominative group (cf. Table 5.3).

(71) a. Resolution

Nēna dhe motra e Agimit
    mother.f.sg.def and sister.f.sg.def nyje of-Agim

‘The mother and the sister of Agim’

b. Partial Agreement

Nēna dhe motra e Agimit
    mother.f.sg.def and sister.f.sg.def nyje of-Agim

‘The mother and the sister of Agim’

There are, however, some contexts that produce a mismatch in the nyje particle outcome, dependent on agreement strategy, and these contexts are the basis for this study. For example, in (70a) above, the Resolution outcome would be tē, as the controllers, when viewed as a group, are semantically plural and indefinite. The Partial Agreement outcome would be ɨ, since the closer antecedent is a nominative masculine singular noun. Likewise, in (70b), the Resolution outcome would be e, as the controllers are semantically plural
and definite, while the Partial Agreement outcome would be ɪ, again because of the closer nominative masculine singular controller. All of the mismatch contexts were used as stimuli (cf. Table 5.4), in addition to fillers (multiple antecedent contexts that do not produce mismatches) and baseline stimuli (single antecedent sentences that establish the subject’s nyje system; in some dialects the system is reduced—see later discussion and Trudgill 1977).

Grammaticality judgments were also elicited, focusing only on nyje mismatch conditions. Subjects were asked to judge whether pairs of sentences like those in (72) were grammatical, where the only difference in the two stimuli is the nyje particle: Partial Agreement in (72a), Resolution in (72b).

(72) Grammaticality Judgment Task

a. Njɛ vɛlɛ dhe njɛ kushɛri i Agimit po a brother.m.sg.ind and a cousin.m.sg.ind NYJE-PA of-Agim prog vijnɛ. come.3.pl
   ‘A brother and a (male) cousin of Agim are coming’

b. Njɛ vɛlɛ dhe njɛ kushɛri tɛ Agimit po a brother.m.sg.ind and a cousin.m.sg.ind NYJE-RES of-Agim prog vijnɛ. come.3.pl
   ‘A brother and a (male) cousin of Agim are coming’

Last, subjects were presented with only the Partial Agreement outcome nyje in the sentence and then asked to judge whether there was scopal ambiguity by indicating whether one or both of the interpretations were possible. The guiding assumption is that because Partial Agreement nyje are possible (cf. Morgan 1984), but because the same nyje is used for modifying a single antecedent, then it is possible for attachment ambiguity to exist in these sentences. An example stimulus is in (73). Subjects were asked whether the nyje modifies just the closer antecedent (‘male cousin’ in the following example) or the entire conjoined phrase (‘the brother and the male cousin’). This context is analogous to scopal/attachment
ambiguous phrases in English, e.g. *old men and women*, analyzed as either [[old [men and women]]] (wide scope) or [[old men] and women] (narrow scope).

(73) Vëllai dhe kushëri i Bardhit po vijnë.

a. The brother (of Agim) and Bardh’s cousin are coming For example: Pashë vëllanë e Agimit. Vëllai dhe kushëri i Bardhit po vijnë. (‘I saw the brother of Agim. The brother [of Agim] and the cousin of Bardh are coming.’)

b. Bardh’s brother and Bardh’s cousin are coming.

All three of these tasks are designed to test either the active usage or passive acceptance/non-acceptance of agreement strategies. While Albanian is more limited in agreement morphology and there are a limited number of mismatch contexts, such data are important in their contribution to the completeness of the description of Albanian and in the addition of another dimension to the research in this dissertation, that of elicited data, which is impossible to attain in research of ancient languages. This study was undertaken in Albanian in order to take advantage of its status as a living language and also to demonstrate the impact of a different type of agreement system.

5.3 Results

There was not much variation in the productions of the five participants. The results, in general, are consistent with the description of the phenomenon by Morgan (1984). Table 5.4 presents the results of the elicitation study, giving the mismatch condition (the features of Noun 1 and Noun 2), the favored nyje particle, and which nyje particle the other strategy would have produced. In all instances, with a potential exception in the genitive condition, subjects produced the nyje outcome of Partial Agreement (specifically, Nearest Antecedent Agreement). The last column therefore gives the Resolution outcome that was not produced by any subject, for comparison.
<table>
<thead>
<tr>
<th>Noun 1</th>
<th>Noun 2</th>
<th>Favored nyje</th>
<th>Resolution nyje</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.SG.NOM.IND</td>
<td>M.SG.NOM.IND</td>
<td>i</td>
<td>tē</td>
</tr>
<tr>
<td>M.SG.NOM.DEF</td>
<td>M.SG.NOM.DEF</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>F.SG.NOM.IND</td>
<td>F.SG.NOM.IND</td>
<td>e</td>
<td>tē</td>
</tr>
<tr>
<td>F.SG.NOM.IND</td>
<td>M.SG.NOM.IND</td>
<td>i</td>
<td>tē</td>
</tr>
<tr>
<td>F.SG.NOM.DEF</td>
<td>M.SG.NOM.DEF</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>M.SG.GEN.DEF</td>
<td>F.SG.GEN.DEF</td>
<td>sē/tē</td>
<td>tē</td>
</tr>
</tbody>
</table>

Table 5.4: Elicitation Results

With regard to the genitive mismatch condition (the final row of the above table), three of the five subjects produced tē, rather than the Partial Agreement outcome sē. This could be interpreted as production of the Resolution nyje. However, Resolution is not found in any other mismatch case by any of the speakers, at least in the elicitation portion of the study. Another explanation for this “unexpected” use of the Resolution nyje is that it is actually indicative of a reduction in the nyje system for these subjects. In fact, a parallel of this proposed reduction is found in Arvanitika, the variety of Albanian spoken in Greece: younger speakers of this dialect have lost the particle sē, replacing it with the non-phonologically conditioned variant, tē. This seems to be a pervasive reduction in the system that has reached mainland Albanian: the standard distinction between sē and tē is explicitly taught in language classes, yet sē is very rarely observed in casual speech outside of the classroom (Carrie Ann Morgan, p.c.). If this is indeed indicative of a systemic change rather than agreement variation, then all speakers only produced Partial Agreement in Albanian.

This is a marked difference from Greek and Latin, where Resolution was frequently used. The fact that only one strategy is active in Albanian implies that feature calculation is not involved, even though this is a viable option in other Indo-European languages—and
often, the more expected strategy, as the features of the target are chosen with reference to both of the controllers. I discuss the impact of the Albanian data on the question of how agreement strategies vary and change in Chapter 7.

The results of the grammaticality judgments are also consistent across the subjects: all five accepted the nyje particle that results from Nearest Antecedent Agreement. However, and importantly, one speaker also accepted a Resolution nyje outcome: the subject accepted tē for two indefinite controllers (Resolution of two singular indefinite controllers would require the nyje for plural indefinite nouns). While this is only a single data point, it represents an instance where Resolution was at least passively acknowledged. This might be indicative of the acceptability of Resolution in the grammar, or it might have more to do with an awareness of prescriptive grammatical rules. As mentioned above, Resolution is often the more expected strategy from an analytic standpoint: even though the target form could presumably differ from the forms of both controllers, the form still makes use of information from both controllers in a more direct way than Partial Agreement. While the frequency of Partial Agreement is dependent on semantic features of the controllers, those same features directly influence the form of the target in Resolution. Given the fact that Partial Agreement is the only productive strategy, it is unclear why one subject accepted Resolution. One possibility is awareness of agreement rules in English, where Resolution is prescribed and grammatical. However, this does not explain the fact that, within the same task, when the context was presented with a Resolution nyje, four of the five subjects refused to judge those examples, indicating that the constructions were “wrong” (some even corrected the particle to the Nearest Antecedent Agreement nyje). This presents an interesting dilemma: one subject accepted Resolution in the grammaticality judgments, but four of the subjects did not. At the very least, the fact that the majority of subjects marked the Resolution nyje as wrong is evidence that Nearest Antecedent Agreement is the default and only strategy for multiple antecedent agreement in Albanian.

Finally, for the semantic judgments, four of the five subjects were only able to read
the sentences with wide scope, i.e. where both nouns were modified by the genitive noun. One speaker accepted narrow scope readings but indicated that the narrow reading is only available with a strong prosodic break (i.e. a noticeable pause). It should be noted that this subject was the only one who was asked how to achieve a narrow scope reading (initially, this subject only read the sentence with wide scope). It might be the case that with a more direct line of questioning, the other subjects also would have achieved a narrow scope reading (but such questioning was not possible at the time of the elicitation).

Although fewer data were collected for Albanian, the goal of the study was to measure grammaticality of certain constructions, in terms of what speakers would produce and accept; in both of these contexts, this strategy is Nearest Antecedent Agreement. The lack of variation in strategy—with only one instance of Resolution being accepted by a single speaker—is unusual given what is known about agreement patterns in other languages of the Indo-European family. I address the status of Nearest Antecedent Agreement in Albanian as the default and only choice of strategy in Chapter 7.
Multiple Antecedent Agreement in Indo-European

Although the focus of this dissertation is data collected from Latin, Greek, and Albanian, other Indo-European languages also offer important data for understanding semantic agreement in multiple antecedent contexts. I present an overview of multiple antecedent agreement in other Indo-European languages (or language sub-families) in this chapter, either summarizing previous literature or presenting data that I have collected but that do not amount to a significant corpus study of each language on their own.

6.1 Sanskrit

Multiple antecedent agreement has received considerable attention from Hans Henrich Hock, primarily in Sanskrit and Germanic. With regard to Classical Sanskrit, Hock (2007) finds that, as expected of an Indo-European language, both Resolution and Partial Agreement are found. The Resolution rules are similar to those of Latin and Greek: animate beings of mixed gender condition a masculine dual or plural target, while inanimate beings/concepts condition a neuter dual or plural target. Hock gives the following examples from Speyer (1886):

(74) Sanskrit Resolution

a. Animates
tasmai ... damanaḥ ... dadau ... damayantīṁ damāṁ dāntaṁ
to-him ... damana ... gave ... damayantī. F.SG damā. M.SG dānta. M.SG
damanaṁ ca ... upapannān guṇaṁḥ sarvair bhīmān
damana. M.SG and ... endowed. M.PL with-qualities all awesome. M.PL
bhīmaparākramāṁ
of-awesome-courage. M.PL

‘Damana gave to him ... Damayanī, Dama, Dānta, and Damana, endowed
with with all (good) qualities, awesome, of awesome courage.’ (Nala 1.8–9)

b. Inanimates

catvārī tasya vardhante āyur vidyā yaśo balam

‘(These) four of him grow, life, knowledge, fame, strength.’ (Manu. 2.121)

Hock reports that both Delbrück (1888) and Macdonell (1916) find inanimate antecedents condition masculine gender on targets in the earlier Vedic Sanskrit, as in example (75). This would imply a change in gender resolution from Vedic to Classical Sanskrit.

(75) traya vai nāirṛtā aksāḥ striyāḥ svapnāḥ

‘There are three kinds of pernicious things—dice, women, sleep.’ (MS 3.6.3)

However, as Delbrück (1888) notes at least, example (75) could actually be the product of Nearest Antecedent Agreement, since the closest controller has the same features as the target. It is therefore not sufficient evidence for a change in agreement patterns.

For animate antecedents, the picture in Vedic Sanskrit appears to be the same as it is in Classical Sanskrit, where masculine is the resolved gender. Hock notes that there are examples given by Delbrück (1888) that show feminine targets for Resolution of mixed-gender antecedents; however, these examples are limited to those that include controllers that fall under the category of elliptic duals (cf. Section 2.4.1 for the description of feminine agreement with certain elliptic dual examples).

When the animacy values differ among the controllers, the target gender is neuter, as in example (76).
Furthermore, Partial Agreement is also realized as Nearest Antecedent Agreement in Classical Sanskrit, as it is in Latin, Greek, and Albanian. Hock (2007), however, claims that the meaning produced by this strategy is distributive. In example (77), he argues that the meaning intended is that each controller is at Kantimati’s mercy, rather than the collective group. According to Hock, Delbrück (1888) finds that such a distributive reading is the output of Nearest Antecedent Agreement in Vedic Sanskrit prose more generally (in poetry, the strategy produces a dvandva compound-like reading). This means that there is a semantic component to Nearest Antecedent Agreement, which, as discussed in Section 2.6, is usually considered to be the syntactic agreement pattern of multiple antecedent agreement.

(77) kāntimati rājayam īdâni mama ca jīvantam ... tvadadhīnam
kantimati kingdom.n.sg this of-mine and life.n.sg ... at-your-mercy.n.sg
‘Kantamati, and this kingdom and also my life (are) at your mercy [from now on]’
(Daś 135)

Hock also reports on Pāṇini’s account of agreement, which includes the unusual observation (1.273) that adult herd animals can be referred to as a group using feminine gender, rather than the expected masculine gender for animates. Although Hock finds no instances in his own study of this prescription, Pāṇini’s observation would fit into a more nuanced set of animacy distinctions (where herd animals behave differently from humans and nonhuman animates).

Excluding this exceptional example, multiple antecedent agreement in Sanskrit operates in much the same manner as in Latin and Ancient Greek.
6.2 Germanic

With regard to Germanic, Hock (2009) finds that there was a single Resolution rule: in all contexts, the resolved target gender was neuter. This pattern is found in all of the older Germanic languages according to various grammar handbooks, e.g. Gothic (78a), Old English (78b), Old Norse (78c), and Old High German (78d).

(78) Neuter Plural Resolution

a. Gothic

wesun-uh þan garaihta ba in andwairþja guþs
were and righteous.n.pl both.n.pl in before god

‘They [= Zacharias and his wife] were both righteous before god.’ (Luke 1:6; Wright 1910: 187, via Hock 2009: 32)

b. Old English

wit her baru standaþ
we here bare.n.pl stand

‘We [=Adam and Eve] both are standing here naked’ (Brugmann 1925: 186, via Hock 2009: 33)

c. Old Norse

fióll òll ok holar vǫro full af landvættom
mountains.n.pl all and hills.m.pl were full.n.pl of country-spirits

‘All mountains and hills were full of country spirits.’ (Heusler 1922: 140, via Hock 2009: 32)

d. Old High German

Siu uuárun rehtiu beidu fora gote
they.n.pl were righteous.n.pl both.n.pl before god

\textsuperscript{1}Lambdin (2006: 9) (via Brian Joseph, p.c.) also finds that neuter resolved gender is the preferred pattern in Gothic, though his example is likely constructed: ‘Predicate adjectives modifying a subject including both natural genders are put in the neuter plural, e.g. Wesun sa wair jan so mawi gredaga ‘The man and girl were hungry’’. 

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‘They [= Zacharias and his wife] were both righteous before god.’ (Luke 1:6; Wright 1906, via Rachel Steindel Burdin, p.c.)

The grammar handbooks therefore seem to be in agreement regarding the nature of Resolution. A search of the Gothic Bible was also undertaken by an intern on this project using the available corpus on the PROIEL web application (Jøhndal et al. 2013). Only two examples were found (79) in the small sample used for the search, and both are instances where the two controllers are of the same gender. In both examples, the target is masculine plural, and so the strategy is indeterminate between number Resolution (without gender Resolution) and Nearest Antecedent Agreement, since the closer controller in both instances is masculine and plural. Since the former is purported not to be possible, these are likely examples of Nearest Antecedent Agreement.

(79)  

a. managai motarjos jah frawurhtai qimandans mianakumbidedun  
‘many tax collectors and sinful came and reclined together...’ (Matthew 9:10)

b. gaqemun ahumistans gudjans jah Fareisaieis du Peilatau  
came chief priests.M.PL and Pharisees.M.PL to Pilate  
qipandans saying.M.PL  
‘The chief priests and the Pharisees came before Pilate and said’ (Matthew 27:62–3)

However, there is an interesting occurrence in the Gothic corpus where the antecedent for a neuter personal pronoun is *birusjos* ‘parents’, a masculine plural noun (80).

(80)  

jah ija ni froþun þamma waurda þatei rodida du im  
and they.N.PL not understand the word which spoke to them  
‘And they did not understand what he said to them.’ (Luke 2:50)

The antecedent of the pronoun *ija* occurs a few verses earlier in Luke 2:41: *jah wratode-dun pai birusjos is jera Ivamme in Iairusalem at dulp paska* ‘Every year Jesus’ parents
went to Jerusalem for the Festival of the Passover’. *Birusjos*, as mentioned above, is a masculine plural noun. It has also been pointed out (Brian Joseph, p.c.) that the Greek form of the pronoun, the source for the Gothic translation, is the masculine plural *autoí*. The pronoun’s neuter gender therefore strengthens the argument that there is a connection between neuter gender and mixed-gender groups, as the relationship between the two is found outside of multiple antecedent agreement. The pronominal agreement of Luke 2:50 is an example of semantic agreement, suggesting that there is, in fact, a semantic basis to neuter Resolution in Gothic. The same can be said of the neuter plural pronoun *sia* in the earlier example of (78d).

However, Hock (2009: 33–34) argues that the picture is much more complicated: the fact that there exist masculine plural words for referring to mixed-gender groups at all (cf. *birusjos*) means that mixed-gender groups are not, by default, neuter gender. In fact, he argues that masculine gender is actually the unmarked gender for humans, as evidenced by the most common general (masculine) noun: Old English *leode* ‘people’ and its Germanic cognates. Furthermore, the neuter plural target might originally have been a masculine *dual* ending, as the two endings merged in later Germanic. As a result, the original target resolved form was actually masculine but reanalyzed as neuter on account of the decline in the usage of the dual endings. Given that most of the neuter target examples are a combination of two individuals, one male and the other female, this argument is particularly compelling.

The historical analysis of the agreement patterns is controversial: comparison between Germanic and the rest of Indo-European should be done with caution, as the neuter resolved gender of animates might actually be the product of reanalysis of an original (and expected) masculine resolved gender. However, synchronically the rule is uncontroversial: mixed-gender animate beings condition neuter targets. And in fact, according to Hock (p. 34), in Old High German neuter plural Resolution is the default for all contexts of multiple antecedent agreement, not just mixed-gender groups of animate beings.

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Germanic languages also show Partial Agreement via Nearest Antecedent Agreement, as in the following example from Old High German given by Hock (p. 34).

(81) themo si ľamer héli to-him be always well-being.N.SG and bliss.F.SG in-common.F.SG
joh sálida giméni
‘To him let there always be well-being and bliss in common.’ (Otfrid, Ludovico 5)

Many Germanic languages also show gender neutralization in the plural; that is, plural gender forms are not distinct. Hock considers this to be part of one of the driving factors behind the patterns of strategy variation within multiple antecedent agreement, that of Avoidance. I discuss the place of gender neutralization in my analysis of semantic agreement in multiple antecedent contexts in Section 7.3.2. For now, what is important about the Germanic data is that they show a similar pattern to that found in Latin, Greek, and Sanskrit, but for Resolution, Germanic utilizes only one resolved gender, whatever the historical source of that gender might be.

6.3 Hittite

With regard to multiple antecedent agreement in Hittite, Melchert (2013) provides a complete and compelling report of the phenomenon: both Resolution and Partial Agreement are available. As mentioned in Section 2.3, the gender system of Hittite differs from the rest of Indo-European, with two gender values: common (COM) and neuter, which corresponds roughly to animate and inanimate semantic values. With respect to Resolution, Melchert finds (p. 169) that mixed-gender antecedents resolve to common gender on the targets, regardless of animacy.

(82) 3 NINDA baršaēš ispantuzzi =ya [(marnua)]n kitta mān lu[kk]atta
3 bread-loaves.C.PL libation.N.SG =and marnuan.N.SG lie when dawn
=ma nu LŬ.ḪŪB-za [(ūgg =a a)]nda paiwani t =uš
=CONJ CONJ deaf I =and in go CONJ =them.COM.PL
=(š)t[(a š)]arā tumēni
=PLCL up take
‘Three leavened bread loaves and a libation (of) marnuan lie (ready). When it
dawns, a deaf man and I go in, and we pick them up.’ (KBo 17.I iv 23–5)

In this example, the target pronoun uš ‘them’ is common gender and plural, while
the nearest antecedent is neuter singular (the libation of marnuan). Melchert is cautious,
however, in the description of Resolution, as all of his examples are from a single Old
Hittite (OH) composition (p. 171). However, the understanding of semantic agreement
and Resolution in Hittite is bolstered by additional examples of semantic agreement in the
language (pp. 172–6)

For Partial Agreement, Melchert observes that agreement is “usually but not exclu-
sively” with the the closer antecedent for all target types, as in the example in (83) (p.
166):

(83) män dUTU dİŞKUR nēpiš tēkann =a [(uktū)]ieš
as Sun-god.c.sg Storm-god.c.sg heaven.n.sg earth.n.sg and eternal.n.sg
‘As the Sun-god, the Storm-god, heaven and earth (are) eternal.’ (KBo 17.3 + ii
53”–iii I (Ritual for the King and Queen; OH/OS))

And just as in Latin, there is an example where different target types in the same
sentence agree each with their closest antecedent.

