

Konjugacijski tipovi u hrvatskom jeziku

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CONJUGATIONAL TYPES IN CROATIAN

This paper analyses a new classification of verb conjugation types in Croatian, which is based on both their canonical form – the infinitive, which is the non-finite verbal form par excellence, and the basic form – the present, which is on the other end of the finiteness scale. The first chapter provides a brief overview of Croatian conjugational typology, starting from the grammar by B. Kašić (1604) until the most recent grammars by Silić and Pranjković (2005), as well as Jelaska (2015), ranging from one up to twenty-nine categories. The recent typologies within structuralist, generative and cognitive approaches are described in more detail, especially in Jelaska and Bošnjak Botica (2012), where prototype-based categorization is argued for as the most appropriate categorization.

The second part of the paper analyses some properties of the present classification into three groups (*a*, *i*, *e*) and ten types within them: the shape, productivity, size, usage and the relations between them. The data consists of 24,400 Croatian verbs, which are categorized into groups, types and subtypes. The first group has only one type as member (verbs such as *gledati*), the second has three members (verbs such as *moliti*, *vidjeti* and *trčati*), the third has six (verbs like *pisati*, *smijati se*, *putovati*, *davati*, *viknuti*, *ići*).

0. Introduction

In contrast to some languages in which each verb has the same paradigm, in inflected languages the forms of some words change due to their role in a sentence. Many European languages within the Indo-European family have two or more conjugational types, depending on the differences between the verb base

and/or endings in two or more inflectional forms, typically the infinitive and the present. Therefore, speakers of inflectional languages represent their verbs by their canonical form, which is one among several different verb forms chosen to represent the verb by convention. They are important in highly inflected languages such as Croatian. The canonical form for verbs may be different – for example, in Latin or Greek it is the 1st person present, in French, German, Slovak, Croatian it is the infinitive, in Hebrew and other Semitic languages it is the triliteral (triconsonantal) root. Germanic languages have the so-called regular (weak) and irregular (strong) verb types, whereby regular ones belong to one paradigm only (unless they have a subclass, which could be viewed as subtype or a type on its own). Roman languages have a few verb groups or types, typically three. Slavic languages seem to be the most complex within the three largest (Indo-)European language families. Slavic grammarians categorize verbs into conjugational types (from 4 up to 10), mostly on the basis of their phonological and morphological features in the infinitive and/or present form (see e.g. Bošnjak Botica 2013 for more details), which was the dominant approach in Croatian too.

0.1. Croatian conjugational properties

Croatian verbs change their form in conjugation according to tense, mode, number, person, gender or other language-specific factors. They change their canonical (infinitive) form in eight simple flective categories: present, two simple past forms (aorist and imperfect), imperative, two gerunds (past and non-past), two verbal adjectives (active and passive). Five flective verbal categories have six different endings each: present, aorist and imperfect depending on the number (*sg, pl*) and person (*1st, 2nd, 3rd*); two verbal adjectives depending on the number and gender (*m, f, n*). The imperative has three forms: 2nd person singular, 1st and 2nd persons plural. Three verbal morphological categories – two gerunds (past and non-past) and the infinitive – have in principle only one form each, but the past gerund has two variants depending on the shape of the ending: *-v(š*i*)*, while the infinitive loses the final vowel in *-ti* when followed by auxiliary enclitics *ću, ćeš ...* As complex flective categories are formed by adding auxiliaries (*biti, htjeti*) to some of the mentioned simple forms, they are not included in the scope of this paper. It should be mentioned that not all verbs have all flective

categories, as some of those categories are restricted to verbs of the imperfective or perfective aspect only (e.g. Ćavar and Wilder 1999).¹ In addition to all the flectemes, further complexity is caused by the fact that various verbs in the same simple flective categories behave differently.

Croatian verbs have the structure which includes different slots – for more than 94% of Croatian verbs, there are three obligatory slots in the canonical form: root (lat. *radix*), thematic suffix and flecteme, i.e. *flective morpheme*.² Their structure is represented in (1), where P stands for prefix(es), S for suffix(es), ST for thematic suffix, and examples of those verbs are listed in (2). The thematic suffix consists of a vowel such as *a*, *i* (infinitive and present) *ie*, *u*³ (infinitive), *e* (present) hence verbs that have those three slots are called thematic verbs (e.g. Babić 1991, Jelaska 2003). Thematic verbs have at least three syllables in the infinitive excluding prefixes, while some have even more: *cijukati* ‘to make a sound like a mouse’ has four syllables, *cipelariti* ‘to hit someone who is on the floor with one’s feet’ has five, *toplificirati* ‘to install heating’ has six, loans like *kategorizirati* ‘to categorize’ have seven, *racionalizirati* ‘to rationalize’ has eight syllables, *operacionalizirati* ‘to operationalize’ has as many as ten. Of course, prefixes may make the verbs even longer.

(1) P0 1 2 3 + **ROOT** + **S0 1 2 3** + **ST**+ **FLECTEME**

| | | | | | |
|-----|-------------|---------------|------|------|---------------------------------------|
| (2) | moliti | mol | + i | + ti | ‘to beg, to pray’ |
| | predmoliti | pred + mol | + i | + ti | ‘to pray in front of everybody’ |
| | vidjeti | vid | + ie | + ti | ‘to see’ |
| | nenavidjeti | ne + na + vid | + ie | + ti | ‘to dislike, envy, grudge’ |
| | govoriti | govor | + i | + ti | ‘to talk’ |
| | govorkati | govor + k | + a | + ti | ‘to talk secretly, around, to gossip’ |
| | hodati | hod | + a | + ti | ‘to walk’ |

¹ “Gerunds contain a main verb bearing special morphology. A form of the verb carries an invariant suffix: generally, -ći is added to the 3PL present form of an imperfective verb to form a non-past gerund; the infinitive stem is inflected with -vši to form a past gerund.” (Ćavar and Wilder 1999: 446).

² *Flecteme* is a grammatical suffix in flective words (nouns, verbs, adjectives, pronouns) that changes depending on their role in sentence. Flecteme is more important as a concept in morphologically complex languages such as Croatian or German than in English as it is usually part of the citation form, e.g. Cro. *patka* ‘duck’ (Nsg) > *patke* ‘ducks’ (Npl), Cro. *plivati* ‘to swim’ > *plivam* ‘I swim’.

³ The arguments for analysing *-n-* from *-nu-* as suffix and *-u-* as thematic vowel are beyond the scope of this paper.

| | | | | |
|-----------|--------------|-----|------|---|
| hoduckati | hod + uc + k | + a | + ti | ‘to walk with small steps, in an easy manner’ |
| pjevati | pjev | + a | + m | ‘I sing’ |

Less than 6% of Croatian verbs have only two obligatory slots as in (3), the root and the flecteme. This is caused by the lack of an (overt) thematic suffix, at least not in the canonical form. Verbs without an overt verbal suffix (i.e. with zero suffix: \emptyset) have a two-syllabic infinitive excluding prefixes, e.g. *piti* ‘to drink’, *čuti* ‘to hear’, *umrijeti* ‘to die’, *gristi* ‘to bite’. They are called *athematic verbs* (Cro. *atematski*) or *zero verbs* (Cro. *nulti glagoli*).

