The Role of Agreement in Natural Language

Proceedings of the Fifth Annual Texas Linguistics Society
Conference

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edited by William Earl Griffin

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Preface

I am pleased to present here the proceedings of the Fifth Annual Texas Linguistics Society Conference, held at the University of Texas at Austin from March 2nd to March 4th, 2001. The Texas Linguistics Society Conference is a unique, topic-based conference bringing together researchers from around the world, working within different formal approaches, to present their research and views on topics of current theoretical interest. In previous years, the conference has focused on issues in the syntax and semantics of predication, the boundary between phonetics and phonology, perspectives on argument structure, and the effects of modality on language and linguistic theory. This years' conference continues this tradition, presenting original research and perspectives of the role of agreement in natural language. I hope that this volume will serve as a valuable resource for those interested in agreement and related issues.

This year's conference was made possible by many people's efforts who I would like to thank here including the abstract reviewers, all of our student volunteers, our session chairs, the faculty of the Department of Linguistics and the Linguistics Department Staff at the University of Texas at Austin. I would also like to thank Margaret Speas, Hilda Koopman, and Sandra Chung for their keynote addresses. I would especially like to thank Kristina Collins and Brian Reese who helped organize this years' conference. I would also like to express my deep appreciation to The R. D. King Centennial Professorship, The University Co-operative Society, and The Humanities Support Fund and the Dean of Graduate Studies at the University of Texas at Austin. This years' conference would not have been possible without their generous support.

Twenty-four papers and three keynote addresses were presented at the 2001 conference but not all of them have been submitted for publication in this volume. The papers appearing here appear in no particular order other than the order in which they were received. A complete listing of all talks is available on the TLS website at: http://uts.cc.utexas.edu/~tls/.

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Number, Gender and Person Agreement in Prenominal Possessives[*]

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1. Introduction

Traditionally possessives have been classified as either adjectives or pronouns with the prenominal possessive constructions in Romance languages being treated as adjectives, despite their failure to satisfy the general properties of adjectives (i.e. function as an attribute, function as a predicate, modification by an intensifier and occur in comparative and superlative forms) (Lausberg 1965, Grevisse 1969, among others).

2. Adjectival Agreement: Gender and Number

Following this treatment, these constructions do demonstrate adjectival-like agreement with the possessed noun with respect to number and in some cases gender, as seen in (1).

(1)   a.   tus casas   (Spanish)
                   you-familiar (pl.) houses (fem. pl.)
          b.   nuestras casas
                   our (fem. pl.) houses (fem. pl.)

However, in considering the forms classified as adjectival and the forms classified as pronominal, adjectival-like agreement is found in both. In Spanish the adjectival form is unstressed and appears only before the noun. This form shows agreement only in number, except for first and second person plural. This agreement is with the item possessed, not the possessor. Although considered adjectival, these forms do not occur with determiners. It is the pronominal form that is considered a "full" form, showing agreement in both number and gender and it is this form that can occur with a determiner. The short form is illustrated in Table 1 and the full form in Table 2. While these "full" forms occur separately, functioning as nouns, they can also occur postnominally functioning as adjectives.

	Masculine (Sg/Pl)	Feminine (Sg/Pl)
Singular		
1st	mi/mis	
2nd	tu/tus	
3rd	su/sus	
Plural		
1st	nuestro/s	nuestra/s
2nd	vuestro/s	vuestra/s
3rd	su/sus	

TABLE 1. Spanish (short form).

	Masculine (Sg/Pl)	Feminine (Sg/Pl)
Singular		
1st	mio/mios	mia/mias
2nd	tuyo/tuyos	tuya/tuyas
3rd	suyo/suyos	suya/suyas
Plural		
1st	nuestro/s	nuestra/s
2nd	vuestro/s	vuestra/s
3rd	suyo/suyos	suya/suyas

TABLE 2. Spanish (full form).

The possessives considered adjectives in French always precede the noun they modify. They agree in number and gender with the thing possessed, not the possessor in the singular, while they agree in number only in the plural, as seen in Table 3.

	Masculine (Sg/Pl)	Feminine (Sg/Pl)
Singular		
1st	mon/mes	ma/mes
2nd	ton/tes	ta/tes
3rd	son/ses	sa/ses
Plural		
1st	notre/nos	
2nd	votre/vos	
3rd	leur/s	

TABLE 3. French.

The situation in French is not the same as in Spanish with respect to agreement. In Spanish gender agreement is formed with an inflectional morpheme: *-a* for feminine; *-o* for masculine. This inflectional morpheme extends to other adjectives. Gender agreement in the French prenominal possessives is not consistent with the general rule of agreement found with adjectives in which the feminine is formed by adding *-e* to the masculine form.

Additionally the masculine form is used in front of singular feminine nouns beginning with a vowel or silent /h/, as in (2b). Reminiscent of the use of the masculine form of the article with stressed initial vowels words in Spanish, shown in (2a).

(2)   a.   el alma   (Spanish)
               the-ms soul-fm
        b.   mon amie   (French)
               my-ms friend-fm

There is both a stressed and an unstressed form. Only the unstressed forms are used in prenominal position. Moreover, these unstressed adjectival forms, like their Spanish counterparts, do not occur with a determiner.

Possessives functioning as pronouns replace the possessive adjective + noun[1]. They appear with the definite article, as shown in Table 4.

	Masculine (Sg/Pl)		Feminine (Sg/Pl)
Singular			
1st	le mien/ les miens		la mienne/ les miennes
2nd	le tien/les tiens		la tienne/ les tiennes
3rd	le sien/les siens		la sien/ les siennes
Plural	**Masculine**	**Feminine**	**Plural**
1st	le notre	la notre	les notres
2nd	le votre	la votre	les votres
3rd	le leur	la leur	les leurs

TABLE 4. French.

Unlike Spanish and French, the forms for both the possessive pronoun and the possessive adjective are the same in Italian. These forms agree in number and gender with the possessed and require a determiner with common nouns, as shown in Table 5.

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[1]This is the traditional interpretation. An alternate possibility is that the "so-called" pronominal form is an elliptical construction in which the noun has been deleted leaving the article and an adjectival possessive. Note that this form follows the general adjective gender agreement rule.

	Masculine (Sg/Pl)	Feminine (Sg/Pl)
Singular		
1st	il mio/i miei	la mia/le mie
2nd	il tuo/i tuoi	la tua/le tue
3rd	il suo/i suoi	la sua/le sue
Plural		
1st	il nostro/i nostri	la nostra/le nostre
2nd	il vostro/i vostri	la vostra/le vostre
3rd	il loro/i loro	la loro/le loro

TABLE 5. Italian.

With agreement in number and gender evident, both Number (Valois, 1991) and Gender (Picallo, 1994) projections have been proposed.

2.1 Valois (1991)

Valois (1991) assuming the parallelism between CP and DP suggests that these structures differ in respect to the type of functional projections they contain. He proposes that the differences between languages is accounted for by the same mechanism accounting for differences between VPs, namely the presence or absence of head movement. He argues for a functional category between D and N suggesting that this category is Number Phrase which contains the number features of the DP. He proposes the following structure for French.

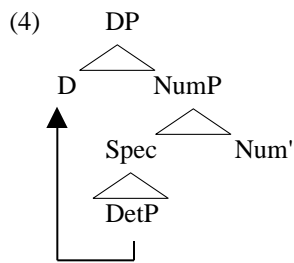(3)   NP Head Movement in French
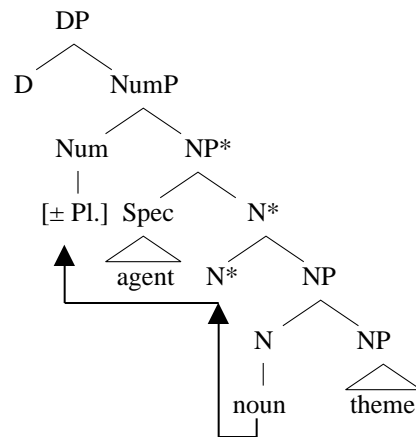
(Valois 1991: 53)

In briefly addressing the position of the prenominal possessive in English and French, he assumes that the possessive pronoun is projected in SpecNP* and obligatorily moves to Spec of NumP, which he proposes is the case position for the possessive pronoun. He concludes that the

difference between French and English is that "a pre-nominal possessive pronoun in French is case-marked once (by the noun), while it is case-marked twice in English (by both the noun and SpecNumP (Valois 1991: 103)). Italian possessives present a problem with respect to case assignment since the Det, following Valois, occupies the SpecNumP position. To account for the agreement between the possessive and the noun, Valois proposes that a mechanism of feature transmission operates between the determiner and the possessive.[2]   The determiner, then, transmits its case to the possessive.

In observing that the possessive is marked for genitive case, which is not the case with adjectives; Valois discounts the possessive as an adjective. He argues that possessives are both XPs and determiners and as such they go through the Spec of NumP and then cliticize onto D, as illustrated in (4).

(4)

```
          DP
         /\
        /  \
      D     NumP
             /\
            /  \
         Spec    Num'
          /\
         /  \
        DetP
```

He further proposes that the possessive receives case in SpecNumP. SpecNumP as a case position, which accounts, according to Valois, for the co-occurrence of the possessive pronoun with a determiner in Italian, but not in English and French. As Valois admits this depends crucially on the SpecNumP not being available for full DPs. This seems to be an ad hoc stipulation.

2.2 Picallo (1994)

Picallo (1994) also argues for a Number Phrase, She proposes that the possessive in Catalan is generated in the Spec of NP, as shown in (5).

(5)

```
            DP
           /\
          /  \
        D'     NuP
        |      /\
        |     /  \
        D   Nu'    GeP
            |      /\
            |     /  \
           Nu   Ge'    NP
                |      /\
                Ge  poss  N'
                          /\
                         /  \
                        N    Comp
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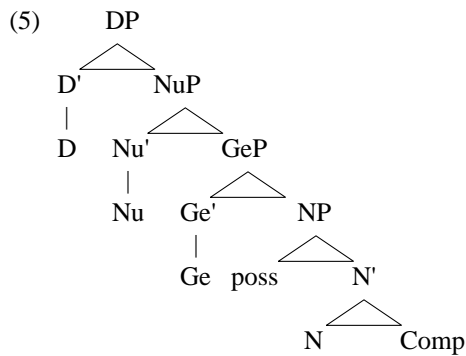
[2]This mechanism is similar to that which operates in Italian impersonal passives allowing for the expletive pronoun to transmit its features including case to the post-verbal subject.

Picallo assumes both a Nu(mber)P and a Ge(nder)P for Catalan with the noun moving up through GeP and then NuP. If the noun moves and the possessive stays in situ, the result will be a postnominal possessive. When the possessive moves up first, it will be in a position to merge with the determiner as I have argued for in French and Spanish (Antrim 1996, 1999).

3.   Pronominal Agreement: Person

However, possessives also demonstrate agreement with the possessor with respect to person. The pronominal element agrees in person with its referent while the adjectival element agrees in number and gender with the item possessed. This suggests that a possessive must be checked for possibly three agreements.[3] Possible agreements since complete agreement is not overtly present prenominally for all persons in French and Spanish.

Haegman (2000) in discussing possessive doubling constructions in Dutch observes that the doubling possessive agrees with the external possessor in terms of number, gender and person, as seen in (6).

(6)   a.   Valère zenen boek
                Valère (masc.) poss. (masc.) book -> his book
         b.   Marie euren boek
                Marie (fem.) poss. (fem.) book -> her book

Evidence for a separate projection for person comes from the possessive constructions in Isthmus Zapotec, a language spoken in Mexico. In Isthmus Zapotec the possessive and the person morphemes are separate, as shown in (7).

(7)   a.   s – palu – be
                Poss. Stick 3^{rd} p. sg.
                His stick
         b.   s – palu – lu
                Poss. Stick 2^{nd} p. pl.
                Your stick

3.1 Olson (1989)

Olson in re-examining the status of the possessive in German with respect to Abney's (1987) DP hypothesis, suggests that the possessive is a genitive marked personal pronoun. This case-marked pronoun, then, functions as a specifier of the DP. Comparing the pronominal possessive and the determiner, she suggests that their structure varies with respect to agreement relationships. The determiners show agreement for the features person, number, case, and gender with the noun; whereas, the possessives have inherent person and number features that do not necessarily agree with the noun, in addition to, the agreement features of the noun, as shown in (8).

(8)   a.   der Mist [3ps Sg Nom Masc]
                the dirt
         b.   dein   -er   Katze
                2ps sg GEN 3ps sg DAT Fem   3ps sg DAT FEM

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[3]The idea of a separate projection for person was first suggested to me by J.-R. Vergnaud.

These agreement facts parallel those discussed for French and Spanish, where possessives reflect the person of the possessor and the agreement features of the noun possessed. To resolve this apparent clash in features, Olson proposes that the agreement features of the noun are copied onto DET establishing a Head-to-Head relationship with the noun. The agreement shown by the possessive, then, is a "reflex" not only of its structural position, but also of its morphological structure.

She cites coordination facts as evidence for the possessive being a maximal projection functioning as a specifier. The possessive can coordinate with other possessive phrases, as in (9).[4]

(9)   a.   Sie treffen sich in deiner und Karls Lieblingsnape.
             They meet themselves in your and Karl's favorite bar.
             They meet one another . . . .
       b.   Ohne seines Vaters und meinen Rat sollte er nichts unternehnem.
             Without his father's and my advice he should not undertake anything.

However, the possessive cannot be coordinated with determiners, as shown in (10).

(10)   a.   *Ich wasche deinen und den Wagon.[5]
             I wash your and the car.
       b.   *Karl reparien weder das noch mein Telefon.
             Karl repaired neither the nor my telephone

While her account attempts to reconcile the categorical duality of possessives, it cannot be extended to the Romance languages because of the degradation of agreement between the possessive and the noun, as in Spanish, and the occurrence of the article with the possessive, as in Italian.

According to Olson the agreement features of the noun are copied onto DET, if this were the case in Spanish then the possessive should reflect gender agreement with the noun which is not the case, as seen in (11a). The correct form for the Spanish possessive in this example is given in (11b), in which there is agreement as to number but not as to gender. Olson's account is unable to explain this reduction in agreement features.

(11)   a.   *mia   casa
             my-sg-fm house-sg-fm
             my house
       b.   mi casa

Nor will her account explain the presence of the determiner with the possessive in Italian, given that in her account both the specifier and the head positions in DP are both filled with the

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[4]The German examples are from Olson; however, the glosses are mine.

[5]Several conference participants questioned Olson's examples on coordination (examples (10) and (11) in this paper) citing the duality of forms as pronouns or determiners:i.e. *deinen* meaning either your or yours and *das* being either a determiner or a pronoun. In (11a) if you change *den Wagon* to *diesen Wagon* it becomes acceptable.

pronoun and the genitive marker, respectively. However while her account proves problematic with the data from Romance languages, the intuition that possessives are pronominal is valid.

3.2 Pronominal-like Behavior

Evidence for a person projection and an agreement relationship between the possessive and a pronominal element is found in the pronominal-like behavior of the possessive. The prenominal possessive behaves like a pronoun with respect to binding. These possessive constructions can be bound by a c-commanding QP, as seen in (12) for French.

(12)   La photo de chaque$_i$ photographe de sa$_i$ ville préférée.
          The picture of each photographer of his favorite town.

The second property possessives have in common with pronouns is the ability to bind a reflexive, as shown in (13) for Spanish.

(13)   Su$_i$ foto del mismo$_I$
          his picture of himself

Finally, possessives behave like pronouns with respect to weak crossover effects, as seen in (14) for Portuguese.

(14)   a.   Quem$_i$ ama a sua$_i$ mãe?
               Who loves his mother
          b.   *Quem$_i$ a sua$_i$ mãe ama t$_i$
               who$_i$ does his$_i$ mother love t$_i$

Agreement with Person with respect to the possessive provides an explanation of this pronominal behavior. The possessive, then, appears to collapse two-three functional categories. One of which is Person. The remaining number depending on whether AGR is further decomposed into Number and Gender.

4.   Coordination

If prenominal possessives reflect features of both adjectival agreement and person agreement, then they should demonstrate properties common to both adjectives and pronouns. One property common to both adjectives and pronouns is that of coordination. Both adjectives and pronouns can be coordinated, as in (15), respectively.

(15)   a.   un chien petit et marron   (French)
               a dog small and brown
          b.   Tu y yo tendremos que juntarnos la semana que entra.   (Spanish)
               You and I will have to meet the week that   follows.
               You and I will have to meet next week.

However, these possessive forms can not be coordinated, as shown in (16) for both French and Spanish, respectively.[6]

(16)   a.   *mon et ton livre   (French)
              my and your book
        b.   *mi y tu libro   (Spanish)

Coordination constructions with possessives, in Spanish, depend on the number of individuals involved; the second occurrence of the possessive can be deleted if the nouns refer to the same individual or aspects of the same thing, as shown in (17).

(17)   a.   mi madre y mi padre
              my mother and my father (different people)
        b.   my amigo y colega
              my friend and colleaque (same person)
        c.   su paciencia y valor
              his patience and courage (aspects of same virtue)

In (18b), there is one referent and thus one possessive. This correlates with the use of the determiner, shown in (18).

(18)   el misterio o enigma del origen
        the mystery or enigma of the origin[7]

(19)   a.   la casa tuya y mía[8]
              the house your and my
              the house of yours and mine → our house
        b.   la casa tuya y la ec mía

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[6]Note that they can be coordinated in the fully inflected form, as in (i), leading to the two traditional classes of "weak" and "strong" (Lausber 1965).
    (i)   Perdimos el mio y el suyo.
           We lost mine and his.
[7]When the nouns form a single complex idea or mean essentially the same thing, only the first article is necessary, unless the nouns vary wrt gender, in which case both articles would be used, as in (i) (Butt and Benjamin 1988).
    (i)   las aulas y los equipos
           the classrooms (fm) and the equipment (ms)
[8]There is dialectal variation with respect to the accaptability of using the full form with the definite article. Some Peninsula dialects reject the full form with the definite article, but do accept the full form with the indefinite or a numeral, as in (i). In these dialects, when the definite article is used only the clitic form is possible. (Manual Echeveria, p.c.)
    (i)   a.   una casa mia
                 a/one house my
                 one house of mine
           b.   tres casas mias
                 three houses my
                 my three houses

Postnominal possessives behave differently than their prenominal counterparts in Spanish. The postnominal can be coordinated, as in (19), with the presence/absence of the second article reflecting a difference in interpretation. In (19a) there is only one house involved; whereas, in (19b) there are two houses.

In respect to French, in coordinated structures the use of the possessive follows that of Spanish, where the possessive is repeated when reference is to different individuals or aspects, as shown in (20).

(20)   a.   ma mère et mon père
                1st sg fm mother and 1st sg ms father
                my mother and my father
         b.   *ma mère et père
         c.   *ma mère et soeur
                my mother and sister
         d.   mon ami et collègue
                my friend and colleague

In (20d), one referent/individual is understood; while in (20a-c) there are two individuals involved.

Likewise, in Italian coordinated structures the possessive must be used with each element of the coordination if those elements refer to different "individuals", as shown in (21).

(21)   a.   il mio soprabito e il mio cappello
                1st sg ms coat and 1st sg ms hat
                my coat and my hat
         b.   *il mio soprabito e cappello

If the coordinated structure refers to one "individual", then only the first instance of the possessive is necessary, as in (22) where the item functions as both a coat and a blanket.

(22)   Questo è il mio soprabito e coperta.(Italian)
         This is (the) my coat and blanket.

5.   Possessives as Clitics

These coordination facts rather than supporting ther pronominal analysis Olson gives for German, suggest that in the Romance languages under discussion, the prenominal possessives are not pronominal. However, if these possessives are clitics, then the data on coordination can be explained. If possessives are clitic-like then they could not be coordinated, as clitics can not be coordinated. Considering these forms as clitics also explains the variation with respect to gender and number agreement. The prenominal form is a reduced form of the full form. While the full form is marked for person, number and gender, the reduced prenominal form is marked only for person and number. This is illustrated in (23).

(23)   a.   mio/mia -> mi
                my (masc.)/my (fem.) -> my
         b.   mios/mias -> mis
                my (masc. Pl.)/my (fem. pl.) -> my (pl.)

Saltarelli in a paper presented to the Second International Congress on Spanish in America notes that this lost of gender marking is characteristic of the progression from nominal to clitic object pronouns. In considering the morphology of clitics, Harris (1995) also observes the loss of gender features in the presence of person features in verbal clitics. This corresponds to the situation with the possessive. Comparing the similarity between plural markings on possessives and verbal clitics Harris notes that first and second person clitics and the possessive form *nuestro –s/nuestra –s* have two markers of plurality: one in the stem and another in the suffix. The first person possessive *mi* is proprietarily singular; it may or may not be vicariously plural by nature of agreement. This propriety number occurs only in the possessive not with repect to any other adjectival form.

6.   Conclusion

The possessive appears to collapse two-three functional categories. The number depending on whether AGR is further decomposed into Number and Gender. For French the prenominal possessive shows agreement in number and gender for 1st, 2nd and 3rd person singular, but only shows number agreement for 1st, 2nd and 3rd person plural. The Spanish prenominal possessive shows agreement in number and gender only for 1st and 2nd person plural; all other forms show agreement only in number. This appears to account for the French and Spanish prenominal forms. Note the similarity to the agreement pattern of the definite article. The singular definite article in French shows overt gender agreement, but non-overt number agreement; whereas, the plural definite article shows overt number agreement, but non-overt gender agreement. However in Spanish the definite article shows overt gender agreement in both the singular and the plural, but only overt number agreement in the plural. However, this structure does not reflect the semantics of the prenominal possessive as a two-place predicate.

Two related factors need to be considered in order to account for the agreement pattern in prenominal possessives:

   i)   Their status as clitics since the more clitic-like the less agreement in gender and number, and
   ii) Their status as pronouns accounting for person agreement.

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The Split-INFL Hypothesis and AgrsP in Universal Grammar

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1. Introduction

Chomsky (1995: Ch.4) proposes an abandonment of the Agr-based theory of clause structure proposed in Chomsky (1991, 1993), and the Split-INFL hypothesis of Pollock (1989) more generally, in favor of a single INFL projection where nominative Case, agreement, and the +EPP feature of T are checked within a single projection, Tense Phrase (TP) as illustrated in (1).

(1)   [TP NP$_i$ T [vP t$_i$ v [VP . . .]]]

Based on his analysis of expletive constructions in English and multiple subject constructions in Icelandic, Chomsky (1995, Ch.4) maintains that agreement phrases (AgrsP and AgroP) may be eliminated from the theory of clause structure and may instead be accounted for by the spec-head relation or, in the terminology of Chomsky (1998), by the relation AGREE. Chomsky (1995: 349) points out that the motivation for Agreement Phrase (AgrP) in Pollock (1989) is largely theory-internal, and that if AgrP is present in clause structure "...it has an even more restricted role and unique status than before, with no apparent impact for the core computational processes" (Chomsky 1995: 377). Consequently, Chomsky concludes that the function of AgrsP (i.e., subject-verb agreement) "could perhaps be accommodated . . .by assimilating it with T," with the added caveat that his analysis only narrows the question of its existence since not all the arguments in its favor have been considered.

In this article I will argue that broader properties associated with subject-verb agreement and AgrsP, such as the conditions under which null and overt subjects are licensed are not adequately explained under the proposals of Chomsky (1995). More specifically, I argue following Speas (1994) that Chomsky's proposal cannot account for Jaeggli and Sapir's (1989) Generalization while also accounting for so-called null expletive constructions in languages like German, and additional constructions in English where there is no overt NP/DP in the canonical subject position.

I maintain, following Speas (1994), that these and additional facts receive a plausible account if AgrsP projects independently in the clause structure in languages like English, French and German as in (2) based on the Principle of Economy of Projection (EOP) which requires that the head or the specifier of a phrase be filled with phonetic or semantic content in order for a phrase to be projected.

(2)   [AgrsP NP$_i$ Agrs [TP [vP t$_i$ v [VP . . .]]]

In support of this view, I review evidence from early child French and German which shows that children acquire the [±Finite] properties of Tense before they acquire grammatical subject-verb agreement and the notion of required grammatical subjects and that these latter properties are acquired in parallel in the development of these respective languages. I show that while these parallel developments are not accounted for within a theory of clause structure which attributes all these properties to a single projection TP, they follow in a principled way from the EOP if we maintain a version of Pollock's (1989) Split-INFL hypothesis where AgrsP may project in the clause structure as in (2) following Speas (1994).

According to Speas (1994), one significant consequence of adopting an analysis based on the EOP is that we may derive the effects of the Extended Projection Principle (formulated as a 'strong' +EPP feature of T in minimalist terms) independently such that it may be eliminated from the theory of grammar. I consider the consequences of this analysis with respect the status of PRO subjects in control and raising constructions in English and show how Speas' analysis provides independent support for Hornstein's (1999) claim that PRO subjects and the theory of control may be eliminated from the theory of grammar and subsumed under trace theory.

2.   Problems for Chomsky's (1995) Proposal

One consequence of Chomsky's (1995) proposal is that Tense is now responsible for the syntactic functions previously attributed to a single INFL position (pre-Pollock 1989), with the added difference that languages will vary in the feature strength of the properties of INFL (case, agreement, and the EPP feature of Tense)--strong features must be satisfied by overt movement (at PF) while weak features must be satisfied by covert movement (at LF).

Speas (1994) shows however that a problem emerges for this view when we consider it with respect to Jaeggli and Sapir's (1989) Generalization (9) and additional properties of subject positions in overt subject languages (OSLs) like German and English.

(3)   Jaeggli and Safir's Generalization
           Null subjects occur in the context of either very rich agreement or no agreement at
           all.

If Chomsky's proposal is to be extended to account for this generalization, it is clear that OSLs like English, French and German must have a "strong" +EEP feature in T while null subject languages (NSLs) like Italian and Japanese must have a "weak" -EPP feature in T.

Speas shows that an immediate problem arises with this formulation since it does not explain additional constructions in OSLs like German which contain no overt subject in the specifier of TP. It is uncontrovercial that German is not a *pro*-drop language like Italian since clauses generally require overt subjects as illustrated in (4) in (5).

(4)   a.   Ich bin in der Garten.
                 I am in the garden
           b.   * *pro* bin in der Garten.
                 (I) am in the garden

(5)   a.   Es sind drei Kinder gekommen.
              'There have three children come.'
         b. * Sind drei Kinder gekommen.
              '(There) have three children come.'

However, Speas points out that German also allows so-called null-expletive constructions of the form in (6b). [1]

(6)   a.   Es wurde gestern auf dem Schiff getanzt.
         b.   Gestern wurde auf dem Schiff getanzt.
         c.   *wurde auf dem Schiff getanzt.
              'There was dancing on the ship yesterday.'

If T (or C) in German is specified for a "strong" +EPP feature which requires overt movement of an NP/DP to the surface subject position, it is unclear how we may account for the grammaticality of forms like (6b) under Chomsky's proposal irrespective of whether we take the surface subject position to be spec of TP or spec of CP.

There are a number of other ways in which we might attempt to extend Chomsky's proposal to account for the facts discussed above. One possibility would be to stipulate that Tense in German has an additional head feature which allows null-expletives, a "strong" +NE feature of T. Under this view, languages like German and Italian which allow null expletives would differ from languages like English, which would be specified for a -NE feature in T.

This approach cannot be correct however for two reasons. First, it would fail to predict the ungrammaticality of (5b) and (6c) where no overt expletive is present. If T were specified for an +NE feature which allowed null expletive subjects, we would incorrectly predict null expletive subjects to be possible in these constructions. A second problem with this solution is it would result in a problem of *feature clash* with respect to the +EPP feature of T at PF. While a null expletive subject would be allowed by the +NE feature of T, the +EPP feature of T which requires and overt subject would remain unchecked at PF, and thus the derivation would crash.

A second possibility entails eliminating the binary [± Strong] feature system for agreement (in T), and adopting a continuum of agreement feature "strength" where agreement in German would be "stronger" than in English such that it may license and identify null expletives but would be "weaker" than in Italian such that they would not license and identify *pro* subjects more generally.

Irrespective of the potential complications this would pose for the theory of grammar in general, this alternative also fails to avoid the problem of *feature clash*. No matter how the "licensing" and "identification" properties of agreement are formulated, the strong +EPP feature of T would not be satisfied in constructions with null expletive subjects. We might attempt to solve the problem by assuming that the relatively "stronger" properties of agreement could "weaken" the +EPP of T to allow a null expletive subject without causing the derivation to crash at PF. But this solution would likewise be unable to account for the ungrammaticality of (5b) and (6c) where a null expletive subject is ungrammatical.

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[1] Yiddish also allows similar constructions, see Speas (1994) and Vinker (1995) for discussion.

Similar problems arise in the case of English. Consider the case of locative inversion.

(7)   a.   The ball rolled down the hill.
        b.   Down the hill rolled the ball.

As illustrated in the alternation in (7), an NP/DP need not occur in the surface subject position as long as a locative PP occupies this position. The grammaticality of forms like (7b) does not immediately follow from Chomsky's proposal. If the +EPP feature of Tense in English is "strong" as Chomsky suggests, then it is unclear why the NP/DP *the ball* does not move obligatorily to the surface subject position but remains instead in a postverbal position.

Additional problems arise with subordinate clauses in relation to the *That*-Trace effect. As illustrated in (8), subordinate clauses in English headed by the complementizer *that* generally do not allow and empty or null subjects in the canonical subject position.

(8)   a.   I believe that he said [CP that [TP he lied under oath]]
        b.   *I believe that he said [CP that [TP lied under oath]]

While the facts in (8) may be explained under Chomsky's proposal, Culicover (1993) shows that there are in fact similar constructions where a PP or adverbial may substitute for an NP/DP in the canonical subject position as illustrated in (9).

(9)   a.   Robin met the man that Leslie said [CP that [TP *(for all intents and purposes)
              was the mayor of the city]]
        b.   This is the tree that I said [CP that [TP *(just yesterday) had resisted fire]]
        c.   I asked what Leslie said [CP that [TP *(in her opinion) had made Tim quit]]

The grammaticality of these forms is clearly not accounted for under Chomsky's proposal (at least in the strictest sense). If T in English has a "strong" +EPP feature as Chomsky suggests, we would expect the subordinate clauses in (9) to contain overt NP/DP subjects.[2]

It is difficult to see any grounds on which the "licensing" and "identification" properties of agreement in English could be modified to account for the facts in (7)-(9) while also account for the general property that clauses have overt subjects since English has less agreement morphology than German. Furthermore, any attempt to do so would be dubious since, as we have seen, doing so will not allow us to account for the German facts discussed above nor can it avoid the problem of feature clash (at least in a theory where subject properties are located in a single TP projection).

In the rest of this article I will argue for an alternative and far simpler solution, which is to maintain a version of Pollock's (1989) Split INFL hypothesis where AgrsP projects independently in the syntax following Chomsky (1991, 1993). More specifically, I will maintain that if we adopt the theory of agreement and the Principle of Economy of Projection proposed in Speas (1994), we may account for the properties of NSLs and OSLs and allow for a plausible theory which may allow for an account of these problematic facts.
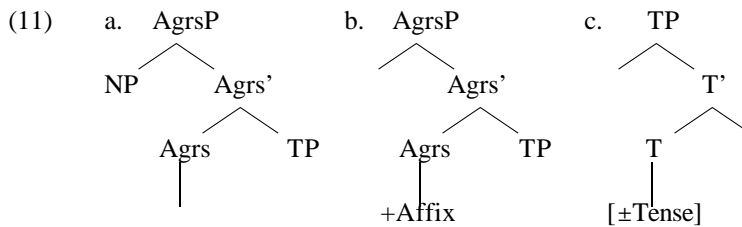
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[2] Culicover (1993) shows that these facts also cannot be explained by the ECP.

3. AgrsP and the Principle of Economy of Projection

Speas (1994) derives Jaeggli and Sapir's Generalization based on the Principle of Economy of Projection (EOP) in (10) and a parametric option in the relaization of agreement morphology.

(10)   Principle of Economy of Projection (EOP)
         Project XP only if its head X or its specifier [Spec, XP] has independent semantic or phonetic content.

This account is based on a three-way distinction in subject-verb agreement properties. Under this view, the difference between OSLs like English, French and German with "mixed" agreement morphology and NSLs like Italian with "rich" agreement morphology is that only the latter have the parametric option of allowing agreement morphemes to head their own projections as in (11b) (which then combine with the verb in the overt syntax).

(11)   a.   AgrsP   b.   AgrsP   c.   TP

             NP   Agrs'   Agrs'   T'

                Agrs   TP   Agrs   TP   T

                                   +Affix   [±Tense]

Since Agrs contains an agreement morpheme in NSLs like Italian, AgrsP may be projected in accordance with the EOP and allow null subjects. OSLs, on the other hand, do not have this parametric option and may only realize agreement morphology directly on the verb as in (11a) such that the verb does not move overtly to Agrs to project AgrsP. Since verbs do not move overtly to project AgrsP, a subject must raise to the specifier of AgrsP to project the phrase; otherwise, the agreement features of the verb cannot raise and be checked at LF, and the derivation crashes. In languages like Japanese and Chinese, which have no agreement morphology, no AgrsP is projected. Instead, clauses will be headed by Tense which has independent semantic content, thus allowing for the possibility of null subjects in these languages. In this way, Speas derives not only Jaeggli and Sapir's Generalization from a parametric option in the realization of agreement morphology and the EOP, but also the empirical effects of the EPP.

We have seen that Chomsky's (1995) proposal fails to account for both the general properties of OSLs with respect to (3) and the additional facts concerning null expletive constructions in German, and locative inversion and suspension of the *That*-Trace effect in English. Now consider how these facts may be plausibly subsumed under Speas' proposals in a theory which maintains the Split-INFL hypothesis where AgrsP projects in the clause structure.

Notice crucially that null expletives occur in German only when an adverbial (e.g., *Gestern*) occupies the cannonical subject position as in (6b). Speas (1994) argues that this property follows immediately from the EOP if the adverbial is merged as a specifier of AgrsP as in (12). Since the specifier of AgrsP has phonetic content, the phrase may be projected without requiring movement of an overt lexical subject. As a result, since AgrsP is projected, subject-verb agreement may be checked at a later point in the derivation (presumably at LF) and thus the derivation converges.

(12)   [AgrsP Gestern Agr [TP wurde auf dem Schiff getanzt]]

This explains why German does not allow null subjects as in (4b) or null expletives in cases like (4b) and (6c). If the specifier of AgrsP is not filled overtly, AgrsP cannot be projected and the subject-verb agreement properties of the verb cannot be checked at LF, resulting in a non-convergent derivation.

This analysis may be plausibly extended to cases of locative inversion and the suspension of the *That*-Trace effect in English (note that additional restrictions would be required to account for the limited extent to which these may be used in English). In the case of locative inversion, (6b) involves merger of the adverbial *down the hill* to the specifier of AgrsP as in (13); otherwise, the NP/DP must raise to this position as in (6a).

(13)   [AgrsP Down the hill Agr [TP rolled the ball]]

This likewise accounts for the ungrammaticality of forms with no overt element in the canonical subject position as in (14).

(14)   *[AgrsP e Agr [TP rolled the ball down the hill]]

Since the specifier of AgrsP is unfilled, and since main verbs in English do not raise to Agrs, AgrsP cannot be projected in accordance with the EOP. As a result, agreement feature checking cannot take place at LF, so the derivation crashes. The same analysis may also allow for an account of the suspension of the *That*-Trace effect illustrated in (9).

We have seen that Chomsky's proposal that AgrsP may be eliminated and subsumed by the spec-head relation (within TP) cannot account for both Jaeggli and Sapir's Generalization and additional facts where no overt subject appears in the cannonical subject position in German and English, and that both receive a plausible account under the proposals of Speas (1994) if we maintain a version of the Split-INFL hypothesis where AgrsP may project independently in the syntax. In the following section, I will provide independent evidence in support of this view from early child German and French which shows that AgrsP projects independently of TP.

4. The Acquisition of Tense and Agreement

Current acquisition research shows that even before age 2, children learning German and French make a clear distinction in the position of finite and non-finite verbs with respect to the position of subjects and negation elements. In the case of early child German, data from Poeppel and Wexler (1993) (Table 1) show that finite verbs tend to occur in first or second position while non-finite verbs tend to occur in final position, this is known as the [±Finite] verb distinction. Numerous other studies report similar findings (e.g., Weissenborn 1992, Verrips and Weissenborn 1992, Clahsen et al. 1994, Meisel 1994). Data from Pierce (1992) (Table 2) shows that children learning French also make a similar distinction in the position of finite and non-finite verbs with respect to negation, finite verbs tend to precede the negation element *pas* while non-finite verbs tend to follow *pas*. Déprez and Pierce (1993) furthermore shows that these generalizations with respect to subjects and negation elements hold for both early child German and French. The fact that children learning German and French make a distinction in the position of finite and non-finite verbs based on the [±Finite] properties of main verbs and negations elements shows that Tense is

present in the early stages of syntactic development before age 2 (also see Meisel and Müller 1992, Griffin, 2000a,b).

	Finite	Non-finite
1st/2nd position	216	7
Final position	15	44

TABLE 1. The [±Finite] verb distinction in German (Poeppel and Wexler 1993)

	Finite	Non-finite
NEG Verb	11	77
Verb NEG	185	2

TABLE 2. The [±Finite] verb distinction in French (Pierce 1992)

Interestingly, additional acquisition research shows not only that grammatical subject-verb agreement is acquired later with respect to the [±Finite] verb distinction, but that its emergence parallels the emergence of the notion of grammatical or required overt subjects (for related discussion see Clahsen 1986, Weissenborn 1992, Clahsen and Penke 1992, Pierce 1992, and Griffin 2000a,b). This is illustrated (in part) by the increase in the use of overt subjects versus missing or null subjects between the ages of 2 and 3 in early child German and French in Tables 3 and 4 (from Weissenborn 1992).

Age Range	% Overt Subjects
1; 10; 20-28	18.4
1; 11; 13-23	17.4
2; 1; 12-22	44.1
2; 2; 03-21	60.6
2; 4; 17-21	85.9
2; 8; 09-15	76.6

TABLE 3. Percentage of overt subjects in matrix declarative clauses (German)

Age Range	% Overt Subjects
2; 1; 19-26	69.7
2; 2; 03-26	63.5
2; 3; 00-21	70.3
2; 6; 13-27	91.2
2; 7; 11-25	87.1
2; 8; 01-29	95.7
2; 9; 15	93.7

TABLE 4. Percentage of overt subjects in matrix declarative clauses (French)

Verrips and Weissenborn (1992) provides additional evidence for the view that finiteness and adult-like verb movement are available to children learning languages like German and French independently of their knowledge of subject-verb agreement, which is presumably dependent on the

acquisition of a separate Agreement Phrase. Numerous other researchers arrive at similar findings for early child German and French (e.g., Meisel and Müller 1992, Gawlitzek-Maiwald et al. 1992, Clahsen and Penke 1992, Penner 1992, Griffin 2000a,b).

The general conclusions drawn in the acquisition literature are as follows. In the case of children learning German, the [±Finite] properties of Tense are present even before age 2 while grammatical subject-verb agreement and the notion of grammatical or overt (required) subject are gradually acquired between the age of 2 and 3. In the case of children learning French, the [±Finite] properties of Tense are present before age 2 while the notion of grammatical or overt (required) subject are not acquired until around age 2;6.[3] Other research shows that the relation between grammatical subject-verb agreement and the notion of required grammatical subject also holds for early child English (see Roper and Rohrbacher 1994).

The difference in the acquisition of Tense relative to the acquisition of subject-verb agreement and grammatical subjects does not immediately follow under Chomsky's proposal where AgrsP is eliminated from the theory of clause structure as in (1) and subsumed by the spec-head relation (within TP). Instead, such a view would incorrectly predict that *all of these properties should develop in parallel*, since they would be related to the development of a single head (T). In contrast, we may account for these differences in a principled way based on Speas' proposals if TP is immediately dominated by a maximal projection AgrsP and if children acquire or set the parameters for projecting the more basic phrase TP before the more complex phrase AgrsP. Such a view would correctly predict the correlation between the increased use of overt subjects and the increased use of subject-verb agreement in OSLs. As subject-verb agreement is gradually acquired, the EOP will increasingly require movement of an overt subject to the specifier of AgrsP so that agreement features may be checked at LF.

The findings of acquisition studies provide independent evidence for an AgrsP projection which is separate from Tense. In addition, the fact that subject-verb agreement and required grammatical subjects are acquired in parallel provides strong support for the proposals of Speas (1994) which maintains that these properties are derived from the EOP and the theory of agreement and for maintaining a version of the Split-INFL hypothesis as in (2).

5. Eliminating the EPP and the Theory of PRO Subjects and Control

One consequence of adopting an analysis of subject positions based on the EOP is that we may independently derive the effects of the EPP, allowing for a significant reduction and simplification of the theory of grammar while allowing us to maintain a theory of grammar with greater explanatory adequacy. This alone provides adequate empirical and theoretical motivation for adopting Speas' (1994) proposal over the proposals of Chomsky (1995) discussed above. There are additional reasons as well.

One additional and rather important consequence of adopting Speas' (1994) approach is that it may allow us to eliminate the theory of PRO subjects and the theory of control (Chomsky 1981)

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[3] The data from Weissenborn (1992) shows that children learning French do make greater use of overt subjects than children learning German in age comparable groups. See Griffin (2000a,b) for an account for this phenomena (an account which is compatible with the arguments and proposals presented here thus far).

following the proposals of Hornstein (1999). Consider the following examples illustrating both obligatory control in (15) and non-obligatory control in (16) and typical raising constructions as in (17) under standard analyses based on the EPP.

(15)   a.   John$_i$ expects [PRO$_i$ to [t$_i$ win the race]]
        b.   I$_i$ want [PRO$_i$ to [t$_i$ leave immediately]]

(16)   a.   John$_i$ thinks [that [PRO$_i$ shaving himself] is important]
        b.   John$_i$ told them$_j$ [that [PRO$_{i+j}$ wining the race] would not be easy]

(17)   a.   I believe him$_i$ [t$_i$ to [t$_i$ be an honest man]]
        b.   He$_i$ seems [t$_i$ to have [t$_i$ been an honest man]]

As pointed out by Hornstein (1999), the theory of PRO subjects and the theory of control pose numerous complications for the theory of grammar including case theory since T presumably checks or assigns a "null" case to PRO subjects (see Chomsky and Lasnik 1993) and requires an expanded inventory of empty categories (i.e., PRO, pro, t) among others.

Hornstein (1999) shows that the properties of PRO subjects and the theory of control more generally may be subsumed by trace theory (for further discussion see Hornstein 1999). The point I wish to make here is that motivation for postulating and maintaining the existence of PRO subjects and the theory of control is largely theory-internal to a particular theory of grammar, one which assumes some version of the EPP (see Chomsky and Lasnik 1993). If however we adopt an approach following Speas (1994) where the EPP may be derived independently from the theory of agreement and the EOP, the fact that subordinate non-finite clauses in constructions like (15)-(17) do not require overt lexical subjects may be accounted for independently by the fact that there is no subject-verb agreement in non-finite clauses and AgrsP is simply not projected in these clauses.

A comparison of the cases in (15)-(17) with their counterparts in (18)-(20) shows that the raised subject does not need to agree with the non-finite verb in the subordinate clauses, but only with the matrix finite verb (when raised to subject position).

(18)   a.   [AgrsP The boys$_i$ expect [TP to [t$_i$ win the race]]]
        b.   [AgrsP He$_i$ wants [TP to [t$_i$ leave immediately]]]

(19)   [AgrsP The guys$_i$ think [that [TP/VP t$_i$ shaving themselves] is important]

(20)   [AgrsP Some presidents$_i$ seem [TP to have [t$_i$ been honest men]]

Thus, adopting an analysis based on the EOP is entirely consistent with the proposals of Hornstein (1999), with the added advantage that we do not need to claim that subjects in English move through the specifier of TP. Since TP in non-finite clauses has independent phonetic content (headed by *to*), subjects may raise directly from a VP-internal position to a matrix clause position.[4] Under this view, English infinitive clauses bare a similarity to finite clauses in

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[4] Bobaljik and Jonas (1996) provide independent evidence for the view that subjects do not move into the specifier of TP in English based on the absence of Transitive Expletive Constructions.

languages like Chinese and Japanese in that they do not project AgrsP and thus do not require an overt subject.

Andreas 2;1	*finite Aux*	*infin. Aux*	*finite V*	*infin. V*
overt subject	85	0	117	22
null subject	6	1	13	45

TABLE 5. Finiteness and Overt Subjects in German (Krämer 1993)

	prevb-subj./inf. [a]		*prevb-subj./fin.*	
	n	*%*	*n*	*%*
Nathalie 1;9–2;3	49/295	17%	209/304	69%
Philippe 2;1–2;6	11/194	6%	523/782	67%
Daniel 1;8–1;11	11/205	5%	96/273	35%

TABLE 6. Finiteness and Preverbal Overt Subjects in French (Phillips 1995)

Additional acquisition data on the use of overt and null subjects in finite and non-finite clauses provides some independent support for this view. Krämer (1993) and Phillips (1995) find that overt subjects occur with significantly greater frequency with finite verbs versus non-finite verbs in early child German and French. If we adopt Speas' proposals, we would correctly predict that AgrsP projects only in those constructions where agreement features are present, finite clauses. Since non-finite clauses lack agreement but are instead headed by non-finite T which has both semantic and phonetic content (infinitive marker *to*), we also correctly predict the difference in the use of overt and null or missing subjects in finite and non-finite clauses in early child language.

8. Conclusions

I have argued that Chomsky's (1995) claim that the properties associated with AgrsP may be subsumed by the spec-head relation where AgrsP may be eliminated from the theory of grammar cannot account for the more general properties of subject positions in overt subject languages like English and German. Adopting an analysis following Speas (1994) which maintains a version of the Split-INFL hypothesis where AgrsP may project independently in the syntax will not only allow for an account of constructions which are clearly problematic for an account based on the EPP, but will also allow us derive the empirical effects of the EPP from the theory of agreement and Principle of Economy of Projection. Adopting Speas' proposals also have the added advantage of allowing for additional simplifications in the theory of grammar following Hornstein (1999) since AgrsP does not project in non-finite clauses, but only in finite clauses. In addition, we have seen that acquisition data provide independent evidence for the existence of an independent AgrsP immediately dominating TP in finite clauses and for the absence of AgrsP in infinitive constructions. If the goal of linguistic theory is to provide an explanatory account of the properties of subject position, not only in adult language but also in child language, it is clear that an account following Speas (1994) provides a more explanatorily adequate account of these

properties than the proposals of Chomsky (1995). Since Speas' proposal allows us to account for a broader range of the properties of subject positions while independently deriving the effects of the EPP, it is clearly preferable to Chomsky's proposal on both empirical and conceptual grounds.

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Quantifier Agreement in Korean[*]

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1.   Introduction

In Korean, when quantifiers comes after their associated nominals, they show the same case as their associated nominals, as shown in (1-2).

(1)   a.   Mary-ka **haksayng-tul-ul** pimiliey **motwu-lul** pwulle-ss-ta
             M.-NOM **student-PL-ACC**   secretly **all-ACC**   call-PAST-DECL
             'Mary called all the students secretly.'
        b.   Mary-ka   **haksayng-tul-ul** pimiliey **twul-ul**   pwulle-ss-ta
             M.-NOM **student-PL-ACC**   secretly **two-ACC** call-PAST-DECL
             'Mary called two students secretly.'

(2)   a.   **Haksayng-tul-i** ecey   **motwu-ka**   sohwan-toy-ess-ta
             student-NOM   yesterday **all-NOM**   call-PASS-PAST-DECL
             'All the students were called yesterday.'
        b.   **Haksayng-tul-i** ecey   **twul-i**   sohwan-toy-ess-ta
             student-NOM   yesterday **two-NOM**   call-PASS-PAST-DECL
             'Two students were called yesterday.'

In (1), the quantifiers and their associated nominals are marked with accusative case. In (2), they are marked with nominative case. However, case agreement is confined to post-nominal quantifiers. Pre-nominal quantifiers do not show case agreement:

(3)   a.   *Mary-ka **motwu-lul haksayng-tul-ul**   pwulle-ss-ta
             M.-NOM **all-ACC   student-PL-ACC**   call-PAST-DECL
             'Mary called all the students.'
        b.   *Mary-ka **twul-ul   haksayng-tul-ul**   pwulle-ss-ta
             M.-NOM **two-ACC   student-PL-ACC**   call-PAST-DECL
             'Mary called two students.'

In (3), case agreement between pre-nominal quantifiers and their associated nominals makes the examples ungrammatical. In addition, *motwu* and *twul* are not the correct forms for pre-nominal quantifiers; *motun* and *twu* are the correct forms, as shown in (4).

(4)   a.   Mary-ka **motun   haksayng-tul-ul**   pwulle-ss-ta
             M.-NOM **all   student-PL-ACC**   call-PAST-DECL
             'Mary called all the students.'
        b.   Mary-ka **twu   haksayng-tul-ul**   pwulle-ss-ta
             M.-NOM **two   student-PL-ACC**   call-PAST-DECL
             'Mary called two students.'

The data in (1-4) raises a crucial question: Why is case agreement confined to quantifiers in postnominal positions and their associated nominals?

According to Bobaljik (1998), no analysis is successful in predicting the distribution and property of floating quantifiers with full generality. In this paper, I focus on what I see in Korean and attempt to provide a new analysis of floating quantifiers in Korean.

2. Two Competing Analyses of Floating Quantifiers

Broadly speaking, there are two competing analyses of floating quantifiers. According to the non-movement analysis, floating quantifiers are base-generated as VP or TP modifiers.

2.1 Non-movement Analyses

Dowty and Brodie (1984) analyze floating quantifiers as predicate modifiers. Miyagawa (1989) analyzes them as secondary predicates. Both analyses assume that floating quantifiers and their associated nominals do not form a constituent at any point, and are not related by movement.

2.1.1 Floating Quantifiers as Predicate Modifiers

According to Dowty and Brodie (1984), floating quantifiers are essentially adverbial elements which serve as operators on the verb phrase, or parts thereof.

(5)   [$_S$ [$_{NP}$ the students] [$_{VP}$ have [$_{VP}$ all [$_{VP}$ left]]]]

This analysis explains why floating quantifiers in English may show up in a sentence-medial position, in which only adverbs occur, as shown in (6).

(6)   a.   The students **all/really** should have been drinking tea.
        b.   The students should **all/really** have been drinking tea.
        c.   The students should have **all/really** been drinking tea.

But, in Korean, an argument and an adverb do not show case agreement.

(7)   a.   *Mary-ka **haksayng-tul-ul**   **pimiliey-lul**   sohwanhay-ss-ta
             M.-NOM **student-PL-ACC**   **secretly-ACC** call-PAST-DECL
             'Mary called all the students secretly.'
        b.   ***Haksayng-tul-i ecey -ka**   sohwan-toy-ess-ta
             student-NOM   yesterday-NOM   call-PASS-PAST-DECL
             'All the students were called yesterday.'

As shown in (7), the manner adverb *pimiliey* and the temporal adverb *ecey* cannot show case agreement.   Although adverbs do not generally show case agreement in Korean, measure adverbials show case agreement with arguments, one might therefore consider case-agreeing quanitifiers as some form of measure adverbials.

(8)   Mary-ka   **maykcwu-lul twu sikan-ul**   masi-ess-ta
        Mary-NOM   **beer-ACC   two hour-ACC** drink-PAST-DECL
        'Mary drank beer for two hours.'

As shown in (8), the measure adverbial *twu sikan-ul* is marked with accusative case like an object.

But, this analysis encounters several problems. A measure adverbial can precede or follow an object whereas case-agreeing quantifier cannot precede an object. Compare (9b) with (10b).

(9)   a.   Mary-ka   **maykcwu-lul twu sikan-ul**   masi-ess-ta
             M.-NOM   **beer-ACC   two hour-ACC**   drink-PAST-DECL
             Mary drank beer for two hours._
        b.   Mary-ka   **twu sikan-ul   maykcwu-lul**   masi-ess-ta
             M.-NOM   **two hour-ACC beer-ACC**   drink-PAST-DECL
             'Mary drank beer for two hours.'

(10)   a.   Mary-ka   **haksayng-tul-ul   motwu-lul**   sohwanhay-ss-ta
             M.-NOM   **student-PL-ACC all-ACC**   call-PAST-DECL
             'Mary called all the students.'
        b.   *Mary-ka **motwu-lul haksayng-tul-ul**   sohwanhay-ss-ta
             M.-NOM   **all-ACC   student-PL-ACC** call-PAST-DECL
             'Mary called all the students.'

As shown in (10b), case-agreeing quantifiers cannot come before the associated nominal.

In addition to word order restrictions, if we regard floating quantifiers as measure adverbials, the following sentence will be a problem.

(11)   John-i   haksayng-tul-ul twul-ul   han sikan-ul yatanchi-ess-ta
        John-NOM student-PL-ACC two-ACC   one hour-ACC scold-PAST-DECL
        'John scolded two students for one hour.'

Since the quantifier *twul* and the adverbial *han sikan* provide measures of the event and the measures are not the same, one might expect this sentence to be ill-formed. But the sentence is fine. This approach appears to imply a violation of the principle proposed by Tenny (1994) that there can be no more than one measuring-out for any event described by the verb.

The final arguments disfavoring the measure adverbial analysis of floating quantifiers is that floating quantifiers and measure adverbials have different semantic functions. A floating quantifier is a predicate of individuals whereas a measure adverbial is a predicate of events (cf., Parsons 1990). Hence, (12a, b) have different interpretations:

(12)   a.   Mary-ka   **haksayng-tul-ul   twul-ul**   sohwanhay-ss-ta
              M.-NOM   **student-PL-ACC   two-ACC**   call-PAST-DECL
              'Mary called two students.'
         b.   Mary-ka   **haksayng-tul-ul twu pen-ul**   sohwanhay-ss-ta
              M.-NOM   **student-PL-ACC two times-ACC**   call-PAST-DECL
              'Mary called students twice.'

(12a) has the interpretation that the number of the students called by Mary were two. (12b) has the interpretation that there were two events in which Mary called students.

2.1.2 *Floating Quantifiers as Secondary Predicates*

Miyagawa (1989) proposes that floating quantifiers are secondary predicates. He suggests a parallelism between the Japanese numeral quantifiers in (13) and the depictive adjuncts in (14).

(13)   a.   Gakusei-ga   **3-nin**   kita
              student-NOM **3-CL**   came
              'Three students came.'
         b.   Gakusei-ga   hon-o   **4-satu** katta
              students-NOM book-ACC **4-CL** came
              'The students bought four books.'

(14)   a.   John arrived **nude**.
         b.   John ate the meat **raw**.

In (13-14), the numeral quantifier and the depictive adjuncts are predicates of individuals. Neither of them is an argument of the verb. The verb does not assign a thematic role to them; instead both modify verbal arguments (the subject and the direct object, respectively).

The secondary predicate analysis faces several questions. First, if numeral quantifier agreement is secondary predication, why does Korean not show case agreement with other secondary predicates?

(15)   a.   John-i   ku hoysa-lul   **sacang-ulo**   ttena-ass-ta
              J.-NOM the company-ACC **president-as** left-PAST-DECL
              'John left the company as a president.'
         b.   Mary-ka John-ul **chinkwu-lo** mana-ass-ta
              M.-NOM John-ACC **friend-as**   meet-PAST-DECL
              'Mary met John as a friend.'

The secondary predicates, *chinkwu* and *sacang* are not marked with the same case with either the subject or the object. Hence, if the floating quantifiers are secondary predicates, there is an unexplained asymmetry in case agreement.

Second, as discussed by Koizumi (1994), secondary predicates and floating quantifiers appear to occur in different positions. Compare (16b) with (10a, b) repeated here.

(16)   a.   John-i   koki-lul **nal-lo**   mek-ess-ta
              J.-NOM   meat-ACC **raw-INSTR** eat-PAST-DECL
              'John ate the meat raw.'
        b.   John-i   **nal-lo**   koki-lul   mek-ess-ta
              J.-NOM   **raw-INSTR**   meat-ACC eat-PAST-DECL
              'John ate the meat raw.'

(10a)   Mary-ka **haksayng-tul-ul   motwu-lul**   sohwanhay-ss-ta
        M.-NOM   **student-PL-ACC all-ACC**   call-PAST-DECL
        'Mary called all the students.'

(10b)   *Mary-ka **motwu-lul haksayng-tul-ul**   sohwanhay-ss-ta
        M.-NOM   **all-ACC   student-PL-ACC**   call-PAST-DECL
        'Mary called all the students.'

In addition, the so-called dative subject can be associated with a secondary predicate whereas it cannot be associated with a floating quantifier.

(17)   a.   Mary-ka **John-eykey pajama-ipincay-(lo)** piano-lul chi-key hay-ss-ta
              M.-NOM **J.-DAT   P.J.-in-(INS)**   piano-ACC play   do-PAST-DECL
              'Mary made John play the piano in pajama.'
        b.   *Mary-ka **ai-tul-eykey   twul-(eykey)** piano-lul   chi-key hay-ss-ta
              M.-NOM **child-PL.-DAT two-(DAT)** piano-ACC play   do-PAST-DECL
              'Mary made two children play the piano.'

So, the merit of the secondary predicate analysis cannot be evaluated before the problems I have mentioned above are solved.

2.2 Movement Analysis

Sportiche (1988) proposes that floating Qs (18b) correspond to partitive Qs (18a).

(18)   a.   Tous les enfants ont vu ce film.
              All the children have seen this movie.
        b.   Les enfants ont tous vu ve film.
              The children have all seen this movie.

Employing the VP-internal subject hypothesis, Sportiche (1988) proposes that a floating quantifier is base-generated as a part of a DP, but rather than the quantifier floating away from its associated nominal. According to this view, quantifiers may occur only in positions through which the associated nominal has passed in the course of its movement.

There are Language-particular arguments disfavoring Sportiche (1988). In Korean, some pre-nominal quantifier such as *on*, *kak,* and *may* lack post-nominal counterparts (Kang 1988).

(19)   a.   **On** kukmin-i   ku taytonglyeng-ul cicihay-ss-ta
              all people-NOM   the president-ACC support--PAST-DECL
              'All the people supported the president.'

b.   *kukmin-i   **on** ku taytonglyeng-ul cicihay-ss-ta
     people-NOM **all** the president-ACC support-PAST-DECL
     'All the people supported the president.'

(20)   a.   **kak** haksayng-tul-i   choysun-ul tahay-ss-ta
             each student-PL-NOM   best-ACC do-PASt-DECL
             'Each of the student did his best.'
        b.   haksayng-tul-i   **kak** choysun-ul tahay-ss-ta
             student-PL-NOM   **each** best-ACC   do-PASt-DECL
             'Each of the student did his best.'

Many quantifiers in Korean have two different forms in post-nominal and pre-nominal positions. (Kang 1988).[1]

(21)   English   Pre-nominal Q   Post-nominal Q
        all   motun   motwu
        one   han   hana
        two   twu   twul
        three   sey   seys
        four   ney   neys

3.   Two Quantifier Constructions

My account of quantifier agreement in Korean depends on recognizing very different structures for DPs with pre-nominal and post-nominal quantifiers. In particular I propose that a Korean DP with a post-nominal quantifier is a form of small-clause construction in which the quantifier serves as a primary (not a secondary) predicate (22a). By contrast, a Korean DP with a

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[1] There are many languages where post-nominal Qs are morphologically distinct from their pre-nominal counterparts. This is true of Dutch *allemaal* (i) and Mandarine Chinese *dou* (ii), both of which occur in floated positions, but neither of which is generally permitted prenominally (Bobaljik 1998, Hoeksema 1996, Dowty and Brodie 1984).

(i)   a.   De kinderen zijn allemaal gekomen.
           The children are all   come
      b.   * Allemaal (de) kinderen zijn gekomen.
      c.   Alle kinderen   zijn gekomen.
           All the children are come
           'The children have all come.' (Doetjes 1997: 210-11)
(ii) a.   ren   dou zou le
           people all   left Asp
           'The people have all left.'
      b.   suo you de   ren   zou le
           all   FRT people   left ASP
           'all the people have left.' (Dowty and Brodie 1984: 82)

pre-nominal quantifier is a structure of modification, with the quantifier serving as an attributive adjunct (22b).[2]

(22)   a.   [$_{DP}$ [$_{SC}$ [$_{DP}$ haksayng-tul-i] [$_{NP}$ twul-i]] D .]
         b.   [$_{DP}$ [$_{AP}$ twu] [$_{DP}$ haksayng-tul-i]]

In the following sections I will justify these structures.

3.1 The Post-nominal Quantifier Constructions

The exact structure and derivation I assume for Korean post-nominal quantifier constructions is shown below in (23).

(23)   Post-nominal Q
         [$_{DP}$ haksayng-tul-i [$_{D'}$ [$_{SC}$ t [$_{NP}$ twul-i] D]]
              [NOM]   [NOM]

Here the associated nominal *haksayngtuli* and the quantity predicate *twul* begin as a small clause in which the latter is predicated of the former. The associated nominal subsequently raises to Spec of D.

This analysis attributes to Korean post-nominal quantifiers basically the same structure found with English post-nominal adjectives like (24a-c):

(24)   a.   **The vase broken last night** cost $5.
         b.   Max catalogued **the jewels stolen yesterday**.
         c.   Alice talked to **any witnesses present**.

The post-nominal adjectives and their respective subjects presumably form small clauses. The adjectives are predicates of the individuals denoted by the subjects.

Evidence for the small clause analysis of floating quantifiers comes from the fact that quantifiers which cannot float cannot occur in post-copular position.[3]

(25)   a.   *****haksayng-tul-i   on**-i-ta
               student-PL-NOM   all-COP-DECL
               'The students are all.'
         b.   *****Haksayng-tul-i   on-i**   sohwan-toy-ess-ta
               student-PL-NOM all-NOM call-PASS-PAST-DECL
               'All the students were called.'

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[2] Regarding Adjectives, a similar proposal has been made by Cinque (1994). According to Cinque (1994), the syntactic status of adjectives in two different positions is different. It is suggested that pre-nominal adjectives are modifiers whereas post-nominal adjectives are predicates.

[3] According to Bobaljik (1998), the following question is answered: why do only certain universal Qs float (and numerals in Japanese)? The question has an answer at least in Korean. Quantifiers which can occur in post-copular positions can float.

(26)   a.   *__haksayng-tul-i__   __kak__-i-ta
               __student-PL-NOM__   __each__-COP-DECL
               'The students are each.'
        b.   *__Haksayng-tul-i__   __kak-i__   sohwan-toy-ess-ta
               __student-PL-NOM__   __each-NOM__   call-PASS-PAST-DECL
               'Each students were called.'

(27)   a.   *__haksayng-tul-i__   __may__-ta
               __student-PL-NOM__   __may__-DECL
               'The students are each.'
        b.   *__Haksayng-tul-i__   __may-ka__   sohwan-toy-ess-ta
               __student-PL-NOM__   __each-NOM__   call-PASS-PAST-DECL
               'Each students were called.'

When the quantifier *on* occurs in a post-copular position, the sentence is ill-formed as shown in (25a). When it occurs as a floating quantifier, the sentence is ill-formed, as shown in (25b). The same phenomena was found with the quantifiers *kak* and *may* as shown in (26-27). This suggests that two constructions are closely related to each other. A similar phenomenon is found in English adjectives (see Cinque 1994).

(28)   a.   *The indignity, utter and simple
        b.   *The indignity was utter.
               (from Abney 1987: 328)

An adjective which cannot occur in a post-nominal position cannot occur in a post-copular position. Given that the right peripheral position (the right of the nominal) is a predicative one, Korean post-nominal quantifiers are also analyzed as primary predicates.

An additional argument is found in morphological forms of Korean quantifiers. For example, a numeral quantifier *twu* has the same morphological form in post-copular and floated positions, as shown in (29a,b). But it is not the same when it occurs in a pre-nominal position (29c).

(29)   a.   Haksayng-tul-I   __twul__-i-ta
               student-PL-NOM __two__-COP-DECL
               'Students are two.'
        b.   Haksayng-tul-i   __twul-i__   sohwan-toy-ess-ta
               student-PL-NOM __two-NOM__   call-PASS-PAST-DECL
               'Two students were called.'
        c.   __Twu__ haksayng-tul-i   sohwan-toy-ess-ta
               __Two__ student-PL-NOM   call-PASS-PAST-DECL
               'Two students were called.'

3.2 The Pre-nominal Quantifier Constructions

In sharp contrast to the predicate analysis of post-nominal quantifiers, I analyze Korean pre-nominal Qs as modifiers. Observing that Korean attaches adjuncts on the left and following the common assumption that modifiers are adjoined to a maximal projection, the structure of a modifier Q is as in (30).

(30)   Pre-nominal Q
         [$_{DP}$ [$_{AP}$ twu] [DP haksayng-tul-i]]

Evidence for this structure comes from ordering of modifier Qs and attributive adjectives. Consider (31).

(31)   a.   **Yeppun twu** haksayng-tul-i   oa-ss-ta
               Pretty   two student-PL-NOM   come-PAST-DECL
               'Two pretty students came.'
         b.   **Twu yeppun** haksayng-tul-i   oa-ss-ta
               two pretty   student-PL-NOMcome-PAST-DECL
               'Two pretty students came.'

The modifier Q *twu* can precede or follow the adjective *yeppun*. This fact is easily accounted for within the adjunction hypothesis, as adjunction is normally intended to be free (cf., Crisma 1990: 60).

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D-raising and Asymmetric Agreement in French[*]

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1.   French Definite Determiners in Indefinite Contexts

Following (Milner 1978), we can assume that what traditional grammars call partitive constructions and plural indefinite constructions, cf., (1) and (2) respectively:

(1)   J'ai mangé du pain.
        I have eaten of-the bread.

(2)   J'ai des crayons.
        I have of-the pencils.

underlie the same ingredients, as in the partitive configuration in (3):

(3) 0_{CUANT} + de + Det + N
                           le   pain   (cf., (1))
                           the   bread
                           les   crayons   (cf., (2))
                           the   pencils

The two partitive constructions in (1) and (2) feature a definite determiner which does not force a presuppositional interpretation for the DP after *de*. That is, *du pain* and *des crayons* do not need to refer to a known amount of bread or to a known set of pencils. On the basis of this observation, the definite determiner appearing in (1) and (2) can be labeled as expletive. (Milner 1978), as well as (Jones 1996), relate the determiner appearing in the contexts in (1)-(2) to the one occurring in generic contexts, in French, as for instance in (4):

(4)   Les lions sont méchants.
        the lions are mean.

This correlation, although may enlighten the availability of an expletive definite determiner in contexts such as the ones in (1) and (2), leaves a number of obscure points. For instance, in contexts similar to that in (2), such as the one in (5):

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(5)   J'ai acheté beaucoup des livres.
        I have bought many of-the books.

the determiner *les* cannot receive a "generic" interpretation. (5) contrasts with (6) in the relevant interpretation:

(6)   J'ai acheté beaucoup de livres.
        I have bought many of books.

The interpretation of (5) involves a known set of books, whereas that of (6) does not.

On the other hand, the meaning of sentences like that in (6), as well as that of similar DPs in related languages, for instance, the Spanish DP in (7):

(7)   He comprado muchos de los libros
        I have bought many of the books

raises the question of why DPs following partitive *de* cannot get a generic interpretation. Note in this respect that "definite" DPs can get a generic interpretation after *non-partitive de*, as shown in the Spanish example in (8):

(8)   La melena de los leones es encantadora
        the mane of the lions is charming

Putting aside the obligatory non-generic interpretation for the definite DP only in the cases in which an overt quantifier precedes *de*, cf. (7), there are other interesting phenomena involved in these contexts, which will be presented in the following sections.

2.   DPs and Bare NPs in Indefinite Contexts

In the preceding section we considered the obligatory occurrence of an expletive determiner in cases like those in (1) and (2), repeated here under (9) and (10):

(9)   J'ai mangé de *(le) pain
        I have eaten of the bread

(10)   J'ai de *(les) crayons
        I have of the pencils

This expletive determiner may disappear in: a) negative contexts (cf., (11)) and b) in the presence of a prenominal adjective (cf., 12)):

(11)   Je n'ai pas mangé de (le) pain
        I NEG have NEG eaten of the bread

(12)   a.   J'ai acheté de (les) bons crayons.
        b.   J'ai acheté de ?/??(le) bon vin.
             (Milner 1978: 31)

The acceptability of examples like that in (12b) without determiner varies with the examples. Milner (1978: 31) makes the following comment on (12b): "Que dans le second cas (i.e., (12b)), le processus soit archaique et marqué de preciosité, cela attenue mais ne supprime pas la portée du rapprochement."

In the following sections an account will be provided of how the occurrence of a prenominal adjective may condition the occurrence of the particular type of expletive determiner found in the French indefinite constructions discussed here.[1]

3. Configurational Properties of French Expletive Determiners in Indefinite Contexts

Elaborating on the analysis developed in Androutsopoulou (2000b) for Greek determiners, we claim that the expletive determiner in French indefinite constructions such as the one in (1)-(2) is not introduced in the derivation under D, that is in the configuration in (13b), but rather that it is raised to D from a lower position, i.e. following the derivation in (13c):

(13) a. J'ai acheté de (les) bons crayons.
          I have bought of the good pencils.
      b. $[_{DP} [_{D} les] [_{FP}^2 AP [_{F}] [_{NP} [_{N} crayons]]]]$
      c. $[_{DP} [_{D} les_i] [_{DP*3} [_{D*3} t_i] [_{DP*2} [_{AP} bons] [_{D*2} t_i] [_{DP*1} [_{NP_j} crayons] [_{D*1} t_i] t_j]]]]$

DP*s are DP-like functional projections, in the sense that they may host an expletive definite determiner, for instance a pleonastic definite determiner in a Greek DP containing one or more adjectives, or the trace of an expletive definite determiner.[3] DP*s do not host any of the semantic features that are usually associated with D_0.

The contrast between the configurations in (13a) and (13b) allows us to distinguish two types of determiners: the real definite determiner, and the expletive one. We saw in section 2 that the occurrence of expletive determiners obeys some restrictions not holding for full determiners. One of these restrictions involves prenominal adjectives.

4. The Interaction between Expletive Determiners and Prenominal Adjectives in Indefinite Contexts

In section 2, we observed that expletive determiners of the sort considered here may disappear in the presence of a prenominal adjective. It was also observed, however, cf. (12), that in certain cases the elimination of the expletive determiner may yield marginal results. There is a clear contrast in acceptability between the examples in (14):

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[1] With respect to the interaction of negation and the determiner under consideration, i.e. the phenomena illustrated in (11), we have nothing interesting to say at this point.

[2] FP stands for Functional Projection (Cinque 1994).

[3] We refer to examples like that in (i), which in Androutsopoulou 2000b, are assigned the structure in (ii):
      (i)   to kokino   to   vivlio
              the red   the   book
              "the red book"
      (ii) $[_{DP} to_j [_{DP*3} [kokino]_i [_{D*03} t_j] [_{DP*2} t_i [_{D*02} to_k] [[_{DP*1} [_{NP} vivlio]_m [_{D*01} t_k] t_m t_i$
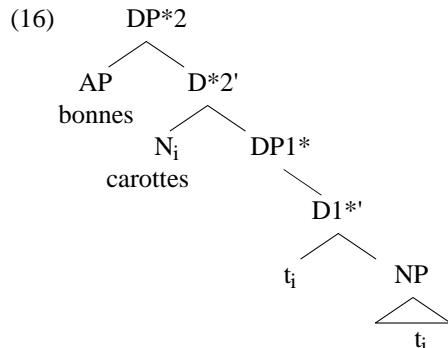
(14)   a.   ??J'ai acheté de bon vin.
                I have bought of good wine.
        b.   J'ai mangé de bonnes carottes.
                I have eaten of good carrot-PL.

We would like to claim that the problem with (14a) lies with the *mass* character of the noun, i.e., *vin*.[4] (14b) shows that when a countable noun is involved, the determiner can be freely eliminated. Note, in addition, that in both cases the version with the expletive determiner is fully acceptable:

(15)   a.   J'ai acheté du bon vin
                I have bought of-the good wine
        b.   J'ai mangé des bonnes carottes
                I have eaten of-the good carrot-PL

Putting the paradigm in (14)-(15) under the perspective of the basic proposal outlined in section 3 (i.e. that the expletive determiner is raised up to D from a projection immediately above NP), we can conclude that a) apart from the derivation in (13c), there is an alternative derivation, which does not involve expletive determiner, and b) that this alternative derivation is blocked in the presence of a mass noun.
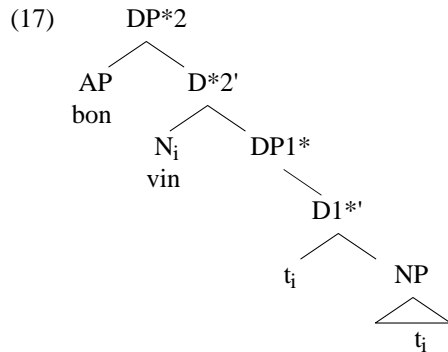
We would like to propose that the alternative derivation in question involves partial N-raising, as shown in (16)[5]:

(16)   DP*2
              /   \
           AP   D*2'
          bonnes   /   \
                 N_i DP1*
               carottes   \
                                D1*'
                               /   \
                             t_i NP
                                      /\
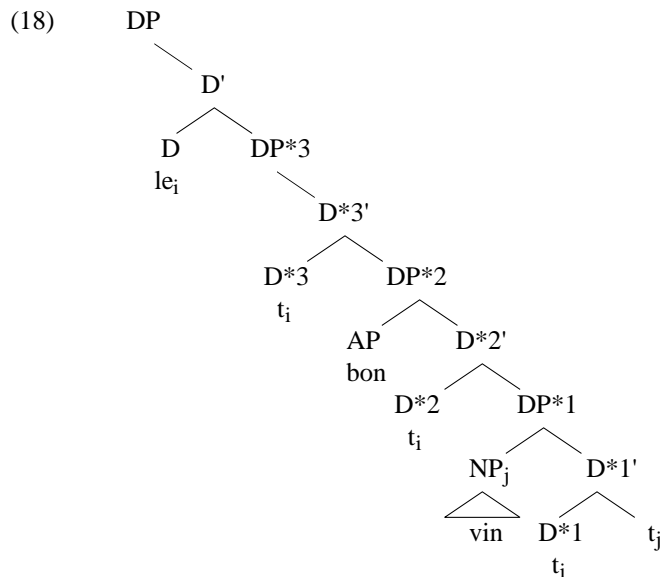 t_i

That is, N is raised up to the projection, i.e., DP*2, where agreement between the adjective and the noun in   -features is checked. We don't have a clear idea of why the insertion of the expletive determiner under D*'1 in the derivation is optional, but we take it to be the case, cf. section 6 for further discussion. The same step in the derivation proposed in (16) for *de bonnes carottes* should in principle be possible for *??de bon vin*:

---

[4] As noted in section 1, traditional partitive contructions with mass nouns have been assimilated to traditional plural indefinite constructions (Milner 1978). We see now that, although these constructions may be very similar from a configurational and perhaps a semantic (cf., Chierchia 1998, who treats mass nouns as semantically plural) point of view, there are significant differences between the two, such as the one in (14).

[5] Partial N-raising is a standard assumption for a number of Romance languages (see Bernstein 1993, Cinque, 1994, Valois 1991, among many others).

(17)

