Semantic-Pragmatic Evolution of Negative Emotive Intensifiers: A Corpus-Based Study

In this study, we investigate the phenomenon of Negative Emotive Intensifiers using corpus data from a semantic-pragmatic perspective. Negative Emotive Intensifiers are lexemes that inherently carry negative semantic content but can function as intensifiers, such as *terribly* in *terribly nice*. These intensifiers undergo processes of desemantization and grammaticalization over time, thereby becoming capable of fulfilling an intensifying semantic role. We analyze this development utilizing a comprehensive Hungarian corpus comprised of news texts spanning two decades. Our methodology integrates automatic text processing techniques with manual annotation. We examine the sentiment characteristics of Negative Emotive Intensifiers within both narrow and broad contexts, and we evaluate general hypotheses regarding linguistic feature changes over time, such as the Law of differentiation and parallel change. Additionally, we explore the impact of morphological forms of Negative Emotive Intensifiers in this evolutionary process.

Keywords: Negative Emotive Intensifiers; Context and collocation sentiment; Semantic prosody; Semantic preference; Semantic-pragmatic change over time

1 Introduction

Intensifiers play a crucial role in modifying words that describe qualitative and quantitative characteristics of properties, states, or processes, conveying the subjective and evaluative stance of the speaker (Kochetova and Ilyinova 2022). These linguistic units are employed to emphasize utterances for various purposes such as drawing attention, focusing discourse, exaggerating, impressing, persuading, praising, and influencing the recipient's perception of a message (Wachter 2012; Partington 1993, cited in Stratton and Sundquist 2022).

Intensifiers represent one of the most rapidly evolving elements in language, constantly undergoing renewal, recycling, and replacement (Stratton and Sundquist 2022). According to Balogh (2009), intensifiers in Hungarian can be categorized into those primarily functioning as intensifiers (e.g., *nagyon* ‘very’, *módfelett* ‘consumedly’) and those that possess a primary meaning while also (additionally) serving as intensifiers (e.g., *határtalanul* ‘infinitely’, *mértéktelenül* ‘immeasurably’). Within the latter category exists a special subgroup known as Negative Emotive Intensifiers (henceforth NEIs). These words initially carry negative semantic content but can intensify expressions, as seen in constructions like *terribly nice* and *awfully big*. In this role, they undergo a semantic shift where their negative connotations diminish depending on contextual factors.

From a diachronic perspective, NEIs undergo desemantization and grammaticalization processes over time. Desemantization involves the gradual loss of their prior lexical meaning (Lorenz 2002, as cited in Dér 2013a), while grammaticalization transforms them into lexical elements, namely intensifiers (Dér 2013a). This evolutionary process unfolds gradually, resulting in varying degrees of semantic detachment from their initial meanings (Tagliamonte and Roberts 2005; Wachter 2012).

Scholars have extensively studied intensifiers, including NEIs, over recent decades. Specific attention has been given to their role and evolution in various languages (Partington 1993; Paradis 2000ab, 2001, 2008; Xiao and Tao 2007; Dragut and Fellbaum 2014; Fahy 2002; Fuchs and Gut 2012; Rasekh and Saeb 2015; Schweinberger 2021). Within Hungarian linguistics, researchers such as Tolcsvai Nagy (1988), Péter (1991), Laczkó (2007), Kugler (2014), Szabó and Bibok (2019, 2023), Szabó and Otani (2022), and Szabó et al. (2023a, 2023b) have explored NEIs extensively.

This study focuses on analyzing the linguistic features of NEIs through a longitudinal study. We examine a corpus comprising Hungarian political news articles published between 2002 and 2019 from a prominent news portal. Our analysis scrutinizes the semantic patterns of NEIs in terms of sentiment (negative, neutral, or positive) within specific and broader contexts. We will refer to the sentiment characteristic of the word that follows the NEIs as *collocation sentiment*, and to the broader sentiment context in which the NEI occurs as *contextual sentiment*. Drawing on Zheng's (2013) methodology, we analyze frequency distributions of NEIs alongside pleasant and unpleasant words over time to trace their semantic evolution. Zheng (2013) posits that if an originally negative intensifier frequently premodifies several non-negative items, this phenomenon indicates that the intensifier has diverged further from its original negative semantic content, becoming more delexicalized (for more details on the interaction between preference and the literal versus metaphorical meanings of intensifiers, see Bednarek 2008). Consequently, the sentiment features of NEIs may reflect the extent and manner in which these words have shifted from the negative end of the semantic continuum over time.

Furthermore, we explore general hypotheses regarding language change over time, such as the *Law of differentiation* and *parallel change*, and the role of morphological forms in these processes.

To facilitate comparison across different time periods, the corpus was divided into four distinct sub-periods. Our analytical approach involved a combination of automatic text processing methods, tools, and manual annotation. The database underwent a thorough examination in three sequential stages. Initially, an automated analysis was conducted on the corpus to extract and analyze the frequency and collocation patterns of Hungarian NEIs. This phase utilized automated text processing tools and various Hungarian lexicons. Subsequently, in the second phase of analysis, selected NEIs were manually annotated to investigate their contextual sentiment features. The selection of each word was guided by our primary research inquiries and recent scholarly insights. Finally, in the third phase, quantitative and qualitative attributes of the distinct sub-corpora were meticulously analyzed and juxtaposed. This comparative approach allowed us to identify and discuss both the similarities and disparities from a diachronic perspective.

The structure of this paper is as follows: First, we review relevant literature on NEIs using NLP methods and define key terms pertinent to our analysis. We then explore syntactic and semantic characteristics of NEIs in Hungarian, providing essential background for understanding our findings. Subsequently, we present our corpus and describe our methodology for corpus processing and annotation, including the lexicons utilized. We outline our research questions and focal points, followed by presentation and discussion of the results from both

automatic and manual analyses. Finally, we interpret our findings from a diachronic perspective, summarize the main outcomes of our study, and outline limitations and future research directions.

2 Literature review

2.1 Negative Emotive Intensifiers

As discussed previously (see Section 1), NEIs undergo both desemantization and grammaticalization processes over time. Desemantization refers to the gradual loss of lexical meaning (Lorenz 2002, as cited in Dér 2013a), while grammaticalization involves their transformation into lexical elements, specifically intensifiers (Dér 2013a). Tagliamonte and Roberts (2005) describe the linguistic development of intensifiers in the following manner: Initially, a lexical word is occasionally employed to amplify the quality of an adjective or adverb. Over time, its usage in this new function becomes more frequent and encompasses a broader range of words. In this context, "some intensifiers remain closely linked to their original lexical meanings, such as perfectly or awfully, whereas others, including *really* and *very*, become further delexicalized due to their frequent use as intensifiers" (Wachter 2012: 1).

Building on Herda (2022), it is crucial to note that the transition towards a grammatical function is facilitated by the emergence of a more abstract, procedural meaning within the expression. In other words, the descriptive content of a grammaticalizing expression becomes backgrounded in favor of more schematic implications (Sweetser 1988; Heine et al. 1991; Evans and Wilkins 2000; Hopper and Traugott 2003, as cited in Herda 2022). This shift initiates inference processes, leading to a dominance of procedural meaning over conceptual meaning, including the expression of the speaker's attitude (Diewald 2012; Varga 2017). For NEIs, the original meaning, including the negative semantic component, gradually diminishes over time in a stepwise manner (Partington 1993; Lorenz 2002). As a result, collocational restrictions diminish, allowing NEIs to co-occur with positive words (Schweinberger 2021). The more delexicalized an intensifier becomes, the more it loses its lexical constraints and increases in frequency (Lorenz 2002: 144). Intensifiers that frequently collocate with negative words may be considered less delexicalized compared to those that occur with a broader range of words (Tagliamonte 2008). Consequently, while intensifiers may appear to be interchangeable, they are not, as individual intensifiers are at varying stages of semantic development at any given time (Wachter 2012).

According to Szabó and Guba (2022), there are 225 linguistic elements in the Hungarian language that can function as NEIs. Regarding their syntactic features, NEIs may be either morphologically marked or unmarked, as exemplified by *félelmetes-en (jó)* 'dreadful-ly (good)' vs. *őrült-Ø (jó)* 'crazy-*Ø* (good)' (Szabó and Bibok 2019; Szabó et al. 2023). In this study, we will examine the semantic changes of NEIs in relation to their morphological marking, specifically focusing on the presence or absence of suffixes, such as *borzasztó* ('awful') and *borzasztóAN* ('awfully'). We aim to determine whether the presence of a suffix influences the rate of semantic change over time. To our knowledge, a systematic analysis of this issue has

not been conducted previously.

2.2 On the *contextual* and *collocation sentiment* features

The central concept of this study is *sentiment value*, with a particular focus on the *contextual and collocation sentiment* features of intensifiers. This section will review relevant terminology based on the literature and clarify the specific meanings of contextual and collocation sentiment within the scope of this research.

Commonly used terms in this context include *semantic prosody* and *semantic preference*. To lay the foundation for our discussion, we will first explore these concepts in detail. Since these terms are frequently employed in studies related to our topic, we will begin our terminological analysis by addressing and clarifying these concepts.

One of the foundational definitions of *semantic prosody*, as discussed above, originates from Louw, who defines it as "a consistent aura of meaning with which a form is imbued by its collocates" (1993: 157, cited in Oster and van Lawick 2008). Oster and van Lawick (2008) note that this definition allows for some interpretation regarding the precise nature of semantic prosody. The concept of *semantic prosody* is often used to encompass both semantic and pragmatic dimensions. What is more, there remains ambiguity regarding whether it primarily relies on collocation patterns, such as the positive or negative evaluative semantic content of collocators, or if it involves an embedded evaluation or connotation of the word itself (Kenny 1998; Oster and van Lawick 2008; Wachter 2012). This ambiguity underscores the complexity of analyzing semantic prosody and necessitates careful consideration of its various interpretations and applications in linguistic research. The lack of uniformity in defining semantic prosody prompts some scholars to avoid its use altogether (Bednarek 2008).