(3) P0 1 2 3 + **ROOT** + **ST + FLECTEME**

\emptyset

(4) po + pi + \emptyset + ti popiti ‘drink (all)’

Due to the lack of a thematic suffix (*a*, *i*, *ie*), these athematic verbs undergo many often quite unique phonological form changes in flektion. Therefore they are also sometimes called *irregular verbs* (Cro. *nepravilni glagoli*), as is the case in other languages. One class of athematic verbs even changes the form of the infinitive flecteme from *-ti* to *-ći*, e.g. *ići* ‘to go’, *naći* ‘to find’. Other names for this type of verbs are *strong verbs* (Ger. *Starke Verben*), unproductive verbs (Cro. *neplodni glagoli*).

Athematic verbs without prefixes have only two syllables in the infinitive, hence they are recognizable and perceptually different from thematic ones. It could be argued that, phonologically speaking, all verbs could first be split into two groups: one without an overt verbal suffix and the other with overt verbal suffixes. Some thematic verbs with prefixes are still recognised by their phonological features (endings *-ći*, *-Ccti*, *-ijeti*, *-eti* if not preceded by *j*, *-uti* if not preceded by *n*, see Jelaska 2005 for more details). However, when it comes to prefixed athematic verbs whose root vowels are identical to the thematic vowel in thematic classes, their canonical form cannot be distinguished from that of thematic verbs, e.g. thematic *vidjeti* ‘to see’ (1st pres. *vidim*) vs. athematic *probdjeti* ‘to spend the night awake’ (1st pres. *probdijem*) or *zadjeti* ‘to put into something’ (1st *zadjenem*); unless their prefixes are recognised as such.

However, athematic verbs are not the only ones that change their endings, i.e. thematic vowels, and even last consonants of the root; this also happens to some thematic classes of verbs, e.g. present form of *micati* : *mičem* ‘to move’, *plakati* : *plačem* ‘to cry’, *kupovati* : *kupujem* ‘to buy’. The fact that its verbs undergo different phonological changes in flexion due to their phonological and morphological shape makes, among other things, Croatian morphologically very complex.

0.2. The structure of the paper

This paper argues for a new conjugational categorization, presented in Bošnjak Botica (2011) and Jelaska and Bošnjak Botica (2012). Looking into the classification criteria of Croatian verbs, it analyses phonological differences in Croatian conjugation, defining forms in relation to their morphological structure. This paper investigates phonological differences in main conjugational categories as the basis for hierarchical categorization. The analysis is based on the data from 24,400 Croatian verbs (collection by the Institute of Croatian Language and Linguistics). In the first part of the paper, a brief history of Croatian conjugational categorizations will be presented, starting from the first grammar, written at the beginning of the 17th century (Kašić 1604), up to contemporary typologies. In the second part, the typology of Croatian verb types will be presented with the findings on the role of frequency, size and spreadity.

1. Short history of Croatian conjugational classifications

The form-changing behaviour of Croatian verbs assigns each verb to a certain conjugational type. Conjugational types are defined by their phonological and morphological shape, which define their phonological changes within flexion. The relationship between the infinitive, the non-finite verbal form par excellence and the present, which is on the other end of the finiteness dichotomy, is enough to categorize a verb into a conjugational type. The defining features are similarity or dissimilarity of verbal suffixes (i.e. the thematic vowel) and sound changes of the stem or derivational suffixes.

1.1. Traditional approaches

Traditional linguistic approaches have categorized verbs into a various number of conjugational or flective types.

1.1.1. Three types

Croatian scholars have produced the majority of early Croatian grammar books (from the beginning of the 17th to the 19th century) on cultural or educational demand, trying to answer practical needs of their future readers (Gabrić-Bagarić 2008: 115), so conjugation typology is often introduced descriptively within passages. Older Croatian grammarians use practically the same model – according to the present stem vowel before endings *-m*, *-š*, ..., they have listed three (basic) types: *am*, *im*, *em*.⁴

Three types were first proposed by B. Kašić (1604) in his Latin grammar of Croatian. Kašić's grammar is not only the first Croatian grammar, but also the beginning of Croatian normative linguistics (Tafra 1999: 44). It was not until the present century that it was translated and published in Croatian. Kašić proposes the same three types, but in different order: *im*, *em*, *am*; examples were verbs *I. učim (učim)* 'I learn', *tícem (tičem)* 'I touch', *ímam* 'I have'.

Croatian grammarians who wrote their grammar descriptions in the 18th and 19th centuries in different languages (Italian, Latin, German, Croatian) followed Kašić, but used a different order of the same three types: *am*, *em*, *im*, e.g. Della Bella 1728, Voltiggi 1803, Starčević 1812.

1.1.2. Six types

The change came with V. Babukić (1836, 1854), who accepted the classification into six flective types according to the infinitive form, introduced by the Czech linguist J. Dobrovský (1822). Babukić's model was as in (5), each type including verbs as examples (where ifoIE stands for in front of infinitive ending).

⁴ When *am*, *em*, *im* denote conjugational types, they appear without a hyphen, when they denote present ending, they are written with a hyphen: *-am*, *-em*, *-im*.

- | | |
|--|---|
| (5) 1 no feature ifoIE | e.g. <i>dati</i> 'to give', <i>pasti</i> 'to fall' |
| 2. - <i>nu</i> - ifoIE | e.g. <i>minuti</i> 'to pass', <i>zinuti</i> 'to talk' |
| 3. - <i>ě</i> - ifoIE | e.g. <i>uměti</i> 'to be able too', <i>viděti</i> 'to see' |
| 4. - <i>i</i> - ifoIE | e.g. <i>hoditi ifoIE</i> , <i>moliti</i> 'to pray' |
| 5. - <i>a</i> - ifoIE | e.g. <i>bacati</i> 'to throw', <i>pitati</i> 'to ask' |
| 6. - <i>ova-</i> , - <i>eva-</i> , - <i>iva-</i> ifoIE | e.g. <i>radovati se</i> 'to rejoice', <i>vojevati</i> 'to fight', <i>kazivati</i> 'to tell' |

Babukić's classification was used by many other grammar writers: Veber (1871), Divković (1897), Maretić (1899), Florschütz (1905). Not all grammarians copied Babukić's model as a whole, some of them moved some verbs from one type or subtype to the others. V. Pacel (1865) first classified all verbs into two groups (Cro. *hrpa*, lit. 'lump') according to the presence of present insertion, and he further divided the groups into six types (Cro. *red*, lit. 'order') and types into classes (Cro. *razred*). Of all the classifications dealt with thus far, the one by Pacel resembles most closely the classification appearing in modern Croatian grammars, the one in Barić et al. (1997) in particular. When compared to Babukić, Pacel increased the number of classes in type I, unified type II, divided the verbs of type III into three classes, added additional two classes to type V and arranged type VI in a completely new manner.

1.1.3. Other traditional classifications

Some Croatian grammars who followed V. Babukić and all his followers defined seven types, as they added a special group of irregular verbs. Brabec, Hraste and Živković (1952) excluded four verbs: *biti* 'to be', *htjeti* 'to want', *ići* 'to go', *spati* 'to sleep' from any of the previously mentioned six types. As they are excluded from the typology, it is hard to call them a 'type', but even a 'non-type' would suffice, as verbs have to belong somewhere, hence form a type of their own.

