



DEVELOPMENT OF A PRODUCTIVE DERIVATIONAL PATTERN ON THE BASIS OF LOAN TRANSLATION? THE CASE OF CROATIAN ADJECTIVES FORMED WITH THE PREFIX *MEĐU*-¹

1 INTRODUCTION

This paper deals with Croatian adjectives containing the prefix *među-* ‘inter-’, the majority of which are derived on the basis of the [*među*-N-Suff]_{Adj} pattern. Such adjectives are a result of the simultaneous addition of a prefix and a suffix to a nominal base, as in the examples *među-grad-ski* ‘intercity’² (<*grad* ‘city’) or *među-zub-ni* (<*zub* ‘tooth’) ‘interdental’ (Babić 2002: 445). While this word-formation pattern is productive in contemporary Croatian, diachronic data seem to demonstrate that it accounted for just a few adjectives only about a hundred years ago.

More precisely, when one analyses older available dictionaries, such as the Dictionary of the Croatian or Serbian Language (also known as the Academy’s Dictionary, Budmani/Maretić 1904–1910), one finds only several such adjectives, most of which are either hapax legomena or recent inventions formed as equivalents of Latin or German terms. In line with that important fact, one could arguably presume that the [*među*-N-Suff]_{Adj} pattern did not exist in the Croatian language, but that it emerged only sometime in the 19th century, first as a result of loan translations of Latin and German terms. The only adjective listed in the Academy’s Dictionary that is not claimed to be a loan translation (calque) is *međusoban* ‘mutual’ (<*među* ‘between’ + *se*(*be*) ‘oneself’). However, this adjective, according to the information provided, only appears in the works of several authors in mid- or late 19th century. These facts seem to underpin the conclusion that it was probably in the 19th century that *među-* prefixed adjectives first appeared in Croatian.

The next available lexicographic source, Benešić’s dictionary (1957), comprising Croatian literary works published from the beginning of the 19th century until the

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- 2 All the English equivalents in the paper, unless otherwise indicated, were provided from the Merriam Webster online dictionary available at: <https://www.merriam-webster.com/> (accessed in August 2020). The writing rules, especially those related to hyphenation, were preserved as they appear in the dictionary.

1940s, lists only three *među-* adjectives: *međunarodan* ‘international’, *međusatni* ‘occurring between two (school) classes’ and *međuzvezdani* ‘interstellar’. This fact, while based on literary works only, still points to the conclusion that *među-* adjectives were not that common in mid-20th century Croatian. Newer dictionaries, however, list more *među-* adjectives; thus in *Veliki rječnik hrvatskoga standardnog jezika* (2015) (the *Large Dictionary of Croatian Standard Language*, henceforth: VRH 2015), the largest dictionary of the Croatian standard language, one finds 37 such adjectives.

In order to complement the analysis of the lexicographic works, a part of the study presented in this paper also included an analysis of three digital corpora: Riznica, a corpus containing literary and other written sources from the second half of the 19th century to this day, HNK (Hrvatski nacionalni korpus), the Croatian national corpus comprising texts written from 1990 onwards, and hrWaC, a web corpus and the largest extant corpus of the Croatian language. The corpora results seem to corroborate the lexicographic ones. More precisely, in the Riznica corpus, as few as four *među-* adjectives appear between late 19th century and the 1970s, and they start to become more numerous from the 2000s onwards. In the HNK, there are 51 *među-* adjectives with 10 or more occurrences, and in hrWaC there are as many as 134 *među-* adjectives with 10+ occurrences. These facts point to the conclusion that, over time, the [*među-N-Suff*]_{Adj} pattern has started to produce more and more adjectives, some of which have not yet been listed in dictionaries. The absence of certain *među-* adjectives found in the hrWaC corpus from dictionaries might, firstly, be a result of the fact that some of them are specialized terms which one would not expect to find in general language dictionaries such as the VRH, and secondly, of the fact that it takes some time for dictionaries, especially paperback ones, such as the VRH, to list new lexemes that have already existed in the language for some time.

The central question that we explore in this paper is whether the [*među-N-Suff*]_{Adj} pattern appeared as a result of loan translation.

Even though lexicographic works such as the Academy’s dictionary seem to suggest that *među-* adjectives appeared as loan translations of Latin and German terms in the 19th century, Croatian borrowing literature says little about phenomena related to the borrowing of derivational morphemes, with rare exceptions (cf. Kovačec 1967: 101–103; Dabo-Denegri 2007: 44). When it comes to the borrowing of morphemes generally, it is usually separated into borrowing of inflectional morphemes, which was considered by some prominent linguists as virtually impossible (e.g. Meillet 1926; Jakobson 1938), and borrowing of derivational morphemes, which some authors consider to be more susceptible to borrowing (e.g. Weinreich 1953). Today, there is general agreement among linguists that inflectional borrowing is a relatively rare phenomenon, while derivational morphemes are more easily borrowed (Gardani, Arkadiev and Amiridze 2015: 9).

In this paper, we hypothesize that adjectives formed according to the [*među-N-Suff*]_{Adj} pattern first appeared in Croatian as a result of loan translation under Latin and German influence, and that the pattern was subsequently reinforced under strong English influence. Even though this hypothesis cannot be entirely confirmed, once the

[*među*-N-Suff]_{Adj} pattern appeared in Croatian, it probably continued to exist to some extent, as supported by evidence of the Riznica corpus and Benešić's dictionary. However, it was only in the mid- and late 20th century that it really became productive, as attested to by the VRH dictionary, as well as the HNK and hrWaC corpora. That period coincides with a large English influence on Croatian (Filipović 1990; Samardžija 2002; Turk 2013), so it could be assumed that the influence of English contributed to the reinforcement of the [*među*-N-Suff]_{Adj} pattern, and to the creation of a larger number of new *među*- adjectives.

The rest of the article is organized as follows: Section 2 provides an overview of language borrowing phenomena, with a special focus on morphology, especially that which is derivational, and the difference between MAT and PAT borrowing (Sakel 2007). Section 3 positions the Croatian language in the context of language borrowing, emphasizing especially the role of loan translations (calques). In Section 4, we provide more details about the derivation of adjectives in Croatian. Section 5 is dedicated to the methodology we have used to study the question of whether *među*- adjectives appeared in Croatian as a result of loan translation. Our methodology is a combination of analyses conducted on available lexicographic works and digital corpora. Section 6 presents the results of our analysis. It shows that, as predicted at the beginning, *među*- adjectives first emerged as a result of loan translation, and have become more numerous with time, with the highest number of occurrences recorded in contemporary Croatian, both according to lexicographic and corpus data. The majority of adjectives are formed via the [*među*-N-Suff]_{Adj} pattern, and the *među*- prefix in these adjectives behaves like a polysemous morpheme whose meanings form a radial structure, with the prototypical (spatial) meaning at the centre (cf. Lakoff 1987). In Section 7 we provide some concluding remarks, reaffirming our hypothesis that *među*- adjectives have entered the Croatian language as a result of loan translations of Latin and German terms, and could subsequently have become more numerous under English influence. This is also corroborated by data from the Etymological Dictionary of the Croatian Language (2016).

2 BRIEF OVERVIEW OF LANGUAGE BORROWING PHENOMENA

Linguistic change stemming from language contact could be said to be an almost universal phenomenon occurring in both existing and extinct languages (cf. Grant 2019: 1). Another well-known fact is that language contact can affect the participating languages on a number of levels, and most prominently in the lexicon (e.g. Thomason 2001: 10; Turk 2013; Poplack 2018: 1; Grant 2019: 1). In this paper, however, attention is turned to a different aspect of language contact, morphological borrowing. The issue has been much less explored than lexical borrowing, but today is “far from being unknown” (Grant 2019: 17). Moreover, recent years have seen an increasing scholarly interest in the field of morphological borrowing (Gardani, Arkadiev and Amiridze 2015: 1).

There are various phenomena that enter the field of morphological borrowing. They are generally divided into two major types: borrowing of inflectional morphemes (e.g. Weinreich 1963: 31–33; Kovačec 1967; Minayeva 2003), and borrowing of derivational morphemes (e.g. Della Volpe 1997; Coghill 2015).

Sakel (2007) distinguishes two basic types of borrowing between languages: matter borrowing (MAT) and pattern borrowing (PAT). MAT-borrowing refers to taking over both morphological material and its phonological form, while PAT-borrowing refers to replicating the organization and grammatical or semantic meaning without borrowing the form itself. This second type results from loanshifts or calques (Sakel 2007: 16). In other words, PAT-borrowing refers to the situation in which a recipient language uses its own morphological elements and organizes them in a way that resembles the structure of the source language (cf. Gardani, Arkadiev and Amiridze 2015: 3).

