

Young animals and diminutives in Bulgarian and other Slavic languages: A contrastive study with emphasis on derivational paradigms

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БЪЛГАРИСТИЧНИ ЕЗИКОВЕДСКИ ЧЕТЕНИЯ
University of Sofia, 19 November 2018

Paradigms in morphology 1

- Paradigms play a major role in inflectional morphology and there is much research on the topic, even whole theories of morphology are built on the notion of paradigm, e.g. Paradigm Function Morphology (Stump 2001 and later work)
- In recent years, researchers have tried to transfer the notion of paradigm from inflection to word formation (van Marle 1984, Becker 1993, Bauer 1997, Booij 1997, Pounder 2000, a.o.).
- The idea is to use the achievements of the research on inflectional morphology for explanation of derivational morphology (Bauer 1997, Blevins 2001, Stump 2005, Štekauer 2014, Boyé and Schalchli 2016, Bonami and Strnadová 2018).

Paradigms in morphology 2

- The motivation for the paradigmatic approach comes from the belief that the lexicon is structured in terms of sets of paradigmatic relations that link members of morphological families (evidence from psycholinguistics in Schreuder and Baayen 1997, de Jong et al. 2000, del Prado Martín et al. 2005, a.o.; and from computational linguistics in Pirrelli and Federici 1994, Pirrelli and Yvon 1999, Cotterell et al. 2017, see also Construction Morphology, Booij 2010)
- Of particular interest are peculiar paradigms, such that involve e.g. syncretism or missing forms (gaps, cf. Baerman et al. 2010, Sims 2015, Stump 2018).
- The notion of blocking: “the nonoccurrence of one form due to the simple existence of another” (Aronoff 1976: 43), for a comprehensive bibliography of research on blocking see Rainer (2014).

Inflectional paradigms

- In inflection, the term paradigm is used in two senses:
 1. A paradigm of a word (or lexeme, depending on the theoretical framework)

SG *knig-a* 'book', PL *knig-i*, SG DEF *knig-a-ta*, PL DEF *knig-i-te*

2. Inflection class, i.e. all lexemes with the same inflection

knig-a 'book', *knig-i*, *knig-a-ta*, *knig-i-te*

sten-a 'wall', *sten-i*, *sten-a-ta*, *sten-i-te*

(! *Kniga* and *stena* belong to **the same inflection class**)

- In this presentation, we analyze derivational paradigms similar to inflection classes and focus on the following derivational families:

i. diminutives of animals

ii. young animals

iii. diminutives of young animals

Our goals

- to examine closely related derivational paradigms, some of which have their origin in inflection:
 - 1) nouns for young animals (an inflection class in Old Bg);
 - 2) diminutive nouns derived from animals; and
 - 3) diminutive nouns derived from young animals
- to contribute to the better understanding of the organization of derivational paradigms
- to show that a contrastive analysis of closely genealogically related languages is worth pursuing, this even in a very limited domain such as the derivation of young animals and diminutives of animals

Data and method

- **Slavic languages:** Bulgarian (South), Russian (East), Czech and Slovak (West)
- **50 nouns for animals from each language** as well as the respective nouns for young animals and diminutives of animals
- The 50 nouns for animals were distributed into the following **semantic groups:**
 1. Domestic animals
 2. Wild animals
 3. Exotic animals
 4. Birds
 5. Insects
- To make the data comparable and easily analyzable, we ordered all examples in all languages paradigmatically (word-formation paradigms)

Bulgarian: Domestic animals

! in most cases DIM of animal = young animal

English translation	Animal	DIM of animal	Young animal	DIM of young animal
goat	<i>koza</i>	<i>koz-ica / koz-le</i>	<i>koz-le</i>	<i>kozl-ence</i>
cow	<i>krava</i>	<i>krav-ica / krav-ička</i>	<i>tel-e</i>	<i>tel-ence</i>
hen	<i>kokoška</i>	<i>kokošč-ica</i>	<i>pil-e</i>	<i>pil-ence</i>
duck	<i>patka</i>	<i>pat-e</i>	<i>pat-e</i>	<i>pat-ence</i>
rabbit	<i>zaek</i>	<i>zajč-e</i>	<i>zajč-e</i>	<i>zajč-ence</i>
horse	<i>kon</i>	<i>kon-če</i>	<i>kon-če</i>	<i>konč-ence</i>
donkey	<i>magare</i>	<i>magar-ence</i>	<i>magar-ence</i>	<i>magar-ence-nce</i>
goose	<i>gășka</i>	<i>gășč-ica</i>	<i>găș-e</i>	<i>găș-ence</i>
turkey	<i>pujka</i>	<i>pujč-ica</i>	<i>pujč-e</i>	<i>pujč-ence</i>
cat	<i>kotka</i>	<i>kot-e</i>	<i>kot-e</i>	<i>kot-ence</i>
dog	<i>kuče</i>	<i>kuč-ence</i>	<i>kuč-ence</i>	<i>kučenc-ence</i>

