

Unpacking Functions and Meanings of Prefixes Inter- and Intra- to Enhance Learners' Morphological Awareness

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Abstract

Morphological awareness is crucial in EFL vocabulary acquisition, particularly in understanding complex word formations. This research analyzes the morphological behavior of prefixes inter- and intra- to determine how their meanings and grammatical roles shift across different word classes. Employing a qualitative descriptive approach, the researchers collected 345 lexical entries (183 for inter- and 162 for intra-) from the Oxford English Dictionary. The analysis focused on word class changes and semantic formations. The results show distinct characteristics: inter- exhibits broader morphological flexibility, forming verbs, nouns, and adjectives that describe reciprocal relationships, spatial distance, and social relations. Conversely, intra- demonstrates structural consistency, predominantly forming technical adjectives referring to internal locations within scientific contexts. These findings highlight the significant role of prefixes in vocabulary enrichment and the necessity of understanding word class nuances. Practically, this study suggests that teaching strategies should differentiate between the communicative nature of inter- and the technical specificity of intra-. This research contributes a morphology-based framework for teaching English vocabulary in EFL contexts.

Keywords: Inter- and Intra-; Morphological Awareness; Prefixation; Vocabulary Teaching; Word Formation

INTRODUCTION

Morphology is a subfield of linguistics concerned with the structure of words and the way in which individual components combine to form meaning. The smallest element within a word that carries meaning is referred to as a morpheme (Katamba, 1993a). In English, prefixes are among the most commonly used bound morphemes. These are groups of letters placed at the beginning of a base word to alter its meaning. This process, known as prefixation, not only alters meaning but frequently causes shifts in word class (Plag, 2018; Quirk & Greenbaum, 1973). A thorough understanding of prefixation is essential as it is intrinsically linked to the concept of Morphological Awareness (MA), which is the ability to identify, decipher, and understand how words are constructed.

Morphological awareness has been established as a critical factor in acquiring reading, writing, and text comprehension skills (Apel & Henbest, 2016; Carlisle, 2000; Tighe & Binder, 2015). For students learning English as a Foreign Language (EFL), mastering unfamiliar words and expanding vocabulary relies heavily on the ability to recognize and interpret prefixes (Nation, 2022). MA is defined as the ability to recognize the structural components of words and affixes (Apel, 2014; Carlisle, 2000). Recent research, such as that by Díaz (2024) and Putra & Pradana (2024), reinforces that direct training in morphological strategies leads to significant improvements in vocabulary use by EFL learners. Therefore, understanding how prefixes operate in word formation, including the types of word classes formed and the lexical structures applied, is vital for supporting vocabulary learning and literacy acquisition

This research draws on three major theoretical concepts: (1) Morphological Awareness, (2) Prefixation as a word formation process, and (3) the influence of Word Class in morphological derivation. According to Plag (2018), prefixation involves adding a bound morpheme to create a new word. While most prefixes are class-maintaining, some trigger grammatical shifts depending on the lexical base (Ahmeti, 2017). Word class plays a pivotal role, as prefixation can produce forms that either retain the original class or undergo a shift (Katamba, 1993; Lieber, 2010). Noticing these structural changes is crucial for EFL learners to avoid errors in writing and meaning construction (Haimbodi & Woldemariam, 2024).

The prefixes *inter-* and *intra-* are rarely the focus of specific morphological studies. Generally, *inter-* means “between” or “involving two parties”, while *intra-* means “within” or “limited to a certain scope”. Although both prefixes appear frequently in academic and scientific terms (e.g., *international*, *intranet*), few studies have examined how their meaning and function shift depending on the base word's class. Previous research has largely focused on general semantic aspects without exploring structural variations. For instance, Hamawand (2013) reviewed *inter-* and *intra-* from a cognitive perspective to explain spatial relations but did not address the word class-based morphological dimension. Similarly, Cartoni & Lefer (2011) offered a meaning-based contrastive approach in interlanguage studies but did not elaborate on their role in grammatical word formation.