(84) nu šāru kuit nam-ra gubernati. du dudur. akšud
CONJ booty.n.sg which.n.sg deportees.c.sg cattle.c.sg sheep.c.sg find
lu.meš.šu.dab =ya kuin epper n =an Ina uru Altanna
prisoners.c.sg =also which.c.sg seize CONJ =them.c.sg in Altanna
arha dalahhun
PV leave-behind
‘I left behind in Altanna the booty, deportees, cattle (and) sheep which I had found
and also the prisoners they (my troops) had seized.’ (KBo 5.8 iii 37–9 (Annals of
Mursili II; NH/NS))
In this example, the first target *kuit* agrees only with the antecedent *śāru* ‘booty’, while the pronoun *-an* ‘them’ agrees only with *LÚ.MEŠSU.DAB* ‘prisoners’. Here, the first target at least intervenes between the controllers, which makes the agreement patterns unsurprising.

As is mentioned above, Hittite differs from much of Indo-European by only having two gender values: common and neuter, which (roughly, but not strictly) correspond to semantic animacy distinctions—and yet the same types of agreement are still found in Hittite as in the majority of Indo-European. This is particularly good news for a study of Indo-European, as Hittite represents one of the oldest languages in the family; furthermore, Hittite is quite different in its grammar according to the typology of Indo-European. I discuss the possibility of therefore reconstructing such agreement patterns (as a possible source for the similarities across the languages of study) in Chapter 8.

### 6.4 Slavic

Slavic languages have, by far, received the most attention in the study of agreement, including the study of multiple antecedent agreement. Such research is fundamental to Slavic linguistic studies, undertaken most notably by Bernard Comrie (cf. *Comrie 1975*) and Greville Corbett (cf. the aptly titled *Agreement*, Corbett 2006). Such studies by Comrie and Corbett have led to significant theoretical advancements in understanding agreement, stemming in particular from the development of the Predicate Hierarchy and the Agreement Hierarchy (cf. Chapter 1). Furthermore, Corbett’s canonical typology approach to agreement has defined the theoretical “limits” of agreement, a necessary point of reference for any study of agreement. Thus, many of Comrie and Corbett’s observations and analyses form the basis for the arguments within this dissertation.

Corbett in particular has written at length on multiple antecedent agreement in Slavic. In *Corbett 1982a*, he provides a survey of Resolution rules in Slavic languages, finding that both Resolution and Partial Agreement are possible (p. 350). Resolution is more frequent
when the controllers are animate and when the controllers precede the target, as is the case in Latin, although “the exact limits” and frequency of occurrence of each strategy do differ within each Slavic language (p. 351). The reason for this variability is due in large part to the nature of the gender system in Slavic. In particular, much like Germanic languages, there is no gender distinction in the plural for East South Slavic and East Slavic languages, and so gender resolution is not applicable (p. 352). In languages that do show gender distinctions in the plural, the following patterns are found (pp. 353–69):

(85) a. Slovene

\[ F + F = F \]
\[ M \text{ elsewhere} \]

b. Old Church Slavonic (OCS)

Unclear, but according to Valliant (via Corbett), much the same as Slovene, where:
\[ M + F = M \]
\[ N + F = M \]

c. Bosnian/Serbian/Croatian (BCS, Corbett’s “Serbo-Croat”)

\[ F + F = F; \text{ this rule is optional if at least one feminine controller ends in a consonant}^2 \]
\[ M \text{ elsewhere} \]

d. Czech

If at least one of the controllers = MASC ANIMATE, then MASC ANIMATE.

\[ \text{MASC INANIMATE/FEM elsewhere} \]

\[ ^2 \text{Per Andrea Sims (p.c.), instances of } F + F = M \text{ do occur even if there is no consonant-final controller; she has found several examples in her Croatian Wikipedia corpus. She further adds that the fact that this rule as originally formulated is sensitive to consonant-final nouns presumably is related to the prototypically of class I masculine nouns as consonant-final; this rule could therefore be an issue of declension class ambiguity. Such a rule, in any case, violates the Principle of Morphology-free Syntax since it makes reference to morphological form, not morphosyntactic properties, cf. the discussion in Sections 2.2 and 2.3.} \]
e. Slovak and Sorbian

If at least one of the controllers = MASC PERSONAL, then MASC PERSONAL.

NON-MASC PERSONAL elsewhere

f. Polish

If at least one of the controllers = MASC PERSONAL, then MASC PERSONAL.

If at least one of the controllers has the **syntactic or semantic features** masculine and personal, then MASC PERSONAL may occur.

If at least one of the controllers = MASC ANIMATE, then MASC PERSONAL may occur.

NON-MASC PERSONAL elsewhere

There is, as demonstrated by Corbett’s description of the rules, a split between West Slavic and (West) South Slavic, primarily due to the type of gender system (p. 369). West South Slavic languages, e.g. Slovene and BCS, have the familiar three-way distinction between masculine, feminine, and neuter. The agreement rules are therefore based on a rule of masculine default resolved gender: there is feminine agreement if all controllers are feminine; otherwise, Resolution is to the masculine. In BCS, at least, this basic rule pattern described by Corbett appears to have been replaced by a more general masculine default rule, where masculine Resolution occurs even when there is no gender clash. West Slavic languages, e.g. Slovak and Polish, distinguish between personal and non-personal feature values, in addition to gender distinctions in the singular. The patterns of Resolution are based on whether a masculine personal form occurs, which conditions a masculine personal target form; otherwise, the default resolved gender is non-masculine personal. While the specific input/output of the rules are different in West vs. West South Slavic, it should be noted that the rule types are very similar: one exceptional context is identified alongside the default rule. The rules in Slavic are therefore similar to those in Germanic but different from those in Latin and Ancient Greek, which depend on animacy distinctions; i.e. there
is no default case. The Latin and Greek type of Resolution has been regarded by Corbett (1983: 184–8) as Resolution by the “semantic principle”, where there is direct reference to meaning (and in particular, animacy), while the Germanic and Slavic type of Resolution is considered Resolution by the “syntactic principle”, where there is “no recourse to semantic factors” (p. 188). Corbett has since (2006, pp. 258–63) agreed with Wechsler and Zlatić (2003) in viewing all Resolution as semantic in nature, where even the default gender rules have some connection to meaning-based properties. I discuss the impact of this distinction in Section 2.6 above and Chapter 7 below.

With respect to Partial Agreement, the usual strategy is Nearest Antecedent Agreement, but there is at least one documented instance of First Conjunct Agreement in Slovene, as in example (86).

(86) groza in strah je prevzela vso vas
horror.F.SG and fear.M.SG AUX.3.SG seized.F.SG whole village
‘Horror and fear seized the whole village’

The importance of this example in contrast to Nearest Antecedent Agreement is discussed in Chapter 7, as this type of strategy is apparently also found in Latin (Corbett 1983: 180).

Nearest Antecedent Agreement is well-documented across Slavic, being the primary strategy for multiple antecedent agreement in OCS, for example (Corbett 1982a: 356). The following is an example of Nearest Antecedent Agreement in Russian from Corbett (2003: 290).

(87) Teper’ na nej byl sinij kostjum i novaja belaja bluzka
now on her was.M.SG dark-blue dress.M.SG and new white blouse.F.SG
‘She was now wearing a blue dress and a new white blouse’ (Vojnović)

This example is particularly interesting: Russian has no gender distinctions in the plural, just as in Bulgarian and Macedonian. Gender neutralization means that gender resolution does not need to occur. The target can simply be in the plural form to satisfy the Resolution
requirements (i.e. number)—and yet Nearest Antecedent Agreement is not uncommon. This suggests that Nearest Antecedent Agreement is extending in its applicability, from a strategy used when met with difficult agreement patterns to a more default strategy; other evidence comes from the high degree of frequency of Nearest Antecedent Agreement for same-gender contexts. I discuss this evolution of Nearest Antecedent Agreement in Section 7.4.2.

6.5 Modern Romance Languages

Patterns of agreement have also been investigated in modern Indo-European languages, e.g. Morgan (1984) on Albanian as described in Chapter 5. Modern Romance languages, especially Portuguese, have also received attention in current studies of the phenomenon. Agreement studies can be theoretical and typological (e.g. Arnold et al. 2007) or, in the case of the Italian examples in Vigliocco and Franck (1999), psycholinguistic experiments on language processing/production. In this section, I focus on the former type.

What is interesting about the studies of Modern Romance is that, with minor exceptions in Romanian, the three-way gender distinction in Latin has been reduced to a two-way distinction between masculine and feminine, with originally neuter nouns being recategorized as masculine or feminine. This reduction makes gender resolution a more trivial matter: there are only two options, and most languages resolve mixed-gender contexts with a simple default rule. For example, in French (and Spanish and Portuguese and Italian), masculine serves as the default gender—and therefore also the resolved gender (Corbett 1983: 186).

(88) a. un père et une mère excellents
   a. father.M.SG and a mother.F.SG excellent.M.PL
   ‘an excellent father and mother’

   b. un savoir et une adresse merveilleux
   a. knowledge.M.SG and a skill.F.SG marvelous.M.PL
   ‘a marvelous knowledge and skill’
However, the French rules are problematic in other configurations: if the order of the controllers is switched such that the masculine singular noun is closer to the target, then it would be impossible to tell which strategy applied in spoken French: the pronunciation of adjectives is the same for masculine singular and masculine plural (Katie Carmichael, p.c.; see also Vigliocco and Franck 1999: 460, “gender marking does not always appear in the spoken modality”). Thus, the rules of masculine default Resolution in French are really a matter of certain configurations and/or of written French. Such a problem does not exist in other Modern Romance languages, however.

What is exceptional about Modern Romance languages is the availability of Partial Agreement for this context: a masculine default rule is considerably more straightforward than the rules detailed for Latin, Ancient Greek, Sanskrit, Hittite, Germanic, and Slavic, yet the possibility of agreeing with only one antecedent is still available. For example, Arnold et al. (2007) find that approximately 10% of the tokens in their Google corpus study show unambiguous instances of Nearest Antecedent Agreement. They also found an interesting token, reproduced in (89) below:

\[(89) \text{Esta canção anima os corações e mentes brasileiras} \]

\[\text{this song animates the M.PL hearts M.PL and minds F.PL Brazilian F.PL} \]

‘This song animates the hearts and minds of the Brazilian people.’

This example from Portuguese is similar to example (50) from Latin and (84) from Hittite, where the two different targets are both a product of Nearest Antecedent Agreement, and each target agrees with its closer (and different) controller. As discussed in Section 3.4, such data are important for syntactic analyses of multiple antecedent agreement: viewing

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3Much like other automated corpus studies, the authors searched through tagged controllers and targets to find instances where the first noun was masculine, the second noun was feminine, and the target was feminine. They compared this figure to other combinations of gender; notably, they found a comparable number of tokens where the first noun was feminine, the second noun was masculine, and the target was masculine. However, because the Resolution rules in Portuguese are based on a masculine default rule, as in French, the strategy for these tokens is indeterminate from just the number of tokens alone, without target number information. Because these tokens were not analyzed by hand and number data were either also ambiguous or unanalyzed, it is not possible to say how many of these tokens were also a product of Nearest Antecedent Agreement.
coordinate phrases as headed makes the wrong predictions for multiple antecedent agreement. I discuss data like these in Chapter 9.

To round out the discussion on Modern Romance languages, Nearest Antecedent Agreement is also a possibility in Spanish, cf. example (90) below (José Ignacio Hualde, p.c.).

(90) para que los corazones y las mentes humanas sean transformadas

so that the hearts.m.pl and the minds.f.pl human.f.pl would-be transformed

‘So that the human hearts and minds would be transformed’

The data from this chapter provide a reference point for comparing and contrasting the data from Latin, Ancient Greek, and Albanian. What is clear from the data presented is that both very old languages (e.g. Hittite and Vedic Sanskrit) and contemporary spoken languages (e.g. Spanish and Portuguese) show agreement via both Resolution and Partial Agreement. This fact, coupled with the fact that these patterns are also found outside of Indo-European languages, suggests that these two strategies are likely broader typological patterns rather than a language family-specific set of rules. However, there are two important facts that need to be dealt with if this is to be a broader typological pattern: the fact that there is good deal of overlap in the type of Resolution rules (cf. the two types of rules found in Slavic) and the type of Partial Agreement (being primarily Nearest Antecedent Agreement in all languages discussed), and the fact that Albanian seems to lack a productive Resolution strategy. I address these questions, and the analysis of semantic agreement in multiple antecedent contexts that the data suggest, in Chapters 7–8.
Agreement, Assignment, and Avoidance

My analysis of the collected data patterns in Indo-European supports a general view of agreement in difficult contexts as a matter of linguistic performance, as evidenced by the appeal to local information to provide agreement features in multiple antecedent contexts. “Local information” here refers to either meaning-based properties of the discourse referents, or to agreement information of the more local controller.

7.1 Explaining Typological Patterns

While the data are not overwhelmingly robust, the corpus results from Latin and Ancient Greek at least broadly confirm the generalizations made by Corbett (1991, 2006). Namely, the syntactic category of the target is relevant, where Resolution appears to align with semantic agreement and Partial Agreement aligns with syntactic agreement. However, the patterns of the Agreement Hierarchy were not strictly observed, yet some of the patterns established by Corbett’s corpus data did emerge. Animacy is important, where animate antecedents are more likely to show Resolution and inanimate antecedents are more likely to show Partial Agreement. Furthermore, there appears to be some relationship between strategy choice and “real” distance (i.e. the number of words between the target and the closest controller), where Resolution is more likely at farther distances. For the purposes of the discussion, I focus primarily on the collected data from Latin and Ancient Greek. Albanian, in allowing only for Partial Agreement as a productive strategy, diverges from
the other Indo-European languages discussed; I address the apparently aberrant nature of Albanian in Section 7.4.1.

Ultimately, I draw on the discussion of semantic agreement in Chapter 2 to explain why agreement strategies in multiple antecedent contexts rely on local information. The patterns of semantic agreement in other syntactic contexts similarly rely on local conceptualizations of controllers, not general semantic patterns. The data from multiple antecedent agreement therefore support a view of agreement as an “on-the-fly” process, as affected by concerns in the local context and constraints on processing difficult constructions.

### 7.1.1 Target Type and the Hierarchies

The syntactic category of the target is relevant, though the patterns in Latin and Ancient Greek are not as robust as in Corbett’s findings (cf. Sections 3.3 and 4.3). In light of these results, I revisit the hierarchies from Chapter 1 (cf. Figures 1.1–1.2), as they have been observed in other languages.

```
attributive | predicate | relative pronoun | personal pronoun
← syntactic agreement             semantic agreement →
```

Figure 7.1: Agreement Hierarchy

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verb    | participle | adjective | noun
← syntactic agreement             semantic agreement →
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Figure 7.2: Predicate Hierarchy

Corbett (2006: 256) argues that “Resolution is a particular case of semantic agreement” on the basis of its conformance to the hierarchies above. Because both Latin and Ancient Greek show more instances of Resolution as the target type moves rightward along the hierarchy, there is good evidence—from the data in this dissertation and Corbett’s own corpus
studies of other languages—that this is an accurate observation. However, the question still remains as to why Resolution, which relies on language-specific, stipulated rules, should behave like semantic agreement, and also why Partial Agreement, which involves the meaning in an indirect way and relies primarily on linear/proximal relationships, should behave like syntactic agreement.

The order of the elements on the hierarchies is particularly relevant to the analysis below, especially the Agreement Hierarchy (Figure 7.1). With respect to the right end of the hierarchy, pronouns require gender to be assigned to a group, and there is more semantic content present in pronouns than other targets. For example, pronouns can be used without an overt linguistic antecedent. On the other hand, for targets that are more adjective-like (on the left end of the hierarchy), the relationship between the target and controller is more syntactic in nature, where agreement primarily marks syntactic dependencies between what is being described and how it is being described. I return to this point in my discussion of Resolution as gender assignment in Section 7.2 and the importance of agreement as dependency-marking in Chapter 10.

7.1.2 Animacy

The most robust pattern in the corpus data of Latin and Ancient Greek is that animate controllers are more likely to show Resolution, and inanimate controllers are more likely to show Partial Agreement (cf. Tables 3.3 and 4.2), confirming Corbett (2006: 220–1).

These patterns can be explained by once again taking into consideration semantic content: animate controllers have a stronger connection to semantic (or pragmatic/contextual, as it were) gender. Resolution requires reference to the meaning of the controllers in both Latin and Greek. In both languages, the gender of animate nouns has more semantic content. In many cases, the gender of an animate noun reflects the natural sex of the referent, e.g. Latin *vir* ‘man’ is masculine, but *mulier* ‘woman’ is feminine. Even when the noun’s gender does not match the referent’s natural sex, the fact that animate beings can still have
real gender means that assigning this gender to targets is less problematic. The assignment of gender based on natural sex for animate beings is the source of a particularly common type of agreement mismatch that was discussed in Section 2.3 above (cf. the discussion of Latin *pars*). This same principle is also at work in Resolution, but at a higher level of abstraction. Another degree of separation exists between assigning morphosyntactic gender based on the meaning of the controllers, where a meaning-based property (animacy) must be “translated” into a morphosyntactic gender value via language-specific, stipulated rules.

### 7.1.3 Target Position and “Real” Distance

Finally, target position appears to be related to target type, as suggested in Section 3.3. Personal or demonstrative pronouns can occur much farther away in the linguistic context than predicative adjectives: a pronoun can refer back to an antecedent several sentences away. Pronouns, as more contentful and often quite distant in their position, create a context in which the semantics “matter” more, which in turn contributes to the higher frequency of Resolution. On the other hand, “descriptive” targets like participles and adjectives tend to be closer to the controllers they modify, for functional and syntactic reasons (i.e. showing syntactic dependencies between the modifier and modified nouns). This is, perhaps, why only Partial Agreement is found for attributive targets in Latin (Johnson 2008): attributive adjectives almost always immediately precede or follow their controllers. The lack of both syntactic and “real” distance for attributive adjectives supports the idea that the context of agreement as dependency-marking is much more relevant, rather than anaphoric assignment of semantic information. Both are part of agreement, as argued in Chapter 2: the features that surface on adjectives and pronouns are the same.

Corbett (2006: 236) observes the same patterns of syntactic and semantic agreement with *committee* nouns, where a higher percentage of plural (i.e. semantic) agreement is observed as the number of words between the noun and the target increase. Real distance is also relevant for patterns of Partial Agreement. As Corbett (2006: 170) observes, when
Partial Agreement occurs, it is normally with the nearest controller, implying some linear
closeness between the two elements. In discussing this tendency, Corbett (ibid.) argues that“...we should perhaps be looking to psychologists, who have demonstrated the importance
of first and last positions in other domains”. Linear distance and the position of items in lists
are both important features of multiple antecedent agreement, and they have an effect on
both the realization and the frequency of Partial Agreement. I discuss the psycholinguistic
perspective in Chapter 10.

7.2 Resolution as Gender Assignment

All three of the typological generalizations discussed in Section 7.1 support a view of agree-
ment strategies that relies on local information. To that end, I propose a view of multiple
antecedent agreement as one that involves existing mechanisms in the grammar, namely
ASSIGNMENT and AVOIDANCE. Both of these mechanisms rely, in the majority of cases, on
contextual information: either meaning in context or linear proximal relationships.

With respect to Resolution, the most puzzling aspect of the rules deals with gender
resolution: gender resolution is often that which is language specific. Number resolution
is typically to the dual or plural, assigned according to the actual count of controllers and
the available values for number in each language. Number is a semantically transparent
category, and this transparency makes number resolution (i.e. assignment) straightforward.
The patterns that are found therefore appear to be universal. The same is not true of
gender: the output of gender resolution rules differs across languages. While there are
strong patterns, there is not the same degree of “universality” to the rules. I argue that
this is because gender resolution is directly tied to the system of gender assignment, and
gender assignment rules are similarly language-specific.

