

Multiple grammars within linguistic populations

Distributions and theoretical implications

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This paper explores the concept of multiple grammars (MGs) and their implications for linguistic theory, language acquisition, and bilingual language knowledge. Drawing on evidence from phenomena such as scope interactions, verb raising, and agreement patterns, I argue that seemingly identical surface structures can be undergirded by different grammatical analyses that may compete within speaker populations. I then propose a typology of MG distributions, including *shared MGs*, *competing MGs*, and *partial MGs*, each with distinct consequences for acquisition and use. Contrary to expectations of simplification, bilingualism can sometimes lead to an expansion of grammatical analyses and does not always lead to the elimination of MGs. The paper discusses methods for predicting environments conducive to MGs, considering factors such as structural ambiguity and silent elements. The examination of MGs compels us to explore how learners navigate underdetermined input, especially in bilingual contexts, and to examine the interplay between gradient acceptability judgments and categorical grammatical distinctions. The study of MGs offers valuable insights into language variation, change, and the nature of linguistic competence.

Keywords: Multiple grammars, bilingualism, structural ambiguity, scope interactions, underdetermined input

1. Introduction

While it is a truism that people speak differently, the extent and implications of these differences are far from trivial. Differences in language and speech can stem from social, cultural, dialectal, or educational factors, but equally significant are the variations in grammatical structures that speakers employ. These grammatical

differences, often subtle yet profound, are at the core of this paper. My primary aim is to highlight these grammatical differences and explore their potential implications for linguistic theory, language acquisition research, and our models of bilingual language knowledge.

Let us start with a simple illustration. In British English, words such as *band*, *committee*, *gang*, *government*, *team*, and other morphologically singular names of groups can trigger both singular and plural agreement, as in:

- (1) a. The committee is meeting down the hall.
- b. The committee are meeting down the hall.

The distribution of singular and plural agreement with these so-called “pluringu-lars” is not random; it correlates with a number of linguistic properties. Starting with scope — the way linguistic elements interact to create different interpretations — the choice between singular and plural agreement has systematic effects on quantifier interpretation (see den Dikken, 2001; Sauerland & Elbourne, 2002). Consider (2a), with singular agreement, which allows two different interpretations, whereas the subject triggering plural agreement, in (2b), must be interpreted in only one way with respect to the modal element:

- (2) a. A northern team is likely to be in the final.
 Reading 1: There exists a specific northern team that is likely to reach the final
 Reading 2: It is likely that some northern team or other will reach the final
- b. A northern team are likely to be in the final.
 Only Reading 1 is possible: There exists a specific northern team that is likely to reach the final

This type of systematic variation, where seemingly interchangeable patterns actually reflect different underlying structural analyses (as we will see in Section 2.1.1), exists across many grammatical domains. For instance, we find similar patterns in determiner interpretation, as with the two different readings of the definite expression *the lion* in (3):

- (3) The lion is a dangerous animal.
 Reading 1: Lions as a species are dangerous
 Reading 2: A specific lion is dangerous

What these examples show is that apparent optionality in surface forms often masks distinct grammatical analyses. When we observe such systematic variation, we face a crucial question: How do language learners navigate this complexity? This question becomes even more intriguing in bilingual contexts, where learners must manage potentially different analyses across two language systems.

To address these questions, I introduce the concept of *multiple grammars* (MGs), referring to cases where (nearly) identical strings are undergirded by different grammatical analyses that may compete within a given population of speakers. This use of the term follows work by Roeper and colleagues (Roeper, 2003; Roeper & DeVilliers, 2011; Amaral & Roeper, 2014), though I make no commitment to the traditional parameter-setting approaches employed by them.¹

The concept of multiple grammars helps us distinguish genuine structural ambiguity from other types of linguistic variation. When we speak of “underdetermined input” — situations where the available linguistic evidence is insufficient to definitively choose between competing analyses — we can identify several possible outcomes. First, all speakers could maintain access to multiple analyses (shared MGs). Second, different speakers could settle on different analyses (competing MGs). Third, some speakers could maintain multiple analyses, while others settle on a single analysis (partial MGs). These three possible distributions have significant implications for how we understand language variation, acquisition, and change. And to reiterate on the earlier theme, these distributions of grammatical options are particularly relevant for bilingual contexts, where speakers must navigate similarities and differences across two languages.

Before examining specific cases of multiple grammars, I would like to address the ways in which we identify and verify their existence in speaker populations. Let me outline the possible criteria and evidence that can be available to researchers (I will then revisit some of these considerations in Sections 4 and 5).

Probably the strongest source of evidence for multiple grammars involves the systematic correlation of properties associated with a particular structure or context (consider Barking et al. 2024, Section 4.2 for similar observations). This includes different interpretations that correlate with distinct structural properties and a principled distribution of variants. Returning to the example of British English pluringulars, the choice between singular and plural agreement is not random, as it correlates systematically with (i) scope interpretation, (ii) relative pronoun selection (*which/who*), and (iii) existential construction use (den Dikken, 2001; Sauerland & Elbourne, 2002).

The second source of evidence for multiple grammars concerns population-level distribution, encompassing consistent individual behavior across tasks,

1. See also the use of this term in Han et al. (2007), and similar ideas, albeit with different terminology in Kroch (1989; 2001). While acknowledging that no terminology is flawless and that some linguistic terms may elicit strong reactions, the aim here is simply to employ an appropriately constrained concept. It is worth noting that “optionality” (which may capture some of the same phenomena related to competing underlying analyses) is a much vaguer term, which is why I am trying to avoid it here.

replicable patterns across studies, and a clear grouping of speakers. Such a case will be discussed in Section 2.1.2, where speakers consistently fall into distinct groups regarding scope interpretation, with these judgments remaining stable across different experimental tasks.

The third source of evidence relates to acquisition patterns, which includes systematic development trajectories, consistent error patterns, and clear environmental triggers. At the current level of our knowledge, this is a more abstract (and possibly less reliable) source of evidence, because it requires postulating transitional grammars in the acquisition process. However, each of these transitional grammars is characterized by internal consistency, which in turn allows us to consider it as a distinct analysis – of course on the assumption that the new grammars get constructed and learned rather than just gradually maturing (see Borer & Wexler, 1987, 1992, and much subsequent literature on maturation).