E. Barić et al. (1979) also introduced a seventh type, comprised of the same irregular verbs, while other athematic verbs were included in types together with the thematic ones. Since that grammar was until recently often the only one that was used in higher education teaching, types defined by Barić et al. will be briefly sketched here, in spite of the fact that they follow Babukić (and it was presented in more detail in Jelaska 2005), as they have fixed classes.

(6) TYPES

CLASSES

- | | |
|---|--|
| 1. <i>athematic verbs</i> | 1. – 7. acc. to infinitive |
| 2. dignuti – dignem ‘to lift’ | |
| 3. vidjeti – vidim ‘to see’ | 1. željeti, bdjeti, vreti 2. bojati, kričati |
| 4. moliti – molim ‘to pray’ | |
| 5. gledati – gledam ‘to see/watch’ | 1. gledati, dati – dam/dadem/dadnem, stati – stanem, tkati: tkam 2. pisati – pišem, jahati – jašem, šetati – šećem 3. derati – derem, brati – berem, zvati – zovem, slati – šaljem 4. pljuvati – pljujem, sijati – sijem, davati – dajem |
| 6. putovati – putujem ‘to travel’ | |
| 7. <i>irregular verbs</i> | biti, htjeti, ići, spati |

1.2. The contemporary Croatian categorizations into conjugational classes

From the last two decades of the 20th century onward, several approaches to Croatian conjugation emerged (more about this in Babić 1980, Jelaska 2003, 2005, Bošnjak Botica 2011, Marković 2012). Although their authors did not always categorize according to the strict theoretical framework, those innovative approaches could be observed through three different frameworks. Conjugational typologies by S. Babić (1980, 1986), Babić et al. (1991), D. Raguž (1997) and J. Silić (1991), Silić and Pranjković (2005) could be placed within the structuralist linguistic framework. Typology by Z. Babić (1991) was created within the generative linguistic framework and typologies by Z. Jelaska and T. Bošnjak Botica (Jelaska 2003, 2005, Bošnjak Botica 2011, Jelaska and Bošnjak Botica 2012) under the cognitive linguistic framework, especially the last two. It must be mentioned that the athematic type will not be described in detail in this paper due to space limitations, and also because it would make the picture much more complicated than it already is.

1.2.1. Structuralist approaches

Three contemporary grammar writers (Babić 1986, Babić et al. 1991, Raguž 1997) modified the six-classes approach referred to in 1.1.2. above, as well as

its version with seven types, not just by changing the order of classes within types, but by splitting athematic from thematic verbs according to the theoretical approach by S. Babić (1980). They put all athematic verbs into the first group and did not spread it into the other types, as other authors did, starting from V. Babukić. In addition to this, they all listed the approximate number of verbs contained within each type. A detailed comparison between the order of types and classes is presented in Jelaska (2003, 2005).

D. Raguž (1997) follows the classification by Babić (1986) into types, with the exception that he puts verbs like *davati* and *pljuvati* within type 6, but not as a separate class. He also changed the order of the first three classes within type 5 and his 5.1 class does not contain verbs like *davati* and *pljuvati*, which in the Babić (1986) belong together with verbs like *trajati* (5.2.). These two classifications are presented in (7).

| (7) <i>Babić (1986), Babić et al. 1991</i> | | <i>Raguž 1997</i> | |
|--|---|--|------------------------------|
| TYPES | CLASSES | TYPES | CLASSES |
| 1. athematic verbs | 1. – 7. acc. to infinitive | 1. athematic verbs | 1. – 7. acc. to infinitive |
| 2. zinuti – zinem | | 2. tonuti – tonem | |
| 3. vidjeti – vidim | | 3. vidjeti – vidim | |
| 4. raditi – radim | | 4. raditi – radim | |
| 5. | 5.1. klečati – klečim | | 5.1. trajati – trajem |
| | 5.2. trajati – trajem / davati – dajem | | 5.2. micati – mičem |
| | 5.3. micati – mičem | | 5.3. klečati – klečim |
| | 5.4. pitati – pitam | | 5.4. pitati – pitam |
| 6. kupovati – kupujem | | 6. putovati – putujem davati – dajem | |
| | | 7. biti, htjeti, ići, doći | |

Within the structuralist linguistic framework, J. Silić (1991, 1998) claimed that each verb form has its own stem. A year later, J. Silić (1999) offered a new conjugational typology. His classification also contained six types with different classes, with type I containing 17 classes. This approach is part of the grammar

by J. Silić and I. Pranjković (2005), whereby type I has 18 classes, and all others (except type II) had two (V, VI) or three (III, IV) classes. The authors have not included the verbs *dati* – *dam* ‘to give’ and *spati* – *spim* ‘to sleep’ as if they are not part of the(ir) presented model. A short version of their model is presented in (8). For more about this classification, see I. Marković (2012: 217–225).

| (8) TYPES | CLASSES | |
|------------------------------|---|-----------------------------|
| 1. athematic verbs | 1. – 17. according to the infinitive and present stem | |
| 2. mrznuti – mrzmem | | <i>nu – ne</i> |
| 3. pisati – pišem | 3.1. skakati – skačem | <i>a, va, ja – je</i> |
| | 3.2. pljuvati – pljujem | |
| | 3.3. grijati – grijem | |
| 4. raditi – radim | 4.1. raditi | <i>i, je, a – i</i> |
| | 4.2. vidjeti – vidim | |
| | 4.3. bježati – bježim | |
| 5. pričati – pričam | 5.1. kopati – kopam | <i>a – a</i> |
| | 5.2. proučavati – proučavam | |
| 6. kupovati – kupujem | 6.1. kupovati, bičevati – bičujem | <i>ova / eva, iva – uje</i> |
| | 6.2. smanjivati – smanjujem | |

In his lecture, W. Browne (1978)⁵ assigned seven types of Croatian stems, presented in (9). Instead of taking the infinitive or present stem as the starting point, he forms an underlying stem for each type to which the endings are attached, although each stem has a full and a shortened form (for *govoriti* ‘to speak’ *govori-* and *govor-*, for *piti* ‘to drink’ *pij-* and *pi-*).

| (9) TYPE | Example |
|----------|----------------|
| i | <i>govòri-</i> |
| je | <i>vǐdje-</i> |

⁵ As this typology was only mentioned in Babić 1980 and not published, the author sent us his notes he had prepared for delivering this lecture, which we are very grateful for.

| | |
|----------|-------------------------|
| Ča | <i>třča-</i> |
| a | <i>napísa-</i> |
| ova, iva | <i>putòva-, kazíva-</i> |
| aj | <i>otváraj-</i> |
| nu | <i>pokrénu-</i> |

The author described his categorization as a pedagogical one designed for students of Slavistics, and said that his approach was based on Jakobson's description of Russian conjugation used for other Slavic languages too. We find some similarities to the generative approach by Z. Babić (1991) described below.

1.2.2. Generative approach

Within the generative linguistic framework, Z. Babić (1991) proposed just one stem for each thematic verb class (called productive classes). In her description, the underlying stem contains all necessary information (i.e. features, including prosodic as well) as to the verb's flexion in the underlying representation. The features were included in the traditional generative framework, but, for sake of simplicity, they were also graphically represented in short by letters of different sizes. Examples of such graphically represented stems are given in (10). Capital letters represent syllables marked with stress, and the line above the stem represents the length.