The notion of *semantic preference* is sometimes used interchangeably with *semantic prosody*, while at other times it refers to distinct but closely related phenomena (Begagić 2013; Bednarek 2008). Generally, authors do not confine the concept of *semantic preference* to positive or negative evaluative meanings. Instead, they use this term to denote the semantic field of the collocating words (e.g., Partington 2004; Oster and van Lawick 2008; Bednarek 2008). Unlike semantic prosody, "semantic preference generally remains relatively closely tied to the phenomenon of collocation" (Partington 2004: 150). As Begagić (2013: 405) elucidates, according to Partington (2004), "semantic preference and semantic prosody have different operating scopes: the former relates the node item to another item from a particular semantic set whereas the latter can affect wider stretches of text".

In this study, we have chosen to avoid using the terms semantic prosody and *semantic preference*, opting instead to adopt the term *sentiment* from the field of computational linguistics. Sentiment analysis[1] aims to (automatically) extract people's opinions, evaluations, appraisals, and attitudes towards entities such as products, services, organizations, individuals, issues, or events (Liu 2012, cited in Szabó et al. 2016). Within the framework of our sentiment

[1] There are various other terms for these tasks, including *opinion mining, opinion extraction, sentiment mining,* and *subjectivity analysis* (Szabó et al., 2016).

analysis, we will manually assess the sentiment of the entire utterance in which a given NEI occurs, referring to this feature as *contextual sentiment*, which denotes the sentiment value of the broader context surrounding the scrutinized NEIs. Additionally, we will automatically analyze the sentiment of the immediate right collocators of the examined NEIs, referring to this feature as *collocation sentiment*. Consequently, if a given NEI frequently appears in a positive sentiment context within our corpus, we will categorize it as having a positive contextual sentiment. Similarly, if it predominantly modifies words with positive polarity, we will consider it to have a positive collocation sentiment, and the same logic applies for negative sentiments.

Here, we shall also justify our use of the computational linguistic term *sentiment* instead of the more general linguistic term *polarity*. In pragmatics, "polarity is, in essence, the relation between semantic opposites—between meanings (or expressions denoting meanings) which are fundamentally inconsistent with each other", such as *hot-cold* and *good-bad* (Israel 2004). Since our focus is on evaluative semantic content, the term *sentiment* is more pertinent, as it directly refers to the evaluative aspect of meaning in computational linguistics that aligns with the objectives of our study.

In the remainder of this section, we will briefly review research articles focusing on the sentiment features of intensifiers.

The majority of research primarily investigates the collocation features of intensifiers from a synchronic linguistic perspective (e.g., Yujie Su 2017; Wachter 2012). Among the studies that examine intensifiers from a non-synchronic perspective, several are noteworthy. Zhang (2013) analyzes semantic prosody both synchronically and diachronically, examining data spanning an extended time period. Zhang (2013) specifically focuses on adverbial intensifiers. However, Bednarek (2008) highlights that "semantic preference interacts with syntactic patterning (colligation) [...] related lexical items that belong to different word classes may also have distinct semantic preferences" (Bednarek 2008: 123), such as *erupt* versus *eruption* (O'Halloran 2007, cited by Bednarek 2008). What is more, most studies examining the semantic development of intensifiers predominantly or exclusively scrutinize them in collocations where these words modify adjectival heads (e.g., Athanasiadou 2007; Tagliamonte 2008; Wachter 2012; Schweinberger 2021).

Our current research is significant because it monitors the linguistic behavior of intensifiers with different morphological peculiarities. By doing so, it addresses a gap in the existing literature in this respect. Additionally, unlike most previous studies that focus predominantly on adjectival collocations, our investigation includes a broader range of syntactic environments. This comprehensive approach allows us to provide a more nuanced understanding of how NEIs evolve across different time periods.

The justification for our current study, which spans only a 20-year period, can be supported by several previous research findings. Notably, there are studies that, unlike Zhang's (2013) long-term analysis, investigate the linguistic development of intensifiers over relatively brief time frames. For example, Tagliamonte and Roberts (2005) analyze changes in the frequency and collocation features of intensifiers within the corpus of the television series Friends, produced between 1994 and 2002. Despite the limited duration of their study, they successfully analyze the change in frequency and collocation features of intensifiers in the corpus. Despite the brief duration of their analysis, Tagliamonte and Roberts (2005)

successfully identified stages in the delexicalization process of intensifiers.[2] This demonstrates that significant insights into the evolution of intensifiers can indeed be gained from shorter periods of linguistic data, thereby validating the relevance and potential of our 20-year examination period.

2.3 Semantic features of the selected NEIs

The selected NEIs are detailed in Table 1, which includes their literal meanings and morphological characteristics. This table provides an overview of the NEIs under investigation, highlighting their semantic content and the variations in their morphological forms, along with one illustrative example for each.

Table 1. List of NEIs selected for the current analysis with meanings and morphology

NEI	Literal meaning	Morphological features	Example usage in an intensifier function
irtó	'eradicating, slaughtering'	eradicating, slaughtering	*Az az baleset irtó nagy volt.* ('The accident was extremely big.')
irtóra	'eradicatingly, slaughteringly'	eradicating-ADV, slaughtering-ADV	*A szavak irtóra bántóak voltak.* ('The words were extremely hurtful.')
irtózatos	'dreadful'	dreadful	*Az ház irtózatos magas volt.* ('The house was dreadfully high.')
irtózatosan	'dreadfully'	dreadful-ADV	*Az előadás irtózatosan unalmas volt.* ('The presentation was dreadfully boring.')
borzasztó	'awful'	awful	*A film borzasztó hosszú volt.* ('The movie was awfully long.')
borzasztóan	'awfully'	awful-ADV	*Borzasztóan rosszul éreztem magam.* ('I felt awfully bad.')
borzalmas	'horrible'	horrible	*Az élmény borzalmas jó volt.* ('The experience was horribly good.')
borzalmasan	'horribly'	horrible-ADV	*Borzalmasan jól énekelt.* ('He sang horribly good.')

To gain a deeper understanding of the precise meanings and historical semantic changes of

[2] Other studies have also attempted to detect semantic changes in language elements beyond intensifiers using data from relatively short time periods. For instance, Leone (2022) examines the use of central modals (*can, could,* etc.) over a 20-year span from 1994 to 2014.

these selected words, we consulted corpus-informed dictionaries of Hungarian. A brief summary of each word's semantic evolution and usage is provided below.

As previously noted, the adjective *irtó* originates from the verb *irt*, which literally means ‘eradicate, slaughter’. The first recorded use of *irtó* as an intensifier dates back to the 19th century. According to TESz (II: 236), however, *irtó* is not a direct derivative of *irt*; rather, it traces its origins to the adjective *irtóztató* (‘abhorrent, repellent’), which itself is derived from the verb *irtózik* (‘abhor’, see below). The adjective *irtózatos* (‘dreadful’) conveys a broad spectrum of emotions, including fear, hate, and disgust (CzF III: 121). ÉrtSz (III: 542) identifies two primary meanings: 1. causing dread, and 2. terrifyingly large; dreadful, horrible. By the 19th century, *irtózatos* was already used as an intensifier, primarily to convey the sense of ‘eliciting awe due to effect or magnitude’. Thus, summarizing the findings from the dictionaries, the term *irtó* is not directly derived from the verb *irt* (‘eradicate, slaughter’). Instead, it originates from the verb *irtózik* (‘abhor’), which in turn can be traced back to *irt*. Therefore, while *irtó* primarily derives from *irtózik*, it maintains an indirect connection to the verb *irt*. Consequently, *irtó* is linked to *irt* through the intermediary form *irtózik* (ÚESz).

The words *borzalmas* (‘horrible’) and *borzasztó* (‘awful’) both derive from one and the same etymological root (*borz*) associated with the concept of fear (CzF: 762). At the same time, they are traced back to distinct relative roots. Specifically, *borzalmas* is derived from the noun *borzalom* (‘a dreadful thing’), which ultimately traces its etymology to the verb *borzad* (‘dread’), originally meaning ‘[hair] standing on end’ (TESz I: 351). Conversely, *borzasztó* originates from the verb *borzaszt* (‘horrify’). Consequently, while both words relate to the same etymological root, they emanate from different parts of speech and have diverged in their developmental paths.

Turning specifically to the word *borzasztó*, ÉrtSz (I: 693) lists its meanings as follows: 1. horrifying or terrifying; 2. used as an intensifier (with an adverbial suffix, e.g. *borzasztóan* ‘awfully’) to denote something as awfully large or huge; and 3. when suffixed with the adverbial form *borzasztóan* (‘awfully’), it indicates an extraordinary degree or extent. Similarly, *borzalmas* is also associated with fear, with its meanings including: 1. inciting horror, fear, or dread; 2. functioning as an intensifier to describe something as incredibly unpleasant or causing pain; and 3. serving as an intensifier to indicate large size or measure (ÉrtSz I: 693).

The adjective *durva* (‘harsh’) encompasses a range of meanings, which ÉrtSz (I: 1082) categorizes into five principal types: 1. possessing an uneven surface, characterized by roughness or coarseness; 2. crudely or roughly crafted, lacking refinement; 3. poorly executed or demanding, associated with difficult or arduous work; 4. displaying aggression, offensiveness, or rudeness (in reference to a person); and 5. any actions performed by someone described in the previous category, including impolite, unconventional, or inappropriate behavior (in terms of words, deeds, or actions). These more abstract connotations appear to have developed from the initial, more concrete meanings through a process of semantic extension based on their shared unpleasantness. Historical records indicate that *durva* has been employed as an intensifier since the 18th century (ÚESz).

The selection of each word was guided by our primary research questions (see Section 3 below) and informed by recent research findings. For example, Szabó (2018) and Szabó et al. (2023a) identify *durva* as one of the most frequent polarity shifters in Hungarian tweets and

speech texts, indicating its role as a negative word that can take on a positive meaning. Szabó also notes that *durván* appears to be advanced in the process of becoming an intensifier, as evidenced by her word association test results (see Szabó 2018 for more details). Additionally, *borzasztó(-an)* and *borzalmas(-an)* are commonly found in negative sentiment contexts within Hungarian product reviews (Szabó 2018), with no significant differences reported between these NEIs in this respect. However, Szabó et al. (2022) highlight key differences in the collocation features, such as sentiment values and parts of speech of the collocators, between *borzasztóan* and *borzalmasan*. They find that *borzasztóan* is used more frequently as an intensifier than *borzalmasan*. Furthermore, Szabó et al. (2022) provide a diachronic analysis of the semantic change in *irtó*, demonstrating how sentiment features can effectively trace its semantic evolution over time. Szabó et al. (2023a) also emphasize that the suffixes of these words may significantly affect their functional and semantic distributions. Lastly, Szabó and Otani (2022) uncover notable differences in the usage of *durva* and *durván*, underscoring the varying roles these terms play in Hungarian.