```
              DP*2
            /      \
         AP         D*2'
         bon      /     \
               N_i       DP1*
               vin          \
                            D1*'
                          /      \
                        t_i       NP
                                 /__\
                                  t_i
```

We would like to claim that the derivation of *de bon vin* crashes at the point of the derivation depicted in (17). Mass nouns like *vin* lack a specification for Number, and a proper number form for the agreeing adjective in Spec, DP*2 in (17) cannot be selected. The derivation crashes because agreement in number is not possible. On the other hand, *carottes*, which has a [Number] feature, can agree in all the relevant φ-features with the adjective in Spec, DP*2. The alternative derivation involving generation and raising of an expletive determiner in the case of mass nouns does not encounter the same sort of problems:

(18)

```
     DP
       \
        D'
      /    \
     D      DP*3
     le_i      \
              D*3'
            /      \
          D*3       DP*2
          t_i      /     \
                 AP       D*2'
                 bon    /      \
                     D*2        DP*1
                     t_i       /     \
                            NP_j      D*1'
                            /__\     /    \
                            vin   D*1     t_j
                                  t_i
```

The determiner *le* can enter in an agreement relation with the adjective in Spec, DP*2, and the derivation in (18) goes through. The question that arises now is whether the determiner merged under D*1 must agree in number with the NP (a mass noun) in Spec, DP*1, and if so, why this does not render the derivation illicit. We present an answer to this question in the following section.

4.1 Asymmetric Agreement

The contrast between adjectives and determiners with respect to agreement with the noun, which arose in the preceding section can be accounted for if we assume that the agreement relation is essentially asymmetric. By asymmetric we mean:

(19)   *Principle of asymmetric agreement*
In an agreement relation between two elements   and   , where   is the head and   is the specifier, the set of agreeing features of   must be a subset of the set of agreeing features of   .[6]

According to (19), a head must agree with all the agreeing features of the specifier. Otherwise, the agreeing features of the specifier would not be a subset (not even a non-proper subset) of the agreeing features of the head. In the case under consideration in (17), [Number] is not an agreeing feature on the mass noun, but it is an agreeing feature on the adjective *bon*. Thus, the set of agreeing features on the head *vin*, will be a subset of the set of agreeing features on the specifier *bon*, contravening the principle in (19):

(20)   DP*2
        AP   D*2'
     bon =
             N$_i$ DP1*
            vin =   ⟨…⟩
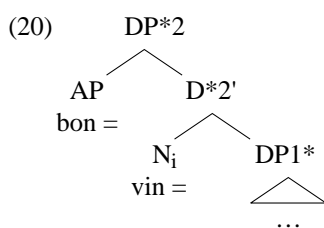
On the other hand, [Number] is an agreeing feature on the determiner *le*, raised to D*2:

(21)   DP*2
        AP   D*2'
     bon =
             N$_i$ DP1*
            le$_i$ =   ⟨…⟩
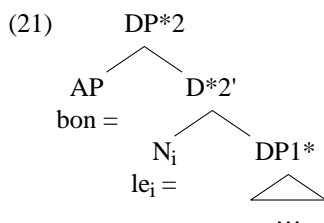
Therefore, the set of agreeing features of   , presumably [Number], [Gender] and [Case], is a subset, although a non-proper one, of the set of agreeing features of the determiner, i.e.   . Finally, the principle in (19) does not rule out a possible agreement relation between N and D under DP*1. We have assumed that the mass noun *vin* is defective with respect to the feature [Number], which means that [Number] is not an agreeing feature of *vin.* However, this is not a problem in the configuration under DP*1, because *le*, which contains a superset of the set of agreeing features of *vin*, is the head in this configuration.
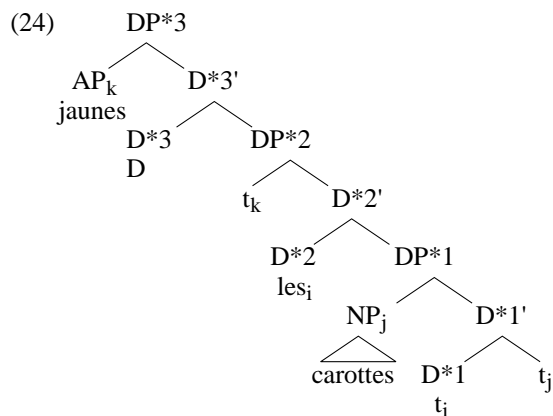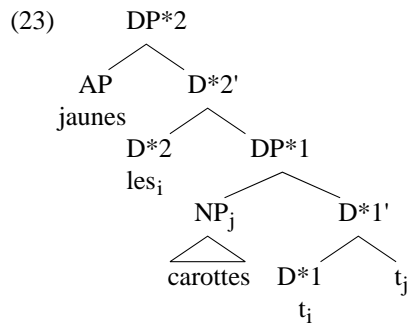
5.   Postnominal Adjectives in Partitive Contexts

We have provided an analysis of the distribution of the expletive determiner of partitive contexts in the cases involving prenominal adjectives. The examples in (22) show that only prenominal adjectives are compatible with determinerless NPs:

---

[6] Chomsky (1998) discusses cases in which a *probe* and a *goal* (a head and a specifier, respectively, in standard terminology) entering into an agreement relation do not have the same number of features and makes use of this fact to allow for a feature not to *erase* and thus, enter in multiple checking relations.
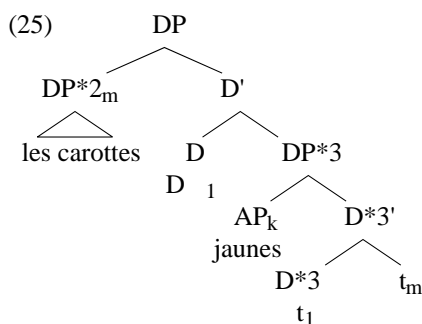
(22) a. *J'ai mangé de carottes jaunes.
    I have eaten of carrot-PL yellow-PL
  b. J'ai mangé de bonnes carottes.
    I have eaten of good carrot-PL
  c. J'ai mangé des bonnes carottes.
    I have eaten of-the good carrot-PL
  d. J'ai mangé des carottes jaunes.
    I have eaten of-the carrot-PL yellow-PL

Thus, with a prenominal determiner like *bon*, the expletive determiner may or may not appear, cf. (22b)-(22c), whereas with a postnominal adjective like *jaune*, the expletive determiner is obligatory, cf. the contrast between (14a) and (22d). Prenominal and postnominal adjectives, then, impose different configurational conditions on the overall structure of the DP, so that the possibility of occurrence of an expletive determiner is affected by these configurational conditions. In fact, the paradigm in (22) cannot be explained if we simply assume that this configurational difference between pre- and postnominal adjectives is just a difference between left versus right adjunction. We would like to outline an account of the effect illustrated in (22) on the basis of a derivational theory of postnominal adjectives. In agreement with the approach in (Kayne 1994), we propose that French postnominal adjectives involve movement of a projection containing the noun from a position lower than the adjective to the left of the adjectival projections.[7] The core idea is implemented for (22d) as shown in (23)-(25):

(23)

$$
\begin{array}{l}
\text{DP*2} \\
\quad \diagdown \\
\text{AP} \quad \text{D*2'} \\
\text{jaunes} \\
\qquad \text{D*2} \quad \text{DP*1} \\
\qquad \text{les}_i \\
\qquad\qquad \text{NP}_j \quad \text{D*1'} \\
\qquad\qquad\quad \diagup\diagdown \quad \diagup\diagdown \\
\qquad\qquad \text{carottes} \quad \text{D*1} \quad t_j \\
\qquad\qquad\qquad\qquad t_i
\end{array}
$$

(24)

$$
\begin{array}{l}
\text{DP*3} \\
\quad \diagdown \\
\text{AP}_k \quad \text{D*3'} \\
\text{jaunes} \\
\qquad \text{D*3} \quad \text{DP*2} \\
\qquad \text{D} \\
\qquad\qquad t_k \quad \text{D*2'} \\
\qquad\qquad\qquad \text{D*2} \quad \text{DP*1} \\
\qquad\qquad\qquad \text{les}_i \\
\qquad\qquad\qquad\qquad \text{NP}_j \quad \text{D*1'} \\
\qquad\qquad\qquad\qquad\quad \text{carottes} \quad \text{D*1} \quad t_j \\
\qquad\qquad\qquad\qquad\qquad\qquad t_i
\end{array}
$$

---

[7] Androutsopoulou (1994) had independently proposed that the noun is preposed via phrasal movement in Greek definite DPs involving postnominal adjectives.

The derivation up to (23) is identical for prenominal and postnominal adjectives. We would like to claim that, at this point, a D feature is introduced in the derivation above DP*2, i.e., under DP*3, and that the spell-out of this D-feature is the adjectival determiner found in languages like Greek or Albanian (Androutsopoulou 2000a). Furthermore, the AP moves to the specifier of the new D*-head, with which it agrees in the relevant -features, as shown in (24):
At this point, D   and DP*2 are raised to the highest DP in the structure:[8]

(25)

```
                    DP
              /            \
        DP*2_m            D'
        /    \          /      \
   les carottes      D        DP*3
                     D   1    /      \
                          AP_k       D*3'
                          jaunes    /      \
                               D*3          t_m
                               t_1
```

The proposed derivation in (23)-(25) entails that Romance languages have a zero D*-head, which corresponds to the adjectival determiners found in other languages, at least in the cases in which the adjectives appear postnominally. Movement of DP*2 to the specifier of DP is only possible if DP*2 is headed by a determiner. If DP*2 is headed by N, then the constituent to be moved has no proper feature specification and therefore, no movement is possible. This distinction is reflected empirically in the fact that postnominal adjectives are incompatible with determinerless DPs in the contexts under discussion, i.e. the ungrammaticality of (22a). What we have in mind here is a "hybrid" derivation which would involve partial N-raising, as in the derivation in (16), insertion of the null expletive determiner D   and movement of the adjective to Spec, DP*3, as in (24), and raising of DP*2, as in (25).

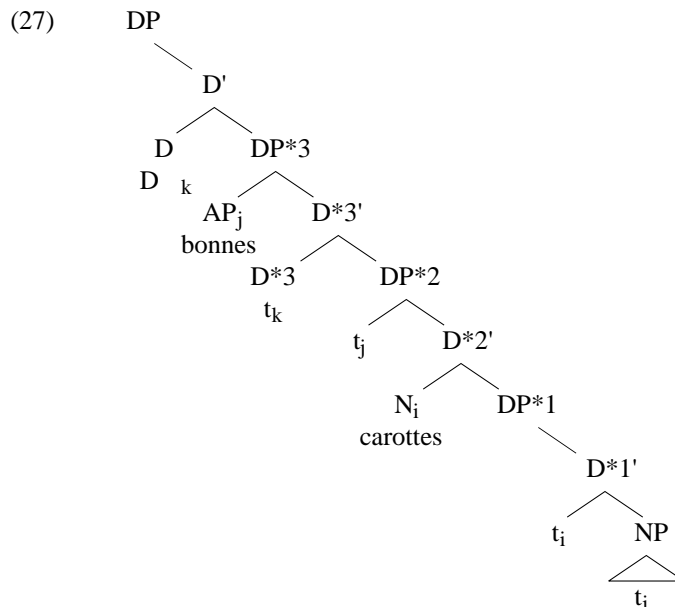## 6.   Determiner Optionality and Adjectival Determiners

In section 4, which deals with French partitives containing an adjective, we assumed that the introduction of an expletive determiner under DP*1 is in principle optional. This optionality is not reflected in data such as those in (26), involving French partitives which do not contain an adjective:

(26)   a.   J'ai mangé du pain.
              I have eaten of-the bread.
        b.   *J'ai mangé de pain.
              I have eaten of bread.
        c.   J'ai mangé des carottes.
              I have eaten of-the carrot-PL
        d.   *J'ai mangé de carottes.
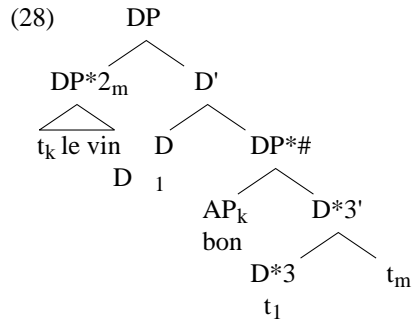   I have eaten of carrot-PL

---

[8]It may be the case that the projection to the specifier and head of which [les carottes] and D   are raised respectively is not DP, that is, the topmost projection of the DP, but yet another DP*, DP*4, immediately dominated by DP. Then, a final step in the derivation would be movement of the article *les* out of [les carottes] to left-adjoin to D0.

The data in (26) seem to indicate that the expletive determiner is not optional, but rather obligatory. In spite of the apparent lack of optionality found in the paradigm in (26), we would like to claim that the insertion into the numeration of an expletive determiner is still optional in principle. The ungrammaticality of the examples without determiner in (26) does not reflect the fact that the occurrence of the expletive determiner is obligatory, but that a derivation not involving a determiner is unavailable. The ungrammaticality of the examples without determiner in (26) has its source in the fact that nouns are not raised up to D in French, presumably because they lack the appropriate categorial D-feature. Consequently, in the absence of a determiner which is generated in a Spec-Head configuration with the noun in a low D(-like) position (the head of DP*2 in our structures) and then is raised up to D, as in (13b) or (18), transmission of   - features from N to D is not achieved. Thus, the presence of the determiner is rendered obligatory. In the sort of structures considered in this paper, N may undergo partial raising up to the adjectival agreement projection, i.e., DP*2, cf. the partial derivation in (16), but not up to D. In fact, the availability of movement to the adjectival agreement position has been interpreted as the source of the contrast between mass and countable nouns in partitive contexts involving prenominal adjectives, cf. (14). The fact that the noun may be raised to a projection under which it enters into an agreement relation with an adjective opens new possibilities for the transmission of   -features from the noun up to D. In other words, the presence of a low D-head which is raised and transmits   -features may be obviated in cases in which the alternative derivation -namely, movement of the noun to the projection (DP*2 in our structures) under which it enters into an agreement relation with the adjective- is possible. Let us consider again in detail the relevant cases.

The contrast in (14) gives us the only case in which the occurrence of the expletive determiner may be obviated, namely, (14b), the case in which the adjective is prenominal and the noun is a countable noun. One might think that the complete derivation of the post-*de* DP in (14b) is as in (27), cf. also (16):

(27)   DP
            \
              D'
             / \
            D   DP*3
           D $_k$ / \
              AP$_j$ D*3'
              bonnes   / \
                    D*3   DP*2
                    t$_k$ / \
                         t$_j$ D*2'
                              / \
                            N$_i$ DP*1
                          carottes   \
                                      D*1'
                                      / \
                                    t$_i$ NP
                                          /\
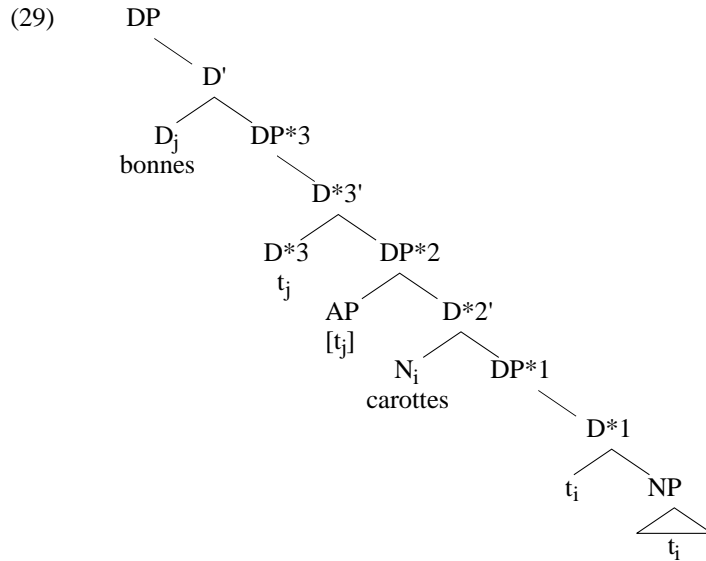   t$_i$

The derivation in (27) combines the one in (16) and that in (25). It provides a framework flexible enough to derive prenominal and postnominal adjectives with the desired properties with respect to the occurrence of expletive determiners in indefinite contexts. However, it fails to provide a configurational characterization distinguishing prenominal from postnominal adjectives. Both types of adjectives move to Spec, DP*2, agree with the noun or an intermediate expletive determiner, and finally move to Spec, DP*3 and agree with the null adjectival determiner. Consideration of the derivation in (28) lends support to the suggestion that an adequate treatment of the set of constructions under discussion must involve a different characterization of prenominal and postnominal adjectives:

(28)

```
              DP
          ╱       ╲
    DP*2ₘ          D'
    ╱  ╲         ╱    ╲
 tₖ le vin    D       DP*#
             D 1     ╱    ╲
                  APₖ      D*3'
                  bon     ╱    ╲
                       D*3      tₘ
                        t1
```

The string resulting from (28), i.e., *du vin bon*, is ungrammatical. Nothing said so far rules out (28). The expletive determiner can be licensed under DP*1, then be raised to the head of DP*2 where it agrees with the adjective. After the movement of the adjective to Spec, DP*3, the determiner, pied-piping the NP, moves to Spec, DP.

We would like to propose, following the analysis of Greek adjectival modification in (Androutsopoulou 2000b), that prenominal adjectives differ from postnominal ones as follows: prenominal adjectives move to the head of D*'3 and subsequently to D. Accordingly, the structure in (27) should be revised as in (29):

(29)

```
    DP
      ╲
       D'
      ╱   ╲
    Dⱼ     DP*3
  bonnes     ╲
             D*3'
            ╱    ╲
          D*3     DP*2
           tⱼ    ╱    ╲
                AP      D*2'
                [tⱼ]   ╱    ╲
                     Nᵢ      DP*1
                  carottes     ╲
                               D*1
                              ╱   ╲
                            tᵢ     NP
                                    ╲
                                    tᵢ
```

If we think of the movement of A to the head of DP as a substitution movement, which among other consequences, renders the head of DP inert with respect to its ability to attract a constituent to its specifier, then the derivation in (30) is ruled out, cf. (28). DP*2 cannot move to Spec, DP because it is not attracted by any relevant head:

(30) $[_{DP} [_{DP*2} t_k$ le vin$]_m [_D$ bon$_k] [_{DP*3} [_{D*3} t_k] t_m]]$

We have proposed that in the general case, prenominal adjectives end up as heads, as in English, whereas postnominal adjectives are specifiers throughout the whole syntactic derivation. This squares well with independent properties distinguishing prenominal from postnominal adjectives; for instance, Romance prenominal adjectives, in contrast to postnominal ones, cannot take complements. There is one case in which prenominal adjectives may stay in a specifier position. The cases in which the expletive determiner is raised up to D from DP*1, cf., (18). That is, cases like *du bon vin* or *des bonnes carottes*.

7.   Conclusion

We have provided an account of the distribution of expletive definite determiners in French indefinite contexts based on the idea that this type of determiner is generated low within the DP and is raised up to D. The introduction of this determiner is optional, and in the general case it mediates the transmission of nominal features up to D. This expletive determiner may be absent only if there is a prenominal adjective and the noun is a countable one. To account for this case, we have claimed that there may be partial N-raising to a projection in which N agrees with the prenominal adjective. This agreement relation enables the transmission of nominal features up to D. In addition, we have derived the particular behavior of postnominal adjectives which do not allow determinerless DPs in the contexts under consideration by means of DP-internal XP-movement.

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Inflected Complementizers and the Licensing of Non-referential Pro-drop[*]

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1. Introduction

The present paper examines the licensing of null subjects in German and Icelandic. On the basis of data from West Flemish and Bavarian I argue that the pro-drop pattern of German and Icelandic should not be linked to licensing by the complementizer.

The alternative analysis proposed here holds that Icelandic is a restricted pro-drop language while German does not license null subjects at all. What appear to be null subjects in German, in particular the subjects of impersonal passives, are argued to be null cognate objects that must remain in direct object position.

2. The Problem

As is well known, some Germanic languages license a limited range of null subjects. Icelandic has null quasi-arguments and expletive pronouns (see (1)) while German has been analysed as having null expletive pronouns (see (2)) (Safir 1985, Grewendorf 1990).

(1) a. *expletive pro*
         I dag hafa *pro*   veridh   nokkrir kettir i eldhusinu.   (Ice)
         *I dag hafa thad   veridh   nokkrir kettir i eldhusinu.
         today have expl   been   some cats in the-kitchen   (VP-internal subject)
         (from Vangsnes 1999)
     b. *quasi-arg pro*
         Rigndi   *pro*   igaer?   (Ice)
         *Rigndi thad   igaer?
         rained   expl   yesterday
         ‘Did it rain yesterday?’   (weather pro)

In the literature these examples have been analysed as instances of pro-drop licensed by the complementizer. Holmberg and Platzack (1995: 111) assume that Icelandic licenses quasi-

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argumental pro since the C° can identify the feature [number] while German can only license an expletive pro since the C° has no feature content (cf., Cardinaletti 1990 for German).

(2)   *expletive pro*
         a. weil [IP *pro* um sechs Uhr gegessen wurde].   (Ge)
             since   at six o'clock eaten   was
             'since dinner was at six o'clock.'   (impersonal passive)
         b. weil [IP *pro* [VP dem Kind   ein Buch   geschenkt wurde]].   (Ge)
             since   the child.dat a book.nom   given was
             'since a book was given to the child.'   (VP-internal subject)

(3)   a. Icelandic: C identifies [number]   --->   quasi-arg *pro* ok
                                                             expletive *pro* ok
         b. German: C doesn't identify [number]   --->   quasi-arg *pro* *
                                                             expletive *pro* ok

This difference in feature-content on C° is then responsible for the contrast between German and Icelandic concerning the subject of weather verbs, the prototypical quasi-argument:

(4)   a. *Rigndi   pad igaer?   (Ice)
             Rigndi   igaer?
             rained   expl yesterday
         b. Regnete es   gestern?   (Ge)
             *Regnete   gestern?
             rained   expl yesterday
             'Did it rain yesterday?'   (weather *pro*)

According to this analysis, the partial pro-drop in Germanic is licensed by an instance of limited, abstract complementizer-agreement (*C°-agreement*). In what follows I will show that the data from two Germanic languages that display *overt* C°-agreement, namely Bavarian and West Flemish, do not support this analysis.

3. C°-agreement and Non-referential Pro-drop in West Flemish and Bavarian

West Flemish has referential null subjects licensed by C°-agreement. The paradigm of C°-agreement distinguishes all person/number-combinations (cf., Law 1991, Haegeman 1992).

(5)   a. K weten dan-k   (ik)   goan weggoan.   C°+ 1sg   (WFl)
             I know that-I   I   go   leave
             'I know that I am going to leave.'
         b. K weten da-j   (gie)   goat weggoan.   C°+ 2sg
         c. K weten da-se   (zie)   goat weggoan.   C°+ 3fsg
         d. K weten da-tje   (jij)   goat weggoan.   C°+ 3msg
         e. K weten da-me   (wunder)   goan weggoan.   C°+ 1pl
         f. K weten da-j   (gunder)   goat weggoan.   C°+ 2pl
         g. K weten dan-ze   (zunder)   goan weggoan.   C°+ 3pl
         h. K weten da   Jan   goat weggoan.   C°+ NPsg (Jan)
         i. K weten dan   Jan en Pol goan weggoan.   C°+ NPpl (Jan en Pol)
             (from Law 1991: 254, citing Haegeman 1992)

Quasi-arguments and expletives cannot be null however: the subjects of weather verbs, extrapositions and impersonal passives have to be lexical (L. Haegeman, p.c.):

(6)   a.   K   weten dat   et   regent   (WFl)
          *K   weten dat   regent
          I   know that   expl rains
          'I know that it rains.'   (weather verb)
      b.   K   weten dat et   moeilijk is vur en appartement te vinden.   (WFl)
          *K   weten dat   moeilijk is vur en appartement te vinden.
          I   know that expl difficult is for an appartement to find
          'I know that it's difficult to find an apartment.'   (extraposition)
      c.   K   weten dat   er   gedanst is.   (WFl)
          *K   weten dat   gedanst is.
          I   know that   expl danced is
          'I know that there was danced.'   (impersonal passive)

Bavarian also licenses referential null subjects by inflection on the complementizer; the inflectional paradigm on the C° is more restricted than in West Flemish, however: only the 2nd person sg/pl pronouns can be null (Bayer 1984).

(7)   wenn-st *pro* kummst.   (Bav)
      when.2sg   come.2sg
      'when you.sg come'
      (from Bayer 1984: 31)

Again, like in West Flemish, C° in Bavarian does not license null subjects for weather-verbs (J. Bayer, p.c.):

(8)   Da Hans   beibt dahoam wei 's   regnet   (Bav)
      *Da Hans   beibt dahoam wei   regnet
      det Hans   stays at-home because expl   rains
      'Hans stays at home because it rains.'   (weather verb)

Bavarian contrasts with West Flemish with respect to the impersonal passive: in Bavarian a lexical expletive is impossible with this construction (compare with (6c)).

(9)   Heid   schlaffa olle a so lang   (Bav)
      today   sleep   all so long
      wei (*'s)   gestan   bis in'd Fruah   g'feiat   woan is
      because expl   yesterday until the early morning partied   been is
      'Today everyone is sleeping so long because the party went on till late at night.'
                                                            (impersonal passive)

The data from West Flemish and Bavarian can be summarised as follows:

(10)   a.   The West Flemish and Bavarian paradigms of *overt* C°-agreement do not license
            quasi-argumental pro.
       b.   The richness of the overt C°-agreement is not correlated with the possibility of
            having an empty expletive subject.

With respect to expletives, West Flemish behaves like Dutch in requiring an overt subject *er*, 'there', with impersonal passives and an overt *et*, 'it', for weather-verbs. In Bavarian the C°-agreement is *less* distinctive than in West Flemish; nevertheless Bavarian permits a null subject in impersonal passives just like Standard German. Since Dutch and Standard German do not have any overt C°-agreement the fact that West Flemish and Bavarian behave like Dutch and Standard German respectively suggests that the decisive factor in licensing the empty subject in Bavarian and German is independent of C°-agreement.

4. The Analysis

The West Flemish and Bavarian data show that the paradigms of overt C°-agreement do not license quasi-argumental *pro* (weather *pro*, e.g.). It therefore seems implausible to assume that abstract inflection on C° should license quasi-argumental *pro* in Icelandic.

In what follows I first motivate a modification of Rizzi's theory of pro-drop: I show that the content identification of null pronouns has to be related to its referential status, not to the type of th-role. I then propose an alternative account of the contrast between Icelandic and German with respect to null subjects. Finally, I present some evidence that the behaviour of C°-agreement is an instance of a more general phenomenon, namely that given *non-finite* licensing categories referential null pronouns are less marked than their quasi-argumental and expletive counterparts.

4.1 Licensing of Pro-drop

Since Rizzi (1986), it has been generally accepted that null pronouns are subject to two separate licensing requirements:

(11)   a.   **formal licensing**: *pro* is governed by $X^{\circ}y$
               (where X° is a governing head of type *y*) (Rizzi's (40), 1986: 519).
        b.   **content identification**: Let X be the licensing head of an occurrence of *pro*:
               then *pro* has the grammatical specification of the features on X coindexed with
               it (Rizzi's (41), 1986: 520).

More specifically, Rizzi (1986: 543) proposes the following conditions for the identification of the content of empty categories.

(12)   **Content identification** (Rizzi 1986):
        a.   referential :   identify the feature [person]
        b.   quasi-arguments :   identify the feature [number]
        c.   expletives :   no features need to be identified

This typology implies a hierarchy of empty categories according to which any language capable of identifying referential null subjects should also admit quasi-argumental and expletive pro-drop. The content identification in (12) is based on the assumption that null pronouns will pattern together depending on the type of th-role assigned to them (a full th-role, a quasi-th-role, no th-role), so that Rizzi's systeme implies the following hierarchy:

(13)   Pro-drop hierarchy: referential *pro* ---> quasi-argumental *pro*   ---> expletive *pro*
                               (full th-role)   (quasi-th-role)   (no th-role)

The pro-drop patterns of partial pro-drop languages like Finnish and Modern Hebrew show, however, that the possiblity of having a null pronoun is not a function of the th-role assigned to the pronouns.

As discussed in Holmberg and Nikanne (1994), Finnish 1st and 2nd person pronouns can be dropped, while 3rd person pronouns have to be lexical: (For different analyses of the contrast between 1st/2nd and 3rd person pronouns see e.g., Holmberg and Nikanne (1994, to appear), Shlonsky (1997)).

(14)   a.   (Minä) ostin kirjan.   (Fi)
              I bought-1sg book
        b.   (Sinä) ostin kirjan.
              you.sg bought-2sg book
        c.   *(Hän) ostin kirjan.
              (s)he bought-3sg book
        d.   (Me) ostimme kirjan.
              We bought-1pl book
        e.   (Te) ostitte kirjan.
              you.pl bought-2pl book
        f.   *(He) ostivat kirjan.
              they bought-3pl book
              (from Holmberg and Nikanne 1994)

I want to focus on the behaviour of arbitrarily interpreted pronominals. The arbitrary pronoun takes 3rd person morphology but does not pattern with the referential 3rd person pronouns. In fact, arbitrary pronominals—which bear a full th-role—are null:

(15)   Metsästä   löytää   helposti mustikoita   (Fi)
        forest-elative   find.3sg easily   blueberries-partitive
        'One finds blueberries easily in the forest.'
         (from Vainikka and Levy 1999)

This particular patterning of arbitrary pronominals can also be found in Modern Hebrew. Modern Hebrew allows pro-drop for the 1st and 2nd person pronouns, but referential pro-drop is limited to the future and in the past tense (c.f., Borer 1980, 1986, 1989, Shlonsky, 1997).

(16)   ti-xtov   (MH)
        2m.sg/3f.sg will-write
        'You-ms will write.'
        *'She will write.'
        (from Shlonsky 1997)

(17)   *arbitrary pro +present:*
        moxrim   Sam   kartisim.   (MH)
        sell[benoni]-3m.pl there tickets
        'They(arb) sell tickets there.'   (arb pro)
        (from Shlonsky 1997)

Modern Hebrew shows particularly clearly that arbitrary null pronominals do not pattern with the fully referential personal pronouns: although the present tense does not license 1/2/3 person pro-drop, arbitrary null pronominals are allowed as in (17) above.

In both Finnish and Modern Hebrew the subject of weather verbs—the prototypical quasi-argument—is also null:

(18)   *atmospheric pro:*
         a.   (Se) sataa.   (Fi)
              it   rains
              (ex 1b., H&N))
         b.   kar   (MH)
              (it is)   cold
              (from Shlonsky 1997)

The distribution of arbitrary null pronominals in Finnish and Modern Hebrew suggests that the availability of null subjects depends on the referential status of the pronouns: arbitrary null pronominals carry a full th-role, but they resemble weather-subjects in that they are not fully referential. Following Shlonsky (1997), I will refer to null arbitrary pronominals and null subjects of weather predicates as *quasi-referential pro-drop*. I further want to suggest, that the subjects of weather-verbs and arbitrary pronominals pattern together:

(19)   If the subjects of weather-verbs are null then *arbitrary* null subjects are licensed, too.

4.2. The Contrast between Icelandic and German

Given this modified typology of null subjects, I propose that the contrast between Icelandic and German can be accounted for by the following assumptions: (i) Icelandic allows quasi-referential null subjects, and (ii) German does not allow null subjects at all. This analysis implies in particular that there cannot be any null expletive subjects in German.

4.2.1 Expletive pro

Rejecting the existence of null expletive subjects in German might seem contradictory with the fact that in German NP subjects may occupy several syntactic positions. In particular with *werden*-passives the nominative NP may stay in a VP-internal position. The possibility of having multiple positions for the subject-NP and the existence of an expletive *pro* are not directly linked, however. The link between the two properties requires several additional assumptions:

(20)   (i)   **Nominative assignment and expletive chains**:
               There is a designated subject position (spec IP) that receives nominative case.
               Subject NPs in a position other than spec IP have to form an expletive-associate
               chain with an expletive in spec IP (to receive case).
               If there is no visible expletive, the expletive-associate chain is formed with a
               null expletive.
         (ii) **EPP**: Spec IP must be filled.

Since I reject the existence of expletive pro, I cannot assume that nominative assignment proceeds via expletive-associate chains. Following Borer (1986) I will assume that nominative assignment is due to a co-indexation relation between the inflection and the nominative subject. This then implies that subjects in non-canonical positions need not enter into an expletive chain for case reasons.

Once expletive-associate chains are set aside, only the EPP forces the existence of an empty expletive. Several authors have proposed that the EPP does not necessarily require the filling of the designated subject position (Nash and Rouveret 1996, Speas 1995). I will follow essentially a proposal in Holmberg and Platzack (1995), and assume that the EPP-requirement can be met in two ways: (i) either by insertion of a lexical expletive in the designated subject position, or (ii) by V-movement to I°.

If there are no null subjects in German, we need an alternative account for the German example (2a) that has no surface subject. Following Dobrovie-Sorin (1986, 1998) I assume that the passivisation of intransitives relies on the projection of a null cognate object.

(21)   [CP Hier   wird [IP [VP *cog* gebaut.]]]   (Ge)
            here   *werden.3sg*   built
        'Here is built. = Here there is building going on.'

The null inner object *cog* is licensed in its base position in the impersonal passive (see (22a.)), in parallel with the lexical subject of a *werden*-passive (22b).

(22)   a.   [CP Hier wird [IP   [VP *cog*   gebaut.]]]   (Ge)
        b.   [CP Hier wird [IP   [VP **ein Haus**   gebaut.]]]
                 here wird   a house   built

Under this analysis an impersonal passive always appears in a construction licensing a VP-internal subject. When an expletive appears it is not the subject of the impersonal passive: its appearance is conditioned by the syntax of constructions with a VP-internal subject.

This analysis then integrates the generalisation of Vikner (1995) stating that languages that allow impersonal passives also allow personal passives with VP-internal subjects (Vikner's *impersonal passive transitives*). In languages where the spec IP position is necessarily filled, impersonal passives and VP-internal subjects of passives should appear with the *same* expletive. The Mainland Scandinavian languages (illustrated here by Danish) confirm this expectation:

(23)   a.   ... at der blev spist et aeble   (Da)
                 that expl was eaten an apple
                 '... that there was eaten an apple.'
        b.   ... at der er blevet danset
                 that expl is been danced
                 '... that there was dancing going on.'
                 (from Vikner 1995)
        c.   [CP [C' at [IP der [I' [VP V **et aeble**]]]]]   (see (23a))
             [CP [C' at [IP der [I' [VP V *cog*   ]]]]]   (see (23b))

In Icelandic a personal passive with the nominative NP in object position does not allow a lexical expletive in spec IP. Correlatively the impersonal passive — which I claim to be an instance of the same construction — does not have a lexical expletive in spec IP.

(24) a. Igaer   var bordhadh   epli   (Ice)
          yesterday was eaten   an apple
          'Yesterday was eaten an apple.'
      b. Igaer   hefur   veridh dansadh
          yesterday is   been danced
          'Yesterday was dancing going on.'
          (adapted from Vikner, 1995)
      c. [CP Igaer [C'   [IP [I' [VP V   **epli**]]]]]   (see (24a))
          [CP Igaer [C'   [IP [I' [VP V   *cog*]]]]]   (see (24b))

Vikner analyses impersonal passives as having an expletive associate-chain between the expletive and the passive morpheme. Notice that this analysis supposes a difference between personal and impersonal passives: while in impersonal passives like (23a) the expletive forms a chain with the passive morphology and thereby with the *external* argument, the personal passive in (23b) relies on a chain between the expletive and the *internal* argument of the underlying verb. The present analysis differs from Vikner's proposal in several ways.

First, the two proposals presuppose different analyses of passivisation. Vikner follows Jaeggli (1986), Baker, Johnson and Roberts (1989) in assuming that the passive morpheme realises the external th-role. Under this type of analysis the unifying feature of personal and impersonal passivisation is the absorption of the external th-role by the passive morphology, or in more theory-neutral terms, the demotion of the subject. The analysis proposed here does not assume that the external th-role of the passivised verb is realised in the syntax. The unifying feature of personal and impersonal passivisation is taken to be the promotion of the underlying object (Perlmutter and Postal 1977, Dobrovie-Sorin 1986). Secondly, unlike Vikner's analysis, the present analysis does not assume expletive-associate chains. Thirdly, according to the analysis proposed here the examples (23a) and (23b) are taken to be completely parallel: in both structures the promoted object of the passive is realised in VP-internal position, while the expletive (if it appears) fills the spec IP position for independent reasons.

4.2.2 Atmospheric pro

Under the proposed analysis the null subjects of weather verbs in Icelandic are a case of quasi-referential *pro*-drop:

(25) Rigndi *pro* igaer?   (Ice)
      rained   yesterday
      'Did it rain yesterday?'   (weather *pro*)

In section 4.1. I have argued that quasi-argumental *pro* and arbitrary pronouns pattern together. The analysis of Icelandic as a quasi-referential pro-drop language is therefore supported by the fact that Icelandic also satisfies (19) allowing arbitrary subjects:

(26)　*arbitrary pro:*
    a.　Var oft komidh seint heimm.　(Ice)
       Was often come late home.
       'People/we (etc) often came home late.'
    b.　'Eg vissi ekki adh aetti adh fara svona oft til Graenland.　(Ice)
       I knew not that should to go so often to Greenland.
       'I did not know that one should go so often to Greenland.'
       (exs (3) and (27a) from Sigurdhsson 1990)

4.2.3 Summary

I have proposed an analysis of German null subjects that does not assume empty expletives: impersonal passives are analysed as having empty VP-internal subjects corresponding to the cognate object of the underlying verb. The assumption underlying this analysis is that the possiblity of projecting an object position is common to all unergative verbs (c.f., dummy reflexives in English resultatives *He drank himself silly*, cognate objects *He lives the life of Riley*). The compatibility of unergative verbs with a transitive structure is independent of the possibility of having null subjects (c.f., English).

According to the analysis presented here German allows superficially subjectless constructions since the direct object NP in *werden*-passives can be assigned nominative in VP-internal position. So under a conjunction of particular circumstances, the null cognate object — that I take to be available crosslinguistically — can function as the nominative subject of the clause. Under the analysis proposed here, German is not a null subject language since it does not allow null external arguments. According to the present analysis a language that allows null external arguments allows at least quasi-referential null subjects.

If this is correct, there are three types of languages:

(27) a.　Languages in which the designated subject position has to be filled (EPP)
       (e.g., Mainland Scandinavian).
    b.　Languages in which the designated subject position does not have to be filled
       (no EPP/EPP satisfied by other means). Here two cases are possible:
       (b.i)　Languages in which the lexical subject has access to several syntactic
            positions (e.g., German).
       (b.ii)　Languages in which allow null subjects to varying degrees (e.g.,
            Icelandic (quasi-referential pro-drop), Finnish (partial pro-drop),
            Spanish (full pro-drop)).

Notice that in analyses that recognize an empty expletive, the types b.i. and b.ii. of the above typology are collapsed.

4.3 Licensing of pro-drop by a Non-finite Category

We have seen in West Flemish and Bavarian that given an inflected C° the licensing of referential null pronouns does not imply the licensing of expletive or quasi-referential null pronouns (going against the pro-hierarchy in Rizzi 1986). This seems to be part of a more general phenomenon:

(28)   The licensing of non-referential null pronouns by *non-finite* categories (i.e., other than the finite verb) is more restricted than pro-drop licensed by the finite verb.

The data from West Flemish and Bavarian presented above point to this conclusion and in the next section I will present further evidence from Modern Hebrew.

4.3.1 Modern Hebrew

The Modern Hebrew inflected negation particle also displays restrictions on non-referential null subjects (Shlonsky 1997). As the following example illustrates, the inflected negation particle *?eyn* is compatible with referential null pronouns of the 1st and 2nd person:

(29)   *?eyn* -(en)i/ -xa/ -ex/ -enu kotev/et/im sipurim.   (MH)
         neg-1sg /2msg/2fsg/1pl write(benoni)-m.sg/f.sg/pl stories
         'I/you.m/you.f/we do not write stories.'
         (from Shlonsky 1997))

The third person cannot be dropped even though the agreement on the particle is unambiguously 3msg:

(30)   * *?eyn* -o kotev sipurim.   (MH)
         neg 3m.sg write(benoni)-m.sg stories
         'He doesn't write stories.'
         (from Shlonsky 1997)

Given that for the 1st and 2nd person null pronouns are possible, a null pronoun must be formally licensed in configurations with *?eyn*. Even though formal licensing is available, however, the nominal inflection on the negation particle *?eyn* cannot be expletive or quasi-referential (Shlonsky 1997: 140ff):

(31)   Inflected *?eyn*:   (MH)
         a.   *   *?eyn* -an   mitxolelot   kan sufot.
              neg-3fpl occur(benoni).fplhere storms
              'Storms don't occur here.'   (DP-expletive)
         b.   *   *?eyn* -o   kaSe   li-lmod polanit.
              neg 3msg   difficult to-learn Polish
              'It isn't difficult to learn Polish.'   (CP-expletive)
         c.   *   *?eyn* -am   dofkim   ba-delet.
              neg 3mpl   knock(benoni).mpl on-the door
'   No one is knocking on the door.'   (existential arb *pro*)
         d.   *   *?eyn* -am   ma?arixim   ?et ha-truma   Sela.
              neg-3mpl value(benoni).mpl acc   the-contribution her
              People don't value her contribution.'   (universal arb *pro*)
         e.   *   *?eyn* -o kar.
              neg-3mg cold
              'It isn't cold.'   (atmospheric *pro*)
              (from Shlonsky 1997)

The negative particle in Modern Hebrew therefore furnishes an additional example of a pro-drop pattern licensed by a non-finite category where expletive and quasi-argumental pro-drop more marked than quasi-referential pro-drop.

4.3.2 Finiteness and Non-referential pro-drop

If the present interpretation of the Modern Hebrew data turns out to be correct, then Modern Hebrew provides another instance of the generalization in (28). This would then suggest that the two licensing conditions proposed by Rizzi are not sufficient to account for the distribution of referential and quasi-referential pro-drop. In particular, finiteness might have a role to play in the account of the licensing of quasi-referential pro-drop.

5. Conclusion

I have presented data from West Flemish and Bavarian that show that overt C°-agreement does not license non-referential *pro*-drop. Consequently, I have argued that the null subjects in German and Icelandic should not be analysed as instances of pro-drop licensed by abstract C°-agreement. Under the alternative analysis proposed here Icelandic allows quasi-referential (but not expletive) pro-drop. The null subjects in impersonal passives in Icelandic as well as in German result from two factors (i) unergative verbs project a direct object position when in combination with passive morphology, and (ii) the null cognate object can be assigned nominative VP-internally. Finally, I have presented another construction where given a non-finite licensor the non-referential null subjects do not seem to be the unmarked case. This evidence has led me to the conclusion that finiteness might be crucial in licensing non-referential pro-drop.

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Hybrid Agreement in English[*]

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1. Introduction

Agreement, generally referring to a systematic covariance between two separate elements such as noun and verb, can be found in most languages. As noted by Corbett (1994), the agreement rule can be commonly represented in the form of `X agrees with Y in Z'. For example, the statement in (1) could be an English agreement rule:

(1)   The predicate verb (agreement target) agrees with the subject (agreement controller) in the agreement features (number and person).

English obeys such a simple agreement rule in general, but issues arise when the agreement features expressed by the morphology of the agreement source (e.g., subject) do not match those in the agreement target (e.g. verb). Examples like (2) contradict the rule in (1):

(2)   a.   This government have broken their promises.
        b.   Five miles is a long distance to walk.

Here in (2a) the subject is in the singular, yet the verb is plural. (2b) is the opposite: we have a plural subject and a singular verb. In addition, we can observe that the number value on the determiner this and five in both cases mismatches the value on the verb. This paper aims to provide a constraint-based analysis for such mismatch cases where a noun requires one set of agreement features on the determiner whereas the NP headed by this noun triggers a different set of agreement features on verbs or co-referential pronouns (cf., Kathol 1999, Wechsler and Zlatic 2000).

There exist two main accounts of agreement set forth so far: `derivational' and `constraint-based' approaches (cf., Pollard and Sag 1994). The derivational view accepts a directional process that either copies, or moves bundles of agreement features from the agreement controller onto the target. More specifically, within the framework of Principles and Parameters or Minimalism, subject-verb agreement comes out as the result of two operations as represented in (3): the

agreement relation between the subject in Spec of Agr_sP and the Agr_s head, and then the realization of the features of Agr_s on the verb. This realization results either from incorporation of V into Agr_s in syntax or directly in lexicon with the features for a morphological checking process (cf., Belletti 2001).

(3)   AgrP

    NP   Agrs'

        Agrs   …

            …   VP

                V   …
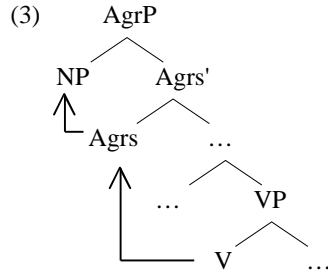
Meanwhile, in the constraint-based view, the two elements in an agreement relation specify partial information about a single linguistic object. Consider the tree representation in (4):

(4)   S

            PER 3rd   VP
    1 NP
            NUM sng |

                                 V
        A boy

                    PER 3rd
    SUBJECT ⟨1 NP   ⟩
                    NUM sng

                        |
                     swims
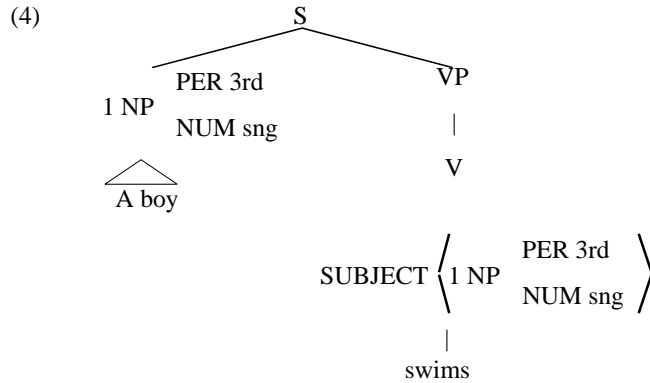
The system in (4) requires that the agreement feature on the controller subject be compatible with the feature of the subject that the verb selects. Agreement is thus just nothing more than a system of constraints requiring token identities on the subject. In such a constraint-based view, there is no directional process between agreement source and target.

The common denominator of these derivational and constraint-based approaches is to view that English agreement is relevant to only one component of the grammar (e.g., either syntax, or semantics, or pragmatics). This paper argues that contrary to such autonomous approaches, interrelationships among different grammatical components play crucial roles in English agreement (cf., Kathol 1999 and Hudson 2000). In particular, we propose that English determiner-noun agreement is morphosyntax-based whereas both subject-verb and pronoun-antecedent agreement are reflections of index agreement, which is relevant to semantics (cf., Pollard and Sag 1994).

2.   Three Views of Agreement

2.1 Against a Purely Syntactic View

In a purely syntactic view, phrases inherit agreement information from their lexical heads just as they inherit information about case or verb form. It is not difficult to find cases where such a conventional wisdom runs a problem. For example, consider the examples in (5):

(5)   a.   The hash **browns** at table nine are/*is getting cold.
          b.   The hash **browns** at table nine is/*are getting angry.
             (Nunberg 1977)

When (5b) is spoken by a waiter to another waiter, the subject is referred to a person who ordered the hash browns. A similar case is found in (6):

(6)   King prawns cooked in chili salt and pepper was very much better, a simple dish succulently executed.
       (Biber et al. 1999: 187)

Here the verb form is singular to agree with the dish being referred to, rather than with the individual prawns in the subject position. If we simply assume that the subject phrase inherits the morphosyntactic agreement features of the head noun *(hash) browns* in (5b) and *(King) prawns* in (6) and require that these features match those of the verb, we would not predict the singular verb form in these examples.

Examples with singular plural subject also show a conflict between the morphosyntactic agreement features of the subject NP and those that the singular verb normally demands for its subject.

(7)   a.   Cherry cokes is the most popular drink here. (Reid 1991:194)
          b.   The professional ethics arises from the requirement that analysis be unbiased.
             (Biber et al. 1999)

In the examples (7), the subjects are morphologically plural whereas the verb is singular.

Another apparent exception to the syntactic rule is found with collective nouns. Examples in (8) display a mismatch of the morphosyntactic agreement features between the target and the source.

(8)   a.   The government are planning new tax increases.
          b.   The faculty are all agreed on this point.

When morphologically singular collective nouns such as *government* and *faculty* denote individual members of the group, they could be conceptualized as a plurality, thus agree with a plural verb. This agreement pattern could not be predicted if we simply rely on the morphosyntatic agreement features.

2.2 *Against a Purely Semantic View*

The examples we have seen so far may support a semantic based view of agreement. That is, one could argue that agreement is determined by the properties of a nominal referent rather than by the formal or morphological properties of the nominal itself (cf., Dowty and Jacobson 1988). In addition to the previous examples, cases supporting a semantic view seem to be prevalent. Consider the examples in (9):

(9)   a.   John and only John is allowed in here. (Corbett 1994: 58)
       b.   This bomber and its cargo probably weighs over a hundred tons.
            (Biber et al. 1999: 180)

The conjoined NP in (9a) and (9b) has a single referent in terms of semantics and so the verb is in the singular form. In a semantic view, this is simply so because the subject refers not to a single individual but to plural individuals.

However, a semantic view also suffers from problems because of cases that require to make an appeal to syntactic factors too (as noted in Corbett 1994 and Barlow 1988: 227). Consider the examples in (10):[1]

(10)   a.   I am parked on the hill.
       b.   You are the only one that can do this job.

The intended referent of the subject *I* in (10a) is clearly a car, a third singular individual in terms of semantics, yet the verb isn't in the third person verb form. Similarly, the verb form in (10b) that goes with the pronoun *you* always has to be plural in spite of the clear singularity of the subject in terms of semantics.

A similar problem arises from cases with pronoun-antecedent agreement. In the semantic view, the noun *family* would denote either an aggregate entity or a nonaggregate entity and thus can combine with either a singular or a plural verb as illustrated in (11):

(11)   a.   His family are/*is all overweight.
       b.   His family is/*are moving to Seoul.

This view would then possibly predict cases like (12) where the speaker changed the individuation mode of the collective noun *Senate*:

(12)   **The Senate** just voted **itself** another raise. Most of **them** were already overpaid to
       begin with.
       (Pollard and Sag 1994: 72)

Nothing will block the referent of the Senate from being changed from singular to plural entities. As noted in P&S-94, however, such a change is subject to syntactic conditions. As illustrated in (13), we can observe that once the mode of individuation is decided, it is immutable within the intrasentential domain.

(13)   a.   That dog is so ferocious, it even tried to bite itself.
       b.   That dog is so ferocious, he even tried to bite himself.
       c.   *That dog is so ferocious, it even tried to bite himself.
       d.   *That dog is so ferocious, he even tried to bite itself.
            (P&S-94)

The reflexive noun in (13) has to agree in gender with the matrix subject, the controller of the VP. This implies that we cannot simply resort to the denotational possibilities when syntactic

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[1]See footnote 4.

constraints (such as the Binding Principle) determine the antecedent for the agreeing element. This implies that English agreement needs to make an appeal to syntax also.

2.3 A Purely Index Agreement Approach

2.3.1 How This System Works

In solving the problems within the syntactic view and the semantic view, P&S-94 provides an appealing analysis of index agreement. Index agreement involves sharing of referential indices, closely related to the semantics of a nominal as represented in (14):

(14)

⟨boy⟩

$$
\text{CONTENT} \quad \text{INDEX 1} \quad
\begin{array}{l}
\text{PER 3rd} \\
\text{NUM sing} \\
\text{GEN masc}
\end{array}
$$

In the interpretation of a nominal, the index must be anchored to an individual in the context of utterance, to make sure of its proper usage in the real world. The index of *boy* in (14) thus must be anchored to an individual with the properties of singular masculine.

Meanwhile, a verb lexically specifies information about the index value of the subject it selects, as represented in (15):

(15)

⟨swims⟩

$$
\text{HEAD} \quad
\begin{array}{l}
\text{verb} \\
\text{VFORM fin}
\end{array}
$$

$$
\text{SUBJ} \, \langle \text{NP} \, [\text{nom}] \, 1 \rangle
$$

$$
\text{CONTENT} \quad
\begin{array}{l}
\text{RELN swim} \\
\text{SWIMMER 1} \quad
\begin{array}{l}
\text{PER 3rd} \\
\text{NUM sing}
\end{array}
\end{array}
$$

In this system, subject-verb agreement is the structure-sharing between the index values of the subject and those of the NP that the verb selects. For example, the verb *swims* in (15) selects a subject with the index value of 3rd singular. Thus, if this verb combines with a subject with the incompatible index value, we generate an ungrammatical example like *The boys swims*, as illustrated in (16).

(16)

$$
\begin{array}{c}
\text{*S} \\
\diagdown
\end{array}
$$

$$
\text{SUBJ} \, \left\langle \, 2 \, \text{NP} \,
\begin{array}{l}
\text{PER 3rd} \\
\text{NUM sng}
\end{array}
\right\rangle
$$