- (10) *gleda* 'see' *pruži* 'offer' *starije* 'turn old' *kriče* 'shout' *mice* 'move' *kazīE* 'say'
čitA 'read' *vozI* 'drive' *žElě* 'wish' *pīsE* 'write'

Each stem takes just one and the same morpheme for each flexional category, e.g. *-e-* for present, *-h-* for past, *-m-* for the first person: *gledaem* > *gledam*, *gledahm* > *gledah*. Twenty sound-changing rules and eleven prosody-changing rules are responsible for the surface representation. The author did not deal with the zero class (unproductive or irregular class), due to the increase of the number of rules this would demand. Therefore, it is not possible to claim that they too would have one stem each, but it is highly likely.

1.2.3. Cognitive approach

The categorization in this paper is based on previous work by both authors. The proposition which uses division into groups further divided into types that may be subdivided into classes, which is the basis of the cognitive linguistic framework in this paper, was first published in Z. Jelaska (2003). She proposed the model with four groups (*a, i, e, Ø*) and ten types. This type of categorization was introduced some years ago in working materials (Jelaska 1998), and finally published in the grammarbook a few years ago (Jelaska 2015). It was based mostly on the prototypicality of the first and then the second type, as well as a different relation to the prototypical type(s) of the third group and its types, which was revealed in learnability and production of different types in language acquisition of Croatian as L2. The data was based on frequency and size of those groups in the growing vocabulary of up to 6,000 most frequent words in Croatian as L2 and compared to the size of the groups in more than 16,000 verbs collected through the most frequent Croatian words and two monolingual Croatian dictionaries (this approach was discussed in Marković 2012: 225–227).

The first four types within the first two groups, listed in (11), are the same in all previously mentioned newer proposals by both authors. The first and the second of these types do not change the infinitive thematic vowel in the present, the third monophthongizes it, and the fourth replaces it with *-i-*.

(11) THE FIRST TWO GROUPS (Cro. *skupine*) TYPES (Cro. *vrste*)

I. (*-a*)

1. **gledati** – gledam

II. (*-i*)

2. **moliti** – molim

3. **vidjeti** – vidim

4. **držati**⁶ – držim

It is interesting to notice that type IV in Silić and Pranjković (2005) is the same as the second group of this proposal: what they classify as a type is classified as a group in the present article, what they classify as a class is classified as a type here.

⁶ In earlier versions the example was *trčati – trčim* ‘to run’, in the published version *držati* ‘to hold’ was chosen because students were often confusing frequent verb *pričati – pričam* ‘to tell (a story)’ with *trčati* due to pre-thematic *č*.

The third group has *-e-* as the thematic suffix in the present: five types change their infinitive thematic suffix *-a-* into *-e-*, while the final (10th) group, adds one as it has zero or null suffix in the infinitive. The order of the last six types has been changing between different versions of the classification, as could be seen in (12), where the same verbs that serve as examples in at least two typologies are printed in bold, but if they belong to different type number in italic.

(12) THE THIRD GROUP TYPES

III. (-e)

| <i>Jelaska 2003</i> | <i>Jelaska 2005</i> | <i>Bošnjak Botica 2011</i> | <i>Jelaska 2015</i> |
|----------------------------------|----------------------|----------------------------|----------------------|
| | | <i>Jelaska and</i> | |
| | | <i>Bošnjak Botica 2012</i> | |
| 5. plesati – plešem | 5. <i>čeznuti</i> | 5. pisati | 5. plesati |
| 6. smijati se – smijem se | 6. <i>putovati</i> | 6. smijati se | 6. smijati se |
| 7. davati – dajem | 7. davati | 7. <i>putovati</i> | 7. <i>putovati</i> |
| 8. putovati – putujem | 8. <i>smijati se</i> | 8. <i>davati</i> | 8. <i>davati</i> |
| 9. čeznuti – čeznem | 9. <i>plesati</i> | 9. viknuti | 9. čeznuti |
| 0/10. athematic, zero | 10. athematic verbs | 10. athematic verbs | 10. athematic verbs |

The criteria of the older version (Jelaska 2003) were the **size**, the **frequency** of the most common members, as well as **morphological** and **phonological complexity**. Hence: verbs of the type *pisati* (which change the suffix *-a-* to *-e-* in the present and undergo iotation – they palatalize all consonants) include some common verbs like *plesati* ‘to dance’, *lagati* ‘to lie’, *disati* ‘to breathe’, *pisati* ‘to write’, *vikati* ‘to yell’, *plakati* ‘to cry’, *kazati* ‘to say’, *dizati* ‘to lift’, *vezati* ‘to tie’, *metati* ‘to put’, *vagati* ‘to weigh’, *mahati* ‘to wave’, *puhati* ‘to blow’; verbs of the type *smijati se* ‘to laugh’ (phonologically simple as they only change *-a-* to *-e-*)⁷ are a small group of verbs.

The other two groups are mostly derived by additional suffixes preceding the thematic: *-v-*, *-ov-*, or *-ev-*, *-iv-*, which they change (*-v-* becomes palatal *-j-*, *i /*

⁷ They do not undergo iotation as they already have palatal consonants. They could be placed in the same group and subject to the same rule as verbs like *plesati*, with the claim that the last consonant (cluster) has to be palatal (and it does not matter if it already was palatal) except for the verbs like *verati* : *verem* ‘to clamber’, which do not have a palatal in the present form.

o / e change into *-u*), and the seventh group is morphologically complex as it includes many members and changes all three suffixes (*-ov-*, its palatal version *-ev-* and grammatical *-iv-* before *-a-*) into *-uj-* (verbs like *darovati* ‘to give a gift’, *kraljevati* ‘to rule as a king’, *vjerovati* ‘to believe’), while the eighth type is very small (e.g. *pljuvati* ‘to spit’, *davati* ‘to give’). The ninth type, which includes verbs like *viknuti* ‘to shout’, changes the infinitive suffix *-u-* (preceded by *-n-*) into *-e*. This type is specific, despite its size, as it combines a mainly perfective suffix with a unique vowel: *-n+u-*.

In a more recent version, following the principles of **recognizability**, **predictability** and **changeability**, Z. Jelaska (2005) changed the order of types in the third group (Jelaska 2003). The author tracked the changes of percentage between the types in line with the size of Croatian vocabulary, starting from 100 verbs within the most frequent 500-600 words up to the large dataset of more than 16,000 verbs, which would probably belong to around 100,000 most frequent words in Croatian. The distribution of the two groups in the small dataset (100 words) changed in the large dataset (app. 16,000 words), as listed in (13).

- (13) small dataset *a* 22% *i* 37% *e* 41% (incl. 29% athematic verbs)
 large dataset *a* 36% *i* 30% *e* 34%

Recognizable verbs of the type *viknuti* ‘to shout’ predictably change their infinitive thematic suffix *-u-* to *-e-*, hence they were the 5th type. Verbs of the type *putovati* ‘to travel’ are recognizable in the infinitive by their suffix sequence *-ova-*, *-eva-* or *-iva-*, which is then replaced by the sequence *-uje-*, hence they were the 6th type. Both of these types of verbs are very large – of the 16,000 most common verbs, they are represented by more than 1,000 members (Jelaska 2005).