Based on these findings, the aim of the current study is to contribute to the existing research by providing additional data that either supports or challenges the preliminary results. Specifically, the study seeks to enhance our understanding of the semantic and syntactic behavior of the selected NEIs, thereby expanding on and potentially validating or revising the conclusions drawn in previous research.

For the sake of simplicity, we will collectively refer to *borzalmas*, *borzalmasan*, *borzasztó*, and *borzasztóan* as the "borz-group", and *irtó*, *irtóra*, *irtózatos*, and *irtózatosan* as the "irt-group".

3 Research questions and focal points of the analysis

The primary objective of this study is to investigate the sentiment features of specifically selected NEIs and to trace the evolution of their linguistic characteristics over time. The analysis is structured around several key research questions and focal points, which are outlined below:

1. **Temporal changes in sentiment features**: We hypothesize that both the contextual and collocational sentiments of NEIs undergo significant changes over time, reflecting broader semantic-pragmatic shifts. Specifically, we anticipate that more delexicalized NEIs will exhibit neutral or positive contextual and collocational sentiments, predominantly appearing in neutral and positive contexts. In contrast, less delexicalized NEIs are expected to be associated with negative sentiment collocators (Tagliamonte 2005). Our analysis aims to test this hypothesis and determine the extent to which these changes occur.
2. **Differences in contextual vs. collocational sentiment**: We propose that there may be notable differences between the contextual and collocational sentiments of NEIs. This study will seek to uncover and delineate these differences, providing a more nuanced understanding of how NEIs function within different linguistic environments.
3. **Impact of morphological forms**: According to Szabó et al. (2022), the presence or

absence of suffixes can significantly influence the distribution of various functions of NEIs, such as their role as intensifiers or their evaluative meanings. This research will examine whether marked (suffix-present) versus unmarked (suffix-absent) forms impact the temporal semantic changes of NEIs, contributing to our understanding of morphological influence on semantic development.

4. **Evaluation of semantic change theories**: The study will also address two contrasting theories of semantic change: *The law of differentiation* and *The law of parallel change* (Xu and Kemp 2015). *The law of differentiation* posits that near synonyms tend to diverge in meaning over time, while *The law of parallel change* suggests that related words evolve in similar ways. Our analysis will evaluate our findings in light of these theoretical frameworks, providing insights into the nature and patterns of semantic change observed in the corpus.

By addressing these research questions, this study aims to enhance our understanding of the semantic-pragmatic development of Hungarian NEIs. In doing so, it seeks to contribute to a broader understanding of how negative emotive words evolve into intensifiers across languages, offering insights that extend beyond Hungarian and can inform comparative studies of semantic change in diverse linguistic contexts.

4 Methodology of the corpus analysis

This study employs a corpus-based approach to analyze Hungarian NEIs by examining a comprehensive dataset of Hungarian news articles published between 2002 and 2018. The corpus, provided by the Institute for Political Science of the Centre for Social Sciences, includes news content from a Hungarian news portal known for its focus on presenting both domestic and international news in an accessible and often engaging manner.

The corpus comprises a total of 1,167,398 text samples, aggregating 78,578,470 tokens, excluding punctuation. To facilitate the examination of temporal changes and ensure a thorough analysis across different periods, we relied on the corpus's division into four distinct sub-corpora. This segmentation enabled us to perform a comparative analysis of NEI usage and sentiment features across different stages of the studied timeframe, allowing us to track and assess semantic and pragmatic shifts effectively.

The initial phase of linguistic processing involved the automatic application of various techniques, including Part-of-Speech (POS) tagging and lemmatization, using the 'magyarlanc' toolkit (Zsibrita et al. 2013). This Java-based toolkit is specifically designed for the linguistic processing of Hungarian texts and facilitated the automated detection of NEIs. For the detection of NEIs, we utilized a comprehensive word collection comprising 225 distinct word forms identified in a prior study by Szabó and Guba (2022). As discussed in Section 2.1, Hungarian NEIs exhibit morphological variation, being either marked or unmarked (e.g., *félelmetes-en* ‘dreadful-ly’ vs. *őrült-Ø* ‘crazy-*Ø*’). The NEI lexicon, as developed by its creators, encompasses all Hungarian words that can function as intensifiers in their various morphological forms. Given this lexicon, it was essential to apply the NEI dictionary to the

non-lemmatized word forms within the corpus – specifically, to the raw tokens rather than the lemmatized forms.

In the subsequent stages of automatic analysis, we specifically focused on the tokens that appear immediately following the intensifiers, examining the sentiment values of these adjacent collocates. To facilitate this, we utilized two distinct sentiment dictionaries. The first was a general sentiment lexicon developed for broad sentiment analysis applications (Szabó 2015). The second was a domain-specific sentiment dictionary tailored for the analysis of news texts, created by the Institute for Political Science of the Centre for Social Sciences as part of the "poltextLAB" project (Ring et al. 2022). For this study, the two sentiment lexicons were integrated to provide a comprehensive framework for analyzing sentiment within the context of news texts.

For the subsequent stages of automatic and manual analysis, we first extracted sentences from the corpus that contained at least one NEI. Out of the 225 NEIs listed in our lexicon, 193 were identified within our corpus, resulting in a total of 42,457 relevant sentence examples. We then further refined the dataset by isolating sentences that contained specific NEIs from the remaining examples. This filtering process, guided by the criteria outlined in Sections 2.1 and 2.3 and based on recent research findings and our research questions, left us with a total of 4,285 occurrences of NEIs for detailed analysis.

In the remaining dataset, we performed a manual analysis focusing on two primary characteristics: function and contextual sentiment.

Function: Each NEI was examined to determine if it was used as an intensifier.[3] This involved assessing whether the NEI in a given sentence served to amplify or enhance the intensity of the expression.

Contextual Sentiment: We classified the sentiment of the entire sentence as positive (1a), negative (1b), or neutral (1c). A positive sentiment indicated an overall favorable tone, while a negative sentiment signified a negative tone. Neutral sentiment was assigned when the sentence conveyed an extraordinary degree of information, expressed surprise, or did not clearly fit into either positive or negative categories. The following examples illustrate each sentiment category. The examined words are shown in bold.

(1) a.

azután	*elindul*	*egy*	***kegyetlenül***	*szép*	*szerelmi*	*történet*
then	begin.3SG	DET	merciless-ADV	beautiful	love-ADJ	story

[3] In the case of neutral sentiment, the NEI may either function as a sentiment word or retain a literal sense. For the purposes of this study, we specifically focus on instances where the NEI is used as an intensifier. Cases where NEIs serve functions beyond intensification, such as those analyzed in Szabó et al. (2023) or Szabó and Otani (2022), are not within the scope of this discussion.

‘Then a brutally beautiful love story begins’

b.

ez	*az*	*egyik*	*oka*	*a*	*fiatalok*
this	DET	one.of	reason-3SG.POSS	DET	youth-PL

szörnyen	*magas*	*munkanélküliségének*	*Litvániában*
monstrous-ADV	high	unemployment-3SG.POSS-DAT	Lithuania-INESS

‘This is one of the reasons for the terribly high rate of youth unemployment in Lithuania’

c.

durva	*tempó:*	*ma*	*220 millió*	*fát*	*ültettek*	*el*	*Indiában*
harsh	pace:	today	220 million	tree-ACC	plant-PST-3PL	away	India-INESS

‘Shocking pace: 220 million trees were planted in India today’

In example (1a), the NEI *kegyetlenül* (‘brutally’) functions as an intensifier modifying the adjective *szép* (‘beautiful’). The overall sentiment of the sentence is positive, as it describes a love story that is praised for its beauty. The intensifier *kegyetlenül* here adds a layer of emphasis to the positive quality of *szép*, enhancing the reader's perception of the story's beauty. In example (1b), the NEI *szörnyen* (‘terribly’) is used to modify *magas* (‘high’), emphasizing the negative aspect of the youth unemployment rate. The overall sentiment of this sentence is negative, as it discusses an undesirable situation – high unemployment rates among youth. *Szörnyen* serves to heighten the negative sentiment by intensifying the adjective *magas*. Lastly, in example (1c), *durva* (‘shocking’) is used to describe the pace of an action – planting 220 million trees. The sentiment of the sentence is neutral, as it reports an extraordinary event without expressing a specific evaluative semantic content, namely positive or negative evaluation. *Durva* emphasizes the scale of the achievement but does not inherently convey a sentiment. Instead, it highlights the impressive or surprising nature of the action.

5 Results of the analysis

As previously detailed in Section 4, the corpus was segmented into four distinct time periods.

This subdivision follows the temporal categorization established by the Institute for Political Science (Centre for Social Sciences), which provided the corpus. In alignment with their research objectives, the institute divided the corpus according to the parliamentary cycles in Hungary, resulting in four time-based segments.

In this study, we aimed to investigate the semantic-pragmatic evolution of some specific NEIs across these four periods. By comparing the data from each sub-corpus, we sought to identify any temporal shifts in the usage and function of NEIs. Additionally, where the data volume permitted, we conducted a more granular analysis on a calendar-year basis to capture finer-grained changes within the larger time frames.