```
        NP                          VP

          PER 3rd
   INDEX
          NUM  pl
         ⌒                           |
        the boys                     V

                            [ SUBJ  < NP > ]
                                     |
                                   swims
```
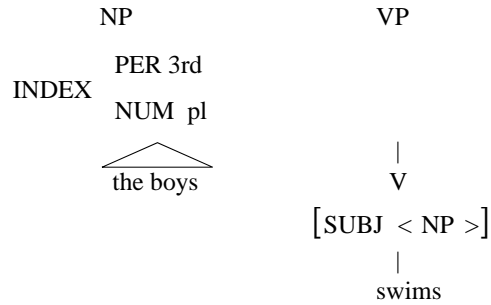
Such an index agreement analysis could account for the problematic cases within a purely syntactic or semantic analysis. For example, in cases with reference transfer repeated in (17), the relevant NP will introduce the transferred referent by anchoring conditions.

(17)   a.   The hash **browns** at table nine are/*is getting cold.
        b.   The hash **browns** at table nine is/*are getting angry.

Unlike the situation in (17a), the referent of *hash browns* in (17b) has been transferred from vegetables to one restaurant customer who ordered them. This will allow the subject NP to be anchored to a third singular individual, as represented in (18):

(18)

⟨hash browns⟩

```
                          PER 3rd
              INDEX 1
                          NUM sing

   CONTENT              ⟨ RELN  restaurant - customer           ⟩
              RESTR ⟨                        PER 3rd            ⟩
                        INSTANCE 1
                                             NUM sing
```

In the same manner, we could account for the singular plurals cases in (19).

(19)   Eggs is my favorite breakfast.

The index value of the noun *eggs* here is anchored to an entity that bears a singular number value. Thus the singular verb *is,* selecting a 3rd singular subject, can combine with the singular plural subject.

Collective nouns can refer to either the group as a whole or individual members of the group, depending on context, as in (20):

(20)   a.   The family has suffered the anguish of repossession.
        b.   The family are absolutely devastated. They are coping as well as possible.
              (Biber et al. 1999)

The index value that the noun *family* in (20a) and (20b) anchors to can be either singular or plural as represented (21a) and (21b), respectively. The analysis, combined with the independent principle of the grammar, also explains the matching condition on the agreement features between the verb and a reflexive pronoun as given in (22).

(21)   a. *family* (in 20a)

$$\text{CONT}\quad\text{INDEX 1}\quad\begin{bmatrix}\text{PER 3rd}\\\text{NUM sing}\end{bmatrix}$$

        b. *family* (in 20b)

$$\text{CONT}\quad\text{INDEX 1}\quad\begin{bmatrix}\text{PER 3rd}\\\text{NUM pl}\end{bmatrix}$$

(22)   a.   The faculty is voting itself/*themselves a raise.
        b.   The faculty are voting *itself/themselves a raise.

What we observe in (22) is that the number value of the anaphor matches that of the verb. The matching condition between the index value of the subject and the anaphor is conditioned by the Binding Principle stating that a reflexive pronoun must be bound by a preceding argument of the same verb[2]. (23) is the argument structure of the verb *vote*.

(23)

$$\langle\text{vote}\rangle$$

$$\text{AGR - S T}\langle\text{NP}i,\ \text{NP}[\text{ana}]i\ /\ *j,\ \text{NP}\rangle$$

The coindexation indicates that the two NPs denote the same entity, thus they exhibit a form of agreement with the same values for PERSON, NUMBER, and GENDER (cf. Sag and Wasow 1999:152).

2.3.2 Problems

Attractive as it may seem, such an index agreement approach suffers from problems in examples like (24):

(24)   a.   [Five pounds] is/*are a lot of money.
        b.   [Two drops] deodorizes/*deodorize anything in your house.
        c.   [Fifteen dollars] in a week is/*are not much.

---

[2]This could be reformulated as 'a reflexive pronoun in the argument-structure must be outranked by a coindexed element'(see Sag and Wasow 1999).

      d.   [Fifteen years] represents/*represent a long period of his life.

      e.   [Two miles] is/*are as far as they can walk.

In all these measure noun examples, the plural subject combines with a singular verb. An apparent conflict arises from the agreement features of the head noun. For the proper agreement with the determiner, the head noun has to be plural, but for subject-verb agreement the noun has to be singular. We cannot simply reclassify nouns such as *pounds, drops, dollars, years, miles*, etc, as singular, since this would then result in the mismatch with the determiner. There is no doubt that such nouns select plural determiners since we cannot have phrases like *a pounds, *this years or *one dollars*.

A similar conflict is also found in cases with social organization collective words like (25) (data from Radford 1988).

(25)   a.   [This/*these government] dislike(s) change.

         b.   [This/*these England team] have put themselves in a good position to win the championship/has put itself in a good position to win the championship.

Here, the head noun has to be singular so that it can combine with a singular determiner. But the conflicting fact is that the singular noun phrase can combine even with a plural verb as well as a singular verb. Since the only possible number value of the determiner is singular for the head noun, the head noun cannot be anchored to plural entities unless we allow the mode of individuation to be changed even within the same sentence domain.

3. Proposal: A Hybrid Analysis

To solve such a mismatch, we claim that English determiner-noun agreement is simply a reflection of morphosyntactic agreement features between determiner and noun, whereas both subject-verb agreement and pronoun-antecedent agreement are index-based agreement as represented in (26):

(26) Morpho-syntatic agreement (AGR)

Det   head-noun   verb...

Index agreement (INDEX)
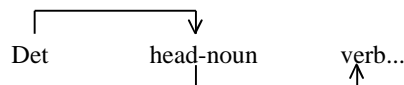
To be more precise, adopting the idea of Kathol's (1999) and Wechsler and Zlatic's (2000), we assume that a noun has two distinct features relevant to agreement: AGR and INDEX. The feature AGR is morpho-syntactic feature specifications encoded both on the source (noun) and on the target (verb) under the HEAD feature whereas the INDEX is semantic-based features on nominals.

As for determiner-noun agreement in English, the only relevant information would thus be morphosyntactic NUMBER value as shown in (27):[3]

---

[3] To be more precise, we also need to specify the feature COUNTABLE on nouns and determiners to predict data such as *much furniture/*many furniture, many apples/*much apples,* etc.

(27)   a.   every man/*every men
        b.   *all man/all men
        c.   this boy/*these boy

The matching conditions of the agreement features on the determiner and the head are enforced by the lexical selection of the head noun (cf. Sag and Wasow 1999). For example, the noun *man* will have the lexical information given in (28):

(28)

$$\langle man \rangle$$

SPR ⟨DetP [AGR 1]⟩

           noun

   HEAD

         AGR 1 [NUM sing]

   SPR ⟨DetP [AGR 1]⟩

As in (29), the noun *man* is morphologically singular and selects a determiner phrase whose morphological agreement information is compatible with its own. This lexical entry will then allow us to generate a structure like (29):

(29)   NP
                          �
              DetP   N
    [HEAD [AGR 1 [NUM sng]]]   [SPR < 2 DetP [AGR 1] >]
            | |
          this   man
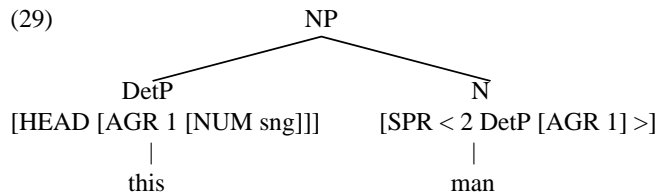
`Though a singular determiner such as *a* and *this* is lexically specified with a singular NUMBER value, determiners such as *the, his* and *no* have no specification on the value. This will allow expressions like *the boy* and *the boys, his book* and *his books*.

Unlike determiner-head noun agreement, subject-verb agreement is based on the semantic features of the nominal, INDEX, rather than on the morphosyntactic features, AGR. The feature structure in (30) represents the lexical information of the verb *swims*.

(30)

NUM sing

⟨swim⟩

HEAD
$$\begin{bmatrix} \text{verb} \\ \text{AGR} \begin{bmatrix} \text{PER 3rd} \\ \text{NUM sing} \end{bmatrix} \end{bmatrix}$$

SUBJ ⟨ NP 1 ⟩

CONTENT
$$\begin{bmatrix} \text{RELN swim} \\ \text{SWIMMER 1} \begin{bmatrix} \text{PER3rd} \\ \text{NUM sing} \end{bmatrix} \end{bmatrix}$$

The lexical entry in (30) tells us that the agreement target, verb, contains the information that covaries with the information specified on the selected category, which is the index value of the agreement source, subject. The lexical information given in (30) will then project the structure in (31):

(31)

S

1 NP   INDEX i
$$\begin{bmatrix} \text{PER 3rd} \\ \text{NUM sng} \end{bmatrix}$$

$$\begin{bmatrix} \text{SUBJ} \langle \text{ 1 NPi} \rangle \end{bmatrix}$$

A boy

V
[SUBJ < 1 < NPi >>]

swims

As represented in (31), the only requirement on subject-verb agreement is the identity on the index value, unlike determiner noun agreement.

In the normal case, morphosyntactic AGR features and INDEX features are identical. But nothing blocks mismatches between them as long as all the other constraints are compatible. Basically, English allows such a mismatch with a restricted set of nouns that can be anchored either to a singular or a plural individual as we can observe from the following contrast:

(32)   a.   Five books *is/are all I need.
         b.   Five dollars is/*are all I need.

Armed with this view of English agreement, we are now ready to account for mismatch cases. First, consider cases with measure nouns repeated here in (33).

(33)   a.   [Five pounds] is/*are a lot of money.
         b.   [Two drops] deodorizes/*deodorize anything in your house.

The nouns *pounds* and *drops* here are morphologically plural and thus can select a plural determiner as argued so far. But when these nouns are anchored to the group as a whole, its index value has to be singular, as represented in (34):

(34)

⟨pounds⟩

HEAD
    noun
    AGR 1 [NUM plur]

SPR ⟨DetP [AGR 1]⟩

CONT | INDEX [NUM sng]

This explains why the verb needs to be singular. This analysis also could account for the mismatch in collective nouns one of whose examples is repeated in (35):

(35)   [This/*these government] dislike(s) change.

More precisely, we could represent the relevant information of the expressions participating in these agreement relationships as in (36):

(36)   a.

⟨this⟩

HEAD
    det
    AGR [NUM sng]

b.

⟨government⟩

HEAD
    noun
    AGR [NUM sng]

CONT | INDEX 1 [NUM plur]

c.

⟨dislike⟩

HEAD
    noun
    AGR [NUM plur]

VAL | SUBJ ⟨NP [INDEX 1 [NUM plur]]⟩

As represented in (36a) and (36b), *this* and *government* agree each other in terms of the morphosyntactic agreement number value whereas the index value of *government* is token-identical with that of the subject that the verb *dislike* in (36c) select.

Such an analysis will also capture the variation of the verb depending on the context.

(37)   a.   Five boys count the money.
        b.   Five boys counts as one team.
              (Reid 1991: 331)

The head noun has a morphologically plural AGR value but could either be anchored to multiple boys conceived as discrete entities or a group of five boys as a whole.[4]

One immediate consequence of this analysis is that it solves the contrast between *faculty*-type collective nouns (e.g. *staff, clergy, nobility, peasantry, aristocracy,* etc)) and *family*-type collective nouns (e.g. *committee, government*) in a straightforward manner. The clear difference between the these types is signalled by the contrast between (38b) and (39b) (data from P&S-94):

(38)   a.   Every faculty meets/*meet on a monthly basis.
        b.   All faculty *is/are required to submit midterm grades.
        c.   All faculties *meets/meet on a monthly basis.

(39)   a.   Every family gets/*get together for the holidays.
        b.   All family *is/*are asked to bring a dessert or a salad.
        c.   All families are asked to bring a dessert or a salad.

As pointed out in P&S-94, one could argue that *faculty*-type nouns can be anchored to either a singular index or plural indices, whereas *family*-type nouns denote entities that are individuated as nonaggregate. This would account for the contrast. But then an issue arises from examples like (40), which the P&S-94 analysis left unresolved.

(40)   John's family are/*is destroying themselves.

P&S-94 hints that *John's family* might be transferred from a nonaggregate to the aggregate entity. But then a question arises why we couldn't apply the identical reference transfer for *all family*, allowing examples like (39b).

But notice that our hybrid analysis provides a straightforward solution. In terms of the morphosyntactic AGR feature, [*every faculty*] and [*all faculty*] are both acceptable since [*faculty*]

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[4]This analysis raises questions for examples like : *I am parked on the hill.* In such so-called predicate transfer examples, subject-verb agreement is solely based on the morphosyntactic agreement features, as can be seen from the ungrammaticality of **I is parked on the hill*. No semantic factors work here. One putative solution we adopt is that pronouns are peculiar in that when a verb selects a pronoun as its subject, the verb's morphosyntactic AGR value should agree with the INDEX value of the pronouns: no mismatch is allowed. The existence of such a constraint could be supported from the illformedness of examples like **Dana was parked on the hill and wouldn't turn over.* See PS-94 for some discussion.

can have either plural or singular morphosyntactic number AGR feature. But the situation is different in *family*: this noun can bear only the singular morphosyntactic AGR feature. The expression *[*all family*] is thus simply unacceptable because of the mismatch in the morphosyntactic number value of the AGR between it *all* and it *family*. Examples like (40a) are acceptable since there is no mismatch in the morphosyntactic AGR value between *John's* and *family*: *John's family* has a plural index value and thus combines with the plural verb.

This analysis also provides a proper treatment of pronoun-antecedent agreement which is also index-based, rather than morpho-syntax-based.

(41)   a.   This England team has put itself/*themselves in a good position to win the championship.
          b.   This England team have put themselves/*itself in a goodposition to win the championship.

In accordance with the Binding Principle, the reflexive has to be bound by a preceding argument of the same verb in the argument structure. This in turn means that the binder and the reflexive are coindexed.

(42)

$$\langle\text{put}\rangle$$

$$\text{ARG - S T}\langle\text{NP}i, \text{ NP [ana]}i_{*j}, \text{ PP}\rangle$$

In (41a) the head noun *team* has to have a singular index value for subject agreement. This requires any reflexive noun in the same argument structure to have the singular index value too. Meanwhile in (41b), the verb is plural, implying that the subject is anchored to individuals of the group. This mode of individuation cannot be changed, thus requiring a 3rd person plural reflexive pronoun.

4   Conclusion

In sum, I have claimed that English employs morphosyntactic agreement for determiner-head noun agreement and index agreement for subject-verb and antecedent-pronoun agreement. This approach, based upon a constraint-based grammar, allows agreement targets such as head noun and verb to contain the information that covaries with the information specified on the selected category. This way of agreement makes explicit what kinds of features are involved for each agreement pattern.

This paper shows that the interaction of different components of the grammar plays a crucial role in English agreement phenomena. In particular, once we allow morphology tightly to interact with the system of syntax and semantic knowledge, we can provide a solution to some puzzling English agreement phenomena. This results in a more principled theory of English agreement.

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Coordination of Word Parts is Interpreted at Surface Level[*]

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1. Coordination of Parts of Words

In this paper I argue that coordination of parts of words, as in (1) below, has to be interpreted at the level of the visible string; as a consequence, the semantics must assign separate meanings to the word parts *ortho*, *perio*, and *dontists* (an orthodontist is a specialist in straightening teeth; a periodontist specializes in gum disease).

(1)   ortho and periodontists

The evidence comes from the interpretation of plural morphology. Specifically, the NP *ortho and periodontists* is not synonymous with *orthodontists and periodontists*. Suppose that Bill is an orthodontist and Martha is a periodontist; then sentence (2) below has a reading on which it is true, whereas sentence (3) does not have a true reading.

(2)   Bill and Martha are ortho and periodontists.

(3)   #Bill and Martha are orthodontists and periodontists.

The relevant structure for the interpretation of *ortho and periodontists* must therefore be different from that of *orthodontists and periodontists*. Notice that the contrast between (2) and (3) is similar to the contrast between (4) and (5) below: only the former receives a coherent reading.

(4)   Konishki and Takanohana are heavy and light sumo wrestlers.

(5)   #Konishki and Takanohana are heavy sumo wrestlers and light sumo wrestlers.

The contrast above is the result of a difference in syntactic representation: in sentence (4) the coordinate adjective *heavy and light* modifies the head noun, and the resulting NP is the predicate; sentence (5) has as its predicate a coordinate noun phrase, whose meaning cannot apply to the subject.

Drawing on this parallel, we conclude that in (1) the conjunction *and* operates on the word parts *ortho* and *perio*. The structure relevant to interpretation must therefore be (6), with coordination at the surface level, rather than a structure like (7), where the visible string is the result of deletion at PF (Booij 1985).

(6)   [ortho and perio]dontists

(7)   [ortho~~dontists~~] and [periodontists]

The challenge, then, is to provide a semantics for word parts that will allow us to interpret structures like (6) with the correct truth conditions. I propose that such a semantics can be formulated through the use of decomposition (Artstein 1999), where the meanings of *ortho* and *dontist* are derived from the meaning of *orthodontist* (this is unrelated to the term "lexical decomposition" as used, for example, in Dowty 1979). In a construction like (6), the conjuncts denote strings of sounds, and the remnant is a function from sounds to word meanings (I use the term *remnant* to mean the part which lies outside the coordinate structure, as in Okada 1999; the same term in Booij 1985 means something else). The ordinary interpretation of conjunction allows the combination of these denotations and results in the correct meanings for the full NPs.

The semantics will be developed in section 3. Before that, in section 2, I will make a much more detailed argument in favor of adopting a surface coordination account rather than a deletion account. Finally, section 4 looks at the phonological constraints on the coordination of word parts; these are important because in numerous cases (for example **straw and cranberries*) coordination is ruled out by the phonology even though the semantics yields a coherent meaning.

2.   Against a Deletion Account

The interpretation of number, in particular contrasts such as the one between (2) and (3), suggests that structures like (1) should be interpreted at the level of the visible string. Booij (1985) gives a different account for similar facts in Dutch and German: he proposes that structures that appear as coordination of word parts are the result of a language-particular rule of phonological deletion, which does not affect interpretation. In this section I review his arguments and show why an account of surface coordination is better motivated (the non-English examples below are all in Dutch).

Booij's first arguments come from the observation of the following construction.

(8)   het verschil tussen een derde- en een zesdeklasser
           the difference between a third and a sixth-former

One problem with a surface interpretation of the above sentence is syntactic: the sentence contains an apparent instance of coordination of non-constituents, *een derde* and *een zesde*. But while many syntactic theories do not recognize these strings as constituents, there are others that

do, for example combinatory categorial grammar with functional composition (Ades and Steedman 1982; Steedman 1985, 1987). And however we allow the syntax to generate sentences like (8), the semantics is capable of interpreting such structures at surface level by means of functional composition or, equivalently, lambda abstraction. Besides, the syntactic problem with (8) is not particular to the coordination of parts of words: suppose we agreed that the NP *a yellow and a red cabinet* involved deletion; would this entail that also the NP *yellow and red cabinets* involves deletion? At best, sentence (8) provides an argument for deletion in this particular construction; no conclusions can be made about coordination of parts of words in general.

A second argument for deletion in (8) has to do with the semantics of number. Booij notes that the preposition *tussen* 'between' requires a plural complement, whereas on a surface interpretation its complement would be interpreted as singular because of the singular head *klasser*. This point is valid; however, I suggest that the reason (8) appears to have a plural interpretation for an NP headed by a singular noun has to do with the fact that 'third former' and 'sixth former' are kind terms. Similar things happen in the purely phrasal domain: sentence (9) is much more readily understood as choosing between kinds of cabinets rather than actual ones; sentence (10), where a kind interpretation is unlikely, is severely degraded.

(9)   I must choose between a yellow and a red cabinet.

(10)   *I am standing between a yellow and a red cabinet.

I do not have an explanation for why kind terms should behave differently than referring nominals, and allow an NP headed by a singular noun to receive a plural interpretation. Note that if we accept a deletion analysis for sentences like (9) and (10) we will have the opposite problem, of explaining why a referential interpretation is not available. The problem raised by (8) has to do with the interpretation of number on kind terms in general; since number is generally understood better for referential NPs, I think the facts actually support the surface coordination hypothesis, rather than deletion.

Yet another argument in favor of the deletion hypothesis comes from the compositionality of meaning. Booij shows that coordination of parts of words is possible when the relation between the lexical meanings of the morphemes is fairly opaque.

(11)   schei- en natuurkunde 'chemistry and physics'
        (literally: 'analysis and nature knowledge').

(12)   wis- en sterrenkunde 'mathematics and astronomy'
        (literally: 'sure and stars knowledge').

A related argument comes from cases where the coordinated parts form lexical items of different categories.

(13)   leer- en handboeken 'textbooks and handbooks'
        (literally: 'learn and hand books').

Booij argues that the deletion hypothesis predicts the correct meaning for the above constructions, whereas interpretation of the visible structure would result in an incomprehensible

meaning for (11) and (12), and a syntactic violation in (13)—the coordination of a verb and a noun. The argument thus rests on some implicit assumptions of limits on the power and flexibility of the semantics and the syntax.

An alternative view is offered by Moortgat (1987): the conjunct stems are converted into modifier bound morphemes through a category-changing rule; this takes care of the syntactic objection. Moortgat offers a semantics to go with his rule, but it only works for fairly transparent cases. The semantics I propose in this paper yields the correct interpretation even for the most opaque cases, because it treats the conjuncts as parts of words and derives their meanings through decomposition of the words they are parts of.

Booij's final argument for deletion is strictly morphological. Certain Dutch compounds have "linking phonemes": when *wesp* 'wasp' forms a compound with *steek* 'sting', an additional schwa appears between the two morphemes: wesp**e**steek; similarly, zon**s**verduistering 'sun-eclipse' contains a linking [s]. When such morphemes are coordinated, the linking phonemes are retained.

(14)   wesp**e**- en bij**e**steken 'wasp and bee stings'

(15)   zon**s**- en maan**s**verduisteringen 'solar and lunar eclipses'

The linking phonemes form a unit with the preceding morpheme; Moortgat (1987) incorporates this as part of his morphological operation, which serves to identify the conjuncts as bound forms. Booij argues that it is impossible to have a morphological rule that inserts the linking phoneme in (14) and (15), since coordinated minimal projections (words) are inaccessible to such rules. For example, the cardinal number *drie-en-zestig* 'sixty three' is a coordinate structure; from it we derive the ordinal *drie-en-zestigste* 'sixty third', where the first conjunct retains its cardinal form, rather than **derde-en-zestigste* (cf., *derde* 'third').

This argument shows that the coordinate structures in (14) and (15) cannot be derived from the bare noun coordinations *wesp en bij* and *zon en maan* through a morphological operation like the one that derives the ordinal *drie-en-zestigste* from *drie-en-zestig*. Prosodic facts support this claim: Booij notes that in coordinate structures like (14) and (15), each of the conjuncts receives a pitch accent; this is not the case with *drie-en-zestigste*. Booij also gives examples of compounds like *kat-en-muis-spelletje* 'cat-and-mouse-game', which he claims is an instance of surface coordination; while he does not give prosodic information about this kind of compound, the hyphens in the orthography suggest that the entire compound forms a single pitch domain. I thus agree with Booij, that the morphological and prosodic data show that (14) and (15) are not formed by morphological compounding to a bare coordinate structure.

However, to turn this observation into an argument against surface coordination in general, we must assume that compounding to a bare coordinate structure is the only way to get the surface strings in (14) and (15). An alternative assumption is that the constituents *wespe- en bije-* and *zons- en maans-* are generated as coordinations of bound morphemes; this is expected, since only the bound forms can be interpreted as parts of words, and thus have the right meaning to combine with the meaning of the head.

So far I have shown that the arguments in favor of the deletion hypothesis are not convincing; in turn, I provided one argument—the interpretation of number marking—that supports the surface

coordination hypothesis. But there is a much more fundamental reason for favoring a surface coordination analysis over one of deletion.

Booij's rule of deletion includes two components: on the one hand there are prosodic requirements on the surface conjuncts as well as on the deleted element, and on the other hand the deleted element must be adjacent to a conjunction. Booij notes that prosodic restrictions alone are not sufficient, since they do not predict the following contrast.

(16)   de land- en de tuinbouw 'the agriculture and the horticulture'

(17)   *de land- met de tuinbouw *'the agriculture with the horticulture'

Booij sees this as evidence for the existence of rules that refer to both syntactic structure and prosodic structure, and thus go against a model like that of Selkirk (1980), which strictly separates the syntactic and prosodic domains. However, a question which is not addressed is why this particular deletion rule should exist and not, say, a rule that allowed phonological deletion, under identity, subject to adjacency to a preposition. Indeed, if the deletion rule has nothing to do with the meaning of conjunction, then we should expect that a language should be possible where constructions like (16) are bad, but constructions like (17) are grammatical! I feel that such a language would be highly unlikely; the deletion analysis does not shed any light on this matter.

The contrast between (16) and (17) follows naturally however from the surface coordination analysis. Coordination operates on a multitude of syntactic categories, and has a semantic interpretation suitable for many semantic types; on the other hand, prepositions like *with* are much more restricted in terms of the syntactic and semantic elements they can combine with. We know this from the phrasal level: it is possible to say *big and small monkeys*, but not **big with small monkeys* (note that the meaning 'big monkeys with small monkeys' is perfectly coherent). The reason is that *big* and *small* supply meanings that can combine with the meaning of *and*, but not with that of *with*. An analysis that explained the contrast by deriving *big and small monkeys* from *big monkeys and small monkeys* through deletion of *monkeys*, stipulating that such deletion is possible in adjacency to *and* but not *with*, would be missing the mark.

The meanings I develop in section 3 interpret coordinate parts of words as strings of sound. These are individual objects, and their conjunction is a plural object. However, there is no way to modify a string of sound using a preposition like *with*, so the contrast between (16) and (17) receives a straightforward explanation. We do not need a stipulative rule that links the phonological constraints on the coordination of word parts to a particular syntactic environment; rather, the availability of free standing word parts in coordinate structures but not in other environments follows from the semantics of coordination.

The semantics I propose eliminates the stipulative syntactic part of the deletion rule. What remains of it are the prosodic requirements on the coordination of parts of words. Here too I will show that this is no different than the phrasal level: the prosodic requirements boil down to general minimality constraints on the size of free standing syntactic elements. All words and phrases are big enough to stand in a coordinate structure, so they satisfy the constraints automatically; parts of words can only enter such a construction if they reach a minimal size. The phonological restrictions will be discussed in section 4.

3.   A Decompositional Semantics for Coordination

The semantics I develop will need to interpret structures like (6), repeated below, and assign them a meaning different from (18).

(6)   [ortho and perio]dontists

(18)   orthodontists and periodontists

The difference between the two NPs is that (6) can denote a pair of people, one of whom is an orthodontist and the other a periodontist, while (18) cannot denote such a pair: it can either denote a pair of people who are each both an orthodontist and a periodontist, or a group of people of whom at least two are orthodontists and two periodontists. The source of the difference is the location of plural morphology—there's one plural morpheme on the entire NP in (6), whereas in (18) there's a plural morpheme on each conjunct. A semantics that explains this contrast thus has to include two distinct components: a theory of meanings for parts of words and an underlying theory of coordination and plurality. I start with an outline of the latter.

Coordination and plurality are treated much the same way as in Artstein (forthcoming). The following two assumptions are crucial in deriving the contrast between (6) and (18).

(19)   Plural morphology is interpreted literally as semantic plurality: morphologically
           plural expressions only include pluralities in their extension.

(20)   The conjunction *and* can receive a cumulative (plural-forming, "non-Boolean")
           interpretation.

The literal interpretation of the plural morphemes ensures that each conjunct in (18) will be instantiated by at least two individuals. I assume a structured domain of individuals, where plural objects are of the same type as singular individuals, namely type *e* (Leonard and Goodman 1940; Link 1983); the domain of individuals has the structure of a free *i*-join semilattice (in the terms of Landman 1991), which is isomorphic to a structure where plurals are freely formed sets of individuals. My claim is that expressions that bear plural morphology only include plural objects in their extensions. The word *orthodontists* is thus the closure under plural formation of singular *orthodontist*, minus the singular individuals (21). I use direct interpretation and set notation in my representation; in the metalanguage AT is a function which returns the set of atomic individuals that make up a plural object, and PL is the set of all plural objects (individuals that are not atomic).

(21)   [[orthodontists]] = { | PL   AT( ) [[[orthodontist]]]}

The claim that plural expressions only include plural objects in their denotation is not uncontroversial; due to the lack of space, I refer the reader to Artstein (forthcoming) for further discussion (a similar claim is made by Chierchia 1998).

As for the interpretation of coordination I will assume, following Link (1983), that when *and* coordinates individuals of type *e* it can denote the join operation on the domain of individuals. The NP *Bill and Martha* can thus denote a plural object, the join of Bill and Martha; I use the symbol   in the metalanguage to stand for the join operator.

(22) $[[$Bill and Martha$]] = [[$Bill$]] \oplus [[$Martha$]]$

This plural-forming conjunction is argued to apply in the nominal domain, at least for referring nominals (Hoeksema 1988). We also need plural-forming conjunction for common nouns, which are of type et: an object x is in the denotation of a coordinate common noun if it is the join of two objects x_1 and x_2, where x_1 is a member of the first conjunct and x_2 is a member of the second (Link 1983, Krifka 1990, a set-theoretic analog is the set product operation of Heycock and Zamparelli 1999, 2000). The meaning of (18) will thus be as follows.

(23) $[[$orthodontists and periodontists$]] =$
        $\{x \mid x = x_1 \oplus x_2 \wedge x_1 \in [[$orthodontists$]] \wedge x_2 \in [[$periodontists$]]\}$

Given our previous assumption about the interpretation of plural morphology, we see that there must be at least two orthodontists and two periodontists in any group denoted by (23); it may be the same individuals who are practitioners of both kinds, or different individuals, in which case the size of the group must be larger than two.

We now turn to the coordinate NP *ortho and periodontists*. In order to interpret it we must assign an interpretation to the morphemes *ortho*, *perio* and *dontist*. I believe that the lexical or etymological meanings of these morphemes are largely irrelevant. Many speakers can identify the morpheme *ortho* in words like *orthodontist*, *orthopedics*, *orthography* and *orthodox*, without knowing the etymological meaning of the root and what it contributes to each of these words (this also applied to me, until I checked the root in a dictionary). What matters, then, is the ability to recognize *ortho* as part of a bigger word, whose meaning is known.

The meanings for the word parts will be derived from the meanings we already have for *orthodontist* and *periodontist* through decomposition, in a manner similar to that proposed in Artstein (1999): the denotations of the morphemes will form a function-argument structure that, when put together, will retrieve the meanings of the original words. The singular common nouns *orthodontist* and *periodontist* denote properties of individuals (type et). I will assume that *ortho* and *perio* simply denote strings of sounds, which are individuals of type e.

(24) $[$ortho$]] \in D_e$: the string *ortho*.

(25) $[$perio$]] \in D_e$: the string *perio*.

That strings of sound are objects in our model, which are referred to by their own mention, is no great innovation. Roger Schwarzschild (personal communication) points out that there exist predicates that apply exclusively to such meanings, as in the sentences *ortho is disyllabic* and *perio ends in a tense vowel*. My claim is that this is the same denotation that we see in *ortho and periodontists*.

Given the denotations of *ortho* and *perio*, the semantics will have to give *dontist* a functional meaning of type eet: it will take as its first argument an object whose meaning is a string of sounds, and return the meaning of the word which is the concatenation of that string with the string *dontist*.

(26) $[[dontist]]$ D_{eet}: the function h: D_e D_{et} such that for all D_e, h( ) =
        $[[$ dontist$]]$ if dontist is a word and $[[$ dontist$]]$ D_{et}, undefined otherwise.

With the above definition, the composition of *dontist* with *ortho* and *perio* yields the expected results.

(27) $[[dontist]]([[ortho]]) = [[orthodontist]]$

(28) $[[dontist]]([[perio]]) = [[periodontist]]$

We need not worry about the fact that the function denoted by *dontist* is undefined for many objects in the model that it could take as an argument. In this respect *dontist* is like any other function: the expression *Bill-dontist* is incoherent, because it is impossible to concatenate a person with a sound in order to form a word. This is similar to what happens with the expression *kissed democracy*, which is incoherent because democracy isn't something that can be kissed, even though it is of the right semantic type for objects of *kiss*.

We now have the building blocks that derive the meaning of *ortho and periodontists*. Starting with the constituent *ortho and perio*, we notice that *and* operates here between two objects of type *e*, so the meaning of the coordinated constituent is a plural object of type *e* (just like *Bill and Martha*).

(29) $[[ortho\ and\ perio]] = [[ortho]]$ $[[perio]]$ D_e

Now *dontists* has to apply to this object—it is, after all, of the right type. The meaning of plural *dontists* will be built on the meaning of singular *dontist* by restricting its subject (the outer argument) to plurals, in a manner analogous to (21). Additionally, since *dontists* is transitive, its semantics will allow a cumulative relation between the two arguments, much like transitive verbs allow an inference from *Bill likes Martha* and *John likes Sue* to *Bill and John like Martha and Sue* (Scha 1981). We get the following meaning for plural *dontists*.

(30) $[[dontists]] = \{$, $|$ PL   AT( )   AT( ) $[[[dontist]]($, $)]$
                AT( )   AT( ) $[[[dontist]]($, $)]\}$

Applying the meaning of *dontists* in (30) to the meaning of *ortho and perio* in (29) will give us the meaning of the NP *ortho and periodontists*.

(31) $[[dontists]]([[ortho]]$ $[[perio]])$
        $= \{$ $|$ PL   AT( )   AT([[ortho]] $[[perio]]) [[[dontist]]($, $)]$
                        AT([[ortho]] $[[perio]])$ AT( ) $[[[dontist]]($, $)]\}$
        $= \{$ $|$ PL   AT( ) $[[[dontist]]($,$[[ortho]]) $ $[[dontist]]($,$[[perio]])]$
                $_1$ AT( ) $[[[dontist]]($ $_1$,$[[ortho]])]$
                $_2$ AT( ) $[[[dontist]]($ $_2$,$[[perio]])]\}$
        $= \{$ $|$ PL   AT( ) $[[[orthodontist]]($ $)$ $[[periodontist]]($ $)]$
                $_1$ AT( ) $[[[orthodontist]]($ $_1)]$
                $_2$ AT( ) $[[[periodontist]]($ $_2)]\}$

We find that *ortho and periodontists* denotes the set of all plural objects that are composed of singular individuals where each such individual is either an orthodontist or a periodontist, and at least one such individual is an orthodontist, and one is a periodontist. In particular, one such plural object is the join of the orthodontist Bill and the periodontist Martha. So our semantics succeeds in interpreting the NP *ortho and periodontists* at surface level.

Decomposition, coupled with certain assumptions on plurality and conjunction, renders our semantics powerful enough to interpret the coordination of parts of words at the surface level. But if our semantics is so powerful, why are there so many examples where coordination of parts of words is impossible? We cannot say *straw and cranberries, *geri and pediatrics, and many more. Indeed, the theory of semantic decomposition predicts that these should be interpretable, and I believe that they are. There is nothing wrong with the semantics of such examples. However, they are ruled out by the phonology.

4. Phonological Constraints

Coordination of parts of words is subject to phonological constraints, which are independent of the semantics. Okada (1999: 350) discusses these constructions in detail, and gives minimal contrasts such as the following:

(32)   a.   *physio and psychologies
        b.   physio and psychological

The contrast between the above examples does not come from the semantics, since the intended meaning of (32a) is clear and the acceptability of (32b) shows that the semantics is capable of interpreting similar structures. Nor is the contrast a matter of morphological structure: *physio* and *psycho* are identifiable morphemes in both examples. The unacceptability of (32a) is due to a phonological property, namely prosodic (metrical) structure: the coordinated elements *physio* and *psycho* form prosodic units in (32b) but not in (32a).

(33)   a.   ***physio** and **psy**(**cho**lo)(gies)
        b.   (**physio**) and (**psycho**)(logi)cal

Okada explains the unacceptability of (32a) by noting that the final vowel of the conjunct *psycho* in *psychologies* is stressed, hence the following consonant is ambisyllabic: it forms the coda of a syllable (*chol*); the entire structure violates a requirement that the right edge of the conjunct should align with the right edge of a syllable. This requirement, while accounting for the data, remains otherwise unmotivated.

The analysis above makes no reference to prosodic structure above the level of a syllable. We may note, however, that effects attributed to ambisyllabicity have been argued to reflect foot structure, to the extent that it is no longer needed to assume ambisyllabicity at all: segments appear to be ambisyllabic in the middle of a metric foot (Kiparsky 1979, Harris and Kaye 1990, Harris 1999). We can thus state Okada's generalization in a more compact and insightful way: a single foot may not span segmental material from both the coordinate part and the remnant. An alternative way of looking at this is as a positive constraint on conjuncts and remnants—they should form complete prosodic units of a certain minimal size, for instance feet or prosodic words.

This is the line taken by Booij (1985) in his account of Dutch and German: he formulates a rule (stated as a deletion rule) which allows coordinate structures when the remnant (the element outside the conjunction) forms a prosodic word, and the conjuncts are prosodic constituents capable of receiving stress (this implies that each conjunct must be at least a foot). The following are some of Booij's examples from Dutch.

(34)   Remnant is a prosodic word:
    a.   zicht- en tast**baar** 'visible and tangible'
    b.   ont- en ver**wikkelingen** 'developments and complications'
    c.   **regel**ordening en -toepassing 'rule ordering and [rule] appreciation'

(35)   Remnant is not a prosodic word:
    a.   *blauw- en rod**ig** (blauwig en rodig = 'blueish and reddish')
    b.   ***be**varen en -rijden (bevaren en berijden = 'sail and ride')
    c.   ***ge**hijg en -puf (gehijg en gepuf = 'gasping and puffing')

Booij thus argues that words that allow coordination of parts must have an internal structure of a prosodic word within a word. The question remains, why should there be a minimal size requirement on coordination in the first place.

The size restrictions should follow from the general theory of mapping between syntactic and prosodic structure. Let us assume that free standing morphemes are generally mapped to prosodic words (Liberman and Prince 1977, Prince and Smolensky 1993, and references therein). We should expect, then, that the independent conjunct should form a prosodic word. The bound conjunct will also have to form a prosodic unit, either as a means of delimiting the coordinate structure, or through some requirement of parallelism; however, it does not have to be a prosodic word in its own right.

Through an independent test we can verify that in the coordinate structures in (1) and (32b), the free standing conjunct forms a prosodic word while the bound one does not. The "stem final tensing" rule of English (Chomsky and Halle 1968, Halle and Mohanan 1985) states that non-low vowels at the end of a word are tense, and thus do not reduce to schwa; this has been analyzed by Booij and Rubach (1987) as applying in the domain of a prosodic word. The free standing conjuncts in (1) and (32b) (*ortho-* and *physio-*) must be pronounced with a tense [o], so they must have acquired prosodic word status; on the other hand, the bound conjuncts (*perio-* and *psycho-*) may end with a schwa, so they are not prosodic words.

Unfortunately, I do not know of an independent test that can verify that the remnants in (1) and (32b) form prosodic words. We can, however, use the stem-final tensing test to explain the difference between the legitimate coordinate structure *microbiological and physical* and the ungrammatical *microscopic and graphic*: in the former but not the latter, *micro* ends in a tense [o], so it forms a prosodic word. I thus agree with Booij's empirical observation, that the remnant should form a prosodic word; the theoretical reason behind this is a matter for further investigation.

We see that the coordination of parts of words in English is subject to phonological constraints similar to the ones proposed by Booij (1985) for Dutch and German. While the underlying reason for these constraints still deserves further explanation, their existence explains

the ungrammaticality of coordinate structures like *straw and cranberries*: the semantics is capable of assigning this structure a coherent meaning, but the string is phonologically ill-formed. Coordination of word parts is thus not a language-particular construction. The reason it is more prevalent in Dutch and German than in English has to do with differences in the internal prosodic makeup of words, not with a specific phonological rule or with the grammar of coordination.

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French Object Agreement with Verbs of Perception[*]

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1. Object Agreement in French

The aim of the opening section is to introduce some basic facts about past participle agreement in French. In that language, past participles show agreement morphology when the auxiliary *avoir* 'have' is used and the object is preverbal. Note that the agreement is optional (cf., Branigan 1992, Pettiward 1997):

(1) a. La police d' assurance [$_{CP}$ Op$_i$ que j' ai pris/**e** t$_i$].
         the policy of insurance   that I have taken/F
         'The insurance policy that I have taken out.' (relative clause)
     b. [$_{CP}$ Combien de polices$_i$ d' assurance as-tu pris/**es** t$_i$]?
         how many of policies of insurance have you taken/F-PL
         'How many insurance policies have you taken out?' (matrix WH question)
     c. Je me demande [CP quelle police d' assurance tu as pris/**e** t$_i$]?
         I me ask   which policy of insurance you have taken/F
         'I wonder which insurance policy you have taken out.'
         (embedded WH question)
     d. C' est la police d' assurance [CP que j' ai pris/**e**].
         it is the policy of insurance   that I have taken/F
         'It is the insurance policy that I have taken out.' (cleft sentence)
     e. La police d' assurance, je l' ai pris/**e**.
         the policy of insurance, I it have taken/F
         'The insurance policy, I have taken it out.' (topicalization)
     f. Je l' ai pris/**e**.
         I it-F have taken/F
         'I have taken it out.' (clitic movement)

When *avoir* 'have' is used and the object is postverbal, the past participle shows no agreement:

(2)   J'   ai   pris/***e** une police   d'   assurance.
         I   have   taken-F a   policy   of   insurance
         'I have taken out an insurance policy.'
We now turn to the problem with which the present paper is concerned.

2. The Problem

In French, when followed by an infinitive, verbs of perception sometimes carry agreement, sometimes do not.[1]

(3)   a.   La   pianiste que   j'   ai   entendu*(**e**) jouer.
              the-F   pianist   that   I   have   heard-F   to play
              'The pianist who I heard play.'
         b.   La   musique que   j'   ai   entendu/*e   jouer.
              the-F   music   that   I   have   heard   to play
              'The piece of music that I heard played.'

As far I know, the contrast between (3a) and (3b) has not been discussed in the generative grammar literature before. The problem we face is twofold:

i.   how to account for (3a);
ii.   how to account for the difference between (3a) and (3b).

I argue that the difference between (3a) and (3b) follows from case theory. The presence versus absence of agreement is not a case of optionality. Agreement is obligatory in (3a), and impossible in (3b). (3a) and (3b) do not have the same underlying configuration. In (3a) *la pianiste* is the logical subject of the infinitive jouer whereas in (3b) *la musique* is the logical object of the infinitive. (3a) is an Exceptional Case Marking (ECM) construction, Op checks accusative Case with *entendu*. PRO is the subject of the infinitive and it is coindexed with Op. I argue that, on the other hand, (3b) does not involve control, but a specified nominative subject (i.e., *la musique*) which has been 'promoted', the infinitive being a passive verb. The latter also checks accusative Case with the object. Evidence for this claim comes from the fact that *la musique* can be replaced by an accusative pronoun. Accusative Case checking is not with the higher verb, since there is no agreement on that verb. The theory of DP raising I assume relies on mechanisms and assumptions that are different from Burzio's generalization. I make use of Williams' (1980) theory of argument structure as adapted by Neeleman & Weerman (1999).

The paper is organized as follows. Section 3 argues for a direct relation between Case and agreement and provides some background theory about null Case and case checking in ECM constructions. Section 4 provides a tentative analysis of the problem discussed in the present section. We conclude in section 5.

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[1] The agreement is not heard. Past participle agreement is audible in French if past participles end with a consonant. Unfortunately, I have found no verbs of perception which take a final consonant in the past participle. Although the rule in (3) may appear prescriptive, it is nevertheless real and must have its roots in more creative processes. Having said that, I admit that, today, the rule does not belong to core grammar and is thus peripheral.

3. Background

3.1 Case checking

In Government and Binding theories of Case, there was an asymmetry between the assignment of nominative and accusative Case. While nominative Case was assigned via a Specifier-Head relation, accusative Case assignment was not. The latter was assigned under government. In the Minimalist Program (MP, cf., Chomsky 1995), the concept of government is abandoned, and it is argued that both nominative and accusative Case assignment are achieved via Specifier-Head agreement. Accusative case is checked in a Spec-Head configuration within an agreement projection called AgroP, the equivalent of Kayne's (1989) object agreement phrase. In the MP, Case and agreement are thus unified (I shall discuss the multiple Spec theory which is a variant of the agreement projection theory, cf., Chomsky 1995: Ch.4).

However, while nominative and accusative features are checked in the specifier positions of AgrsP and AgroP, respectively, the features relevant for checking Case do not reside in Agrs and Agro, but in T and V, respectively. In other words, the category in Spec of Agr is determined by the featural Case assigning properties of V (for the object), and T (for the subject), and not by Agr itself.

The MP has a strong lexicalist flavor in that DPs and heads come fully inflected in the lexicon. There is no Case assignment as such, but matching/checking of features. The technicalities of derivations involving Case are as follows: T raises and adjoins to Agrs, and V raises and adjoins to Agro. These head-movement create complex heads which contain the f-features of Agr as well the Case features of V/T adjoined to Agr.

It has been argued in the literature (cf., Friedemann and Siloni 1997) that there cannot be a direct link between French past participle agreement and accusative Case checking, since, in that language, agreement appears possible without the presence of case checking. French past participle agreement is obligatory in passive sentences and with unaccusative verbs (cf., Branigan 1992, Pettiward 1997):

(4)   a.   Elle   est   allé**e**/*allé   en   vacances.
                She   is   gone-F   on   holiday
                 'She went on holiday.' (unaccusative)
        b.   Elle a   été   réveillé**e**/*réveillé.
                she has been   woken-F
                'She was woken up.' (passive)

On the assumption that both unaccusative and passive verbs do not check accusative Case, Fridemann and Siloni conclude that the agreement in (4) occurs independently from Case checking.

Friedemann and Siloni also note that there are cases where participle agreement is triggered with non accusative elements (in 5, *elle*, the subject), although an accusative argument appears in the sentence:

(5)   Elle   s'   est réveillé**e**/*réveillé   à   cinq   heures.
            she herself   is   woken-F   at   five   hours
            'She woke up at five.' (reflexive)

Contra Friedemann and Siloni (1997), we argue that there *is* a link between agreement and accusative Case. Evidence for this claim comes from the contrast between (6a) and (6b). In (6) the past participle agrees with a direct object (6a), but not with an indirect object (6b - a reciprocal construction):

(6)   a.   Les enfants se   sont   regard**és**/*regardé dans   la   glace.
              the children themselves   are   looked-PL   in   the   mirror
              'The children looked at themselves in the mirror.'
        b.   Elles   se   sont   parlé/*parlées.
              they   one another are   spoken
              'They spoke to one another.'

In (6a), *se* is the direct object of *regardé*. In (6b), The verb *parler* takes an indirect object; therefore there is no agreement with *se*.

Similarly, in (7a), the verb *couper* takes a direct object; therefore the participle agrees with *se*. In (7b), however, *la main* is the direct object (se here becomes an indirect object pronoun indicating whose hand was cut) and here no agreement is possible:

(7)   a.   Elle   s'   est coup**ée**/*coupé.
              she   herself   is   cut-F
              'She cut herself.'
        b.   Elle s'   est coupé/*coup**ée**   la   main.
              she herself   is   cut   the hand
              'She cut her (own) hand.'

Object agreement in French thus correlates with accusative case checking, it is sensitive to the distinction between direct and indirect objects. In order to explain why agreement surfaces in (4a) and (4b) despite the fact that we are dealing with a passive and an unaccusative verb, we follow a theory which is very different from the theories that stem from Burzio's generalization.

Following ideas by Williams (1980), Neeleman and Weerman (1999) propose that NP raising can be explained straightforwardly if the process is analyzed as base generation of a subject plus null (A') operator movement to Spec-VP. Movement of the null operator provides VP with a q-role (an external q-role, that is) which it otherwise lacks:

(8)   a.   John$_i$ [$_{VP}$ Op$_i$ was fired t$_i$].
        b.   John$_i$ [$_{VP}$ Op$_i$ fell t$_i$].

This proposal replaces the traditional assumption that the trigger for NP raising is case-theoretical in nature (Burzio's generalization). NP raising is due to predicate formation and thus no reference to Burzio's generalization needs to be made.

Apart from the fact that it is a mere stipulation, there are several empirical problems for Burzio's generalization, one of which being the following: why would the passive of verbs selecting a PP complement not be formed by simple omission of the subject as in (9)?

(9)   a.   Many people talk [about this actress].
        b.   * ____ was/be talked [about this actress] by many people.
             (Neeleman and Weerman 1999: 207)

To quote Neeleman and Weerman: 'why, in other words, are there no ergative verbs that select a PP as their sole argument?' (1999: 207). The fact that (9b) is ill-formed shows that movement of the DP to Spec-IP is not driven by case considerations. The DP is already case-marked by the preposition, so no Case checking is required; still, the sentence is ungrammatical. It must be the case then that movement to Spec-IP is due to reasons other than case-checking.

Now, suppose that the unaccusative verb and the passive verb are both associated with two q-roles, one internal and one external. The NP in Spec-IP thus receives nominative Case while the verb assigns accusative Case to the trace of the operator:

(10)   a.   John-NOM [Op_i was promoted t-ACC_i yesterday].
        b.   John-NOM [Op_i arrived t-ACC_i yesterday].

This way, we account for the agreement property of the verbs in (4a) and (4b). The conjecture is thus that we have agreement precisely because accusative Case has been checked.

The conclusion is that there is a direct link between agreement and Case. Now the background about accusative Case checking is in place, let us turn to null Case.

3.2 Null Case

The null Case theory goes against the traditional account of control and ECM/raising structures according to which the differences between the two kinds of constructions stem from c-selection:

(11)   a.   John believed [$_{AgroP}$ him$_j$ [$_{IP}$ t$_i$ to be crazy]].
        b.   *John believed [$_{IP}$ PRO to be crazy].

(12)   a.   John tried [$_{CP}$ PRO to win].
        b.   *John tried [$_{AgroP}$ him$_j$ t$_i$ [$_{CP}$ [$_{IP}$ t$_j$ to win]]].

On the traditional c-selection view, whereas the verb try c-selects a CP projection, the verb believe c-selects IP. Assuming accusative Case is checked in Spec-AgroP, the pronoun *him*, in (11a) and (12b), has to move to that position so that the accusative Case feature it bears is checked. This is not possible in (12b), because movement is blocked by an intervening CP projection. A-movement out of a CP projection is prohibited. It follows from the Improper Movement Constraint or, alternatively, from the ECP.

In (12a), the CP protects PRO from being governed by the verb *try*. In (11b), however, PRO is governed by the verb *believe* and the construction is ruled out by either Condition A or Condition B of the Binding theory. There are conceptual and empirical problem with the c-selection/binding theoretic account of the distinction between control and non-control structures. I won't iterate the arguments here (see Boskovic 1997 for discussion).

Chomsky and Lasnik (1993) theory of PRO does not appeal to the notion of c-selection or government. Instead, it is argued that PRO is always Case-marked. It moves from an underlying position (i.e. Spec-VP) to Spec-IP in order for its Case to be checked. Evidence that PRO moves comes from sentences with passive infinitives (13):

(13)   John hates PRO$_i$ to be interrupted t$_i$.

Chomsky and Lasnik's (1993) proposal is: 1/ [- finite] checks null Case, 2/ PRO (and only PRO) has null case (and can bear no other Case features). However, their proposal is insufficient to account for the distribution of Case in ECM and raising constructions (cf. Watanabe 1993, Martin 1996) and inflected infinitival clauses (Wharram 1997).

3.3 Case-checking and ECM Constructions

In order to account for ECM and raising constructions, we need to make a distinction between the feature case-checking properties of I. The idea takes as its point of departure Stowell's (1982) work on tense. According to Stowell (1982), control structures have an internally specified unrealized tense in the embedded clause. ECM and raising structures, on the other hand, involve no internally specified unrealized tense. In this case, the tense of the complement clause is directly determined by the matrix verb. With control structures it is not the case.

Building on Stowell's observation, Martin (1996) proposes that the feature content of I in control structures differs from that of I in ECM/raising constructions. Control and ECM/raising constructions are both [-finite], but differ in that the I head of control structures has an internally specified unrealized [+tense] feature, while the I head of ECM/raising verbs has a [-tense] feature directly determined by the matrix predicate. The distinction is thus between [-finite]/[+tense] for control structures and [-finite]/[-tense] for ECM/raising constructions. Consider some examples (NC = null Case):

(14)   ~~NC   NC~~
      a.   John   wants [$_{CP}$ [$_{IP}$ PRO$_i$ I to [t$_i$ work]]].   I à [-finite]/[+tense]
            checks null Case

            ~~NOM   NOM~~
      b.   John$_i$ I   seems [$_{IP}$ t$_i$ to be working].   I à [-finite]/[-tense]
            does not check Case

            ~~ACC   ACC~~
      c.   John   wants$_i$ [$_{AgroP}$ himj t$_i$ [$_{IP}$ t$_j$ to work]].   I à [-finite]/[-tense]
            does not check Case

In (14a), embedded I comes with a [-finite]/[+tense] feature matrix which means that I checks null Case. Note that it now makes no difference whether or not a CP is projected. In (14b), embedded I does not check Case, because it bears the features [-finite]/[-tense]. The verb *seem* cannot check the case features of *John*, so *John* moves to Spec-IP where it checks its nominative feature against the nominative feature of matrix I. In (14c), again, embedded I does not check Case, because in this instance, embedded I bears the features [-finite]/[-tense], so *him* checks its accusative feature against the accusative feature in Agro.

In sum, the differences between control and ECM/raising structures has nothing to do with presence or absence of a CP projection. The distribution of each construction follows from Case theory.

4. Basis for a Solution

With the background in place, we are now ready to tackle the problem with which this paper is concerned, i.e., the fact that there is agreement in (3a), but not in (3b).

4.1 Accounting for (3a)

We argue that (3a) is an Exceptional Case Marking (ECM) construction while (3b) is not. In (3a), Op is assigned a q-role (AGENT) by *jouer*, but since [-finite]/[-tense] I cannot check null case features, Op 'receives' case from *entendu*:

(3a)   La   pianiste [$_{CP}$ Op$_i$ que j'ai [$_{Spec-AgroP}$ ti'   entendue$_j$ [$_{VP}$ t$_j$ [$_{IP}$ t$_i$ jouer]]]].
        the-F   pianist   that I   have   heard-F   to play
        'The pianist who I heard play.'

The observation in (3a) is at odds with the claim that participle agreement is not possible with subjects of infinitives; only with subjects of small clauses (cf., Ruwet 1982, Kayne 1989, discussion in Boskovic 1997). According to Kayne (1989), the object passes through the specifier of an object agreement phrase before it lands in Spec-CP:

(15)   a.   *La fille [$_{CP1}$ Op$_i$ qu' il   a [$_{Spec}$ t$_i$' AGR$_{obj}$ dite [$_{CP2}$ être [$_{SC}$ t$_i$ malade]]]].
              the-F girl   that   he has   said-F   to be   ill
              'The girl who he said was ill.'
        b.   La fille [$_{CP}$ Op$_i$ qu' il   a   [Spec t$_i$' AGR$_{obj}$ dite [$_{SC}$ t$_i$ malade]]].
              the-F girl   that   he has   said-F   ill
              'The girl who he said was ill.'

Kayne (1989) claims that (15a) involves a CP projection while (15b) involves only a small clause, i.e., no IP or CP. Past participle agreement is not possible in (15a) because Op has to move to Spec-CP2 on its way to the specifier of the agreement phrase. Movement from an A' to an A-position is prohibited. This is made to follow from the Improper Movement Constraint. Alternatively, (15a) can be ruled out as a violation of the ECP: Op cannot move directly to the specifier of the object agreement phrase, because the CP-IP combination is crossed. In sum, A movement cannot cross a CP boundary.

In (15b), there is only a small clause complement, so the problem of movement from A' to A-position does not arise, government and case assignment are possible across a small clause boundary. There is a consensus in the literature that small clauses do not contain a CP projection.

Kayne does not discuss object agreement with verbs of perception. But his theory seems to predict that, since (3a) contains an infinitive, the past participle selects a CP rather than a small clause. On his view, participial agreement in (3a) is thus completely unexpected.

4.2 Accounting for (3b)

Let us now turn to the case of (3b). We argue that (3b) is not an ECM construction where Op and PRO are coindexed:

(16)   La musique [CP Op$_j$ que   j'   ai   [$_{Spec\text{-}AgroP}$ t$_j$ entendu$_k$ [$_{VP}$ t$_k$ t$_j$ jouer]]]]].
        the-F music   that I   have   heard [$_{Spec\text{-}IP}$ PRO$_i$ [$_{Spec\text{-}VP}$ t$_i$ to play
        'The piece of music that I heard played.'

Op is not the object of *entendu*, since there is no agreement with *entendu*. Recall that we have shown that there is a direct relation between object agreement and accusative Case checking. We argue that in (3b), Op is the object, not of the finite, but of the infinitival V. The object of the finite V is the whole VP. Op receives a q-role (THEME) from *jouer*. Op originates as a sister of the verb infinitival verb. The construction in (3b) is like a causative construction in that the DP cannot appear preverbally (cf., Guasti 1997).

In (3b) movement of a null operator takes place. Movement of the operator to Spec-VP provides a q-role to the VP. In turn, the verb nominative can be assigned to the subject. We conjecture that the VS order stems from the fact that clause union has occurred and not from the fact that the subject has remained in postverbal position:

(17)   J'   ai   entendu jouer   une musique.
        I   have   heard   to play a   music
        'I heard a piece of music played.'

With causatives and optionally with verbs of perception, the embedded verb moves higher to the matrix verb (at least in Romance). The VS order is characteristic of infinitival constructions with specified subjects such as inflected (European Portuguese) and personal (Spanish) constructions (cf., Menshing 2000, Sitaridou 2000). In those, clause union typically occurs too (Mathieu and Sitaridou 2001). (3b) involves no PRO coindexed with an empty subject position (say, *pro*). Instead, the contention we put forward is that in (3b) the DP *la musique* is a specified nominative subject based generated in Spec-IP. The marked nature of (3b) (see footnote 1) now follows from the fact that Modern French no longer has specified nominative subjects in infinitives. (3b) is thus a residue from older stages of the language when nominative subjects could appear in non-finite contexts. Old French had personal infinitives (cf., Roberts 1993):

(18)   a.   Viendra   jamais le jour   qui doit   finir   ma peine?
              come-3FUT-SG ever   the day   that must   to finish my pain?
              'Will it ever come the day which must end my pain?'
        b.   Lors   por revenir   sa   color…
              Then   for to return   his colour..
              'For his colour to return…'

As we have already mentioned, the verb jouer in (3b) is also able to assign accusative to the trace of the operator that is moved to provide a q-role to the VP. Evidence for this claim comes from the fact that the object can be replaced by an accusative pronoun:

(19)   Je   l'   ai   entendu/*e   jouer   (par   un   très   bon   pianiste).
        I   it   have heard   to play by   a   very   good   pianist
        'I've heard it played (by a very good pianist).'

Crucially, we argue that in (3b) the infinitive is not an active, but a passive verb. The motivation behind this moves is that a passive form, in absence of morphological clues, can be recognized on grounds of interpretation. One could argue that we can never know whether infinitival clauses without specified subjects are passive or whether they are active with an understood unspecified subject (cf., Chamberlain 1982). French has no morphological distinction between active and passive infinitives. However, my informants all give a passive interpretation to (3b). In general, speakers give a passive interpretation to most (non-control) subjectless infinitival sentences (Modern Spanish, Finnemann 1982).

5. Conclusion

The aim of this paper was to account for the contrast between (3a) and (3b). We have argued that the difference between the two examples follows from case theory. (3a) is an ECM construction while (3b) is not. (3b) involves not only nominative Case checking of a specified subject, but accusative Case checking as well. We have also shown that there is a direct relation between object agreement and accusative Case checking.

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Defective Feature Copy and Anti-Agreement in Language Production[*]

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1. Introduction

Historically, errors in spontaneous speech, i.e., slips of the tongue, have been collected and studied for various reasons. One motivation for collecting such errors - and probably the most familiar one outside of linguistic circles - was to gain insight into psychological repressions. Sigmund Freud (1901/1954), for instance, was convinced that slips of the tongue reveal our suppressed emotions and desires.

On the other hand, however, spontaneous errors also played an increasingly important role in psycholinguistic attempts to construct linguistic performance models (e.g., Fromkin 1971, Garrett 1980, Dell 1986, Levelt 1989). For the psycholinguist, the crucial questions are: What kinds of (possibly ordered) processes mediate between a communicative intention and the articulation of an utterance? And, closely related: What role do grammatical units and rules play in the generation of an utterance?

In this article, I will focus on what grammar theory can tell us about the nature of speech errors and - vice versa - what speech errors can tell us about the nature of grammar. Slips of the tongue (as well as other behavioral data, e.g., acquisition data and data from impaired speakers) are of interest to linguists because of the implicit or explicit acceptance of the assumption that the rules of grammar enter into the processing mechanism such that "evidence concerning production, recognition, [...] and language use in general can [...] have bearing on the investigation of rules of grammar" (Chomsky 1980: 200f). This, in turn, implies that meaningful psycholinguistic analyses of error data can only be made against the background of significant hypotheses concerning the structure, i.e. the grammar, of the language in question.

In the following, I will supply an analysis of spontaneous subject-verb agreement (SVA) errors in the light of the Distributed Morphology framework. I am going to demonstrate that Distributed Morphology (DM) makes for a psychologically real theory of grammar in the sense that it is accurate for the data under investigation. That is, this theory allows for an explanation of

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the available evidence and moreover, it makes correct predictions about possible and impossible errors ("weak mentalism"; cf., Katz 1964).

Two types of SVA-errors shall be subject to discussion: local agreement and long-distance agreement errors. I will consider local agreement errors first. In that context, errors from my corpus shall be compared to spontaneous as well as to experimentally elicited English data. I am going to show that – due to differences in word order – the German error patterns are more diverse. Furthermore, the observed prominence of the plural feature will be discussed and the interaction of movement operations with feature copy processes will be investigated. It will turn out that the error data support the DM idea of a late insertion of agreement nodes. Secondly, I will consider the properties of long-distance agreement errors. I am going to show that only long-distance agreement errors are constrained by the case specification of the error-triggering element.

2. Taking the Short Way: Local Agreement

2.1 Experimental Studies on Proximity Concord

Regarding subject-verb agreement in English, a series of experiments was carried out (Bock and Miller 1991, Bock and Cutting 1992, Bock and Eberhard 1993, Nicol 1995, Bock, Nicol and Cutting 1999, Eberhard 1997). In all of these experiments, an attempt was made to provoke agreement errors in an experimental setting. Above all, the researchers were focusing their attention on structural differences, which might have an influence on the probability of errors. In (1), you will find three exemplary sentence preambles used in the experiment by Bock and Miller. Participants were asked to complete the sentences with a given verb. The interesting examples are the mismatch conditions in (1bc) in which the nominal head of the complex subject DP (*key*) has a number specification different from the one of the DP contained in the modifying PP (*cabinet*).

(1)   a.   The **key** to the (ornate Victorian) **cabinet**
                    possible error: ***The key** to the (ornate Victorian) cabinet **were** lost
         b.   The **key** to the (ornate Victorian) **cabinets**
                    possible error: ***The key** to the (ornate Victorian) cabinets **were** lost
         c.   The **keys** to the (ornate Victorian) **cabinet**
                    possible error: ***The keys** to the (ornate Victorian) cabinet **was** lost

It turned out that the large part of agreement errors (more than 90%) occurred in the mismatch condition. The length of the constituent, which contained the mismatching local noun, however, did not have any influence on the error rate, a fact which contradicts the assumption that the limited capacity of the memory can be held responsible for the errors. A particularly interesting error pattern emerged when singular subject DPs were compared to plural subject DPs in the mismatch condition: agreement errors almost exclusively occurred in the experimental condition with a singular nominal head and a local plural DP, that is, after sentence beginnings like (1b). This pattern indicates that the errors are not due to a problem in correctly identifying the subject because if that had been the case, errors in the condition with a local singular noun should have occurred as often.

In some of the publications dealing with erroneous subject-verb agreement in English, one may also find some scattered spontaneous errors like, for instance, the two slips given in (2). Interestingly, the spontaneous errors show the same pattern as the elicited ones, that is, the verb

tends to agree with a local plural DP. In (2a), this DP is part of a modifying PP, in (2b) it is part of a reduced relative clause.[1]

(2) a. [**the cause** of <u>layoffs</u> such as <u>these</u>] **are** not the taxes
           the cause of layoffs such as these is not the taxes
         (Francis 1986: 315)
     b. [the only **generalization** I would dare to make about our <u>customers</u>] **are** that they're pierced   the only generalization ... is that they're pierced
         (Bock and Cutting 1992: 99)

In the following sections, German slips shall be compared to the experimental and spontaneous English data. On the one hand, it is worthwhile investigating to what extent the German errors exhibit similar characteristics. On the other hand, we also need to check whether other influences possibly trigger agreement errors in German.

2.2 Local Agreement in German Speech Errors

At the moment, there are 70 instances of local agreement errors in my corpus. However, only 32 of these are comparable to the English slips presented before, in that the verb agrees with a local DP, which is part of a complex subject DP. As in the English data, in almost all of these slips (in 28 out of 32), the local DP is plural. This is illustrated by the errors in (3).
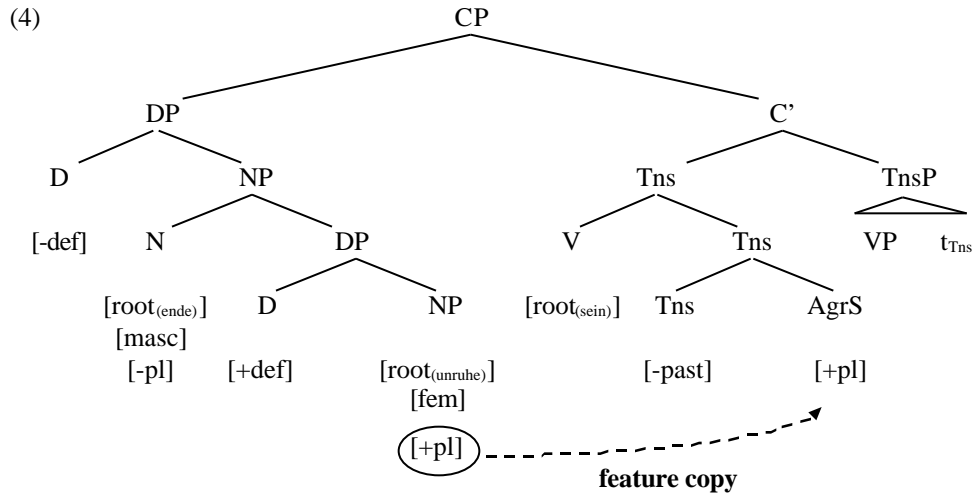
(3) a. [**ein   Ende**   der <u>Unruhe-n</u>]   **sind**   nicht   abzusehen
           an end of.the   disturbance-PL   are not in.sight
               ein Ende   der Unruhe-n   ist nicht   abzusehen
               an end of.the   disturbance-PL   is   not in.sight
     b. [**eine beträchtliche Anzahl** von <u>Gebärde-n</u>] **sind** lexikalisch   markiert
           a   considerable number of   sign-PL are lexically marked
         _   einebeträchtliche Anzahl ...   ist lexikalisch   markiert
         _   a   considerable number ...   is   lexically marked

The structure in (4) illustrates defective feature copy for the slip (3a). Please note that I adopt the basic assumptions of Distributed Morphology (Halle and Marantz 1993, Harley and Noyer 1999). According to Distributed Morphology (DM), only acategorial roots and morphosyntactic features are manipulated in the syntax. Agreement projections, however, are not present in the syntax. Agreement morphemes are only implemented at the postsyntactic level of Morphological Structure. At Phonological Form, the Vocabulary items that best match the roots and features contained in terminal nodes are drawn from the Vocabulary for insertion. Moreover, phonological readjustment rules may apply.

In (4), the verb has raised to the light verb head, then to Tns, and finally to C. Moreover, the subject DP has raised from within vP to Spec CP. At Morphological Structure, the AgrS node is

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[1] Note that I give the erroneous utterance first followed by the intended utterance on the right hand side of the arrow. Whenever there is no arrow in an example, the slip was self-corrected by the speaker. The nonagreeing elements are in bold type while the agreement triggering elements are underlined. Also note that all German examples are from my corpus.

implemented as sister of the Tns node and features from the subject DP are copied onto AgrS. It is this copy process which is defective in the present examples, in that a more local DP is chosen for feature copy and transmits its [+plural] feature, as is indicated by the arrow in the structure. Please note that in (4) as well as in the structure to follow, the light verb phrase is neglected.

(4)

