

## TWO-LEVEL DESCRIPTION OF THE VERBAL INFLECTION IN CONTEMPORARY BULGARIAN

### INTRODUCTION.

The verbs in Bulgarian have up to 3,000 different forms. This is due to the fact that there are six grammatical categories - **person** (with three subcategories - 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> person), **number** (with two subcategories - singular and plural), **aspect** (with two subcategories - imperfective and perfective aspect), **tense** (with nine subcategories - present tense, aorist, imperfect tense, future tense, perfect tense, plusquamperfect, future perfect tense, future in the past tense and future perfect in the past tense), **voice** (with two subcategories - active and passive voice) and **mood** (with four subcategories - indicative, imperative, conditional and the so called "reported" mood). In addition to that there are four **participles** (three active participles - present, aorist and imperfect, and a (past) passive participle) and a few other non-finite verb forms - the **verbal adverbs**, and the **verbal nouns** with the suffixes **'-HE'**, **'-HIE'**. However, all those forms can be derived either from the present-tense stem, or from the aorist stem of the verb (the aorist stem is sometimes called the infinitive stem despite the fact that contemporary Bulgarian lacks an infinitive - the form for the 1<sup>st</sup> person singular of the present tense is considered to be the basic form of the verb).

Most of the verbs in Bulgarian have forms for both the perfective and imperfective aspects (some verbs are *imperfectiva tantum*, i.e. they have no form for the perfective aspect). The problem is that very often these forms belong to different conjugations and thus do not appear next to each other in the dictionaries (in dictionaries, it is a common practice not to explain the meaning of the perfective form of the verb but to give reference to the corresponding imperfective form). Additionally, the perfective and the imperfective stems have different sets of non-finite forms. For this reason, although they are forms of one and the same word, here the perfective and the imperfective forms of one verb appear as independent entries.

In Bulgarian the verbs have simple and complex forms. The construction of the simple forms is accomplished mainly by inflection. Thus, these forms and not the complex forms of the verbs are going to be discussed here.

In tables like the one below you will find most of the simple forms of the verb, i.e. the forms for the 1<sup>st</sup> person singular for the present tense, aorist and imperfect tense<sup>1</sup>, all the participles<sup>2,3</sup>, the verbal nouns, the verbal adverb, and the forms for the imperative. As two forms can sometimes be distinguished only by the stress, the accented vowel will be underlined. The forms appear in the table in the following order:

1	present tense
2	aorist
3	imperfect tense
4	present active participle
5	aorist participle
6	imperfect participle
7	past passive participle
8	verbal nouns
9	verbal adverb
10	imperative mood

<sup>1</sup> The forms for the 2<sup>nd</sup> p. sg appear next to the forms for the 1<sup>st</sup> p. sg if there is any particular reason for this.

<sup>2</sup> The participles have forms for the three genders in the singular, and one form for the plural. The tables list only the forms for the masculine. The rest of the forms are constructed by adding the endings **'-A'** for f, **'-O'** for n, **'-H'** for pl. If any of the forms show particularities, they appear in brackets after the form for the masculine.

<sup>3</sup> Most of the intransitive verbs cannot be used in the passive voice and, consequently, do not have passive participles. However, some of the imperfective intransitive verbs can be used impersonally in the passive voice, the passive participle being always in the neuter gender, singular. Here is an example: *'В леглото ми е спяно.'* (lit. *It has been slept in my bed.* = *Somebody has slept in my bed.*) - the verb *спя* is intransitive and the use of the forms *спан, спана, спани* makes no sense. In such cases the form for the neuter gender, the singular of the passive participle, is the form to appear in the tables.

### BULGARIAN VERBAL INFLECTION

The verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation have two **basic temporal stems** - the **present-tense stem** and the **aoarist stem**. Most often these two stems are different, but sometimes they appear to be identical (e.g. 'молу|и > молу-' for the present tense and 'молу|х > молу-' for the aorist). The verbs that belong to the 3<sup>rd</sup> conjugation **always** have identical stems for the present tense and aorist, i.e. they have only one stem.

**The present-tense stem** is what is left when the personal ending '-III' is removed from the form for the present tense, 2<sup>nd</sup> person sg. **This stem is used when the following forms are constructed:** the present tense, the imperfect tense, the simple forms for the imperative mood, the present active participle, the imperfect participle and the verbal adverb.

The forms for the **present tense** are built by adding the personal endings for the present tense to the present-tense stem. If the verb belongs to the 1<sup>st</sup> conjugation (the stem ends on the vowel '-E-') or to the 2<sup>nd</sup> conjugation (the stem ends on the vowel '-И-') the following personal endings are added:

1 <sup>st</sup> p. sg	-А/-Я	1 <sup>st</sup> p. pl	-М
2 <sup>nd</sup> p. sg	-III	2 <sup>nd</sup> p. pl	-ТЕ
3 <sup>rd</sup> p. sg	-	3 <sup>rd</sup> p. pl	-АТ/-ЯТ

The present-tense stem itself consists of the stem-proper plus the suffix for present tense (i.e. the stem vowel: '-E-' for the first conjugation, '-И-' for the second conjugation). The stem vowel does not appear in the forms for the 1<sup>st</sup> person sg and the 3<sup>rd</sup> person pl of the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation, e.g. 'нек-Ѡ-а : неч-Ѡ-и'. As the example shows, if the final consonant of the stem is one of the velars ('К', 'Г', 'Х') it alternates with 'Ч', 'Ж', 'Ш' according to the rules of the first palatalization.

The personal endings for the 3<sup>rd</sup> conjugation, present tense, are:

1 <sup>st</sup> p. sg	-М	1 <sup>st</sup> p. pl	-МЕ
2 <sup>nd</sup> p. sg	-III	2 <sup>nd</sup> p. pl	-ТЕ
3 <sup>rd</sup> p. sg	-	3 <sup>rd</sup> p. pl	-Т

If the verb belongs to the 3<sup>rd</sup> conjugation no special vowel is added to the stem of the verb. The stem ends on '-А-' or '-Я-' but this is not a stem vowel but a derivational or imperfectivating suffix or a part of such a suffix, e.g. 'давам : даваи', 'стрелям : стреляи'. In other words - the third conjugation is athematic.