This paper focuses on a particular type of PAT derivation: loan translation of complex words consisting of an affix (a prefix), a (nominal) base and a suffix. A general claim in the literature on affix borrowing is that affixes are most commonly borrowed indirectly, as part of complex loanwords (Weinreich 1963: 31–32). In such a case, a number of complex loanwords enter a recipient language, and only subsequently can its speakers analyse these words into their constituent parts and eventually start using a foreign affix with native bases (cf. Seifart 2015: 512). In direct borrowing, on the other hand, an affix is recognized by the speakers of a recipient language and immediately used with native bases (*ibid.*). For Seifart (2015), the crucial difference between the two types of affix borrowing lies in the question of whether speakers of a recipient language understand the source language. If they do, it can lead to a situation of direct borrowing.

Loan translations or calques are a specific type of borrowing. In the case of complex words, a number of authors distinguish between an “entire calque”, or the reproduction of a complex foreign word element by element (*loan translation proper*, Weinreich 1963: 51; Martinet 1980: 170), and a “partial calque”, or the loan translation of only parts of words (*loan rendition*, Weinreich 1963: 51; *calque approximatif*, Martinet 1980: 170). When applied to words formed with affixes, examples of the first case would be loan translations of both an affix and a base (e.g. French *pré-élargissement* ‘pre-enlargement’ -> Polish *przedrozszerzenie*, Trajder 2007: 140), and of the second one loan translation of the affix only (e.g. French *supercommissaire* ‘super-commissioner’ -> Polish *superkomisarz*) (*ibid.*).

In the examples analysed in this paper, i.e. in Croatian *među-* prefixed adjectives, entire calque is at work due to the fact that both the prefix (*među-*), the base and (usually) the suffix are borrowed and translated, i.e. expressed with Croatian linguistic material, such as in the following example: Latin *internationalis* (*inter-* ‘inter- + *natio* ‘nation’ + *-alis* ‘adjectival suffix’ = ‘international’) > Croatian *međunarodan* ‘international’ (*među-* ‘inter-’ + *narod* ‘people’ + *-an* ‘suffix’). Before proceeding with the analysis of adjectives, some details need to be provided about major linguistic influences on Croatian, as well as about the formation of Croatian adjectives in general.

3 CROATIAN IN THE CONTEXT OF LANGUAGE CONTACT

At its very beginnings, Croatian already came into contact with several substrate languages, and had lasting contact with Latin as the language of Western Christianity, administration and education (Samardžija 2002: 61). By the end of the Middle Ages, it had

also established contacts with a number of neighbouring languages: Italian, Hungarian, German and later on Turkish, all of which exerted influence primarily on the lexical level, at times very strongly³ (Samardžija 2002: 61–62). Latin loanwords from the areas of Christianity and philosophy, but also related to administration, law and new inventions, were for a long time the most numerous ones in Croatian (Samardžija 2002: 63).

Calques became a regular phenomenon in the Croatian lexicon starting from the second half of the 16th century, and were especially related to the publication of first larger dictionaries (Samardžija 2002: 63). Older Croatian lexicographic works were usually bi- or even multi-lingual, and their source language was usually a foreign one, mostly Latin (Gostl 1995). Faced with numerous gaps on the Croatian side, lexicographers were oftentimes forced to invent equivalents themselves, which resulted in a large number of neologisms, calques, etc. (Samardžija 2002: 64).

At the time of the industrial revolution, a considerable number of new technical and scientific terms were formed on the basis of classical languages (Latin and Greek), which are sometimes called Europeisms (Croatian *europaizmi*) due to their presence in a number of modern European languages (Samardžija 2002: 65). At the end of the 19th century, Croatian borrowed a number of internationalisms through its contacts with German and Italian (Samardžija 2002: 65). It needs to be emphasized that Latin was the official language in continental Croatia until 1847, followed by German until 1860 (Samardžija 2002: 66). When Croatian finally became the official language, it lacked functional diversity. It therefore saw numerous additions in the second half of the 19th century, during which time two prominent lexicographers played a key role: Šulek in continental Croatia and Parčić in littoral Croatia (Samardžija 2002: 66–67). They both agreed on providing Croatized words for all notions where it was possible (Samardžija 2002: 67), which left the language once again with a substantial portion of calques.

In recent history, English is undoubtedly the language that has exercised by far the strongest influence on Croatian (Samardžija 2002: 72). Numerous Anglo-American elements have spread into Croatian owing primarily to the media, and have entered the language at a quick pace (Samardžija 2002: 72). Moreover, Turk (2013: 159) claims that in the second half of the 20th century Croatian was “inundated” by loanwords from English. English influence on the Croatian language has occurred both overtly, in the acceptance and adaptation of English lexemes into the lexicon, and covertly, as loan translations, which are “really numerous” (Muhvić-Dimanovski 1992: 94), and can be found on virtually all language levels (Margić Drljača 2009).

4 ADJECTIVAL WORD-FORMATION PROCESSES IN CROATIAN

Having given an overview of language contact phenomena relevant for this paper, this section shall provide some more details about the formation of adjectives in Croatian. The major word-formation processes on the basis of which Croatian adjectives are formed are the following: suffixation (e.g. *glazba* ‘music’ + *-en* ‘suffix’ > *glazben* ‘musical’), prefixation (e.g. *ne-* ‘un-’ + *služben* ‘official’ > *neslužben* ‘unofficial’),

3 Multinational states such as the Austro-Hungarian Monarchy, which Croatia was a part of, were an important factor that contributed to language contacts (Turk 2013: 15).

prefix-suffix combination (e.g. *izvan-* ‘out-’ + *brak* ‘marriage’ + *-ni* ‘suffix’ > *izvanbračni* ‘extramarital’), compound-suffix combination (e.g. *hladan* ‘cold’ + *krv* ‘blood’ + *-(a)n* ‘suffix’ > *hladnokrvan* ‘cold-blooded’) and compounding (e.g. *vatra* ‘fire’ + *otporan* ‘resistant’ > *vatrootporan* ‘fireproof’) (Babić 2002: 381; 445; 459; 463; 472–473). The word-formation process that accounts for the majority of adjectives is suffixation (Babić 2002: 381).

When it comes specifically to the question of word-formation with the prefix *među-*, the author of the most comprehensive manual on Croatian word-formation, Babić (2002: 445; 461; 468; 473), claims that it participates in the following four types of adjective formation:

- 1) prefix-suffix combination of relational adjectives (e.g. *međugradski* ‘intercity’, *međuzubni* ‘interdental’, *međunarodni* ‘international’, etc.),
- 2) prefix-suffix formation of descriptive adjectives (1 example: *međusobni* ‘mutual’),
- 3) prefix-suffix formation of descriptive adjectives with zero suffix (1 example: *međuvremen* ‘intertime’),
- 4) formation of descriptive adjectives through prefixation (1 example: *međuzavisan* ‘interdependent’).

From the abovementioned list, it can firstly be concluded that all types of adjective formation but the first one – prefix-suffix combination of relational adjectives – are rather unproductive and of very limited scope, because they are all used to form a single adjective, according to Babić (2002). Unlike these three processes, prefix-suffix combination results in a number of relational adjectives. Secondly, it can also be concluded from the aforementioned facts that the *među-* prefix is productive in the formation of relational, and not descriptive adjectives.

Prefix-suffix combination, or the formation of new lexemes through the simultaneous addition of a prefix and a suffix, is also called parasynthetic formation or parasynthesis (e.g. Serrano-Dolader 2015; Iacobini 2020). The term *parasynthesis* is mostly used today to refer to Romance verbs formed from adjectival or nominal bases (e.g. French *embarquer* ‘to load, board’ < *em-* ‘in’ + *barque* ‘boat’ *-er* ‘infinitive ending’) (Serrano-Dolader 2015: 524), but some authors also use it to refer to nouns and adjectives formed through the addition of a prefix and a suffix to a base (Serrano-Dolader 2015; Iacobini 2020). It is important to emphasize that, in order for a formation to be considered a case of parasynthesis, many authors argue that there should not be an attested “intermediate stage”: thus, in the above French example, there are no words such as **barquer* or **embarque*. Authors writing from a generative point of view explain that requirement on the basis of the binary branching hypothesis, which specifies that only one word-formation process can apply at a time (cf. Serrano-Dolader 2015). In other words, they reject the possibility of ternary structures for parasynthetic derivations (*ibid.*).⁴

4 For more details on the treatment of parasynthesis in linguistic literature, see Serrano-Dolader (2015).

When applied to Croatian adjectives formed according to the [*među*-N-Suff]_{Adj} pattern, however, this principle does not seem to work formally because a simple adjective can be found in the language for every parasynthetic one, such as in the following examples: *gradski* ‘urban’ \diamond *međugradski* ‘intercity’; *državni* ‘state’ \diamond *međudržavni* ‘interstate’; *zvjezdani* ‘stellar’ \diamond *međuzvjezdani* ‘interstellar’, etc. Still, all these adjectives are claimed to be parasynthetic or prefix-suffix formations by Babić (2002) due to the fact that their meaning cannot be construed as the sum of the prefix and an adjective: for instance, *međugradski* ‘intercity’ does not mean ‘occurring between what pertains to the city’ (**među*- ‘inter-’ + *gradski* ‘pertaining to the city’), but its meaning is ‘relative to what is between cities’, thus *među*- ‘inter-’ + *grad* ‘city’ + *-ski* ‘suffix’. In this paper, such adjectives are considered parasynthetic formations.