```
                                        CP
                   ┌─────────────────────┴─────────────────────┐
                  DP                                           C'
            ┌──────┴──────┐                          ┌──────────┴──────────┐
            D             NP                         Tns                   TnsP
            │        ┌─────┴─────┐              ┌─────┴─────┐            ▲─────────
         [-def]      N           DP             V           Tns        VP    t_Tns
                     │      ┌─────┴─────┐        │      ┌─────┴─────┐
               [root_(ende)] D          NP  [root_(sein)] Tns        AgrS
               [masc]        │          │              │            │
               [-pl]      [+def]  [root_(unruhe)]   [-past]       [+pl]
                                  [fem]
                                 ([+pl])- - - - - - - - - -↗
                                            feature copy
```
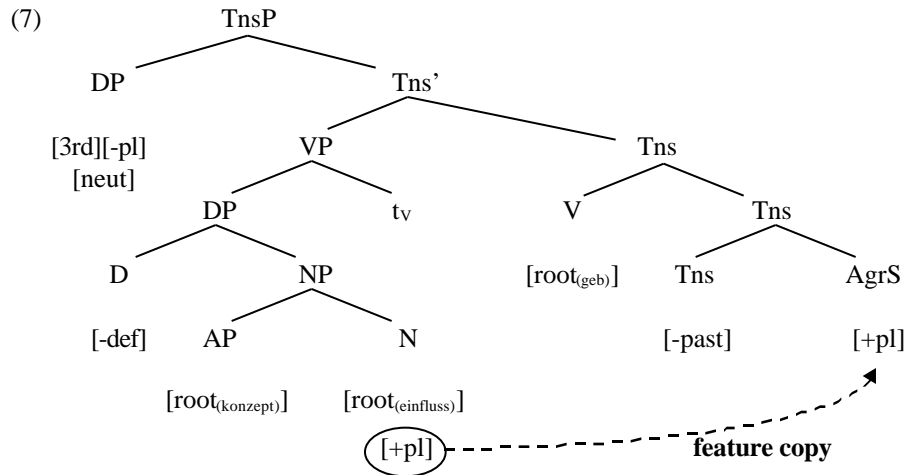
As is well known, in English, the possibilities for a non-subject to precede the verb are highly restricted in matrix as well as in embedded clauses. It is, of course, possible to topicalize constituents, as e.g. in *The colour of the cars, Peter likes*. But in contrast to German, in these constructions the subject DP always intervenes between the topicalized phrase and the verb. It is only in wh-questions that objects can directly precede the verb. In fact, I came across one instance of a spontaneous English slip in which the verb erroneously agrees with a preceding object wh-phrase. This is the one given in (5).

(5)   What <u>things</u> **are this kid**, is this kid going to say correctly?
         (Levelt and Cutler 1983: 206)

However, things are different in German. Due to the underlying SOV word order, object DPs always precede the verb in embedded clauses. Moreover, in matrix clauses, object DPs may directly precede the verb in topicalizations. That is, in contrast to English, it is often the case that an object DP is more local to the verb than the subject DP. We therefore expect error instances in which the verb erroneously agrees with an object DP. And indeed: In 38 out of the 70 local SVA-errors from my corpus, the verb agrees with an object DP. In (6a), the error occurs in an embedded clause while in (6b), an error is observed in a matrix clause with a topicalized object DP.

(6)   a.   dass **es** konzeptuelle <u>Einflüss-e</u> **geb-en**   dasses ...   gib-t
              that it   conceptual   influence-PL   give-PL   that it ...   give-3.SG
         b.   die unschönen <u>Sache-n</u> **vergess-en ich**, vergess-e ich meist schnell
              the not.nice thing-PL forget-3.PL   I   forget-1.SG I mostlyquickly
              "Mostly, I forget the unpleasant things quickly."

In (7) you will find a syntactic structure for the error in (6a).

(7)
```
                          TnsP
             ┌─────────────┴─────────────┐
            DP                           Tns'
      [3rd][-pl]              ┌────────────┴────────────┐
        [neut]               VP                        Tns
                       ┌──────┴──────┐           ┌──────┴──────┐
                      DP            t_V          V            Tns
                 ┌─────┴─────┐            [root_(geb)]    ┌─────┴─────┐
                 D          NP                           Tns        AgrS
              [-def]    ┌────┴────┐                    [-past]      [+pl]
                       AP         N
              [root_(konzept)]  [root_(einfluss)]
                                   ([+pl]) ------------- feature copy
```

To sum up this section: On the one hand, we have seen that the German SVA-errors are similar to the elicited and spontaneous English data in that for the most part, the verb agrees with a linearly closer plural DP. On the other hand, however, the pattern is more diverse for the German data with respect to the grammatical role of the agreement triggering DP which may either be part of a complex subject DP or an object DP.

2.3 The Prominence of the Plural Feature

In this subsection, I want to briefly consider the question why, for the most part, it is the plural feature of a local noun, which triggers erroneous agreement. Spontaneous slips in which the verb agrees with a local singular DP are only rarely observed. Two of the very few slips in which a local singular DP happens to trigger erroneous agreement are given in (8). In (8a), the agreement source *problem* is part of a reduced relative clause within the subject DP, while in (8b), the singular DP *seiner Mutter* "of his mother" is a genitive complement.

(8) a. [**the educational systems** needed to correct the <u>problem</u>] **is** lacking
         the educational systems ... are lacking
         (Bock and Cutting 1992: 102)
     b. [**dieKlöße** seiner <u>Mutter</u>] **liegt** ihmschwer im Magen
         the dumplings of.his mother lies himheavily on.the stomach
             die Klöße seiner Mutter lieg-en …
             the dumplings of.his mother lie-PL …

The observed bias receives a straightforward explanation when we assume that there is an asymmetry in the grammatical representation underlying singular and plural count nouns. This asymmetry is due to the fact that plural nouns possess a grammatical feature for number that singular nouns lack (cf., Nicol 1995, Eberhard 1997). In DM terms, this means that singular nouns are not specified for number, i.e. there is no morphosyntactic feature [-plural]. Consequently, there is no such feature to be copied onto AgrS. In case AgrS is void of features when Vocabulary insertion takes place at PF, the default item /-t/ (representing 3rd person singular) will be chosen from the Vocabulary. The Vocabulary items, which compete for insertion under the AgrS node in German are listed in (9).

(9)   a.   /-t/
        b.   [1st]   /-´/
        c.   [2nd]   /-st/
        d.   [+pl]   /-´n/
        e.   [2nd][+pl]   /-t/

For the SVA-errors, the line of reasoning is as follows: An intervening plural DP makes available a number feature which may be copied onto AgrS by mistake while an intervening singular DP has no such feature to offer. In the rare instances in which a verb happens to erroneously agree with a singular noun, we must assume that we are dealing with the unlikely case of a copy failure, that is, no number feature whatsoever is transmitted to the AgrS node and consequently, the default value will be selected for insertion.[2]

2.4 Transformations and Feature Copy

Next, I will be concerned with the interaction of syntactic transformations and agreement feature copy. In particular, I will be considering the question if the DM idea of post-syntactic implementation of agreement nodes is supported by the error data.

Within many syntactic and psycholinguistic theories (Chomsky 1995, Kempen and Hoenkamp 1987, Levelt 1989), it is assumed that agreement is computed during (or even before) the construction of the hierarchical structure. But this is not true within the DM framework. Remember that in DM, late insertion of agreement nodes is assumed. Agreement nodes are adjoined to functional nodes at the level of Morphological Structure, that is, after syntactic operations have taken place but before Vocabulary insertion is executed.

This assumption has important consequences for the interpretation of speech error data. In particular, a DP which is local to a verb at deep structure may be separated from the verb by a syntactic movement operation, i.e. it is no longer local to the verb when agreement feature copy takes place at Morphological Structure. Linear proximity of a verb and a DP is, of course, not a prerequisite for agreement processes to take place. For SVA-errors, however, my prediction is that

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[2] Interestingly, defective agreement patterns in Arabic VSO sentences can be accounted for along similar lines. Note that in (i), singular marking of the verb is obligatory despite the presence of a plural subject; sentence (ii) with plural marking on the verb is ungrammatical. If the insertion of singular verbs required the presence of a feature [-plural], sentence (i) could not be explained. Obviously, in this instance, it is possible not to copy agreement features onto AgrS. Whenever this happens, the default singular form of the verb will be inserted.

(i)   qara∫a   al-∫awlaad-u   kitaab-an
       read.3.SG.m   ART-boy.PL-NOM   book-ACC
       "The boys read a book."
(ii)   *qara∫uu   al-∫awlaad-u   kitaab-an
       read.3.PL.m   ART-boy.PL-NOM   book-ACC
       "The boys read a book."
       (Mohammad 1990: 96)

whenever the verb happens to agree with a wrong DP, the agreement error is due to the fact that the wrong DP is linearly closer to the verb at surface structure than the 'true' subject DP.

Unfortunately, there are not too many errors in my corpus, which are informative in this respect. First of all, 40 out of the 70 local SVA-errors occur in embedded clauses in which no XP-movement has applied (except for movement of the subject DP from Spec vP to Spec TnsP). As is well known, word order in German embedded clauses (SOV) is the underlying word order. Therefore, in example (10a), the plural DP *Vergebärdler* "slips of the hand" which is a genitive complement within the subject DP is local to the verb at deep and at surface structure, i.e. at both levels, there is no other DP that is (linearly) closer to the verb. The same is true for the agreement error in (10b) in which the verb agrees with the plural DP *seine Kumpels* "his buddies" which is an object DP (also cf., (6a)).

(10)   a.   dass[**ein   Teil**   der   <u>Vergebärdler</u>]entstanden   **sind**,   äh,   ist
              that a   part of.the   slip.of.the.hand.PL   resulted   are, er,   is
         b.   dass **sein   Vater**   seine   <u>Kumpel-s</u>   rausgeschmissen   **haben**
              that his   father   his   buddy-PL thrown.out   have-PL
                    dassseinVater   seine   Kumpel-s   rausgeschmissen   hat
                    that his   father   his   buddy-PL thrown.out   has

Moreover, there are nine instances of matrix clause errors in my collection in which the error-triggering DP is local to the verb before and after XP movement has taken place. In both examples in (11), the verb agrees with a plural DP from inside the subject DP.

(11)   a.   [**das Alter**   der   <u>Ureinwohner</u>] **werden** meist   zu   hoch eingeschätzt
              the age of.the   native.PL   are.FUT mostly   too high   estimated
                    das Alter   …   wirdmeist
                    the age …   is.FUT   mostly
         b.   [**jeder Artikel** in   diesen   <u>Katalog-en</u>] **sind**   total   überteuert
              every   article   in   these   catalogue-PL are totally   overexpensive
                    jeder   Artikel   …   ist total   überteuert
                    every   article   …   is   totally   overexpensive

One particularly interesting property of the errors in (11) is that the DP, which passes on its plural feature to the verb is *more* local, i.e. adjacent, to the verb at surface structure, while at deep structure, other phrasal material intervenes between the agreement-triggering DP and the verb.[3] The deep structure representations for (11a) and (11b) are given in (11a') and (11b'), respectively, with the intervening material in bold face. In the syntax, both verbs move to Tns and then to C, while the subject DPs raise from SpecTnsP to SpecCP. It is only after these movement operations have taken place that agreement nodes are implemented and features are copied onto AgrS.

(11)   a'.   [$_{Tns'}$ [$_{vP}$ [$_{DP}$ das Alter [$_{DP}$ der Ureinwohner]] [$_{VP}$ [$_{Adv}$ **meist**] [$_{AP}$ **zu hoch**]
              [$_V$ **eingeschätzt**]]] [$_{Tns}$ werden]]
         b'.   [$_{vP}$ [$_{DP}$ jeder Artikel [$_{PP}$ in diesen Katalogen]] [$_{VP}$ [$_{AP}$ **total überteuert**] [$_V$ sind]]]

---

[3] The same is true for the errors given in (3ab) as well as for the one in (6b). Remember that (6b) is a special case in that the verb agrees with a topicalized object DP. Still, the topicalized phrase is adjacent to the verb at surface structure only while underlyingly other elements intervene.

Even more illuminating are, of course, those cases in which the erroneous agreement source is local to the verb only at surface structure, that is errors in which another DP with different number specification intervenes between the agreement source and the verb at deep structure. In my corpus, there are seventeen such cases, two of which are given in (12).

Consider, for instance, the slip given in (12a). In this error, the verb agrees with the adjacent plural DP *Soldaten* "soldiers". At deep structure, however, the PP *in dem Film* "in the movie" intervenes between the complex subject DP and the verb (cf. (12a')). The slip in (12b) has somewhat different characteristics. Note that we are dealing with an embedded clause here in which XP-movement (extraposition) has applied. Due to the extraposed relative clause, the plural DP *Bücher* "books" which is part of the direct object DP is proximal to the verb at surface structure. At deep structure, the relative clause separates the DP and the verb and therefore, the singular DP *Regal* "bookshelf" is closest to the verb at that level (cf. (12b')).

(12) a. [**eine Gruppe** von <u>Soldat-en</u>] **sind** in demFilm, äh,
           a group of soldier-PL have in this movie, er,
           ist in demFilm draufgegangen
           has in this movie bitten.the.dust
      b. weil**er** den Inhalt aller<u>Büch-er</u> **kenn-en**, die in seinem
           because he the contents of.all book-PL know-PL which in his
           Regal stehen _ weiler den Inhalt … kenn-t
           bookshelf stand-PL _ because he the contents … know-3.SG

(12) a'. [$_{Tns'}$ [$_{vP}$ [$_{DP}$ eine Gruppe [$_{PP}$ von Soldaten]] **[$_{VP}$ [$_{PP}$ in diesem Film]**
           [$_V$ draufgegangen]]] [$_{Tns}$ sind]]
      b'. [$_{vP}$ [$_{DP}$ er] [$_{vP}$ [$_{DP}$ den Inhalt [$_{DP}$ aller Bücher **[$_{CP}$ die in seinem Regal**
           stehen]]] [$_V$ kennen]]]

Interestingly, there is not a single slip in my corpus, which points to the opposite direction, that is, a slip in which the DP transmitting its agreement feature is local to the verb only at deep structure. I therefore conclude that the local SVA-errors from my corpus are compatible with DM assumptions. That is, the verb tends to erroneously agree with a DP, which is local to it either at deep and at surface structure or at surface structure only. We may therefore assume that the implementation of agreement nodes is in fact executed only after syntactic movement operations have taken place, i.e. at the level of Morphological Structure.

3. Taking the Long Way: Long-Distance Agreement

While defective agreement of a verb with a local noun is probably the more expected case, there is also a number of errors in my collection in which the verb happens to agree with a noun that is more distant to it than the actual subject of the sentence.

However, in all the errors discussed in section 2, the verb erroneously agrees with a DP, which is not assigned nominative case. The slips, which I shall consider next are different in that the agreement feature is copied onto AgrS from a nominative DP; that is, a wrong subject is selected for copy of the agreement feature. In my corpus, there are 26 such cases. In 22 of these,

the verb agrees with a non-local subject, i.e., either with the subject of a matrix clause, the subject of an embedded clause, or with the subject of the second conjunct in a coordination structure.[4]

The first cases of long-distance agreement I wish to discuss are those, in which either a matrix verb agrees with the subject of an embedded clause or the verb of an embedded clause agrees with a matrix subject. This kind of long-distance agreement is exemplified by the two slips in (13). In (13a), the verb in the embedded clause agrees with the matrix subject, while in (13b), the matrix verb shows agreement with the subject of the embedded clause (remember that the non-agreeing elements are in bold type while the error-triggering element is underlined).

(13) a. <u>sie</u> seh-en, dass **ich** selbst   eherflachbrüstig **sind**
          they see-PL   that I   myself more   flat-chested be-PL
             dass ich selbst   eherflachbrüstig bin
             that I   myself   more   flat-breasted be-1.SG
      b. **ich wiss-t**, dass <u>ihr</u> nicht   Recht   hab-t
          I   know-2.PL that you.PL not   right   have-2.PL
             ich weiß,   dass
             I   know.1.SG that

Since in both examples in (13), the matrix as well as the embedded verb happen to agree with the same DP – be it the matrix or the embedded subject - we must assume that the agreement features of one DP have been copied twice.

It is worth pointing out that long-distance agreement phenomena, as unusual as they may seem, are not unattested in spoken languages. Below, I will present some informative data from Godoberi, a Daghestanian language spoken in the north-eastern part of the Caucasus, and from Hindi.

In Godoberi, matrix verbs may agree in gender and number with the absolutive (direct object) argument of a complement clause. In (14a), for instance, the matrix verb *e/uc* ←to forget" is gender/number-marked for the absolutive neuter argument *gyazeti* "newspaper" of the embedded clause.[5] A similar phenomenon is observed in the Hindi example (14b), in which the matrix verb *caah* "want" agrees in number and gender with the absolutive argument *rotii* "bread" of the embedded verb *khaa* "eat".

(14) a. /ali-c→'u   [**gyazeta-be**   r-ax-i]   **r**-e/uc→-a
          Ali-CONT   paper-PL.ABS   PL.n-take-INF   PL.n-forget-AOR
          "Ali forgot to buy newspapers."
          (Haspelmath 1999: 131)

---

[4] In the remaining four cases, the verb erroneously agrees with a local DP which, however, is assigned nominative case. Consider, for instance, the following slip: *dass **ich** [später als <u>du</u>] aufgestanden **bist**

    dass ich … aufgestanden bin 'that I later than you.SG got.up be.2.SG   that I … got.up be.1.SG' ("that I got up later than you did"). In the error, the verb *sein* "to be" is inflected for 2nd person singular. Obviously, these features have been transmitted from the pronoun *du* "you" which is part of a comparative construction within an adverbial phrase (in brackets). In that construction, the pronoun receives nominative case.

[5] Cf., Polinsky and Comrie (1999) for similar long-distance agreement phenomena in Tsez, another Daghestanian language.

b. Raam   ne [**rotii** khaa-nii]caah-**ii**   thii
    Ram   ERG bread.f.SG.ABS eat-INF.f.SG want-PAST.f.SG   be.PAST.f.SG
    "Ram had wanted to eat bread."
    (Wunderlich 1994 : 21)

By citing the examples in (14), I do not wish to claim that the erroneous copy process in the German speech errors and regular long-distance agreement in Godoberin and Hindi are the same thing. For instance, regular long-distance agreement is always agreement of a matrix verb with an embedded DP. This, however, is not true for the slips of the tongue, as is exemplified by the example in (13a) in which the embedded verb agrees with the matrix subject.

Still, I take the examples in (14) to be illuminating in that they illustrate that verbal agreement in natural languages is not necessarily confined to a single clause. Rather, agreement features may be transferred across clause boundaries, and it is exactly this kind of transfer, which also manifests in the speech error data.

The same restriction holds for the second type of erroneous long-distance agreement I wish to discuss. In these errors, two clauses are conjoined in a coordination structure and the verb of the first conjunct mistakenly agrees with the subject of the second conjunct. That is, we are not dealing with a relation between a matrix and an embedded clause here; rather, the two clauses involved in the error are of the same kind. I am referring to this special case of long-distance agreement as "anticipatory agreement". There are only six such errors in my collection, two of which are given in (15).

(15)   a. weil**er** wütend **bin** und <u>ich</u> keine   Lust   hab'
            because he angry   be-1.SG and I   no inclination have-1.SG
                weiler   wütend ist
                because he angry   be-3.SG
        b. **wirschuft-est** und <u>du</u> vergnüg-st   dich   wir schuft-en
            we graft-2.SG   and you enjoy-2.SG   yourself   we graft-1.PL

In (15a), two embedded clauses (TnsPs) are conjoined while in (15b), two matrix clauses (CPs) are involved in the coordination. Obviously, in both errors, the agreement features of the second conjunct subjects are copied onto both verbs (that is, on the AgrS nodes implemented in the first and the second conjunct at Morphological Structure).

Interestingly, anticipatory agreement, too, is attested as a regular mechanism in some spoken languages, e.g., in the two Papuan Highland languages Tairora and Fore. In Tairora, for instance, first conjunct verbs in a coordination structure require not only a suffix which indicates person and number of their own actor, they also require an anticipatory actor suffix, i.e., a suffix which specifies person and number of the actor of the following verb. In (16a), the suffix *-manta* indicates that the actor of the second conjunct is first person singular. The Fore example in (16b) is somewhat more complex in that the verb of the first conjunct requires the presence of the conjoiner morpheme *-ki* which is followed by the anticipatory agreement suffix *-nisí* which indicates that the subject to follow is second person dual.

(16)   a.   t-i-**manta**   ir-una-ra
    say-3.SG.PAST-1.SG   hear-1.SG.PAST-FOC
    "He spoke and I heard."
    (Vincent 1973: 572)
    b.   kana-isí-ki-**nisí**   a-ka-'kubu-a:s-e
    come-3.DL.FUT.SWREF-CONJ-2.DL   3.SG.OBJ-see-FUT-2.DL-IND
    "They(dual) will come and you(dual) will see it."
    (Scott 1978: 121)

Actually, the Papuan examples more closely resemble the speech error data than did the examples in (14). That is, the structural conditions for anticipatory agreement are the same for the regular and the erroneous process. Moreover, agreement features are always anticipated but never perseverated in coordination constructions. Still, it is noteworthy that in the speech errors, anticipatory agreement overrides regular subject agreement while in the Papuan examples, anticipatory agreement supplements regular subject agreement. That is, in Tairora and Fore, the first conjunct verbs are inflected for their own subject as well as for the subject of the second conjunct. Such double marking, however, is not attested in the errors.

4. Summary

In this paper, I have considered processes of feature copy in spontaneous German subject-verb agreement errors. I have shown that the patterns of anti-agreement that we observe in the German data are more diverse than what has been reported for the English data (spontaneous SVA-errors as well as SVA-errors induced in experimental settings). First of all, in German, verbs may not only exhibit defective agreement with a local DP that is part of a complex subject DP but also with a local DP that is part of an object phrase. In most of these agreement errors (as well as in the English data), the error triggering DP is plural and in all of them it is local to the verb at least at surface structure. The former fact can be explained when we assume that only plural nouns possess a grammatical feature for number while singular nouns lack a number feature. The latter fact suggests that agreement nodes are implemented only after movement operations have taken place, as is assumed by Distributed Morphology.

Moreover, in some of the spontaneous errors from my corpus, we observe long-distance agreement, i.e., agreement of a verb with the subject of another clause. Interestingly, long-distance agreement is also attested as a regular phenomenon in various natural languages. In contrast to local agreement, erroneous as well as regular long-distance agreement phenomena are constrained by the case specification of the agreement-triggering DP.

5. Appendix: Distribution of Subject-Verb Agreement Errors

Table 1 shows the distribution of the 111 SVA-errors from my corpus. Note that the high number of error-triggering singular DPs in ③ is somewhat misleading, since for the most part, in the long-distance agreement errors, it is only the person feature that is responsible for the error, i.e. the "real" as well as the "wrong" subject are singular. Also note that the error types ④ and ⑤ have not been discussed in this paper (cf., Pfau 2000) for discussion of these errors as well as for extensive discussion of other slips that involve the manipulation of morphosyntactic features).

AGREEMENT OF THE VERB WITH	TRIGGERING DP IS	
	plural	singular
① **wrong DP within subject DP**	**28**	**4**
- genitive complement	18	1
- PP complement	10	1
- other	0	2
② **an object DP**	**33**	**5**
- direct object	16	0
- PP complement	17	5
③ **wrong subject**	**5**	**21**
- subject of matrix clause	1	8
- subject of embedded clause	1	6
- anticipatory agreement	1	5
- other	2	2
④ **wrong DP in relative clause construction**	**2**	**2**
⑤ **competing DP in blend**	**5**	**6**

TABLE 1. Distribution of SVA-errors (N=111).

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Agreement: Terms and Boundaries[*]

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1. Introduction

Agreement is increasingly recognized as of interest not just for syntax, semantics and morphology, but also for acquisition, psycholinguistics and computational applications. As evidence of the interest of psycholinguists see Clahsen and Hansen (1993), Nichol (1995), Vigliocco, Butterworth and Garrett, (1996), Vigliocco and Nicol (1998). Given this interest from "outside", it is particularly important that we should ensure communication across disciplines.[1] Unfortunately the terminology is muddled, and important choices in analysis are made sometimes as much by tradition as by argument. This paper is therefore a "house-keeping" exercise. It lays out some key terms and discusses the analytic choices available, with appropriate examples. It arises from a current project, building a typological database of agreement phenomena.[2] While the author will take a position on each point, the aim is as much to clarify the issues as to argue for this particular position.

Why has this confused situation arisen? Partly because agreement is a highly interesting area, which involves several interlocking phenomena. Different investigators look at the canonical cases and see different facets as the essential ones. We fasten on certain aspects (often led by terms which embody particular traditions) and then are confused when colleagues take up on other aspects and seem to be missing the point. Furthermore, what many would take as the canonical instances of agreement are relatively unusual, cross-linguistically (see Sierwierska 1999: 238-239).

2. Definitions

Let us start from the following working definition of agreement:

> The term agreement commonly refers to some systematic covariance between a
> semantic or formal property of one element and a formal property of another.
> (Steele 1978: 610)

[1] For evidence of the topic's continuing challenge to core linguistics we may refer to recent papers such as Dalrymple and Kaplan (2000) and Wechsler and Zlatiç (2000).

[2] See http://www.surrey.ac.uk/LIS/SMG/ for details.

Within this, we need further terms to discuss the 'elements' involved. We call the element which determines the agreement the **controller**. The element whose form is determined by agreement is the **target**. The syntactic environment in which agreement occurs is the **domain** of agreement. And when we indicate in what respect there is agreement, we are referring to agreement **features**. Thus number is an agreement feature, it has the values: singular, dual, plural and so on. Finally there may be **conditions** on agreement (there is a particular type of agreement provided certain other conditions apply). All this is diagrammed in Figure 1.
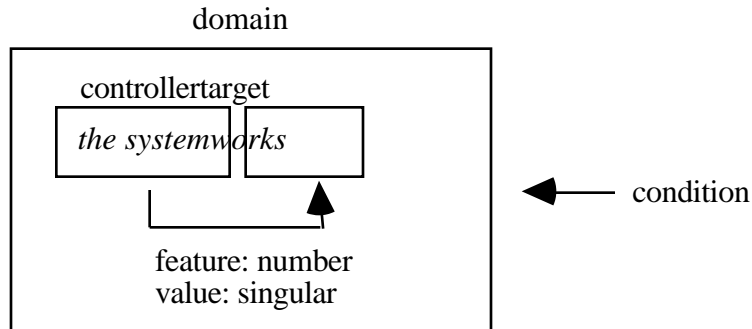
FIGURE 1. Framework of terms.

In the rest of the paper we ask first whether the phenomenon (or cluster of phenomena) indicated so far is appropriately termed 'agreement' (in §1), then we consider the extent of domains, whether they are necessarily local or not (§2), and finally we examine whether the use of terms like 'target' and 'controller' is appropriate, in particular whether we are dealing with symmetry or asymmetry in agreement (§3).

3. Agreement (and/or Concord)

These innocent terms have led to considerable confusion. Some treat them as synonymous. For example, in a survey of the topic, Moravcsik (1978: 333) gives 'agreement (or concord) phenomena'. Similarly Trask (1997: 10) has '**agreement** (also **concord**)'. Somewhat earlier, Lyons (1968: 239) had '*concord* (or 'agreement')', which suggest that the tide is running in favor of 'agreement', an impression supported by Anderson (1992: 103) ' ... just what is 'agreement' (or as it is often called in the traditional literature, "concord")?'

Other linguists, following Bloomfield (1933: 191-194), treat agreement as the superordinate term. According to Bloomfield (1933: 191) 'In a rough way, without real boundaries, we can distinguish three general types of agreement.' These are:

i.   concord or congruence: e.g., agreement of modifiers within the noun phrase, and the agreement of predicate verbs.
ii. government: as in *I know* as compared with *watch me*.
iii. cross-reference: as in French *Jean où est-il?* literally 'John where is he?' (the *il* is a 'substitute form'). Bloomfield includes forms such as Latin *cantat* 'he (she, it) sings' here since the verb 'includes substitutive mention of an actor. It is joined in cross-reference with a substantive expression that makes specific mention of the actor, as in *puella cantat* '(the) girl she-sings.'

(Bloomfield 1933: 193).[3]

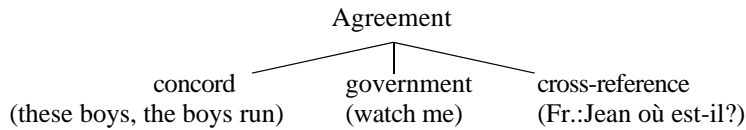In graphical terms we may represent this as in Figure 2.

FIGURE 2. Agreement and related terms in Bloomfield.

There have been various developments of Bloomfield's approach. For instance:

> 'The term *concord* traditionally distinguishes this pattern of agreement within
> DP from the canonical specifier-head type: agreement theory as developed in
> Chomsky 1993 and related work accounts only for the latter.'
> (Carstens 2000: 323)

Note what has happened here: Bloomfield's concord is cut down to agreement within the DP, and part of what he treated as concord becomes the 'canonical' type of agreement. The definitions are changing, according to what is considered the domain of agreement.

In contrast to the position of Bloomfield, and developments from it, Greenberg (1978: 50) treats concord as the wider term:

> 'It would be useful, then, to distinguish the wider notion of concord from
> agreement, the latter being a subtype in which the choice of alternative concord
> elements depend on the class to which the stem of the governing item belongs,
> whether marked by an affix or not.'

For Greenberg matching[4] in case within the noun phrase would count as an instance of concord. When, however, matching is determined by a lexical feature, and Greenberg cites gender here, then this would be agreement.

Note the discrepancy between Bloomfield's definition and that of Greenberg. Most obviously the subset relations are different: for Bloomfield concord is a subset of agreement, while for Greenberg agreement is a subset of concord. But the criteria on which the relation is based differ too (Figure 1). Bloomfield and several followers distinguish according to domain: concord exists in a 'smaller' domain, than cross-reference. For Greenberg the distinction is based on the type of feature involved: agreement involves lexical features, while concord can involve matching of other features. (The domain is not a defining feature here, indeed he later talks of 'three types of concordial phenomena' and distinguishes in what he calls a 'somewhat rough and heuristic fashion' between agreement within the NP, predicate agreement, and anaphoric use (1978: 75-76).)

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[3] Thus Bloomfield puts certain pronominal constructions and pro-drop together as cross-reference, and includes them with concord and government under 'agreement', but he treats antecedent-anaphor relations separately.

[4] I use 'matching' as a neutral term to remain non-committal in discussing others' views.

There are other ways in which the terms are used. Thus Lehmann (1982: 206, 249-250) also distinguishes agreement from concord; agreement is the core syntactic phenomenon, which he defines, and the term 'concord' is then used for instances of semantic compatibility, certain classifier-noun relations, for example. But still others use both terms without definition. Since there is no distinction being drawn consistently between the two terms, and since too the terms are used in opposing ways, and in ways based even on rather different criteria, I suggest we should use 'agreement' as the cover term. Any subdivision within it, whether or not 'concord' is used as the term, requires a careful definition, since there is no generally accepted term here.

For some, that is those who distinguish between the terms according to domains, and for whom furthermore that is a principled distinction, that leaves a key issue to be addressed, which is what we do in the next section.

4. Local and Non-local

Taking an "amateur sociological" perspective on the field, we may see a divide, though by no means an absolute one, between those who have treated agreement as a prime focus of study as compared with those who come to it as one of a set of syntactic phenomena to be accounted for. The former, for instance Moravcsik (1978: 334) and Lehmann (1982: 211), typically assume that the feature values of anaphoric pronouns are determined by agreement mechanisms. The latter often assume that agreement is a local phenomenon. Yet there is little explicit discussion of the issue. Some make it clear that antecedent-anaphor relations are, for them, a part of agreement, since they include such examples in their discussion. Others restrict their data coverage some smaller domain.   The only extended discussion of which I am aware is found in Barlow (1988/1992: 134-52, 1991) who concludes that there are no good grounds for distinguishing between agreement and antecedent-anaphor relations.   This conclusion repeated in Siewierska (1999: 225). There are two main types of evidence supporting this conclusion: the type of features involved, and the distribution of syntactic and semantic agreement. We will consider them in turn.

The simple argument is that canonical agreement and antecedent-anaphor relations are often based on the same features. This is true of Russian, illustrated here from an example from the transcript of a conversation:

(1)   Mama   a   cajnik   kipjacen-yj?   (Russian)
         MummyPARTICLE kettle.SG.MASCboiled.PARTIC-SG.MASC
         'Mummy has the kettle boiled?

         Da-a.   On uze naverno cas stoit.
         Yes.   PRONOUN.SG.MASC   already probablyhour   stands.
         Yes. It's probably been standing for an hour.'
         (Zemskaja and Kapanadze 1978: 242)

Here the participle, like an adjective, distinguishes number (two values) and gender (three values: masculine, feminine and neuter, but only in the singular). The anaphoric pronoun does the same. It is not always the case, cross-linguistically, but it is extremely common that the anaphoric pronoun has the same feature possibilities as other agreement targets. If agreement is split into two different domains, then there are two distinct phenomena which for no principled reason utilize identical features.

While the first argument is based on the most basic and systematic working of agreement, the second comes from a different perspective, namely that phenomena which arise when a system appears to break down can tell us more about the system than the normal instances. We look therefore at instances where instead of there being a single set of feature specifications allowed by the agreement system, we find more than one in conflict; that is, we find competition between syntactic agreement, that is, agreement according to form, and semantic agreement, agreement according to meaning.[5] (We first lay out the problem, raised in Corbett 1979 and following publications, and then return to Barlow's discussion of the issues.) Relevant examples include the following:

(2)   ov-a   dva covek-a su dobr-a/dobr-i   (Serbian/Croatian/Bosnian)[6]
        these-PL.NEUT two man-SG.GEN   are good-PL.NEUT/good-PL.MASC
        'these two men are good'

Nouns in Serbian/Croatian/Bosnian, which both belong to the main inflectional class (the old *o*-stems) and are masculine, when quantified with the numerals '2', '3' and '4', stand in a special form. It is a survival of the dual number, synchronically a genitive singular. Attributive modifiers must take the ending *-a.* This agreement form is also a remnant of the dual number; there are arguments for analyzing it synchronically as a neuter plural (Corbett 1983: 13-14, 89-92); however we choose to analyze it, this *-a* form represents syntactic agreement. In the predicate this neuter plural form is again found, but so is the masculine plural form, the one we might have expected. The relative pronoun is also found in both forms:

(3)   dva covek-a koj-a/koj-i ...
        two men-SG.GEN   who-PL.NEUT/who-PL.MASC ...
        'two men who ...'

The personal pronoun, however, must stand in the masculine plural form *oni* (**ona* is unacceptable).

The important point about these data is that we find two acceptable forms with the same agreement controller. The same is true in the following well-known type:

(4)   The committee has decided / have decided   (British English)

In the next example we find two different agreement specifications in the same sentence:

(5)   This man and woman were on their way to the shops, when ...

We might think that agreement within the NP is always determined by form; while this is true of English, it is not the only possibility, as this Russian example proves:

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[5] Various terms have been used. Alternatives for 'syntactic agreement' include: 'agreement *ad formam*', 'formal agreement', 'strict agreement' and 'grammatical agreement', while alternatives to 'semantic agreement' include: 'agreement *ad sensum*', 'loose agreement' and 'logical agreement'.

[6] The phenomena discussed can be found in the different varieties; where there is a difference (which is not relevant for agreement) the actual forms given are Serbian ones.

(6)   Marija zadumalas´ ob ostavlenn-yx muze   i   doceri:
         Maria   thought about   left.behind-PL   husband and daughter
         kak oni tam,   cto s   nimi?   (Russian)
         how   theythere what with   them?
         'Maria thought about the husband and daughter she had left behind, and wondered how
         they were and what was happening to them.'
         (Maksimov, *Karantin)*

Here we find plural agreement of an attributive modifier in agreement with conjoined noun
phrases. In general, however, Russian favors the singular for attributive modifiers in agreement
with conjoined noun phrases, the nearest of which is singular, as in:

(7)   Èt-a   vzyskatel´nost´, samokriticnost´ tozeraspolagal-i k   nemu
         This-SG.FEM exactingness[7]   self-criticalness alsodisposed-PL to   him
         'This exactingness and self-criticalness also disposed me favourably towards him.'
         (Cernov, Introduction to Smol´janinov, *Sredi morennyx xolmov)*

When agreement is determined by the form (the 'remnant' form, equivalent to neuter plural as
in (2) and (3), singular as in (4), (5) and (7)) we term it 'syntactic agreement' as discussed earlier,
and when it is determined by the meaning (masculine plural in (2) and (3), plural as in (4)- (6)) it
is 'semantic agreement'. Competition between syntactic and semantic agreement can arise in
various ways, being induced by highly restricted controller types up to relatively free constructions
(Table 1).

controller type	example
(virtually) unique lexical item	Serbian/Croatian/Bosnian *deca* / *djeca* 'children'
set of semantically similar lexical items	English *committee*-type nouns
lexically restricted construction	*o*-stem masculine nouns quantified by numeral '2', '3' or '4' in Serbian/Croatian/Bosnian
construction	conjoined noun phrases

TABLE 1. Types of controllers which induce agreement mismatches.

For the remarkable case of Serbian/Croatian/Bosnian *deca/djeca* 'children' see Corbett (1983:
76-88); the other types are illustrated in examples (2)-(7) above.

These agreement choices result from another type of mismatch, one between the semantic and
formal properties of the controller. The controller may have the semantics expected of a particular
feature value but a form which is normally associated with a different value. We see a mismatch
involving gender in examples (2) and (3) while number is involved in (4)-(7).

There is a pattern in these and similar examples, and it concerns the target involved. The
agreement specifications do not vary randomly with the targets. For instance, in (2) we find

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[7] Both *vzyskatel´nost´* 'exactingness' and *samokriticnost´* 'self-criticalness' are feminine singular.

semantic agreement in the predicate, but not in attributive position. We never find the reverse situation, where semantic agreement would be required in attributive position but not in the predicate.[8] In short, the possible targets form a hierarchy, the Agreement Hierarchy (Corbett 1979, 1983: 8-41, 1987: 318-322, 1991: 225-260, 2000: 188-192, Cornish 1986: 203-211, Barlow 1988/92: 136-137, 1991, Kirby 1999: 92-96) as given in Figure 3.
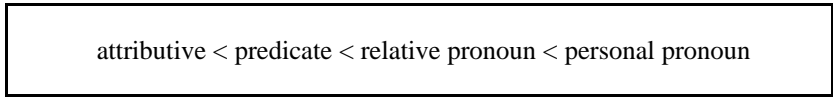
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attributive < predicate < relative pronoun < personal pronoun
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FIGURE 3. The Agreement Hierarchy.

Possible agreement patterns are constrained as follows:

> For any controller that permits alternative agreement forms, as we move rightwards along the Agreement Hierarchy, the likelihood of agreement with greater semantic justification will increase monotonically (that is, with no intervening decrease).

Even the few examples given above (and there are many more in the sources cited) show that there is a good deal of variation. Note particularly that it cannot be kept within the bounds of one target, as (2) and (3) show. For that type of controller in Serbian/Croatian/Bosnian we find syntactic agreement in attributive position, both types of agreement of the predicate and of the relative pronoun, and only semantic agreement of the personal pronoun. We can quantify the relative frequency of the two forms in the positions where there is an option. Figures can be derived from Sand (1971: 55-56, 63) and are presented in Table 2:

	attributive	predicate	relative pronoun	personal pronoun
percentage showing masculine plural (semantic) agreement	0	18 (N = 376)	62 (N = 32)	100

TABLE 2. Percentage distribution of masculine plural (versus neuter plural) forms in Serbian/Croatian/Bosnian (derived from Sand 1971: 55-56, 63).

Table 2 shows a monotonic increase in the likelihood of agreement forms with greater semantic justification.

Note furthermore that cross-linguistically no type of target is exempt. We saw the possibility of semantic agreement in attributive position in (6), where in Russian it competes with syntactic agreement. At the other extreme, British English *committee* type nouns allow syntactic and semantic agreement of the personal pronoun (*it/they*). Another instance, this time involving gender, is found in French, particularly in earlier French. There were various honorific titles, which could take feminine agreement (since the nouns in their normal use were feminine) and masculine agreement, since they were used of males. Even in the personal pronoun, feminine

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[8] Note that this is a corpus-level rather than a sentence-level constraint.

(syntactic) forms dominated. The following example would be normal, according to Grevisse (1964: 405-406):

(8)   Votre   Majesté partira quand   elle voudra.   (French)
         your   majesty leave.FUT when   she wish.FUT
         'Your Majesty will leave when he (literally 'she') wishes.'
         (Voltaire, quoted by Grevisse 1964: 406)

The feminine pronoun is used, even though the king is addressed. However, examples with a masculine pronoun also occur:

(9)   Sa   Majesté fut inquiète,   et de nouveau il   envoya
         His.FEM   Majesty was worried.FEMand of newhe   sent
         La   Varenne à   son ministre.
         La   Varenne to   his minister
         'His Majesty was worried, and again he sent La Varenne to his minister.'
         (J. & J. Tharaud, quoted by Grevisse 1964: 405)

Examples like (9) represent the less usual alternative. This shows that syntactic agreement is possible, and in this case preferred, even for the personal pronoun.

Given this variation, which extends to the extremes of the Agreement Hierarchy, we still find a clear pattern, of a monotonic increase in the likelihood of agreement forms with greater semantic justification. This holds for:

    i.   different types of controller (a rough list of types was given in Table 1)
    ii. different features (our examples involve number and gender)
    iii. a range of different languages
    iv. a range of sociolinguistic variation[9]

Given these data, we can now consider Barlow's conclusion about the domains of agreement. He makes the point (1982/1992: 134) that those who would draw a major boundary within the domains of agreement, do so at: different points. This in itself suggests that the evidence for a particular major boundary is weak. Moreover, even if we allow for the boundary to be at different places in different languages, this will still not permit us to handle the data above easily, since we often find syntactic and semantic agreement as alternatives for a given agreement target (see (2), (3) and (4) above).

One suggested boundary is between NP internal and NP external agreement. Setting such a boundary gives the wrong predictions in terms of the data we have already examined. Relative pronouns are NP internal; but they do not, as would be predicted by such a boundary, pattern with attributive modifiers, as opposed to NP external agreement in the form of predicate agreement. The data show that relative pronouns are 'further away' in terms of the Agreement Hierarchy than are predicate agreement targets.

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[9] See Corbett (1983: 30-39) for extensive data on Russian.

A second place where one might draw a boundary is between sentence internal and sentence external agreement. This has little merit, since personal pronouns occur both within the sentence and beyond it, with no significant difference between the two in terms of agreement.

The most popular contender is local agreement versus anaphoric agreement. As Barlow says: "This distinction is widely held - though rarely discussed." (1988/1992: 139-140). Somewhat different accounts of such a distinction can be found in Bresnan and Mchombo (1987) (see also now Bresnan 2001: 150-160), and Zwicky (1987); see Barlow (1988/92: 139-152) for discussion of both approaches. For Bresnan and Mchombo the distinction is largely to do with the status of markers on verbs, whether they are pronominal affixes or agreement markers in given languages. (Recent work on this issue can be found in Evans 1999.) The distinction may be drawn differently for different languages, but even then it does not allow us to account of for the agreement options laid out earlier.

In whatever way we attempt to split agreement into two phenomena, we do not solve the problem posed by the data above. We might have expected that if a distinction is drawn between local and anaphoric agreement, this will allow us to decribe the distribution of agreement options. But it does not. First, the dividing line between where syntactic agreement and semantic agreement are found in a given language is not necessarily clear-cut. We saw this with agreement in Serbian/Croatian/Bosnian (examples (2) and (3)), where there is a choice in predicate position and for the relative pronoun. Second, agreement choices can be found at the extreme positions of the Agreement Hierarchy. Attributive modifiers must surely come within the range of 'grammatical agreement' if such a distinction is drawn, and yet we can find semantic agreement here (example 6). On the other hand, the personal pronoun would be expected to fall under anaphoric agreement, and yet syntactic agreement can be found here (8). We conclude that there are no good grounds for dividing agreement domains into two. Specifically there is no principled way to distinguish the agreement variation of the pronoun from that of other targets, which therefore supports the non-local view of agreement. On this view, there is no reason to treat 'cross-referencing' as radically different from agreement. Rather there is a scale of domains, as in the Agreement Hierarchy, each of which should be treated as a part of agreement.

To conclude this section. Some use the term 'agreement' to cover feature matching in a range of domains, from within the noun phrase to antecedent-anaphor relations. Others limit it, more or less drastically. If we are to draw a boundary, then we need to be clear whether this is based on evidence from agreement itself (as we have seen, such a line would be hard to justify), or whether the boundary is being drawn as a result of other considerations within the syntactic model adopted. If such a boundary is proposed, then we should ask whether it claims to handle the distribution of syntactic versus semantic agreement (again such a claim seems unlikely to be well founded). Evidence from the Agreement Hierarchy shows that there is no one point at which agreement phenomena can be neatly divided into two. Rather there are several different domains for agreement, related in hierarchical fashion.

5. Symmetrical or Asymmetrical

When agreement is discussed in terms of 'matching' of features, it is sometimes unclear whether a 'balanced' symmetrical relation is envisaged or a controller-target relation (as in Figure

1). Evidence from the morphological availability of different feature values suggests that the relationship is an asymmetrical one. Consider these Russian examples:

(10)   nov-yj   avtomobil´   (Russian)
         new-SG.MASC   car
         'a new car'

(11)   nov-aja masina
         new-SG.FEM   car
         'a new car'

(12)   nov-oe   taksi
         new-SG.NEUT   taxi
         'a new taxi'

Here we have an adjective agreeing with the head noun in gender. The adjective has different morphological forms available to match the gender of the noun, which does not accommodate the adjective in any comparable way. Logically, then, the relation is asymmetrical, with the adjective being controlled by the noun. Examples of the verb agreeing in person with the pronoun would make the point equally well.

Earlier rule-based approaches to agreement captured this asymmetry directly, by copying features from controller to target. Such feature-copying approaches face various problems: the controller may be absent (as in pro-drop languages), or it may be present but be underspecified, something which occurs frequently with pronouns (Barlow 1988/1992: 30-43; his arguments are developed in Pollard and Sag 1994: 62-67). In response to these difficulties, unification-based accounts were developed, in which agreement is seen as a matter of cumulating partial information from the controller and the target (Shieber 1986: 21-22, Barlow 1988/1992: 22-45, but see Bayer and Johnson 1995 for problems). Consider one of the arguments, starting from the following example:

