

# A Three-Dimensional Independent Framework for the Number Category of English Nouns: Theoretical Construction, Justification and Pedagogical Implications

Wei Shi

2026-07-01

ChinaRxiv

---

View the original and related papers at  
<https://chinaxiv.org/items/chinaxiv-202606.00243>

Source: ChinaXiv. Machine translation. Verify with the original.

## Abstract

Traditional English grammar conflates the construal of countability, morphological form, and subject-verb agreement in nouns, resulting in numerous “exceptions” that are difficult to explain systematically. Based on Cognitive Grammar, this paper proposes a three-dimensional independent framework. The three dimensions each have clear operational definitions: countability (whether a noun can combine directly with cardinal numerals), morphological form (whether the word form bears a plural marker), and subject-verb agreement construal (whether the verb form reflects the speaker’s quantity construal, with the values “singular construal/plural construal”). The binary values of the three dimensions can freely combine into 8 logical types, and all 8 types are attested in English. For morphologically ambiguous nouns ending in -s/-es, the framework further introduces a mechanism of “reanalysis,” bringing variations in words such as measles and series into a unified systematic explanation. This framework reduces traditional “exceptions” to normal combinations within the system, provides a unified analytical perspective for the study of the English category of number, and offers a directly applicable classification tool for teaching, with the potential to reduce learners’ cognitive burden. This paper also discusses the cognitive motivation of the framework and its connections with existing theories.

## Full Text

# A Three-Dimensional Independent Framework for the Number Category of English Nouns: Theoretical Construction, Justification and Pedagogical Implications

Wei Shi

(School of Foreign Languages, Jingdezhen University, Jingdezhen 333400)

**Abstract:** Traditional English grammar conflates the countability of nouns, their morphological form, and subject-verb concord construal, resulting in numerous “exceptions” that are difficult to explain systematically. Drawing on cognitive grammar, this paper proposes a three-dimensional independent framework. Each of the three dimensions has a clear operational definition: countability (whether a noun can directly combine with a cardinal numeral), morphological form (whether the word form carries a plural marker), and subject-verb concord construal (the predicate verb form reflects the speaker’s quantity construal, taking the value “singular construal/plural construal”). The binary values of the three dimensions can freely combine into eight logical types, and all eight are attested in English. For morphologically ambiguous nouns ending in -s/-es, the framework further introduces a “reanalysis” mechanism, bringing

the variations of words such as *measles* and *series* into a unified systematic account. By reducing traditional “exceptions” to normal combinations within the system, this framework provides a unified analytical perspective for the study of the English number category and offers a directly applicable classification tool for teaching, with the prospect of reducing learners’ cognitive burden. The paper also discusses the cognitive grounding of the framework and its connections with existing theories.

**Keywords:** countability; morphological form; subject-verb concord construal; singular/plural construal; cognitive grammar; morphological reanalysis; morphological ambiguity; English teaching

**Classification numbers:** H314; H04; H319.3

## A Three-Dimensional Independent Framework for the Number Category of English Nouns: Theoretical Construction, Justification and Pedagogical Implications

Wei SHI (E-mail: 20031@jdzu.edu.cn)

(School of Foreign Languages, Jingdezhen University, Jingdezhen 333400, China)

**Abstract:** Traditional English grammar conflates countability, morphological form, and subject-verb concord construal, making numerous “exceptions” resistant to systematic explanation. Drawing on cognitive grammar, this paper proposes a three-dimensional independent framework. Each dimension is given a clear operational definition: countability (whether a noun can be directly combined with a cardinal numeral), morphological form (whether the word form carries a plural marker), and subject-verb concord construal (the predicate verb form reflects the speaker’s quantity construal, taking the value “singular construal” or “plural construal”). The binary values of these three dimensions freely combine into eight logical types, all of which are attested in English. For morphologically ambiguous nouns ending in *-s/-es*, the framework further introduces a “reanalysis” mechanism, bringing the variations of words like *measles* and *series* into a unified systematic account. By reducing traditional “exceptions” to normal combinations within the system, this framework provides a unified analytical perspective for the study of the English number category and a practical classification tool for teaching, with the potential to lighten learners’ cognitive load. The paper also discusses the cognitive grounding of the framework and its relation to existing theories.

**Keywords:** countability; morphological form; subject-verb concord construal; singular/plural construal; cognitive grammar; morphological reanalysis; morphological ambiguity; English teaching

## 1. Introduction

The “number” of English nouns is a foundational topic in grammar teaching and a persistent difficulty for learners. Traditional grammar usually divides nouns into count and noncount nouns, and holds that count nouns have singular and plural forms whereas noncount nouns do not. Yet English contains many phenomena that cannot be neatly accommodated within this mixed-dimensional framework. For example, *police* is singular in form (with no *-s*), but takes plural agreement and one cannot say *a police*; *measles* ends in *-s*, and may take either singular or plural agreement (*Measles is/are...*); *a series* can take *a* and takes singular agreement, but its form ends in *-es*.

A sharper problem is that the traditional framework is even unable to explain the basic difference between *people* and *police*:

- (1) a. three people   b. a people (a nation)   c. People are coming.
- (2) a. three police   b. a police   c. Police are coming.

Although both are singular in form and both trigger plural agreement, the contrast between (1a-b) and (2a-b) reveals an unavoidable fact: the syntactic behavior of these two words differs systematically—*people* can freely combine with numerals, whereas *police* absolutely cannot. Traditional grammar treats the above phenomena separately as different categories such as “plural nouns,” “singular-meaning nouns,” “nouns with identical singular and plural forms,” and “special cases allowing both,” requiring learners to memorize them one by one.

This paper proposes a three-dimensional independent framework, in which the three dimensions of countability, morphological form, and subject-verb agreement construal are defined and fully decoupled. This framework can: first, reduce all traditional exceptions to normal combinations within the system or to natural results of morphological reanalysis; second, provide a unified classification tool for teaching the English number domain; and third, connect with the theory of “construal” in cognitive grammar and the concept of “reanalysis” in historical linguistics, thereby explaining the cognitive motivations and diachronic evolution of these combinations.

The structure of this paper is as follows: Section 2 reviews the relevant literature; Section 3 proposes the three-dimensional independent framework and its operational definitions, and presents eight logical combinations and English examples; Section 4 responds to possible objections; Section 5 discusses the theoretical foundation and pedagogical significance of the framework; and Section 6 concludes.

## 2. Literature Review

### 2.1 The Static Classification of Traditional Grammar and Its Difficulties

Traditional English grammar usually divides nouns into proper nouns and common nouns, and further divides the latter into individual nouns, collective nouns, material nouns, and abstract nouns (Quirk et al. (1985), Zhang Daozhen (2002)). Within this framework, countability is regarded as an inherent property of nouns: individual nouns and some collective nouns are countable, while proper nouns, material nouns, abstract nouns, and another subset of collective nouns are non-count.