The fact that Babić (2002) enumerates a number of adjectives formed through prefix-suffix combination with *među*- points to the conclusion that adjectives formed according to this process are fairly present and regular in contemporary Croatian. What Babić (2002) omits to specify, however, is, firstly, how productive the derivational pattern [*među*-N-Suff]_{Adj} is, and secondly and more interestingly, how it emerged in Croatian.⁵ It is therefore the goal of this paper to shed some light on the history of the formation of *među*- prefixed adjectives and to explore their productivity in present-day Croatian language.

5 METHODOLOGY

In order to explore the emergence of *među*- prefixed adjectives in Croatian and the productivity of the patterns according to which they are created, available lexicographic works and corpora were consulted. More precisely, three dictionaries were used: the Academy’s Dictionary (Budmani/Maretić 1904–1910), Benešić’s dictionary (1957), and VRH (2015). Brief explanations shall be given as to why the three dictionaries mentioned were chosen for the analysis presented in this paper.

The Academy’s Dictionary is a rich historical dictionary of Croats, Serbs, Bosnian-Herzegovinian Muslims and Montenegrins that provides information from the earliest linguistic sources in the 12th century up until works of the 19th century. In the period when it was written, it was considered that these ethnic groups spoke a single language called Croato-Serbian or Serbo-Croatian. Importantly for this paper, it is also a terminological dictionary, as well as a dictionary of foreign words and loanwords.

The exact title of Benešić’s dictionary (1957) is *Rječnik hrvatskoga književnoga jezika od preporoda do I. G. Kovačića* (*Dictionary of the Croatian Literary Language from the National Revival until I. G. Kovačić*). Its intention was to be a dictionary of contemporary Croatian literary language as a collection of quotes from the most excellent Croatian writers who published between the very beginning of the 19th century until the 1940s (Nikolić-Hoyt 2010: 63–64). It was chosen due to the fact that it covers the “middle” period between early 20th century and the 1940s. One of Benešić’s goals in compiling his dictionary was to revise and modernize the data found in earlier

5 The second question was outside Babić’s (2002) scope because he wrote a synchronic word-formation manual.

dictionaries, for instance by leaving out words that were no longer used in the Croatian literary language, and by introducing those that were used by Croatian modern authors (Nikolić-Hoyt 2010: 62). It should therefore serve as a good illustration of the Croatian lexicon from early 19th century to mid-20th century.

Finally, the VRH dictionary is the largest and most recent dictionary of the Croatian standard language (Slišković 2016: 244). It is based on older relevant lexicographic works, manuals, specialized dictionaries and digital corpora.

After an analysis of the mentioned lexicographic works, three major digital corpora were also consulted: Riznica, HNK and hrWaC. The Riznica corpus, compiled by the Institute of Croatian Language and Linguistics, contains literary and other written sources from the second half of the 19th century to this day.⁶ The corpus contains 100 million tokens (Brozović Rončević and Čavar 2012). Due to its specificities, Riznica was searched via the *među*.* standard regular expression, providing all words starting with the graphic sequence *među*.

The HNK, 3.0 beta version, contains more than 2.3 billion words (Tadić 2009). Much larger than Riznica, it is a balanced and representative corpus⁷ of standard contemporary Croatian, which contains a certain amount of fiction (such as magazines, newspapers, books, diaries, novels, etc.), fiction, etc., in line with text typology standards (Tadić 2002: 442). The HNK corpus was also searched via the *među*.* standard regular expression, providing all words starting with the graphic sequence *među*. The results obtained were then organized through the *Frequency – Lemma* function, providing a list of *među*- words with their number of occurrences in the corpus. The results were manually checked.

The hrWaC (Ljubešić and Erjavec 2011) is a web corpus whose 2.2 version was crawled in 2014 from the .hr domain, so it provides us with data about very recent Croatian language usage. It is the largest extant Croatian corpus, with 1.4 billion tokens. Adjectives entering the analysis were extracted from the corpus via the following CQL order:

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[word="među.*"] containing [tag="A.*"]
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The order searches for all words beginning with the sequence *među* and bearing the PoS mark “A”, i.e. adjective. After that, using the option *Frequency – Lemma*, all the obtained results were organized according to their frequency of appearance in the

6 The Riznica corpus comprises the following: fundamental works of Croatian literature, popular works, scientific works and university manuals from different domains, elementary and high school manuals, translations by prominent Croatian translators, daily, weekly and monthly newspapers available online, books from the pre-standard period of the Croatian language, see <http://riznica.ihjj.hr/dokumentacija/index.hr.html>.

7 See http://filip.ffzg.hr/cgi-bin/run.cgi/corp_info?corpname=HNK_v30. The corpus consists of two components: 1) written contemporary Croatian texts, dating from 1990 onwards, and 2) the so-called text archive, comprising various genres published before or after 1990, such as classical Croatian authors, but also chatroom discussions, etc. (Tadić 2002: 443).

corpus. For the purposes of this paper, only adjectives with $\text{freq} \geq 10$, which enables the finding of both high- and lower frequency lexemes, were taken into consideration. The corpus data was checked manually in order to eliminate noise such as adjectives formed via other word-formation processes (e.g. *međunarodno-pravni* ‘related to international law’), typos (*međusubni*, *međunardni*), etc., leaving a final list of 134 adjectives. This figure itself already suggest that adjectives formed with the prefix *među-* are fairly numerous in contemporary Croatian, and that the derivational pattern is a rather productive one.

6 RESULTS AND ANALYSIS

This section first presents the results of the lexicographic analysis, followed by corpus results.

6.1 Older Dictionaries

6.1.1 Academy’s Dictionary

Table 1 presents the *među-* adjectives in the Academy’s Dictionary (1904–1910).

Table 1: Adjectives formed with *među-* in the Academy’s Dictionary (1904–1910).

	Adjective	Etymology (as specified by the Academy’s Dictionary)	Comment (from the Academy’s Dictionary)
1	<i>međudnevički</i> ‘related to <i>međudneвица</i> ’	Derived through suffixation from the noun <i>međudneвица</i> ‘three-week period between the Assumption and the Nativity of the Blessed Virgin Mary’	In Vuk’s dictionary; ⁸ in the work of M. Đ. Miličević
2	<i>međunarodan</i> ⁹ ‘international’	formed after Latin <i>internationalis</i> ‘international’	recent word-formation

8 *Srpski rječnik* (Serbian Dictionary) (1818).

9 The adjective *međunarodan* ‘international’ appears with the *-(a)n* suffix in the Academy’s Dictionary and Benešić’s dictionary, while in the VRH it appears as *međunarodni*, with the *-ni* suffix. An average Croatian speaker would not note any difference in meaning between these two adjectives. An average Croatian speaker with more linguistic knowledge would probably say that *međunarodni* is the definite form of the indefinite adjective *međunarodan*, with no other difference in meaning. Babić (2002: 451–456) has dedicated a whole chapter to the question of differentiating between the *-(a)n* and *-ni* suffixes, which proves in itself that the question is rather complex. These two suffixes present differences on both formal and semantic level. Put briefly, *-(a)n* is used to form descriptive adjectives (e.g. *pametan* ‘intelligent’), while *-ni* is used to form relational adjectives (e.g. *autobusni* ‘pertaining to buses’). Adjectives taking the *-(a)n* suffix have both indefinite and definite forms, can be compared and can have two types of declension (indefinite and definite), while adjectives formed with *-ni* cannot be compared and only have the definite type of declension.

	Adjective	Etymology (as specified by the Academy's Dictionary)	Comment (from the Academy's Dictionary)
3	<i>međusoban</i> : a) 'internal, domestic' b) 'mutual, occurring between people'	-	a) only found in Daničić's dictionary ¹⁰ as a quote from a 14 th century document b) appears in certain works written by J. Rajić, V. Karadžić, P. Petrović, M. Pavlinović and B. Bogišić
4	<i>međusošan</i> 'interfurcal'	formed after Latin <i>interfurcalis</i> or German <i>gabelständig</i> 'forked'	only in Šulek's DST ¹¹
5	<i>međustaničan</i> 'intercellular'	formed after Latin <i>intercellularis</i> . e.g. <i>međustanična tvar</i> as equivalent for German <i>Intercellulärsubstanz</i> 'intercellular matter'	only in Šulek's DST
6	<i>međusudan</i> 'interjudicial'	equivalent of Latin <i>interiudicialis</i> 'interjudicial', a Church law term	only found in one writer's work
7	<i>međutiman</i> 'temporary'	<i>među-</i> 'between' + <i>tim</i> 'that'; e.g. <i>Zwischenregierung</i> – <i>međutimna vlada</i> 'interim government'	a recent legal term
8	<i>međuviličan</i> 'intermaxillary'	equivalent of German <i>Zwischenkieferknochen</i> 'intermaxillary bone'	only in Šulek's DST
9	<i>međuzeman</i> 'occurring between countries'	<i>međuzemno more</i> 'sea between countries' as equivalent of German <i>Binnenmeer</i>	only in Šulek's DST
10	<i>međuzemski</i> SYN <i>međuzeman</i> 'intercountry'	equivalent of German <i>Zwischenverkehr</i> 'intercountry traffic'	-

10 *Rječnik iz književnih starina srpskih* (Dictionary of Older Serbian Literature), 1863–1864.