Awareness of word forms, including derivational morphology, plays a crucial role in EFL vocabulary development (Bowers & Kirby, 2010; Schmitt, 2010). However, the literature has not sufficiently discussed how structurally similar prefix pairs like *inter-* and *intra-* relate to specific word types or how their functions systematically diverge. This represents an explicit gap regarding the detailed morpho-semantic contrast of *inter-* and *intra-* based on resulting word classes. Addressing this gap is particularly relevant for developing morphology-based EFL learning materials. The novelty of this research lies in its specific focus on the intersection between morphological productivity and word class distribution, an area largely overlooked in prior semantic-focused studies. Unlike previous research that primarily examines these prefixes as cognitive spatial markers (Hamawand, 2013) or translation equivalents (Cartoni & Lefer, 2011), this study offers new insights by systematically mapping how structural shifts correlate with semantic specialization. This approach contributes a more granular framework for understanding derivational behavior and moves beyond general definitions.

Consequently, this research aims to determine the meaning and function of the prefixes *inter-* and *intra-* in English, using the Oxford English Dictionary as the main data source. The study focuses on analyzing how the meaning and grammatical function of the base word change upon prefixation. By doing so, it provides a pedagogical basis for distinguishing these often-confusing prefixes in EFL instruction. Using a qualitative approach, lexical items containing *inter-* and *intra-* are examined to identify patterns in meaning and grammatical shifts. The central research question is: How do the meaning and function of the prefixes *inter-* and *intra-* depend on the word class (part of speech) of the base word to which they are attached?

METHOD

A descriptive qualitative method was employed in this research to investigate how the prefixes *inter-* and *intra-* influence English word formation. This design was adopted following the framework of Creswell & Creswell (2022), who assert that qualitative inquiry is essential for exploring and understanding the meaning of complex phenomena in depth. This approach was

selected as it allows for a detailed analysis of word category distribution and provides comprehensive explanations of morphological changes, which cannot be fully captured through mere quantification. Furthermore, the qualitative method enabled the researchers to thoroughly examine this linguistic phenomenon by utilizing authentic data derived from a highly credible lexicographic source.

The data for this research were collected from the Oxford English Dictionary (OED). The OED’s advanced search tool was utilized to systematically extract entries employing *inter-* and *intra-* as derivational prefixes. To ensure validity, terms where these elements merely formed part of a compound word or a non-analyzable root were excluded. This procedure resulted in a final sample of 345 words, comprising 183 terms with the prefix *inter-* and 162 terms with the prefix *intra-*. The dataset was further curated to include only active vocabulary, omitting archaic or obsolete terms to ensure relevance to current EFL instruction. Data analysis was conducted using a qualitative content analysis approach, following the procedure outlined by Miles & Huberman (1994). In this framework, the researchers served as the primary instrument, identifying linguistic patterns and organizing the information into structures relevant to the research question. The analytical procedure involved four systematic steps. First, the basic form (simplex) and the complex derived form of each word were identified. Second, the prefixation process was categorized as either class-maintaining or class-shifting based on the base word's class. Third, the frequency of each category (e.g., Noun → Verb) was calculated for both prefixes. Finally, the findings were synthesized into tables and interpreted in the context of Morphological Awareness. This interpretation specifically linked the observed morphological patterns to the semantic functions created by *inter-* and *intra-*, aiming to provide insights directly applicable to morphology-based vocabulary acquisition for EFL learners.

RESULTS AND DISCUSSION

Results

This study analyzed 345 entries from the Oxford English Dictionary (OED) to examine the morphological productivity and semantic specialization of the prefixes *inter-* and *intra-*. The goal was to identify how the meaning and function of each prefix vary depending on the word class to which they are attached.

Table 1 summarizes the frequency of each word class resulting from the prefixation of *inter-* and *intra-*.

Table 1. General Distribution of *inter-* and *intra-* Prefixes Across Word Classes

| No. | Prefix | Word Class | Frequency | Percentage |
|--------------|---------------|------------|-----------|------------|
| 1 | <i>inter-</i> | Verb | 90 | 26.1% |
| 2 | | Noun | 65 | 18.8% |
| 3 | | Adjective | 27 | 7.8% |
| 4 | | Adverb | 1 | 0.3% |
| 5 | <i>intra-</i> | Adjective | 145 | 42.0% |
| 6 | | Adverb | 15 | 4.3% |
| 7 | | Noun | 3 | 0.9% |
| Total | | | | 100% |

The data indicate that *inter-* occurs across several grammatical categories, whereas *intra-* is concentrated predominantly in adjectives. This suggests that *inter-* is morphologically more productive, capable of forming various lexical items across distinct word classes.

