Optional agreement in Santiago Tz'utujil (Mayan) is syntactic

Abstract

Some Mayan languages display *optional* verbal agreement with 3PL arguments (Dayley 1985, Henderson 2009, England 2011). Focusing on novel data from Santiago Tz'utujil (ST), we demonstrate that this optionality is not reducible to phonological or morphological factors. Rather, the source of optionality is in the syntax. Specifically, the distinction between arguments generated in the specifier position and arguments generated in the complement position governs the pattern. Only base-complements control agreement optionally; base-specifiers control agreement obligatorily. We provide an analysis in which optional agreement results from the availability of two syntactic representations (DP vs. reduced nominal argument). Thus, while the syntactic operation AGREE is deterministic, surface optionality arises when the operation targets two different sized goals.

1. Introduction

Tz'utujil (Mayan) displays optional 3PL agreement in certain contexts:

(1)   *Optional predicate agreement with plural 'toys'[1]*
a.   X–**e**–q–raq=pij   i–k'e'   etzb' al.
      COM–**3PL.B**–1PL.A–break=DIR   PL–two   toy
      'We broke two toys.'
b.   X–**∅**–q–raq=pij   i–k'e'   etzb' al.
      COM–**∅**–1PL.A–break=DIR   PL–two   toy
      'We broke two toys.'

In (1)a above, a 3PL object controls the absolutive morpheme *e-* (3PL *Set B* in Mayanist terminology). A minimally different counterpart of this sentence in (1)b lacks *e-* but the sentence is nevertheless equally well-formed. However, this agreement optionality does not hold across the board in Tz'utujil. In contrast to (1), there are some constructions where the same 3PL morpheme is obligatory:

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[1] We follow the Mayanist convention of labelling ergative agreement as Set A and absolutive agreement as Set B. The following are the abbreviations used in the paper: A = Set A (ergative and possessor) agreement, AUX = auxiliary, AF = Agent Focus voice, AP = antipassive voice, B = Set B (absolutive) agreement, CAUS = causative, CLF = classifier, COM = completive aspect, DEM = demonstrative, DIR = directional marker, EXS = existential, FOC = focus particle, IN = intransitive, NMLZ = nominalization, PASS = passive voice, PL = plural, POS.ST = positional stative, POSS = possessive, PREP = preposition, RN = relational noun, SG = singular, SS = status suffix, TRANS = transitivizer.

(2) *Obligatory predicate agreement with plural 'stones'*

a. I–k'iy   ab'aj   **e**–q'e'–el–a   chwech   tz'aq.
    PL–many   stone   **3PL.B**–lean–POS.ST–SS   PREP.3SG.A.RN   wall
    'Many stones are leaning against the wall.'

b. *I–k'iy   ab'aj   **Ø**–q'e'–el–a   chwech   tz'aq.
    PL–many   stone   **Ø**–lean–POS.ST–SS   PREP.3SG.A.RN   wall
    Intended: 'Many stones are leaning against the wall.'

In this paper we investigate the patterns of agreement morphology in Tz'utujil, i.e. when plural agreement is optional and when it is obligatory. By optionality in plural agreement we mean the availability of two agreement variants – (i) the presence of a 3PL morpheme reflecting the 3PL specification of the agreement controller and (ii) the presence of a 3SG morpheme despite the 3PL specification of the agreement controller. Since the 3SG absolutive morpheme is null in Tz'utujil, the optionality could, at first glance, appear to reflect a choice between the presence or absence of agreement altogether. However, 3SG ergative morphemes (3SG *Set A* in Mayanist terminology) are *not* null:

(3) *3SG ergative (Set A) agreement*
    Ya   Mriiy   x–i–**ru**–tzu'   i–uxi   utiw–a.
    CLF   Maria   COM–3PL.B–**3SG.A**–see   PL–three   wolf-PL
    'Maria saw three wolves.'

We will show that the same pattern of optionality obtains with Set A morphology, giving evidence, then, that the optionality involves a distinction between plural vs. singular agreement.

The asymmetries in agreement optionality (e.g., the contrast between (1) and (2)) are systematic and governed by syntactic factors. In a nutshell, the base-generation of the relevant agreement controller in a specifier or complement position determines whether plural agreement will be obligatory or optional (respectively). Furthermore, the optionality in plural agreement realization cannot be explained by phonological or morphological processes. Thus, we propose an analysis of the underlying syntactic configuration that gives rise to a situation where agreement fails to obtain. An agreement failure occurs due to the generation of an agreement controller lacking D^0. Therefore, the locus of optionality lies in a structural ambiguity, rather than an optionality with the agreement process itself.

The paper is structured as follows: in Section 2, we sketch relevant facts about Tz'utujil grammar and phonology, providing a brief overview of the literature on agreement optionality in Mayan. In Section 3, we report the key data, collected via fieldwork with a native speaker consultant in Santiago Atitlán, Guatemala. We restrict our data to inanimate agreement controllers;

this choice is explained in the same section. Based on these data, we show that a generalization arises distinguishing specifiers and complements; specifiers must agree, complements optionally do. In Sections 4.1 and 4.2 we show that agreement optionality cannot be derived phonologically or morphologically. We then elaborate on the syntactic analysis by proposing a structural difference in the size of nominals. Section 4.3 discusses the issue of encoding optionality in the syntax and argues that our proposal is well-grounded in existing theories. In Section 5 we conclude the paper and discuss the relationship between obligatory syntactic operations like AGREE and surface optionality.

2. Background

2.1. Tz'utujil morphosyntax

Tz'utujil (ISO 639-3: tzj; Glottolog: tzut1248) is an under-described Mayan language of the K'ichean branch. Our data come from the Santiago dialect of Tz'utujil, spoken in Santiago Atitlán (henceforth ST). Whereas the San Juan and San Pedro dialects are better described (see Dayley 1985, García Ixmatá 1997), our work on the syntax of the Santiago dialect is the first of its kind. All the data we present here come from our own fieldwork, unless otherwise indicated.