This static classification faces three difficulties. First, the same noun may display different countability in different contexts, which can only be simply explained as “one word belonging to multiple classes.” Taking *egg* as an example, in “some egg” and “ten eggs,” the same word exhibits a contrast between non-count and count uses. Second, mismatches between morphological form and subject-verb agreement cannot be explained in a unified way—*police* (singular form, plural agreement), *economics* (ending in *-ics*, singular agreement), and *series* (ending in *-es*, taking singular agreement but permitting *a*) are treated separately in different chapters. Third, independent combinations among the three dimensions of countability, morphological form, and subject-verb agreement construal cannot be described.

### 2.2 A Cognitive-Linguistic Perspective: Construal, Conversion, and Reanalysis

Langacker (1987, 1991, 2008) fundamentally redefined the issue of countability. He points out that nouns designate “things,” and that the count/non-count distinction is not an inherent property of nouns, but rather the result of how speakers “construe” the thing in question. Langacker (1991: 72) states explicitly: “In appropriate contexts, almost any count noun can be construed as designating a homogeneous, unbounded substance, and thus be used grammatically as a mass noun.” On this basis, Yin Yaqin (2011) argues: “Countability is in fact restricted only to the boundedness of nouns in the domain of instantiation; a shift of domain can carve out a mass noun within the boundary of a count noun.” The key point of this idea is that countability is the result of a cognitive operation rather than a fixed label attached to nouns.

Talmy (1988, 2000), from the perspective of structural configuration, distinguishes “plexity” from traditional “number.” Chen Daoming’s (2011) study finds that many Chinese learners of English confuse singular and plural usage precisely because they mistakenly equate Talmy’s “plexity” with “number” in traditional linguistics.

“Reanalysis” is a core mechanism of shared concern in historical linguistics and cognitive linguistics. Langacker (1977) defines reanalysis as “a change in the

internal boundaries or grammatical relations of a structure without altering its surface form.” Hopper and Traugott (2003) further distinguish between “form reanalysis” and “function reanalysis”: the former involves the redrawing of morphological boundaries or syntactic structures, whereas the latter involves the reinterpretation of grammatical functions. In the domain of number categories examined in this study, reanalysis is manifested as follows: speakers reidentify an ending that does not originally function as a plural marker as a plural marker (or carry out the reverse operation), thereby changing the value assigned to the noun under subject-verb agreement.

### 2.3 Agreement Theory and Empirical Research in Pedagogy

Kim & Michaelis (2020), in *Syntactic Constructions in English*, propose a “hybrid agreement framework” that distinguishes morphosyntactic agreement features from semantic index features and is able to analyze mismatches such as *police* and *economics*. Harbour (2008), in *Morphosemantic Number*, proposes a unified theory of morphosemantic number, whose central claim is that the same set of features simultaneously participates in the realization of semantic and morphological number.

With respect to empirical pedagogy, Naumoska’s (2020) study of English majors at Ss. Cyril and Methodius University in Skopje found that, after instruction in the concept of “semantic number,” most students showed a significant increase in confidence in English communication. The key finding was that once students understood that “semantic nominal plural reference is not always equivalent to morphological plural or agreement plural,” their error rates declined. Domestic studies by Cao Yi (2024) and Xiao Yu and Gong Weidong (2023) also provide relevant empirical evidence.

### 2.4 Contributions and Limitations of Existing Research

The contributions of existing research are as follows: at the theoretical level, Langacker and Talmy reveal the construal-based nature of countability, while Kim & Michaelis and Harbour demonstrate the independence of morphological number and semantic number; at the pedagogical level, Naumoska and others confirm the effectiveness of dimension-based instruction.

Although existing studies have noticed the separation between morphological number and semantic number—for example, Huddleston and Pullum’s (2002) distinction between nominal number features and agreement relations—they have never incorporated “countability,” as an independent syntactic dimension on a par with the two, into a systematic classificatory framework. The specific limitations are: (1) the dimensional system is incomplete—existing research mostly distinguishes only the two dimensions of morphological number and semantic number, and has not incorporated “countability,” as an independent dimension parallel to morphological number and semantic number, into the system; (2) the classification is not systematic—theoretical results have not been transformed

into tools that can be directly used in teaching; and (3) theory and practice are disconnected—pedagogical practice still uses traditional classifications that mix different dimensions.

This study aims to fill this gap.

### 3. Three-Dimensional Independent Framework

This study proposes three fully independent dimensions, each with its own independent operational definition.

#### 3.1 Dimension 1: Countability

The operational definition of countability is as follows: test whether a given combination is grammatical by adding a numeral before the noun—including an indefinite article *a/an* or *one, two, three*, etc. If it is grammatical, the noun—or the usage in question—is countable; if not, it is uncountable. *a/an* and *one, two, three* share the syntactic function of “individualized counting,” and are therefore included in the same test set. “Direct combination” means that the noun can combine with a cardinal numeral without the mediation of a quantifier or unit word, thereby excluding cases of indirect counting such as *three pieces of furniture*.

This definition excludes interference from morphology and semantics, and focuses only on the noun’s ability to combine directly with numerals. For example, *car* can occur as *a car, one car, three cars*, and is countable; *water* cannot occur as *a water, one water* in its ordinary use, and is uncountable; *series* can occur as *a series*, and is also countable. The crucial diagnostic contrast lies between *people*—which can occur as *three people* and is countable—and *police*—which cannot occur as *three police* and is uncountable. The two are completely identical in morphological form and in the interpretation of subject-verb agreement, yet they stand in opposition with respect to countability (see § 3.4). This minimal contrast directly shows that countability cannot be derived from morphological form or from the interpretation of subject-verb agreement; it must be tested as an independent dimension. Here, “countability” is strictly defined as a syntactic property—whether the noun can directly enter the “Num + N” syntactic slot—rather than as a cognitive semantic property of “whether it can be counted.” Semantically, *police* may refer to a countable set of individuals, but under the syntactic definition adopted in this framework it is uncountable.

#### 3.2 Dimension 2: Morphological Form

The operational definition of morphological form is as follows: determine whether the noun form bears a plural marker. Morphological form considers only inflectional morphological marking within the same lexeme, including regular *-s/-es* suffixes, vowel alternations such as *man→men*, and suffixal inflection such as *child→children*; it does not include suppletive forms, such

as *people* as the suppletive replacement for *person*. Suppletion belongs to lexeme-level lexical replacement and does not fall within the scope of morphological inflectional paradigms; therefore, the form *people* has no inflectional plural marker and is judged to be a “singular form.” A word form with a plural marker is a plural form; a word form without a plural marker—that is, with zero marking—is a singular form. This dimension can be cross-validated through a demonstrative-agreement test (*this series* / *these series*, *this data* / *these data*): the singular/plural choice of the demonstrative is independent of the predicate verb and directly reflects the speaker’s analytical pathway for the noun’s morphology, avoiding circular dependence on evidence from subject-verb agreement. For concision, the tables below, where necessary, use “singular/plural” as shorthand for “singular form/plural form”; the two expressions are fully equivalent.