11 *Hrvatsko-njemačko-talijanski rječnik znanstvenoga nazivlja* (Croatian-German-Italian Dictionary of Scientific Terminology) published by Bogoslav Šulek in 1874/1875. The Dictionary often provides French and English, as well as Latin and Greek equivalents. See <http://ihjj.hr/iz-povijesti/bogoslav-sulek/38/>.

When one observes the adjectives from Table 1, one immediately understands that, firstly, their number is rather limited, amounting to as few as ten adjectives altogether.¹² Secondly, and more importantly, almost all of the listed Croatian adjectives are claimed to be equivalents of Latin(ate) or German specialized terms, which means these are intentional calques created for the purposes of filling specific lexical gaps. Thirdly, and probably most importantly, five of the total of ten adjectives are hapax legomena, i.e. lexemes found in a single work, whether it be the opus of an uncited writer (*međusudan* ‘interjudicial’) or, for the remaining four, terms coined by Bogoslav Šulek for the purposes of compiling his previously mentioned DST. It needs to be emphasized that Šulek played a large role in the formation of several domains of Croatian scientific terminology, which were a result of real needs for Croatian terms in specific scientific domains and also a way to resist Germanization and/or Hungarization (Samardžija 1997: 178).

A special comment should be made concerning the adjectives *međudnevički* ‘related to *međudnevisa* (‘three-week period between the Assumption and the Nativity of the Blessed Virgin Mary’) and *međusoban* ‘mutual’. The first adjective is derived from the noun *međudnevisa* as a result of suffixation, and thus the prefix *među-* was not directly involved in its formation ($[međudnevisa]_N + -čki$ ‘suffix’ > $[međudnevički]_{Adj}$). In other words, the prefix *među-* is actually present in the adjective *međudnevički* as part of the noun from which the adjective was derived.

The adjective *međusoban* ‘mutual’ is more interesting. According to the Academy’s Dictionary (1904–1910), at the beginning of the 20th century, it had two possible meanings: 1) ‘internal, domestic’ and 2) ‘mutual, occurring between people’. The first meaning is claimed to be found only in Daničić’s dictionary (1863/64) as part of a quote from a 14th century Serbian document, while the second appears in some works written by Croatian, Serbian and Montenegrin authors (see footnote 12), who were mostly active during the 19th century. The first meaning is not recorded in the Croatian language today,¹³ and it was probably never part of it, according to the diachronic information from the Academy’s Dictionary (cf. Matasović et al. 2016: 600). The second meaning of the adjective *međusoban*, ‘mutual’, is the only meaning the adjective has in contemporary Croatian. The adjective was formed according to the [Pref-Pron-Suff]_{Adj} pattern, or more precisely according to the following formula: *među-* ‘inter-’ + *sebe* ‘reflexive-possessive pronoun’ + *-(a)n* ‘suffix’ > *međusoban*. It is the only adjective in the Academy’s Dictionary (and in the analysed corpora, as will be said *infra*) that was formed from a pronoun. Thus, the word-formation pattern from which it resulted is an isolated one, and did not have further impact on the formation of Croatian adjectives.

12 One of the anonymous reviewers has asked why there are so few adjectives, and whether the reason lies in their predictability. We do not think that is a plausible answer, firstly, due to the fact that the Academy’s Dictionary is a very comprehensive one, and it would thus list as many possible lexemes as there are; and secondly, because the adjectives from Table 1 mostly belong to specialized languages, which points to the conclusion that *među-* adjectives were rare in general language.

13 Cf. http://hjp.znanje.hr/index.php?show=search_by_id&id=e1tjURM%3D&keyword=me%C4%91usoban.

It should also be added that the Academy’s Dictionary lists a number of *među-* prefixed nouns¹⁴ (e.g. *međubrđe* ‘place between hills’ (< *brdo* ‘hill’); *međuvođe* ‘place between waters’ <*voda* ‘water’)), among which many toponyms (e.g. *Međuhan* ‘village in Serbia’; *Međulići* ‘village in Herzegovina’, etc.), thus it seems that in early 20th century the *među-* prefix was used only as a noun-deriving prefix.¹⁵

All of these facts point to the conclusion that, at the beginning of the 20th century, a period when the Croatian standard was already formed, there existed very few adjectives formed with the prefix *među-*, and the extant ones were mostly scientific terms related to specific domains of specialized language, as well as hapax legomena. The only two adjectives used more frequently, according to the Academy’s Dictionary, which are not claimed to appear “only once” or “only with a certain author”, are *međusoban* ‘mutual’, which is also the only adjective formed according to the [Pref-Pron-Suff]_{Adj} pattern, and *međunarodan* ‘international’, formed as a result of prefix-suffix combination. The latter, however, is “a recent invention” (Budmani/Maretić 1904–1910: 579), which is another interesting insight important for future discussion, as it may lead to the conclusion that it was in the 19th and early 20th century that *među-* adjectives derived through prefix-suffix combination under foreign influence started to be formed and used.

6.1.2 Benešić’s Dictionary

Table 2 presents the relevant adjectives from Benešić’s dictionary (1957).

Table 2: Adjectives formed with *među-* in Benešić’s dictionary (1957).

	Adjective
1	<i>međunarodan</i> ‘international’
2	<i>međusatni</i> ‘between two (school) classes’
3	<i>međuzvjezdani</i> ‘interstellar’

14 A number of these nouns are claimed to be calques of mostly German terms (Budmani/Maretić 1904–1910: 581).

15 A quick search of all words beginning with the sequence *među* in the Klasici subcorpus of HNK, which comprises the greatest classical works of the Croatian literature, gives the following results: *među*_{Prep} ‘between’ 1,926 occurrences, *međutim*_{Adv} ‘however’ 277 occurrences, *međusoban*_{Adj} ‘mutual’ 60 occurrences, *međuto*_{Adv} ‘in the meantime’ 7 occurrences, *međunarodan*_{Adj} ‘international’ 3 occurrences, *međumurski*_{Adj} ‘pertaining to *Međumurje*, the region between the rivers of Drava and Mura’ 2 occurrences, older version of today’s adjective *međimurski* with the same meaning, *međuvrijeme*_N ‘meantime’ 1 occurrence, *međuakt*_N ‘entr’act’ 1 occurrence, *međumurec*_N ‘type of cheese from the region of *Međimurje*’ 1 occurrence. These corpus results show that in older layers of the Croatian language, the prefix *među-* was mostly used to form nouns, except for the two already mentioned adjectives *međunarodan* and *međusoban*, as attested also by the earlier quoted Academy’s Dictionary. The third adjective appearing in the Klasici subcorpus, *međumurski*, is derived through suffixation from the toponym *Međumurje*, so *među-* did not participate directly in its formation.

As Table 2 demonstrates, Benešić’s dictionary (1957) lists only three *među-* adjectives. This fact points to the conclusions that, firstly, over the period from the start of the 20th century, i.e. the years when the volume containing *među-* adjectives of the Academy’s dictionary was published, until the mid-20th century, when Benešić finished compiling his own dictionary, the pattern [*među*-N-Suff]_{Adj} had not yet become a productive one. Secondly, this might have to do with the fact that Benešić’s dictionary is a dictionary of the Croatian literary language, and as such is based on literary sources only, while the observed pattern might already have become more productive in other language areas, such as the press and specialized terminology.

6.2 A More Recent Dictionary – VRH (2015)

A more recent dictionary, VRH, lists the following *među-* adjectives.