(13)   Je   suiscontent/content-e   (French)
         I   be.1ST.SG   pleased.SG.MASC/pleased-SG.FEM
         'I am pleased' (man/woman talking)

In analyses which depend on a rule of feature-copying, we need to posit two pronouns *je,* one masculine and one feminine, which happen to be phonologically identical. In a unification-based approach, we could have the following feature structures (the first for the pronoun and the verb, and the second for the predicative adjective):

(14)   number: singular   number: singular
         person: 1st   gender : feminine

These feature structures can be unified, since they are compatible, to give the following structure:

(15)
number: singular
person: 1st
gender : feminine

Thus the information is cumulated from different parts of the structure.

However, we appear to have thrown out the baby with the bathwater, since we have lost the asymmetry of the agreement relation. In Generalized Phrase Structure Grammar asymmetry is reintroduced by the Control Agreement Principle (based on Keenan 1974), which specifies possible controllers and targets, and gives them different statuses (see Gazdar, Klein, Pullum and Sag 1985). In Head-Driven Phrase Structure Grammar the asymmetry is captured through 'anchoring'; gender, number and person features are anchored to real world entities through noun phrase indices, even though they may be expressed morphologically other than on the noun phrase (see Pollard and Sag 1994: 60-99, and compare Kathol 1999).

If we accept that agreement is typically an asymmetric relation, that leads to the problem of 'agreement in case'. If one adopts a view of syntax which is based on the notion of constituency, then the traditional instances of 'agreement in case' are not agreement: case matching of features within the noun phrase results from government by the same element. The same is true of *Suffixaufnahme* phenomena (Plank 1995).

Two points deserve consideration here. First, for those who accept a dependency view of syntax, then the opposite conclusion follows. If the noun is the head of the phrase and the adjective depends on it, and both show case, then we would have agreement in case (as in Mel´ãuk, 1993, 329, 337). The second point is that if one takes the constituency view and excludes agreement in the usual noun phrase constructions, one cannot thereby eliminate all possible instances of case agreement. There are other, much rarer constructions, which show agreement in case. A good contender is this Polish construction (Dziwirek 1990: 147):

(16)   Szesc   kobiet   byl-o   smutn-ych   (Polish)
        six woman.PL.GEN   be.PAST-SG.NEUT   sad-PL.GEN
        'six women were sad'

The verb is third singular neuter 'by default'; the adjective appears to agree in number and case with the quantified noun within the subject noun phrase (this is not the only possibility; according to Dziwirek (1990: 158n16) the neuter singular is found in 'informal spoken Polish'). This construction is in difficult to analyse, but it suggests that we should allow for agreement in case, even if our view of syntax is constituency-based.

6. Conclusion

If we are to have fruitful collaboration in this area, involving psycholinguists, those in acquisition, and those in computational linguistics, this will require considerable effort from us as linguists: we need to be more consistent in our use of terms, and to be clearer about our analytical decisions. We have discussed the implications of this for the overarching term agreement, for the question of domains, and for the notion of asymmetry. In each of these, we do not have to "agree"; we do have to be clear.

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Aspects of Agreement: Evidence that Agreement Morphology and Aspectual Distinctions Are Acquired Independently by Child L2 Learners[*]

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1.   Introduction

Children and adults who learn a second language (L2) frequently omit agreement morphology in their speech. Multiple proposals have been put forth to account for the syntactic and semantic properties of those uninflected forms. A recent proposal by Gavruseva (2000) has tied the occurrence of uninflected forms in L2 English to their aspectual interpretation. The present paper examines this proposal using data obtained from a group of L1-Russian children acquiring English as an L2. I argue against Gavruseva's proposal and show that acquisition of inflectional morphology and appropriate aspectual distinctions are two separate processes at work in L2 acquisition. I suggest that the aspectual interpretation of verbs in L2 English is best accounted for by a default (or transferred) setting of the perfectivity feature, as well as by discourse strategies of aspectual use.

This paper is organized as follows. Section 2 briefly describes the aspectual systems of English and Russian. Section 3 reviews Gavruseva's proposal for aspect in L2 acquisition. Section 4 presents the relevant data and analyses, and Section 5 concludes the paper and gives some suggestions for further research.

2.   Aspectual Systems of English and Russian

One of the tasks facing L2 learners is acquiring the aspectual system of their new language. It is possible that the learners may transfer the aspectual distinctions of their L1 onto the L2. The following is a brief summary of the aspectual systems of Russian and English, the respective L1 and L2 of the learners described in this paper.

2.1 Aspect in English

English differs from many European languages (including other Germanic languages) in that its eventive present-tense verbs cannot have a continuous interpretation. Thus, (1a) cannot refer to a continuous, ongoing event of John eating an apple. Parallel sentences in languages such as

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Italian or German, on the other hand, can refer to ongoing events. Giorgi and Pianesi (1997) argue that English, but not German or Italian, has a [+perf] ([+perfective]) feature on all eventive predicates. A [+perf] feature on a verb means that the event denoted by the verb is a closed, completed event. On the other hand, the continuous ongoing event is by definition not completed – hence the impossibility of that interpretation.

(1)   a.   John eats an apple
       b.   e   t   x(eat(e)   Theme(e, x)   apple(x)   Agent(e, John)   Cl(e)   t   S   at(t, e))

Giorgi and Pianesi (1997: 165) give (1b) as the logical form for (1a) and state that "the truth conditions for (0a) require that there is a closed event of eating, due to the presence of [+perf], which is simultaneous with speech time." However, as Giorgi and Pianesi point out, a closed event is incompatible with speech time, which makes (1b) uninterpretable.

Thus, present-tense English verbs cannot receive either ongoing or perfective interpretations. The only possible interpretation for (1a) is that of a habitual. Giorgi and Pianesi, building on the proposal of Chierchia (1995), argue that habituals and statives are possible in English present tense because instead of a [+perf] feature they have a quantificational feature which is associated with a generic operator. Thus, a sentence such as (2) is true "iff for generically many times t which are part of the contextually relevant interval I, where I contains the speech event, there is an event of smoking occurring at t" (Giorgi and Pianesi 1997: 168).

(2)   John smokes

By contrast, past-tense verbs in English are able to refer to ongoing eventualities. Thus, (3) can mean either that John engaged in a continuous action of eating an apple (an unbounded, [-perf] reading) or that John completed the action of eating an apple (a bounded, [+perf] reading)[1].

(3)   John ate an apple

2.2 Aspect in Russian

In Russian, aspect is morphologically marked on the verb, and all verbs can appear in the perfective or imperfective aspect. Infinitival forms exist both in the perfective and the imperfective (except for the verb "to be", which is only imperfective).

Smith and Rappaport (1997) define the aspectual distinctions of Russian as a choice between perfective and imperfective viewpoints. The perfective "includes both endpoints of dynamic situations" (p. 227) while the imperfective excludes both endpoints. This contrast is illustrated in (4).

(4)   a.   Masha ela   sup
             Mary   eat-past-imp   soup

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[1] Giorgi and Pianesi never actually say that the [+perf] feature is associated only with present-tense verbs in English, stating instead that it is associated with all eventive predicates in English. Given the possibility of an imperfective interpretation of past tense in English, however, and given that Giorgi and Pianesi's analysis of the [+perf] feature in English is limited to present-tense verbs, I will assume the [+perf] feature only for present-tense English verbs.

b.   Masha s'ela   sup
     Mary eat-past-perf   soup

Past-tense verbs can be either perfective or imperfective in Russian. In (4a), the imperfective aspect of the verb places emphasis on the process of eating. The meaning of (4a) is close to "Mary was engaged in the process of eating soup." In the perfective case, (4b), the emphasis is on the endpoint – the meaning expressed by (4b) can be "Mary ate the soup (till there was no more left)."

In non-past tense, both perfective and imperfective viewpoints are also available, but have different temporal interpretations. The non-past imperfective refers to the present tense (5a), while the non-past perfective refers to the future tense (5b). It is also possible to express the imperfective viewpoint in the future tense, but this requires an imperfective form of *byt'* (be) followed by the imperfecti**Error! Reference source not found.**ve infinitival form of the verb (5c).

(5)   a.   Masha est   sup
            Mary   eats-imp soup
       b.   Masha s'est   sup
            Mary   eats-perf soup
       c.   Masha budet   est'   sup
            Mary   be-imp eat-inf soup

Russian makes no morphological distinctions between habitual and ongoing interpretations. Thus, (5a) can mean either "Mary is eating soup (right now)" or "Mary eats soup (every day)". I turn next to aspect in L2 acquisition.

3.   Aspect in L2 Acquisition: Gavruseva's Proposal

Gavruseva (2000) proposed that there is a relationship between finiteness and aspect in L2 acquisition. She suggested that finite forms in early L2 English are restricted in their aspectual interpretation.

Gavruseva (2000) analyzed longitudinal production data of an 8-year-old L1-Russian child, Dasha, who was acquiring English as an L2. Looking at the aspectual interpretation of Dasha's verbs, Gavruseva found an interesting pattern. The bare, uninflected forms in Dasha's data had a variety of aspectual interpretations – they referred to bounded, unbounded, ongoing, and habitual eventualities. Dasha's use of bare forms to refer to present-tense, ongoing eventualities led Gavruseva to suggest that Dasha allowed the [+imperfective] feature to be associated with bare forms. Gavruseva suggested that this is possible transfer from Russian, where verbal stems can be marked either perfective or imperfective.

At the same time, Gavruseva found that all of the inflected forms in Dasha's data were in the past tense and were perfective, eventive verbs. Gavruseva suggested, based on this finding, that Dasha used past tense morphology to encode perfectivity.

There are at least two questions that are left unanswered by this proposal. The first concerns the use of past tense morphology to mark perfectivity. Both Russian and English allow perfective as well as imperfective uses of past tense verbs – in fact, as described above, Russian uses morphologically distinct forms for the two types of the past tense. Why should Dasha use the past tense exclusively with perfective aspect in her L2? One possibility, suggested by Gavruseva, is

that past tense morphology is originally used to mark perfectivity. Another alternative, however, is that perfective use of the past tense is *in general* more common than imperfective (due perhaps to discourse strategies). The only way to check this hypothesis would be to compare the aspectual interpretation of inflected past-tense forms in Dasha's speech to that of bare forms used in past-tense contexts. While Gavruseva notes that Dasha sometimes uses bare forms to refer to unbounded eventualities in the past tense, she does not say how frequent this phenomenon is. In order to truly examine the connection between aspectual interpretation and finiteness marking, we would need to know how often bare vs. inflected forms are used in [-perf] contexts.

The second question concerns the acquisition of third person -*s*. Gavruseva reports two interesting phenomena of Dasha's speech: first, that there are no third person -*s* forms in Dasha's first six months of acquisition; second, that Dasha uses bare forms in present-tense contexts to refer to ongoing as well as habitual eventualities. The conclusion that Gavruseva draws from this is that the lack of inflection on bare forms allows them to be marked [-perf]. This would predict that once third person -*s* forms emerge in Dasha's data, they should never be used in [-perf] contexts. This prediction cannot, however, be tested using Dasha's data, since no third person -*s* forms are present.

4.   Aspect in L2 Acquisition: More Data from L1-Russian Children

To summarize, Gavruseva's analysis of Dasha's data leaves open two questions: 1) is there a difference in aspectual interpretation between inflected and bare forms in past-tense contexts? and 2) is emergence of 3rd person -*s* tied to acquisition of the [+perf] feature? I examined these two questions using a corpus of production data obtained from children who, like Dasha, are L1-Russian learners of English.

4.1 The Corpus

The data for the present analysis come from 14 L1-Russian children ranging in age from 5;3 to 13;10. These data were obtained between 1997 and 1999, while the children resided either in Michigan or in Boston with their families. The children were recorded during spontaneous conversation and/or story-telling activities. Either one or two speech recordings were obtained from each child, for a total of 21 transcripts. No child had lived in the U.S. for longer than 18 months at the time that recordings of that child's speech were made. Specific learner descriptions given in Table 1.[2]

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[2] The learner descriptions are sorted by increasing length of exposure to English (last column). This is not necessarily equal to length of residence in the U.S. (fourth column). For instance, R.O. and D.I. had studied English while still Russia; on the other hand, D.A. and A.T. were not exposed to English during their first few months of U.S. residence. A.N. and D.I. are siblings, and so are M.Y. and O.L. It should be noted that M.Y. and O.L. were adopted by an English-speaking family and therefore received more intensive exposure to English than the other children, who resided with their Russian-speaking parents.

Child	Sex	age (years;months) during 1st (and, if applicable, 2nd) recording sessions	length of residence in the U.S. prior to 1st recording	approximate length of exposure to English prior to 1st recording
T.I.	M	11;11	1 month	1 month
A.Y.	F	10;1 and 10;4	2 & 5 months	2 & 5 months
M.A.	F	7;4 and 7;5	3 & 4 months	3 & 4 months
D.A.	F	9;7 and 9;9	6 & 8 months	3 & 5 months
K.I.	M	6;5 and 6;7	4 & 6 months	4 & 6 months
V.A.	M	9;6 and 9;8	5 & 7 months	5 & 7 months
A.T.	F	6;2	8 months	5 months
M.Y.	F	5;3 and 5;5	5 & 7 months	5 & 7 months
O.L.	F	6;10 and 7;0	5 & 7 months	5 & 7 months
R.O.	M	13;10	2 months	2 months (+ ~1 year in Russia)
T.O.	F	7;8	11 months	11 months
V.I.	M	8;1	12 months	12 months
A.N.	F	10;1	18 months	18 months
D.I.	M	11;9	18 months	18 months (+ <1 year in Russia)

TABLE 1. Learner descriptions.

Each transcript was coded for presence of overt inflectional morphology on the lexical verbs, as well as for aspectual interpretation. Coding for aspectual interpretation relied on the context surrounding the utterance.

4.2 Bare Forms in L2 Data

As expected, production of bare forms in place of inflected forms (both 3rd person present tense singular and past tense contexts) was very high across learners. Combining numbers across all transcripts, it was found that in the present tense, a bare form was used in place of a 3rd person singular form in 207 utterances, which constituted 78% of all obligatory contexts. In the past tense, a bare form was used in place of an inflected (regular or irregular) form in 226 utterances, 52% of all obligatory contexts. There was also some use of bare forms with a future interpretation – of the 27 obligatory contexts for future tense use, 13 (48%) involved a bare verb forms without the *will* auxiliary.

4.3 Aspectual Interpretation of Present Tense in L2 Data

A first look at the L2 learners' use of present-tense morphology suggests support for Gavruseva's hypothesis. As Table 2 shows, most ongoing activities were referred to with bare forms, whereas finite 3rd person singular forms were more likely to be used with habituals or statives. Some examples are given in (6)[3].

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[3] Throughout this paper, each example utterance is preceded by the child's name.

aspectual interpretation	bare forms	finite verbs (with -*s*)
ongoing	107 (91%)	10 (9%)
habitual	38 (67%)	19 (33%)
stative	62 (67%)	31 (33%)

TABLE 2. Aspectual interpretation in the present tense (3ʳᵈ person sing. contexts only).

(6)   a.   *ongoing activity with bare form*
               D.A.: "girl play with toy"
         b.   *ongoing activity with inflected form*
               A.N.: "mermaid talks to her father" [describing ongoing action in a picture]
         c.   *habitual activity with bare form*
               A.Y.: "my mom spell for me Russian letter"
         d.   *habitual activity with inflected form*
               O.L.: "Mary sometimes sings songs really loud"
         e.   *stative verb, bare form*
               V.A.: "the boy want to give some nuts to the squirrel"
         f.   *stative verb, inflected form*
               M.Y.: "she lives under the bed"

Does this mean that use of 3ʳᵈ person -*s* in fact entails the appropriate setting of the perfectivity feature? A more detailed look at the data shows this not to be the case. The high proportion of bare forms among verbs used to describe ongoing activities appears instead to be due to an interaction between two independent processes: emergence of 3ʳᵈ person singular morphology, and acquisition of appropriate aspectual distinctions. Consider individual learner breakdowns in Table 3[4].

CHILD	overall % of 3ʳᵈ person singular -*s* used in obligatory contexts	% of -*s* forms used to refer to ongoing events (over all instances of -*s* use)	% of bare forms used to refer to ongoing events (over all instances of bare form use in 3ʳᵈ person singular contexts)
T.I.	*0% (0/18)*	*n/a*	*89% (16/18)*
A.Y.	15% (7/47)	43% (3/7)	13% (5/40)
M.A.	*3% (1/31)*	*100% (1/1)*	*100% (30/30)*
D.A.	*2% (1/43)*	*0% (0/1)*	*67% (28/42)*
K.I.	30% (3/10)	0% (0/3)	0% (0/7)
V.A.	17% (6/35)	50% (3/6)	63% (20/29)
M.Y.	77% (10/13)	0% (0/10)	0% (0/3)
O.L.	69% (20/29)	0% (0/20)	0% (0/9)
R.O.	33% (2/6)	0% (0/2)	0% (0/4)
T.O.	33% (3/9)	0% (0/3)	0% (0/6)
A.N.	27% (3/11)	67% (2/3)	63% (5/8)
D.I.	37% (4/7)	25% (1/4)	0% (0/3)

TABLE 3. Individual breakdowns in the use of present-tense forms.

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[4] A.T. and V.I., who had fewer than five obligatory context for *s* production, are excluded from Table 3.

The learners in Table 3, who are arranged by increasing length of exposure to English, can be divided into three distinct groups based on the pattern of 3rd person *-s* production and use of appropriate aspect. Three learners (who names are in italics) produce almost no *-s;* therefore, we cannot say anything about aspectual interpretation of inflected forms in their data. Their bare forms are used predominantly to refer to ongoing eventualities. Note that those three subjects are among the least advanced, clustering towards the top of the table. We thus know that the least advanced subjects (just like Gavruseva's Dasha) (a) produce no *-s* forms and (b) misuse bare forms to refer to ongoing eventualities. In fact, the high number of bare forms used for ongoing eventualities (cf. Table 2) comes largely from these three learners.

Consider the next group of three learners (whose names are in bold): these learners produce some *-s* forms (though still a fairly low percentage). They are also quite likely to use *both* bare and inflected forms to refer to ongoing eventualities. While the numbers are very small, they point towards an interesting pattern: when L2 learners begin using *-s*, they are just as likely to misuse *-s* forms as bare forms to refer to ongoing eventualities. The three learners have varied lengths of exposure to English, so it is impossible to say anything about effects of length of exposure on acquisition of aspectual distinctions[5].

The third group (the learners whose names are in regular font) consists of learners who still have not fully mastered *-s* production (with production in obligatory contexts ranging from 30% to 77%), but who apparently have set the [+perf] feature on English verbs. These learners no longer use either bare or inflected forms to refer to ongoing events. Note that, with one exception, these six learners cluster towards the lower half of the table – i.e., these are the L2 learners with generally lengthier or more intensive English exposure.

What can be concluded from these data? Despite fairly small numbers, the data indicate a clear pattern. With limited exposure to English, L2 learners make two types of errors: they omit 3rd person singular *-s,* and they use present-tense forms to refer to ongoing events.[6] As their L2 proficiency increases, the learners start producing *-s* and continue to use present-tense forms (with or without *-s*) to refer to ongoing events. With even more exposure to English, the learners master the aspectual distinctions of English and use both inflected and uninflected forms only in habitual and stative contexts; however, even those more advanced learners still continue to omit *-s* in obligatory contexts. Importantly, there is no learner who consistently uses bare forms to refer to ongoing events, but uses *-s* forms only with habituals and statives.

These findings suggest that *-s* production and acquisition of the [+perf] feature are not directly related. Both emerge as proficiency in the L2 increases, with the [+perf] feature being set

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[5] L2 acquisition is subject to individual variation, and length of exposure may not be the best indicator of proficiency: for example, of the three children in the "bold" group, two – A.Y. and V.A. – had fairly short exposure to English but were extremely social; the third, A.N., despite fairly lengthy exposure to English, was very shy and tended to avoid interaction with English speakers, which may have delayed her acquisition process. The exact interaction between such social/motivational factors and speed of L2 acquisition is beyond the scope of this paper.

[6] The use of present-tense forms with ongoing eventualities did not result from lack of mastery of the progressive *ing* form: all of the children have high production of *ing* forms in their data. Interested readers are referred to Ionin and Wexler (to appear) for the exact data and discussion.

before affixal morphology becomes fully productive. This means that the lack of -*s* in obligatory contexts cannot be attributed to lack of a [+perf] feature. Instead, I would like to suggest that *all* present-tense verbs in English (regardless of presence of inflection) are initially marked [-perf] by L2 learners. This would not be very surprising considering that Russian lacks a [+perf] feature on present-tense verbs. The L2 learners could be transferring the [-perf] setting from their L1 to their L2. Alternatively, the [-perf] setting could be a default of L2 acquisition regardless of the specific L1. In order to choose between these alternatives, we would need to look at data from other combinations of L1's and L2's.

4.4 Aspectual Interpretation of Past Tense in L2 Data

The previous section argued that lack of inflection in L2-English is not responsible for a [-perf] setting on the verb. This section approaches the problem from the other end, arguing that presence of (past-tense) inflection does not entail a [+perf] feature setting on the verb.

Looking at the data of all the L2 learners together, we see that both inflected and bare past-tense forms are used in perfective contexts. As Table 4 shows, 70% of bare forms and 86% of finite forms have a perfective interpretation. Some examples are given in (7).

aspectual interpretation	bare forms	finite verbs
imperfective/unbounded	33 (15%)	16 (8%)
perfective/bounded	159 (70%)	180 (86%)
unclear	15 (7%)	0
stative[7]	19 (8%)	14 (7%)

TABLE 4. Aspectual interpretation and finiteness in the past tense.

(7) a. *bounded event with bare form*
         M.Y.: he turn a girl into a bear
         "He turned a girl into a bear"
     b. *bounded event with inflected form*
         M.A.: he ran home
     c. *unbounded event with bare form*
         Investigator: what did you do over vacation?
         K.I.: I go to the park with the dog
         "I went to the park with the dog"
     d. *unbounded event with inflected form*
         Investigator: tell me where you went over Christmas break… what type of
             things did you do?
         V.A.: I went snowboarding

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[7] Statives are grouped as a separate category for two reasons. First of all (as Smith and Rappaport point out), statives in Russian are always imperfective. Even though a verb such as *want* in Russian can be morphologically either perfective or imperfective, in its perfective form it no longer expresses a state: it has the meaning of "beginning to want something" – it no longer expresses the *state* of wanting. When the L2 learners use verbs such as *want* in the past tense, it is generally impossible to tell which meaning they have in mind. The second reason for separate grouping of statives is the fact that Gavruseva's L2 learner, Dasha, used past tense morphology only with perfective *eventive* predicates.

The numbers in Table 4 suggest that the L2 learners use perfective past tense more often than the imperfective. While finite forms are somewhat more likely than bare forms to be perfective, this effect does not appear meaningful. Individual learner breakdowns are given in Table 5.[8]

CHILD	overall % of past tense forms used in obligatory contexts	% of past tense forms used to refer to bounded events (over all instances of past tense use)	% of bare forms used to refer to bounded past-tense events (over all instances of bare form use in the past tense)
A.Y.	34% (21/62)	91% (19/21)	61% (25/41)
M.A.	92% (22/24)	100% (22/22)	100% (2/2)
D.A.	22% (13/58)	54% (7/13)	47% (21/45)
K.I.	42% (14/33)	86% (12/14)	63% (12/19)
V.A.	71% (58/82)	81% (47/58)	96% (23/24)
A.T.	16% (4/25)	75% (3/4)	76% (16/21)
M.Y.	64% (27/42)	85% (23/27)	93% (14/15)
O.L.	46% (19/41)	95% (18/19)	77% (17/22)
R.O.	50% (5/10)	80% (4/5)	60% (3/5)
T.O.	30% (12/40)	92% (11/12)	82% (23/28)
V.I.	60% (2/5)	100% (2/2)	67% (2/3)
A.N.	87% (7/8)	100% (7/7)	100% (1/1)

TABLE 5. Individual breakdowns in the use of past-tense forms.

Table 5 shows that all of the learners have a general preference for referring to bounded (rather than unbounded) events in the past tense, regardless of presence of inflection. Some learners are somewhat more likely to use inflected forms as perfectives, while others are more likely to use bare forms as perfectives.

The general preference for talking about bounded rather than unbounded events in the past tense may best be attributed to a discourse strategy, not to any process particular to L2 acquisition. In fact, Brun, Avrutin and Babyonyshev (1999) found that young children acquiring Russian as an L1 used the perfective form of the past tense in 68% of all past-tense contexts in which a finite verb (rather than a root infinitive) was used. This was not a phenomenon specific to children: Brun et al. similarly found that Russian-speaking adults whose speech was recorded in the same transcripts used the perfective past-tense forms in 64% of all past-tense contexts. There is thus reason to believe that children as well as adults are more likely to talk about bounded past-tense events than about unbounded ones.

While Russian encodes this distinction morphologically, there is no reason to believe that Russian speakers are unique in having a preference for talking about bounded events. Rather, this may be a general property of discourse: completed (bounded) events are related to the "here and now" (Giorgi and Pianesi 1997), since the right boundary of the completed event is "anchored" in

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[8] Two learners, D.I. and T.I., are excluded from Table 5 due to having fewer than five obligatory contexts for past tense use.

the present tense (Enç 1987). On the other hand, unbounded events in the past tense are not as directly related to the "here and now," which may account for the relative infrequency of imperfective past-tense verbs in everyday speech.

5. Conclusion

This paper examined Gavruseva's (2000) proposal for the role of aspect in L2 acquisition of verbal morphology, using a corpus of data from L1-Russian children acquiring English as an L2. These L2 data suggest that, contrary to Gavruseva's proposal, acquisition of verbal morphology and emergence of aspectual distinctions are two parallel but most likely independent processes in L2 acquisition. Neither third person -*s* nor past tense morphology is directly related to a perfectivity feature[9]. Instead, it was suggested that L2 learners approach English with general discourse strategies as well as a transferred (or default) [-perf] setting on the present tense. The [+perf] feature is apparently acquired before the affixal agreement paradigm of English is fully mastered.

In order to explore more fully exactly what drives the acquisition of aspectual distinctions in the L2, it would be productive to look at other L1/L2 combinations. For instance, do L1-English learners of another language transfer the [+perf] setting of English present-tense verbs onto their L2? Or do they start out with a (default) [-perf] setting? Another direction for further research would be to look at L1 learners of English to see whether they also initially use present-tense verbs to refer to ongoing eventualities[10] – if they do, this may be additional evidence that [-perf] is a default setting.

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[9] For a discussion of why the L1-Russian learners of English omit agreement morphology in their speech, see Ionin and Wexler (to appear).

[10] There is in fact some evidence for this possibility. Hoekstra and Hyams (1998: 93) report that Ud Deen (1997) found most uninflected forms in early L1-English referring to the present tense, "with the present tense here-and-now interpretation being the most frequent."

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The Functional Projections of Subject Splits

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1. Case and Agreement Checking

Linguistic theory (Minimalism and its precursors) by and large assumes that all subjects in all languages are syntactically equivalent. The theory designates one position in the syntax for grammatical subjects, and mandates that all morphosyntactic processes related to that subject (e.g., agreement and case) take place in that one position.

The standard theory also assumes that agreement consists of a single bundle of features. The verb agrees with the subject in person (first, second, or third), number (singular, dual, plural) and gender (e.g., masculine, feminine, neuter). The formal features associated with the functional heads must "check" against the person, number and gender features inherent to the subject, ensuring that the subject and verb properly agree. In particular, it is assumed that case and agreement are checked in Spec, AgrP (or in a second Spec position of T depending upon one's approach to agreement checking). Under the assumption that an Agr node mediates agreement checking, it is generally assumed that accusative case and object agreement are checked in Spec, Agr-oP, and nominative case and subject agreement are checked in Spec, Agr-sP. The Minimalist Program (MP) makes a couple of assumptions critical to our focus in this paper. First, MP assumes that _ features (person, number, and gender) are an inseparable bundle, all selected by a single functional head. Second, MP assumes that all subjects must check features at some point in the derivation.

However, it appears that the facts in some languages are not so simple. The data presented in this paper indicate that this standard view of agreement is wrong. In particular, we argue that subjects check their phi features in different positions depending upon person. We will also show that some languages separate out person features and gender features as independent features, and that some subjects check only person features, while others check only gender features.

2. The Existence of Subject Splits

Preliminary research into American Indian languages shows considerable divergence in their treatment of subjects. Languages from differing language families treat subjects in multiple ways, both in the verbal morphology and in the syntax. Languages may treat first and second person subjects differently from third person subjects, and animate subjects differently from inanimate subjects. We will call any differential treatment of subjects a subject split.

Subject splits are revealed in several ways. There can be a lack of agreement marker, as in Lakhota, a Siouan language (Rood & Taylor 1996). This is traditionally called a zero-morph. Alternatively, the agreement markers may differ in Case agreement, as in Wichita, a Caddoan language. In Wichita, for example, 1st and 2nd person agreement is marked with agent/patient relations, but the 3rd person is marked with ergative/absolutive relations (Rood 1996). Importantly, both of these languages mark 1st and 2nd person differently from 3rd person.

Subject splits can also be seen in the position of the agreement morphology. In Algonquian languages, the position of agreement markers switches according to the relative animacy of the arguments. When two arguments occur, the argument higher in animacy appears as a prefix on the verb; the argument lower in animacy appears as a suffix (Wolfart 1996 for Cree, Berardo 1999 for Shawnee). Athapaskan languages provide another good example of positional differences. Athapaskan has a very complex verb morphology, including up to ten conjunct prefixes. We will not attempt to furnish all the prefixes possible across the Athapaskan languages, but rather will give the general idea of the prefixes available and the relative positions that they appear in. A detailed description of the Athapaskan verb is provided in Rice (2000), based primarily on Slave. Generalizing and simplifying a bit, the verb prefix slots are given in (1). In Athapaskan, the 3rd person agreement marker appears in a different position on the verb from that of the 1st and 2nd person marker (Rice 2000 for Slave). The 1st and 2nd person appears next to verb stem, but the 3rd person appears outside tense/aspect next to object marker, as shown in the template in (1).

(1)   A template of Athapaskan verb morphology
Obj + (**3ʳᵈSubj**) + lexical qualifiers + tense/aspect + (**1ˢᵗ/2ⁿᵈSubj**)+classifier+V+aspect

As can be seen from the template in (1), lexically specified material appears intermixed with agreement and tense/aspect markers. The classifier is part of the lexical entry for the verb, and a particular classifier must always occur with a particular verb. The lexical qualifiers (called "themes" in the Athapaskan literature) are also lexically determined. Incorporated nouns or incorporated postpositions may occur before the object marker.

What is apparent from the template is that the nature of agreement is complex. First, when the subject is 1st or 2nd person, the verb agrees with that subject in person and number (singular, dual, plural). There is no gender distinction in 1st or 2nd person verbal agreement (as is the case for the majority of languages). When the subject is 3rd person, the verb agrees with it in gender and number, and there is no person feature. Second, agreement with a 1st or 2nd person subject is obligatory. The 3rd person agreement marker is optional, and tends to appear only in the dual or plural. Finally, 1st and 2nd person agreement appears relatively close to the verb stem, with only the classifier appearing between the two. 3rd person agreement appears quite far from the verb stem, outside all tense and aspect markers, just inside the object agreement marker.

Rice (2000) shows the positional difference in Slave between 1st/2nd person subject agreement and 3rd person subject agreement with the examples below. We have shown the agreement marker in bold in (2). These examples include a lexical qualifier –n(V)-, here indicated in italics. Notice that the first and second person marker invariably appears to the right of the lexical qualifier. The third person singular in this example has no overt marker, and the both the third person dual/plural and the impersonal agreement markers appear to the left of the qualifier. It appears from the data that there are two subject positions—one for 1st and 2nd person, and a different one for 3rd person.

(2)   Agreement in Athapaskan
         "hide" (optative)
         ní-*né*-o-**h**-'í̜   1st singular *h*
         ní-*né*-**o̜**-'í̜   2nd singular nasalization
         ní-*n*-**úú**-'í̜   1st dual/plural *úú*
         ní-*ná*-**ah**-'í̜   2nd dual/plural *ah*
         ní-*né*-o-'í̜   3rd unmarked
         ní-**ke**-*n*-éo-'í̜   3rd dual/plural *k*
         ní-**ts'**e-*né*-o-'í̜   unspecified *ts*
         (Rice 2000: 182-3)

Finally, subject splits can appear with differential case patterns, not just differential agreement patterns. Case splits appear in languages as diverse as the Mayan and Australian languages in which the subject of only some sentences is nominative case; ergative otherwise (Garcia & Guajan 1999 for Kaqchikel Mayan, Dixon 1994 for Dyirbal). In Dyirbal, 1st and 2nd person subjects receive nominative case, whereas 3rd person subjects receive ergative case.

(3)   a.   **ngaja**   paninyu
              I-nom   come-fut
              "I'm coming."

         b.   **ngaja**   nginuna palkan
              I-nom   you-acc hit-nfut
              "I'm hitting you."

         c.   **ngaja**   payiyarapalkan
              I-nom   there-absman-abs hit-fut
              "I am hitting man."

(4)   a.   ngaykuna   pangkul **yarangku**   palkan
              I-acc   there-erg **man-erg**   hit-nfut
              "Man is hitting me."

         b.   payiparrkan pangkul **yarangku**   jurrkanyu
              there-abswallaby-abs   there-erg **man-erg**   spear-nfut
              "Man is spearing wallaby."
              (Dixon 1972: ex (28-33) 64)

In looking at Walpiri and Inuit, Bittner and Hale (1996) have argued that nominative case is checked in Spec, IP (AgrsP for us), whereas ergative case is checked inside VP. Bittner and Hale are essentially arguing that there is a positional distinction between nominative and ergative case. If this is correct, then 3rd person subjects in Dyirbal are checked lower in the structure than 1st and 2nd person subjects.

From these data, we conclude that subject marking is not necessarily uniform within a language; "subject splits" occur across languages and prevailing theories neither predict nor explain them in any natural fashion. Not only are subjects treated differently across languages, they are not necessarily uniform within a language. While the existence of subject splits in general is widely known and recognized (e.g., Rice 2000, Rice & Saxon 1994, Dixon 1994, Mithun 1991,

Bittner and Hale 1996, Rhodes 1990), there has been no cross-linguistic theoretical integration of the facts. What is not known is whether subject splits follow general patterns. Linguistic theory must seek out the patterns, and analyze them if we are to understand the agreement mechanisms and the representation of subjects in the linguistic system.

3. Position of the Subject and Object in Euchee

In order to delve into the mechanics of subject splits, we will look at agreement in Euchee. Euchee is a language isolate, originally spoken in the North American Southeast, but is now spoken in Oklahoma. Like other languages of the Americas, it is largely polysynthetic with a rich verbal agreement. It is also an active/stative language (or split-intransitive language), meaning that the core arguments of intransitive verbs are marked either with the agent marker, if the verb is an event, or the patient marker, if the verb is a state.

On the surface, the agreement morphology appears to have an Object (patient)-Subject (actor)-Verb order, given as a preliminary template in (5).

(5)   A template of Euchee verb morphology—**FIRST PASS**
         Obj + Subj + V + aspect + tense

This order is clearly seen when participants are 1st and 2nd person, as in (6).

(6)   a.   hõ-**di**-'ne → 1st person subject = O-S-V
              him(obj)-I(subj)-see
              'I see him.'

         b.   nedze-**di**-'ne
              you(obj)-I(subj)-see
              'I see you.'

         c.   hõ-**ne**-'ne   → 2nd person subject = O-S-V
              him(obj)-you(subj)-see
              'You see him.'

         d.   dze-**ne**-'ne
              me(obj)-you(subj)-see
              'You see me.'
              (Linn 2001)

It becomes more complicated, however, when the subject (actor) is in the 3rd person. The relative positions of the subject and object agreement markers are flipped when the subject (actor) is in the 3rd, as the data in (7) show.

(7)   a.   **hõ**-dze-'ne   → 3rd person subject = S-O-V
              he(subj)-I(obj)-see
              'He sees me.'

         b.   **hõ**-nedze-'ne
              he(subj)-you(obj)-see
              'He sees you.'
              (Linn 2001)

In order to account for this, we might revise the template in (5), and posit a template as in (8), where the 3rd person subject is separate from 1st and 2nd person subjects. This would make the Euchee agreement system somewhat parallel to the Athapaskan data.

(8)   A template of Euchee verb morphology—**SECOND PASS**
        3Subj + 1/2/3Obj + **1/2Subj** + V

Unfortunately, this order does not work in Euchee. The data in (9) illustrate the agreement markers when both arguments are 3rd person. Euchee does not allow two 3rd person markers. If both arguments are 3rd, the verb agrees with the subject only; the object must appear as an independent phrase, and no verbal agreement marker appears for the object argument.

(9)   a.   sedi   **hõ**'ne
              her he-see
              'He sees her.'

        b.   *se-hõ-'ne
              her(obj)-he(subj)-see
              'He sees her.'

        c.   *hõ-se-'ne
              he(subj)-her(obj)-'ne
              'He sees her.'
              (Linn 2001)

This fact cannot be accounted for if there are two slots in the template, one for the 3rd person subject and one for the (3rd person) object.

In addition, recall that Euchee has active/stative marking. Active/stative marking appears only on 1st and 2nd person arguments. The agreement for the event roles actor and patient are only found on the 1st and 2nd persons, as seen in (10). In (10a) 1st and 2nd get event role-marking. The generalization seems to be that 1st and 2nd person arguments get event role-marking; 3rd person gets gender marking.

(10)   a.   Active marking in 1st and 2nd
              dithe   'I ran'
              'õthe   'we (inclusive) ran'
              nõthe   'we (exclusive) ran'
              nethe   'you ran'
              'anethe/**'ã**the   'you (plural) ran'

        b.   Stative marking in the 1st and 2nd (bi-morphemic)
              dzes'i'e   'I am short'
              'õdzes'i'e   'we (inclusive) are short'
              nõdzes'i'e   'we (exclusive) are short'
              nedzes'i'e   'you are short'
              'adzes'i'e   'you (plural) short'

    c.   No event role; gender in 3rd person
        hõthe   'he ran'
        hõs'i'eõ   'he is short'
        *__**hõdze**__s'i'eõ   'he is short'
        sethe   'she ran'
        ses'i'e   'she is short'

    d.   No inanimate subject (agent) of an event verb.
        *hithe   'it ran'
        hish'o   'it is withered'
        (Linn 2001)

Interestingly, Euchee does not allow inanimate subjects of eventive verbs, as the example in (10d) shows. Our assumption is that an event must have initiation, and the subject plays the role of initiating events. An inanimate argument is by definition a non-initiator (cannot be an actor, for example), and therefore there can be no inanimate actors in Euchee.

To sum up, since Euchee does not allow 3rd person agreement markers, and since 3rd person objects do not show agreement, we posit that there is only one 3rd person slot in the Euchee verbal template. A final revised template appears in (11).

(11)   A template of Euchee verb morphology—**FINAL**
         3 + 1/2Obj + 1/2Subj + V

The following facts emerge from our discussion of Euchee:

    i.   First and second person agreement markers appear in a different position in the verb from third person agreement markers.
    ii.   First and second person agreement is inflected for person and number but not gender.
    iii. Third person agreement is inflected for gender and number but not person.
    iv. When both arguments are 3rd person, the verb agrees with the subject only; the object must appear as an independent DP.
    v.   Active/stative marking appears on 1st and 2nd person arguments.

4. Hypotheses

In order to account for the facts listed above, we propose, following Ritter and Rosen (2000, 2001) and others, that there are languages that organize their arguments along an animacy hierarchy. In such languages, the positions SUBJECT and OBJECT have less significance in the organization of the clause and the agreement markers than animacy. We provide a standard animacy hierarchy in (12) for the sake of reference. Notice that the hierarchy is based on animacy, person, and type of NP. It seems that languages that are sensitive to animacy make a binary split somewhere along the continuum in (12) between animate and inanimate arguments. The split may be almost anywhere on a hierarchy like that in (12).

(12)   Croft's (1990: 112) Animacy Hierarchy (based upon Silverstein)
        1st/2nd person pronoun > 3rd person pronoun > proper name > human common
        noun >non-human animate common noun > inanimate common noun

The person hierarchy, as pointed out by Croft (1990: 113) plays an important role in the expression of subjects and objects in many languages, and it represents the most radical difference between Subject/Object marking language and other languages in the world.

From these facts given above, we make the following hypotheses:

i.   Subjects check person features in one position and gender features in a separate position; number may appear with either person or gender.
ii. First and second person have person features but no gender features.[1]
iii. Third person has gender features but no person features (Benveniste 1956, Noyer 1997).

The hypotheses have the following consequences for the structure of a language like Euchee, and is schematized in (16) below:

i.   Subjects that are animate have person features. Subjects that are inanimate have gender features, and these features are checked in a Gender Phrase.
ii. There are two functional projections where subjects may be checked—Agr for subjects with person features, and Gen for subjects with gender features.[2]
iii. TP may appear between AgrP and GenP (in Athapaskan tense and aspect comes between the two subject positions), or may dominate AgrP.

We assume, along with Baker (1996), that the pronominal markers on the verb are agreement, and not, for example, the arguments themselves. Along these lines, the actual verbal arguments appear as *pro* in the relevant specifier positions. In line with Baker's claims, all independent noun phrases are adjuncts.

In order to derive the Euchee morpheme and word order, we also assume that the morphology is represented as a mirror image of the syntax. This is known as Mirror Image projection and checking (Baker 1995, Pollock 1997). Pollock (1997: 257) proposes that in a checking theory, functional features are visible only on the outer layers of the morphology. After a feature is checked and deletes, the next layer is visible to be checked. In his approach, checking requires functional projections to be a mirror image of the morphology on the verb, as schematized in (13).

(13)   a.   [[ ]]

        b.
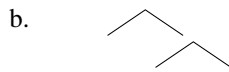
The example in (14) shows Pollock's proposal for the relation between the morphology and the syntax for agreement and tense in French. In this example, Pollock argues that because the agreement marker appears outside the tense marker, it must be lower in the syntactic structure.

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[1] Semitic languages have gender in the 2nd person. Our proposal is that gender is used to check animacy requirements of 3rd persons. Since 2nd person is inherently animate, there is no need for gender to be a separate projection for 2nd person.

[2] Rice and Saxon (1994) also propose two functional projections for the subject in Athapaskan. Their analysis is compatible with ours. One difference is that Rice and Saxon propose a Number Phrase rather than a Gender Phrase. Given that 1st, 2nd and 3rd all include number distinctions, but not all include gender distinctions, we propose that gender be separated from person rather than number.

When the verb raises to Agr-s, it will check the agreement, it's formal feature will delete, and the tense marker will be visible for checking. If the visibility approach to the formal features is correct, then the Agr node must be lower than T in French.

(14)   a.   Nous parlerons   (French)
              'We will speak.'

        b.   [[[$_{root}$ parl] -er $_{tense/mood}$] -ons $_{Agrs}$]morphological structure
              [$_{TP}$ NP T]$_{AgrP}$ Agr [$_{VP}$ _]   syntactic structure

If we apply Pollock's approach to Euchee, we get a structure like that in (15). Agr-s must dominate Agr-o, which in turn dominates Gender.
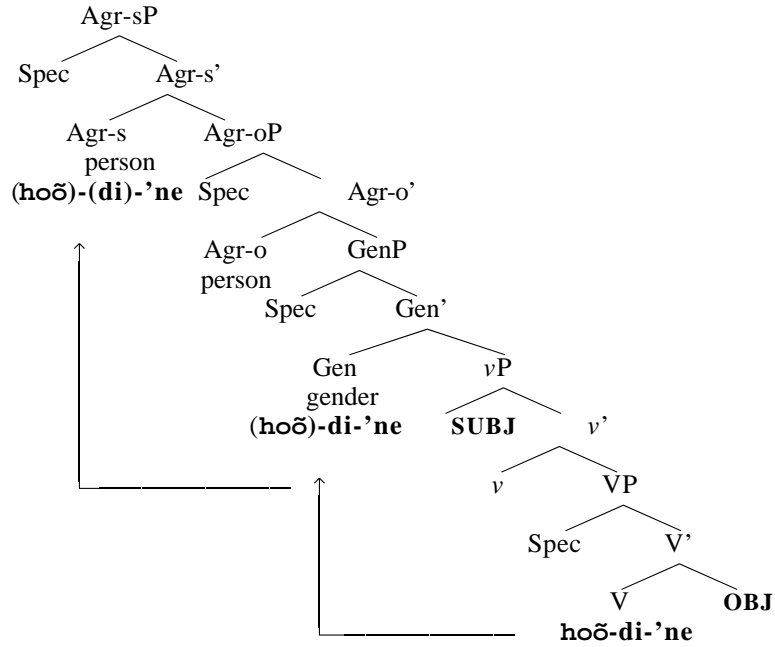
(15)   a.   I see you.   (Euchee)
              [$_{gen}$ [$_{Agro}$ nedze- [$_{Agrs}$ di- [$_{root}$ 'ne] morphological structure
              [AgrsP [AgroP [GenP [VP]]]] syntactic structure

        b.   He sees me.
              [$_{Gen}$ ho- [$_{Agro}$ dze- [$_{Agrs}$ [$_{root}$ 'ne]   morphological structure
              AgrsP [AgroP [GenP [VP]]]]   syntactic structure

Thus, a separate gender phrase (GenP) between vP and Agr-o, and using the Mirror Priniciple, derives the agreement morpheme order in Euchee. This can be seen in examples (16)-(19). Each morpheme layer is checked from the inside out, and the parentheses are used to show that a morpheme has been checked and the next layer is visible for checking.
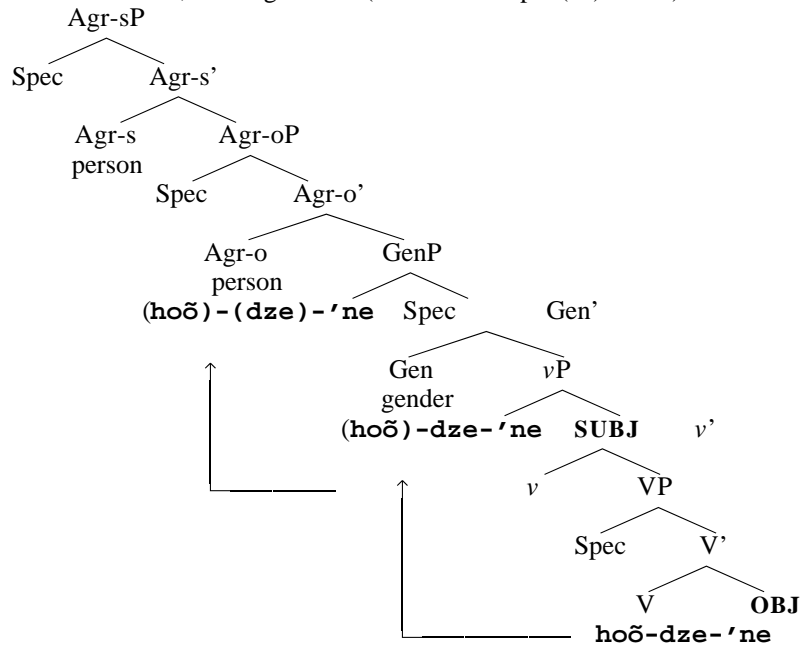
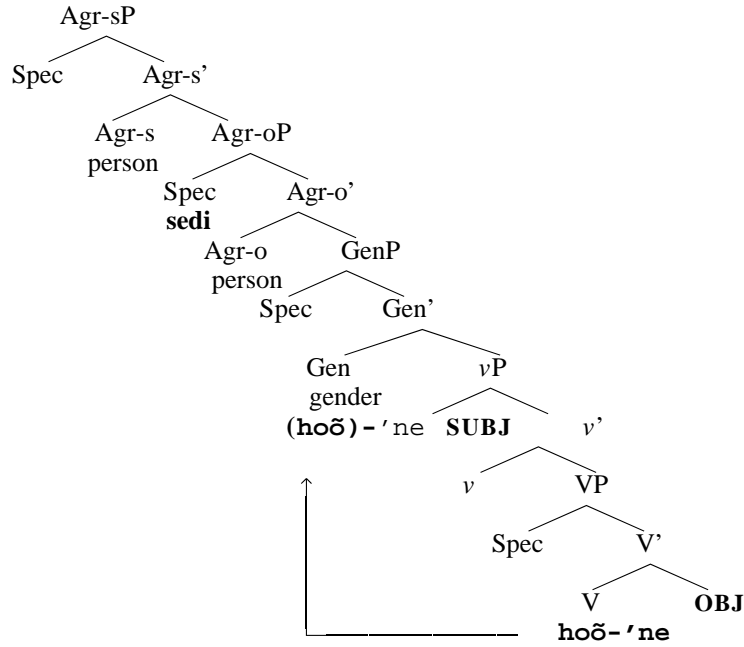(16)   O-S-V order, 1/2 acting on 1/2 (same as example (6b) above)
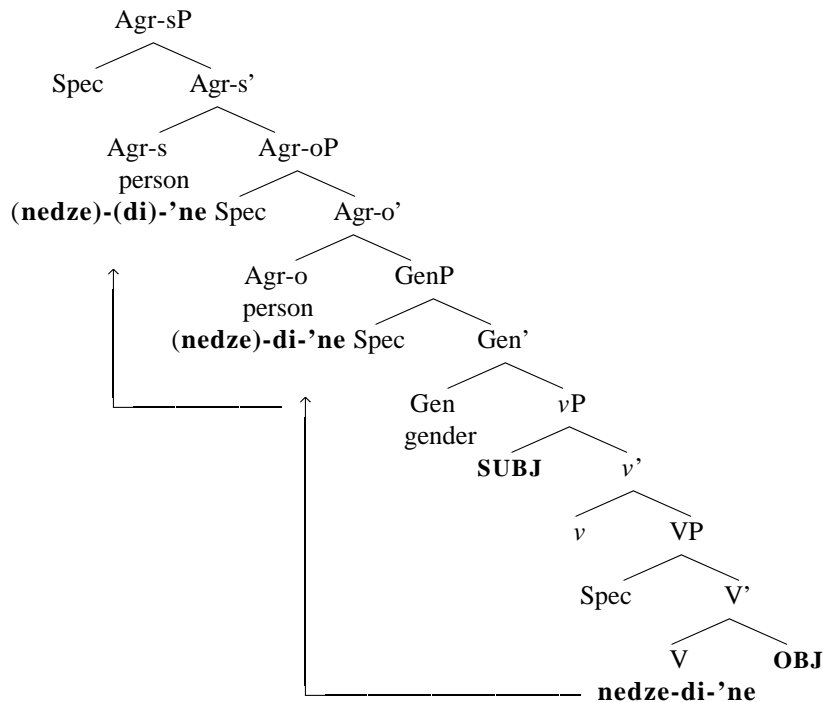
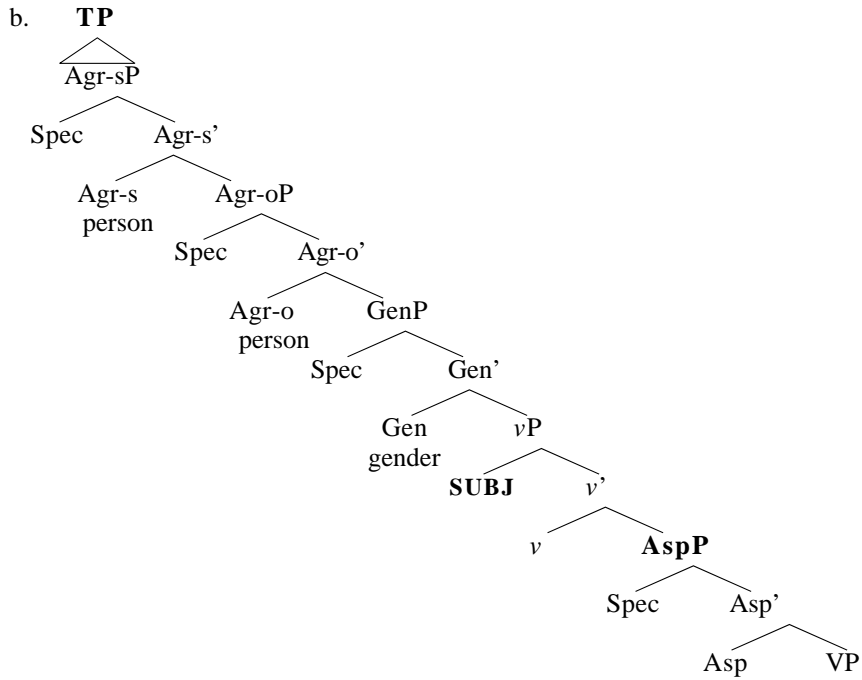(17)   O-S-V order, 1/2 acting on 3 (same as example (6a) above)

