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Lexicon of grammatical-semantic features: discontinuity[1]

Abstract

The contribution represents a fragment of an intended Lexicon of grammatical-semantic features. It presents only very general properties as components of grammatical categories and the results of their presence or non-presence for category value interpretation and for (in)compatibility of language means. Grammatical features of a lexical unit can be described with the help of the tagset, i.e., analytical morphological label. Similarly, it is possible to describe a complete grammeme on the principle of fractals, including inner structure of each grammatical category and their values with the help of sets of grammatical-semantic properties. Grammatical-semantic properties bound on lexical forms are not isolated from lexical-semantic features: the first can be considered as a result of grammaticalization of the latter. From the chosen point of view, the construction of grammar from a semantic basis seems to be as a multi-level phenomenon to such a level in which grammatical-semantic properties are based on similarity and contrast in the area of lexical-semantic properties.

1. Introduction

Functions of particular values of grammatical categories (i.e., singular), perceived as a field of their scope (analogically, to lexical semantics as extension of the meaning), are not constant. They change depending on the presence of other partial grammatical-semantic properties, depending on the lexical-semantic (semic) structure of the unit, on which they are bound, and depending on the wide surroundings in the system dimensions (langue) and its realization (parole) with respect to the vertical of lexical and grammatical paradigmatics and to the horizontal of their syntagmatics.

In this way it is for example possible to describe variability of values of grammatical number of nouns (grammeme of singular), grades of adjectives (grammeme of comparative) and tense of verbs (grammeme of present tense) as dynamics of semantic properties creating its inner structure.

By concentration of attention on the lowest components of grammatical meanings, "common type of grammars framed and constructed in the direction from the semantic focus (theme)" (Kořenský 1978) is not touched, however, it is further supported from this perspective, therefore "such current models [of grammar], which as the only topic – or, one of two basic equal topics – state a set of semantic objects, exploring the ways how the language (languages) match empirically found forms of expressions via grammatical categories" (Kořenský 1978).

This is the exact aim which partially follows a successful Dictionary of affixes used in Czech language (GAČR 2013–2016) and its theoretical tools – which found its use during its creation. I take into account authors who announce the need of formation of the lexicon of grammatical properties (Karlík, continuously) and their works – which work with grammemes/ gramathemes (i.e. "gramatheme of politeness: value of gramatheme – *Já dnes nepřijdu* [politeness=basic]";[2] "The isolation feature allows the possibility of using demonstrative pronouns *ten, ta, to in front of a superlative*.; It is possible to

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[2] *Gramatém zdvořilosti*. In: *Anotace na tektogramatické rovině Pražského závislostního korpusu*. Accessible at https://ufal.mff.cuni.cz/pdt2.0/doc/manuals/cz/t-layer/html/ch0 4s05s 04.html.

grade adjectives with [+possibility to grade] feature based on traditional analysis." (Karlík 2017) Complex grammatical meanings (for example grammeme of number), "defined with the help of grammatical features as [Plural] or [Animacy]" are usually called grammemes (Ziková, M. (2017). "Value of grammatical category" (grammeme in abstraction) is used for a level of [dative] and [future] type in a proposed concept. Gramm, or, grammatical-semantic property as an elementary component of this value – which is impossible to divide any further – is a conclusion of analysis of a complete grammeme. The following pair of terms grammeme – gramm is analogical with another pair sememe – seme (lexical-semantic feature).

With respect to the limited extent of the text, a complete description of [discontinuity] grammatical-semantic property in grammatic number of nouns and its partial utilizing for category of gender and category of animacy (masculine animate with analogical projection of utilization to feminine, neuter, and also masculine inanimate) is proposed. Our example of utilizing this feature on the grade of adjectives and aspect of verbs is illustrative.

2. Discontinuity in grammemes of nouns

Discontinuity (from Latin dis-continuus) as an opposite to continuity represents discreetness, incoherence (interrupted coherence), disconnection, disjointedness, non-continuity. Discontinuity is a marked value (continuity is default, it is a pre-condition of discontinuity, rather than the other way round) in the continuity:discontinuity pair. The feature can show values: presence, non-presence, presence or non-presence, i.e. +[discontinuity], -[discontinuity], ±[discontinuity].