Verbs like *davati* are the 7th type as their ending is similar to the previous type, but not recognizable (i.e. *spavati* – *spavam* ‘to sleep’), and they change only *-va-* to *-je-*, not the (stem) vowel preceding it; verbs of the type *smijati se* are the 8th type as they are not recognizable (i.e. *skijati* – *skijam* ‘to ski’, *brijati* – *brijem* ‘to shave’), although they change just the thematic suffix.

Verbs of the type *pisati* ‘to write’ were placed at the last position in the classification as they are phonologically the most complex ones (in addition to vowels, they change not just one last consonant like *pisati* – *pišem*, but consonant clusters too, e.g. *drhtati* – *dršćem* ‘to tremble’).

It should be noted that the first six and the last type in Jelaska (2003) all contain mainly non-derivative verbs (of course, verbs derived from those by prefixes are included as well). Three other types contain mainly derivative verbs.

The newest proposals in Bošnjak Botica (2011), Jelaska and Bošnjak Botica (2012) and Jelaska (2015) are similar to Jelaska (2003), except that verb types *davati* and *putovati* changed their position: *davati* is the 8th type in the newer proposal, while verbs like *putovati* constitute the 7th type in the newer proposal, which is presented in (12). This way, the odd-numbered groups are large, while even-numbered groups are small. It should be mentioned that the classification in Bošnjak Botica (2011) contains two or three classes in all types except the first two. Although these types are not classified according to phonological features, but by lexical and grammatical properties, they are presented here for the sake of comparison.

The overview of different Croatian classifications into types for all thematic verbs is given in Table 6.1 in the Appendix.

As could be seen in this section, within the last four centuries Croatian verbs were classified into a range of groups or types, their number ranging from one to ten. The earliest classifications, which played a role in the first two centuries, were based on the present pre-flexeme vowel, i.e. the thematic vowel *a*, *e* or *i*. The next two centuries exhibited divisions according to the infinitive thematic suffix into mainly six types, some of which were further divided into classes. The order of the classes was changed in some proposals, mostly in line with the structuralist framework as the authors tried first to cover groups that needed special rules and then introduce the ones with more general rules. An interesting point of view was given by Dressler et al. (1996) who presented the classification according to the degree of productivity of verb types. Verbs were divided into macroclasses, classes and microclasses, but the authors keep a division into 6 types as it is in Babić's model.

1.3. Classes within types

As could be seen in Table 6.1 in the Appendix, the number, distribution and order of subtypes, called classes (Cro. *razredi*), is different in various contemporary classifications into conjugational classes. Detailed analysis is beyond the

scope of this paper. E. Barić et al. (1978, 1997) introduced classes in the three odd-numbered types (I, III, V); Babić (1986), Babić et al. (2001) and Raguž (1997) had classes (Cro. *razredi*) in types (Cro. *vrste*)⁸ I (athematic) and IV; while J. Silić (1991), Silić and Pranjković (2005) have between 2 and 18 classes in all but type I.

Z. Jelaska (2003, 2005) proposes classes only within the athematic type, which floats between its own group (2003) and the last place in the third group (2005). In Jelaska (2003), the principle of ordering was pedagogical – as the first three subtypes have the same sounds at the end as the first three types, it is easier to be aware of the phonological similarity, which is homonymic, if the classes have the same digit (1 vs. 0.1, 2 vs. 0.2, 3 vs. 0.3).

The ordering principle in Jelaska (2005) is recognizability of the type – verbs like *naći* ‘to find’ were the highest on the scale as they are at once recognizable as athematic (irregular verbs) due to the *-ći* ending. They are followed by verbs which end in *-Kti* like *rasti* ‘to grow’, *jesti* ‘to eat’, *-uti* not preceded by *-n-* like *čuti* ‘to hear’ or *-ijeti* like *umrijeti* ‘to die’, which does not appear in the thematic class. The last three classes are phonologically not recognizable from the thematic types if athematic verbs have prefixes (e.g. *popiti* – *popijem* ‘to drink up’ vs. *poriti* – *porim* ‘to rip’). As mentioned before, classes in T. Bošnjak Botica (2011) were organised semantically and lexically as well, not just formally.

It should be said as well that the way the groups or types were introduced was also changing. The groups or types (the names for the categories themselves included some synonyms) were sometimes introduced by vowels (*a, i, e*), at other times by endings (infinitive, e.g. *-ati, -ivati, -nuti*, or present *-am, -im* or *-am, -aš, ...*), sometimes by suffixes (e.g. *-a-, -iv-a-*); sometimes by examples (e.g. *gledati*), and at other times by numbers (e.g. 1, 2, ... or I, II, ...). Numbering the group is easier, or quicker to produce, than labelling it with its representative verbs, although the representative verbs are easier in reception. For the sake of intelligibility, it is more practical to use endings such as *-nuti* than plain suffixes such as *-u-, -nu-* or *-n+u*.

⁸ It should be said that Croatian terminology *skupina, grupa, vrsta, razred* and their English translations ‘group’, ‘type’, ‘class’ are used differently in the approach presented in this paper and some earlier grammars, but this analysis is beyond the scope of this paper.

2. The properties of the groups and types

This chapter will list some of the properties of the groups and types. These will include the size of both, the percentage of prefixed members within the group, and the feature spreadity (Bošnjak Botica 2011): average number of prefixed verbs for each non-prefixed one, as well as their size and frequency.

2.1. The size of groups and types

The size of Croatian verbs, organized into three groups: A, I, E, is presented in (11), where the percentage of each type and group is calculated for 24,538 verbs. The number of verbs is somewhat bigger than the number of collected verbs (24,440) as 98 verbs belong to two types. The prototypical (the first) group (Jelaska and Bošnjak Botica 2012) has only one member: the first verb type, verbs *ati*: *am* and it gathers 39% of all verbs. The second group, which is less prototypical as it has three members: the second, the third and the fourth verb type, is the second largest group and it gathers 32% of verbs. The third group, the least prototypical one, includes 29% of all verbs. Not only does it have six members, its last member is the athematic conjugational type with classes of verbs that have a phonologically non-overt thematic suffix and therefore a phonologically much more non-transparent form.

In *Table 1*, the size of types and groups are given, listed according to their size. As could be seen, the order of the groups is in line with the size of the group. Within the second group, the order of types matches the order by size. In the third group, the order of types does not match the ordering by size as other features play a more important role.

It is interesting to compare these new data with the data comprised of 16,000 verbs in Z. Jelaska (2005), which make two-thirds of data analysed here. The relationship between the groups develops in an expected manner: Group I (a) is bigger (3%), Group II (i) as well (2%), which therefore makes Group III (e) smaller (5%). In addition, while athematic verbs constitute 29% of the 100 most frequent verbs, in the larger data 5%, while in the largest data they constitute 6% (5,7%) due to some very rare or archaic verbs.