To illustrate, let us consider the celebrated case of the acquisition of A-bar movement (see Guasti, 2002, for a helpful overview). Children typically begin their journey into A-bar movement around age 2, when they predominantly use in-situ wh-words or produce fragmentary wh-questions. During this early stage, rather than asking “What do you want?”, a child might say “You want what?”, demonstrating their grasp of the questioning concept before mastering the movement operation itself. As children move into the intermediate stage of around age 2.5–3, they start producing actual wh-movement in simple questions. There’s a clear progression here: subject wh-questions emerge before object questions, and simple “who” and “what” questions appear before the more complex “why,” “how,” and “which” constructions. This period is characterized by short-distance movement, with children still showing considerable difficulty with more complex structures. The advanced stage, typically emerging around age 3.5–4 years, marks children’s entry into mastering long-distance movement. During this period, they begin producing relative clauses, though following the same subject-before-object pattern seen in questions. Their repertoire expands to include more complex wh-questions, and they gradually develop the ability to handle multiple wh-movements in a single construction. Children show early sensitivity to constraints on movement, such as island constraints, even before they fully master the movement operations themselves. This pattern of acquisition remains relatively consistent across different languages, though with some variation based on the specific features of each language. In principle, one could expect these stages to be represented as multiple grammars and to co-exist within a speech community.

While the conception of multiple grammars is not completely novel, the field has yet to address this phenomenon in a systematic and rigorous manner. This creates a bootstrapping problem: we must acknowledge multiple grammars as a meaningful category worthy of investigation, yet justifying this categorization

typically demands systematic evidence — evidence that can only be gathered once we accept multiple grammars as a legitimate object of study. This circular dependency reflects how initial recognition often emerges through informal observation and intuition before formal investigation becomes possible. At this stage, I can only outline preliminary approaches for assembling empirical evidence for multiple grammars. Several complementary methods could be employed: standard experimental studies (including grammaticality judgment tasks, truth value judgment tasks, sentence completion tasks, and processing measures such as reaction time and eye-tracking) could examine different grammatical analyses and their correlated properties. Additionally, corpus data could illuminate the distribution of variants and their historical development, a topic I will explore further in Section 4.

In what follows, Section 2 examines the logical possibilities for structural ambiguity in monolingual communities, introducing a detailed typology of multiple grammar distributions. Section 3 extends this analysis to bilingual contexts, showing how the interaction between two languages can either expand or contract the space of grammatical possibilities. Section 4 considers broader implications for linguistic theory, including methods for predicting environments conducive to multiple grammars and the relationship between gradient acceptability judgments and categorical grammatical distinctions. Finally, Section 5 discusses how this framework advances our understanding of language variation, acquisition, and change.

2. Multiple grammars

We will start by looking at the least complex context in which the three different multiple grammar distributions can be at play — a monolingual language community — and children acquiring their L1 in this environment.

2.1 Multiple grammars within a homogenous population of speakers

Let us imagine an idealized speech community where all members are monolingual, share similar experiences, participate in similar social networks, have received similar education, and, ostensibly, similar input in language learning. Even within such an idealized community, systematic variation is still possible.

Some instances of variation can be attributed to structural ambiguity or more than one operation deriving a given structure (what we call multiple grammars, or MGs). Within our idealized homogenous community, multiple grammars can be distributed in several ways, which I will now illustrate with diverse examples.

2.1.1 *Shared multiple grammars*

Shared MGs represent cases where all members of the community have access to more than one analysis of a particular surface string, and these analyses are deployed in a principled manner. Consider three illustrative cases.

First, we take a closer look at the British English pluringuars discussed in the introduction (Section 1). The systematic correlation between agreement patterns and other grammatical properties suggests two distinct underlying structures, one with a regular DP whose number is specified as non-plural (4a), and the other, more complex, with the silent null pronoun that has plural properties and dominates the simple DP, as shown in (4b), following den Dikken (2001):

- (4) a. Simple structure: [_{DP} the committee[–plural]]
b. Complex structure: [_{DP₁} *pro*[plural] [_{DP₂} the committee[–plural]]]

Structure (4a) triggers singular agreement and allows various scope interpretations, while structure (4b), with its null plural pronoun, requires plural agreement and restricts scope possibilities. All speakers of British English seem to systematically access both structures.

A second example comes from French adjective placement. Consider the following contrast in the linear order of adjective and noun in French:

- (5) a. un ancien professeur
a old teacher
'a former teacher'
b. un professeur ancien
a teacher old
'an elderly teacher'

The position of the adjective correlates with systematic interpretive differences. When the adjective precedes the noun, it typically yields a non-intersective reading ('a former teacher'); when it follows, it yields an intersective reading ('an elderly teacher'). All French speakers reliably access both structures and their associated meanings.

A third example involves Polish person–number markers, which show properties of both clitics and affixes. Franks and Bańsky (1999) consider analyses of these markers exclusively as clitics and exclusively as affixes and show that both of those approaches are untenable. They contend that these Polish markers have to be analyzed as “sometimes clitics, sometimes inflections, and sometimes ambiguous between the two” (p.123). There does not seem to be dialectal variation in the way properties of these exponents are distributed; speakers seem consistent in that regard, which suggests that they all rely on multiple structural analyses, arguably distributed in a principled manner, which still needs to be modeled.

This is the situation Franks and Bańsky (1999) describe as “schizophrenic.” While seemingly paradoxical, this presents another case where speakers employ distinct grammatical mechanisms to generate surface structures that are (nearly) indistinguishable.