The imperfect-tense stem of the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation is built by adding the suffix for the **imperfect tense** is '-Е-/-Я-' (the so called mutating 'Я'<sup>4</sup>) to the present-tense stem-proper (i.e. stripped from the thematic vowel). All the forms (i.e. 1<sup>st</sup> - 3<sup>rd</sup> persons in the singular and the plural) contain the suffix for the imperfect tense. If the accent is on the suffix the letter '-Я-' appears in the forms for the 1<sup>st</sup> p. sg and 1<sup>st</sup> - 3<sup>rd</sup> p. pl, and the letter '-Е-' in the forms for the 2<sup>nd</sup> and the 3<sup>rd</sup> person sg for the imperfect tense (the two forms are identical). In such case the form appears in the table next to the form for the 1<sup>st</sup> p. sg. The personal endings for the **imperfect tense** are:

1 <sup>st</sup> p. sg	-Х	1 <sup>st</sup> p. pl	-ХМЕ
2 <sup>nd</sup> p. sg	-ШЕ	2 <sup>nd</sup> p. pl	-ХТЕ
3 <sup>rd</sup> p. sg	-ШЕ	3 <sup>rd</sup> p. pl	-ХА

Here is an example: 'чет-я-х : чет-Ѡ-ше'.

<sup>4</sup> For details on mutating 'Я' (променливо 'Я') consult a grammar of Bulgarian.

The verbs that belong to the 3<sup>rd</sup> conjugation have only one stem and it is athematic, i.e. thematic-vowel-type suffixes are not added to any of the temporal stems (i.e. the present-tense stem, the aorist stem, the imperfect-tense stem). The endings for the imperfect tense and for the aorist directly replace the endings for the present tense, e.g. 'дава|м > дава|х; стреля|м > стреля|х'.

The simple forms for the **imperative mood** are constructed by adding '-И' for the 2<sup>nd</sup> person sg and '-ЕТЕ' for the 2<sup>nd</sup> person pl if the present tense stem (stripped from the ending, and from the stem vowel for the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation as well) ends in a **consonant**, e.g. 'чет- + -и/-ете > чети!/чете!'; 'уч- + -и/-ете > учи!/учте!'.

If the stem (stripped from the ending, and from the stem vowel for the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation as well) ends in a **vowel** the following endings are added: '-Й' for the 2<sup>nd</sup> person sg and '-ЙТЕ' for the 2<sup>nd</sup> person pl, e.g. 'ни- + -й/-йте > ний!/нийте!'; 'сто- + -й/-йте > стой!/стойте!'; 'стреля- + -й/-йте > стреляй!/стреляйте!'.

There are also some exceptions:

видя > виж!/вижете!	отида > иди!/идете!
ям > яж! яжете!	държа > дръж!/дръжете!
вляза > влез!/влезте!	дойда > ела!/елате!
изляза > излез!/излезте!	съм > бъди!/бъдете!
сляза > слез!/слезте!	

The verbs 'мога' (can, be able to) and 'ица' (want) haven't got at all forms for the imperative.

The **present active participle** is constructed from the present-tense stem (**only imperfective stems**) but for practical purposes it is easier to construct it from the corresponding imperfect-tense. The ending '-Х' in the form for the imperfect tense, 1<sup>st</sup> person sg is replaced by the suffix '-Щ' ('-ЩА' for the feminine, '-ЩО' for the neuter and '-ЩИ' for the plural), e.g. 'чета > четя|х > четя|щ, -ща, -що, -щи'; 'стрелям > стреля|х > стреля|щ, -ща, -що, -щи'.

It should be pointed out that the '-Е-/-Я-' sound in the imperfect-tense stem of the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugations follows "double standards". As far as the formation of the imperfect-tense stem is concerned, it follows the rules for the mutating of 'Я'. But when the participle is constructed by adding the suffix '-Щ', it no longer obeys the rules. Here is an example: 'чета > четя|х > четеше, but четя|щ, четяцията, четящи'.

The **imperfect participle** is formed by adding '-Л' for the masculine, '-ЛА' for the feminine, '-ЛО' for the neuter, '-ЛИ' for the plural to the imperfect-tense stem of the verb. The rules for the mutating of 'Я' are strictly followed. Here is an example - 'четя|х > четял, четяла, четяло, четяли'.

The forms of the **verbal adverbs** are built only from imperfective stems by adding the suffix '-ЙКИ' to the imperfect-tense stem of the verb, e.g. 'моле|ше > моле+йки > молейки'.

The **aorist stem** consists of the stem-proper plus the suffix for aorist. The suffixes for aorist are: '-О-', '-А-', '-Я-', '-И-'. There is a group of verbs that belong to class 7 of the 1<sup>st</sup> conjugation that build their aorist stems without suffixes. The aorist stem of the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation most often is different from the present-tense stem. The differences often involve ablaut-type gradation of root vowels (e.g. 'пера : прах'), and alternations 'Ш : С', 'Ж : З' (e.g. 'пиша : псах', 'кажа : казах'). As it was mentioned above, the verbs that belong to the 3<sup>rd</sup> conjugation have only one stem and it is athematic, i.e. thematic-vowel-type suffixes are not added to any of the temporal stems (i.e. the present-tense stem, the aorist stem, the imperfect-tense stem). The endings for the imperfect tense and for the aorist directly replace the endings for the present tense, e.g. 'дава|м > дава|х; стреля|м > стреля|х'.

**The aorist stem is used when the following forms are constructed:** the aorist, the aorist participle, the past passive participle and the verbal nouns with the suffixes '-НЕ', '-НИЕ'.