```
                    Agr-sP
                   /      \
               Spec        Agr-s’
                          /      \
                      Agr-s       Agr-oP
                      person     /      \
              (hoõ)-(di)-’ne  Spec      Agr-o’
                                       /      \
                                   Agr-o       GenP
                                   person     /    \
                                          Spec      Gen’
                                                   /    \
                                                Gen      vP
                                                gender  /   \
                                          (hoõ)-di-’ne SUBJ  v’
                                                            /   \
                                                           v     VP
                                                                /    \
                                                            Spec      V’
                                                                     /   \
                                                                    V    OBJ
                                                                 hoõ-di-’ne
```

(18)   S-O-V order, 3 acting on 1/.2 (same as example (7a) above)

```
                   Agr-sP
                  /      \
              Spec        Agr-s’
                         /      \
                     Agr-s       Agr-oP
                     person     /      \
                            Spec        Agr-o’
                                       /      \
                                   Agr-o       GenP
                                   person     /    \
                          (hoõ)-(dze)-’ne  Spec     Gen’
                                                   /    \
                                                Gen      vP
                                                gender  /   \
                                          (hoõ)-dze-’ne SUBJ  v’
                                                             /   \
                                                            v     VP
                                                                 /    \
                                                             Spec      V’
                                                                      /   \
                                                                     V    OBJ
                                                                  hoõ-dze-’ne
```

(19)   S-V order, 3 acting on 3 (same as example (9a) above)

Agr-sP
Spec   Agr-s'
        Agr-s
        person   Agr-oP
                  Spec
                  sedi   Agr-o'
                              Agr-o
                              person   GenP
                                        Spec   Gen'
                                                Gen
                                                gender
                                                (hoõ)-'ne **SUBJ**   *v*P
                                                                          v'
                                                                          v   VP
                                                                                 Spec   V'
                                                                                         V   **OBJ**
                                                                                              hoõ-'ne

(20)   a.   ho-dze-'neõ-ne-jeõ
              he-me-see-HAB-PST.IMP
              'He used to see me.'

        b.   **TP**
              Agr-sP
              Spec   Agr-s'
                      Agr-s
                      person   Agr-oP
                                Spec   Agr-o'
                                        Agr-o
                                        person   GenP
                                                  Spec   Gen'
                                                          Gen
                                                          gender   *v*P
                                                                    SUBJ   *v'*
                                                                                v   **AspP**
                                                                                       Spec   Asp'
                                                                                               Asp   VP

While the agreement markers are consistent with mirror image checking, the tense and aspect markers in Euchee are not aligned in mirror image fashion and are more consistent with incorporation. Tense and aspect are suffixed, with an order of V–Aspect–Tense. The placement of the tense and aspect markers are illustrated in (20).

Tentatively, we conclude that agreement is checked, but tense/aspect is incorporated. If this is on the right track, it means that languages can have a mixed system of incorporation for some functional features and checking for others.[3]

5. Ongoing Inquiry and Conjectures

Without the availability of a functional projection between the *v*P and Agr-o, we are not able to account for the Euchee morpheme order. We have argued that this functional projection is a Gender Phrase. Subjects that are animate have person features. Subjects that are inanimate have gender features, and these features are checked in a Gender Phrase. In Euchee, only animate participants may be subjects of events. Gender is used to regulate the animacy of a 3rd person, making an animate 3rd person available for subjecthood.

Event structure in the syntax builds on the aspectual notions of events (activities, accomplishments, and achievements vs. states) as having an object of origin/actualization, the event, and the object of termination (Tenny 1994, Van Voorst 1988, Dowty 1979, Vendler 1967). The initiator is realized as the subject and the termination or delimiter is realized as the object. There has been much research indicating that a verb is read as an event when it has a terminus, or is delimited by a direct object. However, there has been little research conducted on the role, if any, that the initiator plays in eventhood. Ritter and Rosen (2000, 2001), for example, have argued that some languages organize their arguments around quantization of the object and the event, and others do not. They suggest there is a typology of languages based on events in the syntax.

•Delimitation-based languages
     -Accomplishments form a natural class with achievements
     -Sensitive to specificity of the object
     -Accusative case may be restricted on the basis of the object or on the basis of
     aspect/tense
     -Ergative splits on the basis of perfective aspect/past tense
     =>D-languages identify events via the object

The question is whether some languages organize events around the initiator of the event, or the subject. Thus, we suggest that there is a class of animacy based languages (Ritter & Rosen's initiation-based languages):

•Animacy-based languages
     -Accomplishments form a natural class with activities (??)
     -Sensitive to animacy and agentivity properties of subjects

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[3]We do have a complication concerning the universality of functional projection ordering. The dominance relations of the agreement phrases in Athapaskan would be AgrsP>GenP>AgroP if we assume mirror imaging. It is not clear at this stage of our research what to make of such apparent language-particular ordering.

-May make a grammatical distinction between topic and subject
-Ergative splits on the basis of properties of the subject
-Subject and object agreement specified for person features
-Show overt animacy hierarchies
=>A-languages identify events via the subject

We propose that Euchee and other subject split languages organize arguments around animacy, particularly the animacy of the subject.

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Subject Agreement in Korean: Move F, Attract F, or Agree?[*]

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1. Introduction

Chomsky (1995: 261ff) proposes that what moves in a given movement operation is a (formal) feature rather than an entire category. He further suggests that solely the target triggers movement in order to check off its uninterpretable features by attracting the closest relevant interpretable feature. That is, what induces movement is a morphological requirement of the target (**Attract F**) rather than that of the element that enters into a checking relation with it (**Move F**). Notice that in Attract F the motivation for movement of a feature is to satisfy a morphological requirement. By contrast, Move F requires a feature to undergo movement in order to be checked off against a relevant feature. Further, eliminating Move F and Attract F, Chomsky (2000) proposes **Agree** under which feature checking reduces to deletion under identity without feature movement.

This paper examines these three approaches to subject agreement constructions in Korean. It is proposed that Move F is still needed to account for the constructions, contrary to Chomsky (1995) who tries to replace Move F by Attract F. It is also discussed that Chomsky's (2000) Agree encounters difficulties.

2. Subject Agreement

Choe (1988), Lee (1991), and Kim (1994), to name a few, claim that *tul* in Korean falls into two categories. One is a plural marker like English *s* as in *boys* and the other is subject agreement like English *s* as in *rings a bell*.

Consider the following:

(1) a. haksaeng-**tul**-i rak'etpol-ul yolsimhi-**tul** ch'yotta[1]
     student-PL-NOM racquetball-ACC intensely-**?** hit
     'The students played racquetball intensely.'

---

[1]I am adopting the McCune-Reischauer Romanization System.

The first *tul* following the count noun *haksaeng* functions to pluralize it. Plainly, it is a plural marker. Of particular interest is that the second *tul* follows the adverb *yolsimhi*. It is obvious that conceptually, adverbs cannot be pluralized. Nonetheless, the so-called plural marker *tul* follows the adverb. This leads to the conclusion that the second *tul* is distinct from the first in its grammatical function. If the second *tul*, unlike the first, does not serve as a plural marker, what is its grammatical function? Choe (1988: 113) argues that the second *tul* in (1a) is an exponent of subject agreement.

This follows from the observation that it occurs when its clause-mate subject, but not the object, is plural, as illustrated in (1b,c):

(1)   b.   *han haksaeng-i   rak'etpol-ul   yolsimhi-**tul**   ch'yotta
                 one student-NOM racquetball-ACC intensely-AgrS hit
                 'One student played racquetball intensely.'
         c.   *han haksaeng-i   kwaja tu kae-lul masitke-**tul** mogotta
                 one student-NOM cookie two-ACC tastily-AgrS ate
                 'One student ate two cookies with gusto.'

The deviance of (1b,c) is accounted for straightforwardly by he fact that *tul* is a subject agreement marker: Since the subject *han haksaeng* in (1b) is singular, *tul* fails to agree in number with it. Though the object *kwaja tu kae* is plural, (1c) is ungrammatical since the subject is singular. These observations lead to conclude that *tul* is a realization of [+Agr], namely, AgrS (Choe 1988:113).

More convincing evidence in favor of AgrS *tul* comes from various classes of constructions such as complex sentence (2), object control (3), subject control (4), secondary predication (5), and ECM (6) constructions (Lee 1991, Moon 1995 and Yim 1999).

(2)   a.   Sangmin-i [ai-tul-i kwaja-lul   masitke-**tul** mogotta]-go malhaetta
                 -NOM child-PL-NOM cookie-ACC tastily-AgrS ate-COMP said
                 'Sangmin said that the children ate the cookies with gusto.'
         b.   *ai-tul-i [Sangmin-i   kwaja-lul   masitke-**tul** mogotta]-go malhaetta
                 child-PL-NOM Sangmin-NOM cookie-ACC tastily-AgrS ate-COMP said
                 'The children said that Sangmin ate the cookies deliciously.'

(2b) is ungrammatical since AgrS *tul* fails to agree in number with the singular subject *Tom*. Put differently, AgrS cannot agree in number with the plural subject *ai-tul* since they are not clause-mates. In contrast, (2a) is grammatical since *tul* agrees in number with the plural clause-mate subject *ai-tul*. Notice that *tul* is required to take a plural clause-mate subject as its licenser (Lee 1991: 86).

The AgrS analysis of *tul* also holds for object control constructions. The prediction would be that in the constructions under discussion, if *tul* agrees in number with a PRO controlled by a plural object, it would be licensed. (3a,b) bear this predication out.

(3)   a.   Tom-i   ai-tul$_1$-ul   [$_s$ PRO$_1$ chip-e-**tul**   ka-dorok] soltukhaessoyo
                 Tom-NOM child-PL-ACC   [house-to-AGR go-COMP] persuaded
                 'Tom persuaded the children to go home.'

b. *ai-tul-i   Tom$_1$-ul [$_S$ PRO$_1$ chip-e-**tul**   ka-dorok] soltukhaessoyo
    child-PL-NOM Tom -ACC   [house-to-AGR go-COMP] persuaded
    'The children persuaded Tom to go home.'
    (see Lee 1991: 87)

In (3a) PRO is controlled by the plural object *ai-tul*, and *tul* attached to the postposition *e* agrees in number with it. The ungrammaticality of (3b) is explained by the fact that PRO is controlled by the singular object *John*; hence, *tul* fails to agree with PRO in number.

(4)   a. saram-tul$_1$-i   John-ege [PRO$_1$ chip-e-**tul**   kagetta-go] yaksokhaetta
           person-PL-NOM   -DAT   [home-LOC-AGR go.will-COMP] promised
           'People promised John that they would go home.'
       b. *John$_1$-i   saram-tul-eke [PRO$_1$ chip-e-**tul**   kagettago]   yaksokhaetta
            John-NOM people-PL-DAT   home-LOC-AGR go-will-COMP promised
           'John promised people that he would go home.'
           (see Lee 1991: 93)

The subject agreement analysis holds for subject control constructions as well. In (4a) *tul* takes as its licenser the PRO controlled by a plural subject; hence, the former agrees in number with the latter. (4b) is ungrammatical since *tul* fails to agree in number with the PRO controlled by a singular subject.

The analysis carries over to a secondary predication (5) and an ECM (6) construction.

(5)   Sangmin-kwa Suni-ka   maenbal-ro-**tul** ttwiotta
       -and   -NOM bare.foot-as-Agr ran
       'Sangmin and Suni ran barefooted.'

(6)   sonsaengnim-i [haksaeng-tul-ul kyosil-e-**tul**   itta-ko]   midotta
       teacher-NOM [student-PL-ACC classroom-at-AgrS exist-COMP] believed
       'A teacher believed the students to be at the classroom.'

To sum up, *tul* is an exponent of AgrS that agrees in number with a plural clause-mate subject (Lee 1991: 86).

3. Morphological Characteristics of *Tul*

The Korean subject agreement marker *tul* differs from the English counterpart in exactly one respect, namely, in that it can be morphologically realized on a variety of categories (parts of speech).

(7)   nohi   kogiso(-**tul)** muot(-**tul)** hago(-**tul)** innungo-ni(-**tul**)?
       you.PL there-AgrS   what-AgrS do-AgrS   being-Q-AgrS
       'What are you (pl.) doing there?' [addressed to more than one person]

In (7) *tul* is suffixed to the adverb *kogiso*, and the noun *muot*. It follows the verbal complex -*go* and the question marker Q -*ni* as well. Recall that in (4) *tul* attaches to the postposition *e*. By contrast, English AgrS is never allowed to follow such categories.[2]

I would like to briefly point out yet another interesting distinction in morphological realization between Korean and English subject agreement. *Tul*, unlike its English counterpart, may occur ubiquitously and optionally: In (7) it can occur once, twice, or more, or not at all.[3]

4.   Theoretical Issues

We have seen that the Korean subject agreement marker *tul* patterns differently from, say, the English counterpart in that the former is suffixed (relatively) freely to various categories (parts of speech) such as adverbs and postpositions. This "free suffixation" of *tul* brings up an interesting theoretical issue.

Before going into the issue, let us first consider the morphology of -features. In English, for instance, T bears uninterpretable -features for subject (and object) whereas V provides a "place" for their morphological realization (Chomsky 1995: Ch. 4). In other words, while T is a carrier of -features for the subject, V is a place for their morphology. Notice that there occurs a "feature dislocation"---a mismatch between a feature carrier and the featural realization. Notice that in English, the -features on the T are morphologically realized on the V.

Such feature dislocation appears to be counter-intuitive in some sense. However, feature dislocation seems to be "put in place." In English, V undergoes movement to T, whose categorial [V]-feature attracts it. This is illustrated in (8a,b):

(8)   a.   [TP ... T ... [VP ... V ...]]
                          [ ]

           b.   [TP ... V-T ... [VP ... t ...]]
                            [ ]

Therefore, feature dislocation--the -features on the T and their manifestation on the V-- end up being "put in place" by means of V-to-T movement, overt or covert.

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[2]Avar and other Northeast Caucasian languages also show agreement of adverbs with a nominal in the same clause (Nichols 1985: 281).
    (i)   Re-s   sa-r   dede-r-e   ical-gi   r-soun r-o'a
        she-Egr here-PL father-DAT-PL apples(PL)-Ptc PL-buy PL-Aux
        'She bought apples here for [her] father.'
Apples agrees in number with *here*, *father*, *buy*, and the auxiliary.
[3]It is not that the subject agreement marker is allowed to follow any class of adverb. My initial observation is as follows: Adopting Im's (1998) classification of adverbs, it cannot follow MP- and CP-modifying adverbs, as illustrated in (i). I don't discuss it here.
    (i)   CP-modifying adverbs: **manyak-tul* 'if', **pirok-tul* 'though'
        MP-modifying adverbs: **kwayon-tul* 'indeed', **ama-tul* 'probably'
        TP-modifying adverbs: *oje-tul* 'yesterday', *ije-tul* 'now'
        NegP-modifying adverbs: *choldaero-tul* 'never', *chonhyo-tul* 'totally'
        *v*P/VP-modifying adverbs: *chal-tul* 'well', *ppalli-tul* 'quickly'

With this in mind, let us now consider the morphology of subject agreement in Korean. To take (7), *tul* follows the adverb *kogiso*. Here two possibilities are available. One is to assume that even if *tul* attaches to the adverb, what carries the -features is T, along the lines of the English case. The other possibility is to assume that the adverb itself carries the -features.

With these in mind, recall V-to-T movement in English and the categorial [V]-feature of T. V-to-T movement in English resolves feature dislocation. By contrast, the adverb marked with *tul* does not bear a categorial [V]-feature to be attracted by T; hence, no movement to T is allowed, as illustrated in (8c):

(8)   c.   [… T …   [… Adv(P) …]]
                  [ ]

From the unavailability of categorial [V]-feature of adverb it follows that an adverb undergoes no movement to T; hence, feature dislocation involving *tul* remains unresolved.[4]

An alternative to resolve this feature dislocation is to take the second option:

(8)   d.   An element X bears a feature F iff F is morphologically realized on it.

An element X marked morphologically with a feature F bears the relevant feature in Korean (and hopefully, in English). In short, a feature exponent must be a feature carrier and vice versa. Thus, by assumption (8d), in Korean what carries the uninterpretable -features of *tul* on the adverb in (7) is the adverb (phrase) itself. The adverb in (7) is both a -features carrier and a -features exponent.

Further, with respect to the ubiquitous characteristic of *tul*, I assume, if elements are marked with *tul*s, then each of them all bears uninterpretable -features on it.

Returning to the theoretical issue, the uninterpretable -features on, say, an adverb must be checked off against the interpretable -features on a plural subject. Three options are available: The former move, or the latter move, or neither of the two moves, namely, Agree. I will return to each of these cases below.

4.1 Agree

Let us first consider the Korean subject agreement under Agree Chomsky (2000) proposes. Agree eliminates both Attract F and Move F, dispensing with feature movement. Under Agree, the subject agreement constructions that we have seen seem problematic.

Before pointing out the problems with Agree, let us first see the definition of Agree.

(9)   a.   Matching is feature identity.
          b.   D(P) is the sister of P.
          c.   Locality reduces to "closest c-command."
               (Chomsky 2000: 122)

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[4]Not that I am arguing that T in Korean can bear no -features.

Of particular concern here is locality condition (9c). Notice that Agree requires a probe P to c-command a "closest" goal G.

With this in mind, let us consider what can be a probe and a goal?

(10)   Agree operates between a probe   and a goal   iff
        a.   has uninterpretable   -features
        b.   has identical, interpretable   -features;
        c.   has an unchecked feature of structural Case;
        d.   c-commands ;
        e.   there is no potential alternative goal such that   c-commands   and   c-commands   ;
        f.   the structural relation between (,) was not created by Merge (,).
              (from Carstens 2000: 349f)

If an element P bears uninterpretable   -features, then it can be a probe. Similarly, if an element G has interpretable   -features that is identical to those of P and it bears an unchecked structural Case feature, then it can be a goal.

With this in mind, let us look more closely at (11).

(11)   a.   ai-tul-i   chip-e-**tul**   katta
              child-PL-NOM house-to-Agr went
              'The children went home.'

By definition (10a) and assumption (8c), *chip-e-tul* is the probe since it has uninterpretable   -features. Likely, by definition (10b,c) and assumption (8c), *ai-tul* is its goal since it has identical, interpretable   -features and an unchecked structural Case feature, namely, nominative Case. This is illustrated below:

(11)   b.   *ai-tul-i*   *chip-e-***tul**
              Case[ ]   -features[−]
               -features[+]
              "goal"   "probe"

Suppose now that the derivation has reached the stage (11c), which shows a *v*P phase.

(11)   c.   [$_{vP}$ ai-tul-i [$_{v'}$ [$_{VP}$ chip-e-**tul** katta] *v*]]
                            +   −

              *Agree(*c-command)

In (11) the probe *chip-e-tul* fails to c-command its goal *ai-tul*. Therefore, Agree is not able to take place. Plainly, it fails to account for subject agreement in Korean.

Consider now the following, which shows a more serious problem with Agree.

(12) a. ai-tul-i   changnankkam-ul ppalli-**tul**   choriphatta
         child-PL-Nom toy-ACC   quickly-AgrS constructed
         'The children constructed a toy/toys quickly.'

By definition and assumption, once again, the adverb *ppalli-tul* is the probe since it has uninterpretable -features and *ai-tul* can be a potential goal since it has identical, interpretable -features and an unchecked structural Case feature. Suppose the derivation has reached the stage (12b), being a *v*P phase.

(12) b. [$_{vP}$ ppalli-**tul** [$_{vP}$ ai-tul-i changnankkam-ul choriphatta]] [5]

          –   +

          *Agree(c-command)

The uninterpretable -features of the probe must be checked off to converge. Both *ai-tul-i* and *changnankkam-ul* can be its matching goal since both of them have interpretable -features and unchecked structural Case features. Recall that (9c,10e) requires no element to intervene between a probe and a goal. As a result, the subject *ai-tul-i* is the only goal since it is the closest to the probe. Therefore, the probe and its goal seem to meet all the conditions in (10). It is expected that the probe could agree with its goal in (12b). A question to arise is: Can adverbs check structural Case features? In other words, can the probe *ppalli-tul*, an adverb, check the structural Case feature of the goal *ai-tul-i*? It seems implausible to claim that adverbs check structural Case features (see Chomsky 2000: 123).[6]

On these grounds that we have seen, the claim can be made that Agree fails to account for subject agreement in Korean; hence, it is not tenable.

4.2 Attract

Movement of interpretable features is triggered solely by the requirement of uninterpretable features. This is the operation Attract F, which is defined as in (13):

(13)   Attract F
        K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K.
        (Chomsky 1995: 297)

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[5] I assume that adverbials adjoin to particular functional projections, following Im (1998). He shows that adverbs in Korean have systematic correspondences to their modifying projections, lexical or functional. For instance, "tense-modifying" adverbials like *chig_m* 'now' adjoin to TP, while "verb-modifying" adverbials like *ppalli* adjoin to _P. (In fact, he does not clarify if verb-modifying adverbials adjoin to VP or to _P in the sense of Chomsky 1995. I interpret his (1998: 197) term "VP adjuncts" as _P ones without discussion.)
[6]"Manifestation of structural Case depends on interpretable features of the probe: finite T (nominative), *v* (accusative), control T (null), …"

With this in mind, let us consider subject φ-feature checking in Korean under Attract F. We have seen that, in contrast to its English counterpart, *tul* can be morphologically realized on various categories such as adverbs and postpositions. To take (12a), it follows the adverb *ppalli-tul*. By assumption, it has uninterpretable φ-features, and by definition, they must be checked off. A φ-feature checking takes place in such a way that uninterpretable features *attract* identical interpretable features, thereby triggering movement of the interpretable features. Suppose the derivation has reached at the stage (14b).

(14)   a.   ai-tul-i   chip-e-**tul**   katta
              child-PL-NOM house-to-Agr went
              'The children went home.'

        b.   [$_{vP}$ ai-tul-i [$_{v'}$ [$_{VP}$ chip-e-**tul** katta] *v*]]
                         +   −

                         *Attract

Attract requires uninterpretable φ-features to check off relevant interpretable φ-features, by "moving" the latter. In (14b) the uninterpretable φ-features on the PP *chip-e-tul* attract the interpretable φ-features on the subject *ai-tul-i*, thereby entering into a checking relation. The point here is that the interpretable φ-features on the subject undergo "downward" feature movement (lowering of feature). Lowering is not allowed. (I will return below to why that is so.) Given this, Attract F fails to explain subject agreement in Korean.

We can ask at this point: What bars lowering under Minimalism? The ECP cannot be the answer for this. The reason is that Minimalism has eliminated the notions like traces, government, and proper government, all of which constitute the ECP. Rather, the answer would come from Chomsky's (1995: 253) note:

> A chain CH = (α, *t*(α)) formed by Move meets several conditions, which we take to be part of the definition of the operation itself. One of these is the C-Command Condition: α must c-command its trace, so that there cannot be an operation that lowers α or moves it "sideways"…..

What precludes lowering (downward movement) under Minimalism is movement operation per se. For this reason Attract F fails to account for the Korean subject agreement.

4.3 Move

We have seen that since lowering is prohibited Attract F fails to provide an appropriate account for φ-feature checking between a subject and AgrS in Korean. Alternatively, let us consider it under Move F, which is defined in (15):

(15)   Move F
        a.   F is an unchecked feature.
        b.   F enters into a checking relation with a sublabel of K as a result of the operation.
              (Chomsky 1995: 269)

Note that under Move, what moves is uninterpretable φ-features rather than uninterpretable ones. With this in mind, let's return to the φ-feature checking of AgrS with a subject. Recall that *tul* can follow an adverb. By assumption, once again, the adverb bears uninterpretable φ-features. Suppose the derivation has reached at the stage (16).

(16)   [$_{vP}$ ai-tul-i [$_{v'}$ [$_{VP}$ chip-e-**tul** katta] *v*]]

Move F requires the uninterpretable φ-features on the adverb to undergo movement to the interpretable φ-features on the subject, thereby entering into a checking relation. This checking relation is established by "raising" the uninterpretable φ-features on the adverb rather than by "lowering" them. This, thus, leads to conclude that Move F is still needed, contrary to Chomsky 1995.

6.   Conclusion and Some Issues To Be Considered

In this paper I have investigated φ-feature checking of *tul* in Korean under Minimalism (Chomsky 1995: Ch.4. and 2000). The fact that *tul* attaches to a variety of categories and lowering is barred has led to conclude that Move F is still needed in order to account for subject φ-feature checking in Korean, contrary to Chomsky (1995: Ch.4).

An interesting issue to arise here is the one pointed out by John Whitman (p.c.). In general, feature movement seems to be movement to the position of a head. However, the feature movement that we have seen above is movement to the position of a Spec. That is, feature checking takes place at a Spec position rather than a head position. This seems to have to do with a projection status of a probe. Chomsky (2000) shows the only case where heads like T and *v* are probes. By contrast, the Korean subject agreement shows a different case in which maximal projections such as adverb and postposition phrases are probes. I shall leave this issue for future research.

Yosi Dobashi (p.c.) points a related issue out. Chomsky (1986:16) argues against adjunction to an argument for the theta-theoretic reason, namely the theta-criterion. To take (16), the φ-features on the adverb move to the φ-features on the subject, which is A(rgument)-position. I will interpret "adjunction to an argument" somewhat *loosely*. Adjunction to a Spec/*v*P is barred in the sense of Chomsky (1986), while adjunction to a Spec/TP is allowed on the following ground. Although it is an A-position, a Spec/TP is not the position where a theta-role is directly assigned. Rather, a Spec/*v*P is the very one in which a theta-role is assigned. Therefore, following Dobashi's suggestion, I assume that the adjunction to subject takes place after the subject moves into the Spec/TP.

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A Constraint-based Approach to Korean Partial Honorific Agreement[*]

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1.   Introduction

Korean honorific agreement is pragmatically constrained, requiring the consistency of honorific information between the subject and the head. The nominal honorific marker *–nim* attached to the subject and verbal affix *–si-* indicate that the speaker owes honor to the subject's referent. As a result, superficially, Korean honorific agreement is established by the co-existence or the co-absence of *–nim* and *–si-* ((1) is from Pollard and Sag 1994):

(1)   a.   Kim sacang-i   o-ass-ta.
            Kim President-NOM   come-PAST-DECL
            'President Kim has come.'
        b.   Kim sacang-nim-i   o-si-ess-ta.
            Kim President-HON-NOM   come-HON-PAST-DECL
        c.   #Kim sacang-i   o-si-ess-ta.
            Kim President-NOM   come-HON-PAST-DECL
        d.   #Kim sacang-nim-i   o-ass-ta.
            Kim President-HON-NOM   come-PAST-DECL

The absence of *–nim* and *–si* indicates that the speaker does not owe honor to the subject's referent as in (1b). The infelicity of (1c) and (1d) is caused by the inconsistency of the honorific information between the subject and the verb.

However, the verbal honorific affix *–si* is optional in the non-final conjunct of the verbal coordination construction as shown in (2).

(2)   Kim sacang-nim-i   ilccik o-(si)-ko   nuckey ka-si-ess-ta.
        Kim President-HON-NOM early come-(HON)-CONJ lat go-HON-PAST-DECL
        'President Kim came early and left late.'

As observed in Cho and Sells (1994), non-finite verbs are not necessarily specified with honorific information. This observation may lead to the assumption that the non-finite verb in the first conjunct in (2) is exempt from honorific agreement. However, examples like (3) contradict this assumption:

(3)   #Kim sacang-nim-i   ilccik ka-ko   nay-ka nuckey ka-ass-ta.
         Kim President-HON-NOM early go-CONJ I-NOM late go-PAST-DECL
         'President Kim went early and I went late.'

In (3) the absence of the affix –si- in the non-finite verb *kako* makes the sentence infelicitous in contrast with the assumption above. That is, the non-finite verb is not always free from the honorific agreement constraint.

This paper examines two possible approaches: a 'syntactic phrasal affixation approach' and a 'constraint-based feature-sharing approach'. The syntactic approach will consider the omission of –si- in (2) as the result of the property of the phrasal affix –si-. On the other hand, the constraint-based approach will explain the optionality of –si- by depending on a constructional constraint of coordination constructions. This paper argues that, contrary to the syntactic approach, the honorific affix is not a phrasal affix. In addition, it is proposed that there are two different types of honorific encoding: morphological and constructional. Finally, it will be proposed that the non-final conjunct in (2) specifies a certain type of honorific information that is provided by the sharing of honorific information with the final conjunct; however, the honorific affix can be omitted from this non-final conjunct.

2.   Syntactic Phrasal Affixation Analysis?

According to Yoon (1989, 1992), tense *(*e.g., *-ess*: PAST) and mood *(*e.g., *-ta*: DECL) in Korean should be analyzed as phrasal affixes.

(4)   Coordinate structures in Korean allow certain inflectional affixes to be missing in all
        but the final conjunct. In such cases, the information borne by the inflectional
        affixes on the final conjunct takes distributive scope over the unmarked non-final
        conjuncts.
        (Yoon 1992: 833).

Under Yoon's approach, the configurational c-command relation explains the partial occurrence of the inflectional affixes. If the same analysis applies to the verbal honorific affix –si, it is then predicted that the first conjunct is under the distributive scope of the –si- in the final conjunct. For example, the omission of -si- in (2) can be accounted for by the syntactic construction in (5).

(5)   AGRP
                    _____|_____
                 VP   AGR
            _____|_____ |
          VP   VP   -si-
          /\   /\
     ilccik o-ko   nuckey ka
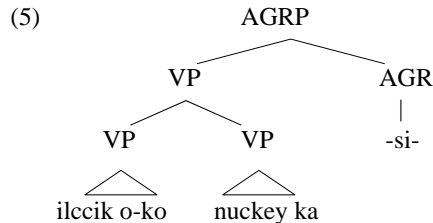
In the above structure, the honorific affix –*si*- has its own projection and takes distributive scope over the unmarked non-final conjunct as a phrasal affix.

Although the phrasal affixation possibility explains the partial honorific agreement in (2), it encounters problems when idiosyncratic verbs such as *cwumusi*- (sleep.hon) and *capswusi*- (eat.hon) are considered. A characteristic of these verbs is that the honorific affix –*si* cannot be separated from its base in any case. For instance, the non-honorific counterparts of these verbs are not forms omitting the honorific affix –*si*- but other suppletive forms as shown in (6).

(6)   a.   cwumu-si-ess-ta: sleep-HON-PAST-DECL; *cwumu-ess-ta
              ca-ass-ta: sleep-PAST-DECL; *ca-si-ess-ta
        b.   capswu-si-ess-ta: eat-HON-PAST-DECL; ?capswu-ess-ta[1]
              mek-ess-ta: eat-PAST-DECL; *mek-usi-ess-ta
        c.   tolla.ka-si-ess-ta: die-HON-PAST-DECL; *tolla.ka-ass-ta
              cwuk-ess-ta: die-PAST-DECL; *cwuk-si-ess-ta

The non-honorific counterparts of *cwumusi*-, *capswusi*-, and *tolla.kasi*- are *ca*-, *mek*-, and *cwuk*-, respectively; not *cwumu*-, *capswu*-, or *tolla.ka*-. On the other hand, verb stems such as *ca*-, *mek*- and *cwuk*- are lexically specified with negative honorific information, and hence cannot be *ca-si*-, *mek-si*- or *cwuk-si*-. The –*si*- in the verbs in (6), in contrast with the –*si* morpheme in normal verbs, cannot be omitted in non-final conjuncts of the verbal coordinate construction.

(7)   Sensayng-nim-un   ilccik cwumu-*(si)-ko   ilccik ilena-si-n-ta.
        Teacher-HON-TOP early   get.up-HON-CONJ   early sleep-HON-PRES-DC
        '(my) teacher goes to bed early and gets up early.'

The conjunct word, *cwumusiko*, in (7) never omits –*si*-. The omission not only results in an infelicitous word, but an ungrammatical one. A similar morphological property is observed in the Korean derivational affix such as passive morpheme –*i*.

(8)   mulikarak-i   cal-*(i)-ko   kak-i-ess-ta.
        hair-NOM   cut-*(PASS)-CONJ trim-(PASS)-PAST-DECL
        '(his) hair were cut and trimmed.'

The derivational passive affix, -*i*-, in (8) is obligatory in both conjuncts in contrast with the inflectional affix. This provides a hint for the analysis of *cwumusi*-. That is, -*si* in these idiosyncratic honorific words is not likely to be an inflectional affix, which Yoon (1992) treats as a phrasal affix.

Given the evidence above, it is more likely that –*si*- in (6) is not an inflectional affix, regardless of whether it is a derivational affix or just part of a lexeme. According to Yoon, only inflectional affixes are the phrasal affixes. Such a claim may be needed to block the ungrammatical sentence in (8) in which the derivational affix omits. As a result, if –*si* in (6) is not an inflectional affix, it may not occupy an independent syntactic node such as AGR. However, then, (9) below will be problematic for the phrasal affixation analysis.

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[1] Many Korean native speakers seem to allow *capswuessta*. However, it maintains the honorific meaning.

(9)   Sensayng-nim-un   ilccik ilena-ko   ilccik cwumu.si-n-ta
         Teacher-HON-TOP early get.up-CONJ   early sleep.hon-PRES-DECL
         '(My) teacher gets up early and goes to bed early'

(10)
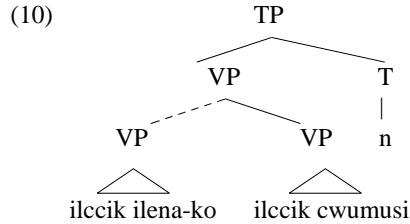
As we observed already, -si- in the final conjunct in (9) cannot be a phrasal affix, which gives distributive scope to the first conjunct. That is, the only possible configurational syntactic structure of (9) may be that shown in (10). It is then predicted that the first conjunct cannot omit the honorific affix, but the example in (9) demonstrates that this prediction is incorrect.

The observation above suggests that the partial distribution of the honorific affix is not sufficiently explained by a phrasal affixation analysis. In the next section, instead, it will be proposed that the partial honorific agreement phenomenon results from both Korean morphological combination rules and constructional constraint, which requires the sharing of honorific information between conjuncts.

3.   A Constraint-based HPSG approach

Contextual honorific information is encoded by the honorific affix –si-. For example, the existence of the honorific affix –si- indicates that the verb is specified with positive honorific information as shown in (11).

(10)   Lexical Honorific Encoding

         PHON $\langle$... -si..$\rangle$
         SUBJ $\langle$ NP $[$CONTEXT : HON +$]\rangle$
         CONTEXT | HON +

The feature structure in (11) is a rough sketch of the lexical entry of a verb with the honorific affix –si- (see the feature structure regime of Head-driven Phrase Structure Grammar; Pollard and Sag 1994). The feature HON + is an abbreviation for the contextual information that the speaker owes honor to the referent of the subject.[2] What the feature structure in (11) declares is that a verb

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[2] The feature HON + (or -) is an abbrevation of the feature CONTEXT |BACKGROUND |show-honor relation in which it is manifested that the referent of the subject is honored by the speaker.(i).

whose CONTEXT feature specifies positive honorific information, e.g., HON +, also subcategorizes for a subject which also has positive contextual honorific information.

However, negative honorific information, e.g., HON -, is not always provided by the absence of an honorific affix. For example, the first non-final conjunct in (2) cannot have negative honorific information even though it omits –si-. To explain this property, I propose the generalization in (12), as also observed in Cho and Sells (1994) and Kim (1994).

(12)   a.   Tense morphemes (e.g., PAST, PRESENT etc.) always combine with a stem equipped with certain morphological honorific information.

        b.   Non-finite verbs may omit morphological honorific information. Then, they do not resolve their honorific information in lexicon (i.e., HON +/-).

According to (12a), finite verbs always specify certain honorific information because of their morphological forms. As a consequence, it is predicted that the absence of –si- in finite verbs always signals the negative honorific fact that the speaker does not owe any honor to the referent of the subject.

What (12b) declares is, first, that the non-finite verb freely omits a honorific morpheme such as –si- or phonologically null affix Ø. In such a case, the honorific information of the non-finite verb is not resolved by its morphological form. For example, conjunct verbs without –si- may not resolve the honorific information for itself. The minimal unit with which the conjunctive particle –ko combines is a verb root. This morphological constraint leads to three different forms of conjunct verbs as given in (13).

(13)   a.   o-si-ess-ko: come-HON-PAST-CONJ

        b.   o-ass-ko: come-PAST-CONJ

        c.   o-ko: come-CONJ

(13a) is a morphologically full-fledged verb. (13b) omits the honorific affix but not the tense affix, hence implying negative honorific information, i.e., HON-. (13c) omits both the honorific and tense affixes. According to (12), only finite verbs obligatorily specify their honorific information. In this sense, the non-finite verb in (13c) may appear not to resolve its honorific information on its own. This assumption appears true when the omission of –si- in (2) is considered; however, there are cases in which the non-finite verb without –si- should be analyzed as a verb with HON – rather than with HON +/-:

---

speaker.(i)   BACKGROUND

RELATION owe-honor

HONORED the referent of the subject

HONORER the speaker

POLARITY 0(or 1)

For a detailed description of the feature structure (i), please refer to Pollard and Sag (1994: 92-95). In this paper, for simplicity, HON + (or -) will take the place of the feature structure in (i).

(14)   nay-ka o-ko   Lee sacang-nim-i   ka-si-ess-ta.
         I-NOM come-CONJ   Lee President-HON-NOM go-HON-PAST-DECL
         'President Kim came and President Lee left.'

In Korean, the first person pronoun *na(y)* always implies non-honorific information. Consequently, the verb *oko* in (14) should be considered a verb that is morphologically specified with HON -. In this sense, the non-finite verb without *–si-* is specified with either HON – or unresolved honorific information.[3]

Returning to the main topic under discussion, the partial honorific agreement in (2), a question that remains is whether the morphologically underspecified honorific information of (13c) is resolved somehow. A hint can be drawn from the infelicitous sentence in (3) in section 1. What (3) shows is that non-finite verbs cannot be exempt from honorific agreement. (3) is infelicitous because the non-finite verb does not specify its own honorific information and hence cannot license the honorific information of the subject. However, then it is not clear how the non-finite verb without *–si-* in (2) results in a felicitous sentence. I propose that, in contrast to the first conjunct verb in (3), that in (2) receives honorific information by its feature-sharing of the honorific information with the final conjunct. A key difference between (2) and (3) is that the former consists of VP coordination whereas the latter is a case of S coordination. In addition, in (2) both conjuncts are marked with HON +. However, in (3) the first conjunct is marked with HON + , whereas the second conjunct with HON -. (15a) and (15b) illustrate how the observed differences result in the different judgments of felicity in (2) and (3), respectively.

(15)   a.

In (15a), [2] standing for the contextual honorific information of the first conjunct verb is identical to that in [3], which stands for the honorific information of the final conjunct. They are identical because both [2] and [3] specify the same contextual honorific information for the same referent of a subject. Although the honorific information of the first conjunct in (2) is not

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[3] In fact, it may be assumed that the honorific information of the non-finite verb in (14) is not morphologically specified with HON -, but resolved somehow else. However, this possibility is rejected because the honorific information of the first conjunct should be different from that of the final conjunct as will be explained later.

provided by morphology, it is provided by the HON feature-sharing between two conjuncts. On the other hand, in (15b) the subjects refer to different referents. As a consequence, in (15b) the honorific information provided by [1] is distinct from that by [2]. In contrast with the first conjunct in (2), that in (3) is not affected by the last conjunct. Since the non-finite conjunct in (3) does not resolve its honorific information, it cannot license the subject with HON +.

(15)   b.   S
                            [CONTEXT| {[1], [2]}]

                S   S
     [CONTEXT| {[1][HON]}]   [CONTEXT| {[2][HON -]}]

     [3]NP   VP   [4]NP   VP
     [HON+] | [HON-] |
                        *V   V

            SUBJ ⟨[3]⟩   SUBJ ⟨[4]⟩

            CONTEXT | {[1][HON]}   CONTEXT | {[2][HON-]}

Kim sacangnimi   ilccik ka-ko   nay-ka   nuckey ka-ass-ta.
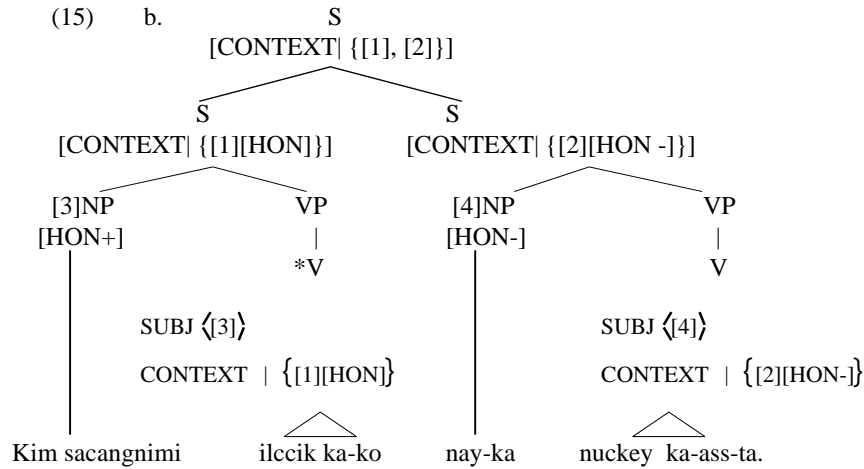
This feature-sharing approach is based on the idea that the background information from the subject NP agrees with the background information from the verb (Pollard and Sag 1994). The honorific agreement principle is presented in (16).

(16)   Korean Honorific Agreement Principle
        The subject and the verb should specify the same honorific information in their
        CONTEXT feature.

        verb

        SUBJ ⟨ NP [CONTEXT : HON[1]]⟩

        CONTEXT : {[HON[1]]}

The HON feature value of the verb is mostly provided by morphology. When the HON feature is not resolved by morphology, it is resolved by a feature-sharing process.

In contrast with the phrasal affixation approach, this approach does not come across the problem of idiosyncratic honorific words. Idiosyncratic honorific verbs differ from other verbs in that the honorific information of the verbs is provided by the lexemes rather than by inflectional morphology. For instance, the honorific verb lexeme *cwumusi-* in (6) manifests its honorific information as in (17a) whereas the non-honorific verb lexeme *ca-* in (6) as in (17b).

(17)   a.   cwumusi-

              verb

              SUBJ ⟨ NP | CONTEXT [HON+]⟩

              CONTEXT | {[HON+]}

        b.   ca-

              verb

              SUBJ ⟨ NP | CONTEXT [HON-]⟩

              CONTEXT | {[HON-]}

Regardless of whether they are affixed by other morphemes, the honorific information of the lexical entries in (17) is constant. As observed in section 2, the idiosyncratic words in (17) are syntactic atoms. The approach proposed in this paper does not depend on the syntactic position of the honorific affixes, but on the feature structures in the two conjuncts. This property of the feature-sharing approach provides an elegant explanation for the partial honorific agreement phenomenon. For example, the last conjunct in (9) will have the feature structure as in (17a). The first conjunct in (9) omits *–si-* and hence does not resolve its honorific information morphologically. However, in order to license its subject with HON +, it also needs to be marked with HON +. This honorific information is provided by its feature-sharing with the HON feature of the second conjunct. Thus, the feature-sharing approach equally applies to regular and idiosyncratic honorific verbs.

The analysis proposed in this paper depends on the feature-sharing between the HON features of two conjuncts. This analysis needs to be combined with the generalization of (12). For instance, the feature-sharing approach together with the generalization of (12) explains the infelicity of the sentence in (18).

(18)   #Kim sacang-nim-i   ilccik o-si-ko   nuckey ka-ass-ta.
        Kim President-HON-NOM early come-HON-CONJ late   go-PAST-DECL
        'President Kim came early and left late.'

In (18) the first conjunct is morphologically marked with HON +. On the other hand, the second conjunct lacks the honorific affix *–si-*. The generalization in (12) provides the prediction that the second conjunct is marked with HON -, not with HON+/-. The reason is that the tense marked verb always specifies certain honorific information in its morphological system. As a result, the final conjunct verb in (18) needs to be assumed to be affixed by a phonologically null affix Ø which specifies the honorific information of the verb as HON -. In this sense, (18) violates two independent rules: the honorific information of the last conjunct is not identical to that of the first conjunct; the last conjunct cannot subcategorize for the subject with HON +.

I have made several claims in this section. First, I have claimed that honorific agreement is constrained such that the honorific information of the subject should be licensed by that of the verb. Second, the omission of the honorific affix is caused by morphological combination. Finally, the morphologically unresolved honorific information in the non-final conjunct of the verbal coordination is resolved by the feature-sharing of honorific information between conjuncts.

4. Honorific Agreement and Pragmatics

In previous section, it was shown that the honorific information of the non-finite verb without –*si*- is provided by its feature-sharing with the finite verb in the last conjunct. The following sentence in (19) may still raise problems for this approach, however.

(19) $?_{OK}$! Kim sacang-nim-i   o-ko
          Kim President-HON-NOM come-CONJ
          Lee sacang-nim-i   ka-si-ess-ta.
          Lee President-HON-NOM go-HON-PAST-DECL
          'President Kim came President Lee left.'

Many Korean native speakers allow the omission of the honorific morpheme in the first conjunct. If (19) is felicitous, the partial honorific agreement in (19) is not explained by the feature-sharing between the honorific information of two conjuncts, because the coordination construction consists of two S's whose subjects refer to different referents.

As already observed, the verb should specify honorific information that is identical to that of the subject in order to license the honorific information of the subject. I propose that the honorific information of the first conjunct verb in (19) is provided by a pragmatic constraint. The tree structure of the S coordination in (19) is given in (20).

(20)   S
                                [CONTEXT| {[2],[4]}]

                        S   S

              NP[1]   VP   NP[3]   VP
              [HON +]   [HON +]

                        SUBJ ⟨NP[1]⟩   SUBJ ⟨NP[3]⟩

                            HON   HON
                    [2]   [4]
                            HONORED[1]   HONORED[3]

          Kim sacang-nim-i   o-ko   Lee sacang-nim-I   ka-si-ess-ta
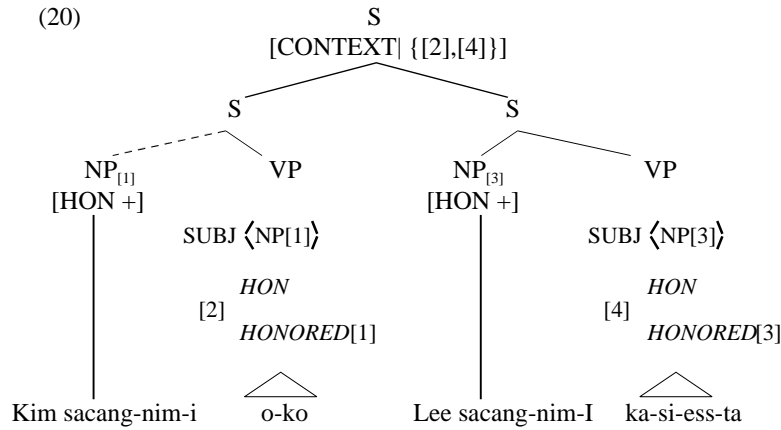
In (20) the first conjunct verb does not specify any morphological honorific information. In the second conjunct, the verb specifies HON +. The feature of HONORED specifies who is honored by the speaker. The value of the HONORED is [1] in the first conjunct whereas it is [2] in the second conjunct. Since the values of HONORED in [2] and [4] are different, index [2] is distinct from [4]. In section 3, it has been suggested that feature-sharing is possible between the HON features which specify honorific information about the same referent. Consequently, the underspecified honorific feature [2] is specified by neither morphology nor feature-sharing. Because of this, several Korean speakers consider the sentence in (19) to be infelicitous.

However, I assume that speakers who allow (19) use a pragmatic rule by which the first conjunct resolves its HON feature as positive. Such a pragmatic rule may be established by background discourse information such that the speaker owes honor to both *Kim sacangnim* and

Lee sacangnim. Owing to this kind of pragmatic rule, the value of the HON feature of the last conjunct should be identical to that of the first conjunct. The effect of this pragmatic constraint may resolve the honorific value of the first conjunct in (19) as positive like the final conjunct. In fact there is evidence that the felicity of (19) is dependent on such a pragmatic constraint:

(21)   ??Halape.nim-kkese   o-ko
          Grandfather.hon-NOM   come-(HON)-CONJ
          ape.nim-I   ka-si-ess-ta.
          father.hon-NOM   go-HON-PAST-DECL
          'Grandfather came and father left.'

Korean has two nominative cases: normal nominative case *i* (or *ka*) and honorific nominative case –*kkese*. When a subject is marked with the honorific nominative in addition to the honorific marker, it is assumed that the subject is more honored by speaker than a subject is with an honorific marker and normal nominative case. In (21) the degree of honor directed to the subject in the first conjunct is higher than that of the second conjunct. Most Korean speakers, including those who allow (19), reject (21). If the honorific information of the first conjunct in (19) is provided by some syntactic process or feature unification, the infelicity of (21) cannot be explained. However, the assumption of pragmatic constraint explains the infelicity of (21). That is, in (21) it is not maintained that the speaker owes equal degrees of honor to the referents of the subjects in two conjuncts. As a result, the honorific information of the last conjunct is not copied onto the first conjunct.

5. Conclusion

In this paper, I have suggested that partial honorific agreement is explained by the sharing of features containing honorific information in two conjuncts. This approach, in contrast to a syntactic alternative (e.g., phrasal affixation approach), avoids the problems presented by idiosyncratic honorific words. In addition, this paper shows that honorific information is not only provided through morphology, but also through a constructional constraint in which two features (e.g., HON) are identical. This constraint based approach explains partial honorific agreement without violation of the Lexical Integrity Principle, according to which "the syntax neither manipulates nor has access to the internal form of words" (Anderson 1992: 84).

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Towards a Typology of Agreement Phenomena

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1. Systematic Relations

Agreement phenomena are instances of co-variation of linguistic forms which is typically realised as feature congruity, i.e. compatibility of values of identical grammatical categories of syntactically combined linguistic items. Agreement is a relatively well-researched topic, especially in Slavic linguistics (c.f., Corbett 2000a). However, the investigations have mainly concentrated on the linguistic items themselves (as agreement sources) and on the relevant properties of these items (in terms of agreement features and conditions). The nature of the relations holding between the "agreeing" items has not received proper attention yet.

Our main hypothesis – articulated already in (Avgustinova and Uszkoreit 2000) – is that systematic relations motivate shared patterns of variation cross-linguistically as well as across constructions. The ontology we develop[1] allows various degrees of abstraction as well as language-specific and construction-specific parameterisation. Thus, by design, it offers a novel typological perspective.

Being originally designed to systematise the inventory of syntactic relationships found across Slavic languages, the outlined approach allows us to specify more precisely the nature of the observable co-variation phenomena as well as to properly sub-classify them. In the presentation, a fairly pragmatic approach to terminology is adopted in order to ensure that all relevant distinctions are consistently made.

The dimensions of classification for (the arrays of) systematic relations discernible in syntactic constructions are sketched in Figure1.[2] The focus of our attention will be on segmental

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[1] Our use of the term ontology is fairly pragmatic namely, as representing a formal shared conceptualisation of a particular domain of interest. It describes concepts relevant for the domain, their relationships, as well as "axioms" about these concepts and relationships. Note that such a pragmatic approach does not presuppose any general all-encompassing ontology of language but rather "mini-ontologies" conceptualising the selected domain from various perspectives in a consistent way.

[2] The different shapes of edges connecting types in the graphical representation of hierarchies are significant. The 'square' edges indicate *conjunction* of types partitioning their super-type along various dimensions. The

systematic relations in terms of *syntagmatics*, as they play a constitutive role in syntax. In accord with the traditional "form–function" perspective in theoretical linguistics, it is important to distinguish dimensions of *observable* syntagmatics (which is concerned with the overt linguistic form) and *structural* syntagmatics (which is concerned with the covert linguistic function). Structural syntagmatics is crucial in interpreting the observable syntagmatic relations which, in turn, can be classified as *combinatorial* (i.e., morphosyntactic) and *alignment* (i.e., configurational).
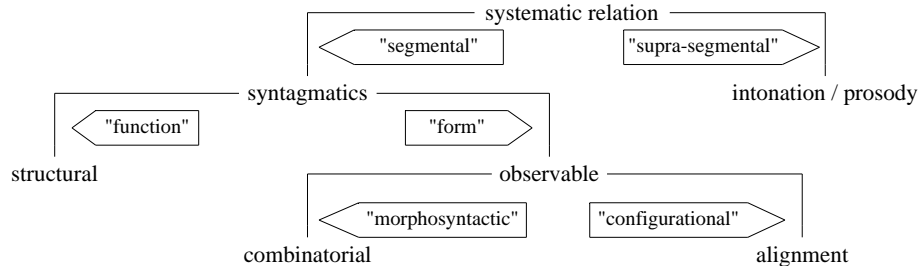
FIGURE 1. Systematic relations: dimensions of classification.

Syntagmatic regularities in morphosyntax reveal basic relations between properties of linguistic objects. Along with government and juxtaposition, co-variation belongs to what (Schmidt and Lehfeldt 1995) regard as morphological signalling of direct syntactic relations, and (Avgustinova and Uszkoreit 2000) call combinatorial syntagmatics. The latter is introduced as a separate dimension of classification within an HPSG-style multiple-inheritance type-hierarchy of systematic relations (FIGURE 2). The combinatorial syntagmatics encompasses observable relations of *assembling* (or "valence" in a broader sense) and *co-variation* (or "agreement" in a broader sense). Assembling includes what is traditionally considered government and juxtaposition. The former is understood as the determination by one element of the inflectional form of the other (i.e., form government; a classical instance thereof is case government), while the latter, in contrast, presupposes no overt morphological indication (its classical instance is case adjunction).

Hypotaxis is a key notion in X-bar syntax.[3] Note that from the outlined perspective, the bar-level promoting relations are centric, while the bar-level preserving relations are acentric. Parataxis, in turn, is crucial for what can be called "mediation scheme".[4] The centricity dimension plays an important role in classifying (as well as predicting) paratactic phenomena. In particular, "restraint" mediation (e.g., control, resumption) is centric, while "coequal" mediation (e.g., co-

'direct' edges indicate *disjunction* of types within the respective dimension. Cross-classifications encoding multiple inheritance are permitted with disjunctive but not with conjunctive types.

[3] The X-bar scheme is a restrictive mechanism for delimiting possible syntactic (or morphological) structures. General assumptions: (i) every X^n is a projection of X; (ii) X^{max} is the maximal projection of X; (iii) every phrase has a head determining its specific properties; (iv) the head properties are preserved in all projections; (v) a head category X combines with a non-head category Y which can be a complement (bar-level promotion: $X^n \rightarrow Y^{max} X^{n-1}$), an adjunct (bar-level preservation: $X^n \rightarrow Y^{max} X^n$) or a specifier (special case of bar-level promotion: $X^{max} \rightarrow Y^{max} X^{max-1}$).

[4] The X-bar mechanism (modelling immediate relations) is irrelevant for parataxis which is generally not interpretable in terms of subordination.

dependence, coordination) is acentric (TABLE 1). The admissible cross-classifications in structural syntagmatics result in distinguishing four major types of relations. The *centric hypotaxis* is an 'endocentric' relational type representing the most structurally marked option because there is a designated (central, or leading) element as well as a subordination relation between the items involved. The most structurally unmarked option, in turn, is the *acentric parataxis* which can be interpreted as an 'exocentric' relational type. The other possibilities include the *centric parataxis* which is an 'only-centric' relational type presupposing a designated element but no subordination, and the *acentric hypotaxis* which is an 'only-hypotactic' relational type involving subordination although none of the items is unambiguously interpretable as central.