The connection between Resolution and gender assignment is argued for directly by
Corbett (2006: 260), who states that “gender resolution directly reflects gender assign-
ment”, and also by Wechsler and Zlatić (2003: 181–3), who argue that the Resolution rules for animates are actually gender assignment rules according to the semantic principle. If Resolution is connected to assignment, the gender outcomes of Resolution are explained by existing mechanisms of gender assignment in the language. Systems of gender assignment typically function via two paths: by the formal principle and/or by the semantic principle. These two principles work together in, for example, assigning gender to borrowed words, although these two principles can occasionally predict two conflicting gender values. For example, the city of Corinth is referred to with the feminine noun Kórinthos in Ancient Greek. The name of this city was borrowed into Latin as Corinthus, which occurs as both a masculine and feminine noun, according to the Oxford Latin Dictionary. This variation is explained by the two different gender assignment paths. Masculine gender is assigned via the formal principle: the borrowed word resembles ‘typical’ masculine second declension nouns like amicus ‘(male) friend’, cf. Table 2.1. Feminine gender, on the other hand, is either borrowed along with the Greek word (as an extension of the formal principle) or assigned via the semantic principle: the borrowed word is the name of a city, a category which is typically assigned feminine gender; cf. Roma ‘Rome’, Carthago ‘Carthage’, all feminine place names.¹

In the context of multiple antecedent agreement, gender can be assigned via the semantic principle or the formal (i.e. syntactic) principle—a parallel to semantic vs. syntactic agreement more generally. Corbett (1983) describes the split between semantic and syntactic gender resolution (pp. 184–6). Semantic resolution involves reference to the meaning while disregarding syntactic gender. That is, what is important for agreement is not the gender of the targets, but rather the semantic properties of the controllers. For example, in Latin, gender resolution depends on whether the antecedents are animate or inanimate; the morphosyntactic genders of the controllers do not matter. Rather, one target gender

¹Gender assignment via semantic analogy was considered too ad hoc in the context of the Russian borrowing of Chicago, cf. Section 2.2.2 above; however, here, it is supported by a strong semantic class of feminine nouns, not by a single word as a point of reference.
corresponds to animate, and another target gender corresponds to inanimate; these genders are assigned according to the conceptualization of the controllers as a group of animate or inanimate beings. Syntactic gender resolution, on the other hand, operates according to the morphosyntactic genders of the controllers. No reference to the meaning is needed to derive the gender (pp. 186–90). An example of this type of Resolution is found in Icelandic, where the resolved gender only requires reference to the morphosyntactic gender information of the controllers, with seemingly no interaction of meaning information: if the controllers have the same gender, the target is of that gender; otherwise, the target is neuter. The split between semantic and syntactic resolution is analogous to the split between semantic and syntactic agreement, where the former relies on meaning-based properties and the latter does not—only the formal information of morphosyntactic features.

Corbett refers to Latin as a mixed semantic/syntactic resolution system, in much the same way that agreement systems can make use of semantic and syntactic featural information. In mixed-gender contexts, the rules are as described above. But in same-gender contexts, only resolution to the same syntactic gender occurs. That is, a masculine inanimate controller conjoined with another masculine inanimate controller would produce a masculine plural target via Resolution, not a neuter plural target. This rule is present in Ancient Greek as well (Chapter 4) and much of the rest of Indo-European (Chapter 6).

Resolution as gender assignment therefore operates according to two different paths, and both paths are sensitive to language-specific information. For Latin, semantic gender assignment is the default path for gender mismatch conditions, but syntactic gender assignment is the default (and only) path for gender match conditions. Wechsler and Zlatić (2003) argue that syntactic resolution rules for gender mismatch conditions are actually an extension of rules that were originally semantically conditioned. And in fact, many of the syntactic rules have justification in the gender that is lexically assigned to mixed-group lexical items more generally.
How does gender resolution as gender assignment explain the patterns of strategy frequency? For semantic resolution, assignment is more frequent for animate antecedents because of the direct tie to semantic information: when the antecedents have features that are, first of all, “like” in nature (i.e. they share the same animacy value), it is easier to conceptualize them as a group. And when the antecedents are both animate, then they are both tied to real-world sex/gender. On the other hand, inanimate antecedents have a looser connection to real-world sex/gender. While some inanimate antecedents are neuter gender in Latin and Ancient Greek, in many cases inanimate nouns are distributed across masculine and feminine grammatical gender (i.e. the gender is, in most cases, not semantically based). There is therefore no direct tie between the masculine and feminine gender of inanimate antecedents and male-ness and female-ness in the real world. With respect to animate antecedents, gender is more accessible, and therefore gender assignment is more frequent for animate antecedents. And when gender assignment takes place, it is according to local considerations of meaning. All instances of Resolution for mixed-animacy contexts—a supposed conjoining of “unlike” items—can be explained by viewing the controllers in their respective pragmatic contexts, where they often function as the opposite animacy value, cf. the examples in (46).

Syntactic gender assignment is either trivial (the simple carrying over of a gender feature, e.g. $M + M = M$), the analogical extension of semantic assignment rules, and/or related to default gender agreement. A more complete analysis of syntactic gender assignment of the type found in BCS where $F + F$ can result in $M$ is necessary, but such a language study is outside the scope of this dissertation. I focus on the patterns in Latin and Ancient Greek,

\footnote{Obviously such a line of argumentation risks circularity: the resolved gender is masculine; therefore, the controllers must be perceived as animate; the controllers are perceived as animate, and therefore the resolved gender is masculine. Unfortunately, mixed-animacy contexts are rather rare in the corpus, because conjunction of “unlikes” is rare in general. Brian Joseph (p.c.) points out that this tendency is often reflected in the grammar, e.g. special marking for natural vs. adventitious pairs in Tocharian and other languages. With regard to agreement with conjoined “unlikes”, given that there is no consistent pattern (where only Resolution to the masculine or only Resolution to the neuter or only Partial Agreement occurs), it is at least possible (if not more probable) that local context and conceptualizations are what drive the resolved forms.}
where syntactic resolution is only found for same gender antecedents in a straightforward (perhaps trivial) way.

7.2.1 Animacy and Default Rules

However, at least some of the “syntactic resolution” patterns can actually be understood according to semantic information. To explain the two different patterns exemplified by the differences in rule type between Latin and Icelandic, I argue that the difference is actually in the level of semantic abstraction. Gender assignment can be quite straightforward in some contexts. Consider, for example, the example of semantic gender agreement from Section 2.3 above, where gender is assigned according to natural sex.

(91) molodaja vrač prišla
young.F.SG doctor came.F.SG
‘The young (female) doctor came.’

Here, the referent of vrač ‘doctor’ is a woman; the targets are assigned feminine gender. This is the lowest level of abstraction. There is only one step, that of translating natural sex into morphosyntactic gender and assigning it to the target form.

Gender resolution in Latin requires a higher level of abstraction. Masculine gender is not just representative of “male-ness” but also of animate-ness. Neuter gender is representative of inanimate-ness. It is not the referential gender of each controller that is translated into morphosyntactic gender, but rather the semantic properties of both controllers that are connected with a particular morphosyntactic gender. This connection between the semantic property of animacy and morphosyntactic gender exists elsewhere in the language: according to both Wechsler (2009: 575) and Corbett (1983: 200), mixed-sex groups show the same gender as Resolution for animates (masculine in Latin). Corbett (1983: 196) similarly finds that there is “independent semantic justification” for the use of a particular gender in Resolution, i.e. as a type of semantic analogy, rather than a reflection of markedness. And

\[^3\text{Corbett (1983: 195–6) finds markedness to be an insufficient explanation because there are instances where Resolution occurs and the resulting target form is actually more marked than the competing}\]
again in Corbett 1991: 297, he describes the neuter plural of Resolution in Latin as also semantically justified, since neuter is used for abstract nominals, e.g. *incerta* ‘uncertain things’.

The rules in Icelandic require an even greater level of abstraction: it is not a correspondence between animacy and morphosyntactic gender, but rather between mixed-gender groups and morphosyntactic gender. What is at issue for rule types like Icelandic is that neuter gender represents two separate semantic categories: mixed-gender animate groups and (mixed- or same-gender) inanimate groups. The former group is potentially unexpected: as we have seen through Indo-European, masculine gender is typically the default for mixed animate groups. Neuter gender, however, is used for mixed-gender groups outside of multiple antecedent agreement in Icelandic (and much of Germanic, cf. Section 6.2), at least synchronically.\(^4\) Corbett (1983: 200) finds that words that refer to groups of animate individuals of mixed sex are, for the most part, neuter, e.g. *hjón* ‘man and wife’ and *bóndahjón* ‘peasants [husband and wife]’. And the neuter “does not exclude humans”, as there are words for animate beings of indeterminate sex that are also neuter, e.g. *barn* ‘child’ and even words for animate beings that are semantically female that are morphosyntactically neuter, e.g. *víf* ‘woman [poetic]’. The connection between resolved gender for mixed sex, animate groups and the lexical gender of “couple”-words in the language relies on the notion of semantic analogy, a type of gender assignment that I described as *ad hoc* in Section 2.2.2 for the Russian gender of the borrowed word for Chicago. The analysis here is more secure for two reasons: first, the resolved gender matches the gender of not just “couple”-words, but is also the default for referring to mixed sex groups without linguistic antecedents, and second, the same gender is used on anaphoric pronouns. That is, when a pronoun has no immediate antecedent, the gender is also neuter; cf. example (78d).

\(^4\)Refer to Section 6.2 for Hock’s critiques of this view in a historical context.
All three cases above support a view where gender is assigned according to primarily semantic principles. What is different for each language is the nature of the semantic principle: at what degree of abstraction is the connection between morphosyntactic gender and semantic properties made? And what exactly is the nature of that connection? These two questions are language-specific—and so too is the degree to which syntactic gender assignment occurs—resulting in the rule variation in gender assignment across languages.

7.3 Partial Agreement as Avoidance

If gender resolution is really gender assignment, then Partial Agreement can be understood as the lack of gender assignment. However, if semantic gender assignment requires only a connection between some semantic property or properties and morphosyntactic gender values, then one might ask why gender assignment does not always take place in multiple antecedent agreement. That is, why is Partial Agreement so frequent?

To answer this question, I follow Hock (2007, 2009) by viewing Partial Agreement as a response to a difficult grammatical context, as an avoidance response. By “difficult”, I refer to the problem of assigning gender to a set of morphosyntactically different controllers and, in some cases, abstracting from the semantic properties of a group of “unlike” nouns. This difficulty can be avoided by appealing to a separate strategy altogether, one that refers only to the morphosyntactic features of one of the controllers (and a highly local one at that). Hock therefore describes Nearest Antecedent Agreement as a kind of Avoidance strategy. Corbett (1991: 264) makes the same observation: Resolution is, in most languages, not obligatory, as there are many systems “where the problem is simply avoided (because agreement is with one conjunct only)”.

Partial Agreement involves local contextual information in a different way than Resolution. While Resolution makes use of information about the meaning of controllers in context,
Partial Agreement represents a reaction to an immediately difficult challenge: assigning gender to a group of controllers that can be quite different in their meanings. Speakers can thus choose to avoid the problem of multiple antecedent agreement altogether by agreeing with only one of the controllers (though the syntactic dependency is with all of the agreement controllers, an important observation in understanding attraction errors, cf. Chapter 10).

7.3.1 Nearest Antecedent Agreement

Nearest Antecedent Agreement is the usual outcome of Partial Agreement (cf. Corbett 2006: 170), making it the most common type of Avoidance observed across languages. Nearest Antecedent Agreement is the primary Partial Agreement strategy found in Latin (and Modern Romance), Ancient Greek, Albanian, Sanskrit, Hittite, Germanic, and Slavic. While some languages accept other Partial Agreement outcomes, Nearest Antecedent Agreement is still the preferred method. The results from the corpus studies in Latin and Ancient Greek (cf. Sections 3.3 and 4.3) indicate that not only is Nearest Antecedent Agreement available in almost every context that Resolution is, but in some contexts it approaches a high degree of frequency. And indeed, in Albanian, this is the only type of agreement that occurs for nyje particles (a fact I return to in the discussion of Nearest Antecedent Agreement as a default strategy in Section 7.4.1).

Here, the “avoidance” aspect is most obvious: the speaker rejects the difficult task of computing agreement features across controllers that may or may not have much semantic overlap, and instead uses the features of the controller closest to the target. Such an agreement strategy resembles, at least superficially, so-called “errors” of attraction. In English, these errors often occur when the controller of agreement is modified by a post-nominal prepositional phrase or relative clause that ends in a noun of a different number. For example, Bock and Miller (1991: 45) give the following instance where the “superficially simple syntactic operation” of agreement fails to operate in the expected way:

(92) The cost of the improvements have not yet been estimated.
There is an obvious (and potentially important) difference between the attraction in example (92) and Nearest Antecedent Agreement: the noun in the attraction example is not an actual agreement controller. In Nearest Antecedent Agreement, the noun that shares its features with the target is one of the conjoined controllers. However, both attraction and Nearest Antecedent Agreement make use of local information for agreement—it is only that the syntactic dependencies between controller and target when attraction occurs are seemingly not represented by the features on the target. The connection between attraction and Nearest Antecedent Agreement is the foundation for the arguments in Chapter 10, where the psycholinguistic aspects of multiple antecedent agreement and attraction are explored.

7.3.2 Other Partial Agreement Outcomes

Nearest Antecedent Agreement is one of many Avoidance strategies. Within Partial Agreement, agreement with the first conjunct is also possible, e.g. example (93) from Slovene, as cited by Corbett (1991: 266).

(93) groza in strah je pre vzela vso vas
horror.F.SG and fear.M.SG AUX.3.SG seized.F.SG whole village
‘Horror and fear seized the whole village’

This phenomenon is also found in BCS, as in example (94) from Corbett (1983: 180), where the Resolution outcome would be masculine plural, rather than the neuter plural found on the targets.

(94) ona stalna duboko urezana svijetla i sjene koje je naslikao those constant deeply cut lights.N.PL and shades.F.PL which has painted umjetnikov kist bila su jača od realne svjetlosti the-artist’s brush were.N.PL stronger.N.PL than real light
‘Those constant, deeply cut lights and shades which the artist’s brush painted were stronger than real light.’ (Desnica)
First Conjunct Agreement is less clearly Avoidance; it is no longer the most local controller that determines agreement information on the target. In Nearest Antecedent Agreement, the speaker, when faced with a difficult agreement context, does not “look backwards” to the first conjunct and assign features. Rather, a speaker looks to the most recent controller and uses those features for agreement. This is in keeping with an “on-the-fly”, left-to-right performance view of agreement. As shown in Sections 2.3–2.4, semantic agreement phenomena often rely on local considerations, where features are imported directly from the recent discourse context, rather than strict notions of “semantic” meaning, or those general meaning-based properties of the word. Nearest Antecedent Agreement also fits into this view: the speaker concerns himself with the local context—the controller which is closest to the target—rather than the properties of all of the controllers, which, in some instances, can be rather distant from one another.

How then is agreement with the more distant conjunct an instance of Avoidance? One possibility is that the speaker “trades in” a complicated set of rules for one that simply points him or her to the agreement information of the first conjunct (“in difficult contexts, agree with the first conjunct”). Avoidance, then, is still present in rejecting the need to assign features according to more than one controller. It should be noted, too, that agreement with the more distant conjunct is much rarer than Nearest Antecedent Agreement and is often found in languages where Nearest Antecedent Agreement is also possible (and usually more frequent). For example, Corbett (1991: 265) argues that agreement with the more distant controller can occur in Latin as well (following Kühner and Stegmann 1962: 53, 55, 58–9), although no examples of this were found in my own corpus study. Furthermore, Kühner and Stegmann’s discussion in the section cited by Corbett all deal with special coordination with *etiam* ‘also, too’ and *quoque* ‘also, likewise’. While these conjunctions can be used to link together agreement controllers, they have a more adverbial force, where the linked controller does not necessarily have the same prominence or importance in the discourse as the first, akin to English *as well as* or *in addition to*. Agreement with the more distant
antecedent is therefore not unexpected, as the controller linked with etiam or quoque can be interpreted, again, as a kind of afterthought. Compare English I, as well as Mary, am going to the store.

Another possibility is that First Conjunct Agreement is actually agreement with the most prominent antecedent. This strategy is directly referred to by the grammar handbooks of Ancient Greek, cf. Section 4.1, presumably to account for examples where Partial Agreement in Greek is not the usual Nearest Antecedent Agreement. Given the rare and secondary nature of First Conjunct Agreement in all languages where it is found, this is not an unreasonable explanation. And in fact, viewing this as agreement with a more prominent antecedent fits into the present view of agreement as one that is dependent on the local pragmatic context. So far, “local context” has meant several different properties, which can work independently or together to produce the observed agreement target. For Resolution, “local context” means meaning in the current discourse context, where speakers make judgments about the semantic features that the controllers share. For Partial Agreement, “local context” means, at minimum, immediate difficulty in assigning features to agreement targets; in practice, the local context then provides either information from the closest antecedent (as in Nearest Antecedent Agreement, where linear relations are highlighted) or information regarding relative importance of the controllers in the discourse context.

Because of the risk of circularity, it is impossible to argue that the examples from Slavic are, in fact, agreement with the most prominent antecedent. However, there are interpretations of the text that make such an analysis possible (where, e.g. in (94), light is more prominent than shadows in the creation of art). The strongest evidence, however, is the lack of evidence: First Conjunct Agreement is not widespread in any of the languages discussed, nor has it been extended as a default strategy in the languages that do have it.
7.3.3 Other Avoidance Strategies

Beyond agreement with one conjunct, other Avoidance strategies include the use of an alternative construction to coordination (e.g. comitatives; cf. Corbett 2006: 248–50), complete restructuring of the sentence (e.g. in Polish; cf. Rothstein 1993), and even gender neutralization in the plural (as in German or East Slavic and East South Slavic languages; cf. Hock 2009). The first two strategies are an obvious “avoidance” of complex contexts, especially when speakers completely restructure the sentence to avoid modifying a coordinate structure. These two Avoidance strategies, while observed in spoken and written language data, are impossible to count in a corpus study, as there are, presumably, occasions where comitatives happen without multiple antecedent agreement being considered first, and it is impossible to say how a sentence will be restructured once the decision is made to avoid multiple antecedent agreement that way.

With regard to the last strategy listed, that of gender neutralization, this is a systemic change, rather than a choice made by the speaker. While other components of the language contribute to the loss of gender contrast in the plural (including regular sound change and analogy), the loss of contrast makes gender resolution a non-issue. Multiple antecedent agreement, although peripheral, might contribute to the “conspiracy” that drives gender neutralization in the plural, a change that is not uncommon in the Indo-European language family. Hock (2009) is more direct in considering gender neutralization as a form of Avoidance, tracing its history in Germanic to its beginning as “deflection”, where strong, uninflected nominative plural target forms were increasingly used in predicative position from Old High German to Middle High German. Such deflection led to the neutralization of gender in the plural for these languages. However, it is important to note that gender neutralization is an Avoidance strategy on account of its history, while the other strategies—Partial Agreement, comitatives, sentence-restructuring—are synchronic instances of Avoidance.
7.4 Partial Agreement as a Default Strategy

As mentioned above, in many cases Partial Agreement (especially as Nearest Antecedent Agreement) is as frequent as (and sometimes more frequent than) Resolution. In this section, I discuss the progression of the strategy as one that is approaching a default status, contrary to the expectations of speakers and linguists that Resolution represents the “default” or “norm” in doing agreement. While the latter is supported by the basic premise that agreement should highlight the syntactic dependencies between all units involved, in practice it is Nearest Antecedent Agreement that is most frequent.

7.4.1 Albanian

Albanian is a particularly illuminating case for viewing Nearest Antecedent Agreement as a default agreement pattern; Resolution is not a productive strategy in the language, as the results from the elicitation study in Chapter 5 suggest. All subjects produced only Nearest Antecedent Agreement outcomes. This contradicts the general typology of multiple antecedent agreement, where both strategies are available to speakers.

It is possible to speculate on a historical explanation as to why Resolution is not a viable option in Albanian: Albanian is more recently attested, for one, and the changes from Proto-Indo-European to Albanian in the morphological system are much greater than what we observe in Latin and Ancient Greek. The lack of Resolution might therefore be explained by the reduction in the agreement system over time, but it would be just as easy to use only Resolution, especially because there are only two plural nyje possibilities which depend on semantically transparent definiteness values, e and tê.

There is no good explanation as to why Albanian has only Nearest Antecedent Agreement, nor is there any indication that Resolution existed prior to recorded texts. However, what is important about the Albanian data is that they reflect a situation where Nearest
Antecedent Agreement is more than just acceptable and is actually required by the grammar. This indicates that such a strategy can reach a default status, whatever the history of the progression may be. Evidence from same-gender contexts in the next section also supports this view.

### 7.4.2 Same-Gender Contexts

In both of the corpus studies in Chapters 3–4, there were several instances of Nearest Antecedent Agreement for same-gender antecedents, as in the examples below (repeated from those chapters); see also Tables 3.8 and 4.7.

(95) si speras tibi hoc anno multum futurum sirpe et
if hope you this year much will-be.N.SG silphium.N.SG and
laserpicium
silphium-juice.N.SG
‘if you hope to have a good supply of silphium and silphium juice this year’ (Plaut. Rud. 3.2.630)

(96) sidérôi dé oud’ argyrôi chréontai oudén: oudè gàr oudé sphi esti en téi chôrei,
iron PCL nor silver use not: not for not them is in the country
ho dè chrusòs kai ho chalkôs ápletos
the PCL gold.M.SG and the bronze.M.SG abound.M.SG
‘But they never use iron and silver, for there is none at all in their country, but gold
and bronze abound’ (Hdt. 1.215.2)

These data pose a problem for the analysis of Nearest Antecedent Agreement as Avoidance. Avoidance has heretofore been discussed as a strategy that is in reaction to a complex agreement context, where agreement features need to be assigned on the basis of two conflicting controllers. And indeed, as I argued earlier in Section 7.2, gender resolution is trivial when the controllers match in gender. How then can the examples in (95–96) be explained? There are two possibilities, as alluded to above in Section 3.4.