Understanding the definition of morphological form requires understanding morphological ambiguity. Traditional grammar groups *series* together with *sheep* as “invariant in singular and plural,” but there is an essential difference between the two: *sheep* contains no element homophonous with a plural marker, and its “singular-plural identity” is morphological neutrality; *series* ends in *-es*, and the ending is homophonous with the regular plural marker, so its “singular-plural identity” is morphological ambiguity. The *OED* (2nd ed., v. 4.0, 2009, *series*, n.) marks its plural form as *series* unchanged, or the rare *serieses*; its etymology from Latin *series* proves that its final *-es* is not an English regular plural marker, but is merely morphologically homophonous with one.

It is necessary to distinguish morphological neutrality from morphological ambiguity. The dimension of “morphological form” is based precisely on the synchronic morphology of the word form: word forms bearing plural suffixes such as *-s/-es* are called “plural forms,” that is, without relying on that word form’s [[unclear: continuation beyond the visible page]]

the meaning expressed is singular or plural. Compare the two groups of medical nouns ending in *-s* (see Table 1).

**Table 1: Differences in subject-verb agreement among medical nouns ending in *-s***

|                        | Group A (singular<br>construal only)                              | Group B<br>(singular/plural<br>construal both possible)           |
|------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
| Examples               | <i>arthritis, bronchitis,<br/>diabetes</i>                        | <i>measles, rickets, mumps</i>                                    |
| Morphological features | Ends in <i>-s</i> ; no<br>corresponding form<br>without <i>-s</i> | Ends in <i>-s</i> ; no<br>corresponding form<br>without <i>-s</i> |



|                        | Group A (singular<br>construal only)  | Group B<br>(singular/plural<br>construal both possible)   |
|------------------------|---------------------------------------|-----------------------------------------------------------|
| Subject-verb agreement | A singular predicate is<br>obligatory | Either a singular or a<br>plural predicate is<br>possible |

For Group A words, the *-s* is an indivisible component of the stem: there are no corresponding forms such as *arthriti*. Speakers therefore clearly identify it as part of the stem itself; accordingly, the morphological form is judged to be singular, and subject-verb agreement obligatorily takes the singular construal.

The situation with Group B words is different. They likewise end in *-s* and have no corresponding morphological counterpart, but their subject-verb agreement permits both singular and plural construals. Behind this variation lie two facilitating factors: a plural semantic association (the diseases denoted by Group B words have a “multiple-occurrence” feature) and morphological ambiguity in form (the final *-s* is homophonous with the regular plural marker). This makes it possible for speakers to carry out two alternative analyses of the same suffix: they may treat it as part of the stem (with the morphological form taken as singular and agreement taking the singular construal), or reanalyze it as a plural marker (with the morphological form taken as plural and agreement taking the plural construal). Formal homophony is a necessary condition, while semantic association is a facilitating condition. When *-s* is identified as part of the stem, the word is singular in form and takes the singular construal (*Measles is a serious disease*); when *-s* is reanalyzed as a plural marker, the word is plural in form and takes the plural construal (*Measles are spreading rapidly*).

From a diachronic perspective, the subject-verb agreement usage of disease nouns ending in *-s* (such as *measles*) has undergone an evolution from singular construal to the availability of both singular and plural construals. This trajectory accords with the typical path by which morphological reanalysis develops from ad hoc variation into conventionalization.

The principle for handling this framework is as follows: for lexical items with morphological ambiguity—that is, words whose form contains an element homophonous with the plural marker and that lack a singular/plural morphological counterpart—the value of their morphological form is not fixed, but is determined in specific contexts by the speaker’s path of reanalysis. Contextual factors—including syntactic environment (for example, the indefinite article *a* enforcing a singular interpretation, and cardinal numerals enforcing a plural interpretation) and pragmatic factors (such as register)—can all influence the direction of reanalysis.

The relative weights of the three conditions can be refined into the following principles: when the stem semantics does not provide a strong numerical association,

the coercive force of the syntactic environment guides morphological analysis (as in the difference between *series* in *a series* and in *two series*, where the article or numeral imposes the interpretation); when the stem semantics already contains a plural conceptual basis, semantic association and morphological reanalysis mutually reinforce one another (for example, the multiple-occurrence semantics of *measles* provides a conceptual motivation for reanalyzing *-s*). Reanalysis does not apply without constraints; its occurrence is also constrained by factors such as word frequency, morphological transparency, and the mode of conceptualization (see §4.1). Cross-validation can be achieved through a demonstrative-pronoun agreement test: when *this series* and *these series* can occur freely, this proves that speakers' morphological analysis of the word form is ambiguous—providing independent evidence beyond predicate verbs and avoiding a circularity of “observing and thereby explaining.”

### 3.3 Dimension Three: Subject-Verb Agreement Construal (Concord Construal)

The operational definition of subject-verb agreement construal is: through substituting the predicate-verb form used when the noun serves as subject

(singular or plural), one observes the speaker's quantitative construal. For concision, in the tables below and in places requiring extreme brevity, “agreement construal” is used as an abbreviation for “subject-verb agreement construal”; the two are fully equivalent. The test must exclude syntactic interference such as inversion and proximity agreement, and should adopt the typical declarative word order “subject + predicate.” The predicate form is the speaker's explicit indication of the numerical property of the subject noun: according to the speaker's communicative intention, the entity denoted by the subject is construed as either a single whole or multiple individuals, and this construal is externalized through the singular or plural form of the predicate verb. If the predicate is singular, a singular construal is taken (abbreviated as “singular construal”), meaning that the speaker construes the subject as one whole; if the predicate is plural, a plural construal is taken (abbreviated as “plural construal”), meaning that the speaker construes the subject as multiple individuals. For example, *The police are coming* is a plural construal, construing the police as multiple individuals; *Economics is my major* is a singular construal, construing the discipline as a single field of knowledge.

It is worth further pointing out that the distinction between “singular construal/plural construal” appears not only in affirmative existential contexts; it also plays a crucial cognitive role in zero-quantity (negative existential) contexts. The following presents this distinction in three progressive steps.