```
                    ┌──────────── syntagmatics ──────────────┐
           ┌──── structural ────┐                   ┌──── observable ────┐
       centricity            taxis             combinatorial          alignment
        /      \            /     \              /        \
   centric  acentric  hypotaxis  parataxis  assembling  co-variation       - - -
                                              /      \
                                      government   juxtaposition
```
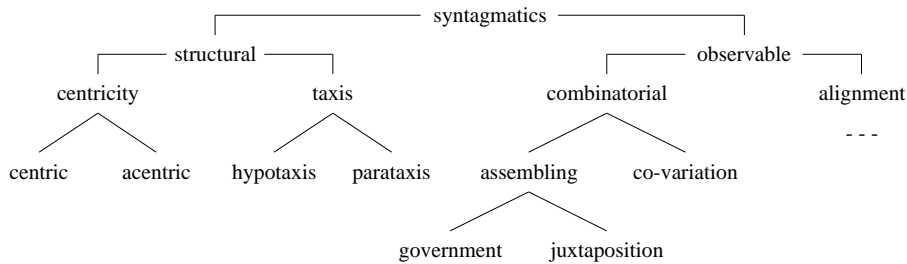
FIGURE 2. Syntagmatics.

	centric	acentric
hypotaxis "X-bar scheme"	*centric hypotaxis* "bar-level promotion"	*acentric hypotaxis* "bar-level preservation"
parataxis "mediation scheme"	*centric parataxis* "restraint"	*acentric parataxis* "coequal"

TABLE 1. Structural syntagmatics (cross-classification).

Looking at the ways structural syntagmatics is externalised by combinatorial syntagmatics helps us reveals various classes of phenomena. The admissible cross-classifications of the structural syntagmatic types with the assembling types gives us the result in Table 2. For the sake of perspicuity, we mention here mainly phenomena that will come up in the examples later on. Note that not only well-known phenomena – like subcategorisation (with its more specific instance relational case), concordial case, control, marking, adjunction or coordination – can naturally be accommodated on such an approach but, crucially, new classes are systematically predicted (e.g., co-dependence).

As our main topic of interest in this study is the typology of agreement phenomena, let us concentrate on how structural syntagmatics can be externalised via co-variation Table 3. The centricity dimension of structural syntagmatics appears to be essential in classifying observable agreement phenomena. Taking into consideration how the sources of co-variation (i.e., the 'agreeing' items) are related to each other, we can distinguish two major types of co-variation: *asymmetric* and *balanced (distributed)*. The asymmetric co-variation is centric. It corresponds to the traditional directional concept, since one of the two co-variation sources is unambiguously interpretable as the trigger and the other one as the target of this relation. The trigger–target

configuration can, more specifically, be *unidirectional*, if all co-varying grammatical categories are triggered at the same item, or *unstipulated*, if the items involved trigger different co-varying grammatical categories. The balanced (distributed) co-variation, in contrast, is acentric. Presupposing redundancy, it cannot be formulated in such directional terms. Intuitively, both co-variation sources are often interpretable as co-targets of an external trigger.

	government	*juxtaposition*
centric hypotaxis "bar-level promotion"	subcategorisation *e.g., relational case, cross-referencing, object cliticisation*	marking
acentric hypotaxis "bar-level preservation"	governed modification *e.g., concordial case*	juxtaposed modification *e.g., (case) adjunction, secondary predication*
centric parataxis "restraint"	governed centric parataxis *e.g., control*	juxtaposed centric parataxis *e.g., relativising*
acentric parataxis "coequal"	governed acentric parataxis *e.g., co-dependence*	juxtaposed acentric parataxis *e.g., coordination*

TABLE 2. Predicted classes of assembling phenomena.

	co-variation		
	asymmetric unidirectional	*asymmetric unstipulated*	*balanced / distributed*
hypotaxis	agreement 1	agreement 2 (concord)	matching
parataxis	co-reference	agreement 3 (accord)	correlation
	centric		*acentric*

TABLE 3. Predicted classes of co-variation phenomena.

2.   Morphosyntactic Co-variation
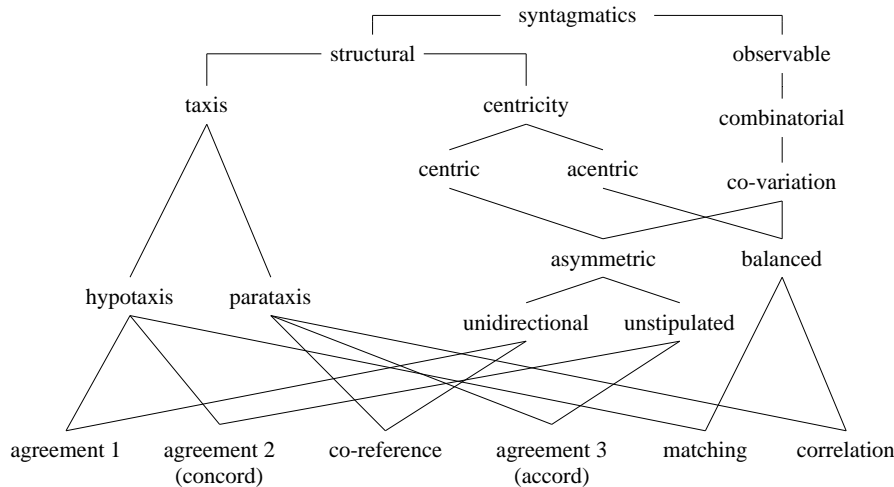
FIGURE 3. Types of co-variation.

The admissible cross-classifications with the structural taxis dimension result in six classes of co-variation phenomena. All known forms of agreement are obtained automatically and novel concepts of co-variation are predicted. The typology of morphosyntactic co-variation is sketched graphically in Figure 3.

Let us now look at examples from a Slavic language with a rich case system (Russian) and from another one with no cases in the nominal system but showing the phenomenon of "clitic doubling" (Bulgarian). The linguistic examples in (1)–(4) will be visualised as relational charts, a representation originally employed by (Avgustinova and Uszkoreit 2000) which allows us to specify the array of systematic relations holding between any two items in the relevant "crossing" cell. A regular *affinity of assembling and co-variation* can be observed which is based on structural centricity, since either both relations involved are centric or at least one of them is. In addition, the actual co-occurrence of assembling and co-variation in a given array of systematic relations presupposes the same type of taxis.

(1)

Ona she.NOM.3SG.F	*rel-case [NOM]* *agr1 [SG.F]*		*co-dependence* *agr3 (accord) [SG]*
	okazalas' turned.SG.F		*rel-case [INST]* *agr1 [SG]*
		zdorovym healthy.INST.SG.M	*con-case [INST]* *agr2 (concord) [SG.M]*
			rebënkom. child.INST.3SG.M

 ''She turned out a healthy child.' (Russian)

(2)

Maria Mary.3SG.F	*cross-referencing* *agr1 [SG.F]*	*subcat*	*control* *co-reference [SG.F]*
	ja ACC.SG.F	*obj-cliticisation*	*control* *co-reference [SG.F]*
		vidjaxa saw.3PL	*secondary predication*
			maskirana. disguised.SG.F

'(They) saw Mary disguised.' (Bulgarian)

Agreement 1: this is hypotactic unidirectional co-variation. It holds, e.g., in number and gender between the verb (okazalas' 'turned out') and its subject (ona 'she'), or just in number between the same verb and its complement (rebënkom 'child') in (1). Co-variation in person, number and gender of the same type also holds between the verbal clitic pronoun (ja 'her') cliticized on the verb (vidjaxa 'saw') and the object (Maria 'Mary') cross-referenced by this clitic in (2). The trigger of the discussed co-variation is the nominal element, and the target is the verb or the clitic pronoun, respectively.

Agreement 2 (concord): this is a hypotactic unstipulated co-variation. Its prototypical instance can be found within nominal phrases, e.g., holding in number and gender between the adjective (zdorovym 'healthy') and the noun (rebënkom 'child') in (1). The trigger is the noun and the target is the adjective.

Co-reference: this is a paratactic unidirectional co-variation. In (2) it holds in number and gender between the object (Maria 'Mary') and the predicative adjective controlled by it (maskirana 'disguised'), but also between the verbal clitic (ja 'her') cross-referencing the object and the predicative adjective. The co-variation trigger here is the object noun or the verbal object clitic, respectively, while the target in both cases is the predicative adjective.

Agreement 3 (accord): this is a paratactic unstipulated co-variation. It holds in number between the subject (ona 'she') and the complement (rebënkom 'child') which are co-dependents of the same verb (okazalas' 'turned out') in (1). The trigger of co-variation is the subject, while the complement presents the co-variation target.

(3)

Ti you.2SG				*subcat* *agr1 [2SG]*
	si AUX.2SG	*marking* *matching [2SG.F]*		*marking* *matching [2SG.F]*
		_tjala AUX.SG.F		
			da PRT	*marking*
				dojde_. come.2SG

'You would come (reportedly).' (Bulgarian)

Matching: this is a hypotactic balanced co-variation. Its prototypical instance is the compatibility between the auxiliaries and the main verb in periphrastic forms). As discussed in (Avgustinova 1997), the person–number–gender information in Bulgarian analytic (i.e. periphrastic) verb forms can be distributed among several components, namely, the main verb itself and a set of auxiliaries functioning as markers to it. The analytic verb form in (3) consists of two auxiliaries, a particle and a main verb (si _tjala da dojde_ 'come.FUTURE.RENARRATIVE.2SG.F'). In fact, the balanced co-variation relation of matching holds in all three grammatical categories between the 2nd person singular auxiliary (si) and the singular feminine auxiliary participle (_tjala), as well as between this combination of auxiliaries (si _tjala) and the 2nd person singular main verb (dojde_ 'come').

(4)

Vliza enter.3SG	*subcat* *agr1 [3SG]*			
	studentyt, student.DEF.3SG.M		*relativising* *correlation [3SG.M]*	*adjunction*
		za about	*marking*	
			kogoto whom.SG.M	*subcat*
				govorixme. talked.1PL

'The student whom we talked about comes in.' (Bulgarian)

Correlation: this is a paratactic balanced co-variation. It is typically observed in relative

clause constructions. So, in (4) it holds between the relative pronoun (kogoto 'whom') and the noun (studentyt 'the student') modified by the relative clause. The observed compatibility encompasses all three grammatical categories, i.e., person, number and gender.

Our default assumption up to now was that co-variation could directly be encoded as structure sharing in terms of feature unification. For example, it is a common standard to use identically numbered boxes in the values of the relevant attributes. Although this appears to correspond to the most typical situation, such a view is definitely an oversimplification. It is well-known that the syntagmatic relation of coordination may affect co-variation in a non-monotonic way. In particular, (Corbett 1998) observes: "An agreement controller consisting of conjoined noun phrases may well give rise to an agreement option. It may allow agreement with both or all the conjuncts, and it may allow agreement with just one conjunct."

Therefore we refine our ontology by partitioning the type *asymmetric* along two dimensions. The *arrangement* dimension covers the familiar distinction between *unidirectional* and *unstipulated* asymmetric co-variation – cf., Figure 3, while the *compatibility* dimension introduces *monotonic* and *non-monotonic* co-variation as sub-types of asymmetric (Figure 4). The non-monotonic asymmetric co-variation is further specified with respect to the particular strategy employed. *Strategy A (resolved)* means that in establishing co-variation, conjoined noun phrases are treated as a semantically justified syntactic unit with a *resolved* index.[5] *Strategy B (partial)* means that the one of the conjuncts is favoured as decisive in establishing co-variation, mainly on *alignment* grounds. Both strategies are illustrated by the Czech example in (5). A resolved agreement 1 holds between the subject containing the conjunction of singular nominals (den i stát 'day and state') and the plural verb form (jsou op_edeny 'are wrapped'). A partial agreement 2 (concord) holds within the subject itself between the singular demonstrative pronoun (tento 'this') and the conjunction of singular nominals (den i stát 'day and state').

(5)   Tento   den   i   stát   jsou   v   na_em   podv_domí
       this.SG   day.SG   and   state.SG   are.PL   in   our   unconsciousness
       op_edeny   mnoha   m_ty   o   _eské   jedine_nosti.
       wrapped.PL   many   myths   about   Czech   uniqueness
       'This day and this state are surrounded in our unconsciousness by many myths about
       Czech uniqueness.'
       (Lidové noviny 1998: 250/251)

Let us consider how the observable Strategy B realisations fall out from our ontological representation as a result of admissible cross-classifications. In order to integrate the relevant alignment factors, we have to be more explicit about the configurational dimension of syntagmatics. So, the alignment relation is classified in Figure 4 with respect to directionality (i.e., the mutual order of the trigger and the target) and periphery (left or right).

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[5] The interested reader may consult (Corbett 1998, Corbett 2000b) for a detailed discussion of the so-called resolution rules, as well as for an extensive presentation of Slavic (and other) data and further references.
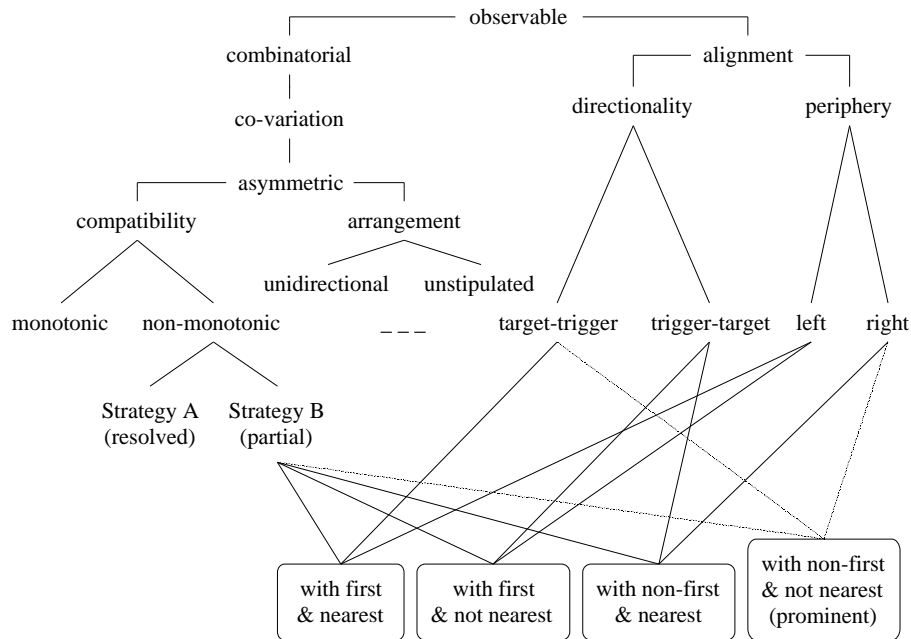
FIGURE 4. Partial co-variation with conjoined noun phrases.

The designated conjunct that determines the co-variation specifications at the target item can be both initial in the conjunction and the nearest to the target; initial in the conjunction but not the nearest to the target; non-initial in the conjunction but yet the nearest to the target; and, finally, neither initial in the conjunction nor the nearest to the target. While the first three variants of Strategy B are fairly common across languages, the fourth variant is also attested. In particular, (Corbett 1998, Corbett 2000b) mentions some interesting although limited evidence that in Serbo-Croatian _akavian dialects of 16th-17th centuries agreement has been attested "with the most important conjunct, even if this was not the nearest or the first".

3. Typology and Grammar Theory

In this section we will indicate how the proposed typology can be combined with formal grammatical descriptions. We will not attempt to propose any extensions to existing grammar models since the status of our generalisations with respect to each model still needs to be determined.

Grammatical theories contain complex descriptions of classes of grammatical objects, i.e., words, phrases and sentences. Grammar formalisms provide the means for formulating such complex descriptions. Generative grammars are the basis for producing or approving the correct representations with respect to a theory. We adopt here the constraint-based approach to generative grammar. Grammars are formulated and applied as complex constraints on permissible grammatical representations.

Grammatical representations encode both properties of individual objects and linguistically relevant relationships between two or more objects. We are concerned with the systematic relationships among the grammatical objects within a sentence. Depending on the theory, such relationships may be explicitly constrained by the grammar or they may be implicitly constrained through the interaction of several constraints. Some of these relationships are encoded in the lexicon, others are indirectly specified through the interaction of lexical information and syntactic rules or principles.

In today's more or less lexicalised theories of syntax, lexical representations of words contain explicit information about other objects the word can or must be combined with. Examples of such relationships are valence features of lexical heads such as HPSG's SUBCAT list or LFG's grammatical functions. Further examples are valence features of lexical adjuncts (HPSG's feature MOD) and even long-distance dependencies such as the reference to a missing NP in the infinitival VP-complement of "tough"-adjectives. Relationships among grammatical objects can also be encoded in rules or principles that combine such objects or license combinations. A phrase structure rule can be annotated by feature descriptions establishing such relationships. An example is the feature equation for testing the CASE of oblique objects in the English VP rule of LFG.

Relationships among grammatical objects are finally expressed in the grammatical representations of a larger unit to which the related objects belong. We can, for instance, read off all short or long distance dependencies within a sentence from the LFG f-structure or from the complete HPSG feature structure that the theories assign. The relationships that are realised in sentences and encoded in their representations can be the result of interacting statements. In (some variants of) HPSG, the relationship between the interrogative pronoun *who* and the embedded verb *see* in the (6) is the result of applying constraints from the lexical entries of *see, who* and a trace, the rule schema combining filler and sentential head and the non-local feature principle carrying the slash feature through the tree.

(6)   Who$_1$ did you tell Mary to try to see $\_1$.

In order to arrive at a universal systematics of possible and actually realised relationships among grammatical objects, we will abstract away for the time being from the mechanisms that individual grammatical frameworks or grammar writers employ for specifying combinatory rules or constraints. We propose the following research strategy. Instead of trying to couch our ontology of relationships into an existing framework, we propose a formalisation that can be easily adapted to any cleanly defined constraint-based grammar model. A class of constraints called relational dependencies provides a universal means of introducing more abstract and modular specifications in grammar and lexicon (Dörre *et al.* 1992). Relational dependencies are constraints that hold among typed feature structures. If we allow relational dependencies as part of our grammar specification language, they can be used within the specified types. They are constraints on permissible values of features with respect to other values. In HPSG, relational dependencies are employed at several places, i.e., to express complex linearization principles (Constituent Ordering Principle) or to express the fact that two lists are the concatenation of another list (Subcategorisation Principle).

Since we have based our notion of grammatical relationships on binary dependencies, we only need binary relational dependencies. Relational dependencies themselves can be expressed as feature structures with two attributes. These feature structures themselves can be typed. The types

can be ordered in a multiple-inheritance hierarchy, preferably a semi-lattice. In this way we can construct a formal specification of the hierarchy of dependencies. The top element of the hierarchy is the type *rel-dep.* The values of the two attributes are of the least specific type assigned to grammatical objects. Borrowing terminology from HPSG we will assume that the type of these values is *sign*.

As we saw in Figure 1, the most general type in our case study is *sys(tematic)-rel(ation)* for which the two attributes ARG1 and ARG2 are certainly appropriate (7). Its *syntagm(atics)* subtype specifies the values of the arguments as distinct linguistic entities. Borrowing terminology from HPSG we will assume that the type of these values is *sign*, which is ensured by the type *str(uctural)-syntagm(atics)*.

$$(7)_{sys-rel} \begin{bmatrix} \text{ARG1} \\ \text{ARG2} \end{bmatrix}_{syntagm} \begin{bmatrix} \text{ARG1} \\ \text{ARG2} \end{bmatrix} \qquad {}_{str-syntagm} \begin{bmatrix} \text{ARG1} & 1 & {}_{sign}[\ ] \\ \text{ARG2} & 2 & {}_{sign}[\ ] \end{bmatrix}$$

We can now define a number of relationships among signs. The dimensions of centricity and taxis are encoded in (8) and (9), respectively. The *centric* type is associated with a disjunctive one-place predicate *center* identifying one of the related items as central. The *acentric* type, in contrast, is associated with a two-place predicate *x-center* establishing the unmarked case where neither of the items can unambiguously be identified as central.

$$(8)\ \ _{centric} \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ center(1) \quad center(2) \end{bmatrix} \quad _{acentric} \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ x\text{--}center(1,2) \end{bmatrix}$$

Similarly, the *hypotaxis* type is associated with a disjunctive one-place predicate *dominant* that identifies one of the related items as dominating the other. The *parataxis* type, in turn, is associated with a two-place predicate *para* establishing the unmarked case where neither of the items can unambiguously be identified as dominant.

$$(9)\ \ _{hypotaxis} \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ dominant(1) \quad dominant(2) \end{bmatrix} \quad _{parataxis} \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ para(1,2) \end{bmatrix}$$

The admissible cross-classifications from Table 1 – i.e., within the structural syntagmatic dimension – are encoded in (10–13). The *centric-hypotaxis* type (10) states that the central item and the dominating item must coincide. The *centric-parataxis* type (11) specifies one of the items as central, while excluding any dominance between them. The *acentric-hypotaxis* type (12), in contrast, defines one of the items as dominant, while ensuring that none of them is central. Finally,

the *acentric-parataxis* type (13) states that neither of the items can be unambiguously identified as central or dominant.

$$
(10)\ \textit{centric–hypotaxis}\ \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ \left(\text{center}\,(1)\quad \text{dominant}\,(1)\right)\quad \left(\text{center}\,(2)\quad \text{dominant}\,(2)\right) \end{bmatrix}
$$

$$
(11)\ \textit{centric–parataxis}\ \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ \left(\text{center}\,(1)\quad \text{center}\,(2)\right)\quad \text{para}\,(1,2) \end{bmatrix}
$$

$$
(12)\ \textit{acentric–hypotaxis}\ \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ \text{x–cente}\,(1,2)\quad \left(\text{dominant}\,(1)\quad \text{dominant}\,(2)\right) \end{bmatrix}
$$

$$
(13)\ \textit{acentric–parataxis}\ \begin{bmatrix} \text{ARG1 } 1 \\ \text{ARG2 } 2 \\ \text{x–center}\,(1,2)\quad \text{para}\,(1,2) \end{bmatrix}
$$

Turning now to the typology of agreement phenomena, let us consider how the classification from Figure 3 will be encoded. The type *comb(inatorial)-syntagm(atics)* highlights certain key properties of the signs involved, and its subtype *covariation* specifies them as co-variation sources (14) by means of a two-place predicate *covar-sources*.

$$
(14)\ \textit{comb–syntagm}\ \begin{bmatrix} \text{ARG1} & 1\ _{sign}\!\left[\ldots\ 3\right] \\ \text{ARG2} & 2\ _{sign}\!\left[\ldots\ 4\right] \end{bmatrix}\quad \textit{covariation}\ \begin{bmatrix} \text{ARG1} & 1\left[\ldots\ 3\right] \\ \text{ARG2} & 2\left[\ldots\ 4\right] \\ \text{covar–sources}\,(3,4) \end{bmatrix}
$$

The *asym(metric)-covar(iation)* type (15) systematically differs from the *bal(anced)-covar(iation)* type (16) with respect to centricity.

$$(15)\ \textit{asym–covar}\begin{bmatrix} \text{ARG1} & 1\ [\ ...\ 3\ ] \\ \text{ARG2} & 2\ [\ ...\ 4\ ] \\ \left(\ \textit{center}(1)\quad \textit{center}(2)\ \right)\quad \textit{covar–sources}(3,4) \end{bmatrix}$$

$$(16)\ \textit{bal–covar}\begin{bmatrix} \text{ARG1} & 1\ [\ ...\ 3\ ] \\ \text{ARG2} & 2\ [\ ...\ 4\ ] \\ \textit{x–center}(1,2)\quad \textit{covar–sources}(3,4) \end{bmatrix}$$

The more specific types *unidir(ectional)-asym(metric)-covar(iation)* and *unstip(ulated)-asym(metric)-covar(iation)* (17) actually differ with respect to the uniqueness of the co-variation trigger. It is identified in the former type by means of a disjunctive one-place predicate *trigger*, while the latter type is associated with a two-place predicate *trigger-target* which indicates that the trigger and the target cannot be unambiguously identified.

$$(17)\ \textit{unidir–asym–covar}\begin{bmatrix} \text{ARG1}\ [\ ...\ 3\ ] \\ \text{ARG2}\ [\ ...\ 4\ ] \\ \textit{trigger}(3)\quad \textit{trigger}(4) \end{bmatrix}\quad \textit{unstip–asym–covar}\begin{bmatrix} \text{ARG1}\ [\ ...\ 3\ ] \\ \text{ARG2}\ [\ ...\ 4\ ] \\ \textit{trigger–target}(3,4) \end{bmatrix}$$

Now, we are able to encode in terms of relational dependencies six distinct classes of co-variation phenomena, as predicted in Table 3 and Figure 3. The resulting types are sketched in (18–23).

$$(18)\ \textit{agreement 1}\begin{bmatrix} \text{ARG1} & 1\ [\ ...\ 3\ ] \\ \text{ARG2} & 2\ [\ ...\ 4\ ] \\ \left(\textit{dominant}(1)\quad \textit{trigger}(3)\right)\quad \left(\textit{dominant}(1)\quad \textit{trigger}(4)\right) \end{bmatrix}$$

$$(19)\ \textit{agreement 2(concord)}\begin{bmatrix} \text{ARG1} & 1\ [\ ...\ 3\ ] \\ \text{ARG2} & 2\ [\ ...\ 4\ ] \\ \left(\textit{dominant}(1)\quad \textit{dominant}(2)\right)\quad \textit{trigger–target}(3,4) \end{bmatrix}$$

$$
(20)\ \textit{agreement 3(accord)}
\begin{bmatrix}
\text{ARG1} & 1 \begin{bmatrix} ... & 3 \end{bmatrix} \\
\text{ARG2} & 2 \begin{bmatrix} ... & 4 \end{bmatrix} \\
\textit{para}\,(\,1\,,\,2\,) & \textit{trigger–target}\,(\,3\,,\,4\,)
\end{bmatrix}
$$

$$
(21)\ \textit{co–reference}
\begin{bmatrix}
\text{ARG1} & 1 \begin{bmatrix} ... & 3 \end{bmatrix} \\
\text{ARG2} & 2 \begin{bmatrix} ... & 4 \end{bmatrix} \\
\textit{para}\,(\,1\,,\,2\,) & \left(\textit{trigger}\,(\,3\,) \quad \textit{trigger}\,(\,4\,) \right)
\end{bmatrix}
$$

$$
(22)\ \textit{matching}
\begin{bmatrix}
\text{ARG1} & 1 \begin{bmatrix} ... & 3 \end{bmatrix} \\
\text{ARG2} & 2 \begin{bmatrix} ... & 4 \end{bmatrix} \\
\textit{acentric}\,(\,1\,,\,2\,) & \left(\textit{dominant}\,(\,1\,) \quad \textit{dominant}\,(\,2\,) \right) & \textit{covar–sources}\,(\,3\,,\,4\,)
\end{bmatrix}
$$

$$
(23)\ \textit{correlation}
\begin{bmatrix}
\text{ARG1} & 1 \begin{bmatrix} ... & 3 \end{bmatrix} \\
\text{ARG2} & 2 \begin{bmatrix} ... & 4 \end{bmatrix} \\
\textit{acentric}\,(\,1\,,\,2\,) & \textit{para}\,(\,1\,,\,2\,) & \textit{covar–sources}\,(\,3\,,\,4\,)
\end{bmatrix}
$$

Since we do attempt to propose a super-formalism or an interlingua of grammar formalisms, we will leave the formal interpretation of the predicates *center*, *x-center*, *dominant*, *para*, *covar-sources*, *trigger*, and *trigger-targe* to the individual grammar models.

4. Conclusion and Outlook

The broad spectrum of agreement phenomena constitutes a challenge to any linguistic theory maintaining a universality claim and to any theoretically founded typological description. Because of the relational character of agreement, approaches to typology are needed that provide a fine-grained classification of possible relationships between grammatical units. We have proposed a multidimensional taxonomy that derives the space of possible relationships including agreement relations from a small of number of distinctions. We have demonstrated the descriptive power of such a taxonomy with a wide range of examples from several Slavic languages. We have finally shown how the descriptive device of relational dependency can be utilised to provide a formal framework for describing these relationships in such a way that the descriptions can be linked to constraint-based grammar formalisms.

We consider our proposal to be a first step towards a universal typology of relations that employs the power of multidimensional inheritance networks for a systematic and concise description.

The connections between our proposed dimensions and classes of thematic and semantic relations still remain to be investigated. The status of the typology needs to be determined with respect to constraint-based grammar models such as HPSG and LFG. The question is whether some or all of the dimensions can be derived from existing constraints of the theories. At this time, none of the theories provides a taxonomy of relations. Even in the sophisticated type hierarchy of HPSG, relations do not appear as types. We predict that the relational aspect of syntax will become more strongly reflected in the constraint system. Although we are not in a position at this point to submit a concrete proposal, we hope to contribute to this development.

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The Optionality of Agreement Phrase:
Evidence from German Sign Language (DGS)

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1.   Introduction

The following sentences show that in German Sign Language (DGS), a verb, as indicated by the subscripts, may be modulated to show agreement with the subject and the object. See Figure 1 for illustrations of the signs FRAGEN and LEHREN. (All figures are in the Appendix.)

(1) a.   HANS$_i$ MARIE$_{ji}$ FRAGEN$_j$
          Hans   Marie   ask
          'Hans asks Marie.'

     b.   HANS$_i$ MARIE$_{ji}$ LEHREN$_j$
          Hans   Marie   teach
          'Hans teaches Marie.'

The modulation of the verb depends on the space in front of the signer, which may be used to establish referents. For example, Hans may be established on the right side and Marie on the left side. Let us label the locations with the indices of the noun phrases, i.e., *i* and *j* respectively.

The modulation alters the verb stem so that the 'back' of the sign corresponds to the subject index and the 'front' to the object index. Depending on the sign, the 'back' can mean the starting point of the movement; it can also mean the back side of the hand(s) in some signs. Similarly, the 'front' usually means the ending point of the movement and/or the front side of the hand(s). In the above examples, the verb stem moves from the subject to the object index.

Verbs which can undergo this kind of modulation have been called 'agreeing verbs' in the signed language literature (e.g., Padden 1983). In using the term 'agreeing verb' I restrict myself to (di)-transitive verbs that assign the theta-roles of agent and theme/patient to two animate arguments.

If a verb can undergo this kind of modulation, it must undergo the modulation. It is ungrammatical to sign the verb without the modulation, as shown by the absence of subscripts on the verb in (2b).

(2)   a.   HANS$_i$ MARIE$_{ji}$ VERSPOTTEN$_j$
           Hans   Marie   annoy
           'Hans annoys Marie.'

      b.   * HANS$_i$ MARIE$_j$ VERSPOTTEN
           Hans   Marie   annoy
           'Hans annoys Marie.'

There are other agreeing verbs which should show agreement with the subject and object, but cannot due to phonetic reasons. For example, MAG 'like' requires contact with the signer's chest throughout the articulation of the sign. A modulation as described above would require the signer to release contact with the chest, but this lexical property apparently cannot be overriden

In such cases, an auxiliary-like element that I call 'PERSON Agreement Marker' (PAM) is inserted into the sentence. PAM uses the 'bent L' handshape and may be accompanied by the mouthing 'auf'.

(3)   a.   * HANS$_i$ MARIE$_j$ MAG
           Hans   Marie   like
           'Hans likes Marie.'

      b.   HANS$_i$ $_i$PAM$_j$ MARIE$_j$ MAG
           Hans   PAM   Marie   like
           'Hans likes Marie.'

See Figure 2 for illustrations of MAG and PAM. The element PAM shows agreement with the subject and the object, as indicated by the subscripts. In this sense, PAM serves to morphologically repair the lack of agreement on the verb MAG.

2.   Research Question and Proposal

There has been debate in the literature on the syntactic status of agreement. For example, Pollock (1989) has suggested that there is a functional category called Agreement Phrase (AgrP) that is present in all syntactic structures. On the other hand, Iatridou (1990) has raised the question of providing independent syntactic motivations for such a functional category.

According to Chomsky's (1995) Full Interpretation, which says that "there are no superfluous elements in representations or derivations, so that the representations and derivations must be kept to a minimum", it may not be necessary to posit an AgrP in all the structures. Another way to understand the issue is Speas's (1994) Principle of Economy of Projection: "Project XP only if its head X or its specifier [Spec,XP] has independent semantic or phonetic content."

In this paper, I would like to revisit the question of whether the functional category of AgrP is motivated in the syntax for DGS. Clearly, there is phonetic content underlying the verb agreement in the above data, namely stem modulation with respect to the indices of the subject and the object. The phonetic content could be one potential argument for the presence of AgrP in sentences with overt agreement.

For another signed language, American Sign Language (ASL), Neidle, Kegl, MacLaughlin, Bahan and Lee (2000), following Pollock (1989), have suggested that AgrP is present in all sentences. They use a similar kind of argument: there is always phonetic content to be found through non-manual expressions, such as eye gaze which they argue manifests object agreement and head tilt which they argue manifests subject agreement. As they note, such nonmanuals are optional, and the question remains whether there is AgrP in the structure if the nonmanuals are optionally not used.

To determine whether AgrP is motivated in the syntactic structure of DGS, I would like to follow the spirit of Iatridou (1990) and provide an independent syntactic motivation for AgrP, apart from others like those suggested by Chomsky (1995) and Speas (1994).

I first turn to the functional motivations behind the insertion of PAM: phonetic and pragmatic constraints. Then I raise the question of whether PAM is indeed inserted in AgrP as opposed to another functional category like AspP. I present evidence from two domains: (i) syntactic motivations from the asymmetries between sentences with PAM and sentences without, and (ii) the complementary distribution of PAM with other forms of PAM in DGS.

3.   Interaction between Phonetic Constraints and PAM

In this section, I show that there are phonetic constraints at this interface require the insertion of PAM. The phonetic constraints that I refer to are those that have been identified by Mathur and Rathmann (2001). I will now give examples of three such constraints.

First, one phonetic constraint interacts with verbs that are body-anchored. For example, the DGS sign for 'talk to' is SPRECHEN. While the form of the sign can be used for a first person subject and a nonfirst object associated with the addressee, the body contact in SPRECHEN blocks the inflection for two nonfirst person arguments. See Figure 3. There are a few other DGS verbs that behave similarly: VERRATEN 'tattletale', VERTRAUEN 'trust', HASSEN 'hate', and MAG 'like'.

A second phonetic constraint involves some conflict in the motor requirements of the hand/arm movements. One of them bars movement that takes place from the shoulder joint, the elbow joint, and the radio-ulnar part of the arm which is facing up. For example, BERATEN 'counsel' is a two-handed sign which has the palm facing up. If you want to say 'you counsel me' in DGS, you have to twist the hands in such a way that the final form would not be well-formed according to the phonetic constraint. See Figure 4.

Now we turn to the last example of a phonetic constraint. Let us look at another DGS sign for 'annoy' VERSPOTTEN, which involves both hands in the V handshape. The sign 'I annoy you all' is not well-formed because it violates a phonetic constraint against movement that involves outward rotation from the shoulder as well as the elbow.

So far, we have seen three examples of phonetic constraints that block full verb agreement. These phonetic constraints have cross-linguistic status: they appear not only in DGS but also in other signed languages such as American Sign Language (ASL), Australian Sign Language (Auslan), and Russian Sign Language (Mathur and Rathmann 2001).

The agreement is supposed to be expressed overtly, but since the verb cannot be modulated for number due to these phonetic constraints, the derivation crashes as a result at the articulatory-perceptual interface. Instead, another derivation is chosen in which a morphological marker, PAM, is pulled from the lexicon and is inserted into AgrP once it has been been projected. Then PAM can be modulated for number instead of the verb, so that agreement is now expressed overtly at the articulatory-perceptual interface.

4. Interaction between Pragmatic Constraints and PAM

PAM may be inserted not only due to phonetic factors but also due to pragmatic factors, in particular those that force a specific episodic reading. Note that episodic reading are available only with stage-level predicates. While a fully inflected verb may have either an episodic reading or a generic reading, when PAM gets inserted, it is this episodic reading that is forced. To see this consider the following sentences.

(4)   SOHN$_j$ [MUTTER$_i$ 5-JAHRE $_i$LEHREN$_j$]
         son   mother   5 years   teach
         ok 'A mother used to teach her son for 5 years' (generic reading)
         ok 'A mother has been teaching her son for 5 years' (episodic reading)

The context for this sentence is ambiguous between generic and episodic readings. Now compare the sentence with the following, where PAM has been added.

(5)   SOHN$_j$ [MUTTER$_i$ 5-JAHRE $_i$PAM$_j$ $_i$LEHREN$_j$]
         son   mother   5 years   PAM   teach
         ?? 'A mother used to teach her son for 5 years' (generic reading)
         ok 'A mother has been teaching her son for 5 years' (episodic reading)

It is no longer possible to have a generic reading under which the mother used to feed the son for a period of time. Moreover, there is a sign in DGS glossed as FERTIG which seems to be a pragmatic marker that indicates that the event described by the sentence has come to a complete end. This marker induces an episodic reading of the verb where the episode has now been accomplished, a reading which is compatible with the use of PAM, as shown in the following sentence.

(6)   SOHN$_j$ [MUTTER$_i$ 5-JAHRE $_i$PAM$_j$ $_i$LEHREN$_j$] FERTIG
         son   mother   5 years   PAM   teach   finish
         * 'A mother used to teach her son for 5 years' (generic reading)
         ok 'A mother has been teaching her son for 5 years' (successive episodic reading)

The story here is that if an episodic reading needs to be forced, and if PAM is not inserted, the sentence will be pragmatically odd.

The idea that an auxiliary-like element like PAM 'forces' an episodic reading can be explained if there is a shift in the semantics of the verb so that there is a spatio-temporal argument tied to the event described by the sentence. This idea is not new and receives independent motivation from other work on spoken languages such as Green's (2000) work on African American English involving the *be*-type construction:

(7)   *Be*-type construction in African American English
    a.   Bruce be crying when the teacher call his mother.
    b.   HAB [call his mother (the teacher, e)]   [cry (Bruce, e)]

The *be*-type construction serves to establish the event described by the predicate at a particular time and place. Note that the predicate is a stage-level predicate with an event argument, expressed by *e*. Green notes that stative verbal predicates like psych verbs can also occur in the -*ing* form in *be*-type constructions, as shown in the following:

(8)   *Be*-type construction coerces stage-level reading on individual-level predicate
    a.   Sue be having a lot of books.
            'Sue usually/always has a lot of books'
    b.   Sue be knowing that song.
            'Sue usually/always knows that song'

Green argues that even though these predicates are inherently individual-level, it is the *be*-type construction forces a stage-level reading on the predicates and changes the interpretation from one of a state to one of an event.

The same thing seems to be happening with PAM. The following sentence is ambiguous between an episodic and a generic reading:

(9)   MARIE$_i$ HANS$_j$ [IX$_i$ IX$_j$ KENNEN]
        Marie   Hans   she   him know
        'Marie knows Hans.'

However, when one inserts PAM, the stage-level (episodic) reading is coerced:

(10)   MARIE$_i$ HANS$_j$ [$_i$PAM$_j$ KENNEN]
        Marie   Hans   PAM   know
        'Marie knows Hans at a particular moment.'

This sentence is especially used in a context where Marie is trying to recall who Hans is and finally recalls who he is at that particular moment.

5.   First Argument for Inserting PAM under AgrP: Asymmetry between Sentences with PAM and Sentences with Agreeing Verbs

So far, we have seen that PAM may be inserted due to phonetic or pragmatic reasons. The next question is, where in the structure is PAM inserted? It is argued here that PAM is inserted under AgrP.

There are other possibilities where PAM could be inserted. For example, it is possible that PAM is inserted inside the verb phrase. Alternatively PAM could be inserted into Aspect Phrase if there is an episodic reading involved, since this reading may have more to do with telicity (versus atelicity), which is one feature of Aspect. One important fact that is relevant here is that PAM cannot be modulated for temporal aspect, but it can be modulated only for agreement. (In contrast, regular verbs can modulated for temporal aspect and agreement.)

Thus I assume that when PAM is inserted, it is inserted into an AgrP, where the strong phi-features of [number] will be copied from the verb phrase and receive interpretation. The remaining features in VP will then be deleted (Chomsky 1995). Otherwise, if PAM is not inserted, the only way that the derivation may pass is if the verb is inserted from the lexicon already inflected and its features are then interpreted within the VP.

I now present two kinds of arguments for this position. In this section, I show that there is an assymetry between sentences with PAM and sentences with agreeing verbs which argues that PAM is best positioned under AgrP rather than under VP. In the next section, I demonstrate the complementary distribution of PAM with other kinds of PAM. Sentences with agreeing verbs and sentences with PAM have different properties. For example, PAM may cliticize to the object, whereas an agreeing verb cannot. When PAM is cliticized to the object, the whole unit may move to a structurally higher position, such as before modals or negation. In contrast, in a sentence with an agreeing verb, the object may not move above a modal or a negation.

First, when a verb is not able to show agreement due to phonetic constraints, PAM is inserted. Afterwards, the object is obligatorily shifted into the specifier position of AgrP, since the structure in (13) is not grammatical at the surface. The result is that PAM and the object are adjacent to each other. Under this condition of adjacency, PAM may cliticize to the left of the object.

(13)   Underlying structure:
        $HANS_i$ $[_{AgrPi}PAM_j$ $[_{VP}$ [MAG [$MARIE_i$]]]]
        'Hans likes Marie'

(14)   Object shift
        $HANS_i$ $[_{AgrP}$ $MARIE_{ii}PAM_j$ $[_{VP}$ [MAG [t_j]]]]

(15)   Object cliticization
        $HANS_i$ $[_{AgrP}$ $_i\underline{PAM_j+MARIE_i}$ $[_{VP}$ [MAG [t_j]]]]

In contrast, when there is an agreeing verb in the sentence, there is no object shift nor object cliticization. One could theoretically assume that there is AgrP in the structure, as in (16). The object could raise to the specifier position of AgrP, as in (17). However, this is not possible unless the subject and the object are clearly topicalized with a special non-manual topic marker. Since object shift is not possible with agreeing verbs and since there is no PAM, there is also no cliticization process in sentences involving agreeing verbs.

(16)   Underlying structure:
        $HANS_i$ $[_{AgrP}$ $[_{VP}$ [$_iFRAGEN_j$[$MARIE_i$]]]]
        'Hans asks Marie'

(17)   Object shift
        * $HANS_i$ $[_{AgrP}$ $MARIE_i$ $[_{VP}$ [$_iFRAGEN_j$ [t_j]   ]   ]]

(18)   Object cliticization
        * $HANS_i$ $[_{AgrP}$ $_i\underline{FRAGEN_j+MARIE_i}$ $[_{VP}$ [t_j]   ]]

To see more clearly this asymmetry between sentences with PAM and sentences with agreeing verbs, a further prediction is that the PAM+object unit may occur not only before the verb, as we have seen in (15), but also before negation, aspect, and modals. On the other hand, in sentences with agreeing verbs, the object cannot appear before such elements.

(19)   PAM sentence: object can follow or precede negation
    a.   HANS$_i$[$_{NegP}$[NOCH^NICHT] [$_{AgrP}$[$_i$PAM$_j$+MARIE$_j$] [$_{VP}$ [MAG]]]]
    b.   HANS$_i$[$_{NegP}$[$_i$PAM$_j$+MARIE$_j$]$_k$[NOCH^NICHT][$_{AgrP}$t$_k$ [$_{VP}$ [MAG]]]]
       'Hans does not yet like Marie.'

(20)   Agreeing verb: object can only follow negation
    a.   HANS$_i$ [$_{NegP}$ [NOCH^NICHT]   [$_{VP}$ MARIE$_j$ $_i$FRAGEN$_j$]]
    b.   * HANS$_i$ [$_{NegP}$ MARIE$_j$ [NOCH^NICHT]   [$_{VP}$ t$_j$ $_i$FRAGEN$_j$]]
       'Hans has not yet asked Marie.'

We see parallel examples with perfective aspect and modals:

(21)   PAM sentence: object can follow or precede perfective aspect
    a.   HANS$_i$ [$_{AspP}$ [GEWESEN] [$_{AgrP}$ [$_i$PAM$_j$+MARIE$_j$] [$_{VP}$ [MAG]]]]
    b.   HANS$_i$ [$_{AspP}$ [$_i$PAM$_j$+MARIE$_j$]$_k$ [GEWESEN] [$_{AgrP}$ t$_k$ [$_{VP}$ [MAG]]]]
       'Hans already likes Marie.'

(22)   Agreeing verb: object can only follow perfective aspect
    a.   HANS$_i$ [$_{AspP}$ [GEWESEN]   [$_{VP}$ MARIE$_j$ $_i$FRAGEN$_j$]]
    b.   * HANS$_i$ [$_{AspP}$ MARIE$_j$ [GEWESEN]   [$_{VP}$ t$_j$ $_i$FRAGEN$_j$]]
       Hans has already asked Marie.'

(23)   PAM sentence: object can follow or precede modal
    a.   HANS$_i$ [$_{TP}$ [KANN] [$_{AgrP}$ [$_i$PAM$_j$+MARIE$_j$] [$_{VP}$ [SCHWINDELN]]]]
    b.   HANS$_i$[$_{TP}$[$_i$PAM$_j$+MARIE$_j$]$_k$[KANN][$_{AgrP}$ t$_k$[$_{VP}$ [SCHWINDELN]]]]
       'Hans can lie to Marie.'

(24)   Agreeing verb: object can only follow modal
    a.   HANS$_i$ [$_{TP}$ [KANN]   [$_{VP}$ MARIE$_j$ $_i$FRAGEN$_j$]]
    b.   * HANS$_i$ [$_{TP}$ MARIE$_j$ [KANN]   [$_{VP}$ t$_j$ $_i$FRAGEN$_j$]]
       Hans can ask Marie.'

In sum, I have shown a clear assymetry between sentences with PAM and sentences with agreeing verbs. In the former kind of sentence but not in the latter, the object may appear either after or before various elements such as negation, aspect, and modals. This can be explained only if we assume that PAM is inserted under AgrP, and the object is shifted into the specifier position of AgrP, whence the PAM+object may move to a higher structural position above negation, aspect, and/or modals. If PAM is inserted under VP, it would not be possible to derive those different word orders, as observed with sentences with agreeing verbs. This suggests that when PAM is inserted, it is inserted under AgrP; otherwise, if there is an agreeing verb, there is no AgrP.

6.   Second Argument for Inserting PAM under AgrP: Complementary Distribution with other Forms of PAM

The other kind of evidence comes from the complementary distribution of PAM with other elements in DGS. So far, we have looked at one form of PAM but there are actually two other kinds of PAM, which I will label PAM-ÜBER and PAM-FÜR respectively. See Figure 5 for illustrations. Moreover, I will label the original form as PAM-AUF.

PAM-ÜBER uses the same handshape as PAM-AUF, i.e. the bent L handshape, but the mouthing that may accompany it is different and uses the form /ube/. The movement is also different: it marks just one endpoint, which is associated with the adjunct that is the theme of constructions like 'read about' or 'talk about'. As for the other kind of PAM, PAM-FÜR uses the spread F handshape and may be accompanied by a mouthing of /fyr/. It marks the two endpoints that are associated with the subject and with the object that receive the theta-roles of agent and beneficiary respectively. Apart from phonological differences, they differ in that they mark different argument structures.

These forms are in complementary distribution. One way to see PAM-ÜBER and PAM-FÜR's parallel behavior with PAM-AUF is that they may cliticize to an object and appear in a structurally higher position above a modal or negation. First here is a simple sentence that uses PAM-ÜBER and a modal:

(25) IX_i KANN   [PAM-ÜBER_j (object pro_j)]   UNTERHALTEN
             'We can chat about you'

The PAM-ÜBER unit may precede the modal KANN, as in the following sentence:

(26) IX_i [PAM-ÜBER_j (object pro_j)]   KANN UNTERHALTEN
             'We can chat about you'

There are also parallel examples illustrating the same point for PAM-FÜR:

(27) IX_i KANN [PAM-FÜR_j (object pro_j)] BUCH   KAUFEN
             'We can buy a book for you'

(28) IX_i [PAM-FÜR_j (object pro_j)]   KANN   BUCH   KAUFEN
             'We can buy a book for you'

The fact that these different forms of PAM are in complementary distribution suggests that PAM-ÜBER and PAM-FÜR also occur in AgrP. What this shows us is that PAM-AUF is not the only element that requires the projection of AgrP. The distribution of PAM-ÜBER and PAM-FÜR therefore constitute independent evidence for the projection of AgrP, since they require the projection for different reasons for PAM-AUF: case-checking for indirect objects with different kinds of verbs.

7.   Discussion

PAM is inserted in AgrP to ensure convergence at the two interfaces. Here I raise several further questions regarding the syntax of PAM.

7.1 The Nature of the Derivation

The first question is how the derivation proceeds with respect to the insertion of PAM. There are two possibile ways. One way is to let the derivation proceed as usual. If PAM is required yet there is none in the numeration, the derivation crashes. Another derivation will have to proceed in which PAM is part of the numeration. Thus whatever derivation there is must be attempted until there is one that converges at the two interfaces.

Another way is to use Last Resort (Chomsky 1995). If the derivation crashes at one of the interfaces, PAM will be inserted as a last resort, much like *do*-support for English and as argued for Brazilian Sign Language (LSB) by Quadros (1999). *Do*-support, when it is inserted, does not and cannot affect the syntactic structure. In this sense, the insertion of PAM does not seem to be like *do*-support because the insertion of PAM does affect the syntactic structure, namely it invokes the projection of AgrP.

7.2 Cross-linguistic Applications

Another issue is whether the above observations have any cross-linguistic applications. Not all all signed languages have a counterpart to the element PAM that we have been discussing. ASL is one notable example. It seems from a review of the signed language literature that there are in fact two kinds of signed languages, one with PAM-like elements and the other without.

Those that seem to behave like DGS in having PAM-like elements include Sign Language of the Netherlands (Bos 1996), Japanese Sign Language (Torigoe 1994 and Fischer 1996), and Taiwan Sign Language (Smith 1990).

Those that behave like ASL in not having any PAM-like elements include Russian Sign Language, Australian Sign Language (Mathur and Rathmann in press), and Swedish Sign Language. Since I have shown above how the projection of AgrP depends on the insertion of PAM in DGS, I suggest that if there is no PAM in languages like ASL, no AgrP will be projected either.

7.3 Correlation with Word Order

One interesting thing about the distinction between the two kinds of signed languages seems to be the following: those languages which use PAM do not seem to have fixed word order on the surface, whereas those which do not have PAM seem to have more restricted word order, in particular SVO word order.

Fischer (1975) has argued for a basic SVO word order for ASL using data mostly from reversible sentences, among other evidence. She attributes the strictness of word order in ASL to the necessity for keeping the relations among the subject, the verb, and the object clear. That also seems to the case for other signed languages that fall into the same group as ASL in the above typology.

On the other hand, the literature on signed languages with PAM has not argued for any particular basic word order for these languages, although it has often been suggested that SOV is the preferred word order (e.g. Bos 1995 for Sign Language of the Netherlands). It seems then that the category of signed languages with PAM do not seem to have strict basic word order. This may

be because word order is not necessary in these signed languages to express the relationships among the subject, the verb, and the object. Rather, they could show the same through an Agr projection and subsequent insertion of PAM.

It should be noted that all of the DGS data presented here show overt nominals in order to clarify the word order. In actual discourse, there is a preference to establish overt nominals as the topics (and optionally at particular locations in the space in front of the signer) and then use null pronominals afterwards. Also, if PAM is used for pragmatic reasons, there is a strong preference to place it in the sentence-final position, which could be the Focus Position.

8. Conclusion

In conclusion, I suggest that AgrP is projected in order to ensure convergence at the articulatory-perceptual interface and/or the conceptual-intensional interface.

In keeping with Minimalist assumptions, overall convergence requires convergence at two interfaces, one at the articulatory-perceptual interface and the other at the conceptual-intensional interface. A derivation will crash if there is no convergence at either interface. It has been demonstrated that there are phonetic constraints at the articulatory-perceptual interface which require a projection AgrP in particular signed languages for convergence. Similarly, it has been shown that there may be pragmatic constraints at the conceptual-intensional interface which may also play a role in the projection of AgrP for convergence.

In broad terms, the main conclusion is that there is no AgrP in the syntactic structure per se. Instead, a verb is inserted from the lexicon into its base-generated position within the verb phrase, VP, and is already modulated for inflection. This is consistent with Chomsky (1995) who argues that "agreement has an even more restricted role and unique status than before, with no apparent impact for the core computational processes."

The net result is that AgrP is certain signed languages is projected only if it is required for convergence and if there is morphological content like PAM that needs to be inserted into the AgrP. In other signed languages, there is no projection of the AgrP at all since they do not have the morphological content that needs to be inserted, and convergence would have to be achieved in other ways.

Some (e.g., Chomsky 1995) have suggested doing away with AgrP for all languages. Others, (e.g., Pollock 1989), have suggested all languages have AgrP, and yet others like Speas (1994) suggest that some languages have AgrP while other languages do not, depending on their morphological and syntactic properties. On the other hand, it is suggested that the presence (or absence) of AgrP does not need to be pre-established within a language. Rather, its presence can be made optional within a language.

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Appendix
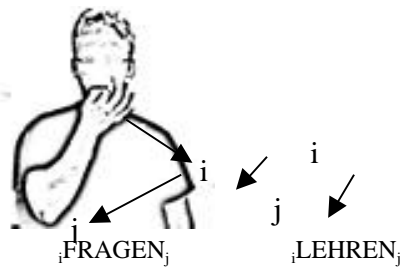
Figure 1. FRAGEN and LEHREN

Figure 2. MAG and PAM

~1st.sg~SPRECHEN~non1st.sg~   *~non1st.sg~SPRECHEN~non1st.sg~

Figure 3. SPRECHEN

~1st.sg~BERATEN~non1st.sg~   *~1st.sg~BERATEN~non1st.sg~

Figure 4. BERATEN

~i~PAM-FÜR~j~   ~i~PAM-ÜBER~j~

Figure 5. PAM-ÜBER and PAM-FÜR
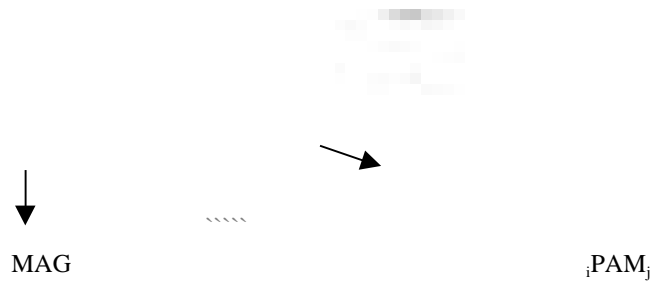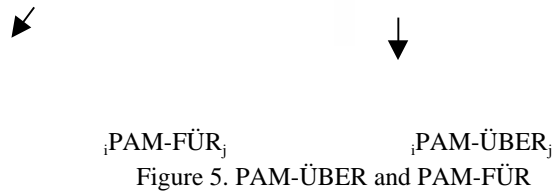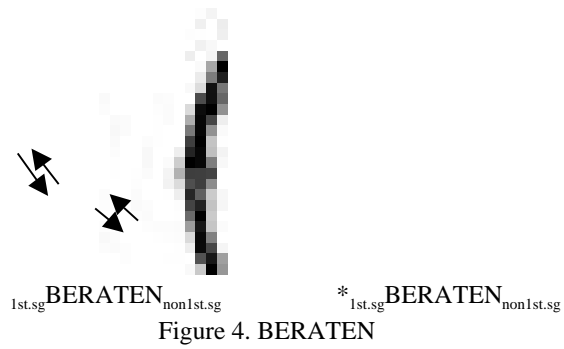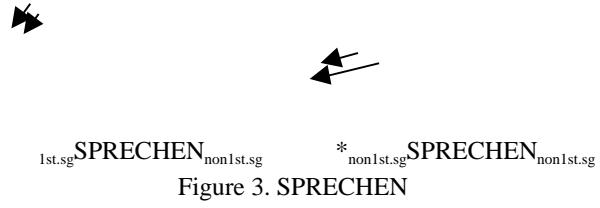
Agreement in Maasai and the Syntax of Possessive DPs (II)[*]

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1. Introduction

Possessives are ``complex'' DPs: they involve two distinct nominal expressions as components.[1] In this paper I address the issue of characterizing the nature of the syntactic relation holding between these two nominal expressions in possessives whose possessum is arguably not a syntactic argument-taking category. This task can be divided into two parts: (i) providing an account of what licenses the insertion of the possessor in the derivation of possessive DPs and (ii) accounting for any further steps in the syntactic derivation which lead to the structure which undergoes Spell-Out. With respect to (i), I argue in favor of den Dikken's (1998) proposal that in possessive DPs of the type considered here the possessor is licensed as complement of an empty preposition in the PP predicate of a small clause whose subject is the possessum. I provide some empirical support for this position using agreement data from Maasai. With respect to (ii), I depart from den Dikken's proposal. I argue that prenominal possessors in English are not derived by DP-internal Predicate Inversion and outline two alternative analyses for the derivation of possessives in languages with prenominal possessors. Finally, I address the issue whether the postnominal position of possessors in Maasai is the product of further movement operations preceding Spell-Out or rather reflects the absence of overt syntactic derivation.

2. Two Issues in the Syntax of Possessive DPs

2.1 Licensing of Possessors

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[1] I use the term possessive DPs (or possessives) to refer to DPs like *the city's destruction*, *a friend of John's*, *John's dog*, etc. which are sometimes referred to as genitives. With possessum I indicate the nominal component which determines the sortal properties of a possessive DP, e.g., *dog* in *John's dog*. I use possessor to indicate the other nominal component in a possessive DP, e.g., *John* in *John's dog*.

It has long been pointed out in the literature that possessives most likely do not constitute a syntactically unitary category.[2] In some possessive DPs the possessum noun can be argued to be a syntactic argument-taking category. For example, Grimshaw (1990) argues that in possessives like *the city's destruction* the possessum noun *destruction*--a deverbal *process nominal* in Grimshaw's terminology--is a syntactic argument-taking category, i.e., a category which, like verbal heads, projects an argument structure. Accounting for the insertion of the possessor in the syntactic derivation of possessives of this kind is quite unproblematic: the possessor DP is selected as the syntactic argument of the possessum noun in a structural configuration like (1).

(1)   NP
           /\
        N   DP
        | /\
   destruction   the city
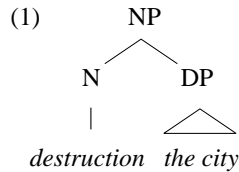
On the other hand, in many possessive DPs the possessum noun is arguably not a syntactic argument-taking category. For example, the noun *dog* which constitutes the possessum in a DP like *John's dog* does not project an argument structure under standard analyses. The licensing of the possessor in DPs of this kind cannot be accounted for along the lines proposed for the first class of possessive DPs: the semantic relation holding between possessor and possessum must be encoded in the syntax in a structural configuration different from (1).[3]

Minimally, an analysis of possessive DPs of this second type should account for the fact that the possessor in these DPs is semantically interpreted as a restrictive modifier of the possessum. Intuitively, the meaning of a DP like *John's dog* is not built by applying the meaning of the (phonologically empty) definite determiner to the meaning of the predicate `dog' and then predicating that the relevant entity stands in some (possessive) relation to John. Rather, it is the meaning of the definite determiner to be applied to the set of dogs which stand in some relation to John, a set which is derived by applying the restriction imposed by the possessor to the denotation of the predicate contributed by the possessum. *John's dog* denotes the unique entity which satisfies the predicate `dog that belongs to John' rather than the unique entity which satisfies the predicate `dog' and happens to satisfy the predicate `belong to John' as well.

2.2 Word Order in Possessive DPs

However, once it is assumed that possessive DPs do not constitute a syntactically unitary class the fact that, by and large, the surface form of possessive DPs seems to be quite uniform in each language must be explained. That is, the fact that in languages like English the Saxon Genitive form is available for possessives of both types distinguished above suggests that some formal

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[2] A syntactic analysis of possessive DPs like *a friend of John's* in English (sometimes called *double genitives* in the literature) is outside the scope of this paper. For some discussion see Storto (2001)

[3] The case of possessive DPs whose possessum noun denotes a *semantic* argument-taking category but is commonly assumed not to project a *syntactic* argument structure---e.g., deverbal *result nominals* (Grimshaw 1990) and *relational nouns*---is left aside for future investigation.}

requirements trigger further syntactic derivation for both kinds of possessive DPs, which end up having a similar structure at Spell-Out. These formal requirements should be properly identified in order to account for the syntactic derivation of possessives.

A related issue is that of accounting for the crosslinguistic variation in the form of possessive DPs. On the assumption that the mechanism licensing the insertion of the possessor in the derivation of possessive DPs is the same in typologically different languages, the task is to identify the point at which the syntactic derivations of possessives in languages like e.g.~English and Italian diverge, with the result that in general possessors appear in prenominal position in the first language and in postnominal position in the second language.

3.   Den Dikken's (1998) Proposal

3.1 DP-internal Small-clause Predication

Den Dikken (1998) proposes that the structure underlying possessive DPs like *John's dog* is a small clause encoding a predication relation between the NP projected by the possessum noun and a PP predicate containing the possessum DP.[4] The basic syntactic configuration which combines the possessum and the possessor in possessives of this kind is as sketched in (2).

(2)

```
              XP
            /    \
          NP      X'
          /\     /  \
         /__\   X    PP
         dog       /   \
                P [Dat]  DP
                        /\
                       /__\
                       John
```
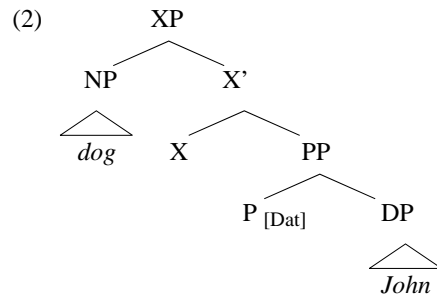
In the structure proposed by den Dikken the possessor is the syntactic argument of an empty Dative preposition within the predicate PP which modifies the NP headed by the possessum noun. The insertion of the possessor DP in the derivation is thus not licensed directly by the possessum noun as in the case of possessives like t*he city's destruction*, which is consistent with the different syntactic properties of the possessum noun in the two cases. Furthermore, the structure in (2) is conceptually adequate in that it accounts for the interpretation of the possessor in DPs like *John's dog* in a straightforward way. The possessor DP behaves like a modifier of the possessum because it is part of the PP predicate which applies to the NP projected by the possessum. And the *restrictive* nature of the modification follows from the fact that the modified category is smaller than a full DP.[5]

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[4] In this paper I cannot review other influential analyses of possessive DPs proposed in the literature, e.g., Chomsky (1970, 1986), Kayne (1994). In my opinion none of these analyses provides a satisfactory account for the licensing of possessors and the derivation of the kind of possessives discussed in the text.

[5] In (2) this category is assumed to be a NP, but it is quite likely that the subject of the small clause is a bigger functional category which includes the possessum NP.

3.2 DP-internal Predicate Inversion

Den Dikken (1998) argues that the prenominal position of possessors in English Saxon Genitives derives from successive-cyclic raising of the PP predicate containing the possessor in (2) across the subject of the small clause to the Spec of a higher functional head within DP. This is an instance of DP-internal *Predicate Inversion*, a movement operation restricted in its application to predicates of small clauses. Movement of the predicate across the subject constitutes a violation of the *Minimal Link Condition* (MLC, Chomsky 1995: Ch.3) unless the head X of the small clause incorporates into the first functional head (F) which dominates the small clause. In this case the minimal domain of the predicate is *extended* and the position of the subject and Spec,FP (the intermediate target for movement of the predicate) are rendered *equidistant* from the extraction site. The resulting complex head is spelled out as *'s* in English possessive DPs. The relevant step in the derivation of the DP *John's dog* is depicted in (3).

(3)

$$
\begin{array}{c}
\text{FP} \\
\diagup \qquad \diagdown \\
\text{PP}_2 \qquad\qquad \text{F'} \\
\diagup\diagdown \qquad\qquad \diagup\diagdown \\
t_1 \quad \text{DP} \quad \text{P1+X3+F(='s)} \quad \text{XP} \\
\qquad \triangle \qquad\qquad\qquad \diagup\diagdown \\
\qquad \textit{John} \qquad\qquad\qquad \text{NP} \quad \text{X'} \\
\qquad\qquad\qquad\qquad \triangle \qquad \diagup\diagdown \\
\qquad\qquad\qquad\qquad \textit{dog} \quad t_3 \quad t_2
\end{array}
$$
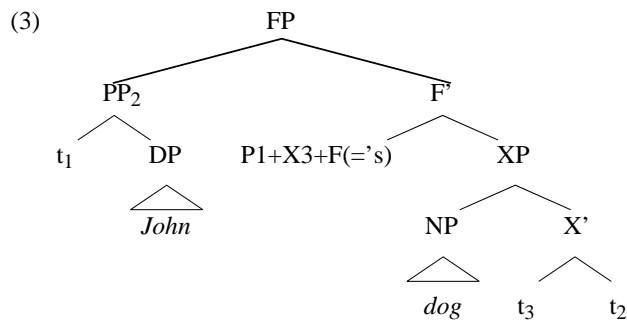
3.3 A Summary

Den Dikken's (1998) analysis of possessive DPs proposes the following answers to the two issues pointed out in §1: (i) the possessor can be inserted in the syntactic derivation as complement of a phonologically-empty preposition in a PP predicate which modifies the NP headed by the possessum noun in a small-clause configuration; (ii) further syntactic derivation of possessive DPs involves DP-internal Predicate Inversion, which displaces the PP predicate to a higher position within the possessive DP.

In §2.1 I argued that the structure in (2) is conceptually adequate in that it accounts for the semantic role of possessors in possessive DPs in a very straightforward way: the possessor behaves like a restrictive modifier of the possessum because it is part of a PP which is predicated of the possessum NP. In the next section I argue that den Dikken's proposal for the licensing of possessors (i) is empirically supported as well. In particular, I present some agreement facts from Maasai, a Nilotic language spoken in Kenya and Tanzania,[6] and argue that the common agreement patterns within possessive DPs and PPs in that language follow naturally on the assumption that the basic structure of possessive DPs is (2).

4.   Evidence from Maasai

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[6] The data I present are from the Kisongo dialect, which is spoken in Tanzania.

4.1 Aspects of the Morphosyntax of Maasai DPs

Before getting to the relevant data, some notes on the general features of Maasai DP morphosyntax are in order. In general modifiers follow the noun in the surface word order in Maasai DPs (4) and determiners[7] cannot be separated from the noun by intervening material.

(4)   a.   **EmEsa›sidaI**
           En– mEsa›sidai
           DET $_{sg.f}$ –table nice$_{sg}$
           'the/a nice table'
      b.   **EmEsa›nadȼ**
           En– mEsa nadȼ
           DET $_{sg.f}$ –table red$_f$
           'the/a red table'

Maasai nouns are morphologically inflected for gender and number and for Case. The two Case forms---the form of subjects of transitive verbs *Nominative* and the form of direct objects of transitive verbs *Accusative*---are marked through tonal morphology.[8] In general DPs display a very rich array of agreement phenomena between their constituents. For example, determiners agree with their complement noun in both gender and number (5), and modifiers agree with the noun they modify (4).[9]

(5)   a.   **EmEsa›**
           En– mEsa
           DET $_{sg.f}$ –table
           'the/a nice table'
      b.   **mìnEsaǐ**
           in– mEsa›–ǐ
           DET $_{pl.f}$ –table- $_{pl}$
           'the/some tables'
      c.   **oldía›**
           ol– día
           DET $_{sg.m}$ –dog
           'the/a dog'

---

[7] I call morphemes like en, in, ol, and il (the vowel in these morphemes undergoes changes due to a general process of ATR harmony) *determiners* because they appear in complementary distribution with demonstratives. But these morphemes appear on predicate nominals too (see (i) in fn.15), which seems to indicate that their presence does not entail a full DP structure. Furthermore, these morphemes do not specify the definiteness value of the DP on which they appear (as shown by the glosses in (4)-(5); in glossing other examples I consider only the definite interpretation of the relevant DPs).

[8] Unless otherwise specified, when discussing DPs in isolation I give them inflected for Accusative, which is used as the citation form by native speakers.

[9] ``True'' adjectives in Maasai display only Case and number agreement. Modifiers which display gender agreement. Modifiers which display gender agreement (e.g., (n)**adȼ** in (4b) and (11)) are derived from relative clauses (tucker and Mpaayei 1955).

    d. **ildíaín**
       il– día›– ín
       DET pl.m –dog- pl

4.2 Agreement in Maasai Possessive DPs

Let's turn to the relevant agreement data in possessives now. Full-DP possessors in Maasai[10] follow the possessum and are preceded by a complex morpheme which marks agreement in gender with the possessum and agreement in number with the possessor:[11]

(6)   a. **EmEsa∕mmEsaí ENgitók/çlEE›**
        En– mEsa›   / in– mEsa– í   E›–   en– kikók /
        DET$_{sg.f}$–table / DET$_{pl.f}$–table-pl POSS$_{sg.f}$-DET$_{sg.f}$-woman$_{ACC}$/
        E›– çl– lEE›
        POSS$_{sg.f}$-DET$_{sg.m}$-man$_{ACC}$
        'the woman's/the man's table/tables'

    b. **oldía∕ildíaín lENgitók/lçlEE›**
        ol– día›   ✓il– día–   ín lE›– en kitók /
        DET$_{sg.m}$-dog/ DET$_{pl.m}$–dog pl POSS$_{sg.m}$-DET$_{sg.f}$-woman$_{ACC}$
        lE›– çl– lEE›
        POSS$_{pl.m}$-DET$_{sg.m}$-man$_{ACC}$
        'the woman's/the man's dog/dogs'

    c. **EmEsa∕mmEsaí ççNgitúak/ççlEwa›**
        En– mEsa›   / in– mEsa– í çç›–   in– kitúaók /
        DET$_{sg.f}$–table / DET$_{pl.f}$–table-pl POSS$_{pl.f}$-DET$_{pl.f}$-woman$_{ACC}$ /
        çç›– çl– lEE›
        POSS$_{pl.f}$-DET$_{pl.m}$-man$_{ACC}$
        'the women's/the men's table/tables'

    d. **oldía∕ildíaín ççNgítúak/lççlEwa›**
        ol– día›   ✓il– día–   ín lE›– en kitók /
        DET$_{sg.m}$-dog/ DET$_{pl.m}$–dog pl POSS$_{pl.m}$-DET$_{pl.f}$-woman$_{ACC}$ /
        lE›– çl– lEE
        POSS$_{pl.m}$-DET$_{pl.m}$-men$_{ACC}$
        'the women's/the men's dog/dogs'

	Feminine possessum	Masculine possessum
singular possessor	E›	lE›
plural possessor	çç-	lçç-

TABLE 1. Shape of the possessive agreement morpheme in Maasai.

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[10] The case of pronominal possessors is discussed in §4.3.

[11] I apologize to the reader for the graphical complexity of the examples below. Each item collapses four DPs in order to show that the form of the possessive agreement morpheme does not distinguish between a singular vs. plural possessum or between a masculine vs. feminine possessor *dog* and *man* are masculine and *table* and *woman* are feminine). A synopsis of the relevant data is given in Table 1.

3.3 A Simple Account of the Maasai Facts

Of the two components of the complex possessive agreement morpheme only the part which marks gender agreement with the possessum seems to be peculiar to possessive DPs. That is, whereas (the presence vs.~absence of) the morpheme *l-* as a marker of gender agreement occurs only in possessives, the alternation between the morphemes Ɛ- and ´ɣ- to mark number agreement occurs in other Maasai syntactic constructions. In particular, the alternation between the morphemes and occurs within Maasai PPs to mark number agreement between the preposition[12] and its complement DP.

(7)   a.   **tƐNgǐtok**
             tƐ- en- kǐtok
             P_{sg}-$DET_{sg.f}$ -woman$_{NOM}$
             'with/to/by/for/…the woman'

        b.   **tççNgǐtuak**
             tçç- in- kǐtuak
             P_{pl}-$DET_{pl.f}$ -woman$_{NOM}$
             'with/to/by/for/…the women'

This state of affairs is easily accounted for under den Dikken's (1998) proposal for the licensing of possessors. Number agreement with the possessor in Maasai possessive DPs is an instance of the more general phenomenon of number agreement between a preposition and its complement: the agreement relation is established within the predicate PP in the small clause in (2). Since the gender agreement alternation ∅/l- is peculiar to possessive DPs, it seems correct to assume that gender agreement with the possessum is determined within the small clause encoding possession as well. A plausible hypothesis is that the relevant agreement relation is established on the head X of the small clause through the Spec-Head relation it bears to the possessum NP sitting in Spec,XP.[13] The basic structure of possessive DPs in Maasai would then be roughly as in (8).[14]

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[12] This is the only preposition in Maasai; obviously its semantics is quite ``bleached."

[13] Noam Chomsky (MIT lectures, Spring 2001) argues that agreement cannot be determined in a Spec-Head relation because heads can entertain syntactic relations only with nodes which are lower in the tree. I do not have much to contribute to this debate at the moment, but I want to point out that my argument in favor of den Dikken's proposal is independent from the theoretical stance one holds about the syntactic correlates of morphological agreement. Given a structure like (8), any account of number agreement within Maasai PPs provides an account for number agreement in possessives.

[14] A structure like (8) predicts (Sandra Chung, p.c.) that Maasai should license possessive DPs of the form [DP DET [XP [NP possessum1 AND DET possessum2] AGR possessor]] rather than possessives of the form [DP DET possessum1 AND DET possessum2]. I have not elicited data which could test this prediction, but it is unlikely that these would be conclusive. I have already pointed out 9fn.7) that Maasai ``determiners" do not necessarily indicate a full-DP structure. Furthermore, even in English *the* can appear on both NPs in a conjunction even if it seems to apply only once to the conjunction of the two NPs in the semantics (e.g., in *the man and the woman who met at the party*; I owe this observation to Rajesh Bhatt).

(8)