Table 1 The size of verb types and groups

| Type number | Type representative | Total | % of all verbs | Group | Number | % | 16,000 verbs (Jelaska 2005) |
|-------------|---------------------|--------------|----------------|------------|--------------|---------|-----------------------------|
| I | <i>gledati</i> | 9,590 | 39.08* | | | | |
| | | | | 1 a | 9,590 | 39.08% | 36,00% |
| II | <i>moliti</i> | 7,011 | 28.57 | | | | |
| III | <i>vidjeti</i> | 509 | 2.07 | | | | |
| IV | <i>trčati</i> | 225 | 0.92 | | | | |
| (II-IV) | | | | 2 i | 7,745 | 31.56 % | 30,00% |
| V | <i>pisati</i> | 1,325 | 5.40* | | | | |
| VI | <i>smijati se</i> | 337 | 1.37* | | | | |
| VII | <i>vjerovati</i> | 2,621 | 10.68 | | | | |
| VIII | <i>davati</i> | 67 | 0.27 | | | | |
| IX | <i>krenuti</i> | 1,463 | 5.96 | | | | |
| (V-IX) | | | | | 5,813 | 23.69% | 29,00% |
| X | <i>ići</i> | 1,390 | 5.66 | | 1390 | 5.67% | 5,00% |
| (V-X) | | | | 3 e | 7,2 | 28.9% | 34% |
| Total | | 24,538 | 99,98 | | 24,54 | 100,00% | |

* Some types contain verbs that can belong to two types.

Productivity may also play a role in the final size of groups and classes. In general, classes that are unproductive tend to shrink in size. One can ask why a particular class is productive and some other is not or has become unproductive in some period. According to Bybee and Moder (1983), the answer has to do with the fact that this class had a certain coherent defining phonological feature while the others did not. In Croatian, the more transparent class (*gledati*) is the most productive, while phonologically more opaque classes are less productive or unproductive.

2.2. Spreadity

Size of a verb group may play different roles, but, according to the categorization into verb types, spreadity should be accounted for as it plays a role in changing the types' size, yet does not play a role in changing flexion. Spreadity is derivation by prefixes that changes the verb adding *Aktionsart* but does not change the

type of flexion, not even phonological features of the ending, while derivation by suffixes may change the type of flexion, and it changes phonological features of the ending (the term *proširenost* ‘spreadity’ was introduced and used in Jelaska and Kolaković 2009). It should be said that it may sometimes affect the stress pattern and distribution between conjugational categories sensitive to the aspect of the verb, but both of these issues are beyond the scope of this paper. As prefixed verbs belong to the same conjugational category as their non-prefixed counterpart, both groups will be split in the next tables.

Table 2 presents the numbers of prefixed and non-prefixed verbs within each type. Table 3 presents the same relationship in percentages. Verbs without prefixes were not further analysed into verbs derived by suffixes and non-derived verbs, although this issue will be briefly revisited in the following chapter.

Table 2 The relation between prefixed and non-prefixed verbs in numbers

| Type number | Type representative | Verbs without prefix | Verbs with prefix | Total | Group | Verbs without prefix | Verbs with prefix | Total |
|-------------|---------------------|----------------------|-------------------|--------|----------------|----------------------|-------------------|-------|
| I | <i>gledati</i> | 3,240 | 6,350 | 9,590 | | | | |
| | | | | | a | 3,240 | 6,350 | 9,590 |
| II | <i>moliti</i> | 1,498 | 5,513 | 7,011 | | | | |
| III | <i>vidjeti</i> | 116 | 393 | 509 | | | | |
| IV | <i>trčati</i> | 66 | 159 | 225 | | | | |
| | | | | | i | 1,680 | 6,065 | 7,745 |
| V | <i>pisati</i> | 375 | 950 | 1,325 | | | | |
| VI | <i>smijati se</i> | 31 | 306 | 337 | | | | |
| VII | <i>putovati</i> | 421 | 2,200 | 2,621 | | | | |
| VIII | <i>davati</i> | 4 | 63 | 67 | | | | |
| IX | <i>viknuti</i> | 577 | 886 | 1,463 | | | | |
| | | | | | e1 | 1,408 | 4,405 | 5,813 |
| X | <i>ići</i> | 122 | 1,268 | 1,390 | | 122 | 1,268 | 1,390 |
| | | | | | e1 + e2 | 1,530 | 5,673 | 7,203 |
| Total | | 6,450 | 18,088 | 24,538 | | 6450 | 18088 | 24,54 |

The first group has more non-prefixed members than the other two groups, which makes it much larger than when all verbs are included. The first conjugational type (type I) has more than twice the number of non-prefixed members

than the second type (3,240 vs. 1,498). The rest of the types range from a few hundred members (*viknuti* 577, *putovati* 421, *pisati* 375) or around one hundred (*zero* 122, *vidjeti* 116) to less than a hundred (*trčati* 66, *smijati se* 31) or even just a few verbs (*davati* 4), as could be seen in Table 2. If size is the result of a much smaller group of unspreaded verbs that have a large percentage of prefixed verbs within the whole group, then size is not as important in the perception of the type.

Table 3 shows that the relationship between the three groups is more similar when only prefixed types are compared (*a* 35%, *i* 34%, *e* 31%) than when non-prefixed ones are compared (*a* 50%, *i* 26%, *e* 24%).

Table 3 The relation between prefixed and non-prefixed verbs in %

| Type number | Type representative | % of all verbs without prefix | % of all verbs with prefix | % of all verbs | Group | % of all verbs without prefix | % of all verbs with prefix | % of all verbs |
|-------------|---------------------|-------------------------------|----------------------------|----------------|----------------|-------------------------------|----------------------------|----------------|
| I | <i>gledati</i> | 50.23 | 57.01 | 39.08 | a | 50.23 | 35.11 | 39.08 |
| II | <i>moliti</i> | 23.22 | 30.478 | 28.57 | | | | |
| III | <i>vidjeti</i> | 1.80 | 2.17 | 2.07 | | | | |
| IV | <i>trčati</i> | 0.48 | 1.69 | 1.37 | | | | |
| | | | | | i | 25.64 | 34.34 | 32.02 |
| V | <i>plesati</i> | 5.81 | 5.25 | 5.40 | | | | |
| VI | <i>smijati se</i> | 1.02 | 0.88 | 0.92 | | | | |
| VII | <i>vjerovati</i> | 6.527 | 12.16 | 10.68 | | | | |
| VIII | <i>davati</i> | 0.06 | 0.35 | 0.27 | | | | |
| IX | <i>krenuti</i> | 8.945 | 4.898 | 5.96 | | | | |
| | | | | | e1 | 22.37 | 23.54 | 23.23 |
| X | <i>ići</i> | 1,89 | 7.01 | 5.66 | e2 | 1,89 | 7,01 | 5,66 |
| | | | | | e1 + e2 | 24.27 | 30,55 | 28.9 |
| Total | | 100% | 100% | 100% | | 100% | 100% | 100% |

Table 4 lists the types ordered from the most spreaded ones, i.e. the ones whose size depends mostly on the spreaded verbs, to the least spreaded types. As could be seen from the table, the highest percentage (more than 90%) of spreaded verbs, i.e. verbs derived by prefixes, have types VI, X (91%) and VIII (93%).