The first possibility is that this is not Nearest Antecedent Agreement at all, but rather the singular target represents a kind of semantic agreement, where the controllers are viewed
as a single entity. That is, example (95) would be interpreted as though silphium and silphium juice formed a collective, singular entity, and likewise gold and bronze in (96).

While this is plausible—semantic agreement is indeed possible for collective contexts, cf. the pancake sentences in Scandinavian described in Section 2.3 above—I argue that there is another, more likely possibility: that the use of Nearest Antecedent Agreement in same-gender contexts is a reflection of the progression of this strategy into a default strategy. This is bolstered by the fact that it is the default (and in fact, only) strategy in Albanian, as discussed in Section 7.4.1. I propose that Nearest Antecedent Agreement is not the aberrant strategy that the literature makes it out to be, e.g. Corbett (2006: 61) describing Partial Agreement as a strategy that produces a target that agrees with just one of the antecedents, as opposed to all of them. It is true that in Partial Agreement, the target only has the same feature values as one antecedent, but in terms of syntactic dependencies, the target still agrees with both antecedents. It is only that the features reflect the features of one controller. Speakers still understand the dependencies.

This is also a feature of Resolution: resolved target forms, for the most part, do not match the features of any of the controllers, but the dependency is still understood between the controllers and target. Resolution is similar to examples of associative agreement in the Talitsk dialect of Russian (cf. example (28) above): the features of the target do not match any of the controllers in both Resolution and associative agreement, yet speakers are still able to determine the correct meaning of each sentence once they encounter the plural form. The pragmatic context provides the missing link that explains the mismatch between the features of the target and the features of the controllers, namely that a plural target implies a group reading, either as directly modifying all of the controllers (in multiple antecedent agreement) or the group represented by the most salient member (in associative agreement). For Nearest Antecedent Agreement, the dependencies between conjoined noun phrases and the target are also available to speakers, as the pragmatic context often makes this reading the obvious choice (if not the only choice), especially since the controllers are usually
overtly coordinated—implying linked behavior in the construction. If the dependencies are obvious from context, then there is nothing preventing Nearest Antecedent Agreement from becoming the default option, especially if the other strategy—Resolution—in many contexts presents a similar challenge in marking or tracking dependencies.

### 7.4.3 Acceptable Ungrammaticality

Another contributing factor to a view of Nearest Antecedent Agreement as becoming more of a default strategy in the languages of study is the large number of tokens where the strategy is indeterminate. Here, I refer specifically to instances where the target could either be the product of Resolution or Nearest Antecedent Agreement because the closest conjunct to the target has the features that would also be appropriate according to Resolution. These are examples like the following, repeated from Section 3.2 above.

(97) clausa haben ostia ac fenestras
closed.n.pl have doors.n.pl and windows.f.pl

‘the doors and windows [should] be kept shut’ (Varr. R.R. 2.7.10)

The closest conjunct to the target is neuter plural, and the antecedents are both inanimate. It is impossible to tell whether Nearest Antecedent Agreement or Resolution has applied.

These examples are not infrequent. I argue that this indeterminacy drives the acceptability of Nearest Antecedent Agreement as a more legitimate (and even default) strategy. Even if the norm of agreement in these languages began as Resolution, these “outcomes” of Resolution can be subsequently interpreted as instances of Nearest Antecedent Agreement. And even if Nearest Antecedent Agreement began as the aberrant (perhaps even ungrammatical) pattern, then this interpretation would give the strategy a degree of acceptability. A similar situation has been considered by Sims (2014) in a study of attraction errors in Croatian, where attraction errors in more monitored, written speech are not necessarily
corrected or noticed. I consider the relationship between Nearest Antecedent Agreement and awareness of attraction errors in Chapter 10.

This line of argumentation has a parallel in so-called instances of ACCEPTABLE UNGRAMMATICALITY: as Langendoen and Bever (1973: 406) observe, “...ordinary speech behavior is filled with ungrammatical utterances that are used simply because they are behaviorally simple and comprehensible in specific contexts”. Nearest Antecedent Agreement fulfills both of these constraints. It is “behaviorally simple” in that it presents an easier solution to the problem of adding up the gender of controllers and it is “comprehensible in specific contexts” because the dependencies are understood via pragmatic information.

Acceptable Ungrammaticality has been discussed for various syntactic phenomena that have been considered, at least prescriptively, “ungrammatical” (e.g. Otero 1972, Langendoen and Bever 1973, Sobin 1994, and Frazier and Clifton 2011). Otero (1972), for example, applies this terminology to the unexpected agreement patterns with Spanish se in impersonal constructions. In Spanish, reflexive se and impersonal se are homophonous, but the syntactic requirements are different. Sentences with reflexive se show verbal agreement with the overt or underlying subject, while impersonal se sentences show verbal agreement with singular se itself. However, Otero observes that speakers readily accept and produce impersonal sentences with se where the verb agrees with the object noun, and thus show “ungrammatical” (but accepted) plural agreement when that noun is plural.

Sobin (1994) applies this term to a context highly relevant to the discussion of multiple antecedent agreement: he finds that verb agreement in expletive constructions with conjoined noun phrase topics is often—and perhaps unexpectedly—singular, e.g. There is a boy and a girl at the door, even though the same topic conditions a plural verb in non-expletive constructions, e.g. A boy and a girl are at the door (p. 54).

The problem with these analyses, of course, is that what one considers “grammatical” and “ungrammatical” is not necessarily precisely defined, but instead depends on the intuitions of the linguist. With regard to Sobin’s data, the singular agreement in these
expletive phrase is so pervasive that it would be irresponsible to consider such cases as aberrant, even ungrammatical. Frazier and Clifton (2011) provide a more specific set of constraints regarding Acceptable Ungrammaticalities:

(98) An ungrammatical sentence may be acceptable if:

a. The form of an utterance is familiar; it sounds like something a native speaker might hear.

b. The intended meaning of the utterance is clear.

c. The utterance can be readily repaired.

d. The intended meaning is related to the form systematically.

The last two constraints are crucial: there is a notion of “repair” (the sentence can be fixed according to some accepted norm) and also a notion of systematicity in relating the two sentences. With regard to Sobin’s data, systematicity can be observed when speakers are coerced into “correcting” singular agreement in expletive sentences with plural, even if plural agreement is not actively produced. In the context of multiple antecedent agreement, the same recognition of a systematic relationship between the two strategies can be seen in the manuscript variation of Latin in example (99).

(99) residuis lectis atque mensis, quorum / quarum remaining couches.m.pl and tables.f.pl of-which.n.pl / of-which.f.pl ‘by the remaining couches and tables, of which . . . ’ (Suet. Aug. 73.1)

This should not be taken as an example of variation or change, as manuscript variation does not imply synchronic or diachronic variation. However, it goes to show that not only are both strategies systematically related, but that the dependencies are understood regardless of whether the target has the same features as only one controller or shows Resolution according to the meaning of both controllers; i.e. both outcomes were viewed as acceptable and grammatical, given the same semantic and syntactic context.
A similar example of manuscript variation is found in Hittite (Melchert 2013: 166, 169), where the systematic relationship between the two strategies is observable but not necessarily indicative of synchronic or diachronic variation.

(100) a. /mā|handa  diUTU-uš  diŠKUR-aš  nēpiš  tē[kann  =a]
as Sun-god.c.sg Storm-god.c.sg heaven.n.sg earth.n.sg and
uktūri eternal.n.sg

‘As the Sun-god, the Storm-god, heaven and earth (are) eternal.’ (KBo 17.I iii 1–2 (Ritual for the King and Queen; OH/OS))

b. mān  diUTU  diŠKUR  nēpiš  tēkann  =a  [(uktū)]ieš
as Sun-god.c.sg Storm-god.c.sg heaven.n.sg earth.n.sg and eternal.c.pl

‘As the Sun-god, the Storm-god, heaven and earth (are) eternal.’ (KBo 17.3 + ii 53”–iii I (Ritual for the King and Queen; OH/OS) (repeated from Section 6.3 above))

To be sure, the definition of “ungrammaticality” is still problematic for practical usage of Acceptable Ungrammaticality; it is especially problematic when a so-called “ungrammatical” construction reaches conventionalized or default status (when ungrammatical becomes grammatical by convention). But what is important is that speakers identify the systematic relationship between the two different constructions. For multiple antecedent agreement, this means that speakers have identified the relationship between (superficially) “agreeing with both antecedents” and “agreeing with just one antecedent”. And by accepting that both structures do the same thing, i.e. that both show dependencies between syntactic units, it is possible for a more aberrant strategy (i.e. Partial Agreement) to gain ground over a more expected strategy (i.e. Resolution).
7.5 Concluding Remarks: Pragmatic Context and Performance

Overall, the patterns in Indo-European conform to the typological generalizations made by Corbett (1991, 2006), although the data from Latin and Ancient Greek suggest that the patterns are not as robust. Returning to the Agreement Hierarchy and the typological generalizations surrounding multiple antecedent agreement, what really appears to be on opposite ends of the spectrum is Assignment vs. Avoidance, which, at least in Latin and Ancient Greek, correspond to the contributions of semantic information vs. non-semantic information. The distribution of these two strategies, which, importantly, are rules and patterns found elsewhere in other areas of the grammar, relies on the ease with which assignment (and gender assignment in particular) can be accomplished. Gender assignment—which is primarily semantic assignment in Latin and Ancient Greek—relies on a local conceptualization of the controllers. This is suggested by instances where a speaker must generalize some semantic property shared by mixed-animacy controllers. In Latin, for example, the gender depends on whether the antecedents are viewed, in practice, as both animate or inanimate (regardless of their general semantic properties). When this conceptualization is difficult, Nearest Antecedent Agreement is found (see (46c)).

And in fact, Nearest Antecedent Agreement is found more widely because multiple antecedent agreement is a difficult context for agreement in general: features must be abstracted over, whether in a semantic or syntactic way, and gender assignment must take into consideration not just the properties of one referent, but the combination of properties from all of the referents. It is not often clear how one adds up the values “masculine” and “feminine” or “masculine” and “neuter” (or, in semantic terms, how one abstracts over controllers that are male and female). This is all the more true in inanimate contexts, where gender does not often have a semantic correlate but rather functions as a classificatory feature. Nearest Antecedent Agreement is found in all animacy contexts, but more so when
the antecedents are inanimate and semantic gender information is less available.

How, then, can the patterns of the Agreement Hierarchy be explained? As detailed above, Resolution is favored more when the target is pronominal in some way. This can be explained by the nature of pronominal targets: gender on pronouns is in a sense more semantically “real” than gender on, e.g., predicative adjectives. Pronouns refer back to entities or sets of entities as anaphora, while predicate adjectives show agreement really only as an indication of syntactic relationship: the adjective that is masculine and plural is predicating the noun with which it agrees. Pronouns also have more semantic content. They can be used, for example, without an overt controller, referring to an entity that is relevant in the discourse context but one which has not surfaced in the linguistic context. Pronouns can also occur much farther away in the linguistic context than predicative adjectives: a pronoun can refer back to an antecedent several sentences away. These two factors—anaphora and distance—create a context in which the semantics “matter” more, which in turn contributes to the higher frequency of Resolution.

Finally, the distribution of the strategies suggests that Partial Agreement (and Nearest Antecedent Agreement in particular) is approaching a more default status as a strategy; at the very least, it is not the uncommon or aberrant strategy that is often implied by describing its application as “agreement with only one of the conjuncts”, often in contrast to the expected pattern of “agreeing with both”. Its default status has already been achieved in Albanian (whatever the origin of this strategy may be in this language), and it is supported by the high frequency of strategy indeterminacy in Latin and Ancient Greek in particular. Acceptable Ungrammaticality might provide the link between a strategy that is prescriptively considered odd and the conventionalized nature of such a strategy, though this term is not without its own problems (not the least of which is how to define “ungrammaticality”).

In any case, the analysis of Resolution as gender assignment and Partial Agreement as Avoidance situates agreement in difficult contexts as a matter of linguistic performance, a process that operates “on-the-fly” according to local, contextual information. The following
three chapters address the possible origin for the observed patterns, namely that the related languages under study (with the exception of Albanian) all allow both Resolution and Partial Agreement which make use of contextual data in similar ways. I first discuss a possible historical origin for these patterns in Chapter 8, where such patterns might be traceable back to Proto-Indo-European. I ultimately reject inheritance as the answer to the problem of where these agreement patterns originate, focusing more on two separate aspects of the problem: agreement as part of syntactic planning stages on the one hand, but susceptible to contextual information and processing constraints on the other. The question that I address in Chapter 9 is whether the performance-based view of agreement espoused in this chapter requires multiple antecedent agreement to occur post-syntactic planning, or whether this semantic and pragmatic information can be built into a theoretical account of the syntactic patterns that result from these two strategies. I follow this discussion of a strictly “syntactic” approach with experimental data from psycholinguistic studies on attraction in Chapter 10, and whether so-called “errors” of attraction should actually be dealt with inside the grammar, given the superficial and structural similarities between Nearest Antecedent Agreement and attraction.
Chapter 8

Reconstruction

Given the commonalities in agreement patterns across the languages discussed in the previous chapters, in the next three chapters I turn to the question of where such similarities originate. That is, what mechanism underlies the patterns observed in multiple antecedent agreement in Indo-European languages? The three possibilities I consider, as mentioned in the previous chapter, are rooted in three different disciplines: historical and comparative linguistics, formal syntax, and psycholinguistics. In the following three chapters, I discuss how—and to what extent—each discipline contributes to understanding semantic, seemingly non-formal agreement in difficult agreement contexts, i.e. multiple antecedent agreement. It should be noted that these three disciplines interact and intersect in their formulation and goals. To this end, Chapter 11 provides a summary of the argument.

The possibility I address in this chapter—especially since the languages under discussion are all members of the same language family—is that these patterns are due to inheritance, i.e. that semantic agreement in general, and Resolution and Partial Agreement in particular for multiple antecedent agreement, can be reconstructed for Proto-Indo-European; this common source gives rise to the similarities in surface patterns found in each individual language.

As has been the theme of the data discussed in Chapters 3–6, all of the Indo-European languages under discussion, except for Albanian, show both Resolution and Partial Agreement in contexts of multiple antecedent agreement. Albanian, as noted in Section 7.4.1, is unique in having only Partial Agreement, but this language also has a strikingly different system for agreement, in addition to later attestation and its shorter recorded history. This
is relevant because both strategies might have been available at an earlier, unattested stage, which would make Albanian less unusual with respect to the rest of Indo-European. While the details of each strategy differ across languages that show both strategies, at the very least some form of Resolution and Partial Agreement occurs in both ancient (Hittite, older Germanic, Latin, Greek, Sanskrit) and modern (modern Romance, English) Indo-European languages. If a feature exists in genetically related languages, the natural question to ask is whether this feature should be reconstructed for the proto-language. If such a pattern can be reconstructed for the proto-language, then the presence of the strategies in the languages might reflect a shared retention of a feature of Proto-Indo-European morphosyntax. To investigate this possibility, I begin by providing an overview of the limitations of reconstruction in morphosyntax.

8.1 Morphosyntactic Reconstruction

As pointed out by Meillet (1967), there are two ways of comparing across languages: according to universal laws (typology) or historical information (genetic classification and comparative reconstruction). Both are relevant to historical and comparative linguistics, as understanding which universal laws are common (and perhaps “natural”) constrains how we reconstruct proto-languages and the kinds of data we should (and should not) use. The Comparative Method is the methodology for comparing historical information, and its success has largely been in the reconstruction of prehistoric sound systems and lexica on the basis of regular correspondences between genetically related languages. The main goal, as stated by Hock (1991: 581), among others, is to reduce observed synchronic variation (among related dialects and languages) to earlier, prehistoric invariance.

Given the success of the Comparative Method in phonology and lexica, it is logical to extend this methodology into the realm of syntax. But, as Anttila (1972: 355) points out, “because syntactic change is analogical, it interferes heavily with reconstruction”, an
observation that is further complicated for him by the large amount of iconicity in syntax (in contrast to the overwhelming arbitrariness of the linguistic sign, which is of central importance in lexical and phonological reconstruction). There are some, e.g. Lightfoot (2002), who view the reconstruction of syntactic structure as very limited in its scope, since the data for the Comparative Method—corresponding forms across daughter languages—are not available in the realm of syntax. This represents a general problem within syntactic reconstruction: what are the comparanda? Can agreement patterns be compared via this methodology?

Perhaps the most definitive answer on what syntactic patterns can (or at least, should) be compared is Watkins (1976): in his view, the comparanda are not general patterns, e.g. the ordering of syntactic relations, but instead they are those structures that are exceptional and/or archaic, often composed of cognate vocabulary. Working in accordance with this position, Watkins reconstructs a correlative structure in Proto-Indo-European on the basis of recurrent structures in Greek, Vedic Sanskrit, and Old Latin that also share cognate vocabulary (i.e. the forms of the relative and correlative pronouns).

Watkins therefore promotes the comparison of “frozen” syntax (i.e. archaisms), especially within the realm of similar thematic contexts (e.g. law codes, athletic contests, proverbs, poetry) where such archaisms are likely to occur. Frozen syntax in the daughter languages is, for Watkins, a reflection of the syntactic structure of Proto-Indo-European. Hock (1991: 610–11) presents a similar view: syntactic change is not regular; as a result, it frequently leaves behind “residue”, especially in conservative genres. If this position is taken seriously, however, then the amount of “syntax” that can be reconstructed is limited to what is exceptional. General patterns of Indo-European syntax are not viable options for reconstruction, as they fall into a realm that does not necessarily require direct inheritance from a common ancestor. Thus, a Watkins/Hock view of syntactic reconstruction would not allow for Resolution or Partial Agreement to be reconstructed for Proto-Indo-European, despite its ubiquity in the daughter languages (including several of the earliest
If this is the only way by which the Comparative Method can be extended into the domain of syntax, then it would be impossible to apply this tool to the reconstruction of agreement patterns. Even though both strategies are found in most Indo-European languages, comparing Resolution strategies with each other is a functional, not formal, comparison, i.e. a comparison of patterns, not concrete forms. Phonological and lexical reconstruction is possible because the methodology is based on (recurrent and regular) correspondences in the form of the phoneme or word. That is, when reconstructing lexica, the comparison is, for example, German *Schwein* and English *swine*, not *Schwein* and *pig*, although the latter pair is semantically equivalent. Although the Resolution rules in Latin and Greek are functionally equivalent, and although they have the same general pattern according to animacy, they do not have the same formal equivalence as cognate lexical items.

There are other views of syntactic reconstruction, however, that do permit the reconstruction of general patterns. Harris and Campbell (1995) more directly apply the Comparative Method to syntactic reconstruction: they argue for the existence of syntactic correspondences, analogous to lexical and phonological correspondences that drive comparative reconstruction in those domains. Importantly, they take as their correspondences patterns, not sentences, and correspondence of pattern is often (but importantly, not necessarily) corroborated by cognate lexemes which are also members of the same word class. They too stress the importance of syntactic relics as a basis for reconstruction. Barðdal and Eythórsson (2012) argue for a similar application of the Comparative Method; their focus is in the reconstruction of argument structure among cognate verbs (and extrapolating from those verbs, of the proto-language as a whole). They argue that the problem of cognacy is not an issue when comparing the argument structures for verbs that are already established lexical cognates.
Yet this still presents a problem for reconstruction: even if a pattern can be reconstructed for the proto-language, there is no irrefutable evidence that it must be reconstructed for the proto-language. Sound correspondences are regular and internally consistent. Syntactic correspondences are analogous, but not necessarily completely consistent in their application for any given context. There appears to be more of a “choice”, in contrast to sound patterns, where a change is regular and complete.

However, as Watkins argues, it might be possible to find the “Indo-European touch” to agreement patterns, even though cognate vocabulary and recurrent syntactic patterns do not give a solid foundation for understanding the syntax of the proto-language. Moreover, Resolution and Partial Agreement are not uniquely Indo-European; both strategies are found in non-Indo-European languages as well (101), and therefore reconstruction of multiple antecedent agreement patterns on the basis of just these two analogous agreement patterns is not reliable.