Bulgarian: Exotic animals

! with N in -C, DIM of animal = young animal

English translation	Animal	DIM of animal N in -a: -ka N in -C: -če	Young animal -če	DIM of young animal -ence
	Nouns in -a			
camel	<i>kamil-a</i>	<i>kamil-ka</i>	<i>kamil-če</i>	<i>kamilč-ence</i>
monkey	<i>majmun-a</i>	<i>majmun-ka</i>	<i>majmun-če</i>	<i>majmunč-ence</i>
	Nouns in -C			
elephant	<i>slon</i>	<i>slon-če</i>	<i>slon-če</i>	<i>slonč-ence</i>
lion	<i>lāv</i>	<i>lāv-če</i>	<i>lāv-če</i>	<i>lāvč-ence</i>
hippo	<i>hipopotam</i>	<i>hipopotam-če</i>	<i>hipopotam-če</i>	<i>hipopotamč-ence</i>
crocodile	<i>krokodil</i>	<i>krokodil-če</i>	<i>krokodil-če</i>	<i>krokodilč-ence</i>
tiger	<i>tigăr</i>	<i>tigăr-če</i>	<i>tigăr-če</i>	<i>tigărč-ence</i>

Bulgarian: Birds

! with N in -C, DIM of bird = young bird

English translation	Bird	DIM of bird N in -a: -ka N in -C: -če	Young bird -če	DIM of young bird -ence
	Nouns in -a			
swallow	<i>ljastovica</i>	<i>ljastovič-ka</i>	<i>ljastovič-e</i>	<i>ljastovič-ence</i>
crow	<i>vrana</i>	<i>vran-ka / vran-če</i>	<i>vran-če</i>	<i>vranč-ence</i>
	Nouns in -C			
stork	<i>štärkel</i>	<i>štärkel-če</i>	<i>štärkel-če</i>	<i>štärkelč-ence</i>
robin	<i>drozd</i>	<i>drozd-če</i>	<i>drozd-če</i>	<i>drozdč-ence</i>
hawk	<i>jastreb</i>	<i>jastrab-če</i>	<i>jastrab-če</i>	<i>jastrabč-ence</i>
falcon	<i>sokol</i>	<i>sokol-če</i>	<i>sokol-če</i>	<i>sokolč-ence</i>
pigeon	<i>gäläb</i>	<i>gäläb-če</i>	<i>gäläb-če</i>	<i>gäläbč-ence</i>
pheasant	<i>fazan</i>	<i>fazan-če</i>	<i>fazan-če</i>	<i>fazanč-ence</i>
raven	<i>garvan</i>	<i>garvan-če</i>	<i>garvan-če</i>	<i>garvanč-ence</i>

Bulgarian: Domestic animals

Uniform pattern for DIM of young animals (-ence)

English translation	Animal	DIM of animal	Young animal	DIM of young animal
goat	<i>koza</i>	<i>koz-ica / koz-le</i>	<i>koz-le</i>	<i>kozl-ence</i>
cow	<i>krava</i>	<i>krav-ica / krav-ička</i>	<i>tel-e</i>	<i>tel-ence</i>
hen	<i>kokoška</i>	<i>kokošč-ica</i>	<i>pil-e</i>	<i>pil-ence</i>
duck	<i>patka</i>	<i>pat-e</i>	<i>pat-e</i>	<i>pat-ence</i>
rabbit	<i>zaek</i>	<i>zajč-e</i>	<i>zajč-e</i>	<i>zajč-ence</i>
horse	<i>kon</i>	<i>kon-če</i>	<i>kon-če</i>	<i>konč-ence</i>
donkey	<i>magare</i>	<i>magar-ence</i>	<i>magar-ence</i>	<i>magar-enc-ence</i>
goose	<i>gășka</i>	<i>gășč-ica</i>	<i>găș-e</i>	<i>găș-ence</i>
turkey	<i>pujka</i>	<i>pujč-ica</i>	<i>pujč-e</i>	<i>pujč-ence</i>
cat	<i>kotka</i>	<i>kot-e</i>	<i>kot-e</i>	<i>kot-ence</i>
dog	<i>kuče</i>	<i>kuč-ence</i>	<i>kuč-ence</i>	<i>kučenc-ence</i>