The personal endings for the **aorist** are almost the same as the personal endings for the imperfect tense. Here they are:

1 <sup>st</sup> p. sg	-X	1 <sup>st</sup> p. pl	-XME
2 <sup>nd</sup> p. sg	-	2 <sup>nd</sup> p. pl	-XTE
3 <sup>rd</sup> p. sg	-	3 <sup>rd</sup> p. pl	-XA

The verbs that have the suffix ‘-O-’ in the aorist stem (e.g. ‘*чѐто|x*’) show some irregularities when the forms for the 2<sup>nd</sup> and 3<sup>rd</sup> person sg for the aorist (the two forms are identical) are constructed. In such case the form appears in the table next to the form for the 1<sup>st</sup> p. sg.

The **aorist participle**, as a general rule, is formed by adding ‘-Л’ for masculine, ‘-ЛА’ for feminine, ‘-ЛО’ for neuter, ‘-ЛИ’ for plural to the aorist stem of the verb, e.g. - ‘*видѣ|x* > *видѣл*, *видѣла*, *видѣло*, *видѣли*’. The rules for the mutating of ‘Я’ are strictly followed.

Naturally, there are some exceptions. These are mainly verbs that end in ‘-OX’ in the aorist, the 1<sup>st</sup> person sg. There are two such groups. Twelve verbs that in the present tense have the stress on the ending and the stem ends in ‘-Т’, ‘-Д’ drop the final consonant of the stem, i.e. ‘-Т’, ‘-Д’ as well as the stem suffix ‘-O-’, e.g. - ‘*чет|а* > *чѐтох* > *чѣл*, *чѣла*, *чѣло*, *чѣли*’; ‘*превед|а* > *превѣдох* > *превѣл*, *превѣла*, *превѣло*, *превѣли*’. Other verbs that have in present tense a stem that ends in ‘-К’, ‘-З’, ‘-С’, regardless of the stress, also drop the suffix ‘-O-’. Then the suffixes for the aorist participle is added (‘-Л’ for the masculine, ‘-ЛА’ for the feminine, ‘-ЛО’ for the neuter, ‘-ЛИ’ for the plural). The consonant combinations ‘КЛ’, ‘ЗЛ’, ‘СЛ’ in the forms for the masculine cannot stay at the end of the word, and an ‘-Ъ-’ has to be inserted in front of the suffix ‘-Л’, e.g. - ‘*река* > *рекох* > *рекъл*’, but ‘*рѣкла*, *рѣкло*, *рѣкли*’; ‘*вляза* > *влязох* > *влязьл*’, but ‘*влязла*, *влязло*, *влязли*’; ‘*донеса* > *донесох* > *донесъл*’, but ‘*донесла*, *донесло*, *донесли*’.

To the irregularities also belong the verbs ‘*съм*, *ща*, *отида*, *дойда*’: (*съм* > *бѣ|x* > *бѣл*, *бѣла*, *бѣло*, *бѣли*, *ща* > *щѣ|x* > *щѣл*, *щѣла*, *щѣло*, *щѣли*, *отида* > *отѣдох* > *отѣшъл*, *отѣшила*, *отѣшило*, *отѣшили*, *дойда* > *дойдох* > *дошъл*, *дошла*, *дошло*, *дошли*).

**Past passive participles** are regularly formed from transitive verbs (and for some intransitive verbs - only forms for the neuter) by replacing the personal ending for the aorist, 1<sup>st</sup> person sg ‘-X’, with the suffix ‘-Н’ (‘-НА’ for the feminine, ‘-НО’ for the neuter and ‘-НИ’ for the plural) or the suffix ‘-Т’ (‘-ТА’ for the feminine, ‘-ТО’ for the neuter, ‘-ТИ’ for the plural). If the verb belongs to the 1<sup>st</sup> conjugation and ends in ‘-НА’, the suffix ‘-Т’ is added, e.g. ‘*брѣсна* > *брѣсна|x* > *брѣсна|т*, *-та*, *-то*, *-ти*’. If the verb belongs to the 1<sup>st</sup> conjugation and the stem ends in a vowel (before the stem vowel), the suffix ‘-Т’ is added, e.g. ‘*бѣя* > *бѣ|x* > *бѣ|т*, *-та*, *-то*, *-ти*’. This rule applies only to disyllabic verbs and their prefixed derivatives, e.g. ‘*мѣя*, *измѣя*, *пѣя*, *допѣя*, *изпѣя*, *напѣя* (*се*)’ etc., but not, for instance, to ‘*живѣя*’. In all other cases the suffix ‘-Н’ is added. If the vowel in front of the ‘-X’ is different form ‘-А-’ or ‘-Я-’ it is replaced it with an ‘-Е-’, e.g. ‘*мѣя* > *мѣли|x* > *мѣлѣ|н*, *-на*, *-но*, *-ни*’. Contrary to the adjectives, the vowel ‘-Е’ in front of the ‘-Н’ **does not disappear** in the forms for the feminine, the neuter and the plural.

The **verbal nouns** will not be discussed here as they are traditionally listed as separate (noun) entries in the dictionaries.

## THE RULES

Now, after the main models of constructing the simple forms and the main areas of irregularities have been briefly outlined, it is clear that of all contemporary and historic phonetic and morphological rules in Bulgarian only the following are relevant to the inflection of the simple verb forms:

1. mutation of ‘Я’ - affects all the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation;
2. first palatalization of the ‘К’, ‘Г’, ‘Х’ velars - affects the verbs that belong to class 1 of the 1<sup>st</sup> conjugation ;
3. elision of the aorist-stem suffix ‘-O-’ in front of the suffix of the aorist participle ‘-Л’ (‘-ЛА’, ‘-ЛО’, ‘-ЛИ’) - affects all the verbs that belong to class 1 of the 1<sup>st</sup> conjugation;