2.1.2 *Competing multiple grammars*

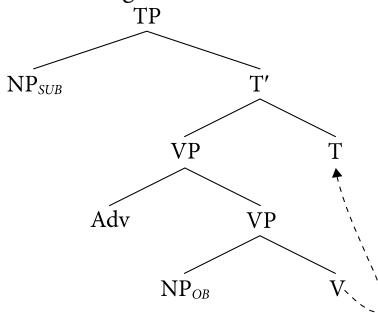
Competing MGs occur when different members of the community have access to different grammatical analyses. A clear example comes from Korean verb raising. Since Korean is verb-final, the surface position of the verb doesn’t immediately reveal its structural position:

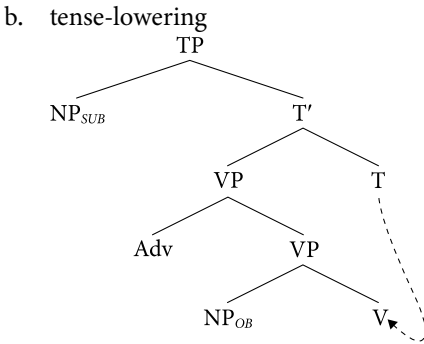
- (6) Kim-i cacwu Lee-lul piphanha-n-ta.
 Kim-NOM often Lee-ACC criticize-PRS-DECL
 ‘Kim often criticizes Lee.’ (Han et al., 2016: 943)

Given that syntacticians largely agree that tense is structurally higher than the verb, the word order in this sentence could be derived either by raising the verb to a structurally higher position or through the verb remaining low with tense lowering. Han et al. (2007; 2016) show that Korean speakers fall into two distinct groups:

- (7) a. Group 1: Verb raises to inflectional head, as shown in (8a).
 b. Group 2: Verb remains low, tense lowers, as shown in (8b).

- (8) a. verb-raising





It is apparently just as challenging for language learners to determine the syntactic height of the verb as it is for language scientists. Han et al. (2007; 2016) propose that there are two groups of Korean learners who correspond to Groups 1 and 2 above. Evidence for this bimodal distribution comes from the interaction of quantifiers in the object position with negation, in cases similar to the English example in (9):²

- (9) Cookie Monster didn’t eat every cookie.
(possible interpretations: *every* > NEG, NEG > *every*)

Those Korean speakers who have acquired the verb-raising grammar accept the NEG > *every* reading with object QPs, while those who have acquired the non-verb-raising grammar reject this reading. Speakers were consistent in their judgments across multiple experiments, supporting the idea of stable individual grammars (Han et al., 2016). In sum, the two analyses predict different scope interactions between negation and object quantifiers, and speakers consistently fall into two distinct groups that pattern with one analysis or the other, but not a mix of the two.

2.1.3 *Partial multiple grammars*

Partial MGs represent cases where some speakers allow structural ambiguity while others entertain only one grammatical variant. English provides a clear example with picture noun phrases:

- (10) They heard stories about them/themselves

Some English speakers allow both the pronoun and reflexive in this context, while others allow only the reflexive. This variation correlates with other grammatical properties, such as the acceptance of long-distance reflexives.

2. See Han et al. (2007) for Korean examples and a more detailed discussion.

Another example comes from scope interactions in doubly quantified sentences:

- (11) A soccer player was holding every ball
 Reading 1 (surface scope): There was one specific soccer player holding all the balls
 Reading 2 (inverse scope): For each ball, there was a (possibly different) soccer player holding it

Experimental studies show that while all English speakers accept the surface scope reading, only about half accept the inverse scope reading (Anderson, 2004; Tsai et al., 2014; Scontras et al., 2017). This suggests that only some speakers have access to the quantifier raising operation that derives inverse scope.

So far, I have only considered the distribution of multiple grammars across roughly the same generation of speakers. Setting aside the absence of multiple grammars, I have proposed three types of MG distribution in a given population of speakers: shared MGs (all speakers have access to the multiple analyses); competing MGs (any given speaker has access to only one of the competing analyses), and partial MGs (some speakers have access to multiple analyses, while other speakers only have one of them). Structural ambiguity is a potential source of competing and partial MGs. These two latter types are of particular interest when we consider situations where learners arrive at grammars that do not match the totality of their input.

2.2 Multiple grammars in L1 learners' input

The time has come to ask the following question: What does the presence of multiple grammars in the input mean for an L1 learner? (I will not be concerned with second-language acquisition later in life.)

2.2.1 *Monolingual learners face underdetermined input*

Let us again start with the simplest case, that of a monolingual community. All three types of distribution of MGs across a population of speakers suggest that the input received by an L1 learner is at times underdetermined. As an extreme version of poverty of the stimulus, this input may not be sufficient for the learner to choose between alternative analyses. That in turn means that learners need to develop a systematic grammar that may either converge with the underlying grammar(s) in the input or end up being different (Han et al., 2007; 2016, suggest that learners may choose a grammar at random rather than maintaining multiple competing grammars simultaneously, but that appears to be just a step in L1 acquisition rather than the end point of the learning process).

In relation to underdetermined string A, it is possible that the next generation of learners could replicate the MGs of the input (matching), have a different distribution of MGs (redistribution), or eliminate multiple analyses (simplification).³ How these scenarios develop is not well understood; we need both empirical data (I will discuss an example of what is needed in a moment) and a principled analysis of those pressures that guide and constrain acquisition.

We will now revisit English plurilinguals for another illustration.⁴ Recall that there are two versions of those DPs: simple DPs that trigger singular agreement, (4a), and more complex ones that include a null plural pronoun, (4b). Assuming both structures are available to an L1 learner from the beginning, the acquisition of plural agreement with group-denoting nouns should track the acquisition of agreement with the third person plural pronoun; the learner has enough evidence to separate the two structures underlying group-denoting nouns and assimilate the ones with the plural *pro* to something like *they*. If the plural agreement with plurilinguals develops later than the singular agreement, and if this plural agreement lags behind the unproblematic plural agreement with *they*, then we could conclude that the learning process is hindered by the silence of the null pronoun and that it also takes time to get a boost from the learning of apposition structures such as *we*, *the people* or *they*, *the voters*, which are not very common. Finally, it is also possible that the learners never arrive at the two analyses and end up developing only singular (default) agreement for such nouns. (American English illustrates the latter possibility.)

To the best of my knowledge, children's acquisition of agreement with British English plurilinguals has not been explored in the acquisition literature. Meanwhile, data on such agreement (and relatedly, on appositive structures) would be informative both for theoretical analyses of plurilinguals and, more generally, for our understanding of multiple grammars in language communities.

In sum, the indeterminacy in the input may have lingering effects; it may slow down the acquisition process, or it may lead to the loss of one of the options. Again, of particular interest here are the situations where learners develop grammars that do not match the totality of their input.