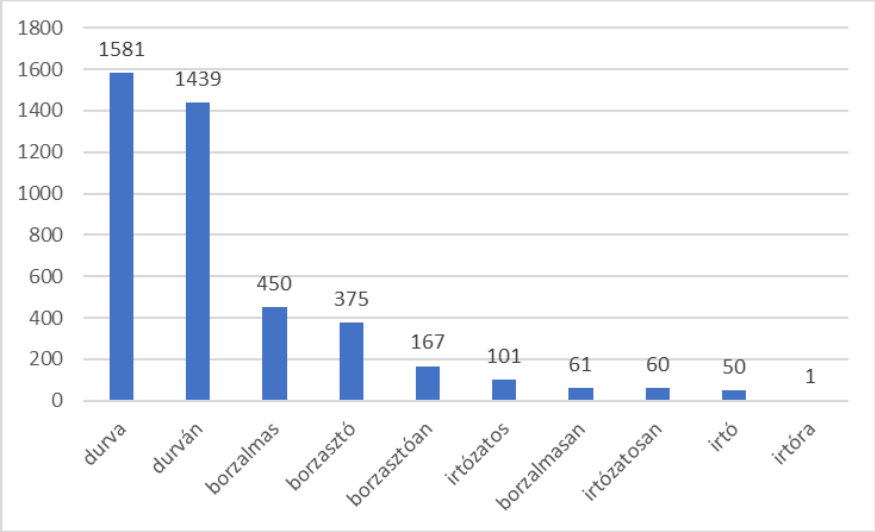
The basic statistical data for the four sub-corpora are provided below.

Table 2. The basic statistical data of the four sub-corpora.

Time Period	**Number of Texts**	**Number of Sentences**	**Number of Tokens (No Punctuation)**	**Number of NEIs**	**NEI Frequency**
2002-12-31 to 2006-05-16	77,466	839,374	16,521,417	505	0.0031
2006-05-16 to 2010-05-14	63,370	860,525	16,939,678	870	0.0051
2010-05-14 to 2014-05-06	84,737	1,220,751	23,693,679	1,365	0.0058
2014-05-06 to 2018-05-08	69,916	1,112,803	21,423,696	1,545	0.0072
Total	295,489	4,033,453	78,578,470	4,285	0.0055

From this point forward, the focus will be exclusively on the results related to the selected NEIs. Figure 1 illustrates the frequency distribution of the ten examined NEIs across the entire corpus.

Figure 1. The number of the examined NEIs



The analysis of the data depicted in the figure reveals that *durva* and its adverbial form *durván*, sharing a common root as discussed in Section 2.3, emerged as the most frequently occurring NEIs within the corpus. These were followed by *borzalmas* and *borzasztó*, which also exhibited substantial frequency. In contrast, *irtó* and its adverbial variant *irtóra* demonstrated significantly lower frequencies, with *irtóra* appearing only once throughout the entire dataset. Notably, the "irt-group," encompassing *irtó* and *irtóra*, consistently showed the lowest overall occurrence rate across the corpus.

Figure 2 displays the frequency distribution of NEIs broken down by their respective lemmas. This breakdown allows for a detailed examination of the occurrence rates of each lemma within the corpus. For a comprehensive understanding of the lemmas under investigation, please refer to Section 2.3.

Figure 2. The number of the examined NEIs broken down according to their lemmas

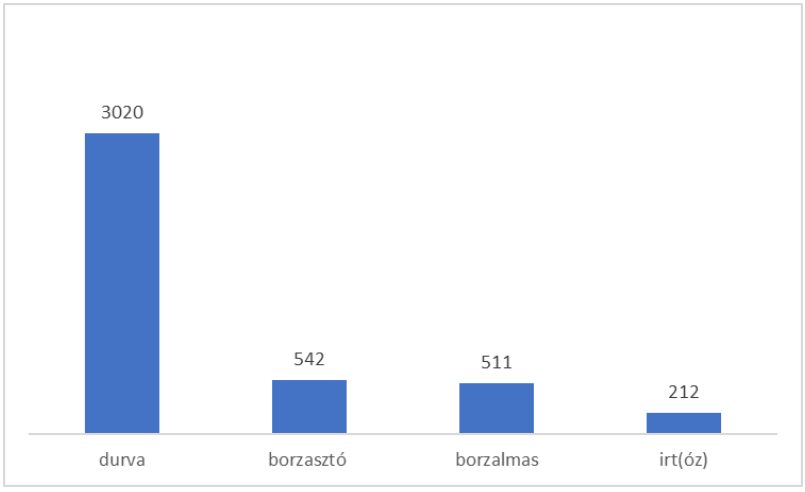
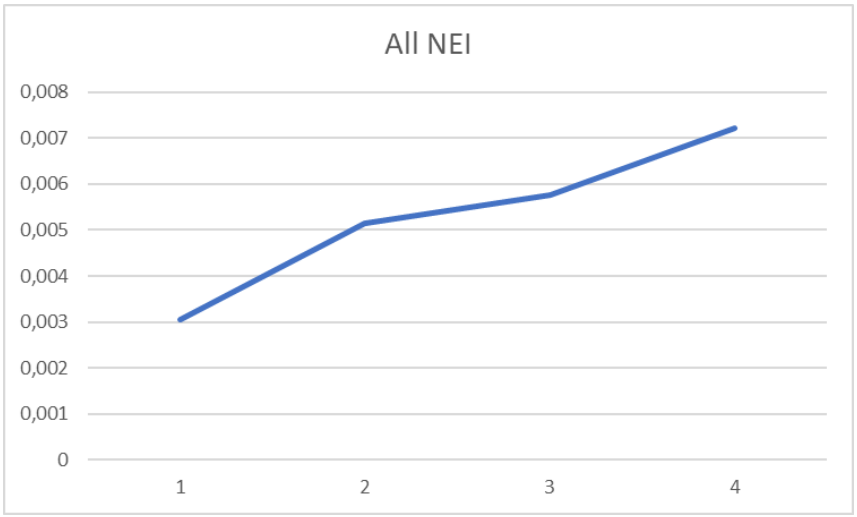


Figure 2 above presents the frequency distribution of selected NEIs based on their lemmas. The data reveal that the lemma *durva* is the most prevalent NEI in the corpus, with a total frequency of 3,020 occurrences. This high frequency underscores its significant role and common usage in the analyzed texts. In contrast, *borzasztó* and *borzalmas* appear less frequently, with 542 and 511 occurrences respectively. This figure suggests that while both terms are notable, they are less dominant compared to *durva*. Lastly, *irt(óz)* occurs 212 times, reflecting its relatively lower frequency in comparison to the others. Overall, these frequencies indicate that *durva* is substantially more prominent in the corpus than the other NEIs, which might reflect its broader or more varied usage in the examined texts.

Regarding the temporal variation in the frequency of NEIs, an overall increasing trend is observed. Figure 3 illustrates the changes in the frequency distribution of these NEIs over time.

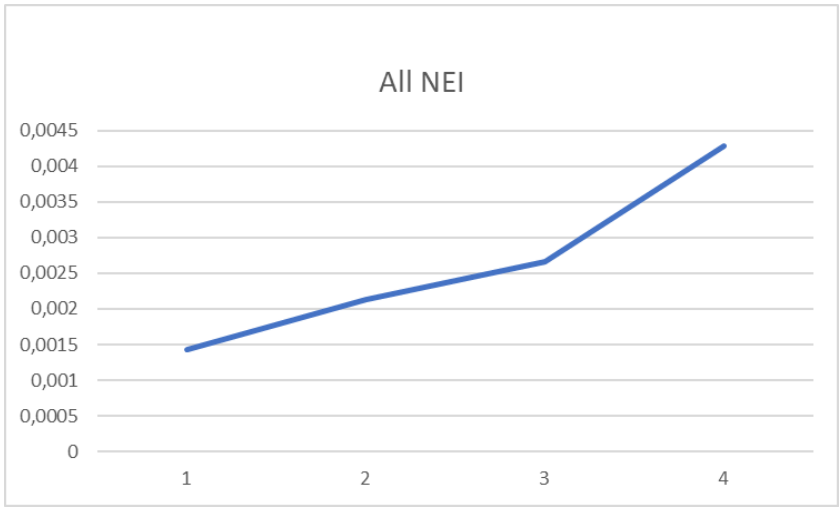
Figure 3. Relative frequency of NEIs in general over the four periods



This trend indicates a growing prominence of NEIs in the corpus, suggesting that their usage has intensified throughout the examined periods. Such an increase could be indicative of their evolving role within the corpus. However, to obtain an accurate picture, it is essential to focus specifically on instances where the examined words are functioning in the role of intensifiers, which is the function of primary interest in our analysis.

If we refine the dataset by focusing on instances where the examined NEIs are specifically functioning as intensifiers, our manual annotation reveals that these NEIs exhibit a consistent upward trend across the four time periods. Figure 4 illustrates the relative frequency distribution of NEIs functioning as intensifiers throughout the corpus.

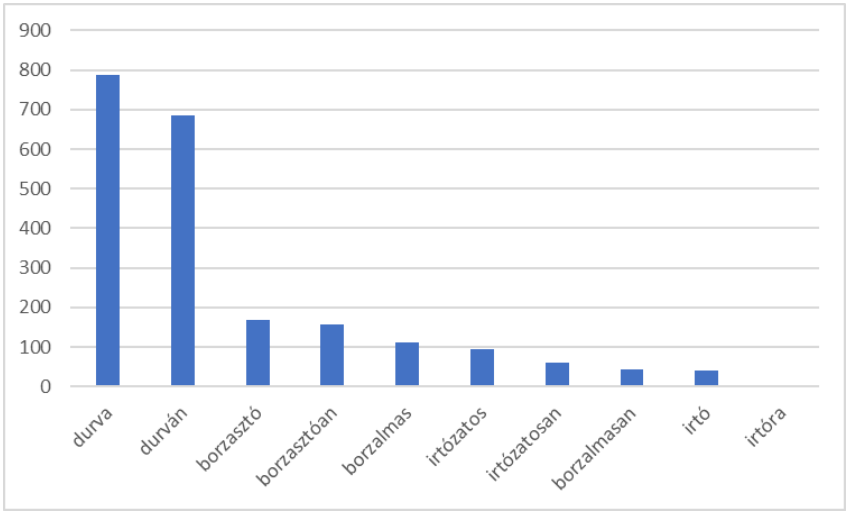
Figure 4. Relative frequency of NEIs in intensifier function over the four periods



If we narrow down the data – using our manual annotation – to those cases where the examined NEI actually had an intensifier function in the given context, we can see that NEIs in this function display a general increasing trend over the four periods again, with a slightly steeper growth in the last period. This trend is particularly pronounced in the most recent period, showing a notably steeper increase compared to previous periods, highlighting their growing prominence and suggesting an intensification in their use within the context of the corpus. This refined analysis underscores the evolving role of NEIs as intensifiers and provides a clearer understanding of their dynamic usage over time.