Bulgarian: Summing up

- For the majority of the nouns denoting animals, Bulgarian does not make a distinction between DIMs and young animals, i.e. there is a single derivational paradigm for both diminutive nouns and young animals
 - Young domestic animals = **inflectional diminutives**:
zaek 'rabbit' → young animal / DIM1 *zajč-e* (-e is an inflectional suffix)
 - Young exotic animals = **diminutives proper**:
slon 'elephant' → young animal / DIM1 *slon-če*
- ! Recall syncretism in inflectional morphology.**
- **Diminutives proper = double diminutives**:
young animal / DIM1 *slon-če* → DIM1 / DIM2 *slon-č-ence*
Uniform pattern for derivation of diminutives from young animals by the suffix *-ence*.

! No gaps in the paradigms which is maybe due to the extensive syncretism, i.e. forms replace each other and there is no space for gaps.

Russian data: paradigmatic analysis

! Uniform pattern for derivation of young animals

English translation	Animal	DIM of animal	Young animal	DIM of young animal
sheep	<i>ovca</i>	<i>ov-ečka</i>	<i>jagn-ěnok</i>	<i>jagněnoč-ek</i>
goat	<i>koza</i>	<i>koz-očka</i>	<i>koz-lěnok</i>	<i>kozlěnoč-ek</i>
cow	<i>korova</i>	<i>korov-ka</i>	<i>tel-ěnok</i>	<i>telěnoč-ek</i>
hen	<i>kurica</i>	<i>kuroč-ka</i>	<i>cypl-ěnok</i>	<i>cyplěnoč-ek</i>
duck	<i>utka</i>	<i>utoč-ka</i>	<i>ut-ěnok</i>	<i>utěnoč-ek</i>
hare	<i>zajac</i>	<i>zajč-ik</i>	<i>zajč-onok</i>	<i>zajčonoč-ek</i>
horse	<i>lošad'</i>	<i>lošad-ka</i>	<i>žereb-ěnok</i>	<i>žereběnoč-ek</i>
donkey	<i>osěl</i>	<i>osl-ik</i>	<i>osl-ěnok</i>	<i>oslěnoč-ek</i>
goose	<i>gus'</i>	<i>gus-ěk</i>	<i>gus-ěnok</i>	<i>gusěnoč-ek</i>
turkey	<i>indejka</i>	<i>indjuš-ka</i>	<i>indjuš-onok</i>	<i>indjušonoč-ek</i>

Russian data: paradigmatic analysis

! Different diminutive suffixes

English translation	Animal	DIM of animal	Young animal	DIM of young animal
sheep	<i>ovca</i>	<i>oveč-ka</i>	<i>jagn-ěnok</i>	<i>jagněnoč-ek</i>
goat	<i>koza</i>	<i>koz-očka</i>	<i>koz-lěnok</i>	<i>kozlěnoč-ek</i>
cow	<i>korova</i>	<i>korov-ka</i>	<i>tel-ěnok</i>	<i>telěnoč-ek</i>
hen	<i>kurica</i>	<i>kuroč-ka</i>	<i>cypl-ěnok</i>	<i>cyplěnoč-ek</i>
duck	<i>utka</i>	<i>utoč-ka</i>	<i>ut-ěnok</i>	<i>utěnoč-ek</i>
hare	<i>zajac</i>	<i>zajč-ik</i>	<i>zajč-onok</i>	<i>zajčonoč-ek</i>
horse	<i>lošad'</i>	<i>lošad-ka</i>	<i>žereb-ěnok</i>	<i>žereběnoč-ek</i>
donkey	<i>osěl</i>	<i>osl-ik</i>	<i>osl-ěnok</i>	<i>oslěnoč-ek</i>
goose	<i>gus'</i>	<i>gus-ěk</i>	<i>gus-ěnok</i>	<i>gusěnoč-ek</i>
turkey	<i>indejka</i>	<i>indjuš-ka</i>	<i>indjuš-onok</i>	<i>indjušonoč-ek</i>