```
                    XP
                   /  \
                 NP    X'
                /\    /  \
              dia›  X    PP
                    |   /  \
                    l- P+ ›- DP
                            /\
                          Ngítuak
```
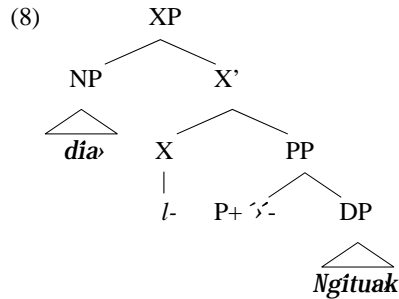
To summarize, both the number agreement morphology and the gender agreement morphology which occur in Maasai possessive DPs can be accounted for in a very straightforward way within the basic structure suggested by den Dikken (1998) for the licensing of possessors in possessives like the English *John's dog*. In particular, the parallel occurrence of the same number agreement morphology within PPs to mark agreement between the preposition and its complement DP provides empirical support for the proposal that possessors can be projected as complements of an empty preposition in a PP predicate which modifies the possessum NP.

5.   The Derivation of Possessive DPs

5.1 The Case of English

The surface word order of possessive DPs in Maasai is compatible with the assumption that the structure in (8) undergoes very little (if any) further syntactic derivation. On the other hand, for the case of English it must be assumed that, if possessors are projected in a small-clause structure like that proposed in (2), some movement operation applies to the possessor DP (or a phrase containing it): possessors in English appear in pre-nominal position. One could try to account for English possessives in terms of the presence of an EPP-like feature on some functional head above XP which triggers overt movement of the possessor DP (or a phrase containing it) into its Spec. This is essentially the proposal in den Dikken (1998).

However, in Storto (to appear) I argue that den Dikken's proposal does not account for the fact that raising of the possessor DP is obligatory, and not an alternative to the raising of the possessum NP to the Spec of the relevant functional projection. Den Dikken's proposal crucially relies on the fact that the subject of the small clause in (2) constitutes an intervener which blocks movement of the predicate. But this---on the reasonable assumption that only attracted categories count as interveners---seems to predict the option, unattested in English, of raising the possessum instead. Thus movement of the possessor DP must be triggered by some syntactic feature that distinguishes between DP and NP, attracting only the former.

One such feature might be Case: following standard assumptions, DPs need to receive Case whereas NPs do not. Raising of the possessor DP in English could be movement to a Case position. The possessor DP would then not be licensed for Case within the predicate PP where it is inserted, but in the Spec of a higher Case-assigning head. A suggestive fact in this light is that in Maasai the parallelism between possessor DPs and complements of the overt preposition *t-* breaks down with respect to their Case morphology. DPs in Maasai PPs are always inflected for

Nominative (7), whereas possessors are always inflected for Accusative (6), even when the whole possessive DP in which they appear is inflected for Nominative.[15]

On the other hand, an analysis of prenominal possessors in terms of Case movement does not seem able to account for DPs like *yesterday's concert*, in which the prenominal possessor is an adverbial expression which most likely does not need to be licensed for Case. An alternative analysis would instead postulate the existence of some syntactic feature different from EPP[16] on a DP-internal functional head which attracts the possessor DP (or possibly the PP in which it is licensed in (2)) to its Spec. As argued above, this feature should not be ``blind'' to the nature of the categories it attracts in its Spec. It should distinguish between DP (or the relevant category containing the possessor) and NP, since the possessum NP, which occurs between the target of movement and the possessum DP in (2), does not block raising of the latter. The nature of this syntactic feature should be carefully investigated, if this account is to be pursued.

Either way, it should be clear that both alternatives can accommodate the fact, pointed out in §2.2, that the Saxon Genitive form is available for all types of possessive DPs in English, and in particular for possessives whose possessum is a syntactic argument-taking category too. Under the first approach the complement of a process nominal would raise to the Spec of the DP-internal Case-assigning head in order to be licensed for Case. Under the second approach raising of the possessor would be triggered by the checking requirement on the relevant syntactic feature on a DP-internal functional head. The details of the analysis should be spelled out, but the general program seems capable of accounting for the uniformity in the surface form of the two types of possessive DPs in English even if they are derived from different basic structures like those given in (1)--(2).

5.2 Another Look at Maasai

For the moment, I prefer not to commit myself to a choice between the two analytic options sketched above for prenominal possessors in English possessive DPs. But I want to address a related question concerning the syntax of possessives in Maasai and the more general issue of the crosslinguistic difference between languages with prenominal possessors like English and languages with postnominal possessors like Maasai. That is, let's assume that in both English and

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[15] The relevance of this fact is undermined by the observation that Accusative seems to be the default Case morphology for nominals in Maasai: it is not only used as the citation form by native speakers, but it appears on predicate nominals as well.

    i.   **aldákïtárï ɛlɛ lɛɛ**

        çl– dákïtárï ɛlɛ lɛɛ

        DET$_{sg.m}$-doctor$_{ACC}$ this$_m$ man$_{NOM}$

        'This man is a doctor.'

[16] As a matter of fact, it is not so clear to me whether the EPP feature which is normally assumed to be located on the head of TP is ``blind'' to the nature of the category it attracts to its Spec as I implicitly assume in the text. If this is not the case the relevant feature in the derivation of English possessives might be the DP-internal correspondent of EPP, after all. Notice however that even in this case the specific account proposed by den Dikken (1998) for the derivation of prenominal possessors in English cannot be maintained because it requires that the possessum NP be an intervener for raising of the possessor DP.

Maasai possessors are licensed in the structure in (2) and that prenominal possessors in English are the result of raising of the possessor DP triggered by Case or some formal requirement on aDP-internal functional head. The question then is where the syntax of possessives in Maasai differs from English with the result that possessors surface in postnominal position.

As I pointed out before, the surface form of Maasai possessive DPs is consistent with the assumption that little or no movement takes place in Maasai, and in particular no raising of the possessor to some higher DP-internal position occurs. Under this hypothesis the typological difference between English and Maasai reduces to the fact that Maasai possessors can be licensed for Case *in situ* or to the fact that the counterpart of the feature which triggers overt raising of the possessor in English can be checked by covert movement in Maasai, depending on the analysis adopted for prenominal possessors in English. Alternatively, though, it could be maintained that the same raising of the possessor postulated for English occurs in Maasai possessives too, and that the postnominal position of possessors in this language derives from the occurrence of further overt syntactic movement. This movement, so to speak, restores the basic order in which thepossessor follows the possessum once the syntactic requirement which triggers raising of the possessor is satisfied. The typological difference between English and Maasai would then reduce to the occurrence of this further overt movement in Maasai.

In principle, both movement of the possessum N and movement of a phrasal category containing the possessum NP to a position higher than the target of movement of the possessor can account for the word order in Maasai possessives. Thus, three alternative accounts for the postnominal position of possessors in Maasai can be explored: (i) no raising ofpossessors, (ii) raising of possessors plus further raising of the possessum N, and (iii) raising of possessors plus further raising of a phrasal category containing the possessum NP.

At a first glance, the option in (ii) seems quite promising. The data in (4) concerning the position of modifiers in Maasai seem to suggest that Maasai nouns raise to a high position within DP. On the other hand English nouns are usually assumed to undergo little, if any, N-raising. Despite the appeal of (ii) in the light of this independent typological difference between English and Maasai, I think that the typological difference concerning the position of possessors in the two languages cannot be reduced to the absence of (long) N-raising in English. The relative order of possessors and other modifiers of NP seems to exclude the possibility of reducing the postnominal position of possessors in Maasai to movement of the possessum noun alone. As shown in (6), Maasai full-DP possessors appear in postnominal position as other modifiers do. But, interestingly, the order between full-DP possessors and other modifiers is fixed. Possessors in Maasai must appear after all modifiers of the possessum noun. The only way to translate *Resoi's red table* in Maasai is (9a). The DP in (9b) only has the odd meaning according to which the modifier *red* modifies the possessor *Resoi*, rather than the possessum.

(9)   a.   **EmEsa›nadɕ́ ErEsɕ́i**
             En- mEsa›nadɕ́ E– rEsɕ́i
             DET$_{pl.f}$–table red POSS$_{sg.f}$–Resoi
             'Resoi's red table'
        b.   #**EmEsa› ErEsɕ́i nadɕ́**
             En– mEsa› E–rEsɕ́i nadɕ́
             DET$_{pl.f}$–table POSS$_{sg.f}$–Resoi red

The contrast in (9) argues against the analysis proposed in (ii). On the assumption that modifiers are left-adjoined to the possessum NP in (8) (and/or possibly to XP), this ordering restriction is expected if the possessor DP does not raise at all as proposed in (i). And this restriction can be accommodated even within an analysis like (iii), which proposes that the derivation of Maasai possessives involves phrasal movement of a category containing the possessum NP after the possessor DP raises out of XP. On the other hand, on the assumption that the Maasai word order in possessive DPs is the result of raising of the possessor DP out of XP and N-raising alone (ii), it is not clear how the ungrammaticality of (9b) would be derived: the unattested word order should be licensed when modifiers are left-adjoined to NP.[17]

5.3 Choosing between (i) and (iii)?

We are then left with the two alternatives in (i) and (iii) and with the question whether we have any reason(s) to prefer one to the other. The analysis in (i) seems to have a conceptual edge in that it postulates movement only in the case of English, where it is clearly needed to derive the attested word order in possessive DPs. Furthermore, this analysis immediately accounts for the order restrictions between full-DP possessors and other modifiers of the possessum in Maasai: the possessor DP is inserted in a position below the position of the possessum NP, and thus it must follow all other modifiers of this NP. Instead, the analysis in (iii) must argue, in order to account for the ungrammaticality of (9b), that the phrasal category containing the possessum NP which moves past the possessor contains all the modifiers of the possessum NP as well. Nevertheless, I would like to conclude this paper presenting some additional Maasai data which apparently support the analysis proposed in (iii) over the alternative in (i).

	1.sg	2.sg	3.sg	1.pl	2.pl	3.pl
singular possessum						
plural possessum						

TABLE 2. Maasai pronominal possessors.

The relevant data concern pronominal possessors in Maasai possessive DPs. Pronominal possessors in Maasai differ in various respects from full-DP possessors. A first difference is that pronominal possessors display both gender and number agreement with the possessum.[18] Gender agreement is marked by the same morpheme *l-* which appears with full-DP possessors, which seems to suggest that the basic structure of possessives with pronominal possessors involves a small-clause predication between the possessum NP and the possessor DP like in the case of full-DP possessors (8). On the other hand, the fact that pronominal possessors agree in number with the possessum noun suggests the alternative hypothesis that they are adjectives. It is a general property of adjectives in Maasai that they agree in number with the noun they modify (see fn.9). And this hypothesis is supported by two other properties of Maasai pronominal possessors which distinguish them from full-DP possessors. Pronominal possessors, like adjectives, display agreement in Case with the noun they modify (10), whereas full-DP possessors are always

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[17] The ambiguity of possessive DPs like *John's little elephant* argues that modifiers can apply to the denotation of the possessum NP before this becomes the subject of the small clause in (2).

[18] As shown in Table 2, only singular possessive pronouns display different morphology according to the number of the possessum. I will nevertheless assume that this gap in the paradigm is accidental.

inflected for Accusative in Maasai (6). Furthermore, pronominal possessors do not seem to besubject to the ordering restrictions exemplified by the contrast in (9) which hold for full-DP possessors. Pronominal possessors appear *before* other modifiers of the possessum NP (11); this is expected if they are ``high'' adjectives, rather than DPs.

(10) a. **átádúa›eN̲gíné ái**
          á– tá– dú– a›eN̲– kíné ái
          1.sg-past-see$_{(past)}$ –past DET$_{sg.f}$-goat$_{ACC}$ my$_{sg.f}$
          'I saw my goat.'

      b. **Etánápáki›eN̲gíne›ai**
          E– tá– náp– á– ki›en– kíne›ai
          3-past-carry-past-pass DET$_{sg.f}$- goat$_{NOM}$ my$_{sg.f}$
          'My goat was carried.'

(11) **oldía›lái adç̧**
      ol– día›lái adç̧
      DET$_{sg.m}$-dog my$_{sg.m}$ red$_m$
      'my red dog'

The peculiar properties of pronominal possessors lead to the conclusion that they are adjectives rather than DPs. But if this is the case the presence of the morpheme *l-* as marker of (masculine) gender agreement with the possessum is unexpected: the only Maasai ``adjectives'' which display gender agreement mark feminine with the prefix *n-* (see fn.9). I would like to suggest that these apparently contradictory facts can be accommodated if pronominal possessors in Maasai are ``thematic'' adjectives that relate to an empty category which is projected within the PP predicate in the small clause in (2). Gender agreement on Maasai pronominal possessors is marked by the same morpheme *l-* which appears with non-pronominal possessors. The null hypothesis is that in both cases gender agreement is contributed by the possessive construction, and this leads to the conclusion that even possessives with pronominal possessors involve a small-clause structure which encodes the relation between possessor and possessum. In the case of pronominal possessors, however, the possessor slot is filled by an empty category which is e.g.~coindexed with the possessive adjective which is adjoined to NP or XP (12).

(12) a.

b.
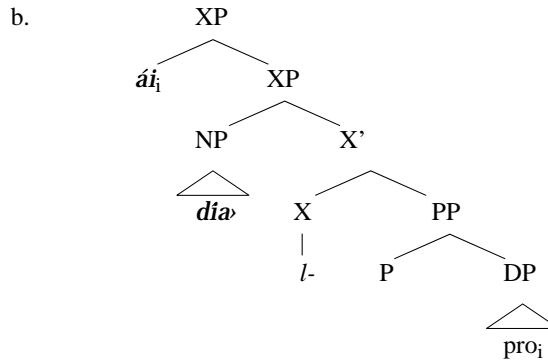
If either of the structures in (12) correctly represents the basic structural configuration for the DP \emph{my dog} in Maasai, then it is not clear to me how the analysis in (i), which postulates very little movement in the derivation of Maasai possessives, would obtain the result that the gender agreement morpheme *l-*, which marks an agreement relation established in X, surfaces between the possessum and the possessive adjective. I do not claim that these facts follow immediately from the analysis in (iii), but it can be hoped that the movement operations postulated in this analysis eventually provide an account for the position of the possessive gender agreement morpheme in DPs like (11). This issue is left open for future research.

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The Locality of Agreement and the Structure of the DP in Maasai[*]

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1. Introduction

The Spec-head configuration has been widely held to represent the canonical agreement configuration:

(1)   If Y agrees with XP, XP and Y are or have been in a Spec-head relation
        in the course of the derivation

There seems to be no general consensus over the question whether this is the only configuration leading to the spell-out of agreement or not. Chomsky (1995) argues that the standard view is incorrect: agreement should be captured not by Spec-head, but by Agree, which basically requires local c-command between the agreement bearing head and the triggering DP.

In this paper, I push what I will call the "strong agreement" hypothesis: the Spec-head agreement configuration in (1) is the only configuration leading to the spell-out of agreement. If the presence of agreement signals a local Spec-head relation in the course of the derivation, agreement provides important clues as to the history of the derivation, and therefore provides valuable theoretical insights. Section 2 discusses why Spec-head should not be abandoned in favor of Agree. In section 3, I will apply the strong agreement hypothesis to probe the syntax of the DP in (Kisongo) Maasai, an Eastern Nilotic language, with rich, asymmetric DP internal agreement patterns[1]. This leads to new insights into the building blocks of DPs, DP internal derivations, and the treatment of agreement asymmetries in structural terms. Gender, number and Case, must be merged low in the structure of the DP. I will reach the conclusion that "simple" common nouns in Maasai or rather the DPs that contain them, are not of the general form D NP, but of the form D CP in Maasai. This will probably be true universally by extension. D never

combines with a NP complement directly, but always with a CP complement that embeds the head noun, a NP predicate. This proposal likens simple DPs in Maasai to relative clauses with a nominal predicate (*"the boy", = the x such that he is a boy, or " who is a boy"),* and generalizes Kayne's 1994 proposal for the structure of relative clause structures, and possessive/genitive constructions to all DPs.

2.   The Status of Agreement

That agreement is sensitive to structure, and subject to locality, is uncontroversial. At issue is the relevant characterization of 'local domain', and the following hypotheses have been entertained:

(2)   a.   agreement is triggered in a Spec-head configuration
          b.   agreement is triggered in a local domain (a cycle, or a phase)
          c.   agreement is triggered in a head-head configuration (i.e., agreement is a type of incorporation)

(2a) and (2b) assume there is some 'copying' or 'matching' of agreement features[2];   (2c) treats the copying itself is a type of head movement, i.e., in essence agreement is an incorporated pronoun   (Taraldsen 1992, among others). The latter hypothesis may well handle single occurrences of subject verb agreement, or object agreement. It is not clear however how it can capture the fact that a single DP can trigger agreement on different heads[3] or how it would extend to DP internal agreement. I will therefore not consider this option any further here. The Spec-head agreement hypothesis in   (2a) has been abandoned in recent work by Chomsky (1998, 1999) in favor of the more permissive structural relation Agree. A particular head in need of agreement features sends out a Probe in a particular limited domain, (say a phase), and can agree with a DP if this DP has (active) matching features. Furthermore the Probe launcher must locally c-command the trigger. Agree is somewhat akin to Binding in this respect. Agreement often looks triggered by Spec-head, because of the independent interaction with EPP features, which may force the trigger to move.

It is important to determine whether the Spec-head or Agree hypothesis is correct, because of the potential implications for the form of syntactic structures and derivations. If the Agree proposal   (2b) turns out to be correct, there is no need to adjust our current understanding of what syntactic representations and derivations look like. Agreement will continue to play the somewhat marginal role they play in current syntactic theory. However, if the Spec-head proposal   (2a) is correct, many standard analyses and structures cannot be maintained: derivations must be rich enough to account for agreement, and consequently the standard understanding of the

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[2] A somewhat tangential question concerns the existence of an agreement head in the (narrow) syntax, or postsyntactic insertion of agreement morphemes, as argued in Halle and Marantz (1993). Though nothing depends on this for the present paper, I will assume that agreement is available for syntactic merger (i.e. there is no narrow syntax). Agreement is part of the structural "glue" that holds everything together. Furthermore, I assume that the connection between syntax and spell-out is direct, and not mediated by a level of Morphological structure at which certain processes may occur.

[3] It might be possible that some cases or agreement might be better analyzed as pronominal incorporation or cliticization. This will not bear on the issues discussed in this paper.

history of derivations, and structures needs to be adjusted. That syntactic derivations must be considerably enriched, is of course a conclusion reached in much recent work (Kayne 1994, Sportiche 1997, Rizzi 1997, Cinque 1999, Koopman and Szabolcsi (2000), among many others). If the Spec-head hypothesis is correct, agreement must play a much more central role in linguistic argumentation, since it yields direct insight into the syntactic derivations. This paper can be seen in part as a plea to take agreement seriously.

2.1 Agree versus Spec-Head.

In the core cases of Spec-head, the triggering DP is or has visibly been, in a Spec-head relation with the agreement bearing head. The core cases for Agree are long distance agreement cases in which the agreement trigger appears to be structurally lower than the agreement carrying head. In this section, I first focus on cases in which Agree   (2b) is not restrictive enough, and no fix seems to be available (section 2.1.1). I then turn to apparently problematic cases where Spec-head   (2a) seems too restrictive (section 2.2.2). The latter cases can be brought in line by adopting analyses for these constructions that have been proposed on agreement independent grounds, and that seem to be superior on empirical grounds.

2.1.1 Problems for Agree: Support for the Spec-Head Agreement Hypothesis.

In his paper on Romance past participle agreement, Kayne (1989) shows that Romance participle agreement reduces to the locality of the theory of movement, in conjunction with a simple rule of subject-verb (=participle) agreement. DPs agree with the past participle only if the DP has undergone movement through the subject position of the participial projection, i.e., if it has been in a Spec-head relation with the relevant head. Objects that follow the participle do not trigger agreement because they have not been in a local Spec-head relationship with the past participle at any point in the derivation. Similar types of asymmetries have been argued to follow from the theory of movement in conjunction with the general Spec-head hypothesis (Koopman 1999, Hallman 1999). It is unclear how agreement asymmetries can be captured in Chomksy's Agree proposal: a postparticiple object in French occurs in the same phase as the participle under all current accounts, and it is therefore mysterious why the Probe of the participle must fail in this context. It is also unclear what UG machinery could be deployed to account for agreement asymmetries under an Agree account: no easy fix (as yet) seems available. Agree is simply not restricted enough to handle such cases.

Under the Spec-head agreement hypothesis, however, agreement patterns are not accidental, but fall out from the history of the derivation, i.e., they reduce to the theory of movement. Postverbal objects in French participial constructions do not agree with the participle, because they are not in the spec position of the participial phrase at any point in the derivation. It seems to me that this type of account for agreement asymmetries provides strong support for the Spec-head agreement hypothesis.

2.1.2 Agreement at a Distance and Spec-Head

Agree is tailored to handle cases of long distance agreement, as exemplified in there-insertion construction in English, or in DP internal agreement between a demonstrative and the head noun:

(3)   a.   There <u>seem</u> to be <u>many problems</u> with agreement

　　　　　　　b.　　There <u>seems</u> to be <u>a problem</u> with agreement
　　　(4)　　a.　　<u>these</u> three large American <u>dogs</u>　　　　[Dem [Num [A [A [<u>N</u>]
　　　　　　　b.　　<u>this</u> large American <u>dog</u>.

The verb or demonstrative can simply send out a Probe and find the relevant agreement features under local c-command in a searchable domain. This is compatible with the standard analyses for these constructions, in which the DP associate is spelled out low in the structure (cf. (3)) and the noun remains low in the structure of the DP (cf., (4)). The Spec-head hypothesis clearly runs into problems here. However, these examples are only problematic, if it can be shown that there is indeed no local relation either at spell-out, nor at any point in the derivation. There are in fact quite strong arguments (independent from agreement) that the relevant local relation exists in the case of

(3). Such arguments also extend to the less-studied case of　　　(4).　For reasons of space, I will not be able to present a full analysis of the cases under discussion. I will just outline the type of solution that allows maintaining the Spec-head hypothesis.

First consider the classic problem of there-insertion constructions. It is unlikely that the triggering DP is in a high clausal spec position, unless a radically different analysis of *there*-insertion constructions is adopted and motivated. It is entirely conceivable, however, that at some point in the derivation, a local Spec-head relation does indeed hold. Suppose for example that the DP associate and *there* start out together, as convincingly argued in Moro 1997, and that the DP and *there* get separated in the course of the derivation, by predicate inversion of *there*.

　　　(5)　　a.　　*Merge DP and there*
　　　　　　　　　[problem $_{sg}$ [there]
　　　　　　b.　　*Agree* (Spec-head)
　　　　　　　　　[problem$_{sg}$ [there]$_{sg}$
　　　　　　c.　　Merge *be*,
　　　　　　　　　be [a problem$_{sg}$ [there]$_{sg}$]
　　　　　　d.　　Move predicate (predicate inversion)
　　　　　　　　　[there]$_{sg}$ be [_a problem$_{sg}$ ~~[there]$_{sg}$~~]
　　　　　　　　　etc.

In this type of analysis agreement can be established in a local Spec-head configuration at an early point in the derivation, with the triggering DP remaining low in the structure. *There* is not freely merged in Spec, IP of an existential sentence, as in the standard theory, but in fact is moved to Spec, IP by predicate inversion. Once in Spec, IP, it will continue to behave as any element occupying Spec, IP. The associate DP has the distribution of　, i.e., the predicate of *be*, or of the (complex) verb triggering predicate inversion. The ungrammatical string * *there seems a problem to be* is not due to failure of inherent Case (Belletti 1988 and Lasnik 1992), nor to Merge over Move (Chomsky 1995). It should rather be explained in the same way as **this will a disaster be* is not derivable by preposing of the (remnant) nominal predicate[4].

This type of solution is similar to Sportiche's proposal for Q-float (1987). Sportichian solutions have been proposed for a wide range of long distance agreement phenomena (clitic doubling (Uriegereka 1995), Postverbal subjects in Italian (Belletti 1995, 2001), right-dislocation

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[4]Such strings are fine in Dutch, which has preposing of the nominal predicate　independently.

in Italian (Cecchetto 1999), clitic doubling and pronominal binding in a series of papers (Kayne 2000, 2001), and Boeckx (2001 and this volume) for resumptive pronouns). Under the strong agreement hypothesis all cases of long distance agreement then are to be reanalyzed as arising at some early point in the derivation under a local Spec-head relationship.

Let us next turn to the problem of DP internal agreement. Despite the robustness of DP internal agreement patterns, there has been little general discussion on how these should be analyzed, and little or no integration of agreement in discussions and analyses of DPs more specifically. It is not difficult to see why: a first problem with *this big dog, these big dogs*, is that the agreement triggering element, the N, is a head, not a phrase. If this is correct, this type of agreement simply cannot be reduced to a Spec-head relation, i.e., a relation between a triggering phrase and a head. Recent developments, however, have shown that simple heads are in fact often (remnant) phrases Koopman and Szabolcsi (2000), Sportiche (1999), Mahajan (2000). Moreoever, Androtsoupoulou (1997), Cinque (2000), and Shlonsky (2000) quite successfully reanalyze N movement as remnant NP movement. If Ns are in fact small NPs, a Spec-head account can be envisaged.

The question then arises if it can be shown that the demonstrative is not in a Spec-head relation with the NP at any point in the derivation. Recent papers on the structure of DPs have argued for low merger of demonstratives or of determiners in certain languages (Bernstein 1997, Androutsopoulou 1997). If indeed, demonstratives can be merged lower than D, with subsequent movement into the D region, a Sportichian analysis is within reach for these cases as well.

(6)   a.   Low merger + agreement:
             [dogs [these] ..
        b.   attraction of *these* to D:
             [these D [……[dogs] [..] .

In conclusion, Agree can handle long distance agreement, but Spec-head can too: analyses which make these agreement patterns compatible with Spec-head have been proposed independently. Moreover, agreement asymmetries strongly support the Spec-head agreement hypothesis. Of course, more complete analyses remain to be presented for the problematic cases. However, in so far as these seem independently motivated, there is every reason to pursue the hypothesis that UG contains a unique agreement configuration, at the current state of our understanding.

3.   Case Study: Maasai DPs.

The Spec-head agreement hypothesis provides a powerful analytical tool: if there is overt agreement, then a Spec-head relation must hold between the relevant trigger and the head at some point in the derivation. Agreement thus provides important clues as to the history of the derivation. In the following section, I will apply this tool to probe the syntactic structure of the DP in Maasai.

3.1 Decomposing the Maasai Noun.

A "simple" common noun in Maasai, i.e., the form used as the citation form, is in fact a complex structure with several overt morphemes and multiple asymmetric agreements[5]. Simple Ns, as the ones listed below, are used as the citation form[6], as predicate nominals, and as DPs with a generic, indefinite, or definite interpretation, depending on the environment.

(7)	**a**	**l**	**ayé‑**	**ni**	'a boy'
	sg.ms	ms	boy	sg.acc	

(8)	**ˆ**	**l**	**ayóʼ**	**k**	'boys'
	pl	ms	boy	pl.acc	

(9)	**E**	**N**	**gíné**		'a (she) goat'
	sg.fem	n (fem)	kine	sg.acc	

(10)	**(ˆ)**	**N**	**gineʼ**	**dZǐ**	'goats'
	pl	n (fem)	kine	pl.acc	

The nominal root, lexically specified for gender, is followed by number morphology. The spell-out of the number suffix is a complex matter, with particular suffixes and roots cooccurring. Most probably, the spell-out reflects a fusion of a (historical) noun class and a gender system. The nominal root is preceded by determiner-like elements *çl, En, ˆl* and *ˆn*. These can be further taken apart further into two "morphemes" (I will henceforth refer to morphemes as heads) that covary with gender and number (*ç* 'ms.sg', *E* 'fem.sg', ˆ 'pl.') and gender (*l* 'ms', *n* 'fem') respectively. Each of these heads occurs independently. *ç* is part of the masculine relative pronoun, *E* is homophonous with 3rd person subject agreement (feminine gender is the unmarked form in Maasai), ˆ occurs as a (productive) plural number suffix. *l* and *n* are part of demonstratives (demonstratives agree with masculine and feminine head nouns respectively), and are part of relative clause markers; *l* occurs in possessive constructions with a masculine possessed noun. These heads can be separated from the nominal root by the demonstrative roots, by certain quantifiers, and by high adverbs (see (41)) which shows that they are not nominal prefixes. The nominal root is flanked by tones that covary with Case, Number, and tonal class of the noun[7]. There are two Cases in Maasai: nominative Case, used for subjects of tensed sentences, and for the object of (the unique) P. All other nouns, including predicate nominals, citation forms, possessors and accusative DPs show up with non-nominative Case (referred to by Tucker and Mpaayei (1955) as accusative case, and glossed in the examples as such).

The simple noun consists of little pieces of structure that line up in the following order, and that form a phonological phrase. As a matter of convenience, gender, number and case are annotated with numbers (1=gender, 2 =number, 3=case).

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[5] Nouns in Maasai fall into three distinct classes: proper names (*Toret*), pronouns, and common Ns ɔ̀ldɨ́a 'dog' , *alayéni* 'boy', ɛŋînè 'goat'). Proper names and pronouns do not have overt "determiners", but common Ns do, and trigger slightly different agreement patterns. The discussion here is restricted to common nouns.

[6] The citation form is identical to the predicate nominal form. Both carry non-nominative Case.

[7] For a table that includes the approximately 300 nouns in Tucker and Mpaayei (1955) Maasai English dictionary see Koopman (1999).

(11)   N: linear order of overt material (gender=1, number=2, Case=3)

2_{number}		$3[_{Case})$	$(_{Case})]3$
1_{gender}	1_{gender}	$N_{(gender)}$	-num

This phonological word is made up of at least two syntactic constituents (3.5.2) :

(12)   Surface constituency:
          [{1,2}, {1}]….[[NP+2]+3]

Since number and gender are expressed in more than one position, agreement has applied at least twice within this structure. Moreover, the agreement is asymmetric: the leftmost head, call it Y, agrees in number and gender; the head in the second column (Z) only agrees in gender. This spell out should be treated as agreement rather than as spell-out of the gender head itself, since it also occurs as an agreeing C- like element in relative clauses, or as an agreeing morpheme in possessor constructions (with a masculine possessed nouns):

(13)   There is overt double agreement within the "Noun"
          Y_{1+2} Z_1
          [gender and number] [gender]

Given the strong agreement hypothesis, it follows that some XP constituent and the agreeing heads are in a local Spec-head configuration at some point in the derivation.

Further questions arise: what exactly is the categorial status of Y and Z (section 3.1.1)? What other agreement patterns do we find in the Maasai DP (section 3.2)? What to make of the fact that Y agrees for both number and gender, while Z agrees only for gender? (see section 3.3).

3.1.1 On the Categorial Status of Y and X

The left peripheral heads Y and Z have both D-like properties, and properties which are not D-like, and the problem is how to reconcile these. The property that sets them apart from Ds as we know them is that there is no special semantics associated with them. These heads occur in all different types of DPs, citation forms, predicate nominals, indefinites, generics, definites, and within synthetic compounds (which look like relative clauses). This strongly suggests that they do not spell out (a high) D, but are merged quite low, low enough to occur in the common substructure of all the different types of DPs listed above. The heads also have some D-like properties. They occur in the left periphery, where Ds typically are found, they don't occur with proper names, and they can be absent in some limited contexts where bare nouns are often licensed:

(14)   a.   **En- dokin**   'thing'
             f.sg.f -thing
        b.   **mE- ɛii tokin**   'there is nothing'
             Neg-be-located thing

The proposal below, which is based on agreement, merges the Y and Z heads very low in the structure, hence the compatibility with different types of DPs, and moves them into the D periphery, hence their leftperipheral position at spell-out.

3.2 More on Agreement and Linear Order within the Maasai DP

Before turning to the analysis of the simple N, it is helpful to present a more complete picture of DP internal agreement on numerals, adjectives, possessive constructions, and relative clauses[8]. Dependents on the right of the head noun always fully agree in Case and number and gender. Dependents on the left of the triggering category always agree in gender and number.[9] Numerals and APs are postnominal and are ordered as follows:

(15) $Y_{1,2}$ Z_1 … $NP_{1,2,3}$ $Num_{1,2,3}$ $AP_{(1),2,3}$ *

DP possessors are preferably in rightperipheral position within the DP, preceded by a two headed possessive morpheme; the left part agrees with the possessed noun in gender, number[10] and Case,; the rightpart (X) agrees in gender and number, with the possessor which itself is non-nominative (see Appendix A for paradigms).

(16)   *DP possessors (W is probably some D)*
          $Y_{1,2}$ Z_1 .. $NP_{(1),2,3}$ .. $W_{1,2,3}$ $X_{1,2,}$ $DP_{(poss)1,2,3(acc)}$

Pronominal possessors involve a possessive morpheme, and basically show the same agreement pattern as adjectives (agreement with the possessed head noun in number, Case and gender (see Storto this volume). Gender shows up on W, tonal Case and Number agreement on the left and right edge of the pronoun, and a number agreement suffix shows up on the right edge of the pronoun. The pronominal possessor seems to have incorporated and fused with X:

(17)   *Pronominal possessors*:
          $Y_{1,2}$ Z_1 $NP_{1,2,3}$ W_1- poss $pron_{2,3}$ $(Num_{1,2,3})$ $(AP_{1,2,3}$*)

(Affirmative) relative clauses also show a special complex head (W +X) that agree in number, gender and Case with the head of the relative clause (and not with the extraction site) (See Appendix B):

(18)   Relative clauses:

---

[8] For detailed description, see Epstein (1999). I leave demonstratives and quantifiers out of the discussion.

[9] And maybe also for Case in the possessive construction: the tonal analysis involved in Case marking in this particular environment needs to be more fully worked out.

[10] Due to tonal opacity, and length of segments, it is difficult to determine that W agrees with the possessed N in number. However, since this agreement does show up overtly with pronominal possessors in (17), I conclude.

$$Y_{1,2} \quad Z_1 \qquad NP_{1,2,3} \quad X_{1,2,3} \quad [_{TP}\ldots\ldots]$$
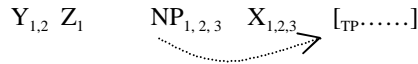
3.3. *Accounting for agreement: simple DPs.*

Thus far, the following combinations of features characterize DP internal agreement patterns in Maasai[11]:

(19)   a.   1   (gender)
       b.   1,2   (gender and number)
       c.   1,2,3   (gender, number and Case)

The following agreement patterns do not occur in Maasai:

(20)   a.   * 3   (pure Case agreement)
       b.   * 2   (pure singular number agreement) (sg)
       c.   * 1, 3   gender and Case agreement

Furthermore, some heads only agree for 1, or for 1,2, other heads show full 1,2,3 agreement. Surely one would like to find out why this state of affairs holds. Is there any internal logic as to why certain heads only agree for gender, or for gender and number while others must fully agree for gender, number and Case? I will suggest a structural account starting with the simple noun (oldia).

Suppose gender, number and Case are decomposed into the following hierarchy (see also Sportiche (1996) for arguments based on reconstruction):

(21)   Case > Num> Gender > NP
          3   2   1

NP must combine overtly with each head through phrasal movement With each little cycle of derivations the NP grows bigger, gathering its features and morphology (cf., Koopman and Szabolsci 2000): NPs are "grown" through merge and move. In this view, agreement asymmetries reflect the level at which agreement is established. If agreement is established with a small phrase, it will only show agreement in the features that are available at that point in the derivation. If agreement is established with a bigger phrase, agreement will reflect the features available at that point in the derivation.

Let's us examine some snapshots of the derivation. A more complete, but still simplified derivation is put together in section 3.4. At a very early point in the derivation, NP merges with gender, and NP moves to Gender:

(22)   Merge: NP gender, Move NP to {1} →
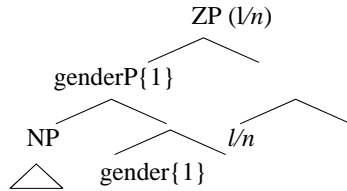
            GenderP{1}

---

[11] The discussion below is a slight simplification. 2 (number agreement might obtain for plural number; 2+3 agreement (number and Case agreement) occurs with one class of adjectives; this class of adjectives does not carry subject agreement either when used as the main predicate.

NP   gender{1}
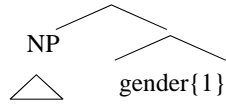
At this point of the derivation, a small piece of structure, genderP, is floating around. Any head that attracts GenderP to its Spec will agree in gender features only, since this is all that is available. As shown above, then second head Z, (*l/n*) agrees in gender only. Hence, it follows that this a head is in a Spec-head relationship with the structural piece in   (22) in the course of the derivation.
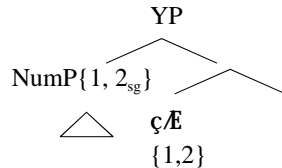
(23)   Agreement in gender (Z):

ZP (l/*n*)

genderP{1}

NP   gender{1}   *l/n*

Thus *l/n* spell out a head that is merged very low in the structure.

In the next cycle, Number is merged. GenderP extract from the Specifier of the projection containing *l/n* and moves to NumP (the alternative, pied-piping *l/nP* to Number P will yield the wrong surface order).

(24)   NumP{1, 2}

genderP{1}

NP   Num{2}
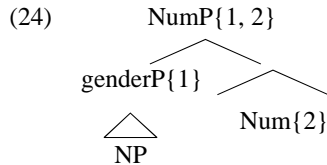
This configuration includes the necessary information to express the rather complex rules governing the spell-put of number suffixes. These rules can be handled within the framework of spell-out rules formulated by Halle and Marantz 1993. Any head that attracts NumP can in principle agree for Num only (in the case of plurals) or for (singular) Number and gender, given that genderP is in the Spec position of NumP, and hence can agree with NumP. The leftmost head within the DP, Y, agrees in gender and number. Hence NumP is in Spec YP at some point in the derivation, i.e., Y is merged quite low in the structure, but higher than X.

(25)   Agreement in Number and gender on Y.

YP

NumP{1, 2_{sg}}   çÆ
                            {1,2}

In the next cycle, Case is merged; Case attracts NumP:

(26)   Case$_{\{1,2,3\}}$

NumP$_{\{1,2\}}$

Case$_{\{3\}}$
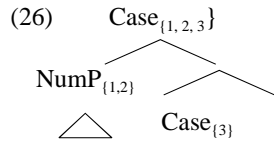
Via Spec-head agreement, NumP agrees with Case, hence any head in a local relationship with CaseP will also agree in gender, number and Case. This structure yields the right input for the spell-out of the Case tonology, a purely tonal matter: leftboundary or rightboundary tone on NumP, or both, depending on the tonal class and Case. CaseP is embedded under any type of D, hence the different types of contexts with which the noun is compatible (3.1.1). Though it might seem surprising to project Case within the DP, it, will, beyond the morphology, straightforwardly account for the agreement patterns on dependents (cf., also Sportiche, 1998).

We now understand all agreements in Case, number and gender as arising from a local Spec-head relationship with CaseP, with subsequent local movements of CaseP (or any category that embeds CaseP to a position high within the DP where it is ultimately pronounced. (The following representations are partial, and just serve to illustrate the agreement triggering configurations. Any analysis in which the triggering XP is in a Spec-head relationship with the head will yield the desired effect; dotted lines indicate agreement)
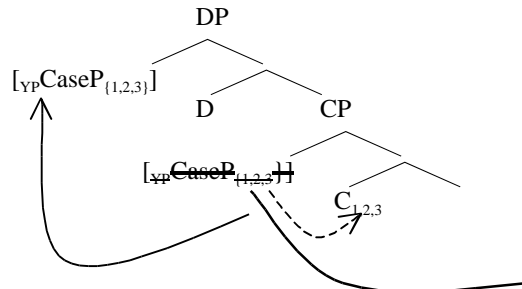
(27)   Agreement on Adjectives:

AP

CaseP$_{\{1,2,3\}}$

A
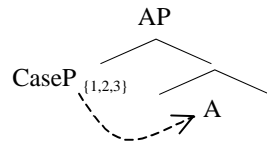
(28)   Agreement in genitive constructions: (in the spirit of Kayne 1994)

DP

[$_{YP}$CaseP$_{\{1,2,3\}}$]

D$_{1,2,3}$

X$_{1,2}$ IP

DP$_{1,2\,(3)}$

X$_{1,2}$
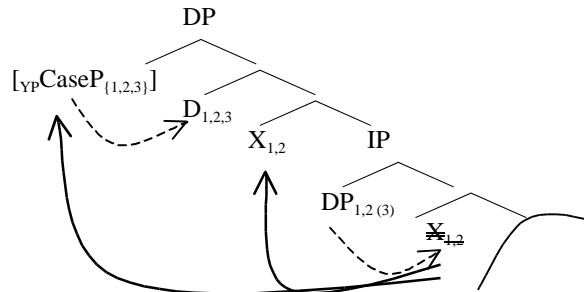
(29)   Agreement in relative clauses: (a head-raising analysis a la Kayne 1994)

DP

[$_{YP}$CaseP$_{\{1,2,3\}}$]

D   CP

[$_{YP}$CaseP$_{\{1,2,3\}}$]

C$_{1,2,3}$

In essence, then, the agreement patterns reflect the derivation. This yields a direct explanation for the observed asymmetries. Heads will agree with what is visible to them. Once constructed, individual pieces of structures do not vary as to what is visible.

In a nutshell:

- Gender agreement reflects agreement with GenderP;
- Number agreement reflects a local Spec-head relation with NumP (with GenderP in Spec of NumP, hence with gender and number visible)
- Case agreement reflects agreement with CaseP, with NumP in Spec, CaseP, hence with gender, number and Case visible.
- Heads lower than CaseP cannot agree for Case, because Case is not yet present at this point in the derivation
- All heads higher than CaseP will fully agree in gender, number and Case, because this piece of configuration is visible.
- Pure Case agreement is not attested, simply because of the configuration: CaseP always shows gender, number and Case.
- Pure gender agreement is not attested on any of the high heads, because GenderP is embedded within NumP;

3.4 Putting the Pieces Together…

We now have several isolated pieces of structures, a hierarchy of merger, and multiple movements. Each piece presents the right configuration for spell-out, and allows for a transparent syntax/PF interface. The next step is to put these pieces together into a (somewhat simplified) derivation and concentrate on the derivational history. We know from the YX..N Num A order now that some apparently deeply embedded piece of structure ends up in the leftperiphery at spell-out, and that the CaseP that contains the head noun comes to be pronounced in a high position within the DP. CaseP and the constituent containing (Y+X) ɔl move independently to different landing sites, not as a single constituent. Material that occurs high in the DP (cf., certain adverbs) occurs between the Y+X and NP. (see   (41) below.) [12]

In this derivation, there are two types of movements:

(30)   a.   successive local movements of the gradually bigger constituent containing the N to a position higher than adjectives, but lower than the landing site for the ɔl (=YP) constituent;

          b.   an apparently single movement of the YP constituent containing ɔl to the left periphery of the DP (into the D region).

---

[12] For simplicity, the growth of NumP is not shown. Incorporating NumP in the derivation goes beyond the scope of the present paper; it will lead to the view developed in Koopman and Szabolsci (2000), in which XP and YP are small DP cycles/phases, and a small series of movement applies in each cycle.

(31)   *Simplified structure:" Overt material is boldfaced.*

/çl dia/
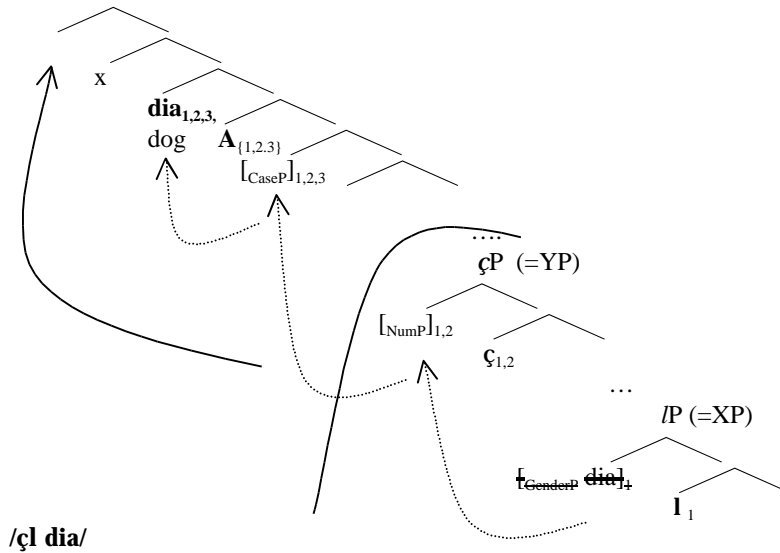
I would like to propose that the first type of movement is equivalent to subject raising (NP-movement), with the CaseP landing in a clausal-like subject like position within the DP. In this view, it comes as no suprize that the noun triggers multiple agreements: this is a well established property of NP movement. Note that this account differs from the standard account which attributes the high position of the noun to N to D raising (Longobardi 1994, 2001). The NP movement account seems superior in the way it handles agreement: it reduces to Spec-head, and the locality of movement (see section 3.4.2 for a further argument that shows that the CaseP is in a NP-like position, and not in a D-like head position.)

If CaseP indeed is in a clausal-like subject at spell-out, then the DP must contain a clausal like constituent, i.e. the structure is D CP/IP (see 3.5 for additional distributional evidence). The head noun orginates within the IP. It now becomes natural to think of the noun as starting out as a nominal small clause predicate, with its variable, x, as subject:

(32)   D $[_{CP/IP}$ $[_{Case}$] [….   [.. Y.. [..X [x NP]]

This raises a problem though: the predicate NP distributes like a subject, and undergoes NP movement. This suggests predicate inversion (Moro 1997) is at work within this structure. (see section 3.5.3 for more discussion of predicate inversion in Maasai). By predicate inversion, the NP raises to the subject position of say a silent *be* , from where it undergoes subject raising to the structural "subject" position:

(33)   [D $[_{CP/IP}$ $[_{Case}$] [….   [.. Y.. [..X [NP$_i$.."*be*" [x ~~NP~~$_i$]]]

         NP-movement

                   predicate inversion

If the predicate Noun occurs in a clausal subject position within the DP, and carries the case which is merged DP internally, the question arises how the external syntax 'knows' if the containing DP is nominative or non-nominative.

(34) $[_D [_{CP}$ ol $[_{IP}$ Adv $[_{CaseP}$ dia   ] ……….
                                                        boy

We are forced to conclude that the CaseP is able to trigger pied-piping of the containing DP to the Case checking position, i.e., somehow the Case feature is able to 'percolate' up to the DP.[13]

In Koopman and Szabolcsi (2000), we suggested that percolation might be reduced to two configurations: (repeated) Spec-head agreement when the feature bearer is in the highest Spec (*whose book*), or head movement, when the feature bearer is not in the highest Spec (cf., PP pied-piping). (34) cannot be reduced to Spec-head agreement and must therefore involve movement of the silent head that hosts CaseP to the D projection.

Let us next turn to the second movement in (30b), which moves the remnant YP constituent into the D region. Here there are two possibilities. Maasai is a VSO language, with predicates moving into the C-region. The movement of YP might be paralel to the predicate movement within the clause. Alternatively, the movement of YP might be paralel to A'movement, i.e., basically movement of a relative pronoun to Spec, CP. ("which is a dog", or more appropriately for Maasai: "which a dog is", or "D, x such that dog is x). In either case, the output is the same:

(35) $[D [_{CP/IP} [[_{CaseP} NP]_i […. \quad [_{YP} t_i.. [_{Y—}].. [t_i..[_X l] [t_i..be [x t_i]]]$

(36) $[D [_{CP} [_{YP} t_I \supset ... [t_i..[_X l] ..] \quad [_{IP}[_{CaseP} dia \quad]_i .. \quad [_{YP} t]$

Thus, we reached the conclusion that the structure of a DP with a simple common Noun is basically a D CP structure, i.e., a (tiny) relative clause structure.

3.5 Support: Parallelism between Clauses and DPs.

The parallelism between clauses and DPs in Maasai offer further support for the basic proposal outlined above.

3.5.1 Clauses

Maasai is a surface VSO language: predicates, which can be quite big phrasal constituents, appear at the left edge of the clause. Verbal predicates are preceded by negation, subject

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[13] Whether or how this could be related to the existence of possessor raising in Maasai (Payne 1997) remains to be seen.

agreement, object clitics, and aspect/tense and include an impressive number of verbal extensions (applied-suffixes, passives, middles, causatives, etc.). Given the elements it contains, the raised constituent is at least a remnant AgrSP, occupying a position preceding the subject. Since focused constituents precede the preposed predicate, we can safely assume that the movement targets FinP (Rizzi 1997):

(37)   a.   Fin [DP$_{i \, (nom)}$ T   [$_{AgrSP}$ t$_i$ AgrS-(AgrO) [V…] →
        b.   [$_{FinP}$[t$_i$ AgrS-(AgrO)V-..] Fin   [DP$_{i \, (Nom)}$ T   [   ]

This is parallel to the suggestion above that the placement of *ol* above is basically like the placement of a (remnant) predicate), with the noun in a clausal-like subject position.

(38)   [[t$_i$ O$_{Agr}$-l-..]   D/C/Fin [dia$_{i \, (Case)}$

As mentioned previously, it is difficult to determine if YP moves to CP (FinP) because predicates move there, or because it is an A'- pronoun.

3.5.2 Adverbs

Adverbs in Maasai are few and can be easily listed. Most of the Cinque's (1997) adverbs are expressed as verbs.

(39)   naji: mentioned a few hours ago
        duoo   mentioned this morning
        ŋole: yesterday
        nari   sometime ago
        apa   long time ago
        o i   usual

These adverbs occur in an interesting position: they immediately follow the predicate and precede the nominative marked subject:

(40)   [SA- PredP]   Adv   [DP(nom)]
         ὲ-   ás   o i   eŋ- kὲraí
         3sg   do   usually   f.sg   child.sg.nom
         Usually a child does this

Exactly the same adverbs can also occur within DPs (see also Tucker and Mpaayei 1955: 18). They follow the X (l/n), cause the appearance of an (epenthetical) vowel with consonant initial adverbs (Epstein 1999), and precede the CaseP. They don't agree in Case nor in Number.

(41)   a.   a-   l- apa-   ayeni
              sg.m-   m. long ago boy.acc
              'the boy we mentioned long ago'
        b.   ɨ-   l-   o i   ayok
              pl.m   -m   usual   boy.pl.acc
              'The usual boys'

The parallel placement of these adverbs in clauses and DPs is quite striking. It brings support for the idea that the CaseP is in a subject position within the DP; Indeed, if the high position should be explained by N to D movement, parallel to V to C movement, the head noun should precede, rather than follow the Adverb.

(42)   Pred   Subject

$[t_i$ SA-(OA) V…]	Adv	DP_{nom} ….
$[t_t$ .._ .. l]	Adv	$[_{Case}$ dia]]

$([_{Pred}V]$Adv S..)
$([_{Pred}al]$ Adv S..)
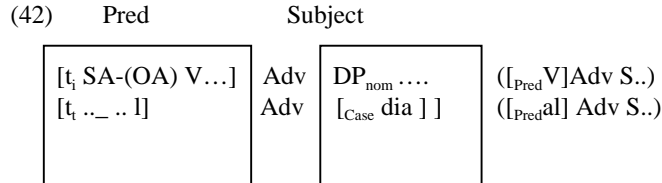
Finally, if these adverbs are actually higher than the "subject" position, the absence of agreement is easy to understand.

3.5.3 Predicate Inversion.

In order to explain how the NP predicate came to end up in a subject position, we stipulated that predicate inversion applies obligatorily within the clause with the nominal predicate. This is a quite natural proposal: nominal predicate construction often allow predicate inversion (*this book is the cause of the riots, the cause of the riots is this book* (Moro, 1977). Numerous proposals in the recent literature appeal to predicate inversion within DPs (Kayne 1994, den Dikken 1998, Bennis, Corver, and den Dikken 1997, Hoekstra 1999, among others). Not suprisingly, Maasai DPs also has predicate inversion in possessive construction (see Storto this volume and (28)). Predicate inversion in nominal copular constructions in clauses exhibits a unique, and hitherto undescribed pattern: predicate inversion depends on the definiteness of the predicate. If the predicate is indefinite, the usual pattern show up. The predicate carries non-nominative Case, and distributes like a predicate; the copula is silent with 3rd person, subject agreement is absent, and the entire NP predicate raises and as a result precedes the nominative subject:

(43)   àldákɨtáɾɨ ɛlɛ túŋànì
          a- l-   dakɨtarɨ   ɛ-   lɛ-   tùŋani
          m.sg-m   doctor (acc)   sg.   m.this person(nom)
          This man is a doctor

However, if the predicate is definite, predicate inversion must apply. The (3rd person) DP argument (*this person*) shows up in the predicate position carrying non-nominative Case, and the semantic predicate *(the doctor)* shows up with nominative Case, signaling that predicate inversion has obligatorily applied.

(44)   ɛlɛ tùŋani   àldákɨtáɾɨ
          This person.acc doctor.nom
          This person is the doctor

(45)   nɨnɛ̃   àldákɨtáɾɨ
          he.acc   m.sg.-m. doctor.sg.nom

It remains to be seen why predicate inversion can be triggered by definiteness.

4. Conclusion

In this paper I have argued that the Spec-head agreement hypothesis should be pursued in its strongest form. I have used the Spec-head agreement hypothesis and applied it as an analytical tool to an agreement rich domain, the DP in Maasai. This study yields quite interesting results: all DPs which contain common Nouns in Maasai contain the clausal structure D CP, and are basically relative clauses. The head noun, the NP predicate, originates inside a small clause within the relative clause, and moves to a subject position (spec position) through predicate inversion. Case, number and gender are hierarchically organized, and are merged low within the structure of the DP. Asymmetric agreement follows from the configurations: heads that are in a Spec-head relation with a NP will show agreement for only those features which are present at that stage of the derivation. All agreement within DP is due to local "NP" movement, with the CaseP eventually attracted to a clausal position. The morphemes at the left edge are heads that are merged low in the structure, which get moved into the D region.

The structure of a DP containing a N is not D NP, but rather the structure Kayne (1994) has proposed D CP, with a nominal small clause:

(46)   Simple DP (Maasai):

$[_D [_{CP} \ [_{IP} \text{Adv "subject"} \ \text{AP} [\ _{\text{"AgrS"}} t_i \ \text{x} \ [t_i \ \text{y} \ [_{NSC} .. NP] \ ]$
$[\ \text{x boy} \ ]$

While this proposal may appear weird at first, it is in fact quite natural, and even expected. In the standard view, D takes a NP complement (*the boy*). The parallelism between clauses and DPs is expressed by the fact that there are a number of functional projections within DP that are parallel, though not identical, to the functional projections in a clause (cf., Longobardi 1994, 2001)

(47)   D ..   D(gencase)… Num… NP

As far as the semantics is concerned, the N functions as a predicate with a variable x (an "external argument") bound by the determiner. Kayne (1994) proposes that relative clauses, possessor constructions, constructions like *a hell of a doctor*, basically contain clausal structures, with D taking a CP/IP complement. This led to much interesting and insightful work on the internal structure of DPs, with vastly improved empirical coverage. However, it also leads to a mixed view: some DPs have a clausal constituent in them (a constituent that is also found in sentences and that expresses possession); some DPs have a full clause in them (relative clause). Others contain no clause, though they contain some predicative element (D NP). This seems doubly curious. First, if D can combine with a CP that contains a copula constructions, (possessive constructions, a hell of a doctor), this CP should also be able to contain the equivalent of a nominal copula construction (*he is a boy, it is a boy)*. Under the proposal in this paper, there is no such gap: D simply never combines with a NP complement headed by a common noun, but always with a clausal complement (=CP) which in turns contains a NP predicate. Second, if D can combine with CP or with NP, we expect D to be able to combine with any category. Yet, Kayne

(1994) is forced to state that *the* cannot combine with a DP complement. The proposal in this paper suggests that D in fact always takes a CP complement, and never a NP complement.

Appendix A: possessor constructions.

(48)   --possessed W-X possessor:

--X agrees with possessor in number (and sg gender)

--W agrees with possessed in gender, number and case

- Accusative, nominative agreement with singular possessor: h (High)
- Nominative   agreement with plural possessor: hl (High Low)
- accusative   agreement with plural possessor: lh (Low High)

-- o→ a / --(C) a

(49)   a.   *m.acc.sg*   *m.acc.sg-.m.sg*   *m.acc.sg*

oldíà   l- á   layénì

ol-dia   l- o   l-aye-ni

dog   boy

b.   *m.acc.**pl***   *m.acc.sg-m.sg*   *m.acc.sg*

ildíaìn   l-á   layénì

c.   *m.**nom**.sg*   *m.nom.sg-m.sg*   *m.acc.sg*

oldíà   l-á   layénì

d.   *m.nom.**pl***   *m.nom.sg-m.sg*   *m.acc.sg*

ildíâìn   l-á   layénì

(50)   a.   **f**.*acc.sg*   *f.acc.sg-m.sg*   *m.acc.sg*

ɛnkíné   á   layénì

goat   boy

b.   *f.acc.**pl***   *f.acc.pl-m-sg*   *m.acc.sg*

inkìnèʒí   á   layénì

c.   f.***nom**.sg*   f.*nom.sg-m.sg*   *m.acc.sg*

ɛnkínè   á   layénì

d.   f.*nom.**pl***   *f.nom.pl-m.sg*   *m.acc.sg*

ɛnkínèdʒì   á   layénì

(51)   a.   *m.acc.sg*   *m.acc.pl.-pl*   *m.acc.**pl***

oldíà   l- aá   layó `k

ol-dia   l- oo   l-aye-uk

dog   boy

b.   *m.acc.**pl***   *m.acc.pl-pl*   *m.acc.pl*

ildíaìn   l-aá   layó `k

c.   *m.**nom**.sg*   *m.nom.pl- pl*   *m.acc.pl*

oldíà   láa   layó `k

d..   *m.nom.**pl***   *m.nom.pl-pl*   *m.acc.pl*

ildíâìn   láa   layó `k

(52)   a.   **f**.*acc.sg*   *f.acc.pl-.pl*   *m.acc.pl*

ɛnkíné   aá   layó `k

goat   boy

	b.	f.**nom**.sg	f.*nom.sg-pl*	m.acc.pl
		ɛnkínè	áa	layó ˋk
	c.	*m.acc.sg*	*m.acc.sg-f.sg*	*f.acc.sg*
		alayéni	l-ɛ	nkínè
		boy	goat	
	d.	*m.acc.sg*	*m.acc.sg-fsg*	*f.acc.sg*
		alayéni	l-ɛ	nkínè
		boy		goat
	e.	*m.acc.sg*	*m.acc.pl-.pl*	*f.acc.sg*
		alayéni	l-óo	nkinejí
		boy		goat

Appendix B: (affirmative) relative clauses.

(53)   --Linear order: head N X TP
        --X agrees with the head Noun in Case, number and gender. (Case of the entire DP,
        not of the relativization site)
        ms: o (*sg*) /oo (*pl*)   fem: na, (*sg*), naa(*pl*)
        nom: h(sg)   hl (pl)
        acc   l (sg)   lh (pl)

        --o→ a / (C) a

(54)   alayénì   ò   lò
        boy.acc   ms.sg.acc   go
        '(I saw) the boy who will go'

(55)   aláyènì   ó   lò
        boy.nom   ms.sg.nom   go
        'the boy who will go (is …)'

(56)   alayòk   aá   tanapá   ɛ̀nâ kɛ́raɨ́
        boy.pl.acc   ms.pl.acc   past-carry   this child.nom
        'Í saw the boys this child carried'

(57)   aláyòk   aá   tanapa   ɛ̀nâ kɛ́raɨ́
        boy.pl.nom   ms.pl.nom   past-carry   this child.nom
        'the boys this child carried (came)'

(58)   ɛnkínè   nà   lò
        goat.acc   f.sg.acc   go
        '(I saw) the goat who will go'

(59)   ɛnkíné̂   ná   lò
        goat.nom   f.sg.nom   go
        'the goat who will go (is …)'

(60)   inkinedʒi   naá   tanapá   ɛ̀nâ kɛ́raɨ́
        goat.pl.acc   f.pl.acc   past-carry   this child.nom
        '(I saw) the goats this child carried'

(61)   inkinèdʒi   naá   tanapá   ɛ̀nâ kɛ́raɨ́
        goat.pl.nom   f.pl.nom   past-carry   this child.nom
        'the goats this child carried (were..)'

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