Let us now examine the frequency of each NEI specifically in its role as an intensifier. The following data details the number of occurrences for each NEI used as an intensifier within the corpus.

Figure 5. The number of the examined NEIs with an intensifier function

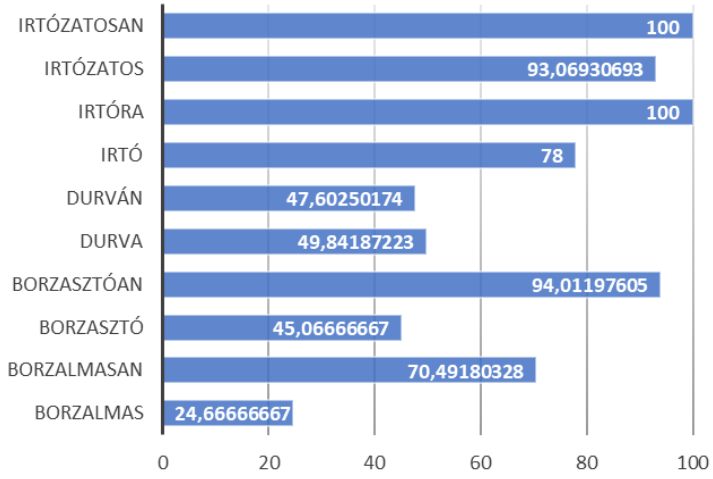


Comparing Figure 5 with Figure 1 reveals a notable shift in the ranking of NEIs when used specifically as intensifiers. Notably, while *borzalmas* ranked 5th in overall frequency (Figure 1), it rises to 3rd place among intensifiers (Figure 6). This indicates that *borzalmas* is used more

frequently as an intensifier compared to *borzasztó* and *borzasztóan*, suggesting a stronger role in intensifying expressions rather than simply appearing in general contexts.

The following figure illustrates the frequency of each NEI specifically functioning as an intensifier, compared to their overall occurrences within the corpus.

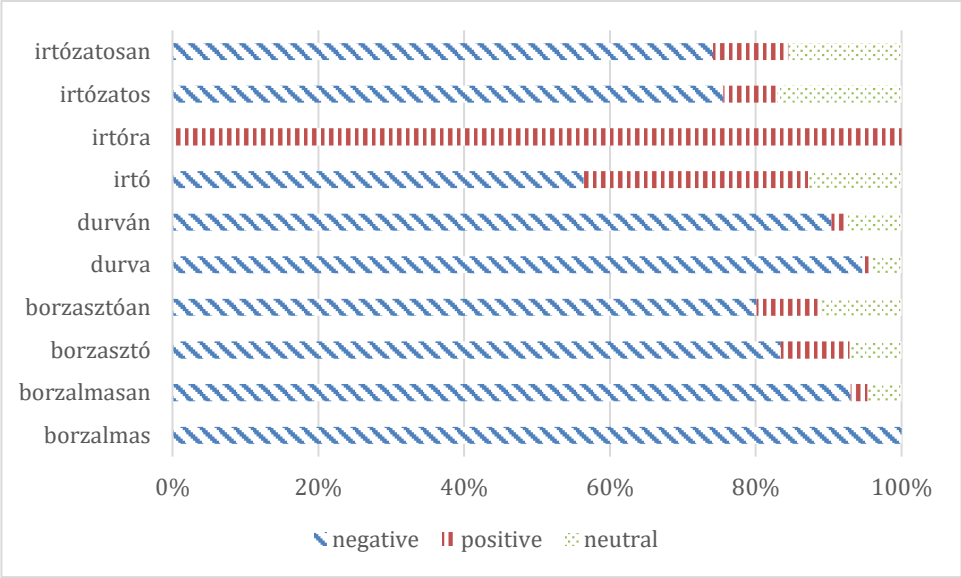
Figure 6. Frequency of NEIs in an intensifier function compared to all occurrences



The results reveal significant variations among the examined NEIs regarding their use as intensifiers. Some NEIs are predominantly or exclusively employed in an intensifier function, while others fulfill this role only in a minority of cases. Additionally, when comparing NEI pairs derived from the same root, it appears that the presence of a suffix generally increases the frequency of the NEI's use as an intensifier. However, an exception to this trend is observed in the pair *durva* and *durván*, where the two forms exhibit nearly identical relative frequencies in the corpus.

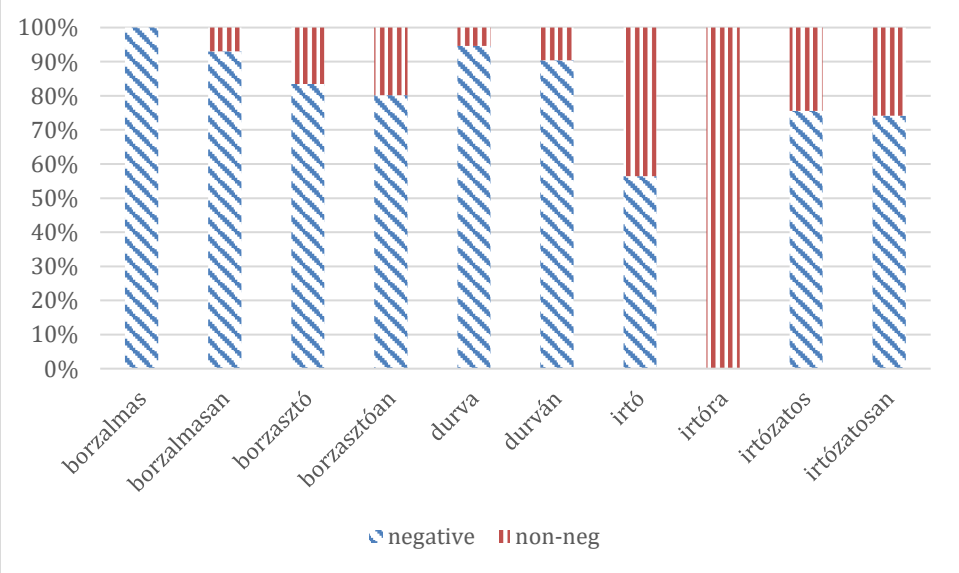
We will now examine the frequency distribution of sentiments, focusing exclusively on cases where NEIs were identified as intensifiers. Initially, we will present data on contextual sentiments, derived from the manual annotation of examples within the corpus.

Figure 7. Frequency distribution of NEIs in the three different contextual sentiments in intensifier function



Noting the results, it is evident that the examined NEIs predominantly appear in negative contexts, with no exceptions. However, there are notable differences in the proportions of negative versus non-negative contexts among the NEIs. For example, *borzalmas* and *borzalmasan* predominantly occur in negative contexts, with only three instances of non-negative contexts for *borzalmasan*. In contrast, *borzasztó* and *borzasztóan* – which share the same etymological root with *borzalmas* and *borzalmasan* (see Section 2.3) – also appear with a significant frequency in non-negative contexts. Figure 8 illustrates this distribution by showing the frequency of contextual sentiments for the NEIs functioning as intensifiers, categorized into negative and non-negative values.

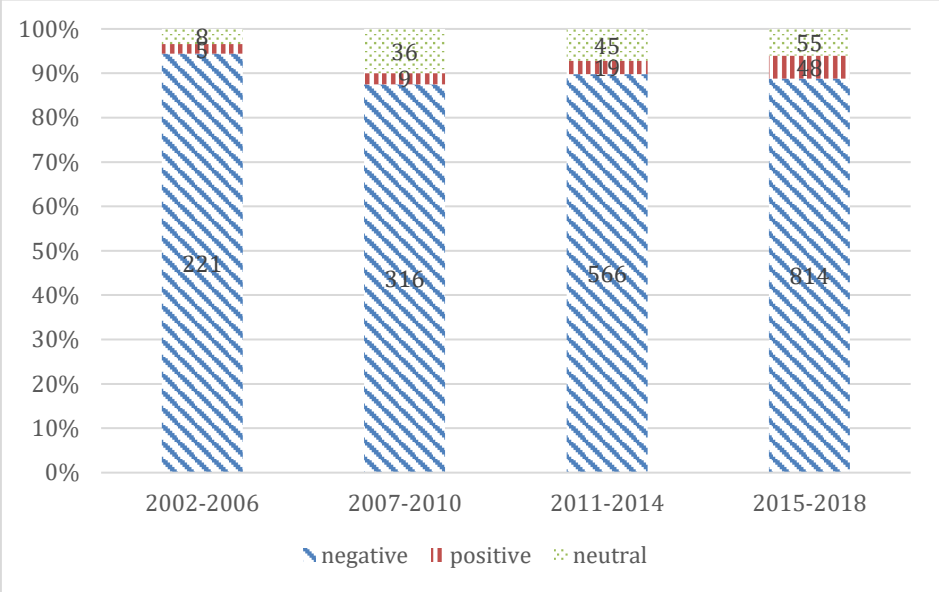
Figure 8. Frequency distribution of contextual sentiments for examined NEIs with intensifier function, broken down by negative and non-negative values



The analysis reveals a notable distinction in sentiment usage for the examined NEIs. Specifically, the occurrence of *irtó* in positive and neutral contexts is particularly striking compared to other NEIs. This trend extends to all forms derived etymologically from the common root *irt* (see Section 2.3). Additionally, the data suggest that NEIs with suffixes tend to appear more frequently in non-negative contexts compared to their unsuffixed counterparts.

The evolution of the frequency distribution of contextual sentiments over time is illustrated in Figure 9 below.

Figure 9. Evolution of the frequency distribution of contextual sentiments over time, aggregated across the 10 examined NEIs.



A notable observation from Figure 9 is the substantial predominance of negative contextual sentiment in the initial time period compared to subsequent periods. Additionally, there is a clear trend of increasing frequency for positive contextual sentiment over time, relative to both negative and neutral sentiments.