Russian data: paradigmatic analysis

! Uniform pattern for derivation of diminutives from young animals

English translation	Animal	DIM of animal	Yong animal	DIM of young animal
sheep	<i>ovca</i>	<i>ov-ečka</i>	<i>jagn-ěnok</i>	<i>jagněnoč-ek</i>
goat	<i>koza</i>	<i>koz-očka</i>	<i>koz-lěnok</i>	<i>kozlěnoč-ek</i>
cow	<i>korova</i>	<i>korov-ka</i>	<i>tel-ěnok</i>	<i>telěnoč-ek</i>
hen	<i>kurica</i>	<i>kuroč-ka</i>	<i>cypl-ěnok</i>	<i>cyplěnoč-ek</i>
duck	<i>utka</i>	<i>utoč-ka</i>	<i>ut-ěnok</i>	<i>utěnoč-ek</i>
hare	<i>zajac</i>	<i>zajč-ik</i>	<i>zajč-onok</i>	<i>zajčonoč-ek</i>
horse	<i>lošad'</i>	<i>lošad-ka</i>	<i>žereb-ěnok</i>	<i>žereběnoč-ek</i>
donkey	<i>osěl</i>	<i>osl-ik</i>	<i>osl-ěnok</i>	<i>oslěnoč-ek</i>
goose	<i>gus'</i>	<i>gus-ěk</i>	<i>gus-ěnok</i>	<i>gusěnoč-ek</i>
turkey	<i>indejka</i>	<i>indjuš-ka</i>	<i>indjuš-onok</i>	<i>indjušonoč-ek</i>

Summing up:

Derivational paradigms in Russian

- **Russian keeps young animals and DIM of animals apart** and both groups of nouns follow different derivational patterns.
- **Only one suffix (-onok / -ënok) for derivation of young animals.**
- ! **-onok / -ënok** can also be used for derivation of diminutives (or nouns with meanings similar to diminutives) that does not have anything to do with animals, e.g. *čertënok* ‘imp’ from *čërt* ‘devil’, *povarënok*, colloq. style for ‘a boy assisting a cook’, derived from *povar* ‘cook’ (Švedova et al. 1980, 201).
- **Different suffixes for derivation of DIM of animals** (phonologically determined, i.e. the suffix (primarily) depends on the termination of the base noun)

Russian: Gaps in the paradigms

! More gaps in diminutivization

- **No DIM**

lev 'lion'

soroka 'magpie'

- **Rather potential than actual DIM forms**

olen 'deer' → ?*olen-čik*

lastočka 'swallow' → ?*lastočeč-ka*

aist 'stork' → ?*aist-ik*

vorona 'crow' → ???*voronoč-ka*

- Problematic (but attested in older texts) forms for young animals

obez'jan-ėnok (from *obez'jana* 'monkey')

vš-onok (from *voš* 'louse')

Czech: different paradigms for small and young animals, uniform pattern for young animals

English translation	Animal	DIM of animal	Young animal	DIM of young animal
sheep	<i>ovce</i>	<i>oveč-ka</i>	<i>jehn-ě</i>	<i>jehň-átko</i>
goat	<i>koza</i>	<i>koz-ička</i>	<i>kůzl-e</i>	<i>kůzl-atko/ kozl-átko</i>
cow	<i>krava</i>	<i>krav-ička</i>	<i>tel-e</i>	<i>tel-átko</i>
hen	<i>slepice/kůr</i>	<i>slepič-ka</i>	<i>kuř-e</i>	<i>kuř-átko</i>
duck	<i>kachna</i>	<i>kachn-ička</i>	<i>kachn-ě</i>	<i>kachň-átko</i>
rabbit	<i>králik</i>	<i>králíč-ek</i>	<i>králíč-e</i>	<i>králíč-atko</i>
horse	<i>kůň</i>	<i>kon-ík</i>	<i>hříb-ě</i>	<i>hříb-átko</i>
donkey	<i>osel</i>	<i>osl-ík</i>	<i>osl-e</i>	<i>osl-átko</i>
goose	<i>husa</i>	<i>hus-ička</i>	<i>hous-e</i>	<i>hous-átko</i>
turkey	<i>krůta</i>	<i>krůt-ka</i>	<i>krůt-ě</i>	<i>krůt'-atko</i>
cat	<i>kočka</i>	<i>koč-ička</i>	<i>kot-ě</i>	<i>koť-átko</i>
dog	<i>pes</i>	<i>ps-ík</i>	<i>štěn-ě</i>	<i>štěň-átko</i>