Table 3: List of *među-* prefixed adjectives in the VRH dictionary (2015: 720–721)

	Adjective
1	<i>međučeljustan</i> ‘intermaxillary’
2	<i>međudisciplinarnan</i> ‘interdisciplinary’
3	<i>međudržavni</i> ‘interstate’
4	<i>međufakultetski</i> ‘occurring between faculties’
5	<i>međugalaktički</i> ‘intergalactic’
6	<i>međuglasni</i> ‘intervocalic’
7	<i>međugradski</i> ‘intercity’ (‘inter-city’)
8	<i>međukatni</i> ‘occurring between two or more floors (of a building)’
9	<i>međuljudski</i> ‘occurring between two or more people’
10	<i>međumišićni</i> ‘intermuscular’
11	<i>međumjesni</i> ‘occurring between two or more places’
12	<i>međunarodni</i> ‘international’
13	<i>međuopćinski</i> ‘occurring between two or more municipalities’
14	<i>međuovisan</i> ‘interdependent’
15	<i>međuparlamentaran</i> ‘interparliamentary’
16	<i>međuplanetaran</i> ‘interplanetary’
17	<i>međurasni</i> ‘interracial’
18	<i>međuratni</i> ‘interwar’ (‘inter-war’)
19	<i>međurebreni</i> ‘intercostal’
20	<i>međuregionalni</i> ‘interregional’
21	<i>međurepublički</i> ‘occurring between two or more republics’
22	<i>međuriječni</i> ‘occurring between two or more rivers’

	Adjective
23	<i>međusamoglasnički</i> ‘intervocalic’
24	<i>međusaveznički</i> ‘occurring between two or more allies’
25	<i>međusoban</i> ‘mutual’
26	<i>međuspolan</i> ‘intersexual’
27	<i>međustaničan</i> ‘intercellular’
28	<i>međustranački</i> ‘interparty’ (‘inter-party’)
29	<i>međuvilični</i> ‘intermaxillary’
30	<i>međuvjerski</i> ‘interfaith’ ¹⁶
31	<i>međuvladin</i> ‘intergovernmental’
32	<i>međuvremen</i> ‘occurring between two or more periods of time’
33	<i>međuzavisan</i> ‘interdependent’
34	<i>međuzglobni</i> ‘occurring between joints’
35	<i>međuzubni</i> ‘interdental’
36	<i>međuzvezdan</i> ‘interstellar’
37	<i>međužupanijski</i> ‘occurring between two or more counties’

As Table 3 shows, in the VRH dictionary there are 37 *među-* adjectives, most of which also figure among the ones found in the corpora (see *infra*). However, among them there are also several adjectives absent from our corpus analysis (*međusamoglasnički* ‘intervocalic’, *međumišićni* ‘intermuscular’, *međuriječni* ‘occurring between rivers’, *međuzglobni* ‘occurring between joints’). Upon verification, it was noticed that these four adjectives do not appear in the Riznica corpus at all, and that they appear with a frequency below 10 in the hrWaC corpus. It is therefore interesting that they were chosen to be included in the VRH dictionary while some higher-frequency *među-* adjectives were not.¹⁷

The 37 adjectives listed in the VRH (2015) demonstrate the following: firstly, 37 adjectives are much more than what can be found in the earlier Academy’s (1904–1910) and Benešić’s dictionary (1957), which testifies itself to the fact that the pattern [*među*-N-Suff]_{Adj} has become more productive in Croatian in the recent decades. Secondly, it must also be noted that the dictionary does probably not list all the possible adjectives derived on the basis of that pattern due to the fact that it is a rather predictable and semantically transparent adjective forming process which can virtually use any noun to form a *među-* adjective.

16 One of the anonymous reviewers has enquired about whether the adjective *interfaith* (e.g. <https://www.merriam-webster.com/dictionary/interfaith>) is actually *interreligious* (cf. <https://www.merriam-webster.com/dictionary/interreligious>). In Croatian, *međuvjerski* ‘interfaith’ is derived from the noun *vjera* ‘faith’, which usually refers to Christianity, while *međureligijski* ‘interreligious’ is derived from *religija* ‘religion’, which refers more generally to any belief system. Both English adjectives are listed in Merriam Webster’s dictionary, so we believe they should be distinguished.

17 This is peculiar if one knows that the VRH dictionary claims to be based, among other sources, on three digital corpora: Riznica, HNK and hrWaC (version 2.0).

6.3 Corpora Analysis: Riznica, HNK and hrWaC

6.3.1 Riznica

In the Riznica corpus, only two adjectives appear in the earliest period covered (between late 19th and early 20th century): *međunarodan* ‘international’ and *međusoban* ‘mutual’. After that, for a long period going all the way to 1962, these two adjectives remain the only ones formed with the prefix *među-* which appear in the corpus, alongside several *među-* prefixed nouns such as *međuvrijeme* ‘meantime’.

The situation starts to change from the 1970s onwards, when two more adjectives appear: *međunacionalni* ‘occurring between nations’ (1971) and *međuratni* ‘interwar’ (1972). After that, the number of *među-* prefixed adjectives really starts to become much larger from the 2000s, with examples such as the following: *međuljudski* ‘inter-human’, *međeukonfesionalni* ‘interconfessional’, *međugeneracijski* ‘intergenerational’, *međudržavni* ‘interstate’, *međuzvezdani* ‘interstellar’, *međuplanetarni* ‘interplanetary’, *međuledeni* ‘interglacial’, *međustanični* ‘intercellular’, *međuparlamentarni* ‘interparliamentary’, *međurepublički* ‘interrepublican’, *međuvladin* ‘intergovernmental’, *međuetnički* ‘interethnic’, *međustranački* ‘interparty’,¹⁸ etc.

These facts can be said to quite convincingly prove that during the whole 20th century *među-*adjectives were rather rare in Croatian, with only *međusoban* ‘mutual’ and *međunarodan* ‘international’ being in use, and that it was only from the 1970s onwards that the pattern started forming a larger number of *među-* adjectives.

This idea leads to the question what reasons there are for the *među-* prefixed adjectives to have become rather frequent in the late 20th century. Some answers are provided in the following sections.

6.3.2 The HNK Corpus

Table 4: *Među-* adjectives retrieved from HNK

	Adjective	Frequency	Per million frequency
1	<i>međubankarski</i> ‘interbank’ (‘inter-bank’)	91	0.42
2	<i>međubankovni</i> ¹⁹ ‘interbank’ (‘inter-bank’)	5	0.02

18 Some of the English equivalents of the Croatian adjectives have a prefix-suffix structure (e.g. *interplanetary*, *interparliamentary*, *intergovernmental*, etc.), while others do not contain any suffix at all (e.g. *interstate*, *intercity*, *interparty* etc.). One of the reasons for this latter fact is that in English, adjectives can be formed through conversion from nouns, which is impossible in Croatian (cf. Babić 2002: 51–52). For a critical review of the so-called *noun-to-adjective conversion*, which some authors only consider as a specific attributive function of nouns, see Balteiro (2007: 45 and further).

19 The two adjectives *međubankarski* and *međubankovni* are synonyms, which differ only with respect to the suffix they are formed with (*-ovni* and *-arski*, respectively), and frequency of use.

	Adjective	Frequency	Per million frequency
3	<i>međučeljusni</i> 'intermaxillary'	13	0.06
4	<i>međudržavni</i> 'interstate'	2,418	11.15
5	<i>međuentitetski</i> 'occurring between two or more entities'	37	0.17
6	<i>međuetažni</i> 'occurring between two or more floors (in a building)'	12	0.06
7	<i>međuetnički</i> 'interethnic'	64	0.30
8	<i>međufazni</i> 'interphase'	10	0.05
9	<i>međugeneracijski</i> 'intergenerational' ('inter-generational')	2,144	9.89
10	<i>međugodišnji</i> 'interannual' ('inter-annual')	17	0.08
11	<i>međugradski</i> 'intercity' ('inter-city')	217	1.00
12	<i>međugraničan</i> 'occurring between borders'	41	0.19
13	<i>međuinstucionalan</i> 'interinstitutional' ('inter-institutional')	104	0.48
14	<i>međukatni</i> 'occurring between floors (in a building)'	29	0.13
15	<i>međuklupski</i> 'interclub' ('inter-club')	12	0.06
16	<i>međukolodvorski</i> 'occurring between (bus, train etc.) stations'	18	0.08
17	<i>međukontinentalan</i> 'intercontinental'	29	0.13
18	<i>međukorejski</i> 'occurring between the two Koreas'	25	0.12
19	<i>međukrojni</i> 'occurring between two markers'	12	0.06
20	<i>međulaboratorijski</i> 'interlaboratory'	185	0.85

	Adjective	Frequency	Per million frequency
21	<i>međuljudski</i> 'interhuman'	597	2.75
22	<i>međuljuštorni</i> '(of molluscs) intervalvular'	46	0.21
23	<i>međuministarski</i> 'interministerial'	41	0.19
24	<i>međumjesan</i> 'occurring between two or more places'	541	2.50
25	<i>međunacionalan</i> 'occurring between two or more nations'	483	2.23
26	<i>međunarodni</i> 'international'	107,864	497.50
27	<i>međuobalni</i> 'occurring between shores'	10	0.05
28	<i>međuobrtnički</i> 'occurring between craftsmen'	53	0.24
29	<i>međuosovinski</i> 'interaxial'	17	0.08
30	<i>međupalestinski</i> 'inter-Palestinian'	27	0.12
31	<i>međuparlamentaran</i> 'interparliamentary'	137	0.63
32	<i>međupopisni</i> 'intercensal'	19	0.09
33	<i>međuratni</i> 'interwar' ('interwar')	142	0.65
34	<i>međuregionalni</i> 'interregional' ('inter-regional')	90	0.42
35	<i>međureligijski</i> 'interreligious' ('inter-religious')	204	0.94
36	<i>međurepublički</i> 'occurring between two or more republics'	45	0.21
37	<i>međuresorni</i> 'occurring between two or more departments'	85	0.39
38	<i>međuresorski</i> 'occurring between two or more departments'	319	1.47
39	<i>međusatelitski</i> 'occurring between two or more satellites'	11	0.05