Due to the limited frequency of occurrences for each NEI within the individual sub-corpora, we will focus on a more detailed examination of the results pertaining to the two most frequently observed NEIs.

Figure 10. Changes in the frequency distribution of contextual sentiments over time for the NEI durva

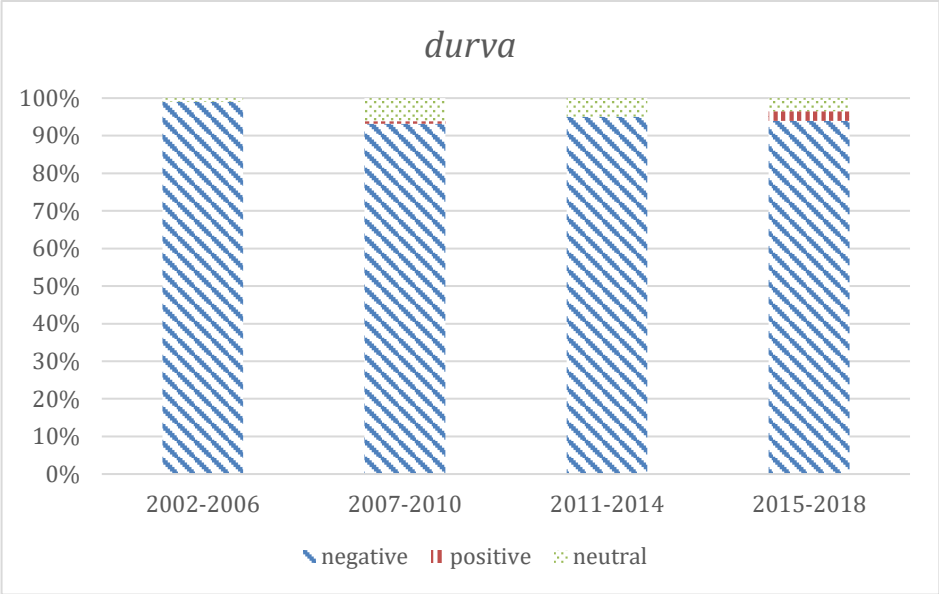
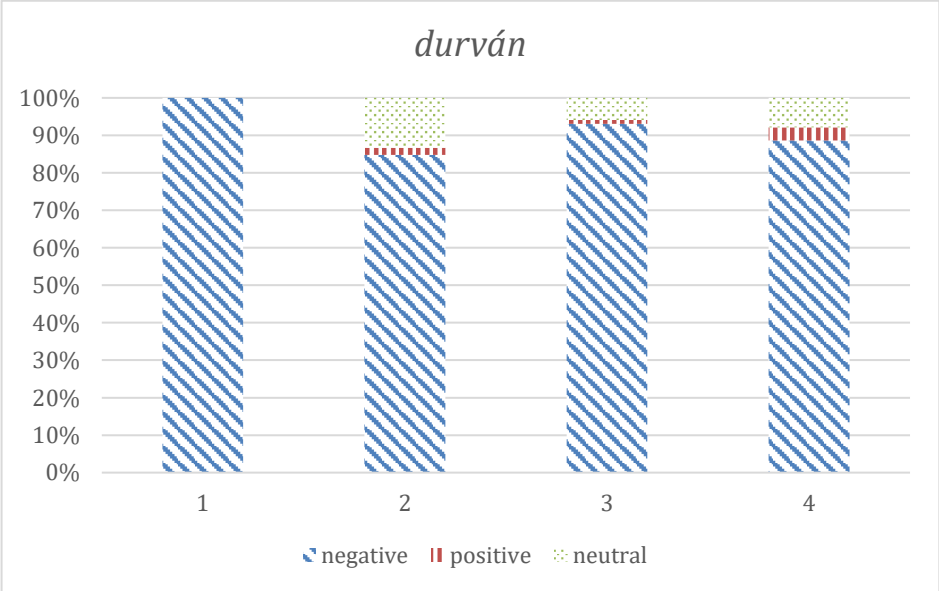


Figure 11. Changes in the frequency distribution of contextual sentiments over time for the NEI durván

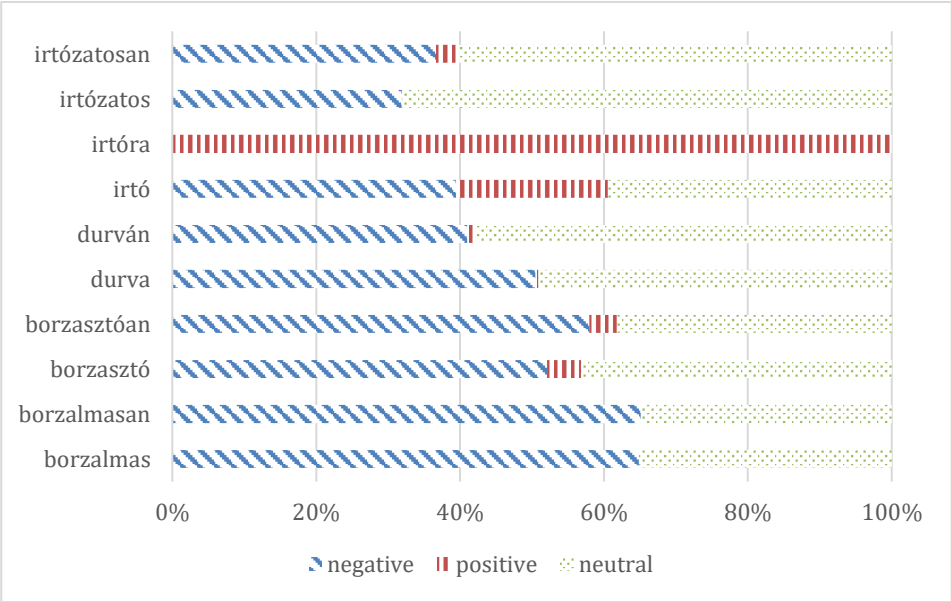


In both cases, we observe that the negative context predominated in the initial time period. However, the frequency of neutral and positive contexts increased in the subsequent periods. Notably, positive contexts exhibit a consistent upward trend over time.

Now, let us examine the results for collocational sentiments. We will present the findings in the same order as we did for contextual sentiments.

First, we will review the overall frequency distribution of the three different sentiment values associated with the collocators of the NEIs.

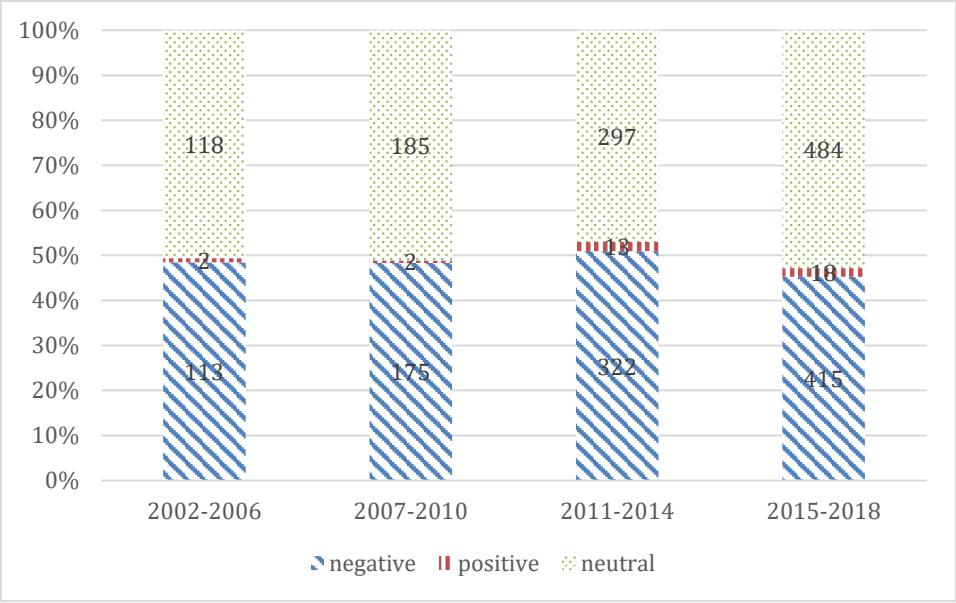
Figure 12. Frequency distribution of NEIs' collocators sentiment values with an intensifier function



The results reveal a noteworthy distribution in the sentiment values of NEIs' collocators. Predominantly, the collocators of NEIs are either negative or neutral, with positive collocators being relatively infrequent. Specifically, some NEIs lack positive collocators altogether. For example, both *borzalmas* and *borzalmasan* exhibit a significant tendency toward negative collocators, and they do not have any positive collocators in the corpus. In contrast, *borzasztó* and *borzasztóan*, which share the same etymological root with the former, show a more balanced distribution. These words not only occur more frequently with neutral collocators but also include positive polarity collocators, indicating a broader range of sentiment associations.

The evolution of collocational sentiment distributions over time is illustrated in Figure 13 below.

Figure 13. Changes in the frequency distribution of collocational sentiments over time for the 10 NEIs



The trend in the modification of positive collocational sentiment mirrors that of positive contextual sentiment, exhibiting a general increase over time. Additionally, the frequency of neutral collocators saw a notable rise in the most recent time period compared to earlier periods.

Given the limited number of occurrences in each sub-corpus, we will focus on a detailed examination of the results for the two most frequent words.