Tz'utujil is an ergative-absolutive, head-marking language. The subject of a transitive predicate controls ergative agreement (italicized in (4) below). Ergative morphemes in Tz'utujil are identical to genitive morphemes controlled by possessors. Due to this parallelism, the Mayanist literature treats them as one set and refers to both ergative and genitive morphology as Set A. Set A contrasts with Set B, i.e. absolutive morphology controlled for example by the object of a transitive predicate (bolded in (4) below). Nominals themselves do not inflect for case:

(4)   *Set A-Set B agreement marking on a transitive verb[2]*
       Aa   *Xwaan*   x–**i**–*ru*–loq'   **i–k'e'**   **ak**'.
       CLF   *Juan*   COM–**3PL.B**–*3SG.A*–buy   **PL–two**   **chicken**
       'Juan bought two chickens.'

The sole argument of an intransitive predicate controls Set B agreement:

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[2] The exact quality of the vowel for this morpheme in the Santiago dialect varies in different contexts, cf. *i-* here and *e-* in (1)a and (2)a. To the best of our knowledge, no work has been done on this topic in Tz'utujil. Our own experience with these data suggests that there are vowel harmony processes applying throughout the verbal stem but we currently do not know what constrains them. Our transcriptions faithfully reflect our perception of the native speaker's production; we leave for the future an investigation into the processes governing the variable vowel quality in the surface realizations of the 3PL Set B morpheme.

(5)   *Set B agreement marking on an intransitive verb*
        I–k'e'   ch'uuch'–a   x–**i**–tzaq=pa.
        PL–two   baby–PL   COM–**3PL.B**–fall=DIR
        'Two babies fell.'

Below, we list the types of nominals that we have explored in ST, along with the type of agreement morphology that they control:

(6)   *Set A (ergative and genitive) agreement controllers*
a.   Transitive subject
b.   Possessor
c.   Matrix subject in a progressive construction
d.   Argument of an embedded nominalization in a progressive construction

(7)   *Set B (absolutive) agreement controllers*
a.   Transitive object
b.   Sole argument of an intransitive
c.   Sole argument of a passive
d.   Sole argument of an antipassive
e.   Subject of Agent Focus
f.   Object of Agent Focus
g.   Sole argument of an existential
h.   Sole argument of a positional predicate
i.   Sole argument of an adjectival and nominal predicate

Some of the constructions listed above, e.g. positional predicates (Tummons 2010, Henderson 2019) and Agent Focus (Aissen 2017a), are Mayan-specific constructions that we will describe later in the paper. Another property of Tz'utujil and K'ichean languages more broadly is the lack of double object constructions. For example, the indirect argument in a ditransitive does not control agreement on the verb and is introduced by an adposition-like element (in Mayanist terms, a relational noun).

(8)   *No double object constructions*
        Inin   x–Ø–in–ya'   jun kotoon **chee**   **Aa**   **Xwaan** r–xin
        1SG   COM–3SG.B–**3SG.A**–give a   güipil **PREP.3SG.A.RN youth Juan**   3SG.A–RN
        r–aanaa'.
        3SG.A–sister
        'I gave a *güipil* **to Juan** for his sister.'   (adapted from Dayley 1985: 311)

Regarding nominal morphology, we have already pointed out that there is no case marking on nominals. While there are some instances of plural morphology on animate nouns, inanimate nouns are never marked for plural. As we will be primarily concerned with inanimate nouns here, we

ensure a plural interpretation of the relevant nouns through the use of numerals and quantifiers.[3]
Regarding verbal morphology, there are separate morphemes on the stem that indicate aspect, voice, and other verbal derivations (e.g., causative), as well as movement and directional particles. For our purposes, agreement morphology is the most relevant, so we refer the reader to the grammars listed above for more information, as well as to the collected papers in Aissen et al. 2017 for discussions of the Mayan family more broadly.

At the sentence level, Tz'utujil is usually described as underlyingly VOS (Dayley 1985, García Ixmatá 1997; see England 1991, Douglas et al. 2017, Clemens & Coon 2018 for word order across Mayan). However, word order is fairly flexible and preverbal subjects are readily produced and accepted, as seen in (4) and (5) above. Finally, Tz'utujil allows argument drop.

2.2. Tz'utujil morphophonology

Tz'utujil is traditionally described as allowing large consonant clusters derived via vowel syncope. However, dialects differ as to how constrained this process is (Dayley 1985). For example, all agreement morphemes contain a vowel underlyingly and in some environments these vowels undergo deletion. Consider the 1PL Set A prefix *qa-* below:

(9) *Fully realized 1PL Set A morpheme*
X–i–**qa**–tz'et   i–k'e'   ch' uuch'–a.
COM–3PL.B–**1PL.A**–see PL–two   baby–PL
'We saw two babies.'

Now compare the same morpheme, here surfacing without a vowel when it attaches to a different verbal root:

(10) *Phonological syncope of a vowel in a 1PL Set A morpheme*
X–e–**q**–raq=pij   i–k'e'   etzb'al.
COM–3PL.B–**1PL.A**–break=DIR PL–two   toy
'We broke two toys.'

Given the existence of vowel syncope processes in the language, we can entertain the hypothesis that the optionality of a 3PL Set B agreement morpheme *e-/i-* is phonologically driven.

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[3] We note that the pattern of plural marking on nominals has been reported to be orthogonal to the phenomenon of agreement optionality (England 2011), a state of affairs that is true in ST as well. Nominal plural marking and concord governed by plural nouns is sometimes obligatory, optional, or banned, but the concord pattern does not correlate with the distribution of agreement optionality on predicates. The fact that there is no correlation between the two phenomena might be informative as to the nature of the underlying process(es); for example, modifier concord and predicate agreement could be the result of the same operation, or two fundamentally different ones (Norris 2017).

Foreshadowing the results of our study, we will ultimately reject this hypothesis due to the lack of effect of the phonological environment on the realization of the morpheme.

The inverse of the vowel syncope process is a vowel epenthesis process. Despite the general acceptability of consonant clusters, phonotactics breaks up sequences of some consonants by inserting *-e-*. Analogously, then, we can entertain the hypothesis that whenever we see apparent obligatory agreement as in (2), agreement is in fact optional, in the same way as it is in (1). In other words, we could be observing the result of vowel epenthesis, not an agreement morpheme. We will also reject this hypothesis in 4.2.