First, a truth-conditional equivalence comparison. *There is no book in the library* and *There are no books in the library* are truth-conditionally equivalent at the level of first-order logic—the number of books in the library is zero in both cases. Yet native speakers generally perceive a significant pragmatic difference:

the former carries an anomalous implication of “category absence,” as if the library’s hardware facilities and classification system were all complete, with only the category “book” itself missing; the latter merely states, in a neutral way, a temporary state in which the quantity is zero, suggesting, for instance, that the books have not yet been shelved. This difference shows that construal is an independent cognitive motivation rather than a by-product attached to morphological form. *No* + singular count noun is a marked usage, and its pragmatic effect of “category absence” is precisely a manifestation of that markedness.

Second, verification through anaphoric coreference. If an anaphoric clause is added after each comparative sentence—*There is no book in the library, but it will arrive soon* and *There are no books in the library, but they will arrive soon*—the singular construal *no book* can only pair with *it*, while the plural construal *no books* can only pair with *they*. The obligatory matching of the anaphoric pronoun further confirms the construal difference: the speaker construes *book* as a categorical domain (singular construal), the predicate *is* explicitly indicates this holistic cognition, and the subsequent *it* obligatorily continues this singular construal; the speaker construes *books* as replicable discrete individuals (plural construal), the predicate *are* explicitly indicates this plurality-based cognition, and the subsequent *they* obligatorily continues this plural construal.

Third, a mismatch-adaptation test. If the subsequent clauses are exchanged—*There is no book in the library, but they will arrive soon* and *There are no books in the library, but it will arrive soon*—the mismatch between the anaphoric pronoun and the antecedent’s construal triggers conspicuous grammatical infelicity: the singular construal of *no book* (“category absence”) conflicts with the plural reference of *they* (multiple individuals), and the plural construal of *no books* (zero individuals) conflicts with the singular reference of *it* (a whole). This infelicity is not a vague preference in linguistic intuition, but a rigid rupture in cross-sentential anaphoric agreement. It proves that the singular/plural construal distinction is not merely a local matching of the predicate verb within a single sentence, but an independent grammatical property with discourse-level cascading constraints. The same real-world state can be “framed” by two different construal modes, and jointly externalized through the singular/plural form of the predicate verb and the cross-sentential choice of anaphoric pronoun—this is direct evidence for the cognitive reality of “subject-verb agreement construal” as an independent dimension.

The construal differences described above are currently based on native-speaker introspective judgments and the rigid constraints of cross-sentential anaphoric agreement. Their objective distributional characteristics—such as the collocational preferences of *no book* and *no books* across different predicate types and choices of anaphoric pronoun—await further verification through corpus linguistics and anaphora-resolution experiments.

Similar construal-driven differences also appear in different uses of the same word form, as in *Economics is my major*. (the discipline as a whole, singular construal) and *The economics of the project are still being discussed*. (specific

economic factors, plural construal). In the two sentences, the countability and morphological form of *economics* are completely identical; only

Subject-verb agreement construal differs according to the speaker's mode of construal; it is a purely construal-based switch that does not involve morphological reanalysis. This likewise demonstrates the cognitive reality of "subject-verb agreement construal" as an independent dimension.

It should be noted that the value assigned to subject-verb agreement construal is influenced not only directly by the speaker's mode of conceptualizing the referent, but also indirectly by "morphological reanalysis" within the dimension of morphological form. When a speaker reanalyzes the ending of a noun ending in *-s* as a plural marker, the result of this reanalysis is expressed through plural agreement; conversely, when *-s* is identified as part of the stem, singular agreement is the default choice. Singular/plural construal is both the direct manifestation of construal and the overt result of morphological reanalysis—this is precisely the concrete manifestation of the fact that the three dimensions are logically independent yet interact cognitively.

There is an essential difference between morphological ambiguity and morphological neutrality. Take *a sheep* and *a series* as examples: on the surface, both can combine with *a* and trigger singular agreement, but the stem *sheep* itself contains no element homophonous with a plural marker and belongs to zero-marked morphological neutrality; speakers do not develop the intuition that "this is a plural noun being used as a singular." By contrast, the ending *-es* of *series* is completely homophonous with the regular plural marker, so even under the coercive context of *a*, native speakers can still sense the subtle dislocation that "the form looks plural, but the syntax uses singular." This difference in linguistic intuition is precisely the manifestation of latent morphological ambiguity operating at a deeper level—*a* suppresses the overt output of plural construal, but it does not eliminate the possibility of plural analysis.

### 3.4 Independence of the Three Dimensions

The three dimensions are logically independent: the value of one dimension does not determine the value of another. If two nouns have exactly the same values on dimensions A and B but form an opposition on dimension C, then dimension C cannot be derived from A and B. The following table provides diagnostic evidence.

**Table 2: Minimal contrast: *police* and *people***

| Noun          | Morphological form | Subject-verb agreement construal | Countability | Diagnosis         |
|---------------|--------------------|----------------------------------|--------------|-------------------|
| <i>police</i> | singular form      | plural construal                 | uncountable  | <i>a police</i> X |

| Noun                       | Morphological form | Subject-verb agreement construal | Countability | Diagnosis           |
|----------------------------|--------------------|----------------------------------|--------------|---------------------|
| <i>people</i><br>(persons) | singular form      | plural<br>construal              | countable    | <i>three people</i> |

*police* and *people* have the same values in morphological form and subject-verb agreement construal, yet they form an opposition in countability. This fact directly proves that countability cannot be inferred from morphological form or from subject-verb agreement construal. Any attempt to reduce the three dimensions to two will be forced to erase this objectively existing grammatical difference.

Likewise, the following four nouns have the same morphological form—all are singular forms—but differ from one another in countability and subject-verb agreement construal. They occupy three of the four possible logical combinations, further proving that no pairwise derivational relationship exists among the three dimensions.

**Table 3: Distribution of Four Noun Types**

| Noun                       | Countability | Morphological form | Agreement construal   | Type   |
|----------------------------|--------------|--------------------|-----------------------|--------|
| <i>furniture</i>           | uncountable  | singular form      | singular<br>construal | Type 1 |
| <i>police</i>              | uncountable  | singular form      | plural<br>construal   | Type 2 |
| <i>car</i>                 | Countable    | Singular form      | Singular<br>construal | Type 5 |
| <i>people</i><br>(persons) | Countable    | Singular form      | Plural<br>construal   | Type 6 |

The following table further systematically shows that all four logical combinations for each pair of dimensions have examples in English.