Figure 14. Changes in the frequency distribution of collocational sentiments over time for the NEI durva

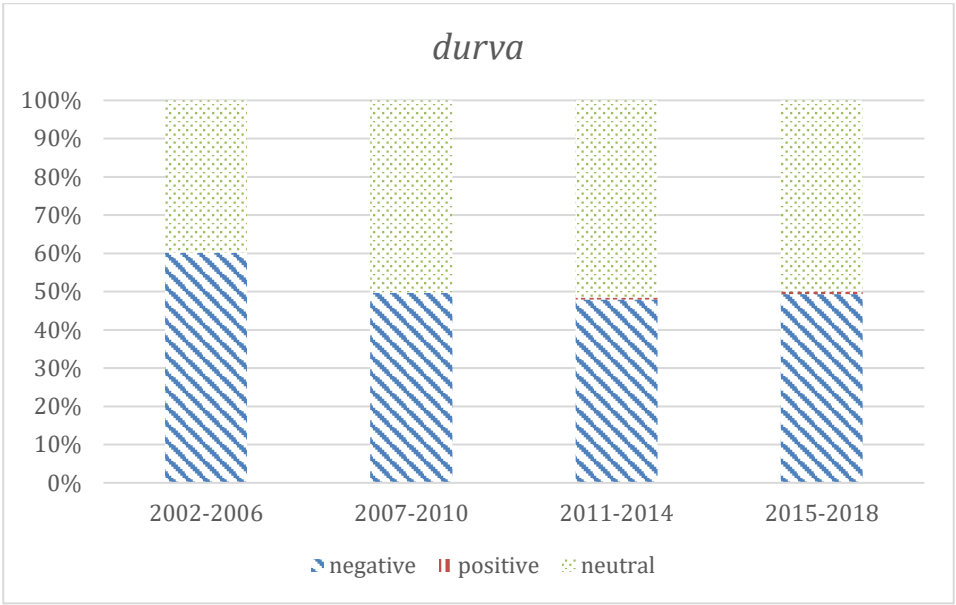
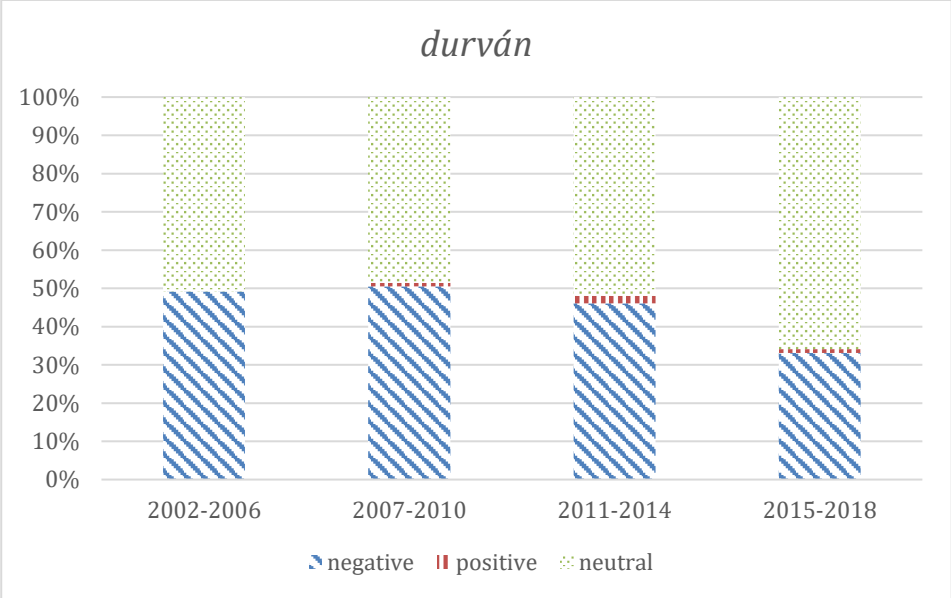


Figure 15. Changes in the frequency distribution of contextual sentiments over time for the NEI durván



As illustrated, the frequency of neutral collocators for *durva* shows a notable increase over time, corresponding to a decrease in negative collocators. This trend is particularly pronounced for *durván* compared to *durva*.

Now, we will examine the collocators of the NEIs at the lexeme level and analyze the changes in sentiment values over time. Table 3 presents the overall results for the entire corpus. Negative sentiment words are underlined, while positive ones are italicized. For a more detailed breakdown, refer to Appendix 1.

This in-depth manual examination of the collocators reveals several noteworthy patterns in the collocation features of NEIs. For instance, a comparative analysis of *borzalmas* and *borzasztó* – which share a common etymological root (see Section 2.3 above) – highlights distinct usage patterns. The adjective *borzalmas* frequently modifies nouns with inherently negative connotations, such as *bűncselekmény* (‘crime’), *tragédia* (‘tragedy’), or *visszaélés* (‘misuse’). In contrast, *borzasztó* often co-occurs with adjectives whose sentiment value is context-dependent. Examples include *nehéz* (‘difficult’ or ‘heavy’), *nagy* (‘large’), and *sok* (‘many’), where the sentiment value can vary significantly based on the context. For instance, *nagy* may carry a negative connotation in the phrase *nagy infláció* (‘great inflation’) but a positive one in *nagy biztonság* (‘great security’) (see Szabó 2018 for further details).

We were also interested in examining how the collocators of NEIs evolved over the four time periods. Here, we revisit the "borz"-group, including *borzalmas*, *borzalmasan*, *borzasztó*, and *borzasztóan*. Detailed results are presented in Appendix 2.

In the initial period, *borzasztó* and *borzasztóan* were associated with positive collocators, unlike *borzalmas* and *borzalmasan*. In the second period, the usage of *borzasztó* and *borzasztóan* increased, whereas the frequency of *borzalmas* and *borzalmasan* did not exhibit a similar trend. Starting from the third period, all four words showed an increase in usage. Notably, *borzasztó* frequently appears with context-dependent words such as *erős*

(‘strong’), *kevés* (‘few’), and *sok* (‘many’), as well as positive polarity words like *hálás* (‘thankful’), *jól* (‘well’), *kedves* (‘kind’), *stabil* (‘stable’), and *profi* (‘professional’). In contrast, *borzalmas* predominantly collocates with terms specific to news contexts, carrying negative semantic content, such as *baleset* (‘accident’), *bűncselekmény* (‘crime’), *földrengés* (‘earthquake’), *karambol* (‘collision’), and *terrorcselekmény* (‘terrorist act’).

6 Discussion

In this section, we synthesize the findings from our detailed corpus analysis of Hungarian NEIs, aiming to contribute to a broader understanding of the linguistic behavior of NEIs not only in Hungarian but also in general. We will explore the implications of the observed frequency trends, contextual and collocational sentiment distributions, and their changes over time. Additionally, we will address the differences among NEIs with common etymological roots and the impact of suffixation on their function as intensifiers. This comprehensive discussion aims to provide deeper insights into the semantic-pragmatic evolution of NEIs and their role in language use across different linguistic contexts.

Our comprehensive sentiment analysis uncovered a prevailing tendency for NEIs to occur within a negative contextual sentiment. However, our findings also highlight significant variations among these words in terms of the frequency of negative versus non-negative contexts. Particularly striking is the case of the “irt-group”, which appears to exhibit the highest degree of desemanticization among NEIs, as evidenced by both their contextual and collocational sentiment characteristics. This suggests that the “irt-group” has become more neutral or positive over time, reflecting a shift in its semantic-pragmatic usage.

To better understand these nuances and draw more precise conclusions, let us now examine the results in more detail.

As for the “borz-group”, the analysis revealed that *borzalmas* and *borzalmasan* almost exclusively appear in negative contexts, whereas *borzasztó* and *borzasztóan* frequently occur in neutral contexts and sometimes even in positive ones. The results indicate that *borzasztó* and *borzasztóan* have undergone a greater degree of desemantization, making them more versatile in their use as intensifiers, despite all these words belonging to the same “borz-group”. These findings are consistent with the results from our collocational sentiment analysis. Specifically, *borzasztó* and *borzasztóan* are more likely to collocate with neutral, context-dependent words like *nagy* (‘large’), and *sok* (‘many’). They also collocate with positive words such as *hálás* (‘thankful’), *jól* (‘well’), *kedves* (‘kind’), *stabil* (‘stable’), and *profi* (‘professional’). However, *borzalmas* and *borzalmasan* primarily collocate with negative words, such as *bűncselekmény* (‘crime’), *tragédia* (‘tragedy’), and *visszaélés* (‘misuse’).

These observations highlight the varied semantic and pragmatic behaviors within the same etymological group and underscore the importance of examining individual NEIs in detail. The differences in contextual sentiment and collocational patterns among NEIs are crucial for understanding the linguistic behavior of NEIs, as they show how some intensifiers become more desemanticized and versatile over time, while others retain stronger ties to their original negative connotations.

As for the differences between contextual and collocational sentiment results, we assumed that there may be some divergence between these sentiments in a general, non-diachronic perspective. From the results, although these features are essentially consistent with each other, there are some noteworthy differences. For instance, *durva* and *durván* have a neutral collocator almost as frequently as negative collocators, but they predominantly occur in negative contexts. This suggests a discrepancy between the collocational sentiment and the broader contextual sentiment in which these NEIs are used.

In relation to this, based on collocational sentiment results, *durva* and *durván* seem more neutral compared to *borzasztó* and *borzasztóan*. However, the contextual sentiment results suggest the opposite, indicating that *durva* and *durván* are more frequently associated with negative contexts.

This suggests a discrepancy between the collocational sentiment and the broader contextual sentiment in which these NEIs are used. This discrepancy underscores the importance of analyzing both sentiment types separately when studying NEIs. Each type of sentiment analysis offers unique insights that are essential for a comprehensive understanding of NEIs' semantic behaviors. Therefore, in these types of semantic studies, it is crucial to analyze both contextual and collocational sentiment features. Contextual sentiment analysis provides a broad view of how NEIs function within entire sentences or larger text units. It captures the overall emotional tone of the whole utterance NEIs occur in, reflecting its contribution to the sentiment of the whole statement. At the same time, collocational sentiment analysis focuses on the NEIs' immediate lexical environment, revealing the sentiments of words that NEIs modify.

This dual approach can provide valuable insights and a deeper understanding of the semantic nuances of NEIs. Dual analysis can help detect inconsistencies or discrepancies in NEI usage. For example, an NEI might appear neutral in collocational sentiment but exhibit strong negative connotations in contextual sentiment. Thus, NEIs may carry nuanced meanings that a single type of analysis might miss. Combining contextual and collocational sentiment analyses enables researchers to capture these nuances, leading to more refined and precise interpretations of NEIs' functions and implications.

Regarding the sentiment changes over time, we hypothesized that both contextual and collocational sentiments of NEIs would reflect semantic modifications of these words over time. Our results confirmed this hypothesis. Specifically, we observed an increase in the frequency of positive contextual and collocational sentiments over time. Additionally, when comparing the first and last periods, we noted a similar increase in the frequency of neutral sentiments.