	Adjective	Frequency	Per million frequency
40	<i>međusektorski</i> 'occurring between two or more sectors'	12	0.06
41	<i>međusoban</i> 'mutual'	20,277	93.52
42	<i>međuspojni</i> 'occurring between links'	12	0.06
43	<i>među stranački</i> 'interparty' ('inter-party')	510	2.35
44	<i>međususjedski</i> 'occurring between neighbours'	50	0.23
45	<i>međuvalutni</i> 'occurring between two or more currencies'	15	0.07
46	<i>međuvjerski</i> 'interfaith'	91	0.42
47	<i>međuvladin</i> 'intergovernmental'	65	0.30
48	<i>međuvlasnički</i> 'occurring between two or more owners'	22	0.10
49	<i>međuzrnski</i> 'intergranular'	19	0.09
50	<i>međužupanijski</i> 'occurring between two or more counties'	332	1.53
51	<i>međuzvezdan</i> 'interstellar'	29	0.13

As Table 4 demonstrates, in the HNK corpus there are 51 *među-* adjectives with a frequency of 10 or more occurrences. That is quite a large number of adjectives formed mostly according to the [*među-N-Suff*]_{Adj} pattern, which proves that the pattern became more productive starting from the 1990s. While some of the adjectives from Table 4 belong to specialized languages (e.g. *međuljuštarni* '(of molluscs) intervalvular'; *međuzrnski* 'intergranular'; *međuzvezdani* 'interstellar', etc.), a large number belong to general language. If these adjectives have been found in the national corpus, that points to the conclusion that adjectives formed according to the [*među-N-Suff*]_{Adj} pattern have been quite widespread in various genres of standard Croatian since the 1990s.

Finally, the hrWaC corpus shall be analysed as the largest extant corpus of the Croatian language. It will be interesting to compare the *među-* adjectives appearing in hrWaC, as a large web corpus, with those appearing in the national corpus, due to the different text types they include.

6.3.3 hrWaC

Considering the fact that hrWaC is the largest corpus that registers the most recent use of the Croatian language, its inclusion in the analysis presented in this paper was important for learning about the current use of adjectives formed with *među-*. What the corpus data shows is that 134 adjectives with the prefix *među-* and a frequency of 10+ occurrences are registered in hrWaC. 134 is a lot more than only two adjectives in the first half of the 20th century, and much more than just several more around the 1970s. This means that the derivational pattern [*među-N-Suff*]_{Adj} has become more productive with time, culminating in recent years.

Below is a list of the 50 most frequent adjectives retrieved from hrWaC.

Table 5: The 50 most frequent *među-* adjectives retrieved from hrWaC.

	Adjective	Frequency	Per million frequency
1	<i>međunarodni</i> ‘international’	222,469	214.80
2	<i>međusoban</i> ‘mutual’	48,796	36.62
3	<i>međuljudski</i> ‘interhuman’	6,837	5.15
4	<i>međudržavni</i> ‘interstate’	4,539	3.25
5	<i>međugeneracijski</i> ‘intergenerational’	4,384	3.14
6	<i>međuosovinski</i> ‘interaxial’	2,716	1.94
7	<i>međužupanijski</i> ‘occurring between two or more counties’	2,076	1.49
8	<i>međunacionalni</i> ‘occurring between two or more nations’	1,747	1.25
9	<i>međuvladin</i> ‘intergovernmental’	1,508	1.08
10	<i>međureligijski</i> ‘interreligious’	1,235	0.88
11	<i>međustranački</i> ‘interparty’	1,030	0.74
12	<i>međugradski</i> ‘intercity’	1,019	0.73
13	<i>međuetnički</i> ‘interethnic’	697	0.50
14	<i>međuratni</i> ‘interwar’	687	0.49
15	<i>međusektorski</i> ‘occurring between two or more sectors’	671	0.48
16	<i>međuzvjezdani</i> ‘interstellar’	603	0.43
17	<i>međubankarski</i> ‘interbank’	576	0.41
18	<i>međuvlasnički</i> ‘occurring between two or more owners’	556	0.40
19	<i>međuregionalan</i> ‘interregional’	555	0.40

	Adjective	Frequency	Per million frequency
20	<i>međuopćinski</i> ‘occurring between two or more municipalities’	520	0.37
21	<i>međuresorni</i> ‘occurring between two or more departments’	483	0.35
22	<i>međukulturalni</i> ‘intercultural’	457	0.33
23	<i>međukatni</i> ‘occurring between two or more floors (in a building)’	406	0.29
24	<i>međuvjerski</i> ‘interfaith’	391	0.28
25	<i>međustanični</i> ‘intercellular’	374	0.27
26	<i>međugodišnji</i> ‘interannual’	348	0.25
27	<i>međumjesni</i> ‘occurring between two or more communities’	318	0.23
28	<i>međukulturni</i> ‘intercultural’	297	0.21
29	<i>međuplanetarni</i> ‘interplanetary’	295	0.21
30	<i>međuknjižnični</i> ‘occurring between two or more libraries’	295	0.21
31	<i>međuovisan</i> ‘mutually dependent’	241	0.17
32	<i>međuinstitucionalan</i> ‘interinstitutional’	222	0.16
33	<i>međurepublički</i> ‘occurring between two or more republics’	217	0.16
34	<i>međugranični</i> ‘occurring between two or more borders’	215	0.15
35	<i>međuresorski</i> ‘occurring between two or more departments’	208	0.15
36	<i>međususjedski</i> ‘occurring between two or more neighbours’	198	0.14
37	<i>međurasni</i> ‘interracial’	198	0.14
38	<i>međubankovni</i> ‘interbank’	195	0.14
39	<i>međuparlamentaran</i> ‘interparliamentary’	193	0.14
40	<i>međuškolski</i> ‘occurring between two or more schools’	182	0.13
41	<i>međuzubni</i> ‘interdental’	150	0.11
42	<i>međulaboratorijski</i> ‘occurring between two or more laboratories’	159	0.11
43	<i>međuvršnjački</i> ‘occurring between peers’	134	0.10
44	<i>međugalaktički</i> ‘intergalactic’	133	0.10

	Adjective	Frequency	Per million frequency
45	<i>međuredni</i> ‘occurring between two or more lines’	131	0.09
46	<i>međupredmetni</i> ‘occurring between two or more subjects’	123	0.09
47	<i>međunožni</i> ‘occurring between legs’	115	0.08
48	<i>međuentitetski</i> ‘occurring between two or more entities’	113	0.08
49	<i>međuklupski</i> ‘interclub’ (‘inter-club’)	107	0.08
50	<i>međurebreni</i> ‘intercostal’	94	0.07

The 134 *među-* adjectives extracted from the hrWaC corpus is by far the largest number of adjectives appearing in any of the aforementioned sources. Such an outcome was expected, firstly, because hrWaC is the largest extant Croatian corpus. Secondly, given the fact that hrWaC is a web corpus, which also collects data from specific sources such as chat rooms and blogs, we have expected to find a certain portion of less standard or more colloquial terms, e.g. *međunožni* ‘occurring between legs’, but also more specific terms such as *međuroditeljski* ‘interparental’, which seems to appear in a single weekly newspaper; or *međuizborni* ‘occurring between elections’, which is used exclusively in political discourse. It should also be emphasized that some of the adjectives retrieved from hrWaC belong to highly specialized terminologies, such as *međuzrnski* ‘intergranular’, *međubiskupijski* ‘interdiocesan’ or *međukralježnički* ‘inter-spinal’, which one would not expect to find in general language dictionaries such as the VRH, but rather in specialized dictionaries or glossaries.

It can generally be said that the 134 adjectives retrieved from hrWaC point to the conclusion that *među-* adjectives, a majority of which were formed according to the [*među-N-Suff*]_{Adj} pattern, have recently become quite numerous in Croatian. The fact also implies that the [*među-N-Suff*]_{Adj} pattern continues to produce new forms, some of which have not been listed in lexicographic works yet. It would be interesting to analyse *među-* adjectives below the 10 occurrences threshold to see what happens at that end of the frequency scale, how many adjectives there are and what characteristics they have. It can be assumed that there would be more new adjectives that have not been listed in dictionaries yet due to the fact that the pattern seems to be quite productive.

The adjectives extracted from hrWaC shall now be analysed first morphologically, or from a purely word-formation point of view, and then semantically.

6.4 Morphological Analysis

From a morphological point of view, the adjectives retrieved from hrWaC are a result of:

- 1) prefix-suffix formation according to the formulas [*među-N-Suff*]_{Adj} and [*među-Pron-Suff*]_{Adj}
- 2) prefixation according to the formula [*među-Adj*]_{Adj}.