**Table 4: Examples Demonstrating Pairwise Independence of the Three Dimensions**

| Dimension Pair                       | Combination          | Example      |
|--------------------------------------|----------------------|--------------|
| Countability ×<br>Morphological form | Countable + Singular | <i>a car</i> |

| Dimension Pair                              | Combination                           | Example                                                                     |
|---------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------|
| Countability ×<br>Morphological form        | Countable + Plural                    | <i>two series</i> (when <i>-es</i> is reanalyzed as a plural marker)        |
| Countability ×<br>Morphological form        | Uncountable + Singular                | <i>police</i>                                                               |
| Countability ×<br>Morphological form        | Uncountable + Plural                  | <i>goods; data</i> (when <i>-a</i> is identified as a plural marker)        |
| Countability ×<br>Agreement construal       | Countable + Singular<br>construal     | <i>a car</i>                                                                |
| Countability ×<br>Agreement construal       | Countable + Plural<br>construal       | <i>three people</i>                                                         |
| Countability ×<br>Agreement construal       | Uncountable + Singular<br>construal   | <i>furniture</i>                                                            |
| Countability ×<br>Agreement construal       | Uncountable + Plural<br>construal     | <i>police</i>                                                               |
| Morphological form ×<br>Agreement construal | Singular form +<br>Singular construal | <i>furniture</i>                                                            |
| Morphological form ×<br>Agreement construal | Singular form + Plural<br>construal   | <i>police</i>                                                               |
| Morphological form ×<br>Agreement construal | Plural form + Singular<br>construal   | <i>Ten miles is a long distance. (core); a series (marginal, see § 3.2)</i> |
| Morphological form ×<br>Agreement construal | Plural form + Plural<br>construal     | <i>goods</i>                                                                |

The above examples show that variation in the value of any one dimension does not force the value of another dimension; the three are indeed independent dimensions.

### 3.5 Eight Logical Combinations and English Examples

The three dimensions are each binary, yielding  $2 \times 2 \times 2 = 8$  logical combinations in total. Table 5 gives all eight combinations and English examples.

**Table 5: Three-Dimensional Classification of English Nominal Number Domains**

| Type | Countability | Morphological<br>form | Agreement<br>construal | Example |
|------|--------------|-----------------------|------------------------|---------|
|------|--------------|-----------------------|------------------------|---------|

|   |             |               |                         |                                                                                                                                                         |
|---|-------------|---------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Uncountable | Singular form | Singular interpretation | <i>furniture</i> ;<br><i>economics</i><br>(discipline);<br><i>measles</i><br>(when <i>-s</i> is identified as part of the stem)                         |
| 2 | Uncountable | Singular form | Plural interpretation   | <i>police</i> ; <i>cattle</i> ;<br><i>the economics</i><br>(when referring to economic factors)                                                         |
| 3 | Uncountable | Plural form   | Singular interpretation | <i>data</i><br>(everyday usage);<br><i>billiards</i> ;<br><i>darts</i>                                                                                  |
| 4 | Uncountable | Plural form   | Plural interpretation   | <i>goods</i> ;<br><i>measles</i><br>(when <i>-s</i> is reanalyzed as a plural marker); <i>data</i><br>(academic usage: <i>The data are conclusive</i> ) |
| 5 | Countable   | Singular form | Singular interpretation | <i>a car</i> ; <i>a series</i> (when <i>-es</i> is identified as part of the stem)                                                                      |
| 6 | Countable   | Singular form | Plural interpretation   | <i>three people</i><br>(meaning “persons” )                                                                                                             |

|   |           |             |                         |                                                                                          |
|---|-----------|-------------|-------------------------|------------------------------------------------------------------------------------------|
| 7 | Countable | Plural form | Singular interpretation | <i>Ten miles is a long distance.; A hundred dollars is enough.; a series</i> (see Note ) |
| 8 | Countable | Plural form | Plural interpretation   | <i>three cars; two series</i> (when <i>-es</i> is reanalyzed as a plural marker)         |

Several further points about this table require explanation.

First, the principles for classifying morphologically ambiguous words. Items of the *measles* type, the *series* type, and the *data* type all involve morphological ambiguity: the word ending is homophonous or identical in form with the regular plural marker, and there is no corresponding singular-plural morphological pair. The value assigned to their morphological form is determined by the speaker's path of reanalysis: the indefinite article *a* forces a singular interpretation, while a cardinal numeral forces a plural interpretation; register may also influence the direction of analysis—for example, *data* tends to receive a plural interpretation in academic contexts, but a singular interpretation in everyday contexts. The same lexical item may therefore fall into different types depending on the path of reanalysis, and this reflects the descriptive precision of the framework.

Second, the examples and mechanism of Type 3. Type 3 (uncountable + plural form + singular interpretation) mainly arises from the morphological reanalysis of loanwords and is a marginal type. Typical examples include *data* (in everyday usage), *billiards*, and *darts*. *Billiards* and *darts* denote games or sporting events; their ending *-s* is identical in form to the plural marker, but the whole expression refers to a single event or activity and is uncountable (*a billiards* ×), while subject-verb agreement forces a singular interpretation (*Billiards is*...). Type 3 is essentially a transitional state in morphological reanalysis: Type 4 (plural form with plural interpretation, as in earlier academic *data*) → Type 3 (plural form with singular interpretation, as in contemporary everyday *data*) → Type 1 (singular form with singular interpretation, as in *news*).

Third, the countability of *people*. *Three people* satisfies the operational definition of countability. *People* is the suppletive plural form of *person*; its plurality comes from the lexical meaning itself, and is fundamentally different from the syntactico-semantic collective interpretation of *police*—see § 3.4.



Fourth, distinguishing the examples for Type 7. The core examples of Type 7 (countable + plural form + singular interpretation) are measure/time/money phrases, such as *Ten miles is a long distance.* and *A hundred dollars is enough.* In these cases, -s is an unambiguous regular plural inflection; singular agreement is triggered only because the expression as a whole is construed as a quantity. The values on all three dimensions are therefore uncontroversial. The marginal case of the *a series* type reflects the special nature of morphologically ambiguous words: the individuating force of *a* activates a singular-form analysis at the level of the token, but the lexical item still retains the potential for a plural-form analysis (compare *two series*). This is a property that morphologically neutral nouns such as *sheep* entirely lack.

## 4. Responding to Possible Doubts

**4.1 Can the three dimensions be collapsed into two?** The crux of this question is conceptual redundancy. Our answer is: overlap is not identity. *people* and *police* are completely identical in morphological form and in subject-agreement construal—both are “singular form + plural construal”—yet they contrast in countability (*three people* ✓, *three police* ×). If countability and subject-agreement construal could be merged, then the inference that “collective nouns that trigger plural construal are all uncountable” should hold—but the existence of *people* falsifies this inference. The three dimensions are not “any two can be combined”; rather, “none of them can be derived from the other two.” Tables 3 and 4 in §3.4 systematically show that each of the four logical combinations of every pair of dimensions has examples in English, which constitutes sufficient empirical evidence for the independence of the three dimensions.