4. elision of root final ‘-Т’, ‘-Д’ in front of the suffix of the aorist participle ‘-Л’ (‘-ЛА’, ‘-ЛО’, ‘-ЛИ’) - affects subclass 1 of class 1 of the 1<sup>st</sup> conjugation;
5. epenthesis of ‘Ъ’ in the sound clusters ‘КЛ’, ‘ЗЛ’, ‘СЛ’ in word final position - affects subclass 2 of class 1 of the 1<sup>st</sup> conjugation;
6. ablaut-type gradation of root vowels - affects 3 basic verbs that belong to class 2 of the 1<sup>st</sup> conjugation - ‘бѣра : брах, дѣра : драх, нѣра : прах’, and their derivatives;
7. alternations ‘Ш : С’, ‘Ж : З’ as well as ‘Ч : К’, ‘Ж : Г’ (present-tense stem : aorist stem) - affects verbs that belong to class 4 of the 1<sup>st</sup> conjugation;
8. replacement of the aorist-stem suffixes ‘-О-’, ‘-И-’ with ‘-Е-’ in front of the suffix of the past passive participle ‘-Н’ (‘-НА’, ‘-НО’, ‘-НИ’) - affects class 1, 1<sup>st</sup> conjugation, and class 1, 2<sup>nd</sup> conjugation.
9. construction of the past passive participle with suffix ‘-Т’ (‘-ТА’, ‘-ТО’, ‘-ТИ’) instead of the suffix ‘-Н’ (‘-НА’, ‘-НО’, ‘-НИ’) - affects the verbs that have suffix ‘-Н’ and belong to class 2, 1<sup>st</sup> conjugation, and disyllabic verbs and their prefixed derivatives with a stem-proper ending in a vowel, that belong to class 7, 1<sup>st</sup> conjugation.

### THE AFFECTED VERB CLASSES

It is time to examine in more details the verb classes that reflect the above stated rules. Bulgarian verbs are classified into 3 groups (conjugations) according to the present tense stem. In addition, they are classified into 12 classes<sup>5</sup> according to the particularities of the present-tense stems in relation to the particularities of the corresponding aorist stems.

Class 1 of the 1<sup>st</sup> conjugation consists of 24 basic verbs. From each of them up to 18 more verbs<sup>6</sup> can be derived by prefixation. Here are the 24 basic verbs, in alphabetical order: ‘бодѣ, на-влѣкѣ’, бѣда, до-ведѣ, гнетѣ, дам, дойда, кладѣ, крадѣ, в-лязѣ, метѣ, в-несѣ, пасѣ, нека, плетѣ, предѣ, растѣ, река, сека, тека, треса, чѣта, ям’. The verbs ‘бѣда, дам, дойда’ and ‘ям’ manifest numerous irregularities and will be analyzed separately. The rest of the verbs (both basic and derivatives) fall mainly into 2 groups: verbs with stems that end in ‘-Т’, ‘-Д’ (бодѣ, до-ведѣ, гнетѣ, кладѣ, крадѣ, метѣ, плетѣ, предѣ, растѣ, чѣта) and verbs with stems that end in ‘С’, ‘З’ or ‘К’ (на-влѣка, в-лязѣ, в-несѣ, пасѣ, нека, река, сека, тека, треса). Here are some examples of verbs of the first group:

1	чет а, чѣтѣ ш
2	чѣт о х (чѣтѣ)
3	чѣт я х (чѣтѣ ше)
4	чѣт я щ
5	чѣт л
6	чѣт ял (чѣтѣ ли)
7	чѣт ен
8	чѣт ене
9	чѣт ѣйки
10	чѣт и! чѣтѣтѣ!

1	превед а, превѣдѣ ш
2	превед о х (преведѣ)
3	превед я х (преведѣ ше)
4	
5	превѣл
6	превед ял (преведѣ ли)
7	превѣд ен
8	
9	
10	превед и! превѣдѣтѣ!

The material in the tables shows that the following rules affect the construction of the inflective (simple) forms of the verbs of the first group (subclass 1, class 1, 1<sup>st</sup> conjugation):

<sup>5</sup> The number of classes varies in Bulgarian grammar literature but this is not essential as the classifications that have more classes have less subclasses and vice versa. The classification adopted here is from the academic grammar of contemporary Bulgarian Граматика 1983.

<sup>6</sup> This provision is too generous. Only a few basic verbs can join all the 18 prefixes.

<sup>7</sup> The roots ‘-(ѳ)лѣк-’, ‘-вед-’, ‘-ляз-’, ‘-нес-’ are bound, i.e. they do not appear independently but only concatenated with prefixes. In addition, the initial ‘-(ѳ)-’ of the root ‘-(ѳ)лѣк-’ is dropped if the prefix is ‘об-’.

- **mutation of 'Я'** in the imperfect-tense stem (affecting the forms for the 2<sup>nd</sup> and the 3<sup>rd</sup> person sg for the imperfect tense and the form for the plural of the imperfect participle);
- **elision of the aorist-stem suffix '-O-'** in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ');
- **elision of root final '-Т', '-Д'** in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ');
- **replacement of the aorist-stem suffixes '-O-' with '-E-'** in front of the suffix of the past passive participle '-Н' ('-НА', '-НО', '-НИ')

Here are some examples of the verbs of the second group:

1	вляз а, влѣзе ш
2	влязо х (влѣзе)
3	влѣзе х
4	
5	вляз ъл (-ла, -ло, влѣзли)
6	влѣзел
7	
8	
9	
10	влез! влезте!

1	донес а, донесе ш
2	донесо х (донесе)
3	донеся х (донесеше)
4	
5	донес ъл (-ла, -ло, -ли)
6	донесял (донесели)
7	донесен
8	донесение
9	
10	донеси! донесете!

1	пек а, пече ш
2	пекo х (пече)
3	печа х (печеше)
4	печащ
5	пек ъл (-ла, -ло, -ли)
6	печал (печели)
7	печен
8	печене
9	печейки
10	печи! печете!