Slovak: different paradigms for small and young animals, uniform pattern for young animals

English translation	Animal	DIM of animal	Young animal	DIM of young animal
sheep	<i>ovca</i>	<i>oveč-ka</i>	<i>jahň-a</i>	<i>jahn-iatko</i>
goat	<i>koza</i>	<i>koz-ička</i>	<i>kozl'-a</i>	<i>kozl-iatko</i>
cow	<i>krava</i>	<i>krav-ička</i>	<i>tel'-a</i>	<i>tel-iatko</i>
duck	<i>kačka</i>	<i>kač-ička</i>	<i>káč-a</i>	<i>kač-iatko</i>
rabbit	<i>králik</i>	<i>králič-ek</i>	<i>králič-a</i>	<i>králič-iatko</i>
horse	<i>kôň</i>	<i>kon-ík</i>	<i>žrieb-ä</i>	<i>žrieb-ätko</i>
donkey	<i>osol</i>	<i>osl-ík</i>	<i>osl'-a</i>	<i>osl-iatko</i>
goose	<i>hus</i>	<i>hús-ka</i>	<i>hús-a</i>	<i>hús-atko</i>
turkey	<i>morka</i>	<i>*morčič-ka</i>	<i>morč-a</i>	<i>morč-iatko</i>
cat	<i>mačka</i>	<i>mač-ička</i>	<i>mač-a</i>	<i>mač-iatko</i>
dog	<i>pes</i>	<i>ps-ík</i>	<i>šteň-a</i>	<i>šten-iatko</i>

Slovak: three psycholinguistic experiments

- Stimuli: 15 nouns for exotic animals
- 60 participants divided into three groups (i.e. 20 in each group), all were students from P. J. Šafárik University (they were not paid for their participation)
- Method:
 - 1st group was asked to write only the nouns for diminutives of animals
 - 2nd group was asked to write only the nouns for young animals
 - 3rd group was asked to write both forms
- If participants did not know forms, they were asked to skip the example and leave the space blank.
- Participants wrote only one derivation per stimulus.

Stimuli used in the experiments

No	English translation	Slovak
1.	elephant	<i>slon</i>
2.	lion	<i>lev</i>
3.	leopard	<i>leopard</i>
4.	giraffe	<i>žirafa</i>
5.	hippo	<i>hroch</i>
6.	crocodile	<i>krokodíl</i>
7.	tiger	<i>tiger</i>
8.	bison	<i>bizón</i>
9.	cheetah	<i>gepard</i>
10.	rhinoceros	<i>nosorožec</i>
11.	ostrich	<i>pštros</i>
12.	koala	<i>koala</i>
13.	panda	<i>panda</i>
14.	cockatoo	<i>kakadu</i>
15.	kenguru	<i>kengura</i>

Results of the experiments:

Derivational paradigms seem to depend on the task

(alternative forms remind inflectional diminutives in Bulgarian)

English	Slovak	Write DIM only	Write both forms/DIM	Write young animal only	Write both forms/ young animal alternative forms
elephant	<i>slon</i>	<i>sloník</i> 20x	<i>sloník</i> 20x	<i>sloníča</i> 20x	<i>sloníča</i> 16x <i>slôňa</i> 1x
leopard	<i>leopard</i>	<i>leopardík</i> 19x	<i>leopardík</i> 17x	<i>leopardíča</i> 18x	<i>leopardíča</i> 11x <i>leopard'a</i> 2x
hippo	<i>hroch</i>	<i>hrošík</i> 19x	<i>hrošík</i> 20x	<i>hrošíča</i> 18x	<i>hrošíča</i> 10x <i>hroša</i> 3x
cheetah	<i>gepard</i>	<i>gepardík</i> 20x	<i>gepardík</i> 20x	<i>gepardíča</i> 18x	<i>gepardíča</i> 8x <i>gepard'a</i> 2x