2.3. *Previous work on optionality of agreement*

We are not the first to observe agreement optionality in a Mayan language. The phenomenon appears to be prevalent in many Mayan languages of different subbranches (England 2011 for a summary; Smith-Stark 1974 for Poqomam, Mateo Toledo 2008 for Q'anjob'al, Zavala Maldonado 1992 for Akatek, Aissen 1987 for Tsotsil, Dayley 1985 for Tz'utujil a.o.). The optionality has been analyzed as being governed by syntactic factors such as animacy status (England 2011 for K'iche') or surface grammatical role (Henderson 2009 for Kaqchikel). Here, we use the lessons from the literature as a springboard for a more in-depth investigation of a single dialect of Tz'utujil, using targeted elicitation as our primary methodology. We maintain, following Davis et al. (2014), that this is the most efficient method for this kind of investigation, since it allows us to determine the syntactic factors that govern a complex phenomenon.

3. Data

We are now ready to assess the primary empirical data that will allow us to make a generalization regarding the pattern of agreement optionality. We will present the data in an order that is consistent with our final analysis: the pattern is driven by the base-position of the agreement controller. Once this generalization is established, we will revisit some of the data and reject alternative hypotheses.

We start with the general hypothesis that Tz'utujil is like other Mayan languages in that the pattern of optionality is driven by some syntactic factor like animacy or surface grammatical role

(i.e., surface subject vs. object). We focus here only on inanimate data.[4,5] We will begin by looking at constructions where only Set B agreement obtains, saving a discussion of Set A agreement for later.

3.1. Set B agreement

Similarly to our data in (1) that illustrated optional 3PL agreement controlled by an inanimate object, inanimate subjects of passives also show optionality:

(11) *Optional agreement with plural 'güipiles' (traditional Mayan garment) as subject of a passive*
a. Ki'e' nu–po'ot   x–**e**–b'ik–taj–a   r–wech   k–maak   al'–i'.
    two 1SG.A–guipil   COM–**3PL.B**–rip–PASS–SS   3SG.A–face   3PL.A–RN   boy–PL
    'The fronts of my two *güipiles* were ripped by the boys.
b. Ki'e' nu–po'ot   x–**Ø**–b'ik–taj–a   r–wech   k–maak   al'–i'.
    two 1SG.A–guipil   COM–**Ø**–rip–PASS–SS   3SG.A–face   3PL.A–RN   boy–PL
    'The fronts of my two *güipiles* were ripped by the boys.'

However, not all Set B agreement in optional. We observe that agreement is obligatory in other configurations. Example (12) below (repeated from (2)) shows that, in contrast to objects, the sole argument of a positional predicate controls agreement obligatorily:

(12) *Obligatory agreement with plural 'stones' as subject of a positional construction*
a. I–k'iy   ab'aj   **e**–q'e'–el–a   chwech   tz'aq.
    PL–many   stone   **3PL.B**–lean–POS.ST–SS   PREP.3SG.A.RN   wall
    'Many stones are leaning against the wall.'
b. *I–k'iy   ab'aj   **Ø**–q'e'–el–a   chwech   tz'aq.
    PL–many   stone   **Ø**–lean–POS.ST–SS   PREP.3SG.A.RN   wall
    Intended: 'Many stones are leaning against the wall.'

In sum, the behavior of objects shows that 3PL Set B agreement *in general* is not obligatory. In turn, the behavior of positional arguments shows that 3PL Set B agreement is not optional across all constructions either.

It is also not the case that agreement shows a subject (obligatory) vs. object (optional) split. When an inanimate controller is the subject of a root intransitive, agreement is optional:

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[4] We present one example per construction. However, we note that we have tested different lexical items (predicates and inanimate nouns) and the pattern (of obligatoriness or optionality) has remained constant over the span of two years for any given construction.
[5] Given space limitations, we only present data with inanimate arguments. Authors (2020) show that animate arguments mostly show obligatory agreement and argue that they are always full nominal structures. When animate controllers do show optional agreement, (e.g. objects in a transitive clause), they analyze the variant with no agreement as the result of an inaccessible goal.

(13) *Optional agreement with plural 'leaves' as subject of a root intransitive*
a.   I–k'e'   ru–xaq   chi'a'   x–**i**–tzaq=pa.
       PL–two   3SG.A–leaf   tree   COM–**3PL.B**–fall=DIR
       'Two leaves fell.'
b.   I–k'e'   ru–xaq   chi'a'   x–Ø–tzaq=pa.
       PL–two   3SG.A–leaf   tree   COM–Ø–fall=DIR
       'Two leaves fell.'

By comparing the behavior of intransitive subjects (13) and positional subjects (12), then, we conclude that the optionality vs. obligatoriness of 3PL Set B agreement is not governed by a surface subject vs. object asymmetry.

Consider now agreement with antipassive subjects:

(14) *Obligatory agreement with plural 'mushrooms' as a subject of an antipassive*
     Context: Someone asks you: "What killed that dog?" You had seen that dog eating poisonous mushrooms earlier in the day. You respond:
a.   K'iy   b'inien   akox   x–**i**–kum–sa–n–a   r–xiin.
       many   poisonous   mushroom   COM–**3PL.B**–die–CAUS–AP–SS   3SG.A–RN
       'Many poisonous mushrooms killed it (that dog).'
b.   *K'iy   b'inien   akox   x–Ø–kum–sa–n–a   r–xiin.
       many   poisonous   mushroom   COM–Ø–die–CAUS–AP–SS   3SG.A–RN
       Intended: 'Many poisonous mushrooms killed it (that dog).'

In the example above, we see obligatory agreement controlled by the subject of an antipassive, just like when it is controlled by the subject of a positional predicate.

In sum, we have seen obligatory agreement with positional (12) and antipassive subjects (14), whereas agreement is optional with transitive objects (1), passive subjects (11) and unaccusative intransitive subjects (13). At this juncture, then, let us lay out the structural properties of the examples we have discussed so far. We have concluded that (i) Set B agreement does not behave uniformly across constructions and (ii) there is no surface subject vs. object split. However, a generalization begins to emerge. A difference between (1) and (14) is that the object is merged in complement position, whereas the single argument of an antipassive is merged in a specifier position (Polinsky 2017). Furthermore, root intransitives have been argued to be unaccusative in some Mayan languages (e.g. see Coon 2019 on Chuj and Ch'ol).[6] In this regard, consider that typically unergative meanings are expressed via complex derived constructions in ST. For example, a verb plus noun expresses 'to run':

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[6] However, the standard diagnostics for distinguishing between unaccusatives and unergatives are not applicable in Mayan (Coon and Preminger 2009 on Ch'ol, Coon 2016 on Kaqchikel).