3. It would also be possible for a new generation of learners to develop MGs for structurally unambiguous strings, something I do not consider below.

4. I am grateful to Marcel den Dikken for a thorough discussion of the learning scenarios presented here.

2.2.2 Bilingual learners face underdetermined input

Consider a community where most speakers are bilingual and where the degree of bilingualism may differ across individual speakers. Individual differences under bilingualism or under language contact more generally have of course been recognized by a number of researchers, see Barking et al. (2024) for a recent example and insightful discussion.

Within each language, we can still anticipate multiple grammars, distributed the same way as in the monolingual community (Section 2): shared MGs (i.e., structural ambiguity), partial MGs, and competing MGs. This is now multiplied by two languages. Let us also assume that there is some construction (or operation) that the two languages have in common, such as restrictive relative clauses. In modifying complex NPs, such clauses can have different attachment sites, high and low (see Cuetos & Mitchell, 1988 for the first observation; Fernandez, 2003; Grillo et al., 2015, for reviews):

- (12) Someone shot [_{DP1} the servant] of [_{DP2} the actress] [_{RelClause} who was on the balcony]

In (12), the relative clause can be interpreted as modifying either the first DP, *the servant* (high attachment), or the second one, *the actress* (low attachment). Languages vary with respect to the availability of the two readings, and when both high and low attachment are possible, there is cross-linguistic variation with respect to preference. For instance, English speakers show an overall preference for low attachment, while speakers of Spanish demonstrate a preference for high attachment.

Now assume that the attested differences in clausal attachment are available within a population, not across languages; the attachment options follow the now-familiar distribution:

- (13) Relative-clause attachment in a population of speakers
- a. shared MGs: both attachment types are allowed by all speakers (preferences may still vary),
 - b. competing MGs: some speakers allow only high attachment, whereas others only allow low attachment,
 - c. partial MGs: some speakers allow both attachment types, while other speakers allow only high/only low attachment.

If we now combine two languages spoken in a community,⁵ the following options can be anticipated:

5. To avoid any connotations with the order of acquisition, I will be referring to them as Language A and Language B, rather than using numbers.

Table 1. Potential distribution of multiple grammars in a bilingual system

Language A	Language B
Shared MGs	Same (shared MGs)
	Partial MGs
	Competing MGs
	Single grammar (MGs eliminated)
Partial MGs	Same (partial MGs)
	Shared MGs
	Competing MGs
	Single grammar (MGs eliminated)
Competing MGs	Same (competing MGs)
	Shared MGs
	Partial MGs
	Single grammar (MGs eliminated)

The interaction between two languages is modulated at least by the age of acquisition of each language, language experience/exposure, and cross-linguistic transfer. I contend that at this juncture, our theories of monolingual and bilingual acquisition do not offer us tools that would allow us to constrain the distribution of multiple grammars in a bilingual population. However, starting with a better understanding of different scenarios is the first step necessary to anticipate some distributions and to rule out others.

In the next section, I turn to attested cases of interaction between two languages in a bilingual system that point toward MGs in the input and that lead to new grammars developed by bilingual learners.

3. Multiple grammars in bilinguals

Having looked at the three different possible MG configurations in monolingual speakers and the consequences of multiple grammars for L1 learners, we now turn our attention to bilingual contexts.

3.1 Patterns of change

The interaction of multiple grammars becomes particularly intriguing in bilingual contexts, where speakers must manage potentially different grammatical analyses

across two languages. Rather than assuming universal simplification in bilingual grammars, we actually find more complex patterns of divergence from the baseline as well as the matching of the baseline patterns.

In theory, when bilinguals encounter multiple grammars in the input, several outcomes are possible; what I refer to as reduction is the simplification case that is commonly assumed for bilingual systems.

1. Reduction: Multiple grammars resolve to a single analysis
2. Redistribution: The type of multiple grammar shifts (e.g., from shared MGs to partial MGs)
3. Matching: The bilingual system matches the MGs in the input (baseline)

In addition, it is also possible to envision expansion whereby a single grammar in the input expands to accommodate multiple analyses in the bilingual system.

Data on bilingual grammars, although not always complete, offers evidence for each of these scenarios.

3.1.1 *Reduction: From multiple grammars to a single grammar*

Consider first how bilinguals sometimes resolve ambiguity in favor of a single analysis. Two revealing cases involve scope interpretation and weak crossover effects.

In scope interpretation, English allows ambiguity in doubly quantified sentences (see also Section 2.1.3 above):

- (14) A soccer player was holding every ball
 Reading 1 (surface scope): One specific player held all balls
 Reading 2 (inverse scope): Each ball was held by a potentially different player

While some monolingual English speakers access both readings, Tsai et al. (2014) and Scontras et al. (2017) found that English-dominant heritage speakers of Mandarin consistently lack the inverse scope reading not only in their heritage Mandarin (which never allows inverse scope) but also in their dominant English. This finding was replicated by Ronai (2018) with Hungarian heritage speakers, suggesting a broader pattern: when one language in a bilingual pair lacks a particular grammatical option, that restriction can extend to the other language — even if it's the dominant one.

These results suggest that at least for doubly quantified sentences, inverse scope is an unstable option that disappears under contact. Particularly intriguing is the fact that the loss of inverse scope is observed both in the stronger and weaker member of the bilingual dyad. That propensity for losing inverse scope may also be related to the fact that only a subset of English speakers exhibit inverse scope in doubly quantified sentences.

It may be tempting to connect the instability of inverse scope in doubly quantified sentences to the additional step in their derivation: quantifier raising (May, 1977; 1985, and much subsequent literature). Simply put, a quantifier phrase is assumed to (covertly) move to a higher position in the structure, leaving behind a trace. This higher position allows it to take wide scope, as in (15).⁶

- (15) [_{TP} every ball_i [_{TP} a soccer player [_{VP} was holding t_i...

This additional step at the level of logical form may make the structure less optimal or harder to process, which would in turn explain its vulnerability. However, it is not always the case that extra steps in derivation cause problems and have to be dispensed with at any cost. In the next section, I will consider another instance of scope ambiguity, one that shows more resilience in bilingual language learning and use.