Type VII has 84%, types II-V from 71% to 79%. Type I has the lowest (66%), except for type IX (61%), which is almost whole derived by the perfective suffix *-n-* and thematic *-u-*, e.g. *kucnuti* ‘to knock once’ (< *kucati* ‘to knock’), *viknuti* ‘to shout once’ (< *vikati* ‘shout’), *krenuti* ‘to start moving’ (< *kretati* ‘to move’), which consists of 11 basic verbs (56 with prefixes) not derived from verbs and therefore imperfective.⁹ The first group has the second highest percentage of non-spreaded (non-prefixed) verbs, more than one third (34%).

The first group is followed by verbs of the type *trčati* 29%, then closely follows *pisati* 28%, *vidjeti* 23%, *moliti* 21%, *putovati* 16%, *smijati se* 9%, *zero* 9%, *davati* 7%. Hence, the irregular verbs and verbs like *smijati se* consist of more than 90% of verbs derived by prefixes. Type *putovati* consists of more than 80%, types *moliti*, *vidjeti*, *pisati* and *trčati* of more than 70%, while verbs like *gledati* and *viknuti* of more than 60% of verbs derived by prefixes. In *Table 4* the percentage of verbs with prefixes within each type is presented as average spreadity (number of verbs with prefixes divided by total number of verbs in the type).

Table 4 The spreadity of the types ordered by size

| Type number | Type representative | Verbs without prefixes | Verbs with prefixes | Total number | % of verbs without prefixes within type | % of verbs with prefixes within type | Average spreadity |
|-------------|---------------------|------------------------|---------------------|--------------|---|--------------------------------------|-------------------|
| VIII | <i>davati</i> | 4 | 63 | 67 | 5.97 | 94.03 | 16.75 |
| X/zero | <i>ići</i> | 122 | 1,268 | 1,390 | 8.78 | 91.22 | 11.39 |
| VI | <i>smijati se</i> | 31 | 306 | 337 | 9.19 | 90.81 | 10.87 |
| VII | <i>putovati</i> | 421 | 2,200 | 2,621 | 16.06 | 83.94 | 6.23 |
| II | <i>moliti</i> | 1,498 | 5,513 | 7,011 | 21.36 | 78.64 | 4.68 |
| III | <i>vidjeti</i> | 116 | 393 | 509 | 22.79 | 77.21 | 4.39 |
| V | <i>pisati</i> | 375 | 950 | 1,325 | 28.30 | 71.70 | 3.53 |
| IV | <i>trčati</i> | 66 | 159 | 225 | 29.33 | 70.67 | 3.41 |
| I | <i>gledati</i> | 3,240 | 6,350 | 9,590 | 33.78 | 66.22 | 2.96 |
| IX | <i>viknuti</i> | 577 | 886 | 1,463 | 39.43 | 60.57 | 2.54 |
| Total | | 6,450 | 18,088 | 24,538 | | | |

⁹ Those verbs are 11 basics verbs which appear together with their family of prefixed types: *venuti* 8, *tonuti* 4, *čeznuti* 2, *brinuti* 7, *ginuti* 6, *gusnuti* 3, *gasnuti* 3, *kisnuti* 10, *trnuti* 4, *trunuti* 6, *čvrsnuti* 3 (56 verbs in total).

As could be seen from Table 4, the derived verbs cover between 61% and 93% of all members within the type. The most derived type is *davati* (type VIII), closely followed by the athematic (zero) group (type X), and *smijati* (type VI); they all consist of more than 90% of derived members. On the other hand, with the exclusion of type IX (which is mostly made by means of the suffix *-nu-*, hence derived verb type, and therefore has the biggest percentage of non-prefixed verbs), the 1st group has the largest proportion of non-derived verbs (34%), i.e. one-third.

2.3. The size and frequency

The frequency of individual verbs matters, as does the frequency of type. Milestones in Table 5 are set at the first 100, 500, 1,000, 2,000, 3,000, 4,000, 6,000 words (Moguš, Bratanić and Tadić 1999) – up to this number mere frequency could play an important role – after that, the knowledge of morphemes and word-formation rules as well as semantic field-dependent vocabulary play a more important role. Table 5 shows numbers rounded up to three decimal places. In the 100 most frequent words, there are only 4 conjugational types: athematic (irregular verbs), represented by *ići*: 47%, type I *gledati*: 33%, II *moliti*: 13% and III *vidjeti*: 7%. The relationship later changes and more types appear.

Table 5 Percentage of different conjugational types in the most frequent words of different size (100–6,000)

| | 100 | 500 | 1,000 | 2,000 | 3,000 | 4,000 | 5,000 | 6,000 |
|--------------------------|-------|-------|-------|-------|--------|--------|-------|-------|
| I. a <i>I gledati</i> | 33.33 | 17.53 | 21.28 | 22.5 | 21.43 | 22.40 | 23.86 | 24.75 |
| II <i>moliti</i> | 13.33 | 25.77 | 30.85 | 34.25 | 36.428 | 36.077 | 35.13 | 34.94 |
| III <i>vidjeti</i> | 6.67 | 6.18 | 4.255 | 3.25 | 3.21 | 3.147 | 2.93 | 2.825 |
| IV <i>držati</i> | – | – | 5.15 | 4.51 | 3.5 | 3.21 | 2.66 | 2.46 |

| | | | | | | | | |
|-------------------------------|--------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|
| 2. i | 20 | 31.95 | 40.255 | 42.01 | 43.19 | 42.33 | 40.72 | 40.25 |
| V <i>pisati</i> | – | 5.15 | 4.255 | 6.75 | 6.07 | 5.569 | 5.2 | 5.83 |
| VI <i>smi- jati se</i> | – | 2.06 | 2.659 | 2.25 | 2.5 | 2.3 | 2.46 | 2.75 |
| VII <i>vje- rovati</i> | – | 4.12 | 3.72 | 4 | 3.75 | 4.84 | 5.587 | 6.02 |
| VIII <i>davati</i> | – | 1.03 | 1.06 | 0.75 | 0.535 | 0.968 | 0.946 | 0.817 |
| IX <i>kre- nuti</i> | – | 1.03 | 1.595 | 3 | 3.75 | 4.479 | 4.829 | 5.278 |
| V, VI, VII, VIII, IX | | 12.36 | 13.329 | 16.75 | 16.605 | 17.756 | 19.022 | 20.695 |
| X <i>zero</i> | – | 32.989 | 25.53 | 20 | 19.107 | 17.55 | 16.477 | 15.09 |
| 3. e | 46.67 | 45.349 | 38.859 | 36.75 | 35.712 | 35.306 | 35.499 | 35.785 |

While Table 5 presented percentages in decimal numbers of verbs up to 6,000 most frequent Croatian words, Table 6.2 in the Appendix shows the percentages of conjugational types rounded to the nearest whole number in 100, 500, 1,000, 2,000, 4,000, 6,000, compared to the percentage in the largest verbal data (24,538) for ease of comparison. As could be seen from this table, *davati* is always the smallest and its share in the 6,000 most frequent verbs is 1%. In the larger data, its percentage is almost zero (0.27%). Irregular verbs start as the largest group, but then switch to the second and third place, and eventually end up in the fifth position in the lag. Type *moliti* starts as the third type, switches to the second, then to the first, but in the largest dataset settles as the second type again. Type *gledati* starts as the second, switches to the third, then second, and ends up in the first place. These two types together from 44% to 59% in all the frequency-based data, while both constitute from 13% to 36%. The other types constitute from 1% to 6%.