The material in the tables shows that the following rules affect the construction of the inflective (simple) forms of the verbs of the second group (subclass 2, class 1, 1<sup>st</sup> conjugation):

- **mutation of 'Я'** in the imperfect-tense stem (affecting the forms for the 2<sup>nd</sup> and the 3<sup>rd</sup> person sg for the imperfect tense and the form for the plural of the imperfect participle, as well as root vowels, cf. *вляза, влезеш*)
- **first palatalization of the 'К', 'Г', 'Х' velars.** It takes the form of alternation of 'К' into 'Ч' when followed by an 'Е', 'И' or 'Я'. The alternation of 'К' into 'Ч' in front of 'Я' is realized on the surface level as a string 'ЧА' as the letters 'Я', 'Ю', 'Ъ' cannot follow the letters 'Ч', 'Ж', 'Ш'.
- **elision of the aorist-stem suffix '-O-'** in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ');
- **epenthesis of 'Ъ'.** The class stem suffix for the aorist '-O-' is dropped in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ'). As a result, a forbidden combination of consonants appears at the end of the word - 'ЗЛ', 'СТ', 'КЛ'. In order to change this, an 'Ъ' vowel is inserted between 'С', 'З', 'К' and the 'Л' in the forms for the masculine.
- **replacement of the aorist-stem suffixes '-O-' with '-E-'** in front of the suffix of the past passive participle '-Н' ('-НА', '-НО', '-НИ')

Now, let's have a closer look at the verbs 'бѣда, дам, дойда, ям':

1	ям, яде ш (ядат)
2	ядо х (яде)
3	ядя х (ядеше)
4	ядящ
5	ял
6	ядял (ядели)
7	яден
8	ядене
9	ядейки
10	яж! яжете!

1	дойд а, дойде ш
2	дойдо х (дойде)
3	дойде х
4	
5	дош ъл (-ла, -ло, -ли)
6	дойдел
7	
8	
9	
10	ела! елате!

1	дам (дадат), даде ш
2	дадо х (даде)
3	дадя х (дадеше)
4	
5	дал
6	дадял (дадели)
7	даден
8	
9	
10	дай! дайте!

1	бѣд а, бѣде ш
2	бидо х (биде)
3	бѣде х
4	бѣдеш
5	бил (била, било, били)
6	бѣдел
7	
8	
9	бѣдейки, бидейки
10	бѣди! бѣдете!

The verbs 'ям, дам' and 'дойда', 'бѣда' behave like the verbs that belong to subclass 1, class 1, of the 1<sup>st</sup> conjugation, with some additional irregularities. The verbs 'ям, дам' have irregular forms for the 1<sup>st</sup> person sg of the present tense (i.e. 'ям, дам' instead of 'яда, дада'), the verb 'бѣда' demonstrates gradation of the root vowel 'Ѣ' of the present-tense root into 'И' in the aorist root, and the verb 'дойда' has irregular forms for the aorist participle (i.e. 'дошъл').

Three of the verbs that belong to class 2, 1<sup>st</sup> conjugation: 'бера, дера, пера' (and their derivatives) display gradation of the root vowel 'Е' of the present-tense root into 'Ѡ' in the aorist root:

1	бер а, бере ш
2	бра х
3	беря х (береше)
4	берящ
5	брал
6	берял
7	бран
8	бране
9	берейки
10	бери! берете!

1	дер а, дере ш
2	дра х
3	деря х (дереше)
4	дерящ
5	драл
6	дерял
7	дран
8	дране
9	дерейки
10	дери! дерете!

1	пер а, пере ш
2	пра х
3	перя х (переше)
4	перящ
5	прал
6	перял
7	пран
8	пране
9	перейки
10	пери! перете!

The material in the tables shows that but for the root vowel gradation these verbs are quite regular. However, it is not justified to try to formulate a complicated two-level rule that is able to capture the vowel gradation in the roots of these 3 verbs (and their derivatives). Some other solution to the problem should be found in this case.

Here are some verbs that belong to the same class that have suffix **'-H'** in front of the temporal-stem suffix (i.e. in front of the suffix **'E'** for the present tense and the suffix **'A'** in the aorist stem):

1	брѣсн а, брѣсне ш
2	брѣсна х
3	брѣсне х
4	брѣснеш
5	брѣснал
6	брѣснел
7	брѣснат
8	брѣснене
9	брѣснейки
10	брѣсни! брѣснете!

1	вдигн а, вдигне ш
2	вдигна х
3	вдигне х
4	
5	вдигнал
6	вдигнел
7	вдигнат
8	
9	
10	вдигни! вдигнете!

The verbs are regular. The only particularity is the construction of the past passive participle with suffix **'-T'** (**'-ТА'**, **'-ТО'**, **'-ТИ'**) instead of the suffix **'-H'** (**'-НА'**, **'-НО'**, **'-НИ'**). This can be easily handled by a rule.

It is not so easy, however, to define the rule so that it will apply as well to the disyllabic verbs and their prefixed derivatives with a stem-proper ending in a vowel, that belong to class 7, 1<sup>st</sup> conjugation. The group consists of 9 verbs that have a monosyllabic root ending on **'И'** (*бця, вяя, гняя, кряя, мця, пця, рця, трця, шця*) and 6 verbs that have a monosyllabic root ending on **'У'** (*на-дця, плця, плюя, об-ця, на-хлця, чця*). They are regular. The only particularity is the construction of the past passive participle with suffix **'-T'** (**'-ТА'**, **'-ТО'**, **'-ТИ'**) instead of the suffix **'-H'** (**'-НА'**, **'-НО'**, **'-НИ'**). Unfortunately, they have numerous prefixed derivatives. Some other solution to the problem should be found in this case. Here are 2 examples of these verbs:

1	пи я, пи е ш
2	пи х
3	пи е х
4	пи ещ
5	пи л
6	пи ел
7	пи т
8	пи ене
9	пи ейки
10	пи й! пи йте!

1	чу я, чу е ш
2	чу х
3	чу е х
4	
5	чу л
6	чу ел
7	чу т
8	
9	
10	чу й! чу йте!