**4.2 Is *people* countable?** According to the operational definition of this framework, a “numeral-compatible word” is countable. *three people* satisfies the condition. *people* has the two meanings “persons” and “nation/ethnic group,” and its countability values differ; this is precisely where the three-dimensional framework has the advantage of accurately describing different uses of the same word form. Traditional grammar cannot explain why *three people* is grammatical whereas *three police* is not; the present framework separates countability as an independent dimension, thereby giving a clear account of the difference between *people* (type 6) and *police* (type 2).

**4.3 Is the morphological judgment for words of the *series* type too arbitrary?** For nouns such as *series*, *species*, and *means*, which end in -s/-es and have no corresponding non-s form, this paper does not presuppose a fixed morphological label; instead, it treats them as morphologically ambiguous words. This treatment is supported by independent evidence and follows consistent theoretical logic.

First, morphological ambiguity is not isolated in English. The comparison between the two groups of medical nouns A/B in §3.2 provides independent evi-

dence: *arthritis* and *measles* both end in *-s*, but the former obligatorily has a singular construal, while the latter allows both singular and plural construals. The only explanation is that the *-s* of *measles* has the same form as the regular plural marker, and the disease meaning of “multiplicity” provides a plural association, triggering reanalysis by some speakers. Words of the *series* type share exactly the same structural properties as the group-B medical nouns, and including them in the same framework is required by theoretical consistency.

Second, context systematically determines the direction of disambiguation. In *a series*, the indefinite article *a* forces a singular interpretation, guiding the analysis of *-es* as part of the stem; in *two series*, the cardinal numeral *two* forces a plural interpretation, guiding the analysis of *-es* as a plural marker. This mechanism is parallel to the fact that *measles* permits both singular and plural construals; the only difference is that *series* is more strongly guided by its syntactic environment, whereas *measles* permits the two analyses more locally.

Third, there is parallel evidence from *data*. The register-driven variation of *data*—plural construal in academic contexts and singular construal in everyday contexts—is fully parallel to the mechanism for *measles* and *series*, showing that morphological reanalysis is a systematic mechanism in the English category of number.

**4.4 Since *economics* can take both *is* and *are*, does this show that the framework’s classification fails?** Quite the contrary. The present framework assigns it precisely to different types: *Economics is my major* belongs to type 1 (the discipline as a whole, singular construal); *The economics of the project are still being discussed* belongs to type 2 (multi-factor construal, plural construal). This is consistent with the parallel patterns of *politics* and *statistics*, and shows that the plural-construal use of words ending in *-ics* is a systematic product of construal conversion. This phenomenon does not involve morphological reanalysis; only the value on dimension three changes—precisely direct evidence that “subject-agreement construal” is independent of the first two dimensions.

**4.5 Can the framework handle the two kinds of agreement of collective nouns?** Collective nouns such as *team* can have their two agreement options incorporated into the framework: when construed as a single individual, they belong to Type 5 (countable + singular form + singular construal); when construed as multiple members, they belong to Type 6 (countable + singular form + plural construal). Unlike the highly entrenched plural construal of *police*, ordinary collective nouns such as *team* lie on the continuum between Type 5 and Type 6, and are a typical manifestation of the dynamic nature of construal in subject-verb agreement. For construction-level phenomena, such as *a number of* vs. *the number of*, this framework clearly delineates its boundaries.

## 5. Discussion

### 5.1 The Theoretical Basis of the Framework

The cognitive basis of this framework derives from Langacker' s theory of “construal” : speakers, according to their communicative intentions, choose to construe entities as bounded/unbounded and as singular/plural, and these choices are projected onto grammar as different values along three dimensions. The contrast between *no book* and *no books* in the zero-quantity context discussed in §3.3 (including the anaphoric-sentence mismatch test) is a typical case in point: for the same zero-quantity fact, different pragmatic effects arise depending on whether the speaker construes “book” as a missing category or kind (singular construal) or as zero discrete individuals (plural construal). Moreover, this construal choice is forcibly carried forward through cross-sentential agreement with anaphoric pronouns. The purely construal-based alternation of words such as *economics* between Type 1 and Type 2 contrasts with the shift of *measles* between Type 1 and Type 4 due to morphological reanalysis, demonstrating that the three-dimensional framework can describe both “morphology-construal” linked variation and independent variation of “pure construal.”

Morphological reanalysis is an extension of construal at the morphological level. Through the comparison of two groups of medical nouns, A and B, and through contextual analysis of nouns of the *series* type and the *data* type, this framework reveals three conditions for the occurrence of morphological reanalysis: a formal condition—the word form contains an element identical in form to a regular plural marker (such as *-s/-es* or *-a*); a semantic condition—the concept referred to allows the possibility of plural association; and a contextual condition—the indefinite article *a* forces a singular interpretation, cardinal numerals force a plural interpretation, and register factors may also influence the direction of reanalysis.

Reanalysis does not occur arbitrarily, but is systematically constrained by factors such as word frequency, morphological transparency, and mode of conceptualization: in high-frequency words, plural construal has already become highly entrenched, leaving little room for morphological reanalysis; reanalysis is restricted in morphologically transparent words (such as *news*); and modes of conceptualization (such as the “paired parts” construal of *scissors*) entrench plural construal. The specific weights of the three conditions vary across lexical classes: disease nouns are dominated by semantic association, *series*-type nouns by contextual coercion, and *data*-type nouns by register guidance. This analysis extends Langacker' s concept of “construal” from the semantic level to the morphological level.

With respect to theories of agreement, Harbour' s (2008) theory of morphological and semantic number and Kim and Michaelis' s (2020) hybrid agreement framework provide theoretical support for separating morphological number from semantic number. On this basis, the present framework adds countability as a third dimension, and, through the mechanism of morphological reanalysis,

supplements the dynamic stage in the assignment of morphosyntactic features. Compared with Kim & Michaelis' s (2020) "hybrid agreement framework," the core contribution of the three-dimensional framework lies in treating "countability" as a fully independent syntactic dimension. In Kim & Michaelis' s two-dimensional framework, *police* is plural on SEM-INDEX, but its uncountable syntactic property—its inability to be modified by *three*—cannot be captured by the two dimensions of morphology and semantics. Through the minimal contrast between *police* and *people*, the three-dimensional framework shows that countability is a syntactic property independent of morphology and semantic construal.

## 5.2 Pedagogical Implications

First, the pedagogical significance of this framework is above all reflected in its unified treatment of "exceptions." Traditional teaching treats *police*, *economics*, *series*, *people*, *measles*, and similar items as "special cases" in different chapters, requiring learners to memorize large numbers of irregular individual examples. This framework unifies them as normal combinations within eight types; each type has clearly defined dimensions, and learners need only understand the three dimensions and the logic of their combinations in order to systematically master all phenomena.