The second instance of reanalysis from underdetermined input comes from weak crossover (WCO) in restrictive relative clauses. In the context of constituent displacement, ungrammatical or degraded strings can arise when a phrase is dislocated across a coreferential pronoun (hence the term “crossover”). WCO effects are observed when the “crossed-over” pronoun does not c-command (structurally dominate) the base position of the displaced constituent (see Postal, 1971; 1993; Safir, 2017). Consider the environment for WCO (or weakest crossover, per Lasnik and Stowell, 1991) in Russian:⁷

- (16) devočka_i [kotoruju_i ejo roditeli rugajut —_i za ploxie otmetki]
 girl which.F.ACC her parents scold for bad grades
 ‘the girl that her parents chastise for bad grades’

On the surface, (16) has a perfectly grammatical parse, one where ‘the girl’ and ‘her’ are not coreferential. However, only a subset of speakers deem the sentence grammatical if ‘the girl’ and ‘her’ are intended to refer to the same person. So, there appears to be a bimodal distribution of Russian speakers with respect to WCO in restrictive relative clauses (see Polinsky, 2025). That by itself would seem to be indicative of competing MGs, similar to the situation in Korean verb raising. Crucial for the discussion here is the fact that speakers who do not notice WCO effects, in other words, those who accept the coreference between ‘the girl’ and ‘her’ in (16), also accept scrambling out of the relative clause, as in (17). At

6. Irrelevant structure not shown.

7. The restrictive relative clause is shown in brackets. Since there are a number of analyses for relativization (which will be discussed shortly below), I represent the displaced constituent atheoretically as a gap.

the lower end of the bimodal distribution, speakers who detect WCO effects in restrictive relative clauses also reject examples such as (17).⁸

- (17) %**na takie voprosy**_k ja ne znaju ni odnogo čeloveka_i [kotoryj_i—_i by
 on such questions 1SG not know not [one person].GEN which.M.NOM SBJV
 otvetil—_k bez podgotovki]
 answer without preparation
 ‘Such questions, I don’t know a single person that would have answered them
 without special preparation.’

There are a number of analyses of restrictive relative clauses – probably in reflection of the actual range of variation that the structure of such clauses can accommodate. Likewise, there are quite a few analyses of WCO (Lasnik & Stowell, 1991; Safir, 2017), but the correlation between WCO effects and the opacity of relative clauses suggests that Russian speakers entertain different grammars; most likely, speakers who are sensitive to WCO deploy the movement analysis of relative clauses, whereas those who allow coreference in the WCO environments probably have an operator inside the relative clause that unselectively binds a variable and does not render that clause an island.

If we now consider English–Russian bilinguals dominant in Russian, the question arises as to whether that population is going to replicate the bimodal distribution found in the baseline (whose language serves as their learning input). The results show that such bilinguals uniformly allow coreference between the head of the relative clause and the possessive pronoun in examples such as (16), in other words, they do not exhibit WCO effects in restrictive relatives (Polinsky 2025). That means a shift from competing MGs to a single grammar. This shift is even more striking given that WCO effects are clearly found in the English grammar that these speakers possess – depending on the methodology, WCO effects in English restrictive relatives are either distributed bimodally, as in Russian (Polinsky, 2025), or have a uniform distribution for all speakers (Howitt et al., in press).

3.1.2 *Redistribution and matching*

Let us now turn to the scope of negation, in sentences with negation and a quantified expression (Q–Neg below). Consider the following English sentences (from Wu & Ionin, 2022):

8. In (17), the scrambled expression and its base position are shown in bold. Note the case connectivity between the gap in the relative clause and the displaced PP, which suggests scrambling, rather than base-generation of the topic expression *na takie voprosy*.

- (18) a. All the sheep did not jump over the fence.
 b. Every sheep did not jump over the fence.

Both examples are scope-ambiguous in English, as they can either mean that for every sheep, that sheep did not jump over the fence (surface-scope: *all the/every* > NEG) or that it is not the case that every sheep jumped over the fence (inverse-scope: NEG > *all the/every*).

Chen and Huan (2023) investigated the readings of Q–Neg sentences by Chinese–Tibetan bilinguals, all dominant in Chinese. As with doubly quantified sentences, inverse scope is absent from Q–Neg sentences in Chinese (Aoun & Li, 1993; Wu & Ionin, 2022, and references therein; Chen & Huan, 2023). Thus, for monolingual speakers, the Chinese sentences below only have the surface-scope reading:

- (19) a. Suǒyǒu-de yáng dōu méiyǒu tiào guò líbā.
 all-DE sheep all not jump over fence
 ‘All the sheep did not jump over the fence.’
 b. Měi-zhī yáng dōu méiyǒu tiào guò líbā.
 every-CLF sheep all not jump over fence
 ‘Every sheep did not jump over the fence.’ (Wu & Ionin, 2022: 610)

In contrast, Q–Neg sentences in Tibetan consistently receive both surface and inverse readings from baseline speakers, for example,

- (20) dgergan tshangma-s Sendi gi rlangskhor bkol med.
 teacher all-ERG Sandy GEN car use not
 ‘All teachers did not use Sandy’s car.’ (Chen & Huan, 2023: Example (4))
 Reading 1: for every teacher, they did not use Sandy’s car (Surface scope: all > NEG)
 Reading 2: it is not the case that all teachers used Sandy’s car (Inverse scope: NEG > all)
- (21) lug tshangma/rere raba nas mchong med⁹
 sheep all/every fence over jump not
 ‘All the/Every sheep did not jump over the fence.’
 Reading 1: for every sheep, they did not jump over the fence (Surface scope: all/every > NEG)
 Reading 2: it is not the case that every sheep jumped over the fence (Inverse scope: NEG > all/every)

Unlike doubly quantified sentences in English, Tibetan Q–Neg sentences are judged ambiguous by 96% of baseline Tibetan respondents (Chen & Huan, 2023),

9. Example courtesy of Yunchuan Chen.

which suggests the presence of *shared MGs* in this environment. Compared to the baselines, Chinese–Tibetan bilinguals in Chen and Huan’s study fall into three groups of comparable size:

- (22) Chinese–Tibetan bilinguals (based on Chen & Huan, 2023: Table 7)
- a. speakers who maintain rigid scope in Chinese and scope ambiguity in Tibetan;
 - b. speakers who allow inverse scope in both languages;
 - c. speakers who lose scope ambiguity in Tibetan

First of all, just as was the case with the data on doubly quantified sentences, these results are indicative of bidirectional transfer, where the grammar of scope in one language may affect the other member of a bilingual dyad, regardless of dominance. Crucially for this discussion, these findings indicate that bilingualism doesn’t necessarily result in grammatical simplification or streamlining. Rather, the Chinese–Tibetan community undergoes a shift from *shared MGs* to *partial MGs* in their Tibetan (the emergence of group (22c) attests to that), and the shift from a *single grammar* to *partial MGs* in their Chinese, as evidenced by the emergence of group (22b). All told, the Tibetan–Chinese bilinguals are not uniform in their grammar of scope under negation and instantiate both redistribution and matching.