(101)  
a. Resolution  

omu-kazi  es-sajja  ne  olu-ana  ba-a-labwa  
the-woman.1/2  the-fat-man.5/6  and  the-thin-child.11/10  were-seen.1/2  
‘The woman, the fat man, and the thin child were seen’ (Luganda, where gender 1/2 is used for humans; Corbett 1983: 184/Givón 1970: 253–4)

b. Nearest Antecedent Agreement  

ki-ti  na  m-guu  wa  meza  u-mevunjika  
7-chair and 3-leg of  table 3-be.broken  
‘The chair and the leg of the table are broken’ (Swahili; Corbett 1991: 265)

But there does appear to be an agreement pattern that is distinctly Indo-European: in some of the oldest attested languages (Ancient Greek and Hittite, examples below; but also Vedic Sanskrit and Avestan, cf. Fortson 2010: 158) subjects that are neuter plural agree with a singular verb, as mentioned in Chapter 4.
(102)  a. ta zóa tréchei
    the animals.N.PL run.SG
    ‘animals run’

b. hóssa te phúlla kai ánthea gígnetai hórêi
    as-great PCL leaves.N.PL and flowers.N.PL appear.SG in season
    ‘as many leaves and the flowers that appear in season’ (Iliad 2.468, Fortson 2010: 158)

c. m Äškali=ma uddār arāis
    Äškali=PCL accusation.N.PL arose.SG
    ‘accusations arose against Äškali’

This is in contrast to the “expected” pattern (inasmuch as, synchronically, subject number and verb number are expected to match), as in the Latin example below:

(103) animalia currunt
    animals.N.PL run.PL
    ‘animals run’

This pattern is exceptional both within and outside the Indo-European family. While the vocabulary in the structures is not necessarily cognate, the fact that this pattern is unusual from both an Indo-European and typological perspective improves the chances of it being an Indo-European phenomenon. Although this entails reconstructing a pattern, it is a pattern that is archaic, exceptional, and without synchronic explanation, making it more reliable data for the Comparative Method, i.e. something that was probably inherited, rather than re-formulated at later stages of development. The origin of the rule is explainable in terms of internal reconstruction within Proto-Indo-European. For example, Lehmann (1974: §5.3), following others, argues that the gender system of Indo-European was developed at a relatively late stage, as evidenced by emergence of neuter plural forms from original singular collectives—and the singular agreement of verbs with neuter plurals is a relic of this origin. But the rule itself was more than likely present in reconstructable Proto-Indo-European, given its presence in the listed daughter languages.
8.2 Inheritance as an Explanation

There is thus at least one aspect of agreement that is distinctly Indo-European, and from which it is possible to reconstruct a pattern of the proto-language. In fact, this shared, exceptional pattern is itself used as evidence for discussions of the nature of the gender system in Proto-Indo-European; cf. Lehmann (1974).

However, as an explanation for the commonalities in agreement patterns for multiple antecedent contexts, inheritance is not a sufficient answer.

It is possible that both strategies existed and were in use in Proto-Indo-European, but there is no way to determine whether these patterns were directly transmitted to the daughter languages or if they represent a kind of “natural” response to the same context. Given the presence of Resolution and Partial Agreement (and semantic agreement more generally) in several of the ancient daughter languages, it would not be far-fetched to believe that Proto-Indo-European had similar strategies, nor would it be far-fetched to argue that the Resolution rules were animacy-based (rather than default-based) and Partial Agreement was according to the closer antecedent. And it would not be improbable that such patterns could then be inherited in the daughter languages, accounting along the way for changes in gender systems. However, the tools available to reconstruction—and specifically, the Comparative Method—do not reliably extend to the domain of (morpho)syntax, and thus we are left in a position where inheritance is a possible but not sufficient reason for the observed surface patterns in the daughter languages.

Furthermore, the fact that these strategies also exist outside of Indo-European makes an inheritance origin less appealing. Typologically speaking, the robustness of these patterns suggests a “naturalness” in the responses. While the patterns might be directly inherited for the languages under discussion in this dissertation, their existence outside of Indo-European speaks to an even larger phenomenon unexplainable by direct inheritance. An alternate explanation is therefore necessary to account for why such patterns appear to be
the natural response. For this reason, I consider to what extent these natural phenomena can be built into syntactic theories in Chapter 9 in addition to the cognitive aspects of difficult agreement contexts in Chapter 10.

This excursus on morphosyntactic reconstruction illustrates the important relationship between typology and reconstruction. The fact that these strategies (and semantic agreement in general) are typologically common means that an inheritance explanation is not sufficiently explanatory, i.e. there must be a larger piece of the puzzle, not specific to a particular language or language family—but instead specific to a particular set of contextual facts of agreement, semantics, the conjunction of syntactic elements, and the representation of syntactic dependencies.
Chapter 9

Formalizing Multiple Antecedent Agreement

Having rejected inheritance as a sufficient answer to the source of commonalities in multiple antecedent agreement, I investigate in this chapter whether the patterns can be easily accounted for by machinery within theoretical syntax, as part of what is allowed by the grammar. Data from Indo-European (cf. Chapters 3–6) and from psycholinguistic experiments (Chapter 10) indicate that there are certain structural pressures that condition the use of one strategy over another. Furthermore, the distribution of Resolution and Partial Agreement often depends on to what extent semantic information can be accessed and how relevant it is to the particular agreement target. Exactly how this information is accessed and utilized in the marking of syntactic dependencies is therefore central to understanding how the observed patterns arise. While I argue that there are pragmatic, performance-based factors that affect the distribution of the strategies, understanding how syntactic theories model these agreement patterns is important in understanding the nature of the syntactic component that establishes, produces, and processes agreement dependencies. Using syntactic models allows us to determine if the interaction of semantic features—or perhaps even pragmatic, contextual features—can be captured formally, or if such information is truly extragrammatical. As discussed in Chapters 2 and 7, many of the patterns that are observed for semantic agreement and multiple antecedent agreement more accurately involve semantic, pragmatic, and contextual features. For example, Resolution in the languages under discussion requires the speaker to abstract from meaning information in the specific agreement context to morphosyntactic feature values. And Partial Agreement, especially
Nearest Antecedent Agreement, relies on linear relations, which appear to have some separation from structural (hierarchical) relations. This separation of linear and structural relations is notoriously difficult to capture in syntactic models, but the fact remains that Nearest Antecedent Agreement is not unacceptable, ungrammatical, or any less frequent than Resolution.

Second, many of the psycholinguistic papers reviewed in Chapter 10 assume some kind of formal model of the language production component—or, in even more extreme cases, view the production component and the syntactic model as the same object. If a particular syntactic model is taken to have some kind of cognitive reality with respect to the production component, then it behooves us to determine if such a model is adequate from a theoretical perspective.

Finally, syntactic formalisms force us to be “explicit as to what sorts of constructs are assumed . . . and on being mathematically rigorous as to what structures are used to model them” (Pollard and Sag 1994: 7). That is, a model requires that all assumptions and machinery are openly stated such that they are subject to empirical testing; in this dissertation, Chapters 3–6 provide the empirical data that must be accounted for by the model.

This chapter therefore accomplishes two goals: (1) determining whether the structures licensed by the agreement strategies in multiple antecedent agreement can be successfully accounted for by virtue of syntactic machinery (or whether they are extragrammatical facts), and (2) testing models using empirical data collected for the purposes of this dissertation.

Modeling agreement—and indeed, most syntactic phenomena—requires defining the structure and content of the lexicon and stating the structural rules or constraints (depending on the theory of syntax one adopts). The following discussion focuses on two primary underpinnings of syntactic modeling: the content and role of features and the rules/constraints on the combination of syntactic elements (including both larger phrasal constituents and the individual terminal elements). As to the former, Corbett (2006: 114)
states it succinctly: “features are the key underpinning for linguistic description, being used to factor out common properties”—and this is especially important in the syntactic descriptions, where agreement often relies on some operation on features.

9.1 Transformational Accounts

Corbett (2006: 114) gives a concise summary of agreement as feature percolation in transformational accounts, where “agreement itself [is] handled by copying feature values from one node to another (controller to target)”. Directionality is therefore built into the theory: agreement proceeds from the controller to the target. Pollard and Sag (1994: 60) likewise describe transformational accounts as copying or moving agreement features; these features are considered inherent to the controller and “logically prior to those of the target”. But both Corbett (pp. 114–6) and Pollard and Sag (pp. 62–7) find significant problems with the transformational approach, irrespective of the issues raised by multiple antecedent agreement. They argue that transformational, rule-based approaches require undesirable additions to the lexicon. For example, pronouns underspecified for gender still show gender agreement on predicates, which would require multiple lexical entries with the same phonological content but different morphosyntactic feature values. And pro-drop languages would require several phonologically null entries with different morphosyntactic feature value specifications. Copying analyses are still favored in the Government and Binding framework, but have been modified to accommodate these complications in more current versions of Minimalism, e.g. as feature checking (Corbett 2006: 116).

These particular counter-arguments produced by Corbett and Pollard and Sag are not sufficient enough to rule out a transformational, feature-copying approach. “Undesirable” additions to the lexicon are present in most theories, and the criticism can be applied to different accounts of syntactic phenomena in both transformational and non-transformational theories. And in fact, non-transformational accounts themselves require a rather robust
lexicon (and rather robust lexical entries).

Stronger criticisms were presented in Gazdar et al.’s monograph on Generalized Phrase Structure Grammar: “generative accounts of agreement phenomena, including all transformational accounts that we know of, have provided no basis for thinking that distribution of agreement features is other than arbitrary” (Gazdar et al. 1985: 83–4). There is no indication, according to the authors, of which constituents agree for which features in a particular language; e.g. there is no way of indicating that verbs agree for person and number but adjectives for gender and number in Latin.

Furthermore, if a non-transformational account can account for agreement phenomena in a straightforward way, then there is no need to introduce transformational machinery into the syntactic model. Doing so—that is, using a transformational account when a non-transformational account is sufficient—is a violation of the basic tenet of Occam’s Razor: entities should not be multiplied beyond necessity. If the analysis below results in an account that renders transformational rules unnecessary, then transformational theories should not be considered. The burden of proof is on the transformational theories to show that the proposed mechanisms of transformation can account for phenomena that non-transformational theories cannot.

These proposed transformational accounts include, in particular, work by Elabba Benmamoun and colleagues (Aoun et al. 1994, 1999). They assume a Minimalist model to describe agreement patterns in selected Arabic dialects, where both Resolution and Partial Agreement (in particular, Nearest Antecedent Agreement) are available when the verb precedes the subject coordinate structure with which it agrees. However, Partial Agreement is not available when the verb follows the coordinate structure. They provide the following data (Aoun et al. 1994: 207–8):

(104) a. Ţumar w Ţali mšaw
       Omar.SG and Ali.SG left.PL
    ‘Omar and Ali left’
In order to capture this distribution, Aoun et al. (1994, 1999) argue that coordination is actually clausal coordination when the verb precedes the subjects, but phrasal coordination when the verb follows the subjects. There are therefore two different structures corresponding to the examples in (104):

\[(105) \begin{align*}
\text{a. } [\text{Qumar w Qali} \text{ mšaw}] \\
\text{‘Omar and Ali left’} \\
\text{b. } [\text{Mša Qumar} \text{ w [mša Qali]}]
\end{align*} \]

‘Omar left and Ali (left)’

The analysis of Partial Agreement as (105b) requires a multi-step process for deriving the surface structure in Arabic. In particular, as summarized by Johannessen (1996: 662), the verb is raised out of the first (leftmost) clause to account for the fact that verb has only the agreement features of that conjunct and to account for the fact that the coordinate structure does not behave as though it were semantically plural (e.g. Partial Agreement cannot occur with verbs that require a plural subject, nor can it occur when the coordinate structure includes a quantifier that requires plural semantics). However, in order to account for the surface structure—in particular, that the verb is not spelled out in the second clause—they also have to propose that there is a silent verb in the second clause that is anaphoric of the first verb. Johannessen, himself working within the Minimalist Program, contends that while this analysis is able to account for the Arabic data, it is not generalizable to the other (numerous) languages where Partial Agreement also occurs. Aoun et al.’s view of Partial Agreement as a consequence of clausal conjunction is motivated by their tests for semantic plurality; however, the same tests, when applied to German and Czech, show that there is semantic plurality of the coordinate structures in those languages (Johannessen 1996: 664–5).
Furthermore, their analysis assumes that Conjunction Phrases are headed, first of all, and moreover have the leftmost conjunct in the Specifier position of the phrase, as in (106).

(106) ConjP

\[ \text{Conj}'' \]
\[ \text{NP}_1 \quad \text{Conj}' \]
\[ \text{Conj} \quad \text{NP}_2 \]

This is an undesirable account of coordinate structures, where the first conjunct is Specifier, the second conjunct a complement, and the conjunction itself the head of the phrase. This structure was strongly argued for by Munn (1992) and met with significant criticism from Borsley (1994, 2005), among others. Borsley (2005: 462–3) finds that the only appealing aspect of the ConjP analysis is that it has a familiar structure. But this analysis is dubious for several reasons. First, coordination data would require this analysis to allow specifiers and complements to “share features with the phrases in which they appear” (p. 466). Second, because more than two nouns can be coordinated, the ConjP analysis would result in structures that counter the generally held assumption that there are a finite number of specifiers in a phrase or that a head has a finite number of complements (pp. 466–70). And third, because of the existence of examples like Hobbs criticized and insulted his boss, among others, ConjP is not compatible with the assumption that “specifiers and complements must be maximal projections” (pp. 471–3). The same problems exist for languages other than English. Accepting a ConjP analysis requires the rejection of several widely held assumptions in the Minimalist Program, such that the theory cannot be internally consistent with the addition of this structure.

The revised analysis of Partial Agreement proposed by Johannessen (1996), in an attempt to account for Partial Agreement in languages beyond Arabic, is also based on a headed conjunction phrase. While I agree that the theory of agreement should be generalizable, the proposal is still based on having a problematic conception of coordinate structures.
as headed. There are further problems with his analysis. In particular, Johannessen argues for “Unbalanced Coordination”: in head-initial languages, the first conjunct is in the specifier position, but in head-final languages, the second conjunct is, as in the structures below (p. 669; labels modified to match the schema of Aoun et al. 1994):

(107)  

a. Head-Initial Conjunction Phrase

\[
\begin{array}{c}
\text{Conj}'' \\
/ \quad / \\
\text{NP}_1 \\
\text{Conj}' \\
/ \\
\text{Conj} \\
/ \\
\text{NP}_2 \\
\end{array}
\]

b. Head-Final Conjunction Phrase

\[
\begin{array}{c}
\text{Conj}'' \\
/ \quad / \\
\text{Conj}' \\
/ \\
\text{NP}_2 \\
/ \\
\text{NP}_1 \\
\end{array}
\]

All coordinate structures are therefore “unbalanced”. This analysis is used to account for examples where Partial Agreement is not just with the leftmost conjunct, as it is in certain Arabic dialects. Johannessen gives examples of Partial Agreement with the rightmost conjunct, which she argues occurs in head-final languages and cannot be accounted for by an invariant ConjP structure. One such language Johannessen refers to is Latin, stating in particular: “the examples from Latin, Qafar, and Swahili, which are head-final languages, all involve agreement with the second conjunct” (p. 671). This statement is true of the examples she gives from Latin, but not true of Latin as a whole. As shown in Chapter 3, agreement is not with the second conjunct; it is with the nearer one. When a target precedes the controllers, Partial Agreement is with the first conjunct; when a target follows the controllers, it is with the second conjunct. By not acknowledging this fact directly, Johannessen makes the wrong predictions regarding surface agreement targets. And in fact,
in order to get the right predictions and have a consistent conjunction phrase structure in Latin, Johannessen would have to also propose a movement transformation post-agreement, where the predicate moves to its surface position preceding the agreement controllers. This is, perhaps, not undesirable in transformational theories, but there are more straightforward ways of dealing with the effects of surface linear order in non-transformational accounts, cf. Section 9.2.2.

Furthermore, Borsley (2005: 475–80) is also critical of Unbalanced Coordination as support for the ConjP structure that Johannessen wishes to maintain. The central assumption is that the phrase shares its \( \varphi \)-features with the specifier. However, this assumption is not supported by data in other constructions: for example, a possessive specifier of a DP can have a different number than the noun that controls agreement, as in *The children[pl]/s room[sg] is[sg] untidy*. Furthermore, in order for agreement to “work” in Johannessen’s analysis, the agreement must be between the coordinate structure and the target, not one conjunct and the target (i.e. the phrase shares the features with the conjunct closest to the verb, and the verb agrees with the phrase). But there is evidence that the phrase must have separate \( \varphi \)-features available in multiple antecedent agreement, e.g. Resolution.

More recently, Benmamoun et al. (2009) responded to Johannessen’s criticism of the lack of generalizability in the analysis of Aoun et al. (1994, 1999). On the basis of data from Hindi and Tsez, they propose that the coordinate structure of (106) should be maintained, i.e. that unbalanced coordination does not solve the problems of generalizability, but rather that (106) is the only structure across all languages. However, in order to account for the variation in surface patterns, they argue that linear adjacency should be able to interact in the spell-out of agreeing forms. In this way, agreement is “compositional”, occurring first in the syntax and then in the PF. The agreement relationship is established between the controller and target in coordinated phrases in the syntax, but the relationship is only satisfied in the PF via spell-out of features from the whole coordinate structure or the closer conjunct. I agree with the premise of their conclusion: it is true that linear
adjacency is an important aspect of syntactic structure, especially within agreement. Furthermore, as Benmamoun et al. themselves point out, Partial Agreement can be limited by processing constraints, the adjacency condition itself (especially in terms of real distance), and prosodic constraints. That is, syntactic structure can be affected by contextual and/or extragrammatical information—a point well taken, in light of the analysis in Chapter 7. Yet the exact limitations of PF are not discussed in their analysis. They simply point to phenomena that are affected by linear adjacency; as a result, some feature must have been changed, added, or missing in the PF. Other, non-transformational theories account for linear adjacency effects in the syntactic component without reference to some nebulous PF component; i.e. linearization can be incorporated into the syntactic component.

Because constraint-based models allow for a separation between linear order and hierarchical structure, both handled by the same syntactic component, I pursue a formal account of multiple antecedent agreement according to the principles of Head-Drive Phrase Structure Grammar in what follows.

### 9.2 Head-Driven Phrase Structure Grammar

Head-Driven Phrase Structure (HPSG) was first fully described by Pollard and Sag (1994) (following previous work and building on the foundations of Generalized Phrase Structure Grammar of Gazdar et al. 1985), with further (relevant) additions in the realm of agreement by Kathol (1999) and Wechsler and Zlatić (2003). In this section, I present a basic overview of HPSG.

First and foremost, HPSG is non-transformational. Instead, HPSG involves structure-sharing, or “token identity between substructures of a given structure in accordance with lexical specification or grammatical principles” (Pollard and Sag 1994: 2). Structure sharing is a large component of many syntactic phenomena, including agreement (cf. Section 9.2.1). As to the exact machinery of HPSG, Levine and Green (1999: 1–38) provide a concise yet
thorough summary of the model. First, the primary component of HPSG is the sign, which, as is traditional, models the relationship between the form and meaning of a word or phrase. In all iterations of the HPSG model, signs have at least a phon and synsem component, which correspond to the phonological form (usually represented by the word or phrase written in italics for convenience of analysis, though reflecting their phonological structure) and syntactic/semantic structures, respectively. The synsem component contains category (cat), content (cont), and context (conx) attributes. Within cat is part of speech, valency, and argument information, i.e. primarily syntactic information. Cont contains, relevant to the analysis of agreement that follows, index information that includes person, number, and gender, i.e. types and values that are connected to semantic information but are also relevant in syntactic structures. Finally, conx contains pragmatic information, recording the values of the discourse participants and context. These three components within the larger synsem structure make HPSG well suited for accounting for phenomena where semantic, syntactic, and pragmatic information are relevant in establishing relations among signs, e.g. agreement. Early instantiations of the model also include the component daughters (dtrs), in which constituent structure is represented, rather than having a separate object of structure trees in the model. That is, hierarchical relations can be modeled with only signs.

Traditionally, linear order is established in HPSG by a set of constraints on elements. In particular, lexical heads precede their sisters, fillers precede phrasal heads, and the rest of the elements are ordered by obliqueness (from less oblique to more oblique) (pp. 12–3). However, these constraints cannot account for all possible and documented word order phenomena. Reape (1994) and others following him have therefore proposed the dom feature, which consists of an ordered list of the elements in the structures, such that linear order information is also contained in the sign. Dom lists are an important part of the linearization framework described in 9.2.2 below, and so I take this as an established part of the model of HPSG used here.
The above represents a brief background on HPSG as a formal model, from which the following discussions of agreement and other syntactic phenomena can be understood. A full report of the specifics of HPSG is outside the realm of this dissertation; for a complete description of the model, the monograph by Pollard and Sag and the summary by Levine and Green (1999) are recommended.

9.2.1 Agreement in HPSG

Pollard and Sag (1994: 60–99) analyze agreement structures as the compatibility of information from more than one source regarding a single linguistic object, as a matter of structure sharing. In particular, the index features (i.e. person, number, and gender) of two agreeing forms are token-identical in agreement, even if the elements participating in agreement each supply only partial information. For example, third person pronouns in English specify all three index features, but first person pronouns only person and number; English verbs likewise only specify person and number. The relevant features of the signs for these two pronouns as proposed by Pollard and Sag (p. 75) is given in example (108) below. Traditionally, signs are represented with Attribute Value Matrices (AVMs) that include all of the phon, synsem, and other information required by the particular instantiation of HPSG (e.g. dtrs). In the example below, I give only the index information, which is under synsem.