Prefix *inter-*: Findings

- a. ***inter-* in Verbs:** A major function of *inter-* when attached to verbs is to convey reciprocity, alternation, or embedded mutual action. According to the OED, many of these formations (e.g., *intermarry*, *intermingle*, *intertouch*, *interweave*) denote actions performed “with each other” or “mutually.” For example:
 - *Intermingle* (transitive/intransitive): to mix mutually.
 - *Intermarry* (intransitive): to marry each other, often across group boundaries.
- b. ***inter-* in Nouns:** In nouns, *inter-* often encodes meanings such as:
 - Spatial or temporal intervals (*interspace*, *intermission*)
 - Social or legal relationships (*intermarriage*, *intercommunity*)
 - Communication and interaction (*intercombat*, *intertrading*)
- c. ***inter-* in Adjectives:** When forming adjectives, *inter-* frequently indicates spatial positioning or relational attributes:
 - *Interstellar*: between stars
 - *Interosseous*: between bones
 - *Interdependent*: mutually dependent
- d. ***inter-* in Adverbs:** Of the acquired data, the usage of *inter-* in adverbial forms is incomparably low, with only one striking example discovered: *intermutually*. This rarity suggests that English tends to express reciprocal relations via syntactic constructions rather than morphological derivation in adverbs.

Prefix *intra-*: Findings

- e. ***intra-* in Adjectives:** The defining function of *intra-* is spatial or systemic internality. Common domains include biology, medicine, and anatomy. Examples include:
 - *Intracellular*: within a cell.
 - *Intravenous*: within or by means of a vein.
 - *Intraspinal*: within the spine.
- f. ***intra-* in Adverbs:** Adverbial uses of *intra-* are typically suffix-based conversions of adjectives via *-ly* or other adverbial forms. For example:
 - *Intramuscularly*: by way of muscle tissue (from *intramuscular*).
 - *Intrathecally*: within the spinal sheath.
- g. ***intra-* in Nouns:** Noun formations with the prefix *intra-* are notably rare and highly specialized. Among the few examples identified are *intrasusception*, referring to the biological process of internal absorption, and *intravasation*, which denotes the entrance of substances (such as cells or fluids) into blood vessels.

Comparison of Function and Meaning

To provide a comprehensive overview of the distinctions between the two prefixes, a side-by-side comparison was conducted. This comparison highlights the fundamental differences in

their grammatical productivity, semantic flexibility, and usage contexts. As summarized in Table 2, while *inter-* functions as a versatile connector across various word classes, *intra-* operates with high specificity, primarily within adjectival structures in technical domains.

Table 2. Comparison of Function and Meaning for *inter-* and *intra-*

| Category | <i>inter-</i> | <i>intra-</i> |
|---------------------|-------------------------------------|--------------------------------------|
| Primary Meaning | Between, mutual, among | Inside, within, internal |
| Dominant Word Class | Verb, Noun | Adjective |
| Morphological Role | Class-changing & Class-maintaining | Mostly Class-maintaining (Adj → Adj) |
| Semantic Range | Broad (Social, Spatial, Reciprocal) | Narrow (Scientific, Locative) |
| Context | General & Academic | Rare, mostly literal |
| Morphological Role | Complex and flexible | Highly Technical/Medical |

Hyphenation and Orthographic Patterns

Words formed with both *inter-* and *intra-* are generally concatenated without a hyphen (e.g., *international*, *intracranial*). However, hyphenation is typically retained when the base word begins with a capital letter (e.g., *intra-European*) or to avoid visual confusion when the base starts with a vowel (e.g., *intra-arterial*).

Discussion

General Distribution Analysis

The analysis shows that the prefix *inter-* is morphologically more multi-functional than *intra-*, which is evident across various word classes, specifically verbs and nouns. The frequent usage in various grammatical functions indicates that *inter-* has an active and dynamic nature in word formation. It bridges syntactic words and terms, creating action words (*interact*, *intermarry*) as well as abstract and concrete nouns (*interaction*, *intermission*). It is flexible in communicating meanings such as mutuality, "between-ness," and positioning, enabling its application in both literal and figurative uses.