I would like to offer some preliminary considerations as to what may motivate the change. To provide an explanation, let us consider two key analytical elements. First, according to some accounts (e.g., Moscati, 2010), the inverse reading in Q–Neg sentences arises when the negation is raised and adjoined to TP at logical form, as shown below.¹⁰ The structure in (23b) is responsible for the inverse scope in Q–Neg sentences in English or Tibetan.

- (23) a. [_{TP} all the sheep_k [_{T'} did [_{NegP} not [_{VP} t_k [_{VP} jump... (Surface scope: all > NEG)
- b. [_{TP} not_i [_{TP} all the sheep_k [_{T'} did [_{NegP} t_i [_{VP} t_k [_{VP} jump ... (Inverse scope: NEG > all)

Next, for Chinese, it has been proposed that subjects are actually topics and thus appear in an A-bar position (Wu et al., 2018; Wu, 2019) and are possibly coindexed with a null pronominal in the argument position, as shown in (24). The topic status of Chinese ‘subjects’ would explain frozen scope, since topics generally take wide scope (Reinhart, 1982; Vallduví, 1992; Reinhart, 1997; Portner & Yabushita, 2001).

10. But see Wu and Ionin (2022) for an alternative account of inverse scope, based entirely on the position of the QP.

Taking these two analytical elements together, negation in Chinese may adjoin to TP, but that still leaves it below the topic position, (24b), which would account for the absence of inverse scope in Q–Neg sentences in baseline Chinese.

- (24) a. $[_{TopP} \text{“subject”}_i [_{TP} pro_i \dots [_{NegP} \text{not} \dots]]]$ Negation in base position
 b. $[_{TopP} \text{“subject”}_i [_{TP} not_k [_{TP} pro_i \dots [_{NegP} t_k \dots]]]]$ Negation raising at LF

Now, if the Chinese topic is reinterpreted as an A-constituent (which may happen either under the influence of another language or under general economy principles), then the topic position is not filled. In the resulting smaller structure, inverse scope becomes possible:

- (25) $[_{TP} not_i [_{TP} \text{subject} [_{NegP} t_i [_{vP} \dots]]]]$

If these analytical pieces hold water, we can now account for the emergence of group (22b) by reanalysis of Chinese topic as a regular subject in an argument position. Whether this happens under the influence of Tibetan or based on general principles of economy is hard to tell. In a similar vein, general principles of economy or cross-linguistic influence may be responsible for the emergence of group (22c), which simply does not allow the raising of negation to TP.

Both analytical components introduced here (negation raising and subject-as-topic in baseline Chinese) offer a principled explanation as to why multiple grammars may arise in Q–Neg sentences. The mechanisms at play are well-defined, and we are examining localized linguistic changes rather than more nebulous cross-linguistic influences.

3.2 Multiple grammars under bilingualism

The preceding section presented empirical evidence for multiple grammars in bilingual speakers, based on data from a particular environment: scope interactions within a clause. These results yield several key insights: First, they offer another confirmation that multiple grammatical analyses of a particular string are reliably available, thus adding to the growing body of data on multiple grammars in linguistic populations. Second, they show that multiple grammars may but do not necessarily have to go away under bilingualism; despite the need to maintain two grammars, bilingual speakers do not have to give up multiple analyses of strings. In other words, bilingualism does not lead to universal simplification across the board – a seemingly obvious yet crucial point to reiterate. Third, this data provides empirical support for several shift scenarios with respect to multiple grammars, including those where the scope of multiple grammars expands rather than shrinks:

Table 2. Shift from input in bilingual contexts

Type of shift	Illustrative instances
Multiple grammars in the input > single grammar under bilingualism	Scope interactions in doubly quantified sentences (English as the dominant or weaker language in a bilingual dyad)
Single grammar in the input > multiple grammars under bilingualism	Q–Neg environment in Chinese
Shift in the type of multiple grammar distributions	From shared MGs to partial MGs in Q–Neg environment (bilingual Tibetan speakers)

In certain bilingual environments, while baseline data may be absent, we can still document systematic linguistic variation. As an example, consider the phenomenon of optional number agreement in Santiago Tzutujil, a minoritized Mayan language documented in Fried et al. (2020), Levin et al. (2020), and Lyskawa and Ranero (2022). Santiago Tzutujil speakers are all bilingual, using Spanish alongside Tzutujil, and although the demographic numbers of the Tzutujil are stable and even growing, Spanish is rapidly replacing Tzutujil for many speakers (consider some discussion in Barrett, 2016).