(15) *Complex predicate with a canonical unergative meaning*
    Jun   wnaq   x-Ø-u-tej   krera.
    one   person   COM-3SG.B-3SG.A-eat race
    'One person ran.'
    Literally: 'One person ate a race.'

So far, then, it seems that arguments generated as complements control agreement optionally, whereas arguments merged as specifiers control agreement obligatorily. Considering this generalization, observe the following asymmetry. In the Agent Focus voice, only Set B agreement surfaces. Agent Focus is a voice used in a subset of Mayan languages in the context of A′-extraction of the subject of a transitive (see Stiebels 2006 and Aissen 2017a for details). In the examples below, whichever argument is 3PL (subject or object) controls agreement (see Preminger 2014 for conditions on agreement in Agent Focus in K'ichean). An asymmetry emerges: the subject of an Agent Focus clause (a specifier) controls agreement obligatorily (16), whereas the object of an Agent Focus clause (a complement) controls agreement optionally (17).

(16) *Obligatory agreement with plural 'candles' as a subject of Agent Focus*
    Context: You walk into your room and find that a portrait you owned is a pile of ash. You ask your sister: "Who burned my portrait?" Your sister knows the culprit but wishes to protect them. She therefore blames two candles. She responds:
a.   J'ela   i–k'e'   kandeel   x–**i**–por–on–a   jun   a–k'ayib'al.
    DEM.PL PL–two   candle   COM–**3PL.B**–burn–AF–SS   one   2SG.A–portrait
    'THOSE TWO CANDLES burnt your one portrait.'
b.   *J'ela   i–k'e'   kandeel   x–**Ø**–por–on–a   jun   a–k'ayib'al.
    DEM.PL PL–two   candle   COM–**Ø**–burn–AF–SS   one   2SG.A–portrait
    Intended: 'THOSE TWO CANDLES burnt your one portrait.'

(17) *Optional agreement with plural 'cars' as an object of Agent Focus*
a.   Jal   ixoq   x–**i**–k'ay–in–a   i–k'e'   ch'eech'.
    DEM.SG woman   COM–**3PL.B**–sell–AF–SS   PL–two   car
    'THAT WOMAN sold two cars.'
b.   Jal   ixoq   x–**Ø**–k'ay–in–a   i–k'e'   ch'eech'.
    DEM.SG woman   COM–**Ø**–sell–AF–SS   PL–two   car
    'THAT WOMAN sold two cars.'

Through the Agent Focus construction, then, we observe the generalization clearly: complements agree optionally, whereas specifiers agree obligatorily.

    We can now return to the sole argument of positional predicates (12). Positional predicates tend to have complex stative meanings (Tummons 2010, Henderson 2019) and behave as a distinct class of predicates, since they share some derivational morphology with verbs, some with adjectives, and take several unique morphemes (García Ixmatá 1997, 1998). However, the base-

position of the single argument of a positional has not been established before in discussions of the syntactic structure of this lexical class. Based on our generalization, we propose that the sole argument of a positional is generated in a specifier position, since it patterns with the subjects of antipassive and Agent Focus constructions.[7] In other words, positional predicates are unergative.

We now formulate the generalization that has emerged:

(18) *3PL* Set B *agreement (to be modified)*
Obligatory vs. optional 3PL Set B agreement is determined by the base-position of the agreement controller:
a.   Arguments merged in Spec-XP agree obligatorily.
b.   Arguments merged in Compl-X^0 agree optionally.

We summarize the pattern for all constructions where Set B agreement obtains, along with the base position of the agreement controller, in (19) and (20) below. Given space limitations, we refer the reader to Authors (2020) for complete data and further discussion:

(19) *Arguments merged in Spec-XP agree obligatorily (to be expanded):*
a.   Sole argument of antipassive (Polinsky 2017)
b.   Sole argument of non-verbal predicate (adjectival[8] and nominal)
c.   Sole argument of positional predicate
d.   Agent Focus subject (Coon et al. 2014, Ranero 2020)

(20) *Arguments merged in Compl-X^0 agree optionally (to be expanded):*
a.   Transitive object
b.   Sole argument of intransitive
c.   Passive subject
d.   Subject of existential (Aissen 1999)
e.   Agent Focus object (Coon et al. 2014, Ranero 2020)

3.2. Set A agreement

Our generalization regarding agreement optionality can be expanded through the lens of Set A agreement. Recall that Set B agreement is obligatory when the controlling argument is base-

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[7] To our knowledge, there are no other properties of ST grammar that differentiate between specifier vs. complement base-positions. Therefore, we have not been able to provide further supporting evidence for positional arguments being base-generated in the specifier position. In Ch'ol, Little 2020 shows that left-branch extraction out of transitive subjects (specifiers) is banned while it is possible for transitive objects and unaccusative subjects (base-complements). However, we found that subextraction in ST is disallowed across the board (including subextraction of doubly-embedded elements allowed in Kaqchikel as reported by Imanishi (2014)).

[8] An anonymous reviewer points out that adjectives in some languages show an unaccusative vs. unergative distinction (Cinque 1990). For example, unaccusative adjectives can take NP or CP complements in Italian, but unergative adjectives cannot. Unaccusative adjectives seem less numerous as well (examples include *uncertain*, *sure*, *well-known*, *clear*). Mayan languages have a limited inventory of adjectives (see for example England 2004) and the ones we tested are color- and dimension-denoting adjectives. We leave it for future research to test a fuller range of adjectives and determine whether there exists any variability in their behavior.

generated in the specifier position. Transitive subjects are canonical arguments base-generated in the specifier position and, as expected, they control Set A agreement obligatorily:

(21) *Obligatory agreement with plural 'trees' as a transitive subject*
Context: There was a heavy storm the night before, which toppled many trees. You are telling your friend about some of the damage.
a. Jal   i–k'e'   chi'a'   x–∅–**ki**–waq'   jun   ch'eech'.
   DEM   PL–two   tree   COM–3SG.B–**3PL.A**–destroy one   car
   'Those two trees destroyed a car.'
b. *Jal   i–k'e'   chi'a'   x–∅–**u**–waq'   jun   ch'eech'.
   DEM   PL–two   tree   COM–3SG.B–**3SG.A**–destroy one   car
   Intended: 'Those two trees destroyed a car.'
c. *Jal   i–k'e'   chi'a'   x–∅–∅–waq'   jun   ch'eech'.
   DEM   PL–two   tree   COM–3SG.B–∅–destroy one   car
   Intended: 'Those two trees destroyed a car.'