Results: Slovak derivational paradigms for diminutives of animals and young animals differ in terms of robustness

- Native speakers were more confident when only a single form had to be produced, i.e. a lesser number of paradigmatic gaps in the production of either young animals or diminutives
- When both forms had to be written, more alternative forms were produced for young animals:
 - Young animals (more or less, uniform derivational pattern):
 - Task1: Write a single form – 3 instances of alternative forms (out of 15 stimuli)
 - **Task2: Write both forms - 6 instances of alternative forms** (out of 15 stimuli)
 - Diminutives (there are alternative patterns for derivation of diminutives, thus alternative forms were expected):
 - Task1: Write one form - 4 instances of alternative forms (out of 15 stimuli)
 - Task2: Write both forms - 2 instances of alternative forms (out of 15 stimuli)
- Although there are different suffixes for derivation of diminutives and one pattern for derivation of young animals, the paradigm for young animals seems to be less robust than that for diminutives
- Transfer from DIM to young animals but not vice versa, e.g. for some speakers the diminutive *koal-ka* derived from *koala* also means 'young koala' (3x)
- This transfer is opposite to what we observed in Bulgarian and Russian where the forms developed from young animals to diminutives.

Conclusions 1

- The paradigms of young animals and diminutives from animals are closely related but that relation is different in the different languages.
- In Bulgarian, suffixes that derive young animals started to be used as diminutivizers, which led to a collapse of the differentiation between the two paradigms and to numerous syncretic forms. There are no gaps in the paradigms.
- Russian keeps the two patterns strictly separate, but it is possible to use the suffix *-onok/-ěnok* for derivation of diminutives from nouns which do not mean animals and there are more gaps in the paradigm that derives the diminutive nouns, i.e. like in Bulgarian, young animals seem to be the dominant paradigm.
- In Czech and Slovak, the two paradigms differ and one cannot use the suffixes for derivation of young animals as diminutivizers.
- Three psycholinguistics experiments with native speakers of Slovak showed that the paradigm for derivation of young animals in Slovak is less robust than that for derivation of diminutives.
- In Slovak, the suffix transfer seems to be from diminutives to young animals, which is thus entirely in contrast to what was observed in Bulgarian and Russian.

Conclusions 2

- In Slavic, esp. in the paradigms that we examined, derivation and inflection intertwine diachronically (young animals constitute an inflection class) and synchronically (when native speakers have doubts about a derivational form, they tend to replace it with an inflectional one, e.g. in Slovak: *slôň-a* ‚baby elephant‘, *leopard'-a* ‚baby leopard‘, etc. instead of *slon-íča*, *leopard-íča*)
- Against any expectation, closely genealogically related languages took completely different paths in the development of their derivational paradigms for young animals and diminutives.
- Derivational paradigms do exist but their nature seems to be more complex than that of inflectional paradigms.
- Depending on the task (i.e. in different situations), one and the same derivational paradigm in the same language seems to be processed differently by native speakers, which, to the best of our knowledge, has not been observed for paradigms in inflection.

Thank you!

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Acknowledgements

- We thank Dmitri Sitchinava for his help with the Russian data
- We are grateful to students from the P. J. Šafárik University in Košice who voluntarily participated in the three psycholinguistic experiments reported in this study

The paradigm of the nt-stem noun **отрочѧ** 'child' **-ѧТ-** < **-ent-**, in the nominative simplifies to **-ѧ**

(Old Church Slavonic Online: https://lrc.la.utexas.edu/eieol/ocsol/50#grammar_1000)

	Singular	Dual	Plural
N	отроч-ѧ	*отроч-ѧТ-ѣ	*отроч-ѧТ-а
A	отроч-ѧ	*отроч-ѧТ-ѣ	*отроч-ѧТ-а
G	отроч-ѧТ-ѣ	*отроч-ѧТ-оу	отроч-ѧТ-ѣ
L	отроч-ѧТ-ѣ	*отроч-ѧТ-оу	отроч-ѧТ-ѣхѣ
D	*отроч-ѧТ-и	*отроч-ѧТ-ѣма	*отроч-ѧТ-ѣмѣ
I	*отроч-ѧТ-ѣмѣ	*отроч-ѧТ-ѣма	*отроч-ѧТ-ѣи
V	отроч-ѧ	*отроч-ѧТ-ѣ	*отроч-ѧТ-а