In comparison, the prefix *intra-* has a significantly scantier grammatical range, mostly seen in adjectives. The regular omission of *intra-* in other forms leads to the conclusion that it is semantically limited, normally describing things contained "within" something, such as *intracellular* or *intravascular*. These reflections symbolize the significant relationship between *intra-* and scientific, medical, and technical vocabulary, stressing its specialized use in defining spatial or conceptual internalness.

The Semantic Versatility of *inter-*

Inter- is a semantically multifunctional prefix centered on concepts of "between" or "mutually." This is especially notable in verbs, where it often conveys reciprocal action. For example, in *intermingle* (transitive/intransitive), the prefix denotes a mutual mixing. Similarly, *intermarry* implies marrying across group boundaries, emphasizing mutual connection. Furthermore, *inter-* can alter the valency of verbs. For instance, in *interchase*, a typically transitive base verb (*chase*) becomes intransitive and reflexive once prefixed, now meaning "to chase each other." In noun

formation, *inter-* plays a significant role in expressing relationships or intervals. *Intercommunity* implies a state of sharing between groups, while *intermission* refers to a timespan isolating two events. These nouns often result from nominalization after prefixed verbs, such as *interflow*, highlighting the prefix's high productivity in the verbal domain. Similarly, in adjectives, *inter-* conveys spatial positioning (e.g., *interstellar*) or reciprocal dependence (e.g., *interdependent*). However, its usage in adverbs is incomparably low, such as *intermutually*, suggesting English relies more on syntactic phrases for this function.

The Structural Consistency of *intra-* In stark contrast, *intra-* exhibits narrower but more consistent behavior. Its use is heavily concentrated in adjectives (145 instances), all describing locations or states “within” a specific boundary. This highlights the specialized nature of *intra-*. Terms like *intracellular*, *intravenous*, and *intraspinal* clearly convey an enclosed spatial context. Unlike *inter-*, which denotes mutuality between elements, *intra-* strictly implies containment. This makes it semantically stable within disciplines such as medicine and biology. While *intra-* can participate in noun formation, such as *intrasusception* or *intravasation*, it does so in a highly limited manner, often referring to specific biological processes.

Pedagogical Implications for Morphological Awareness The contrasting linguistic behavior of these prefixes offers critical insights for EFL instruction. *Inter-* functions as a versatile reciprocal connector, whereas *intra-* serves as a specific internal locative marker. The findings suggest that teaching strategies should be differentiated. Since *inter-* is highly productive in social and communicative verbs, teachers can use interactive activities to reinforce the concept of “mutuality.” Conversely, since *intra-* is dominant in technical adjectives, it is best taught through Academic Word Lists (AWL) or ESP materials, explicitly highlighting it as a marker for “internal location.” By raising Morphological Awareness of these specific patterns, students can better decode complex academic vocabulary and reduce confusion between these similar-sounding prefixes.

CONCLUSION

This study has investigated the morphological behavior and semantic functions of the prefixes *inter-* and *intra-* based on data from the Oxford English Dictionary. The analysis reveals a fundamental distinction between the two. The prefix *inter-* demonstrates high morphological productivity across verbs, nouns, and adjectives, functioning primarily as a marker of reciprocity, social connection, and “between-ness.” In contrast, *intra-* shows structural consistency, predominantly forming adjectives within scientific and medical domains to denote internal location.

These findings underscore the critical role of Morphological Awareness in EFL vocabulary acquisition. By understanding that *inter-* often involves a change in word class and indicates a relationship between entities, while *intra-* is semantically stable and indicates a location inside an entity, learners can decode complex academic words more effectively. Therefore, vocabulary instruction should not treat these prefixes identically. Instead, teaching strategies should highlight the communicative nature of *inter-* and the technical specificity of *intra-* to help students avoid confusion. Future research is encouraged to move beyond lexicographic data by examining how EFL students actually process and use these prefixes in authentic writing or reading comprehension tasks.

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