Second, teachers may use this framework to design diagnostic questionnaires to identify the dimensions on which learners are confused. The following table presents common error types and the corresponding instructional interventions.

**Table 6: Common Error Types and Diagnostic Interventions**

| Error Type                         | Erroneous Example       | Correct Form            | Dimensional Diagnosis                                                 | Instructional Intervention                                             |
|------------------------------------|-------------------------|-------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|
| Misjudgment of countability        | <i>a police</i>         | <i>a policeman</i>      | Countability: mistakenly treated as countable                         | Reinforce countability testing: <i>police</i> cannot take a quantifier |
| Misjudgment of agreement construal | <i>Economics are...</i> | <i>Economics is ...</i> | Subject-verb agreement construal: mistakenly given a plural construal | Subject names default to singular construal                            |

| Error Type                                        | Erroneous Example                           | Correct Form              | Dimensional Diagnosis                                           | Instructional Intervention                                                             |
|---------------------------------------------------|---------------------------------------------|---------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Mismatch between morphology and construal         | <i>a series are...</i>                      | <i>a series is...</i>     | Morphological form × agreement construal                        | Compare <i>a series</i> (singular construal) with <i>two series</i> (plural construal) |
| Erroneous addition of morphology                  | <i>peoples</i> (three people)               | <i>people</i>             | Morphological form: erroneous addition of -s                    | <i>people</i> cannot take -s; <i>peoples</i> only means “ethnic groups”                |
| Erroneous inflection added to an uncountable noun | <i>furnitures</i>                           | <i>furniture</i>          | Morphological form: erroneous addition of a plural marker       | Reinforce the rule that uncountable nouns have no morphological plural change          |
| Misjudgment of morphological ambiguity            | Treating <i>Measles are...</i> as incorrect | Both forms are acceptable | Mistakenly taking singular construal as the only correct option | Introduce morphological reanalysis and explain the two construals                      |

Third, in terms of the path for instructional implementation, it can be advanced in three stages, moving from prototypical to peripheral cases.

Stage 1 (elementary/intermediate): the focus is on mastering three typical “non-conflicting” combinations—Type 1 (uncountable + singular form + singular construal), Type 5 (countable + singular form + singular construal), and Type 8 (countable + plural form + plural construal). This stage basically overlaps with traditional instruction; it imposes no additional burden on learners and does not introduce the term “reanalysis.”

Stage 2 (advanced/linguistics majors): on the basis of the three typical types already mastered, the complete logic of the framework is introduced, and what was treated at the elementary stage as “exceptions that must be memorized one by one” is reanalyzed as normal combinations within the system. The minimal contrast between *police* and *people* is used as an entry point to reveal directly

that countability and subject-verb agreement construal must be separated—this is a key step in cultivating students’ awareness of dimensional independence. Type 2 (*police*), Type 6 (*people*), Type 3 (*data* in everyday usage), and Type 7 (countable + plural form + singular construal, as in *Ten miles is...*, which provides another piece of evidence that the values of the three dimensions are completely independent) are then introduced in sequence. Cognitive-conflict activities may be designed: show pictures of *cake* (a whole cake vs. cut pieces), ask students for the corresponding English expressions, and guide them to discover that the difference between *some cake* and *some cakes* is not that the word has changed, but that the way of “seeing” it—the construal—has changed. Further compare *a sheep* (zero-marked identical form) with *a series* (ambiguity of identical word-final form), so that students understand that “identical singular and plural forms” include two completely different morphological mechanisms—the former is “genuine zero-marked identity of form,” while the latter is “pseudo identity of form due to the word ending” —thereby breaking the misconception that “anything ending in -s must be plur—

overgeneralization of “number.”

Stage 3 (advanced / linguistics majors • integrated) shows how the three dimensions vary independently through different uses of the same noun. For example, the contrast between *no book* and *no books* in a zero-quantity context: the former construes “book” as an absent kind category (singular construal), whereas the latter merely reports zero individuals (plural construal). As an example of classroom questioning, the teacher may present a three-step progression. Step 1 (truth-value-equivalent contrast): *There is no book in the library* vs *There are no books in the library*—guiding students to perceive the difference in linguistic intuition ( “absence of a kind” vs “quantity is zero” ). Step 2 (anaphoric coreference test): add the follow-up clauses *but it will arrive soon* / *but they will arrive soon*, respectively—guiding students to notice the obligatory matching of anaphoric pronouns: the singular-construal *no book* can only pair with *it*, whereas the plural-construal *no books* can only pair with *they*. Step 3 (mismatch-adaptation test): interchange the follow-up clauses—*There is no book in the library, but they will arrive soon* / *There are no books in the library, but it will arrive soon*—guiding students to observe the grammatical discomfort triggered by mismatch, and thereby to understand that singular/plural construal is not a vague preference in linguistic intuition, but a rigid grammatical property with cross-sentential cascading constraints. Another example is the contrast between the disciplinary use of *economics* (Type 1) and the factor use (Type 2), which can be echoed by the minimal contrast between *police* and *people*: the former demonstrates that Dimension 3 is independent of Dimensions 1/2, while the latter demonstrates that Dimension 1 is independent of Dimensions 2/3.

Finally, morphological ambiguity and metalinguistic awareness can be cultivated. This framework provides a systematic strategic design for teaching morphologically ambiguous nouns: Strategy 1, establish contrastive awareness. Present a contrast between Group A (the *arthritis* type, which allows only sin-

gular construal) and Group B (the *measles* type, which allows both singular and plural construal), guiding students to discover that although both groups of words end in -s, their grammatical behavior differs. This contrast breaks the overgeneralization students may have formed that “anything ending in -s is plural.” Strategy 2, introduce the concept of “morphological reanalysis.” Explain the mechanism in accessible language: for some words ending in -s, native speakers themselves may be “hesitating” over whether this -s is part of the stem or a plural marker, and the outcome of this “hesitation” is reflected in whether the verb takes singular or plural form. Take *measles* as an example: in *Measles is a serious disease*, the speaker treats -s as part of the stem (like a single whole); in *Measles are spreading rapidly*, the speaker treats -s as a plural marker (as if multiple rash spots are spreading). Strategy 3, context-based disambiguation practice. Provide sentence frames and ask students to infer, from the choice of predicate, the speaker’s morphological analysis path for the noun: *The series is starting now.* → what is -es analyzed as (the stem)? *The series are available online.* → what is -es analyzed as (a plural marker)? Strategy 4, cultivate register awareness. Taking *data* as an example, show that academic contexts prefer plural construal (*The data are*), whereas everyday contexts prefer singular construal (*The data is*). Guide students to understand that the choice of construal is not only a grammatical issue, but also a pragmatic and register-related issue. Such awareness can help learners make appropriate choices in different communicative settings, rather than mechanically following a single “rule.”