Focusing on the most frequent NEIs, *durva* and *durván*, we observed that these words occurred almost exclusively in negative contexts during the first time period. In fact, *durván* was used exclusively in negative contexts. However, this pattern evolved over the years. From the second time period onwards, both *durva* and *durván* began to appear in positive contexts, with a notable increase in the number of positive occurrences in the last period.

These findings highlight the dynamic nature of NEIs and their semantic shifts over time. The diminishing negative content and the increasing presence of NEIs in a broader range of contexts suggest a trend towards desemantization. As NEIs become more widely accepted and

used in various contexts, their intensifier function starts to overshadow their prior negative connotations. This broader acceptance and usage can dilute their original emotive strength, making them more neutral, allowing for greater flexibility in their usage.

To gain a deeper understanding of the semantic evolution of NEIs over time, we analyzed the data from the "borz-group" at the level of collocators. Our findings indicate that even in the earliest period, *borzasztó* and *borzasztóan* appeared to be more desemantized compared to *borzalmas* and *borzalmasan*. Notably, *borzasztó* and *borzasztóan* already exhibited positive collocators during the first time period, suggesting a shift away from their originally negative connotations.

Over the years, this distinction between the "borz-group" members has become more pronounced. Both *borzasztó* and *borzasztóan* have increasingly become associated with a wider array of collocators, reflecting a broader semantic range and further desemantization. This trend is marked by their growing frequency and their ability to collocate with a diverse set of words.

By the third period, we observed a significant divergence in the contextual features of these words. Specifically, *borzasztó* not only appeared with context-dependent words but also with positive polarity words, indicating a substantial shift in its usage. In contrast, *borzalmas* showed a stronger association with terms specific to the news domain, such as *baleset* ('accident'), *bűncselekmény* ('crime'), and *földrengés* ('earthquake'), emphasizing its continued negative connotations.

This detailed examination underscores that the presence of a common etymological root does not guarantee a uniform semantic trajectory for NEIs. The contrasting developments observed between *borzasztó* and *borzalmas* illustrate how words sharing the same root can diverge significantly in their semantic evolution.

Regarding the impact of morphological form on the grammaticalization process, our findings indicate that *borzalmasan* tends to appear more frequently in neutral contexts compared to *borzalmas.* This suggests that the presence of a suffix may facilitate the desemantization process, allowing the NEI to be used in a broader range of contexts with less emotional intensity. The increased frequency of *borzalmasan* in neutral contexts aligns with this interpretation and is further supported by the observation that the presence of a suffix generally enhances the frequency of an NEI used as an intensifier.

However, it is noteworthy that *durva* and *durván*, display exceptions, as the two forms occur with nearly identical relative frequencies. This exceptional case highlights that while suffixation can influence semantic change over time, it does not always result in significant changes across all word pairs.

In terms of collocational sentiment, *borzalmasan* exhibits a broader range of positive collocators compared to *borzalmas*, reinforcing the notion that suffixation can contribute to desemantization. Nonetheless, this trend does not appear to have intensified over time, as evidenced by *borzalmasan* not collocating with any positive words in the fourth time period.

Overall, our results suggest that the common lemma – e.g., *borzalmas* and *borzalmasan* versus *borzasztó* and *borzasztóan* – has a more substantial impact on sentiment features than morphological variations. Both synchronic and diachronic analyses reveal consistent sentiment patterns within each NEI group based on their shared roots. This underscores the importance of

considering both the common etymological root and morphological form in understanding the semantic evolution and sentiment distribution of NEIs.

Our results offer valuable insights when examined through the lens of two linguistic theories that predict different outcomes for semantic change over time: *The law of differentiation* and *The law of parallel change* (Xu and Kemp 2015). As discussed in Section 3, *The law of differentiation* posits that near synonyms tend to diverge in meaning, while *The law of parallel change* suggests that words with related meanings often evolve in similar ways over time.

The NEIs in our study exhibit a pattern consistent with *The law of parallel change* in certain respects. Initially characterized by a negative semantic content, these NEIs undergo grammaticalization to adopt an intensifier function (Heine 2013). According to Szabó et al. (2023), the presence of a DEGREE semantic component is crucial for interpreting NEIs as intensifiers in specific contexts. This DEGREE component appears to be inherent in each NEI from the onset of its semantic evolution, leading to a parallel development into intensifiers over time. Thus, this aspect aligns with *The law of parallel change*.

However, our findings also reveal that NEIs exhibit divergence over time. For example, within the "irt-group," NEIs such as *irtó* have shown a tendency to appear in more neutral and positive contexts compared to others. Similarly, within the "borz-group," there is a notable divergence: *borzalmas* and *borzalmasan* tend to appear in more negative contexts and are frequently associated with news-related domains, whereas *borzasztó* and *borzasztóan* have shown greater neutrality in sentiment and domain.

These observations suggest that both laws play a role in the semantic evolution of NEIs, with one law prevailing at different times or in varying contexts. Therefore, the semantic development of NEIs serves as a compelling example of how seemingly contradictory linguistic laws can simultaneously apply, depending on the temporal or contextual perspective.

7 Conclusions and limitations

Our analysis offers several significant insights into the semantic evolution of NEIs. The key findings can be summarized as follows:

1. **Desemantization variability**: Despite sharing a common etymological root, some NEIs exhibit greater desemantization than others. This variation highlights that the semantic development of NEIs is not uniform even among words with a shared origin.
2. **Temporal changes in sentiment**: Both contextual and collocational sentiments of NEIs reflect their semantic modifications over time. Our results indicate that NEIs generally shift from negative to more neutral or positive sentiments as they evolve, demonstrating how their use and meaning adapt within different contexts.
3. **Contextual vs. collocational sentiments**: Notable discrepancies exist between contextual and collocational sentiments for some NEIs. This suggests that a comprehensive analysis of NEIs requires examining both types of sentiment data. Contextual sentiment provides insight into the broader usage and emotional tone of

NEIs, while collocational sentiment reveals the sentiment values of their collocators with other words.

4. **Semantic peculiarities of collocators**: The semantic content of words that collocate with NEIs varies significantly not only in terms of sentiment but also in other semantic dimensions. For instance, NEIs like *borzalmas* tend to collocate with terms related specifically to news, whereas others like *borzasztó* exhibit a wider range of collocators including neutral and positive terms. This variation underscores the importance of a nuanced approach when analyzing NEIs: quantitative and qualitative analyses of NEIs must carefully account for the specific text domain of the corpus under investigation, as this context can significantly influence NEIs' semantic roles and frequencies (for more details see above).
5. **Impact of morphological form**: The morphological form of NEIs, specifically the presence or absence of suffixes, seems to influence the pace of desemantization. NEIs with suffixes tend to show a more neutral sentiment, suggesting that suffixation contributes to the desemantization process. However, the common lemma has a more substantial impact on sentiment features than the morphological form alone. Sentiment results consistently categorize NEIs into groups based on their lexical roots, highlighting the importance of root-based analysis.
6. **Role of linguistic laws**: The semantic development of NEIs exemplifies the interplay between *The law of differentiation* and *The law of parallel change*. While NEIs often develop in parallel as they transition to intensifiers, they also diverge in meaning and usage over time. This dual influence of the laws indicates that the semantic evolution of NEIs can reflect both convergent and divergent trends, depending on the time period.

Despite these insights, several limitations must be acknowledged.

Several scholars highlight the crucial role of genre and domain in shaping semantic preference features. Hoey (2003), Partington (2004), Bednarek (2008), Zhang (2013), and Fuchs and Gut (2016) all emphasize that the genre and domain significantly impact the semantic characteristics of language. Bednarek (2008) notes, "Semantic preference is probably context-, genre-, and domain-dependent" (p. 123), underlining that the meanings and associations of words can vary considerably across different contexts. Similarly, Zhang (2013: 78) asserts that "semantic prosody is also genre-specific", citing examples such as Ooi's (2000) study on the word *cheat*, which carries a positive prosody in the context of electronic games, and Hunston's (2007) analysis of the term *cause*, which remains largely neutral in scientific writing. These examples illustrate that the semantic prosody and preferences of words are not static but are shaped by the specific contexts in which they appear.

As for intensifiers specifically, previous research underscores the critical role of domain and genre in shaping the semantic and functional characteristics of NEIs. Studies by Szabó (2018), Szabó and Otani (2022), and Szabó and Bibok (2023) reveal significant domain-dependent variations in NEIs' semantic features, suggesting that the specific context in which NEIs are used influences their meanings and functions. Furthermore, Tagliamonte's (2005) research, as cited by Wachter (2012), indicates that more emotionally charged language favors different intensifiers, reinforcing the notion that genre-specific factors play a pivotal role in NEI

usage.

The findings from this study align with these observations. For example, as we have discussed, *borzalmas* frequently collocates with terms tied specifically to news contexts, reflecting a more specialized and negative semantic scope. In contrast, NEIs like *borzasztó* exhibit a broader range of collocators, including neutral and positive terms. This variation highlights that NEIs are not used uniformly across different genres. To conclude, the domain in which NEIs appear can profoundly influence their semantic development and usage patterns, as demonstrated by the variations observed in this study. The domain significantly impacts NEIs' semantic roles, frequencies, and functions, necessitating a nuanced approach in research. Therefore, the analysis of NEIs – both quantitatively and qualitatively – must meticulously consider the text domain.

Another significant limitation of this study is the relatively brief time span encompassed by our corpus. The dataset covers only 20 years, which may not adequately capture the full extent of semantic and pragmatic changes occurring in NEIs over time. Semantic and pragmatic shifts, particularly those involving contextual and collocational sentiment, often develop gradually and require a longer temporal scope to be accurately reflected. Consequently, the limited duration of the corpus may restrict the comprehensiveness and reliability of the observed trends.

To address this limitation, future research should consider expanding the temporal scope of the corpus to include a broader range of years. A more extensive dataset would enable a more nuanced analysis of the long-term evolution of NEIs, providing a clearer understanding of how their semantic and pragmatic features change over extended periods. Comparative studies incorporating larger timeframes will contribute to a more robust and detailed understanding of the dynamic nature of NEIs, allowing for a more accurate assessment of their semantic development and shifts.

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