In Santiago Tzutujil, verbs agree with ergatives and absolutes in person and number. The relevant generalization is that number agreement with complements (as opposed to specifiers) differs across a number of environments and also varies with respect to the animacy of the complement. Consider optional agreement with the plural complement ‘wolves’ in the following example (glosses modified from the original):

- (26) a. Ya Mriiy x–i–ru–tzu’ i–uxi’ utiw–a.
 CLF Maria COM–3PL.ABS–3SG.ERG–see PL–three wolf–PL
 b. Ya Mriiy x–Ø–ru–tzu’ i–uxi’ utiw–a.
 CLF Maria COM–Ø–3SG.ERG–see PL–three wolf–PL
 ‘Maria saw three wolves.’ (Lyskawa & Ranero, 2022: Example (20))

A detailed analysis of the grammar of agreement is presented in the papers cited; for our purposes, it is important that the authors find micro-variation among their three consultants, who happen to be sisters living in the same household, a striking fact on its own. In particular, one of the sisters (Andrea) has obligatory number agreement with any argument of a nominalized verb (which appear in auxiliary constructions), whereas the other two sisters (Andréina and Rosalía) only show obligatory agreement with animate arguments. Therefore, agreement with inanimate arguments of nominalized verbs is subject to apparent variation (glosses modified from the original):

- (27) a. Andrea's variety
Anen nu-mjuon ki-kon-x-ik i-k'e' nu-mees.
1SG 1SG.POSS.AUX 3PL.POSS-search-PASS.NMLZ PL-two 1SG.POSS-table
- b. Andreína and Rosalía's variety
Anen nu-mjuon r-kon-x-ik i-k'e' nu-mees.
1SG 1SG.POSS.AUX 3SG.POSS-search-PASS.NMLZ PL-two 1SG.POSS-table
'I am looking for my two tables.' (Lyskawa & Ranero, 2022: Example (68))

In a similar vein, Andrea has optional number agreement with the internal argument of existential predicates regardless of animacy, whereas her sisters require such agreement when the existential argument is animate and do not allow it when it is inanimate (Lyskawa & Ranero, 2022: Example (96)).

The sisters are all bilingual in Tzutujil and Spanish, so the microvariation in internal-argument agreement presents a case of competing MGs in bilingual contexts.

Without knowing the starting point, we're faced with a situation similar to comparative linguistics, where we need to work backwards from the observed variations to try to reconstruct a possible common origin or input.

Other examples of multiple grammars in bilingual systems include subject-verb inversion in English-Spanish bilinguals (Cuza, 2016); gender categorization in English-Russian (Polinsky, 2008), or relative clause attachment in Spanish-English bilinguals during online processing (Fernández, 2002; 2003). This preliminary list is not exhaustive; by presenting it here, I hope to draw attention to the broader phenomenon of multiple grammars.

The range of empirical instances concerning multiple grammars in the bilingual context is too small to make definitive conclusions, but general principles suggest that partial multiple grammars may be especially susceptible to instability.

4. Theoretical implications and broader considerations

We now turn to an examination of some theoretical implications of the MG framework, as well as some broader implications.

4.1 Predicting environments for multiple grammars

Moving beyond individual examples to develop predictive principles represents a key challenge in the study of multiple grammars. Several linguistic environments consistently give rise to multiple grammatical analyses, allowing us to predict where such variation is likely to emerge.

A particularly fertile area for multiple analyses involves structures with silent elements. These include null pronouns, empty categories in movement chains, and deleted copies. Consider Japanese null subjects, which allow competing analyses: they can be analyzed either as null pronouns or as variables bound by a null topic. The analytical ambiguity arises precisely because the crucial element is silent, making the choice between analyses opaque in the surface form.

Long-distance dependencies represent another environment conducive to multiple analyses. These dependencies, found in relative clauses, scope interactions, and complex agreement patterns, often permit different analytical possibilities because the relationship between the dependent elements isn't locally determined. Relative clauses prove particularly revealing in this regard. Their cross-linguistic variation suggests at least four possible analyses: head-raising, where the head noun originates inside the relative clause; matching, which posits two instances of the head noun; operator movement to the clause periphery; and unselective binding without movement. The availability of these different analyses across languages suggests that multiple analyses might coexist within a single language.

Acquisition patterns provide another window into environments likely to host multiple grammars. Structures that show systematic delays or difficulty in first language acquisition often correlate with multiple grammar environments. Rhetorical questions, whose meaning does not map into a single encoding pattern, offer an illuminating Example (Tsimpili, 2014; Ferin et al., 2024). Consider:

(28) Who doesn't like chocolate?

This question allows both an information-seeking reading and a rhetorical interpretation suggesting that everyone likes chocolate. The late acquisition of rhetorical readings (typically after age 8) reflects the complex integration of syntactic, semantic, and pragmatic cues — precisely the kind of environment where multiple analyses can persist into adult grammar.

4.2 Multiple grammars and gradience

The relationship between multiple grammars and gradient acceptability judgments raises fundamental questions about the nature of grammatical knowledge. Consider the varying acceptability of English reflexives:

- (29) a. John criticized himself.
 b. John saw a picture of himself.
 c. *John believes that Mary criticized himself.

While (29a) receives consistent acceptance and (29c) consistent rejection, (29b) shows varying degrees of acceptance across speakers. Rather than viewing such gradience as undermining categorical grammar, we can understand it through the interaction of distinct factors.

Methodological considerations such as task effects, processing complexity, and memory constraints constitute one source of gradience. Grammar competition presents another: different analyses may show different degrees of accessibility, and competing grammatical systems may interact in complex ways. Extra-grammatical influences including processing costs, interface conditions, and discourse factors form a third source of gradient judgments.

Following Hornstein (2013; 2024), we can distinguish between acceptability (A) and grammaticality (G), yielding four possible combinations: structures that are both acceptable and grammatical (+A/+G); structures that are neither (−A/−G); grammatical illusions that are accepted despite being ungrammatical (+A/−G), and grammatical structures rejected due to processing difficulties (−A/+G). This framework helps us understand how categorical grammatical distinctions can give rise to gradient judgments, particularly in multiple grammar contexts.

4.3 Acquisition and learning mechanisms

Understanding how learners navigate multiple grammatical possibilities requires considering both external factors and internal mechanisms. Education, literacy effects, and sociolinguistic influences clearly play a role in shaping grammatical knowledge. Similarly, input quantity and quality affect which grammatical options learners acquire. However, internal factors including processing systems and metalinguistic capacities also crucially shape the learning process.

Rather than viewing these as competing explanations, we can understand them as complementary factors in a complex learning system. The initial state provides UG-constrained analytical possibilities, which learners evaluate against input filtered through processing constraints. Grammar construction involves integrating multiple cues, while stabilization reflects the influence of external factors.

The bilingual context adds additional layers of complexity to this learning process. Reduced exposure per language, cross-linguistic influence, and variable input quality all affect how multiple grammars develop in bilingual systems. Processing considerations become particularly crucial: bilinguals must manage resource allocation across languages, handle competition between systems, and coordinate interface phenomena. Environmental influences including societal support for bilingualism, educational context, and language prestige further shape the outcome.