The example above shows that a Set A 3PL morpheme *ki-* is obligatory. It cannot be replaced by its singular counterpart *u-* (21)b or omitted altogether (21)c.

    In contrast, we observe that there is one context in which Set A agreement is optional. Consider a progressive construction below. This construction is formed through an auxiliary verb that takes a nominalization as its complement. This nominalization, in turn, displays Set A agreement controlled by its complement:[9]

(22) *Optional agreement with plural 'tables' as an argument of a nominalization*
a. Anen   ni–mjuon   **ki**–kun–x–ik   i–k'e'   nu–mies.
   1SG   1SG.A–AUX   **3PL.A**–search–PASS–NMLZ   PL–two   1SG.A–table
   'I am in search of my two tables.'
b. Anen   ni–mjuon   **r**–kun–x–ik   i–k'e'   nu–mies.
   1SG   1SG.A–AUX   **3SG.A**–search–PASS–NMLZ   PL–two   1SG.A–table
   'I am in search of my two tables.'
c. *Anen ni–mjuon   ∅–kun–x–ik   i–k'e'   nu–mies.
   1SG   1SG.A–AUX   ∅–search–PASS–NMLZ   PL–two   1SG.A–table
   Intended: 'I am in search of my two tables.'

Set A agreement on the nominalization can be either plural *ki-* (22)a or singular *r-* (22)b.[10] What is not possible is the omission of the morpheme, as in (22)c.

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[9] The nominalization in ST shown here is structurally different from nominalizations in progressive frames in languages like Ch'ol and Chuj (Coon 2017, Coon & Carolan 2017) and other Mayan languages (Larsen and Norman 1978, Bricker 1981, Zavala Maldonado 2017). In Ch'ol and Chuj, the nominalization bears both Set A and B agreement, where Set A is controlled by the *matrix subject* (an external argument) and Set B is controlled by the logical object of the nominalization (see Coon & Carolan 2017 examples (7)a and (8a)).

[10] Compare the forms of the 3SG Set A morphemes in (21)b *u-* vs. (22)b *r-*. Both forms are allomorphs of the underlying /*ru-*/. The vowel-only form in (21)b occurs when an illicit complex onset would arise with the full form, (i.e., *x-ru).

Returning to the data just described, there is no well-established proposal for the argument structure of nominalizations across Mayan. Aissen (2017b: 263) identifies three types of complement clauses across Mayan that structurally differ in size. According to her classification, the nominalization in the Tz'utujil progressive exemplifies the subtype with the smallest complement, containing only the predicative core (VP), with possible additional structure. This nominalization lacks the clausal projection (IP), since it displays no aspect morphology. The question that arises, then, is whether the argument within the nominalization coindexed with Set A agreement is generated in a specifier or complement position. The data above leads us to propose that the argument is an internal possessor generated as a complement. Further, observe that the nominalization bears passive morphology. If we take this morphology to be indicative of the structural similarity between the typical passives as in (11) and the (previously passivized) nominalization in a progressive construction as in (22), we might consider the arguments to be base-generated in the same (complement) position.

We are now ready to propose a full generalization of the pattern of plural agreement realization:

(23) *3PL agreement (final)*
Obligatory vs. optional 3PL agreement is determined by the base-position of the agreement controller:
a. Arguments merged in Spec-XP agree obligatorily.
b. Arguments merged in Compl-X^0 agree optionally.

An updated list of the agreement pattern across the language is provided below. We refer the reader again to Authors (2020) for complete data and discussion:

(24) *Arguments merged in Spec-XP agree obligatorily:*

AGREEMENT CONTROLLER	*TYPE OF MORPHOLOGY*	*PROPOSAL OF ARGUMENT IN A SPECIFIER POSITION*
Transitive subject	Set A	e.g. Chomsky 1970
Sole argument of antipassive	Set B	Polinsky 2017
Sole argument of non-verbal predicate (adjectival and nominal)	Set B	e.g. Baker 2008
Possessor	Set A	e.g. Abney 1987
Sole argument of positional predicate	Set B	Henderson 2019
Agent Focus subject	Set B	Stiebels 2006, Aissen 2017a
Matrix subject in a progressive construction	Set A	

The form in (22)b is the result of vowel syncope, which was discussed in 2.2. None of the allomorphs of 3SG Set A /ru-/ are allowed in (21)b. We simply provide the allomorph that is predicted by the phonotactics.

(25) *Arguments merged in Compl-X^0 agree optionally.*

AGREEMENT CONTROLLER	TYPE OF MORPHOLOGY	PROPOSAL OF ARGUMENT IN A COMPLEMENT POSITION
Transitive object	Set B	e.g. Chomsky 1970
Sole argument of intransitive (which are all unaccusative)	Set B	Coon 2016
Passive subject	Set B	e.g. Chomsky 1965
Subject of existential	Set B	Aissen 1999
Agent Focus object	Set B	Stiebels 2006, Aissen 2017a
Logical object of a nominalized verb in a progressive	Set A	

Equipped with a *syntactic* generalization, we are now ready to propose an analysis that captures the asymmetry in agreement optionality. We are also ready to rule out two alternative hypotheses, that the pattern is driven by morphology or phonology.

4. Analysis

In this section, we first discuss conceptual reasons against analyzing the above data within the morphological module. We will argue that such an approach would blur the line between syntax and morphology to the extreme - an undesirable result. We also discuss the role of phonotactics and phonological processes in deriving the above pattern. We recognize that both phonology and syntax might play a role in obtaining the surface pattern; however, it is syntax that determines the pattern of agreement optionality.

4.1. Optional agreement is not morphologically-governed

The generalization in (23) makes reference to first-Merge position, since it is the base-position, rather than the derived-position of the argument, that determines the pattern of agreement. In order to capture the generalization in morphological terms, then, we would need to somehow 'translate' the syntactic notion of first-Merge into a notion that is readable by the morphology. Lexicalist (Chomsky 1970, Williams 2007) and Distributed Morphology (DM) (Halle & Marantz 1993) approaches to morphology, however, coincide in positing that the conditioning of morphological rules is formulated in *morphological* terms. For ease of exposition, let us assume DM to show what kind of rule would be necessary to capture the generalization.