The verbs that belong to class 1, 1<sup>st</sup> conjugation, have aorist-stem suffix **'-O-**. It is replaced with **'-E-** in front of the suffix of the past passive participle **'-H'** (**'-НА'**, **'-НО'**, **'-НИ'**). This has already been discussed. The verbs that belong to class 1, 2<sup>nd</sup> conjugation, have aorist-stem suffix **'-И-**. It also is replaced with **'-E-** in front of the suffix of the past passive participle **'-H'** (**'-НА'**, **'-НО'**, **'-НИ'**). A rule that applies to both groups of verbs can be defined to handle this alternation. Here are 2 examples of verbs that belong to class 1, 2<sup>nd</sup> conjugation:

1	ми <u>сл</u> я, ми <u>сли</u> ш
2	ми <u>сл</u> иx
3	ми <u>сл</u> еx
4	ми <u>сл</u> ещ
5	ми <u>сл</u> ил
6	ми <u>сл</u> ел
7	ми <u>сл</u> ено
8	ми <u>сл</u> ене
9	ми <u>сл</u> ейки
10	ми <u>сл</u> и! ми <u>сл</u> ете!

1	сло <u>ж</u> а, сло <u>жи</u> ш
2	сло <u>ж</u> иx
3	сло <u>ж</u> еx
4	
5	сло <u>ж</u> ил
6	сло <u>ж</u> ел
7	сло <u>ж</u> ен
8	
9	
10	сло <u>ж</u> и! сло <u>ж</u> ете!

And finally, the verbs that belong to class 4 of the 1<sup>st</sup> conjugation demonstrate alternations ‘Ш : С’, ‘Ж : З’ as well as ‘Ч : К’, ‘Ж : Г’ (present-tense stem : aorist stem). Here are some examples:

1	ка <u>ж</u> а, ка <u>же</u> ш
2	ка <u>з</u> аx
3	ка <u>ж</u> еx
4	
5	ка <u>з</u> ал
6	ка <u>ж</u> ел
7	ка <u>з</u> ан
8	
9	
10	ка <u>ж</u> и! ка <u>ж</u> ете!

1	пи <u>ш</u> а, пи <u>ше</u> ш
2	пи <u>с</u> аx
3	пи <u>ше</u> еx
4	пи <u>ше</u> ещ
5	пи <u>с</u> ал
6	пи <u>ш</u> ел
7	пи <u>с</u> ан
8	пи <u>с</u> ане, пи <u>с</u> ание
9	пи <u>ше</u> йки
10	пи <u>ш</u> и! пи <u>ше</u> ете!

1	лъ <u>ж</u> а, лъ <u>же</u> ш
2	лъ <u>г</u> аx
3	лъ <u>ж</u> еx
4	лъ <u>ж</u> ещ
5	лъ <u>г</u> ал
6	лъ <u>ж</u> ел
7	лъ <u>г</u> ан
8	лъ <u>г</u> ане
9	лъ <u>ж</u> ейки
10	лъ <u>ж</u> и! лъ <u>ж</u> ете!

1	пла <u>ч</u> а, пла <u>че</u> ш
2	пла <u>к</u> аx
3	пла <u>ч</u> еx
4	пла <u>ч</u> ещ
5	пла <u>к</u> ал
6	пла <u>ч</u> ел
7	пла <u>к</u> ано
8	пла <u>к</u> ане, пла <u>ч</u> ене
9	пла <u>ч</u> ейки
10	пла <u>ч</u> и! пла <u>ч</u> ете!

To this class belong 26 basic verbs (as well as their prefixed derivatives). It will be very difficult to formulate a complicated two-level rule that is able to capture these palatalization-related consonant alternations in the roots of these 26 verbs (and their derivatives). Some other solution to the problem should be found in this case.

### THE TWO-LEVEL RULES

Now the verb classes reflecting the (mor)phonological rules that apply to the Bulgarian verbal inflection have been analyzed. It is clear that some of the (mor)phonological rules could easily be formulated as two-level rules while other are more difficult to handle and probably other solutions to the problems have to be found. Let's first concentrate on the former. Here they are:

1. mutation of ‘Я’ - affects all the verbs that belong to the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation;
2. first palatalization of the ‘К’, ‘Г’, ‘Х’ velars - affects the verbs that belong to class 1 of the 1<sup>st</sup> conjugation ;
3. elision of the aorist-stem suffix ‘-О-’ in front of the suffix of the aorist participle ‘-Л’ (‘-ЛА’, ‘-ЛО’, ‘-ЛИ’) - affects all the verbs that belong to class 1 of the 1<sup>st</sup> conjugation;
4. elision of root final ‘-Т’, ‘-Д’ in front of the suffix of the aorist participle ‘-Л’ (‘-ЛА’, ‘-ЛО’, ‘-ЛИ’) - affects subclass 1 of class 1 of the 1<sup>st</sup> conjugation;
5. epenthesis of ‘Ъ’ in the sound clusters ‘КЛ’, ‘ЗЛ’, ‘СЛ’ in word final position - affects subclass 2 of class 1 of the 1<sup>st</sup> conjugation;

6. replacement of the aorist-stem suffixes '-O-', '-И-' with '-E-' in front of the suffix of the past passive participle '-H' ('-HA', '-HO', '-HI') - affects class 1, 1<sup>st</sup> conjugation, and class 1, 2<sup>nd</sup> conjugation;
7. construction of the past passive participle with suffix '-T' ('-TA', '-TO', '-TI') instead of the suffix '-H' ('-HA', '-HO', '-HI') - affects the verbs that have suffix '-H' and belong to class 2, 1<sup>st</sup> conjugation.