4.4 Implications for language change

The multiple grammars framework offers fresh insights into language change. Competition between grammatical variants can drive both gradual shifts in distribution patterns and sudden reorganizations of grammatical systems. Bilingual effects may accelerate change through cross-linguistic influence, fostering novel grammatical combinations while sometimes reinforcing existing patterns through cross-linguistic support.

This perspective helps identify potentially vulnerable structures and predict likely trajectories of change. Multiple grammar competition often precedes resolution to new stable states, suggesting that periods of variation represent not mere noise but structured competition between grammatical systems. Understanding these patterns enhances our ability to model variation and predict language change trajectories. Another salutary result of this approach has to do with a different perspective on the relationship between synchronic variation and diachronic change. Rather than seeing variation as a challenge to grammatical theory, we can understand it as a natural consequence of multiple grammatical possibilities inherent in language systems. This perspective provides new tools for understanding both the persistence of variation and the pathways of grammatical change.

5. Conclusions and future directions

The investigation of multiple grammars presented in this paper reveals fundamental properties of linguistic knowledge and its organization in both monolingual and bilingual contexts. Rather than being a marginal phenomenon, structural ambiguity – the existence of multiple grammatical analyses for similar surface forms – emerges as a core property of natural language. These multiple analyses manifest in principled ways, correlating with other grammatical properties and showing systematic distribution patterns across speaker populations.

The framework developed here identifies three primary distributions of multiple grammars, each illustrated by clear empirical cases. In *shared MGs*, all speakers access multiple analyses, as was the case with British English pluringu-lars. *Competing MGs* arise when different speakers maintain different analyses, exemplified by Korean verb raising patterns. And finally, *partial MGs* occur when some speakers access multiple analyses while others maintain a single analysis, as seen in English scope interpretation. These patterns suggest that variation in grammatical analysis follows systematic principles rather than occurring randomly.

Bilingual contexts prove particularly revealing for understanding multiple grammar organization. Contrary to assumptions of universal simplification, bilingual speakers show complex patterns of grammatical organization. Some cases show reduction to single grammars, as in heritage speaker scope interpretation. Others demonstrate expansion to new grammatical possibilities, illustrated by the Chinese–Tibetan scope patterns. Still others reveal redistribution of multiple grammar types, as in Santiago Tzutujil agreement patterns. These varied outcomes suggest that bilingualism influences grammatical organization in sophisticated ways that go beyond simple reduction or transfer.

The implications of this framework extend across several domains of linguistic theory. For language acquisition, it suggests that learners must navigate underdetermined input using both internal mechanisms and external cues. The acquisition process involves not just parameter setting but also the organization of competing analyses. This perspective helps explain why some grammatical properties show systematic variation while others remain stable across speakers.

Processing considerations also gain new light from this framework. Multiple grammatical analyses can coexist without causing processing breakdown, though processing constraints may influence which analyses speakers access more readily. The framework helps explain how gradient acceptability judgments can emerge from categorical grammatical distinctions, resolving an apparent tension in linguistic data.

For theories of language change, multiple grammars offer a new way to understand transitional stages. Rather than seeing variation as noise in the system, we can understand it as structured competition between grammatical analyses. This perspective helps explain both gradual shifts in usage patterns and apparently sudden reorganizations of grammatical systems. Bilingual contexts may accelerate these changes by introducing new possibilities for grammatical organization.

These theoretical insights suggest several promising directions for future research. Formal modeling of multiple grammar competition could help predict stable and unstable configurations in grammatical systems. Longitudinal studies of grammar development could reveal how multiple analyses emerge and stabilize in both monolingual and bilingual contexts. Cross-linguistic comparison of multiple grammar patterns might uncover universal principles governing their distribution.

The multiple-grammar framework also has practical implications for language teaching and policy. Understanding systematic variation can help teachers anticipate and address learning challenges. Recognition of principled variation supports policies that acknowledge and preserve linguistic diversity. The framework provides tools for understanding how languages change under contact conditions, informing heritage language maintenance efforts.

Computational modeling offers another promising avenue for future work. Simulation of multiple-grammar competition could help identify conditions that promote stability versus change. Models of acquisition paths might predict which grammatical configurations prove stable in different learning contexts (see Lau et al., 2017 for some discussion for such contexts). Such modeling could also help predict outcomes of language contact situations.

The broader impact of this research extends beyond analytical linguistics. By showing how apparent optionality often masks systematic grammatical variation, it provides new tools for understanding language diversity. The framework proves particularly valuable for understanding bilingual competence, showing how speakers can maintain and reorganize multiple grammatical systems in principled ways.

For practical applications, this research suggests new approaches to language assessment and teaching. Rather than treating variation as error, teachers and assessors might better recognize systematic patterns in learner grammars. This perspective particularly benefits heritage language education, where learners often show systematic differences from baseline varieties.

Looking ahead, several key questions merit further investigation. How do processing constraints interact with grammatical possibilities to shape the analyses accessible to the speakers? What determines the stability of different multiple grammar configurations in bilingual contexts? How do social and cognitive factors interact to influence grammar competition and change? These questions suggest rich territory for future research.

In conclusion, this investigation demonstrates that apparent optionality in language often reflects systematic grammatical variation. The multiple grammars framework provides tools for understanding this variation while maintaining precise grammatical analysis. This approach opens new avenues for research while providing practical insights for language teaching and policy. Rather than viewing variation as a challenge to linguistic theory, we can now understand it as a window into the organization of grammatical knowledge.

Funding

This work was supported in part by NSF grants BCS-1941733 and BCS-2116344.

Data availability

The data supporting the findings of this study are drawn from published work which is referenced throughout the article.

Acknowledgements

For helpful comments on this paper, I am indebted to Yunchuan Chen, Tanja Kupisch, Oksana Laleko, Tom Roeper, and audiences at the Universities of Wuppertal, Heidelberg, York, and the conference Heritage Languages Across the World-2 at University of Massachusetts, Amherst. All errors are my responsibility.

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Publication history

Date received: 10 August 2024

Date accepted: 19 March 2025

Published online: 4 July 2025