We can hypothesize that AGREE fails due to an optional morphological rule (call it Obliteration) which deletes the relevant [FEATURE] borne by nominal goals that are targeted by AGREE. However, stating the environment for the application of such a rule is not trivial. As mentioned above, it would need to reference the first-Merge position, a notion which is strictly syntactic. An

alternative would be to apply the morphological Obliteration rule throughout the derivation, i.e. right after each instance of first-Merge. This would ensure the lack of the relevant feature by the time the argument in question is targeted for agreement. However, this goes against the idea of morphological rules being independent of the syntactic module. This approach thus blurs the distinction between syntax and morphology to the extreme and does not provide any explanatory insight.[11]

4.2. Optional agreement is not phonologically-governed

Before we finally proceed to provide a syntactic analysis of agreement optionality, let us first discuss the logical possibility mentioned in section 2.2 that such optionality is due to phonotactics, and more specifically, a result of morphophonological processes of vowel syncope or vowel epenthesis. The syntactic conditioning and the phonological conditioning of the optionality of some morpheme are independent, i.e. they could both apply to the same surface string. However, we provide two arguments that speak against purely phonological conditioning. First, the optionality shows a clear sensitivity to syntactic factors like animacy and base-position. Second, the reported vowel syncope rules do not account for our data.

Consider first a minimal quadruple like the one below:

(26) *Obligatoriness of agreement with animate controllers*
a. I–k'e'   ch'uuch'–a   x–**i**-tzaq=pa.
    PL–two   baby–PL   COM–**3PL**.B-fall=DIR
    'Two babies fell.'
b. *I–k'e'   ch'uuch'–a   x–Ø–tzaq=pa.
    PL–two   baby–PL   COM–Ø–fall=DIR
    Intended: 'Two babies fell.'

(27) *Optionality of agreement with inanimate controllers*
a. I–k'e'   ru–xaq   chi'a'   x–**i**–tzaq=pa.
    PL–two   3SG.A–leaf   tree   COM–3PL.B–fall=DIR
    'Two leaves fell.'
b. I–k'e'   ru–xaq   chi'a'   x–Ø–tzaq=pa.
    PL–two   3SG.A–leaf   tree   COM–Ø–fall=DIR
    'Two leaves fell.'

---

[11] A reviewer suggests that the Obliteration rule could delete the features on the probe (e.g., T^0 in a passive frame), as opposed to the goal. This formulation of the rule runs into the same issues, however, since the rule would need to be optional iff the probe had targeted a goal that was first-Merged as a complement (a syntactic notion). For example, the rule would need to target T^0 in a passive frame, but not in an antipassive frame (compare (11) with (14)).

The above example shows that the conditioning of agreement optionality lies outside of phonology. All four verbal stems are identical except for the presence of agreement, signalled by the *-i-* vowel. We observe that the realization of this vowel is conditioned by the animacy of the agreement controller; in (26) the controller is animate and *-i-* is obligatory while in (27) the controller is inanimate and *-i-* is optional. Due to space limitations we cannot present the full pattern of optionality with *animate* controllers the way we did for inanimate controllers in Section 3. We refer the readers to Authors (2020), where we report the pattern with animate agreement controllers. The conclusion, though, is as follows: animacy status is not a phonological factor, yet it influences agreement optionality. The minimal quadruple in (26)-(27) shows, then, that phonology is not governing the pattern.

Finally, let us go over the reported environment for vowel syncope processes to show that, even if they do account for some instances of the presence or absence of a vowel in general, they play a very limited role in our specific case. First, Dayley (1985: 45) reports for ST that vowel syncope is attested in non-final syllables.

(28) *Vowel syncope rule in ST*
    $V \rightarrow \emptyset$ / C_C_nV(V)C

However, Dayley also notes that it is not a systematic rule, if a rule at all: "*There are a number of exceptions to this rule (all of which I do not fully understand yet*.)" This lack of precise conditioning of the vowel syncope process is the opposite of what we see in our data, where constructions that allow optional agreement allow it regardless of the lexical item under investigation.

Furthermore, we observe optionality outside C_C_nV(V)C, contra Dayley (1985: 45):

(29) *Optionality of agreement not conforming to C_C_nV(V)C (existential construction)*
a. **I**–k'ola   ki'e'   ktz'e'j chu   jaay.
    3PL.ABS–EXS   two   flower   PREP.A3S.RN   house
    'There are two flowers in the garden.'
b. **∅**–k'ola   ki'e'   ktz'e'j chu   jaay.
    ∅–EXS   two   flower   PREP.A3S.RN   house
    'There are two flowers in the garden.'

In the above example we see optionality of agreement outside of the phonological environment reported by Dayley to give rise to vowel syncope. We argue, then, that at least some cases of optionality have nothing to do with vowel syncope. The reverse is also true – there are cases of obligatory agreement in the very environment that Dayley reports to give rise to vowel syncope:

(30) *Obligatoriness of agreement in C_CₙV(V)C*

a. K'iy   b'inien   akox   x–**i**–kum–sa–n–a   r–xiin.
    many   poisonous   mushroom   COM–**3PL.B**–die–CAUS–AP–SS   3SG.A–RN
    'Many poisonous mushrooms killed (that dog).'

b. *K'iy   b'inien   akox   x–Ø–kum–sa–n–a   r–xiin.
    many   poisonous   mushroom   COM–Ø–die–CAUS–AP–SS   3SG.A–RN
    Intended: 'Many poisonous mushrooms killed (that dog).'

In short, our current understanding of the vowel syncope processes cannot explain the phenomenon.

To summarize, there is clear evidence that agreement optionality is sensitive to syntactic factors such as animacy and base-position of the agreement controller. However, there is no doubt that phonotactics restrict certain combinations of consonants in a cluster in Tz'utujil. While in principle, the morphophonological processes could be manipulating the presence or absence of *-i-/-e-* vowels in some cases, we could not arrive at a generalization about when exactly these processes apply. In contrast, the data is elegantly captured by the generalization provided in (23) which we argued can be modeled in syntax. We will now proceed to provide a more detailed model that will derive the optionality of agreement in syntax.