(108) a. \[
\begin{pmatrix}
\langle she \rangle \\
\text{PER 3rd} \\
\text{NUM sing} \\
\text{GEND fem}
\end{pmatrix}
\]
Agreement “works” when signs have compatible INDEX values. By viewing agreement as structure sharing, the problems of feature-copying approaches—where the source of information is assumed to be only the controller—disappear. As Pollard and Sag put it (p. 61), “the directional flow of information is essentially a property of language use (or linguistic performance), while the (competence) grammar of agreement is nothing more than a system of constraints requiring certain token identities, and hence inducing compatibility of certain lexically specified information”.\(^1\) It is therefore not controllers that agree with targets, but rather that these two forms have compatible INDEX values.

Such a theory of agreement incorporates semantic information by requiring indices to be anchored to real-world instances (cf. p. 26), but without relying on a completely semantic view of agreement (cf. Dowty and Jacobson 1988, Pollard and Sag’s criticisms of their purely semantic view (pp. 71–3), and the discussion of Dowty and Jacobson’s approach in Section 2.3). Anchoring conditions link extralinguistic properties with grammatical features that are encoded in the sign. These anchoring conditions also allow contextual information to enter into the agreement process, since the real-world instance of the sign might have features that are context-dependent. HPSG is thus pragmatic and discourse-oriented, which works well with the discussion of pragmatic agreement in Section 2.4 and the performance view of agreement in Chapter 7.\(^2\)

---

1 For convenience, I continue to use the terms “controller” and “target”, even though such terminology implies directionality.
2 Pollard and Sag actually include “pragmatic agreement” in their analysis (pp. 62, 95): they use this term to describe instances of agreement that require consistency in background assumptions. In Korean, for example, the use of honorific morphology on the noun must be matched by the use of honorific morphology on the verb; one without the other is infelicitous (pp. 92–3), and therefore the repetition of honorific morphology is part of “pragmatic agreement” for them. For consistency within this dissertation, I maintain the definition of pragmatic agreement as local context agreement or agreement by socio-cultural convention given in Section 2.4.
However, in spite of the advantages that Pollard and Sag’s theory of agreement offers, Kathol (1999) points out that it is incomplete. For one, Pollard and Sag’s theory does not distinguish between agreement and government, but rather conceives of agreement as “selectional restrictions” (pp. 230–1), which is the traditional characterization of government. Furthermore, there are instances of hybrid agreement that the existing tools of Pollard and Sag’s theory cannot reconcile (p. 233). Kathol proposes, then, the CAT feature AGR in addition to the existing INDEX, which contains all of the information for agreement patterns (p. 236). Importantly, this feature only expresses the relevant features for each target type. For example, verbs in English only have person and number features specified in AGR, to make clear that verbs agree in only person and number. Adjectives in French, on the other hand, have only gender and number information, to make clear that French adjectives agree in only gender and number.

In order to show the relationship between AGR features, which are more closely tied to the morphological/morphosyntactic features of the sign, and INDEX features, which are more closely tied to the semantics, the following AVMs give the AGR and INDEX features of the elements of the French sentence Vous êtes belle ‘You (polite) are beautiful’, as given by Kathol (p. 240). This particular sentence contains a polite plural pronoun to refer to a singular addressee. While the verb must be second person plural, the adjective must be feminine singular.

$$
\begin{align*}
\text{(109) a.} & \quad \begin{cases}
\text{AGR}\ pl \\
\text{INDEX}\ sg\ fem\ 2nd
\end{cases} \\
\text{b.} & \quad \begin{cases}
\text{AGR}\ 2nd\ pl
\end{cases}
\end{align*}
$$
Person agreement on the verb and number/gender agreement on the adjective represent INDEX agreement, while number agreement on the verb represents morphosyntactic (AGR) agreement. By separating these two sources of agreement information, much of the semantic vs. syntactic agreement patterns discussed in Section 2.3 can be accounted for. And in fact, having two separate sources of agreement features can also account for the pattern of neuter plural-singular verb agreement discussed in Chapters 4 and 8. This pattern, as in the Ancient Greek *ta zôa tréchei* ‘the animals[pl] run[sg]’, can be accounted for by AVMs similar to those in example (110), where the INDEX feature of the noun reflects a historical collective singular meaning, but the AGR features reflect those of the neuter plural form. The verb shows index agreement for number. The features are essentially opposite to those in example (109).

\[
\begin{align*}
&\text{(110)} \\
a. \begin{bmatrix}
\langle ta \rangle \\
\text{AGR pl ntr}
\end{bmatrix} \\
b. \begin{bmatrix}
\langle zôa \rangle \\
\text{AGR pl ntr 3rd} \\
\text{INDEX sg}
\end{bmatrix} \\
c. \begin{bmatrix}
\langle tréchei \rangle \\
\text{AGR 3rd sg}
\end{bmatrix}
\end{align*}
\]

This expanded theory of agreement has already been utilized successfully in analyzing the ass camouflage construction in African American English, where constructions like *My ass making a fool of myself* show third singular verb agreement via AGR (where the third
singular copula is has been deleted) but the reflexive pronoun is first person singular in keeping with the semantic properties of my ass (Levine 2010).

Such an approach is also taken up by Wechsler and Zlatić (2003), but with a slight modification of the AGR feature. Wechsler and Zlatić propose the feature CONCORD instead of AGR. Agreement operations involve CONCORD in much the same way as they do AGR, so I do not fully address the differences in machinery in this dissertation. Essentially, Wechsler and Zlatić argue that CONCORD agreement is only available NP-internally, and INDEX NP-externally. This formation of CONCORD and INDEX is controversial (see the discussion thread Alsina and Arsenijević 2012b, Wechsler and Zlatić 2012, and Alsina and Arsenijević 2012a) and ultimately makes some incorrect predictions regarding agreement variation within and outside of NPs, although it is useful in other contexts. However, the discussion of agreement by Wechsler and Zlatić makes explicit reference to agreement with coordinate structures, and their formulation of Resolution, which draws on one of the most basic assumptions of HPSG, is an important aspect of the analysis of multiple antecedent agreement strategies below. The analysis of Resolution patterns they provide (see Section 9.3.1) does not necessarily require acceptance of their exact characterization of CONCORD—only that there is a set of features separate from INDEX, and so I sidestep the controversy and maintain the category types given in Kathol’s original conception.

HPSG contains straightforward machinery to deal with problems of syntactic and semantic agreement, and as a discourse-oriented approach, it captures the fact that many instances of semantic agreement are actually pragmatic in nature by having anchoring conditions that tie signs to real-world instances, in addition to the more general CONX feature that incorporates pragmatic information into the sign. Information such as discourse roles are part of CONX, where discourse participants are established and related to the agreement information of AGR and/or CONCORD. For example, the “nursely we” construction (How are we feeling today?) discussed by Joseph (1979a) and above contains CONX information such that the addressee is associated with the pronoun we, but the AGR features are still
1st pl. This ensures that reflexives are appropriately first person plural as well (We seem a bit displeased with ourselves).³

In this way, HPSG provides a more suitable context for looking at more complex agreement facts. With the addition of a linearization framework (summarized in the next section), both Resolution and Partial Agreement can be modeled by existing machinery that is licensed by other structures outside of multiple antecedent agreement.

9.2.2 Linearization in HPSG

There are existing operations in HPSG that allow structural relationships (often schematized via hierarchies) to be viewed independently of linear ordering. Levine (2011) provides a summary of the linearization framework in HPSG in the context of locative inversion in English. Examples like Into the room strode Robin are not accounted for via extraction of the VP complement into the room or by considering the same PP to be the subject (p. 200), but instead via the operation of SEQUENCE UNION, informally referred to as “shuffle”, where an “arbitrary number of lists” (i.e. the order domains or DOM lists) are shuffled together. That is, each phrasal (structural) component has its own DOM list; the order of DOM objects on that list is subject to the sequence union operation. This operation still allows the ordering of any given list to be maintained at higher phrasal levels, in those contexts requiring “phrase structure hierarchy [to] be mapped to linear precedence relations in a nonconcatenative fashion” (p. 200–201).

The general constraint on combinatorics (given on p. 201, his example (3)) essentially amounts to being able to shuffle the DOM lists of constituents phrases with each other. As a result, the order of elements as set forth by DOM lists can be intermingled with other DOM objects; however, the order of each individual constituent is maintained; i.e. the shuffled product of locative inversion is Into the room strode Robin, not The room into strode Robin,

³As discussed in Section 2.3, there is the possibility of the reflexive ourself. For grammars where this is acceptable, the pronominal and self portions of the reflexive pronoun must be allowed to agree separately, and the number feature under INDEX must be sg.
where the elements of the PP constituent are out of order. The main benefit of this operation is that, in this context, “inversion reflects the linear projection of phrase structure, not the phrase structure itself” (p. 204), which means transformational operations like complement extraction are unnecessary.

This framework separates structural relations from linear relations by allowing for the constituent order in the DOM lists of individual phrases to be different from the order of terminal elements in the full DOM list, as the DOM lists of constituent phrases are able to be shuffled together, rather than just concatenated. Such a separation allows for Partial Agreement to operate without having to dictate which features are available at different nodes in the syntactic tree or without having to subscribe to a view of coordinate phrases as ConjP. Furthermore, the boundaries and limitations of the linearization framework are more clearly defined by the constraint on combinatorics given by, e.g., Levine (2011) than they are in the transformational account of Benmamoun et al. (2009), which simply defines a nebulous PF component where syntactic relations may or may not be spelled out in the expected way (i.e. Resolution).

### 9.3 Multiple Antecedent Agreement Strategies in HPSG

As discussed above, multiple antecedent agreement can easily be formalized via existing machinery within HPSG, without requiring additional features—only additional operations that also apply for other syntactic phenomena.

An account that requires additional features, while still within HPSG, is given by Arnold et al. (2007). They analyze examples of Resolution and Partial Agreement (as Nearest Antecedent Agreement, or their “Closest Conjunct Agreement”), where the two strategies are found with similar frequency; cf. Section 6.5. The example of Nearest Antecedent Agreement of (89) is repeated below.

(111) Esta canção anima os corações e mentes brasileiras
this song animates the.M.PL hearts.M.PL and minds.F.PL Brazilian.F.PL
‘This song animates the hearts and minds of the Brazilian people.’

To account for the possibility of Resolution and Partial Agreement in Portuguese, they propose three separate sets of number and gender features. Every sign has the features RESOL, RAGR, and LAGR. Essentially, the coordinate structure inherits all three features at the phrasal level: RAGR from the rightmost conjunct, LAGR from the leftmost conjunct, and RESOL from the logical combination of those two feature sets. The AVMs are as follows:

(112)  a. \[
\begin{array}{l}
\langle \text{corações} \rangle \\
\text{RAGR \_ pl \_ masc} \\
\text{LAGR \_ pl \_ masc} \\
\text{RESOL \_ pl \_ masc}
\end{array}
\]

b. \[
\begin{array}{l}
\langle \text{mentes} \rangle \\
\text{RAGR \_ pl \_ fem} \\
\text{LAGR \_ pl \_ fem} \\
\text{RESOL \_ pl \_ fem}
\end{array}
\]

c. \[
\begin{array}{l}
\langle \text{corações e mentes} \rangle \\
\text{RAGR \_ pl \_ fem} \\
\text{LAGR \_ pl \_ masc} \\
\text{RESOL \_ pl \_ masc}
\end{array}
\]

However, as illustrated by the AVMs, in order to make the correct predictions in single antecedent agreement, they must propose a constraint that states that the values of RESOL, RAGR, and LAGR are identical for each word. While, mechanically, this correctly models single antecedent agreement, and Resolution and Partial Agreement in multiple antecedent agreement (allowing even for instances of First Conjunct Agreement), this introduces additional featural information that is only relevant to this particular context of multiple
antecedent agreement, but is without any external motivation. Furthermore, it is unclear
how many sets of features would be required to account for sentences with more than two
conjuncts. Presumably, there would need to be \( n + 1 \) AGR features, where \( n \) is the number
of conjuncts. Essentially, their analysis—while (admirably) taking into consideration the
coop-occurrence of Resolution and Partial Agreement—feels rather *ad hoc*.

The theory of multiple antecedent agreement that I propose utilizes existing machin-
ery in HPSG that is independently motivated in other syntactic contexts. In the following
sections, I argue that Resolution is equivalent to gender assignment on the phrasal level
(following Wechsler and Zlatić 2003), and Partial Agreement is a product of the lineariza-
tion framework summarized by Levine (2011), where the terminal elements can be shuffled
but still maintain all of their SYNSEM properties. In both cases, the structural relations
are established independent of the linear ordering. Importantly, both analyses allow for
significant interaction of pragmatic and contextual information, which I previously argued
for from a typological/descriptive perspective in Chapter 7.

### 9.3.1 Resolution as Gender Assignment

HPSG allows a view of Resolution as gender assignment—in much the same way that
Resolution was already described in Section 7.2. First, according to the Head-Feature
Principle (Pollard and Sag 1994: 34, emphasis mine), “the HEAD value of any headed
phrase is structure shared with the HEAD value of the head daughter”. If it is assumed,
following Pollard and Sag’s later discussion of coordinate structures (pp. 200–7), that
coordinate phrases lack a head, then the HEAD values of the coordinate phrase are not
prescribed by the values of either of the daughters. Rather, as Wechsler and Zlatić (2003:
180) argue, by virtue of lacking a head, the phrase also lacks an inherent gender feature; i.e.
gender is not lexically specified for coordinate phrases. Instead, gender is *assigned* to the
phrasal sign. This position recognizes the importance of semantic correlates of gender in
multiple antecedent agreement, highlighting the fact that morphosyntactic gender features
are often linked to semantic properties, at greater or lesser abstraction (cf. Chapters 2 and 7). Since gender is lacking as an inherent feature of coordinate phrases, it is assigned to the phrase.\footnote{Wechsler and Zlatić further argue that gender assignment, when apparently not semantic in nature, is the result of analogically extending assignment rules from animate contexts. See Section 7.2 for the view of semantic vs. syntactic resolution I adopt for this analysis.} Number is also semantically assigned as plural on the phrase. Thus, agreement obtains when the coordinate phrase’s features are compatible with the resolved target form’s features.

This analysis draws on existing assumptions in HPSG (e.g. regarding headedness of coordinate structures) and also allows for contextual information to affect feature assignment for the phrasal sign, which accounts for, in particular, the variation in resolved gender for cases of mixed animacy. This analysis allows the performance view argued for in Chapter 7 to be maintained in the formal description, since (gender) assignment can draw on contextual information.

### 9.3.2 Partial Agreement and Linearization

Partial Agreement (as Nearest Antecedent Agreement), on the other hand, is the result of structure sharing of one controller noun’s features with the target’s features. The linearization framework described above accounts for the separation between structural relations and linear relations. The patterns of multiple antecedent agreement become more difficult to explain when only hierarchical ordering is theoretically defined: there is no way to account for the patterns of Nearest Antecedent Agreement where each controller agrees with its closest controller, at least not without serious and problematic additions to the model. Nearest Antecedent Agreement occurs according to a constraint that allows agreement to be obtained with coordinate structures by the structure-sharing of features between one controller and the closest target on the DOM list that specifies the linear order of terminal elements, which is a product of the sequence union of constituent DOM lists.
To illustrate these two possibilities for agreement, consider the agreement on the participle \textit{tacta} below (example repeated from (8) above):

\begin{enumerate}
\item[(113)] murus et porta de caelo tacta erant
\end{enumerate}

\begin{enumerate}
\item \textit{murus} wall.M.SG and \textit{porta} gate.F.SG from sky touched.N.PL were
\item \textit{tacta} touched.
\item \textit{erant} were
\item \textit{et porta de caelo tacta erant} ‘the wall and gate from the sky had been struck’ (Liv. 32.29.1)
\end{enumerate}

The strategy is Resolution: two inanimate conjuncts result in a neuter plural target.\textsuperscript{5} I assume the following AGR features for the signs \textit{murus} and \textit{porta}, in line with their morphosyntactic feature values.

\begin{enumerate}
\item[(114)] a. \[
\left[ \begin{array}{c}
\textit{murus} \\
\text{AGR sg masc}
\end{array} \right]
\]
\item b. \[
\left[ \begin{array}{c}
\textit{porta} \\
\text{AGR sg fem}
\end{array} \right]
\]
\end{enumerate}

But the coordinate phrase, as lacking a head, does not inherit the AGR or INDEX features of either of the daughters in (114). Instead, semantic assignment establishes the following INDEX features on the phrase, on the basis of the meanings of the two nouns. Here, the semantic assignment rules are those which are established for each individual language. For Latin (and Ancient Greek and Sanskrit), the gender assigned to inanimate groups is neuter.

\begin{enumerate}
\item[(115)] \[
\left[ \begin{array}{c}
\textit{murus et porta} \\
\text{AGR} \\
\text{INDEX pl ntr}
\end{array} \right]
\]
\end{enumerate}

And via index agreement, this information is structure-shared with the target \textit{tacta erant}:

\textsuperscript{5}In this analysis, I assume \textit{tacta erant} is a unit, even though it is composed of two elements, a participle and a verb. Although the syntactic status of periphrastic constructions is controversial, their analysis in HPSG is outside the scope of this dissertation.
Nearest Antecedent Agreement, however, simply allows for the structure sharing with the target to occur according to the features of the closer conjunct on the DOM list, rather than the phrasal features. Partial Agreement is simply an extra constraint: agreement can operate according to the phrasal structure or according the adjacency of terminal elements. These terminal elements are ordered according to the sequence union operation described above. With regard to example (113), were the strategy Nearest Antecedent Agreement, i.e. if the target were tacta erat, then agreement is obtained by structure-sharing of features between the closer conjunct porta and the target, where porta is the closer in the DOM list to the target.\footnote{Such an analysis should logically be extended to the famously problematic example of that man and woman, which, under this view, would be considered as an instance of Nearest Antecedent Agreement. However, in this context Resolution is not available at all (*those man and woman) and Nearest Antecedent Agreement cannot apply when the number values of the conjuncts do not match (*that man and women, *those men and woman). These data suggest that there must be more to the analysis of determiner/quantifier agreement in English. Such data are relevant to a broader understanding of Partial Agreement, but a full description of English target types is outside the scope of this dissertation.}

The example of “agreement going both ways” that would meet with considerable challenges in transformational accounts that assume a headed coordinate structure is taken care of straightforwardly in HPSG by the same constraint on structure-sharing. Consider example (50) again, repeated below:

\begin{equation}
\text{(117) } \begin{array}{c}
\text{non eadem alacritate ac studio quo in pedestribus uti proeliis} \\
\text{not same.F.SG ardor.F.SG and zeal.N.SG on foot to-use battles} \\
\text{consuerant utebantur} \\
\text{devised used} \\
\text{‘our men did not all exert the same vigor and eagerness which they had been wont} \\
\text{to exert in engagements on dry ground’ (Caes. Gal. 4.24.4)}
\end{array}
\end{equation}

The controllers and the coordinate phrase have the following AVMs:
The two targets have the same AGR features as their nearer conjunct, as determined by the ordering of the terminal elements in the DOM list; hence the following features on the targets:

\[
\begin{align*}
(118) \quad & a. \quad \begin{cases}
\langle alacritate \rangle \\
\text{AGR } sg \ fem
\end{cases} \\
& b. \quad \begin{cases}
\langle studio \rangle \\
\text{AGR } sg \ ntr
\end{cases} \\
& c. \quad \begin{cases}
\langle alacritate \ ac \ studio \rangle \\
\text{AGR} \\
\text{INDEX } pl \ ntr
\end{cases}
\end{align*}
\]

Both “agreement paths” (Resolution and Partial Agreement) are available—it is simply whether the target surfaces according to the closer conjunct in terms of linear relations or if the target surfaces according to the features of the phrase. It would be just as reasonable, from a formal perspective (ignoring the contextual information that makes one strategy more or less likely), for the relative pronoun to show Resolution, where structure sharing occurs with the coordinate phrase’s INDEX features.

This formalization is bolstered by outside facts. First, coordinate structures as lacking a head accounts for surface patterns—within and outside of agreement—in a much more straightforward way than conjunction-headed ConjPs or accounts of Unbalanced Coordination (cf. Pollard and Sag 1994: 200–7, Borsley 1994, 2005). Second, linear order is relevant.
not just in instances of Nearest Antecedent Agreement, but in other syntactic phenomena as well (cf. Levine 2011); because of the pervasiveness of linear adjacency effects, it would be surprising for agreement to not be subject to these as well—at the very least, a theory of agreement should be capable of accounting for such data in a straightforward way. A purely hierarchical conception of structures where linear order has no status in the framework (e.g. in most of the Minimalist Program) cannot account for empirical data where linear relationships must be stated in some way. But the linearization framework of HPSG crucially provides this information as part and parcel of expressing the ordering relations between constituents and terminal elements.

Furthermore, coordination is famously “messy”: the structures that can be coordinated often do not correspond to the expectation that coordination only happens between “like” elements, for instance. A theory of agreement with coordinate structures should allow for a variety of surface possibilities, including Resolution, Nearest Antecedent Agreement, and First Conjunct Agreement—all of which have a place in HPSG. What is key for the analysis presented here is that all of these phenomena can be accounted for via existing mechanisms in HPSG, with additional constraints on structure sharing (as possible with either the phrasal sign or the closer conjunct’s sign).