## 1. THE MUTATION OF 'Я'

The mutation of 'Я' affects all the verbs and should be handled by a special rule. However, the mutation of 'Я' does not always take place although one or more conditions for alternating 'Я' into 'E' are met. These cases are limited to the forms of the present active participle (cf. above) and the forms for the 1<sup>st</sup> and the 2<sup>nd</sup> person pl in the aorist and the imperfect tense, and are valid for all the classes of the 1<sup>st</sup> and the 2<sup>nd</sup> conjugation. Thus, a general rule for the mutation of 'Я' should be defined. The rule is stress sensitive, which means that the accented vowels have to be marked. In addition, the suffixes and the endings ('-Щ', '-ЩА', '-ЩО', '-ЩИ' for the present active participle; '-ХМЕ', '-ХТЕ' the 1<sup>st</sup> and the 2<sup>nd</sup> person pl in the aorist and the imperfect tense) that do **not** trigger the expected alternation 'Я : E' should be appropriately marked so that they would not mess the application of the rule. For this reason I have included the letter 'Щ' [ШТ] in the group of the hard consonants although, rarely, in other forms (connected by derivation) it triggers mutation of 'Я', e.g. 'няжкоу : нещю'. The 'E' sound in the endings will be written on the lexicon level as 'ɛ' to be distinguished from the 'E' that triggers mutation of 'Я'. The 'И' sound in the plural ending of the present active participle 'ЩИ' will be written on the lexicon level as 'ɪ' to be distinguished from 'И' that triggers mutation of 'Я'. The sound that is realized on the surface level either as 'Я' or as 'E' will be written on the lexicon level as 'Ā'. The stress will be marked on the lexicon level with the diacritic '˘' in front of the stressed vowel in order not to complicate the application of the other rules as they all (but two) are dependent only on the right side context. According to the traditions of Bulgarian grammar literature where the default correspondence to the mutating 'Я' is 'Я', and the correspondence 'E' is the secondary. But the realization 'Я' is severely restricted by the phonological context, and will be much more complicated to formulate a rule for the realization of 'E' rather than a rule for the realization of 'Я'. For this reason, I have adopted here the opposite assumption - the realization 'E' is the default realization, and the realization 'Я' (or 'A' after 'Ч' as the letters 'Я', 'Ю', 'Б' cannot follow (according to the orthography of Bulgarian) the letters 'Ч', 'Ж', 'Ш') is handled by the following rules:

$$\begin{aligned} \text{ā} : \text{я} &\Leftrightarrow \text{˘} \_ [(x : C_h) (x : C_h) (x : C_h)(C_h) (x : C_h) (x : V_{nf})] \\ \text{ā} : \text{a} &\Leftrightarrow \text{κ} : \text{ч} \_ [(x : C_h) (x : C_h) (x : C_h)(C_h) (x : C_h) (x : V_{nf})] \end{aligned}$$

where:

$C_h$  is the set of the hard consonants (i.e. consonants that do not trigger mutation of 'Я') allowed on the surface level {б, в, г, д, з, к, л, м, н, п, с, т, ф, х, ц, ч};

$V_{nf}$  is the set of non-front vowels (i.e. vowels that do not trigger mutation of 'Я') allowed on the lexicon level {а, ъ, о, у, ɛ, ɪ};

x is whatever is/are the allowed correspondence(s) of the members of the set on the lexicon level;

˘ marks that the following vowel is stressed;

the realization of the characters in the square brackets [] is optional.

## 2. THE FIRST PALATALIZATION OF THE 'K', 'Г', 'X' VELARS

As it was mentioned above, this rule is implemented only for the pair 'K : Ч'. The other two correspondences either are not implemented in the area of Bulgarian verbal inflection (but are well manifested in the area of the verbal derivation!), or cannot be handled by a two-level rule (cf. below, the alternations 'Ч : K', 'Ж : Г' (present-tense stem : aorist stem) that affect verbs that belong to class 4 of the 1<sup>st</sup> conjugation). Thus, the following rule can be formulated:

$$k : \text{ч} \leftarrow \_ V_p : x$$

where:

$V_p$  is the set of palatal vowels (i.e. vowels that trigger the first palatalization) allowed on the lexicon level  $\{e, u, \bar{a}\}$ ;

$x$  is whatever is/are the allowed correspondence(s) of the members of the set on the surface level;

The rule allows surface realizations of the lexicon ' $K$ ' as surface ' $\text{Ч}$ ' in other contexts as well.

### 3. ELISION OF THE AORIST-STEM SUFFIX '-O-' IN FRONT OF THE SUFFIX OF THE AORIST PARTICIPLE '-Л' ('-ЛА', '-ЛО', '-ЛИ')

The aorist-stem suffix '-O-' is deleted in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ'). The following rule can be formulated:

$$o : \emptyset \leftrightarrow \_ л(S_{gn})\#$$

where:

$S_{gn}$  is the set of characters representing on the lexicon level the gender and number endings of the participles  $\{a, o, u\}$  and their realization is optional;

# is marking on the lexicon level the end of the word.

### THE ELISION OF ROOT FINAL '-Т', '-Д' IN FRONT OF THE SUFFIX OF THE AORIST PARTICIPLE '-Л' ('-ЛА', '-ЛО', '-ЛИ')

This rule has to be redefined if a simple set of two-level rules operating from left to the right is to be defined. It is true that the deletion of the aorist-stem suffix '-O-' precedes (and actually causes) the following deletion of the root final '-Т', '-Д' in front of the suffix of the aorist participle '-Л' ('-ЛА', '-ЛО', '-ЛИ'). But if the rules are to be applied in consequence, left to the right, it is better to formulate the rule as follows:

### 4. ELISION OF ROOT FINAL '-Т', '-Д' IN FRONT OF THE AORIST-STEM SUFFIX '-O-', FOLLOWED BY THE SUFFIX OF THE AORIST PARTICIPLE '-Л' ('-ЛА', '-ЛО', '-ЛИ')

The rule affects the verbs that belong to subclass 1, class 1 of the 1<sup>st</sup> conjugation and can be formulated as follows:

$$C_d : \emptyset \leftrightarrow \_ ол(S_{gn})\#$$

where:

$C_d$  is the set of the lexicon-level dental explosive consonants  $\{m, \partial\}$ ;

$S_{gn}$  is the set of characters representing on the lexicon level the gender and number endings of the participles  $\{a, o, u\}$  and their realization is optional;

# is marking on the lexicon level the end of the word.

Formulated in this way, the rule allows the subsequent application of the rule ELISION OF THE AORIST-STEM SUFFIX '-O-' IN FRONT OF THE SUFFIX OF THE AORIST PARTICIPLE '-Л' ('-ЛА', '-ЛО', '-ЛИ'). (e.g.  $\text{чѐтол}(-a, -o, -u) > \text{чѐол}(-a, -o, -u) > \text{чѐл}(-a, -o, -u)$  but  $\text{чѐтох} > \text{чѐох}$ ).