4.3. Optional agreement is syntactically governed: base position and nominal size

Recall the final version of the generalization in (23) repeated here as (31):

(31) *3PL agreement generalization*
     Obligatory vs. optional 3PL agreement is determined by the base-position of the agreement controller:
a.   Arguments merged in Spec-XP agree obligatorily.
b.   Arguments merged in Compl-X^0 agree optionally.

We propose that the underlying difference between agreement with an argument that was generated in the specifier position vs. an argument that was generated in a complement position is the structure of such an argument. Let us assume the following definition of AGREE in the syntax:

(32) AGREE
a.   *Description*: A probe X^0 agrees with a goal YP iff,
      i) X^0 c-commands YP (YP is the sister of X^0 or YP is dominated by the sister of X^0).
      ii) The probe X^0 has an unvalued phi-feature [F: _]
b.   *Result*:
      The relevant feature on YP is shared with X^0.

In ST, AGREE targets the D^0 of the goal. Specifier-generated arguments always contain D^0; complement-generated arguments may or may not.[12]
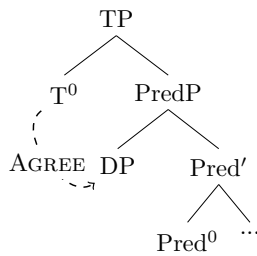
(33) *Proposal*
a. In order to agree, an agreement controller must bear D^0.
b. X^0 selects only for a DP *specifier*.[13]
c. Y^0 selects for a *complement* and does not care about the presence of D^0 (i.e. DP or NP are possible).
d. Structurally, ST complements can be larger (contain D^0) or smaller (no D^0) (see Baker 1996, Massam 2001, Levin 2015).
e. No $D^0 \rightarrow$ no agreement

First, let us exemplify the above analysis with a sample derivation for obligatory agreement with the sole argument of a positional. Observe (34) below. In (34)a, the argument is a DP and AGREE obtains, while in (34)b, there is a selectional violation that gives rise to ungrammaticality:

(34) *Obligatory 3PL.ABS agreement in positional*
a. I–k'iy   ab'aj   **e**–q'e'–el–a   chwech   tz'aq.
   PL–many   stone   **3PL.B**–lean–POS.ST–SS   PREP.3SG.A.RN wall
   'Many stones are against the wall.'

```
            TP
           /  \
         T⁰    PredP
          ⌐    /  \
       AGREE DP    Pred′
          ⌐⌐      /  \
               Pred⁰  ...
```

b.   *I–k'iy   ab'aj   Ø–q'e'–el–a   chwech   tz'aq.
          PL–many   stone   Ø–lean–POS.ST–SS   PREP.3SG.A.RN wall
          Intended: 'Many stones are against the wall.'

Now, consider a sample derivation of optional agreement with a transitive object. We follow Coon et al. 2014 and Douglas et al. 2017 in assuming that in Mayan languages like Tz'utujil, transitive objects move to Spec-*v*P (possibly for EPP reasons):
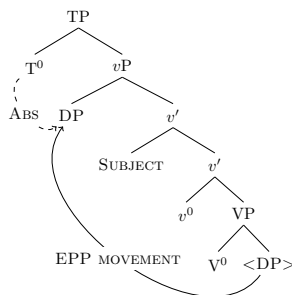
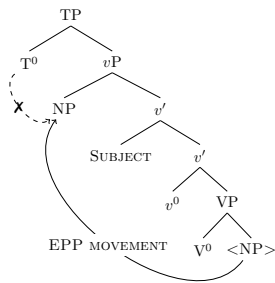(35) *Structure of a transitive clause in ST*
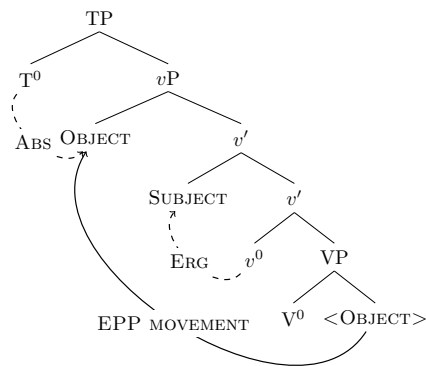
In (36)a, the complement is a DP and AGREE obtains, while in (36)b, the complement is an NP (there is no DP layer). In the latter case, AGREE fails but the derivation converges. If AGREE fails, an agreement morpheme is inserted as a default (Preminger 2014). In ST, the default is 3SG.

(36) *Optional 3PL.ABS agreement with object in transitive*
a.   X–**e**–q–raq=pij   i–k'e'   etzb'al.
        COM–**3PL.B–**1PL.A–break=DIR PL–two   toy
        'We broke two toys.'

b. X–∅–q–raq=pij   i–k'e'   etzb'al.
    COM–∅–1PL.A–break=DIR   PL–two   toy
    'We broke two toys.'

```
              TP
           ╱     ╲
         T⁰       vP
        ╱ ⌐NP      v′
       ✗  ↗    ╱       ╲
         SUBJECT        v′
                      ╱    ╲
                    v⁰      VP
    EPP MOVEMENT          V⁰  <NP>
```

In sum, the syntactic operation AGREE obtains with nominal arguments bearing D^0 in ST. If a nominal argument is smaller than a DP (e.g. it is an NP), AGREE will fail and a default 3SG morpheme will be realized instead. Further, c-selection in ST requires all nominal specifiers to be DPs, while there is not such restriction on complements.

Our analysis makes a prediction regarding agreement optionality and pronominal arguments. As pronominal *arguments* (as opposed to predicates) are larger than NP (Déchaine and Wiltschko 2002), possibly DP (or D^0 and nothing else) (see Postal 1966, Elbourne 2001), then we expect agreement with pronouns to be obligatory regardless of their base-position. Based on this assumption regarding the structure of a pronoun, we predict that all pronouns, both null and overt, must agree obligatorily.

(37) *Prediction 1*
     ST pronouns must agree.

This prediction is borne out. A transitive object agrees optionally if it is an overt nominal (38), but agrees obligatorily if it is a pronoun (39):[14]

(38) *Optional agreement with object of transitive*
a. Iwiir   x–i–nu–tzu'   i–k'e'   ch'uuch'–a.
    yesterday   COM–**3PL.B**–1SG.A–see   PL–two   baby–PL
    'Yesterday, I saw two babies.'
b. Iwiir   x–∅–in–tzu'   i–k'e'   ch'uuch'–a.
    yesterday   COM–∅–1SG.A–see   PL–two   baby–PL
    'Yesterday, I saw two babies.'