A great majority of adjectives belong to the first group. They are a result of the simultaneous addition of the prefix *među-* and a suffix to a nominal base (cf. Babić 2002: 445). Thirteen suffixes participated in their formation, as listed in the table below.

Table 6: Suffixes involved in the prefix-suffix formation of adjectives retrieved from hrWaC.

	Suffix	Adjective example	No.	%
1	<i>-ni</i>	<i>međunarodni</i> ‘international’	49	36.6
2	<i>-ski</i>	<i>međugeneracijski</i> ‘intergenerational’	48	35.8
3	<i>-čki</i>	<i>međustranački</i> ‘interparty’	10	7.5
4	<i>-en</i>	<i>međuvremen</i> ‘occurring between two or more periods of time’	6	4.5
5	<i>-ionalan</i>	<i>međunacionalan</i> ‘occurring between two or more nations’	6	4.5
6	<i>-aran</i>	<i>međuparlamentaran</i> ‘interparliamentary’	3	2.2
7	<i>-(a)n</i>	<i>međuzvezdan</i> ‘interstellar’	3	2.2
8	<i>-ovni</i>	<i>međubankovni</i> ‘interbank’	2	1.5
9	<i>-enski</i>	<i>međuplemenski</i> ‘intertribal’	2	1.5
10	<i>-alan</i>	<i>međukontinentalan</i> ‘intercontinental’	2	1.5
11	<i>-šnji</i>	<i>međugodišnji</i> ‘interannual’	1	0.7
12	<i>-in</i>	<i>međuvladin</i> ‘intergovernmental’	1	0.7
13	<i>-ovski</i>	<i>međužanrovski</i> ‘occurring between two or more genres’	1	0.7
Total			134	100%

Table 6 demonstrates that the two most frequent suffixes, which account for the formation of more than 72% percent of all adjectives, are *-ni* and *-ski*. This fact is consonant with details related to the prefix-suffix formation of relational adjectives provided by Babić (2002: 444). Babić (2002: 398) describes the *-ski* suffix as “one of the most productive adjectival suffixes”, and *-ni* as “very productive” (2002: 421). With respect to the use of the *-ski* and *-ni* suffixes in the formation of adjectives, which is a highly complex question dependent on both formal (phonological) and semantic criteria, the following can be said briefly (cf. Babić 2002: 428–434):

- 1) all adjectives derived from proper nouns are formed with *-ski*, never with *-ni*;
- 2) adjectives derived from common nouns related to living beings (humans, animals and plants) are rarely formed with *-ni*;
- 3) both *-ni* and *-ski* are used to form adjectives from common nouns related to non-living entities (both concrete and abstract), and their distribution depends mostly on phonological context,²⁰

20 For instance, adjectives from nouns ending in *-ij* are formed with *-ski*: e.g. *natrij* ‘natrium’ > *natrijski* ‘related to natrium’; *laboratorij* ‘laboratory’ > *laboratorijski* ‘related to laboratory’, etc. (Babić 2002: 429). The *-ni* suffix is used, for example, with bases ending in *-st* or *-št*: e.g. *čeljust*

- 4) a number of adjectives have dual forms with *-ni* and *-ski*, but with different frequency of use, some of which are also non-standard.

The only adjective formed according to the $[me\dot{d}u\text{-Pron-Suff}]_{Adj}$ pattern, i.e. from a pronominal base, is *međusoban* ‘mutual’, which is also the only descriptive adjective formed with *među-* through prefix-suffix combination, according to Babić (2002: 461).

With respect to the second group of adjectives, formed through prefixation according to the formula $[me\dot{d}u\text{-Adj}]_{Adj}$, only the following three adjectives exemplify it: *međuzavisan* ‘interdependent’, *međuovisan* ‘interdependent’²¹ and *međupovezan* ‘interconnected’. They are formed via the addition of the prefix *među-* to a base without the participation of a suffix. These three adjectives account for only 2.2% of all the *među-*prefixed adjectives in the corpus.

6.5 Semantic Analysis

Without entering into details, one can observe that the prefix *među-* connects with nominal bases from various semantic domains to form adjectives, resulting in terms related to administration (e.g. *međuopćinski* ‘occurring between municipalities’), traffic (e.g. *međukontinentalan* ‘intercontinental’), zoology (e.g. *međutelidbeni* ‘(of cows) intercalving’), finance (e.g. *međuvalutni* ‘intercurrency’), astronomy (e.g. *međugalaktički* ‘intergalactic’), politics (e.g. *međustranački* ‘interparty’), religion (*međureligijski* ‘interreligious’), etc.

What interests us more here is prefixal meanings. The prefix *među-* realizes two types of meanings in the analysed adjectives: concrete and abstract. Its concrete meaning is ‘located between two or more (concrete) entities’ (e.g. *međustaklen* ‘between two glass surfaces’). This is the core or prototype (e.g. Lakoff 1987) meaning that refers to the concrete spatial position of concrete objects.

The abstract meanings of the prefix *među-* in the analysed adjectives are the following:

- a) ‘between two or more abstract entities’ (e.g. *međugeneracijska solidarnost* ‘intergenerational solidarity’), and
- b) ‘between two or more periods of time’ (e.g. *međutelidbeno razdoblje* ‘intercalving period’).

The semantic network that the prefix *među-* realizes with adjectives can thus be illustrated by the following image.

‘jaw’ > *čeljusni* ‘related to jaw’; *kazalište* ‘theatre’ > *kazališni* ‘related to theatre’, etc. (Babić 2002: 430).

21 The adjectives *međuzavisan* and *međuovisan* are near-synonyms and can be used interchangeably in most contexts. Cf. http://hjp.znanje.hr/index.php?show=search_by_id&id=e1tjUBQ%3D&keyword=me%C4%91uzavisan.

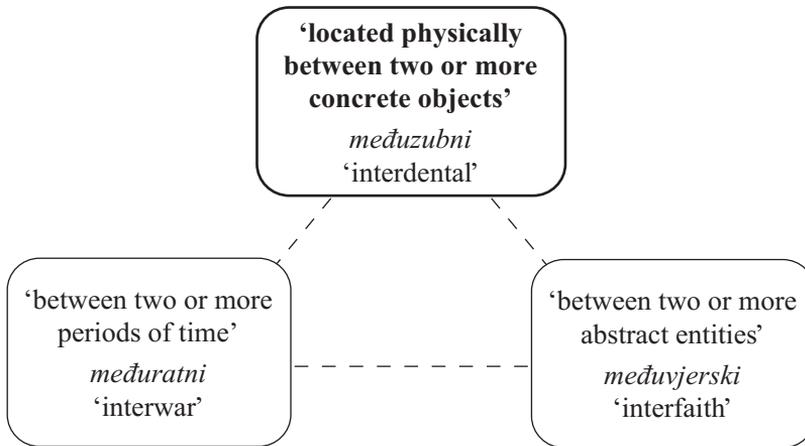


Figure 1: Semantic network of the prefix *među-* in the analysed adjectives.

The abstract meaning ‘between two abstract entities’ relies upon the abstract is concrete metaphor (e.g. Lakoff 1987) on the basis of which we conceptualize more abstract entities through more concrete ones. In examples such as *međuvjerski dijalog* ‘interfaith dialogue’ or *međukulturno razumijevanje* ‘intercultural understanding’, for instance, we perceive abstract phenomena such as dialogue and understanding taking place between faiths or cultures as phenomena occurring between two concrete things, thus we express them with the same preposition (*među* ‘between’) or prepositional prefix *među-* ‘inter-’.

The concrete meaning ‘located physically between two or more concrete objects’ is metaphorically extended into the meaning ‘between two periods in time’ on the basis of the frequent time is space metaphor (e.g. Kövecses 2010). This metaphor enables human beings to conceptualize time phenomena on the basis of concrete, spatial phenomena of which they have better understanding. Thus, in examples from hrWaC such as *međusezonska kolekcija* ‘interseasonal (clothing or shoes) collection’ what happens between two periods of time, i.e. two seasons, is conceptualized as being physically located between two concrete objects.

In the conclusion to this part, it must be emphasized that the prefix *među-* is a polysemous affix which, when attached to adjectives, realizes three related meanings, both concrete and abstract, the latter of which are based on metaphor. The semantic network of the prefix *među-* in the analysed adjectives demonstrates that it behaves much like other lexical categories such as nouns and verbs, construing a radial structure with the prototypical sense as the centre of its semantic network (cf. Tyler and Evans 2003: 31). The semantic level of the formation of the analysed adjectives was insisted upon owing to the fact that, according to our understanding, all complex words are motivated both grammatically (or morphologically) and semantically, i.e. that derivational processes cannot be separated from the semantic ones (cf. Booij 2005; Raffaelli 2013).²²

²² For a different view on word-formation, see Aronoff (1976) and Scalise (1984) among others.