9.3.3 Structural Pressures on Strategy Distribution

The question of the distribution of Resolution vs. Partial Agreement still remains. For Albanian, there is simply the constraint that in all cases, the nyje particle is in the structure-sharing relationship with only the closer conjunct. But all other languages discussed in this dissertation allow both strategies in almost all of the same contexts, with some minor exceptions. The two strategies therefore do not appear to be in complementary distribution, nor are there any strict constraints on when the target has the same agreement information as the coordinate phrase vs. the closer antecedent. Rather, there are certain aspects of the phrase or sentence that make one strategy more likely than the other.
Before addressing the distribution of the strategies, the limitations of the data should be recognized. The corpora used in Chapters 3–4 are all based on written texts. Grammaticality is, in some sense, determined by the presence or absence of structures in the corpus, which is not necessarily the most reliable indication of acceptability. Furthermore, written texts are subject to closer examination and revision by the authors, a luxury that is not afforded to speakers and the resulting data of spoken corpora. However, in spite of these limitations, the results of the corpus study are still in line with the great majority of typological studies where spoken corpora are available: compare the Latin and Ancient Greek results to, e.g., the studies on Slavic in Corbett 2006. Likewise, as argued in Chapter 1, while edited texts often employ a different, higher register style, this does not mean that the mechanics of the grammar are inconsistent or completely divorced from those in spoken language.

However, because speakers are not available for grammaticality judgments, with respect to strategy distribution the most that can be expressed confidently in the formalism are “structural pressures” that affect the likelihood of each strategy. Certain types of syntactic and semantic information exert pressure on the system such that the distribution of the strategies conforms to the typological generalizations of Corbett (2006). As has been discussed above, animate antecedents are more likely to show Resolution over Partial Agreement. In Chapter 7, this was explained according to the semantic core of gender features. The same kind of analysis can extend to the formalism of Resolution in HPSG because Resolution is modeled as INDEX feature assignment in the HPSG analysis above. The features that are assigned to the phrase are part of INDEX, which is more closely to tied to the semantics of the sign. The higher frequency of Resolution is the result of the gender features of animate conjuncts being more closely tied to the semantics of the individual real-world referents. It is also possible that in especially difficult contexts, INDEX features cannot be assigned to the phrase, i.e. there is no semantic property that accurately describes both conjuncts and no gender feature to abstract to. In such cases, Partial Agreement might be
the only option available.

With regard to the Agreement Hierarchy and Predicate Hierarchy, i.e. the effect of target syntactic category, Resolution is more common for pronominal targets vs. adjectival ones. In Chapter 7, this was taken as evidence that the semantics is more “relevant” to pronouns than to adjectives, where the former have more semantic content, but the agreement on adjectives is primarily an expression of syntactic dependencies. The way the HPSG model of agreement works can account for these tendencies as well. Coordinate phrases are assigned agreement features under INDEX, which is in an index agreement relationship with pronouns. The individual conjuncts, on the other hand, with the exception of atypical controllers (e.g. pluralia tanta nouns), have AGR features, which are in a morphosyntactic agreement relationship with adjectives.

How does this formalism reconcile with a view of Partial Agreement as Avoidance? First, there might be occasions where featural assignment to the coordinate phrase sign is not possible, as mentioned above. In such cases, the only available features are from the individual conjuncts. Second, this is, again, where psycholinguistic literature might help to explain the surface patterns, where extragrammatical information strengthens certain signs (and their respective feature representations) over the other(s).

In spite of the fact that the mechanics of multiple antecedent agreement can be easily modeled by HPSG, there are still context-dependent aspects of the construction that affect the distribution of the two possible strategies. While the effects of contextual information can be accounted for via INDEX and AGR features and their relation to the semantics and morphosyntax, respectively, the exact distribution is still somewhat unpredictable and a matter of linguistic performance. Syntactic models therefore provide a way of understanding agreement relations, but the model brings us no closer to understanding why the commonalities in strategy distribution exist across languages. To investigate this question, I move on to the relationship between Partial Agreement and the psycholinguistic literature on attraction in the following chapter.
Chapter 10

Agreement and Attraction

At least the basic patterns of multiple antecedent agreement can be captured in a formal model of syntax, even if the exact pressures that result in the distribution of the strategies are not strict formal constraints. Resolution, which requires agreement to access traditionally non-formal features (e.g. animacy information that has no bearing on structural relations and/or morphological form), and Nearest Antecedent Agreement, which relies on linear adjacency relations rather than hierarchical ones, both result naturally when the target is constrained to structure-sharing agreement information (in AGR or INDEX) with either the coordinate structure at the phrasal level or with the closer conjunct in the DOM list. In separating hierarchical relations from linear relations, syntactic dependencies between controllers and targets can be maintained while still allowing for surface patterns where agreement appears to operate in ignorance of the phrasal structure of the coordinated nouns.

As mentioned in Section 7.3.1, Nearest Antecedent Agreement resembles “errors” of structural attraction. Example (120) contains a set of these errors collected by Bock and Miller (1991: 46), where the number of the target (in bold) does not match the syntactic controller (underlined). In each case, the target verb does not agree in number with the structurally designated subject controller, but rather matches the number features of a local noun.

(120) a. The time for fun and games are over.

b. The readiness of our conventional forces are at an all-time low.
c. I don’t think it much matters where the final *reinterment* of these men *are*.

d. The learning *skills* people have entering college *is* less than it should be.

Previously, this was taken as evidence for a performance-based view of agreement. If attraction is an “error” of linguistic performance, then the resemblance between those errors and Nearest Antecedent Agreement implies that constraints on linguistic performance also affect grammatical agreement. The question that I address in this chapter is the exact nature of this resemblance: in essence, if an “error” and a conventionalized grammatical pattern are subject to the same constraints and produce similar surface structures, then where is the distinction between what is grammatical and acceptable and what is not? That is, can attraction “errors” actually be part of grammatical agreement, i.e. inside of the grammar? Errors are generally presumed to be just that: mis-steps in the processing of syntactic information or errors in linguistic performance. But if a grammar can produce an acceptable and grammatical agreement pattern that resembles errors of attraction, then it is not clear that those errors are completely outside of the grammar, in that the same *grammatical* mechanisms might account for both.

To investigate the nature of attraction errors in relation to Nearest Antecedent Agreement, I first offer an overview of some of the psycholinguistic literature on attraction, which provides two separate perspectives on the location of errors in language production. This overview is not meant to be an exhaustive account of the attraction literature, but rather a representative sample of the effects that have been found in empirical investigations of attraction. For a significant review of the attraction literature, see Acuña-Fariña 2012. Next, to bridge the gap between attraction and Nearest Antecedent Agreement, I revisit the notion of Acceptable Ungrammaticality to link what is grammatical and conventional with what is considered unacceptable. I suggest that agreement, *functionally* speaking, is used to mark dependencies between syntactic objects. While the dependency is often marked between controllers and targets, as is expected and typical, often information from other
parts of the sentence can also affect how the dependency is marked. Some of the attraction examples in (120), for instance, suggest that the plural marking on the target verb might not be an accidental assignment of plurality but one that is supported by, e.g., semantic information influencing a plural construal; this is addressed in more detail in Section 10.2 below. Furthermore, judgments of both acceptability and grammaticality are notoriously unreliable in certain complex contexts, and it is possible that the acceptability of structures is really a product of the speaker’s familiarity with or exposure to the surface patterns: the more exposure to the atypical pattern, the less susceptible it is to correction. To be sure, a full account of the border between Nearest Antecedent Agreement and attraction should be supported by empirical evidence regarding the nature of acceptability. For this reason, the analysis I offer is speculative, pointing to particular concepts that might bridge the gap between attraction and agreement.

10.1 Psycholinguistic Accounts of Structural Attraction

The starting point of much empirical research on attraction errors was Bock and Miller (1991), who first reported that attraction errors, which have been observed anecdotally and in spoken/written language corpora, could be induced in laboratory environments (their experiment 1, pp. 55–64). Their methodology has become the standard throughout the attraction literature. Stimuli consist of “preambles”, i.e. a noun modified by a post-nominal phrase, and speakers must complete the sentence by supplying a predicate. The post-nominal modifier is typically a prepositional phrase that ends in a noun. This phrase-final noun is not the agreement controller but, in cases where attraction occurs, acts as the “distractor” noun with which the verb shares agreement features. Preambles fall under one of two conditions: the match condition (where the actual subject and the distractor noun have the same features, e.g. singular-singular or plural-plural, example (121)) and the mismatch condition (where the subject and distractor noun have different features, e.g.
singular-plural or plural-singular, example (122)). This results in the following four-way paradigm for English, where only number agreement is relevant (pp. 56).

(121)  a. The key to the cabinet  
b. The keys to the cabinets

(122)  a. The key to the cabinets  
b. The keys to the cabinet

Many of the assumptions that Bock and Miller start with operate according to straightforward single antecedent contexts, without considering more difficult contexts of semantic agreement (but see Bock et al. 2006 for consideration of committee nouns) or multiple antecedent agreement. They argue that “subject-verb number agreement is perhaps the most straightforward and clearly syntactic of all syntactic operations”, where the controller noun phrase is “almost always the highest noun phrase in the clause, in a purely configurational sense” (p. 46). Yet there is a good deal of breakdown in this seemingly straightforward process, even in the simple cases of single antecedent agreement. And when the complexity of the controller increases—as in multiple antecedent agreement—the syntactic operations become even more difficult, such that variation in the resulting target is possible. This variation includes a pattern which produces agreement with the nearest antecedent, in a purely linear sense. Errors of attraction are similarly sensitive to linear adjacency or proximity constraints. This connection cannot be ignored, even if the resulting structures of multiple antecedent agreement and attraction are not identical, only analogous.

There are certain semantic and syntactic factors that affect the rate of attraction. Bock and Miller, after establishing that errors can be induced in the lab, find that, first of all, the singular-plural mismatch condition results in the highest rate of errors. Furthermore, the animacy of the local noun does not increase attraction error rates; an animate local noun is not privileged over an inanimate local noun. In a follow-up experiment using post-nominal relative clauses instead of prepositional phrases, however, they find that animacy is relevant.
to error rates when animacy is relevant to subject assignment. They conclude, therefore, that plurality and position are not enough to determine grammatical or ungrammatical agreement. Rather, structural relations are still part of the agreement process; the error results from a failure to designate the subject correctly, not just an error of left-to-right linear processing.

As was pointed out earlier in Chapter 10, Nearest Antecedent Agreement is also affected by semantic and syntactic information, notably animacy information and target type. Nearest Antecedent Agreement can also occur when the target and controller are immediately adjacent, or when there is some (linear) distance between them.

(123)  

a. alienatio disiunctioque facienda sit  
withdrawal.F.SG association.SG-and effect.F.SG would  
‘effect an immediate withdrawal of affection and association’ (Cic. Amic. 21.77)

b. Aratra vomeresque facito uti bonos habeas.  
ploughs.N.PL ploughshares.M.PL-and make that good.M.PL keep  
‘See that you keep your ploughs and ploughshares in good condition.’ (Cato. Agr. 5.6)

c. molto maior alacritas studiumque pugnandi maius exercitui  
much greater alacrity.F.SG eagerness.N.SG-and fighting greater army  
injectum est  
infused.N.SG was  
‘a much greater alacrity and eagerness for battle was infused into our army.’  
(Caes. Gal. 1.46.4)

In (123a), the target immediately follows the conjunct with which it shares agreement features, very much like the attraction error of *The time for fun and games are over*. Example (123b), on the other hand, shows the target *bonos* ‘good’ separated by two words from its nearer conjunct *vomeres* ‘ploughshares’, but there are no intervening nouns between the target and the closer conjunct. There is, however, a (gendered) noun intervening between
the target and its closer conjunct in example (123c): *iniecotum* ‘infused’ shares agreement information (i.e. gender and number) with *studium* ‘zeal’, even though there is an intervening masculine noun *exercitui* ‘army’. Since agreement here is agreement with the nearest antecedent, this is the expected pattern. Furthermore, *exercitui* is marked for dative case; i.e. it is obviously not a subject and this makes it less likely candidate for agreement.

It has been shown that non-subject case-marking also inhibits attraction. Bock and Miller (1991), for example, find that pronouns in English are less likely to induce attraction errors than full nouns, with the assumption being that the relevant difference is that there is overt case-marking on pronouns but not nouns. This is taken as evidence that the more “subject-looking” a local noun, the more likely attraction is, where subjecthood is often designated according to animacy, agentivity, etc. Sims (2014) also argues that case-marking affects attraction error rates in Croatian, in that local nouns that are syncretic (but not accidentally homophonous) with a subject case induce a similar rate of attraction as nominative local nouns; cf. Albright and Fuß (2012) for more on the relevance of syncretism to patterns of syntactic structure. There is therefore good evidence that attraction and Nearest Antecedent Agreement are both sensitive to structural and morphological/morphosyntactic information, in spite of the fact that agreement proceeds according to linear relations.

Bock and Miller’s experiments and analysis are representative of one of two primary perspectives in the structural attraction literature, as summarized by Sims (2014). Their account is one in which the error is squarely in the syntactic component: there is a failure to correctly assign morphosyntactic feature representations to the phrasal subject. The local noun has markers of subjecthood that allow attraction to be induced, i.e. that allow features to be mis-assigned. Franck et al. (2006, 2010) give more recent accounts of agreement phenomena from this perspective. Essentially, the effects of structural relations are given primacy over locality constraints, such that the attraction error can be viewed as the syntax generating the wrong features for agreement with the target. Vigliocco and Nicol (1998: B22) are direct in rejecting linear proximity as completely explanatory of attraction
errors, finding that “agreement errors are similarly distributed and equally common when
the local noun is adjacent to the verb and when it’s not”. If linear proximity does not affect
syntax, then a transformational model of syntax can be maintained with relative ease—and
it happens that many of these accounts also assume a transformational model of syntax as
a proxy for the model of the syntactic processing component (cf. the use of Spec-head and
AgrS structures in Franck et al. 2006: 201–10 and the conclusions related to Minimalism
made by Acuña-Fariña 2012). While the resulting characterization of the syntactic compo-
nent might allow for “maximal input” of other levels of representation, including semantics
and pragmatics (cf. Vigliocco and Franck 1999, 2001), attraction is only mediated by these
other representations; the error is still in the syntactic component.

Sims (2014) describes the other perspective on structural attraction in psycholinguistics
as one where the error is due to processing constraints, especially the limitations of working
memory and tracking dependencies where linear/temporal distance and spreading activation
matter. As Lewis and Vasishth (2005: 376) argue, “establishing any novel relation, whether
long or short, requires some memory of the immediate past”, a functional requirement
of working memory that is not specific to language. More specifically, agreement (and
therefore attraction) is the result of cue-based retrieval, where verb features are selected
according to “chunks” that are activated as subjects (or as subject-like). As a result, the
spatial and temporal distance between the controller and target affect the likelihood of
errors: activation decays over time. The attraction outcome is in competition with the
grammatical agreement outcome; when the local noun has higher activation as subject,
errors are more likely to occur. This approach, while stressing processing constraints on
working memory and activation, also accounts for the semantic and syntactic features that
affect attraction. The more subject-like the noun, the more activation it receives as the
subject. Importantly—and relevant to the discussion of the relationship between hierarchal
and linear structure discussed in Chapter 9—this view allows for linear precedence relations
to directly affect agreement (or attraction) outcomes. Gillespie and Pearlmutter (2011) find,
for example, that attraction error rates are affected by linear distance between the head noun and verbal target (but not hierarchical distance) in addition to semantic integration information.

The importance of processing information in understanding syntactic phenomena has been pointed out for other complex constructions. The main argument is that perspectives that look only to the syntactic component often require a more complex model of syntax or one that relegates certain unexplainable facts to other levels of representation, whereas a processing explanation only looks to the constraints on human cognition. For example, Kluender (1998) points out that processing constraints can explain both strong and weak island effects, without having to resort to different levels of representation. Traditionally, strong island effects were handled by a syntactic component, while weak islands were “tacitly assigned to a different level of representation” (p. 242), but in Kluender’s reasoning, having a single set of independently motivated facts to model strong and weak islands is simpler than having either two different levels of representation or two different mechanisms at the same level of representation (p. 243). To that end, he investigates and proposes the same kinds of constraints on working memory, referential processing, and dependency tracking that are relevant not just to agreement phenomena but also to human cognition more generally.

In what follows, I consider which aspects of attraction are inside the grammar and which are outside of it. That is, what patterns can the syntactic component reasonably account for and which require reference to constraints on processing? If the syntactic component can produce perfectly grammatical targets according to Nearest Antecedent Agreement—and this strategy draws on similar syntactic and semantic features as attraction errors—then it seems reasonable that some aspects of attraction are within the syntax. It is assumed that the marking of dependencies is “wrong” when attraction errors occur, but the marking might actually reflect a semantic dependency instead. Moreover, dependency marking is not necessarily clear even when it is grammatical: in Nearest Antecedent Agreement, agreement
is with only one of the controllers, yet the implied syntactic dependency is among all of the controllers and the target.

10.2 Acceptability and Grammaticality in Dependency Marking

Both multiple antecedent agreement strategies, Resolution and Partial Agreement, create what has been referred to (cf. Chapter 2) as an agreement mismatch: the target cannot match the features of all of the controllers at once. In Resolution, the target’s features match the features assigned to the phrase according to semantic rules, but this means that the features of the target, in many cases, do not match any of those of the individual controllers. In Nearest Antecedent Agreement, the target’s features match only those of the most linearly proximal controller.

But the dependency is still understood in both cases. This calls into question how agreement should actually be defined. In Chapter 1, the accepted definition was broad enough to cover the patterns of semantic agreement and multiple antecedent agreement: agreement is the systematic covariance between the properties of one element and those of another. The variation in target form is usually matched by variation in the controller: *The dog barks* vs. *The dogs bark*, where number differences are marked on both the controller and target. This definition of agreement also accounts for the possibility of semantic agreement, where variation in target form is according to variation in controller meaning, not morphological properties, e.g. British English *The band play tonight.*

For multiple antecedent agreement, there is, in some sense, covariation of form, although the same controllers can cause variation in target form with no resulting change in meaning. For Resolution, targets do not match any of the features of the controllers, but instead match the properties of the group. But there is no direct linking between the form of the target and the forms of the controllers: the dependency is understood indirectly by
(semantically) abstracting over the controllers. On the other hand, targets resulting from Nearest Antecedent Agreement vary only according to the nearest controller, but the target modifies both. The effect of linear proximity can be accounted for within a model of syntax like the one adopted in Chapter 9, but the exact pressures fall both inside the grammar (semantic and syntactic factors) and outside the grammar (the difficulty in performance).

Functionally, agreement operates to mark and trace dependencies among elements in a sentence. Agreement marking is largely redundant: a noun that is marked morphologically singular usually controls a verb that is marked morphologically singular. A noun that is lexically feminine usually controls a participle that is inflected as feminine. But as Resolution and Nearest Antecedent Agreement targets illustrate, this dependency is not always clear from the marking or inflection alone, nor is the information always redundant, e.g. in the case of the semantic information implicit in the features of the target. Crucially, in spite of the fact that morphological marking alone does not allow for a straightforward tracking of the dependencies of multiple antecedent agreement, speakers still understand that the agreement is with all of the antecedents. For one, the presence of coordination (whether overtly realized with a conjunction or asyndetic) implies a relationship between the controllers. It is possible to modify a single controller in a conjoined phrase (e.g. the narrow scope of \text{old men/ and women}), but because coordination implies such a strong relationship between the conjuncts, ambiguity is usually always present, i.e. the wide scope interpretation is almost always available. Based on the nature of coordination and the resulting expectations for agreement, even though the form of agreement targets in multiple antecedent agreement is not directly reflective of all of the controllers at once, the relationships between the conjuncts and the targets are still understood.

With respect to attraction, it is possible that a dependency actually does exist between the local noun and the verb. While it is not the “formal dependency” found in the straightforward, typical examples of single antecedent agreement, there have been numerous examples where the expression of agreement between controllers and targets is not straight-
forward at all but representative of a cumulation of syntactic, semantic, pragmatic, and contextual information. Returning to some of the examples of attraction in (120) above (repeated below for convenience), the plural verb is potentially explainable by certain (usually semantic) facts of the construal of the subject.

(124)  

a. The **time** for fun and games **are** over.  

b. The **readiness** of our conventional forces **are** at an all-time low.