### 5. THE EPENTHESIS OF 'Ъ' IN THE SOUND CLUSTERS 'КЛ', 'ЗЛ', 'СЛ' IN WORD FINAL POSITION

The rule affects the verbs that belong to subclass 2, class 1 of the 1<sup>st</sup> conjugation and can be formulated as follows:

$$\emptyset : \mathfrak{b} \Leftrightarrow S_{II} \_ \mathfrak{I}\#$$

where:

$S_{II}$  is the set of root final consonants of the subclass 2, class 1 of the 1<sup>st</sup> conjugation  $\{\kappa, \mathfrak{z}, c\}$ ;

$\#$  is marking on the lexicon level the end of the word.

#### 6. REPLACEMENT OF THE AORIST-STEM SUFFIXES ‘-O-’, ‘-H-’ WITH ‘-E-’ IN FRONT OF THE SUFFIX OF THE PAST PASSIVE PARTICIPLE ‘-H’ (‘-HA’, ‘-HO’, ‘-HI’).

This rule affects verbs that belong to class 1 of the 1<sup>st</sup> conjugation and class 1 of the 2<sup>nd</sup> conjugation. It can be formulated as follows:

$$V_{aor} : e \Leftrightarrow \_ \mathfrak{H}(S_{gn})\#$$

where:

$V_{aor}$  is the set of lexicon-level aorist-stem suffixes  $\{o, u\}$ ;

$S_{gn}$  is the set of characters representing on the lexicon level the gender and number endings of the participles  $\{a, o, u\}$  and their realization is optional;

$\#$  is marking on the lexicon level the end of the word.

#### 7. CONSTRUCTION OF THE PAST PASSIVE PARTICIPLE WITH THE SUFFIX ‘-T’ (‘-TA’, ‘-TO’, ‘-TI’) INSTEAD OF THE SUFFIX ‘-H’ (‘-HA’, ‘-HO’, ‘-HI’).

This rule applies only to verbs that belong to class 2 of the 1<sup>st</sup> conjugation, and not to verbs that belong to class 7, 1<sup>st</sup> conjugation (cf. below). The rule can be formulated as follows:

$$\mathfrak{H} : \mathfrak{T} \Leftrightarrow \mathfrak{H}(\acute{\_})a\_ (S_{gn})\#$$

where:

$S_{gn}$  is the set of characters representing on the lexicon level the gender and number endings of the participles  $\{a, o, u\}$  and their realization is optional;

$\#$  is marking on the lexicon level the end of the word;

$\acute{\_}$  marks that the following vowel is stressed and is optional.

It should be pointed out that rules №№ 3, 4, 6 and 7 are not generally applicable to the whole inflectional system of Bulgarian. They are designed for the purpose of this essay to be functional only within the restricted area of Bulgarian verbal inflection. They need reconsideration and reshaping if they are to be applied outside this area.

However, three types of (mor)phonological change were not handled by two-level rules. Here they are:

1. ablaut-type gradation of root vowels - affects 3 basic verbs that belong to class 2 of the 1<sup>st</sup> conjugation - ‘*бѣра* : *брах*, *дѣра* : *дах*, *непа* : *пах*’, and their derivatives;
2. alternations ‘*III* : *C*’, ‘*Ж* : *З*’ as well as ‘*Ч* : *K*’, ‘*Ж* : *Г*’ (present-tense stem : aorist stem) - affects verbs that belong to class 4 of the 1<sup>st</sup> conjugation;
3. construction of the past passive participle with suffix ‘-T’ (‘-TA’, ‘-TO’, ‘-TI’) instead of the suffix ‘-H’ (‘-HA’, ‘-HO’, ‘-HI’) - affects the disyllabic verbs and their prefixed derivatives with a stem-proper ending in a vowel, that belong to class 7, 1<sup>st</sup> conjugation.

As I mentioned above, some other solutions should be found for these cases but they will not be discussed here. Neither will be discussed the contents of the dictionary file. Of course the format of the lexical entries will be “(lexical representation) (continuation class) (meaning, i.e. translation in English)”

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## APPENDIX: THE ALPHABET AND THE SUBSETS OF CHARACTERS<sup>8</sup>

**а б в г д е ж з и й к л м н о п р с т у ф х ц ч ъ ю я ѿ : е е : е і : и**

**C<sub>h</sub>** - the set of the hard consonants (i.e. consonants that do not trigger mutation of ‘Я’) allowed on the **surface level** {б, в, з, д, з, к, л, м, н, п, с, т, ф, х, ц, щ};

**V<sub>nf</sub>** - the set of non-front vowels (i.e. vowels that do not trigger mutation of ‘Я’) allowed on the **lexicon level** {а, ъ, о, у, е, і};

**V<sub>p</sub>** - the set of palatal vowels (i.e. vowels that trigger the first palatalization of the velars) allowed on the **lexicon level** {е, и, ѿ}

**C<sub>d</sub>** - the set of the **lexicon-level** dental explosive consonants {м, д}

**S<sub>II</sub>** - the set of root final consonants of the subclass 2, class 1 of the 1<sup>st</sup> conjugation {к, з, с}

**V<sub>aos</sub>** - the set of **lexicon-level** aorist-stem suffixes {о, и}

**S<sub>gn</sub>** - the set of characters that represent on the **lexicon level** the gender and number endings of the participles {а, о, и}

˘ - diacritic that marks on the **lexicon level** that the following vowel is stressed

# - diacritic that marks on the **lexicon level** the end of the word

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<sup>8</sup> I have used the Bulgarian variant of the Cyrillic alphabet when defining the rules having in mind the UNICODE character set. However, if these rules are to be compiled using a formalism that uses ASCII character set, a transliteration should be considered.