The semantic network of this particular prefix is just an example of the complex relations that exist between word-formation processes and meanings that are created during the derivation of new complex lexemes. Therefore, some authors (e.g. Raffaelli 2018: 153) emphasize that one of the major future tasks of word-formation as a linguistic subdiscipline is to systematically study the semantic processes which accompany the formation of complex words.

7 CONCLUDING REMARKS

This paper explores Croatian adjectives formed with the prefix *među-*. While adjectives derived according to the $[među-N-Suff]_{Adj}$ pattern are fairly numerous in contemporary Croatian, according to Babić (2002), the author of the most comprehensive manual of Croatian word-formation, as well as lexicographic sources (the Academy's Dictionary, Benešić's dictionary and the VRH) and large digital corpora (hrWaC and HNK), from a diachronic point of view that was not the case as recently as only a hundred years ago. More precisely, both an analysis of older lexicographic works (the Academy's Dictionary and Benešić's dictionary), as well as of digital corpora covering older texts (Riznica and HNK) have showed that in early 20th century *među-* prefixed adjectives were very rare. Moreover, the Academy's Dictionary (1904–1910) specifies that almost all such adjectives were hapaxes and calques made according to Latin(ate) or German models. In mid-20th century, the situation was rather similar according to both dictionaries and corpora, and adjectives formed with *među-* only seem to have become more numerous later in the 20th century. The question is, obviously, why.

The Academy's Dictionary's explicit claim that all adjectives formed with *među-* but one, *međusoban* 'mutual', are hapaxes and equivalents of foreign terms is a very important one, because it points to a temporarily conclusion that these are not native Croatian formations. It must be added immediately, however, that there were a number of nouns in the same period that were formed with *među-*. In other words, it seems that *među-* used to be an exclusively noun-forming prefix, which was impossible to be used with adjectives before the 19th century. When it comes to the adjective *međusoban* 'mutual', it was demonstrated that it was used with two meanings, the first of which, 'domestic', appears in a single 14th century Serbian document, and the second of which, 'mutual', which is the meaning it still has in contemporary Croatian, has been registered in texts of Croatian, Montenegrin and Serbian authors mostly from the 19th century. In other words, even the adjective *međusoban* 'mutual', as an isolated derivation resulting from a prefix-suffix combination with a pronominal base (i.e. from the reflexive-possessive pronoun *se(be)*), is a creation dating back to the 19th century, as the rest of *među-* prefixed adjectives.

Apart from the case of the adjective *međusoban* 'mutual', the influence of foreign languages seems to be a key element contributing to the possibility of adjective formation with the prefix *među-*. While Latin *inter-* 'between' was the earliest language source of Croatian *među-* prefixed adjective calques, followed by few German words formed with *zwischen-* 'inter-', neither of these languages seemed to provide a large number of new adjectives in Croatian. It was only in late 20th century, which coincided with the advent

of English predominance and the spread of its influence on Croatian (Filipović 1990; Muhvić Dimanovski 1992: 94; Samardžija 2002: 72), that the Croatian language saw a large number of new *među-* prefixed adjectives. It is therefore arguably under English influence that numerous adjectives with *među-* were formed and then spread in Croatian from mid-20th century onwards, reinforcing the derivational pattern [*među-N-Suff*]_{Adj} which had already existed in the language as a result of early Latin(ate) and German calques. The Etymological Dictionary of the Croatian Language (Matasović et al. 2016)²³ also hints at this. Moreover, Ranko Matasović (p. c.),²⁴ one of the leading experts on the history of the Croatian language and Slavonic languages in general, considers that the pattern has recently become productive in Croatian, and that several decades ago most of *među-* adjectives could have been formed as calques of English adjectives.

A subsequent question would be whether this particular derivational pattern came to be through indirect or direct English influence (cf. Seifart 2015). While the question cannot be answered with certainty, it was probably a case of direct borrowing, or direct calque, as English has been a rather widespread language among Croatian speakers, and the most spoken foreign one, in the last decades. More precisely, due to increasingly intensive contacts with English *inter-* prefixed adjectives, Croatian speakers have probably started to calque them in the domains they needed them to fill in lexical gaps, using the Croatian prefix *među-* coupled with Croatian nominal bases and a suffix.

At some point in time, the derivational pattern [*među-N-Suff*]_{Adj} could probably have become as “natural” as any other adjective-deriving native Croatian pattern. If this scenario were correct, it would not be a case of the introduction of a new element in the Croatian language, but of a reinforcement of an existing prefix (*među-*) in a new “surrounding”, i.e. with adjectival bases, because the prefix had been used to form complex nouns in the 19th century and even earlier (for instance in a number of toponyms).

The analysis of complex *među-* prefixed adjectives presented in this paper demonstrates that the adjective-forming pattern [*među-N-Suff*]_{Adj}, which has entered the Croatian language as a result of loan translation of Latin(ate) and German terms, and was subsequently probably reinforced through the calquing of English *inter-* adjectives, is a productive word-formation pattern in contemporary Croatian. More precisely, today it accounts for a number of adjectives belonging to semantically various domains, according to Croatian word-formation manuals and recent lexicographic works. Moreover, it continues to produce new adjectives, as attested by large web corpora. Not only do these insights illustrate the complex influences foreign languages (such as Latin, German and English) have had on the Croatian word-formation and lexicon, but they also make a contribution, however modest, to the study of morphological borrowing as a phenomenon in general.

23 The dictionary lists only three *među-* adjectives: *međunarodni* ‘interational’, which it claims to be a calque of English and French *international*, *međusoban* ‘mutual’, derived from *među* ‘between’ and *se* ‘oneself’, and *međugradski* ‘inter-city’, for which it claims that it was formed after the English adjective *inter-city* (Matasović et al. 2016: 600).

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Abstract

DEVELOPMENT OF A PRODUCTIVE DERIVATIONAL PATTERN ON THE BASIS OF LOAN TRANSLATION? THE CASE OF CROATIAN ADJECTIVES FORMED WITH THE PREFIX *MEDU-*

This paper deals with the question of the formation of Croatian adjectives with the prefix *među-*. While such adjectives were very rare in late 19th and early 20th century, an analysis of relevant lexicographic works and digital corpora demonstrated that their number started to become larger in later 20th century, culminating in recent decades. Today, the [*među-N-Suff*]_{Adj} derivational pattern is a productive, accounting for 134 adjectives with a frequency of ten occurrences or more retrieved from the largest extant Croatian web corpus, hrWaC. On the basis of an analysis of available older lexicographic works and digital corpora, it can be concluded that *među-* prefixed adjectives

first entered into Croatian as loan translations (calques) of Latin(ate) and German terms. According to more recent lexicographic works and digital corpora, later on, and especially in recent decades, which coincided with a growing English influence on Croatian, *među-* prefixed adjectives were probably produced as equivalents of English *inter-* prefixed adjectives. The number of *među-* prefixed adjectives, as well as the variety of semantic domains in which they are used, testify to the fact that the [*među-N-Suff*]_{Adj} pattern is well-established and productive in contemporary Croatian. The analysis of Croatian *među-* prefixed adjectives in this paper could contribute to shedding more light on the question of morphological borrowing phenomena in general.

Keywords: derivational pattern, adjective formation, loan translation (calque), Croatian, language contact

Povzetek

RAZVOJ PRODUKTIVNEGA DERIVACIJSKEGA VZORCA NA PODLAGI IZPOSOJENK? PRIMER HRVAŠKIH PRIDEVNIKOV, IZPELJANIH S PREDPONO *MEDU-*

Prispevek obravnava izpeljavo hrvaških pridevnikov s predpono *među-*. Medtem ko so bili takšni pridevniki v 19. in 20. stoletju redki, razčlemba sodobnih leksikografskih virov in digitalnih korpusov pokaže, da se je njihovo število začelo povečevati v poznem 20. stoletju, sploh pa v zadnjih desetletjih. Danes je torej derivacijski vzorec [*među-N-Suff*]_{Adj} v hrvaščini produktiven, saj v trenutno največjem hrvaškem spletnem korpusu hrWaC najdemo 134 takšnih pridevnikov s pogostnostjo nad 10. Razčlemba starejših leksikografskih virov in digitalnih korpusov pokaže, da so se pridevniki s predpono *među-* v hrvaščini najprej pojavili kot izposojenke (kalki) latinskih in nemških izrazov. V novejših leksikografskih virih in digitalnih korpusih pa so se kasneje, sploh v zadnjih desetletjih, ko se povečuje vpliv angleščine na hrvaščino, pridevniki z *među-* verjetno pojavili kot ustreznice angleških pridevnikov s predpono *inter-*. Število pridevnikov s predpono *među-* in različna pomenska polja, kjer se uporabljajo, pričajo o dejstvu, da je vzorec [*među-N-Suff*]_{Adj} v sodobni hrvaščini ustaljen in produktiven. Pričujoča analiza hrvaških pridevnikov s predpono *među-* prispeva tudi k razumevanju morfološkega izposojanja na splošno.

Ključne besede: derivacijski vzorec, izpeljava pridevnikov, izposojenke (kalki), hrvaščina, jezikovni stik