---

[14] One might be tempted to decompose the form of the Set A marker *in-* in (39)b into Set B *i-* and Set A *n-* resulting in the presence of plural agreement in both examples. However, the evidence for analyzing *in-* in this example as a non-decomposable Set A morpheme comes from examples where there is 3SG.B agreement, which is null. We observe that the form of 1SG.A agreement is *in-*:
(i) Iwir   x-**in-∅**-tzu'   jun   ch'uuch'.
    yesterday COM-**1SG.A-3SG.B**-see   one   baby
    'Yesterday I saw a baby.'

(39) *Mandatory agreement with overt pronouns*

a. Iwiir   x–**i**–nu–tz'et   j'iye'
yesterday   COM–**3PL.B**–1SG.A–see   3PL
'Yesterday, I saw them.'

b. *Iwiir   x–∅–in–tz'et   j'iye'
yesterday   COM–1SG.A–see   3PL
Intended: 'Yesterday, I saw them.'

Overt pronouns are restricted to animate referents in Tz'utujil. However, null pronouns do not have such a restriction and can refer to inanimate entities as well. More importantly, their behavior with respect to agreement realization is the same as with overt pronouns – agreement is obligatory regardless of the base-position of the agreement controller:[15]

(40) *Mandatory agreement with null pronouns*

a. Iwiir   k'ola   ki'e'   ktz'e'j chu   jaay
yesterday   EXS   two   flower PREP.A3S.RN   garden
'Yesterday, there were two flowers in the garden.'

b. Ja   ya   Mriiy x–**i**–ru–b'oq.
DET   CLF   Maria   COM–**3PL.B**–3SG.A–tear
'Maria tore (them).'

c. *Ja   ya   Mriiy x–∅–u–b'oq.
DET   CLF   Maria   COM–∅–3SG.A–tear
Intended: 'Maria tore (them).'

A second prediction concerns agreement with local persons:

(41) *Prediction 2*
     All local persons are pronouns → Local persons must agree.

This prediction is borne out:

(42) *Local persons agree obligatorily*
     J'iye'   x–**oq**–/*in–/*∅–ki–tzu'   (joj).
     3PL   COM–**1PL.B**–/*1SG.B–/*∅–3PL.A–see   1PL
     'They saw us.'

To recap, our proposal regarding D^0 as the locus of AGREE in ST makes a prediction about agreement with pronouns that is borne out. Pronouns always have D^0 and thus always agree.[16]

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[15] Déchaine and Wiltschko (2002) propose that a pronoun that can serve as an argument is necessarily larger than NP. However, such a pronoun does not need to be as large as a DP but can be the size of an intermediate projection ɸP. If pronominal arguments in ST turn out to be smaller than a DP, the locus of agreement could not be D^0 as proposed in (33), but rather a head lower in the extended projection like $ɸ^0$. Nevertheless, we could maintain the necessary contrast in the size of arguments as the core of our analysis, where NPs do not agree and larger-than-NP nominals agree. In order to test the exact size of the null pronoun under investigation, we would need to see whether it gives rise to Principle C or B violations—if the former, the pronoun would be a DP; if the latter, a ɸP (see Déchaine and Wiltschko for discussion). We leave this for future research.

[16] The reverse prediction that seems to fall out of our proposal concerns the behavior of nominal arguments that do not bear D^0. If D^0 were the locus of definiteness or specificity in ST, one might expect non-definite/non-specific

5. Conclusion and discussion

We have shown that in ST, some constructions display obligatory agreement with 3PL arguments, while in other constructions such agreement is optional. Based on these data, we established a generalization where arguments that are base-generated as specifiers agree obligatorily and arguments that are base-generated as complements agree optionally. We proposed to model this generalization through the interaction between a difference in the size of the arguments and constraints on the heads that selects for such arguments. We proposed that for syntactic AGREE to obtain, a nominal argument must bear D^0. If a nominal argument is smaller than a DP (e.g. it is an NP), AGREE fails and a default 3SG morpheme is inserted. Further, c-selection in ST requires all nominal specifiers to be DPs, while there is no such restriction on complements:

(43) *Proposal:*
a.   In order to agree, an agreement controller must bear D^0.
b. X^0 selects only for a DP *specifier*.
c. Y^0 selects for a *complement* and does not care about the presence of D^0 (i.e. DP or NP are possible).
d.   Structurally, ST complements can be larger (contain D^0) or smaller (no D^0) (see Baker 1996, Massam 2001, Levin 2015).
e.   No $D^0 \rightarrow$ no agreement

Given our results, let us discuss optionality in a broader sense and how the phenomenon we have presented provides a window into the locus of optionality in the grammar. We have concluded that the asymmetry between obligatory and optional agreement across constructions in Santiago Tz'utujil is governed by the structure of the agreement controller. Our analysis proposes that a complement can vary in its structure (NP vs. DP) whereas a specifier cannot (only DP). A conclusion to draw from our analysis, then, is that the locus of optionality is not a syntactic operation *per se*. Instead, whether a string surfaces with or without agreement is the result of two available structures. In one, a DP is merged as a complement, so AGREE obtains. In the other, an NP is merged as a complement and AGREE fails. In the latter case, the derivation converges still, but no plural agreement arises. Instead, a default morpheme is inserted (Preminger 2014). In Santiago Tz'utujil, 3SG is the default. Put differently, AGREE is a syntactic operation that is

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arguments to be allowed only in the base-complement position and never agree. However, this expectation seems unwarranted. First, Little (2020a, 2020b) argues that NPs in Ch'ol can be definite. Second, testing the correlation between the semantic definiteness of an argument, its syntactic structure, and agreement realization requires a careful investigation which we leave for future research (see Ionin 2003, 2006). Nevertheless, we have looked at the correlation of demonstratives and agreement and there seems to be no effect; the pattern remains identical. We conclude for now, then, that demonstratives in ST are phrasal adjuncts rather than exponents of D^0.

deterministic. Surface optionality in agreement arises due to freedom in the structural composition of complements, as opposed to specifiers.

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