3. Conclusion

Croatian verbs are categorized into groups, types and classes by their phonological properties, and the phonological shape of two morphological forms (infiniti-

ve and present) predicts phonological changes of verbs in flexion. The category assignment in conjugation seems to be arbitrary from a morphological point of view, especially from a semantic point of view, except for certain classes or types where most of the verbs are derived and carry imperfective or perfective aspect before (additional) prefixation. This was the reason why linguists were traditionally changing the basis and the order for the categorization of Croatian verbs. This paper shows that the ordering is useful and practical, not only for presenting, but for naming types too.

The total number of verbs plays an important role in the ordering of the first two groups of verbs (*a* and *i*). However, in the third group several factors play important roles as well: the percentage of verbs without prefixes which could also be expressed by the feature of spreadity (if they are not mostly derived by suffixes), phonological simplicity and similarity. It is interesting enough that some small types are very spreadable (*davati* and *smijati se*, including athematic type), as well as the third largest type, while other small types are less spreadable (*vidjeti* and *trčati*), as well as the largest type.

A further paper prepared by the authors will present the principle of classification in conjugation that makes both ordering and categories of groups, types and classes non-arbitrary.

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Appendixes

Table 6.1 The comparison between several contemporary classifications of thematic conjugation types

| Inf. | Pres. | Example | Babić et al. 1991 | Raguž 1997 | Barić et al. 1979 | Silić; Silić & Pranjković 2005 | Jelaska 2003 | Jelaska 2005 | Bošnjak Botica 2011 | Jelaska & Bošnjak Botica 2012, Jelaska 2015 |
|--------|-------|--|-------------------|------------|-------------------|---|--------------|--------------|---------------------|---|
| -nuti | -nem | <i>krenuti</i> <i>čeznuti</i> | 2 | 2 | 2 | 2 | 9 | 5 | 9.2 9.1 | 9 |
| -jeti | -im | <i>vidjeti</i> <i>zelenjeti</i> | 3 | 3 | 3.1 | 4.2 | 3 | 3 | 3.2 3.1 | 3 |
| -iti | -im | <i>moliti</i> | 4 | 4 | 4 | 4.1 | 2 | 2 | 2 | 2 |
| -ati | -im | <i>trčati</i> <i>kričati</i> | 5.1 | 5.3 | 3.2 | 4.3 | 4 | 4 | 4.2 4.1 | 4 |
| -ati | -em | <i>derati</i> <i>smijati se</i> <i>umirati</i> | 5.2 | 5.1 | 5.3 5.4 5.3 | ? ¹⁰ 3.3 ? ¹¹ | 6 | 8 | 6.1 6.2 | 6 |
| -vati | -jem | <i>davati</i> <i>pljuvati</i> | 5.2 | 6 | 5.4 | 3.2 | 7 | 7 | 8.2 8.1 | 8 |
| -Kati | -*jem | <i>skakati</i> <i>vikati</i> <i>pomagati</i> | 5.3 | 5.2 | 5.2 | 3.1 | 5 | 9 | 5.3 5.1 5.2 | 5 |
| -ati | -am | <i>gledati</i> | 5.4 | 5.4 | 5.1 | 5.1 | 1 | 1 | 1 | 1 |
| -avati | -am | <i>proučavati</i> | | | | 5.2 | | | | |
| o+vati | -ujem | <i>kupovati</i> | 6.1 | 6 | 6 | 6.1 | 8 | 6 | 7.1 | 7 |
| e+vati | | <i>mačevati</i> | | | | | | | 7.2 | |
| i+vati | | <i>kazivati</i> | | | | 6.2 | | | 7.3 | |

¹⁰ This type is not included in the model.

¹¹ This type is not included in the model.

Table 6.2 Percentage of conjugational types with rounded numbers in 100, 500, 1,000, 2,000, 4,000, 6,000 compared to the percentage in the largest verb data

| Words | | % | | % | | % | | % | | % | | % | | % | | % | | % | | |
|---------|----------|----|----------|----|-------------|----|------------|---|-------------|---|------------|---|-------------|---|-------------|---|-------------|---|--------|---|
| 100 | ići | 47 | gle-dati | 33 | mo-liti | 13 | vidje-ti | 7 | | | | | | | | | | | | |
| 500 | ići | 33 | mo-liti | 26 | gle-dati | 18 | vidje-ti | 6 | pisati | 5 | vje-rovati | 4 | smija-ti se | 2 | dava-ti | 1 | | | | |
| 1,000 | mo-liti | 31 | ići | 26 | gle-dati | 21 | držati | 5 | vi-djeti | 4 | pisati | 4 | vjero-vati | 4 | smi-jati se | 3 | kre-nuti | 2 | davati | 1 |
| 2,000 | mo-liti | 34 | gle-dati | 23 | ići | 20 | pisati | 6 | drža-ti | 5 | vje-rovati | 4 | vidjeti | 3 | kre-nuti | 3 | smi-jati se | 2 | davati | 1 |
| 4,000 | mo-liti | 36 | gle-dati | 22 | ići | 18 | pisati | 6 | vje-rova-ti | 5 | kre-nuti | 4 | držati | 3 | vidje-ti | 3 | smi-jati se | 2 | davati | 1 |
| 6,000 | mo-liti | 35 | gle-dati | 25 | ići | 15 | vjero-vati | 6 | pisati | 5 | kre-nuti | 5 | vidjeti | 3 | smi-jati se | 3 | držati | 2 | davati | 1 |
| 120,000 | gle-dati | 39 | mo-liti | 29 | vje-ro-vati | 10 | kre-nuti | 6 | ići | 6 | pisati | 5 | vidjeti | 2 | smi-jati se | 1 | držati | 1 | davati | 0 |

Konjugacijski tipovi u hrvatskom jeziku

Sažetak

Hrvatska je morfologija poprilično složena zbog različitih promjena oblika u fleksiji, a te su se promjene nastojale opisati i kategorizirati s različitih pristupa. U prvom se dijelu rada daje kratki pregled hrvatske konjugacijske tipologije počevši od prve hrvatske gramatike B. Kašića (1604.) do posljednje autora J. Silića i I. Pranjkovića (2005.). Iako se broj vrsta kreće od jedne do deset, podrobnijom se raščlambom uočava da se broj tipova penje na 29.

U drugom se dijelu rada raščlanjuju neka načela razdiobe na tri skupine (a, e, i) i deset vrsta: brojnost, omjer osnovnih i prefigiranih glagola unutar vrste, posebno proširenost i njezina veza s brojnošću, odnos brojnosti i čestote, npr. broj članova svake vrste u rječniku koji raste od najčešćih 100 do najčešćih 6 tisuća riječi. Građu čini više od 24 000 hrvatskih glagola koji su podijeljeni u skupine, vrste i razrede s različitim stupnjem članstva unutar vrste. Prva se skupina sastoji samo od jednoga člana (glagoli tipa *gledati*), druga ima tri (glagoli tipa *moliti*, *vidjeti* i *trčati*), a treća šest (glagoli tipa *pisati*, *smijati se*, *putovati*, *davati*, *viknuti* i *ići*).

Ključne riječi: glagoli, konjugacije, glagolska tipologija, hrvatski jezik

Keywords: verbs, conjugation, verb typology, Croatian language