### 5.3 Limitations and Prospects

This framework has the following limitations. First, it is constructed on the basis of English and is not directly applicable to isolating languages that lack morphological marking (such as Chinese); its applicability to other inflectional or agglutinative languages remains to be tested. Second, it focuses on number features at the noun level and does not cover number phenomena at the constructional level. Third, the mechanism of morphological reanalysis is currently based mainly on English-internal evidence, and its cross-linguistic applicability remains to be examined. Future research may proceed in the following directions: first, cross-linguistic comparison, to test the applicability of the framework and the reanalysis mechanism in other languages; second, empirical research, comparing the effects of teaching with the three-dimensional framework and traditional mixed-dimension teaching; third, integration with corpus linguistics, examining the distributional frequencies of different dimension combinations in actual corpora and the dynamic changes of morphologically ambiguous nouns, and verifying whether the singular/plural construal differences proposed in § 3.3 have quantifiable collocational distributional features; fourth, integration with cognitive neurolinguistics, exploring the cognitive-neural differences among different dimension combinations in real-time processing.



## 6. Conclusion

This paper proposes a three-dimensional independent framework for the English noun number category, fully decoupling the three dimensions of countability, morphological form, and subject-verb agreement construal, with each dimension assigned an independent operational definition. The binary values of the three dimensions yield eight logical combinations, and all eight are instantiated in English. For nouns ending in *-s/-es* that lack a morphological opposition, the framework further reveals systematic morphological ambiguity and, through the mechanism of morphological reanalysis, brings synchronic variation and diachronic change under a unified account.

Compared with traditional frameworks, the present framework reduces all exceptions to normal combinations within the system or to results of reanalysis, without requiring additional memorization. Compared with existing theories, it adds the dimension of countability and introduces a dynamic mechanism of reanalysis, thereby connecting with Langacker's theory of construal and Talmy's covert conversion, among others. The minimal contrast between *people* and *police*—the correspondence between *\*a police* and *a people*—demonstrates in the most economical way that the three dimensions must be separated; this contrast is also a microcosm of the pedagogical advantages of the three-dimensional framework. The contrast between *no book* and *no books* in zero-quantity contexts—including the mismatch test of cross-sentential agreement with anaphoric pronouns—further shows that the distinction between singular construal and plural construal has cognitive reality independent of truth conditions, and that this construal choice generates discourse-level cascading constraints through anaphoric pronouns, reflecting speakers' different construal framings of the same fact.

This framework provides a new analytical perspective for theoretical research on the English number category and offers a unified, directly applicable classificatory tool for English grammar teaching. The pedagogical design of the morphological-ambiguity module is expected to cultivate learners' metalinguistic awareness, enabling them to engage in active analysis and contextual reasoning when confronted with variation in the number category. These pedagogical hypotheses await testing in subsequent empirical research.

## References

- [1] Cao Yi. A study on the acquisition of the noun number category from a cognitive perspective[J]. *Modern Linguistics*, 2024, 12(4): 456-462. DOI: 10.12677/ml.2024.124272.
- [2] Chen Daoming. Countable nouns and uncountable nouns from the perspective of cognitive linguistics[J]. *Journal of Xi'an International Studies University*, 2011, 19(1): 26-29. DOI: 10.16362/j.cnki.cn61-1457/h.2011.01.021.
- [3] Yin Yaqin. A cognitive interpretation of English noun countability[J]. *Foreign Language Research*, 2011(6): 25-28. DOI: 10.16263/j.cnki.23-



1071/h.2011.06.028.

- [4] Xiao Yu, Gong Weidong. An experimental study of online processing of second-language morphosyntax: taking English subject-verb agreement as an example[J]. *Modern Linguistics*, 2023, 11(12): 5963-5969. DOI: 10.12677/ml.2023.1112799.
- [5] Zhang Daozhen. *Practical English Grammar*[M]. Beijing: Foreign Language Teaching and Research Press, 2002.
- [6] Harbour D. *Morphosemantic number: From Kiowa noun classes to UG number features*[M]. Dordrecht: Springer, 2008. DOI: 10.1007/978-1-4020-5038-1.
- [7] Hopper P J, Traugott E C. *Grammaticalization*[M]. 2nd ed. Cambridge: Cambridge University Press, 2003. DOI: 10.1017/CBO9781139165525.
- [8] Huddleston R, Pullum G K. *The Cambridge grammar of the English language*[M]. Cambridge: Cambridge University Press, 2002. DOI: 10.1017/9781316423530.
- [9] Kim J B, Michaelis L A. *Syntactic constructions in English*[M]. Cambridge: Cambridge University Press, 2020. DOI: 10.1017/9781108632706.
- [10] Langacker R W. Syntactic reanalysis[C]//Li C N, ed. *Mechanisms of syntactic change*. Austin: University of Texas Press, 1977: 57-139.
- [11] Langacker R W. *Foundations of cognitive grammar: Vol. 1*[M]. Stanford: Stanford University Press, 1987.
- [12] Langacker R W. *Foundations of cognitive grammar: Vol. 2*[M]. Stanford: Stanford University Press, 1991.
- [13] Langacker R W. *Cognitive grammar: A basic introduction*[M]. Oxford: Oxford University Press, 2008. DOI: 10.1093/acprof:oso/9780195331967.001.0001.
- [14] Naumoska A. Semantic number in relation to English language learner awareness[J]. *Educational Role of Language Journal*, 2020, 2020-1(3): 17-30. DOI: 10.36534/erlj.2020.01.02.
- [15] *Oxford English Dictionary*[M/CD]. 2nd ed., Version 4.0. Oxford: Oxford University Press, 2009.
- [16] Quirk R, Greenbaum S, Leech G, et al. *A comprehensive grammar of the English language*[M]. London: Longman, 1985.
- [17] Talmy L. The relation of grammar to cognition[C]//Rudzka-Ostyn B, ed. *Topics in cognitive linguistics*. Amsterdam: John Benjamins, 1988: 165-205. DOI: 10.1075/cilt.50.08tal.
- [18] Talmy L. *Toward a cognitive semantics: Vol. 1*[M]. Cambridge, MA: MIT Press, 2000. DOI: 10.7551/mitpress/6847.001.0001.

Corresponding author: Shi Wei (E-mail: 20031@jdzu.edu.cn)

## Author Contributions Statement

Shi Wei: proposed the research ideas and designed the research plan; was responsible for the literature review, construction of the theoretical framework, and methodological innovation; completed the drafting, revision, and final revision of the manuscript.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv. Machine translation. Verify with the original.*