In (124a), the controller is morphologically singular (**time**, not **times**), but the meaning of the sentence is really that the **fun and games** are over. For one, the sentence with **fun and games** as the subject has an equivalent meaning: **The fun and games are over**. And **time** is not necessarily an object that has an ending (it is continuous, even if marked off at certain points by convention). The construal of the sentence is such that the dependency could actually be semantic, between the post-nominal modifier and the verb. The same can be said for (124b): while the predicate is structurally dependent on the actual controller **readiness**, the construal is such that the sentence implies the forces (and all of their properties) are at an all-time low. Although this may be speculative—relying on semantic construal judgments without empirical evidence that the semantic conceptualization is relevant—semantic factors, especially “notional number”, do affect rates of attraction, cf. Bock et al. 2006 and the semantic distributivity effects found for, e.g., **the label on the bottles** in Eberhard 1999. Eberhard finds, in general, that semantic concreteness or imageability affects the availability of conceptual information in the agreement process. Furthermore, ?: 208 also report a semantic distributivity effect in Italian, concluding that “semantic information about the plurality of reference must sometimes override grammatical information about singularity”.

With respect to the semantic distributivity of **the label on the bottles**: this might not even be a real attraction error, but instead a kind of semantic agreement already discussed in Section 2.3. Example (27), repeated below, was presented by Corbett (2006) as semantic agreement between the target and the **semantic head** of the phrase.
These kind of people are untrustworthy

As discussed earlier, Corbett (2006: 65) argues that the target is agreeing not with the syntactic head of the noun phrase, *kind*, but rather the semantic head, *people*. Furthermore, there need not be an overt plural genitive modifier to induce plural agreement, e.g. *These kind are untrustworthy*. This—an attraction “error” in itself, although not originally discussed as such—is the exact type of example where semantic information is what explains the dependency relation that agreement reflects in many of the acceptable instances of attraction. The fact that the plural demonstrative is possible (even if not accepted by all speakers) implies that the plural notion of the phrase is so strong such that the subject should actually be construed as plural.

As further evidence, it is often the case that attraction is not noticed.\footnote{This is evidenced anecdotally, by the agreement errors in this dissertation that are only sometimes caught in the self-editing process.} Attraction is subject to correction, but only when speakers are aware of the error. If the dependencies exist between the local noun “construing” the subject as plural, then this would not necessarily receive correction in self-editing. Again, empirical data should be collected to confirm these hypotheses, but a psycholinguistic experiment of this nature is outside the realm of this dissertation. For this reason, I simply point to a possible explanation for the similarities between attraction and Nearest Antecedent Agreement (and semantic agreement, for that matter).

But if such an explanation is tenable, then at least some of attraction falls inside the grammar. And in fact, \footnote{This warrants a re-investigation of “canonical agreement”, on which see Corbett (2006); such an exploration is intended for future work.} refers to attraction not as “errors” but as “noncanonical agreement”. This terminology is congruent with a view of attraction (and agreement more generally) as marking different types of dependencies.\footnote{This is evidenced anecdotally, by the agreement errors in this dissertation that are only sometimes caught in the self-editing process.} The attraction errors that are truly errors are those which speakers are consciously aware of and those which occur without some kind of “semantic dependency”—they do not contribute to the construal of the
sentence. Furthermore, even if speakers judge certain errors as ungrammatical, grammaticality judgments are notoriously unreliable.\(^3\) Kluender (1998: 246) draws on the work of Ross (1987), arguing that “surface-level assessments of grammaticality and/or acceptability may be too coarse-grained to dissociate the various factors contributing to syntactic well-formedness” and furthermore “surface-level grammaticality judgments, which potentially represent confounds of several different contributing factors, may not be sufficient to separate and isolate the relevant variables”.

Such a view of grammaticality judgments is consistent with the concept of Acceptable Ungrammaticality introduced in Section 7.4.3. Early evidence for the separation of grammaticality and acceptability was given by Otero (1972), who argued that Spanish impersonal *se* often gives rise to agreement patterns that are ungrammatical (in the sense that the existing grammar rules do not easily generate the exceptional surface patterns) but which are considered acceptable by native Spanish speakers. In particular, native speakers produce number agreement according to the object of the impersonal construction, rather than agreement with the impersonal (singular) *se*. Otero directly claims that, in this and similar cases, “performance is at odds with knowledge of the language” (p. 241). That is, the ways that speakers produce and judge sentences are often rooted in concerns of linguistic performance, where such ungrammatical (but acceptable) sentences are supported by other constructions where similar patterns are perfectly grammatical. In Otero’s data, this outside support is found in the reflexive *se* constructions, where the grammatical pattern of agreement is agreement with the post-verbal noun. Because judgments do not conform to what is expected based on the rules of the grammar, Otero claims that speakers can (and do) accept sentences that are ungrammatical.

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\(^3\)This is of course not to say that grammaticality judgments should be thrown out completely, or that the data from them should only be explained in terms of unreliable speakers; this would be an \textit{ad hoc} solution to the problem. Rather, the point is that this might represent a context where prescriptive notions of agreement (as marking formally syntactic dependencies between the structural subject and the verb) is in direct competition with what actually surfaces, where agreement often marks other kinds of dependencies, e.g. semantic ones.
The problem in the conception of “Acceptable Ungrammaticality” is that what “un-grammaticality” actually means is not well defined. Contreras (1973) claims that the ungrammatical agreement pattern with impersonal *se* in Spanish can actually be explained by rules in the grammar, and so the construction is not ungrammatical at all. But if “grammatical” is defined as what the grammar can produce, then this is often constrained by the syntactic model used in the theory—an undesirable consequence, as grammaticality judgments should inform syntactic models, not vice versa. Furthermore, there is reason to believe that the unexpected agreement pattern with the impersonal *se* is “subject to repair”, one of the criteria for determining Acceptable Ungrammaticality given by Frazier and Clifton (2011). That is, speakers recognize that there is something atypical, if not ungrammatical, about the pattern—whether this is a recognition of true ungrammaticality or just a recognition of the gradience of acceptability is not clear.

With regard to the agreement patterns investigated in this chapter, Nearest Antecedent Agreement and attraction draw on the same semantic, syntactic, and contextual features—in much the same way that impersonal *se* agreement draws on patterns licensed by reflexive *se* in Spanish. But Nearest Antecedent Agreement is conventional and grammatical in the languages of study, and structural attraction is traditionally considered an error. If the grammar (and specifically, the syntactic component modeled above in Chapter 9) can account for dependency marking according to local nouns, then the only fact that separates Nearest Antecedent Agreement and attraction errors is that the local noun is actually one of the agreement controllers in Nearest Antecedent Agreement; i.e. there is a syntactic dependency between the controller and target. This strategy is a conventional and grammatical way of “avoiding” the problem of generalizing over the properties of multiple controllers. The acceptability of attraction might be affected by a stronger dependency between the local noun—although not an agreement controller—and the target. The nature of this dependency is semantic, as described above. On the other hand, attraction that is considered completely ungrammatical and unacceptable (and that which is noticed and repaired
by speakers) is more likely the result of processing constraints: the limitations of working memory in cue-based retrieval. These errors receive no support from the semantic construal of the subject.

There is a degree of “fuzziness” that characterizes which combinations of subjects and local nouns can result in acceptable (to the extent that they are not often noticed or corrected) attraction errors. But given the variability of grammaticality judgments (and the debate as to what might actually be part of the grammar, cf. Contreras 1973), this fuzziness is to be expected: the border between grammatical and ungrammatical is not well defined. There are clear cases where structures are unquestionably unacceptably. But there is a significant amount of data where the judgments of acceptability are variable.

The performance aspect of agreement is still at work in this conceptualization of agreement and attraction: what constitutes an appropriate semantic dependency (reflected by attraction with the local, plural noun) is dependent on contextual information. Furthermore, as suggested by Gillespie and Pearlmutter (2011), the likelihood of attraction is affected by linear distance; “real” distance is part of the contextual information as well. In this way, the acceptability of attraction errors (and their occurrence more generally) depends on facts of the linguistic and extralinguistic context.
Chapter 11

Discussion

The primary purpose of this dissertation, as reflected by the title *Deconstructing and Reconstructing Semantic Agreement: A Case Study of Multiple Antecedent Agreement in Indo-European*, was to investigate the role of semantic information in the agreement process, specifically through the lens of multiple antecedent agreement, where such information has been argued to play a primary role (cf. Corbett 1991, 2006, Wechsler and Zlatić 2003). As other phenomena suggest (cf. Section 2.3–2.4), the way semantic information is accessed and utilized in the agreement process is a complicated area in even the most straightforward of syntactic contexts, i.e. single antecedent agreement. The results of semantic agreement are often subject to effects of variation in conceptualizations (cf. the difference between *committee* nouns and Scandinavian pancake sentences) and the tenuous connections that often exist between semantic properties and morphosyntactic feature values. Furthermore, semantic information that is relevant to agreement might not have morphological or morphosyntactic consequences outside of the context of agreement; e.g. animacy information might affect target feature outcomes but not have any morphological expression. And what has been previously considered to be semantic information interacting in the agreement process might actually be pragmatic or contextual in nature, relying on referential values of the agreement controllers rather than general semantic properties of a word, e.g. agreement with Latin *pars*. In some cases, this pragmatic agreement involves a recognition of socio-cultural norms and conventions, without which the resulting patterns are unexpected, e.g. Slavic polite plural constructions.
If the starting point for this dissertation was a complex concept in the more straightforward syntactic context, then it should come as no surprise that there is even more variability and analytical difficulty in multiple antecedent agreement. By investigating the agreement variation in the data of Chapters 3–6, the patterns in the Indo-European languages under discussion were found to be consistent across languages and also to match much of the typological research by Corbett (1991, 2006), though not as robustly.

The data were originally analyzed, in Chapter 7, from a descriptive and typological perspective to explain how Resolution and Partial Agreement, both of which are affected by semantic and syntactic information, could be characterized as semantic and syntactic agreement, respectively, especially in their conformance to the Agreement Hierarchy and the Predicate Hierarchy. The distribution of Resolution and Partial Agreement suggests, in my view, a characterization of agreement in complex contexts as an “on-the-fly” process, subject to local considerations, e.g. the local conceptualization of shared semantic properties of the controllers in Resolution (accounting for the Resolution outcomes in cases of mixed-animacy controllers) or linear relations among syntactic elements that produce target forms that share features with only one of the controllers (as in Partial Agreement). I provided a synchronic account of the patterns in the languages but without directly relating this information to more general accounts of agreement in theoretical syntax or psycholinguistic accounts on the the limitations of processing. Three perspectives were therefore considered in explaining the cross-linguistic patterns of multiple antecedent agreement where features of linguistic performance appear to interact to a significant degree.

The first approach, that of reconstruction, yields an explanation that is possible but not sufficiently explanatory. The primary languages of study in this dissertation are all in the Indo-European language family. A natural question is whether this allows for reconstruction of the agreement patterns, given the large amount of overlap in the patterns of the daughter languages. The answer is yes: multiple antecedent agreement patterns can be reconstructed. But the problem is that the ability to be reconstructed does not preclude
other, non-inheritance explanations. The patterns of multiple antecedent agreement could certainly have existed in Proto-Indo-European based on the patterns present in the daughter languages, but there are also unrelated languages where the same kinds of strategies occur. As a result, reconstruction has very little to say about the source of these patterns in Indo-European, only that it is possible.

The final two perspectives, on formal syntax and psycholinguistic experimentation, represent more secure ways of accounting for agreement patterns. Formalizing the patterns provides a way of viewing multiple antecedent agreement patterns as produced by the machinery of the grammar: transformational theories have difficulty accounting for linear relations, but Head-Driven Phrase Structure Grammar, the model in which the formal analysis was given, allows for the incorporation of structural and linear relations in a single theory. All of the surface patterns can be accounted for by (independently motivated) mechanisms in HPSG. However, there are certain structural pressures that affect the distribution of strategies that cannot be strictly defined by the grammar. The performance aspects of agreement are not able to be formalized, even though the Resolution and Partial Agreement patterns are consistent with the theory of agreement in HPSG given in Chapter 9.

Finally, I considered how the psycholinguistic literature on attraction might contribute to understanding multiple antecedent agreement patterns. There is an undeniable resemblance between Nearest Antecedent Agreement and attraction errors, but Nearest Antecedent Agreement is traditionally considered inside the grammar and attraction errors outside of it. I suggested an account of the resemblance between Nearest Antecedent Agreement and attraction errors that relies on the notion of agreement as marking dependencies. In most cases, these are formal syntactic dependencies between the structural controller and the target. But in some cases, the dependency can be semantic in nature, cf. the semantic agreement phenomena in Section 2.3. This kind of dependency marking can potentially explain why attraction errors occur: they are more likely to be accepted (even if not gram-
matical in the traditional sense) when the local noun contributes to the construal of the sentence as a whole. Errors that do not receive support from the semantics—those that speakers are often consciously aware of—are those that result from processing constraints within linguistic performance.

In total, the contribution of these three perspectives is to re-emphasize the performance aspect of agreement: it is true that there are constructions that fall solidly under the rubric of syntactic formal agreement, easily captured by a formal model of syntax. And with respect to semantic agreement, there are certainly more straightforward cases, where general facts about the world provide the information from which semantic abstraction occurs. But there is a whole range of semantic and syntactic agreement patterns and “errors” that abound in spoken and written language, in more or less complex contexts. In cases of legitimate, conventionalized patterns, these must fall inside the grammar, even if the exact pressures that make them more or less likely are part of linguistic performance. And for attraction “errors”, those that are less susceptible to conscious awareness and correction seem to fall more clearly inside the grammar, as part of marking (other kinds of) dependencies. Acceptable Ungrammaticality might provide the link between different levels of acceptable attraction—and between attraction more generally and the grammatical, conventional strategy of Nearest Antecedent Agreement.

This dissertation ends in some ways where it began: semantic agreement is a complex, nebulous term, under which all manner of phenomena have been categorized. And within the realm of multiple antecedent agreement, the patterns that surface are themselves complex and nebulous, able to be modeled by the grammar but without exact limitations and constraints on the distribution of any given pattern (semantic or syntactic in nature). As evidenced by the discussion in various places in this dissertation of the relationship between contextual information and surface patterns—judged as grammatical or acceptable or neither—agreement and performance must be highly intertwined.
References


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Ross, J. R. (1987). Islands and syntactic prototypes. In Need, B., Schiller, E., and Bosch, A., editors, Papers from the general session at the Twenty-Third Annual Regional Meeting


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## Latin Grammars

<table>
<thead>
<tr>
<th>Reference</th>
<th>Animate</th>
<th>Inanimate</th>
<th>Mixed</th>
</tr>
</thead>
</table>
| Menge and Thierfelder (1953) (virtually the same as Kühner and Stegmann 1962, per Hock 2007) | Resolution: M.PL  
*Gewöhnlich* (‘usually’) Nearest Antecedent Agreement OR *seltener* (‘more rarely’) Resolution: N.PL |                                            |                                            |
| Hoffman and Szantyr (1965)                   | Resolution: N.PL OR Nearest Antecedent Agreement |                                            |                                            |
| Roby (1896: 26)                              | Nearest Antecedent Agreement                  | Nearest Antecedent Agreement               | Nearest Antecedent Agreement               |
| Lindsay (1936: 4–5)                          | “often” singular verb                        | “often” singular verb                      | “often” singular verb                      |

Table A.1: Summary of Standard Latin Grammar Handbooks
<table>
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<tr>
<th>Reference</th>
<th>Animate</th>
<th>Inanimate</th>
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</thead>
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<tr>
<td>Allen and Greenough (1888)</td>
<td>Resolution: M.PL OR “often” Nearest Antecedent Agreement</td>
<td>Resolution: N.PL OR “often” Nearest Antecedent Agreement</td>
<td>Resolution: M.PL/N.PL OR Nearest Antecedent Agreement (esp. if nearest conjunct is plural)</td>
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<td>Arnold et al. (1897)</td>
<td>Resolution: M.PL (over F.PL) OR Nearest Antecedent Agreement</td>
<td>Resolution: N.PL OR “more rarely” Nearest Antecedent Agreement</td>
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Table A.2: Summary of Latin School Grammars
Appendix B

Greek Grammars

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<td>Kühner and Gerth</td>
<td>Resolution: m.pl or Nearest Antecedent Agreement</td>
<td>Resolution: n.pl or Nearest Antecedent Agreement</td>
<td>Resolution: m.pl/n.pl or Nearest Antecedent Agreement</td>
</tr>
<tr>
<td>(1904: 57–8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humbert (1945: 10–19)</td>
<td>Plural verb (if subjects considered a plurality); singular verb (if subjects considered a totality)</td>
<td>Plural verb (if subjects considered a plurality); singular verb (if subjects considered a totality)</td>
<td>Plural verb (if subjects considered a plurality); singular verb (if subjects considered a totality)</td>
</tr>
<tr>
<td>Schwyzer (1950: 611)</td>
<td>Resolution: m.pl or Nearest Antecedent Agreement</td>
<td>Resolution: n.pl or Nearest Antecedent Agreement</td>
<td>Resolution: m.pl/n.pl or Nearest Antecedent Agreement</td>
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</table>

Table B.1: Summary of Standard Greek Grammar Handbooks
<table>
<thead>
<tr>
<th>Reference</th>
<th>Animate</th>
<th>Inanimate</th>
<th>Mixed</th>
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<tr>
<td><strong>Goodwin and Gulick</strong></td>
<td>Resolution: m.pl or Nearest Antecedent</td>
<td>Resolution: n.pl or Nearest Antecedent</td>
<td>Resolution: m.pl/n.pl or Nearest Antecedent</td>
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<tr>
<td><em>(1930: 202)</em></td>
<td>Agreement or agreement with “most prominent”</td>
<td>Agreement or agreement with “most prominent”</td>
<td>Agreement or agreement with “most prominent”</td>
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<td>noun</td>
<td>noun</td>
<td>noun</td>
</tr>
<tr>
<td><strong>Smyth and Messing</strong></td>
<td>Resolution: m.pl or Nearest Antecedent</td>
<td>Resolution: n.pl or Nearest Antecedent</td>
<td>Resolution: m.pl/f.pl/n.pl or Nearest Antecedent</td>
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<tr>
<td><em>(1956: 277)</em></td>
<td>Agreement</td>
<td>Agreement</td>
<td>Agreement</td>
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</table>

Table B.2: Summary of Greek School Grammars
Appendix C

Albanian Stimuli

Sentence completion

a. Një vëlla ___ Agimit po vjen.

b. Vëllai ___ Agimit po vjen.

c. Një motër ___ Bardhit po vjen.

d. Motra ___ Bardhit po vjen.

e. Ca motra ___ Agimit po vijnë.

f. Vëllezërit ___ Bardhit po vijnë.

g. Një vëlla dhe një kushëri ___ Agimit po vijnë.

h. Vëllai dhe kushëriri ___ Bardhit po vijnë.

i. Një motër dhe një kushërirë ___ Agimit po vijnë.

j. Motra dhe kushërirëa ___ Bardhit po vijnë.

k. Një vëlla dhe një motër ___ Bardhit po vijnë.

l. Një kushërirë dhe një kushëri ___ Agimit po vijnë.

m. Vëllai dhe motra ___ Bardhit po vijnë.

n. Kushërira dhe kushëriri ___ Bardhit po vijnë.
o. Çë motra dhe çë vëllezër _ Agimit po vijné.

p. Vëllezërit dhe motrat _ Agimit po vijné.

q. Pashë një vëlla _ Agimit.

r. Pashë vëllanë _ Agimit.

s. Pashë një motër _ Bardhit.

t. Pashë motra _ Bardhit.

u. Pashë ca motra _ Agimit.

v. Pashë vëllezërit _ Bardhit.

w. Pashë një vëlla dhe një kushëri _ Agimit.

x. Pashë vëllanë dhe kushëririn _ Agimit.

y. Pashë makinën e nënës dhe babait _ Agimit.

z. Pashë makinën e babait dhe nënës _ Agimit.

Acceptability judgments

a. Një vëlla dhe një kushëri i Agimit po vijné.

b. Një vëlla dhe një kushëri të Agimit po vijné.

c. Vëllai dhe kushëriri i Bardhit po vijné.

d. Vëllai dhe kushëriri e Bardhit po vijné.

e. Një motër dhe një kushërirë i Agimit po vijné.

f. Një motër dhe një kushërirë të Agimit po vijné.
 Semantic judgments

a. Vëllai dhe kushëriri i Bardhit po vijnë. What does this sentence mean? (Choose all that apply)

(a) The brother (of Agim) and Bardh’s cousin are coming. For example: Pashë vëljanë e Agimit. Vëllai dhe kushëriri i Bardhit po vijnë.
(b) Bardh’s brother and Bardh’s cousin are coming.

b. Vëllai dhe kushëriri e Bardhit po vijnë. What does this sentence mean? (Choose all that apply)

(a) The brother (of Agim) and Bardh’s cousin are coming. For example: Pashë vëljanë e Agimit. Vëllai dhe kushëriri i Bardhit po vijnë.
(b) Bardh’s brother and Bardh’s cousin are coming.

 Demographic questions

a. Age:

b. Country of birth:

c. How long have you lived in the US?

d. What languages do you speak at home?

e. When did you learn English?

f. How often do you speak Albanian?

g. Who do you usually speak Albanian with? (Family here, friends here, family/friends in Albania, etc.)