2.1. Discontinuity in grammatical number of nouns

A) Presence of [discontinuity] feature in semantic structure of **singular forms of nouns** manifests itself in the following

Aa) pre-condition of expressing a quantity of one or zero amount ('not even one') in potential quantity arithmetically ('a, one/no piece from more pieces') – and simultaneously there must be presence of [materiality] feature: *(jeden) ořech, (jedna) budova, (žádné) město* '(a/one) nut, (a/one) building, (no) town'.

Presence of the feature is a condition for linear compatibility of noun with cardinal, ordinal, definite and indefinite numerals. Nouns with this configuration of grammatical-semantic features come to light as countable.

*Za jednu **porci** lze považovat: jeden malý **banán**, jedno **jablko**.*
'One **portion** can be considered: a/one small **banana**, a/one **apple**, a/one corn **cob**.'

Ab) pre-condition of expressing a quantity of one or zero amount in potential quantity in the meaning 'a/one/no kind from more possible kinds' – and simultaneously there must be presence of [abstract] feature: *(jedno) hledisko, (jedna) svoboda, (žádný) rozměr* '(a/one) point, (one) freedom, (no) size'.

Presence of the feature is a condition for linear compatibility of a noun with cardinal, ordinal, definite and indefinite numerals. Nouns with this configuration of grammar-semantic features come to light as abstract nouns.

*Měl jeden velký **dar**. Uměl vytvořit hezké **prostředí** a byl mi oporou.*
'He had a great **gift**. He could create a nice **setting** and he was supportive of me.'

Ac) pre-condition of expressing a quantity of one or zero amount in potential quantity in the meaning 'one/no set from more possible sets' – and simultaneously there must be presence of [materiality], [complexity] or [summary] features: *(jedno) stádo, (jedna) dubina, (žádné) sousoší* '(a/one) herd, (a/one) oak wood, (no) sculptural group'.

Presence of the feature is a condition for linear compatibility of a noun with cardinal, ordinal, definite and indefinite numerals. Nouns with this configuration of grammatical-semantic features are seen as collective nouns.

*Nikde ani stopy života, ani pouštní **křovisko**.*
'There is no trace of life, no desert **shrubbery**.'

Ad) pre-condition of expressing a quantity of one in possible quantity in the meaning 'one unique object among other unique objects' – and simultaneously there must be [originality] feature and ambivalent non-presence of [materiality]/[abstract] and [complexity] features: *Jiří, Orlice, Saturn* 'George, the Orlice, Saturn'.

The presence of the feature is a condition of possible linear compatibility with cardinal, ordinal, definite and indefinite numerals, or, with the solitary expression *jediný* 'the only'. Nouns with this configuration of grammatical-semantic features come to light as proper nouns.

*Na **Den Země** se bude konat v přírodní památce **Plachta** tradiční úklidová akce.*
'A traditional cleaning event will take place in an open-air museum **Plachta** on **Earth Day**.'

B) Ambivalent **presence or non-presence** of [discontinuity] feature is manifested in the dependency of interpretation in the semantic structure of **singular forms of nouns** in the following

Baa) pre-condition of expressing generic non-quantity, i.e. 'the whole hypothetical (abstract, empty) class of phenomena including any of possible words': *savec / jehličnan (obecně), energie (obecně)* 'a mammal / a conifer (generally), energy (generally)'.

Non-presence of the feature excludes compatibility with the numerals, respectively quantification generally.

Bab) pre-condition of total distribution of the attribute in the quantity category, i.e. 'each member of the class of phenomena in any of possible words': *(kterýkoli myslitelný) savec / jehličnan, (jakákoli myslitelná) energie* '(any thinkable) mammal / conifer, (any thinkable) energy'.

The presence of the feature excludes compatibility with numerals, i.e. it enables compatibility solely with singular expressions which make individual quantity total (*každý, všechen*) 'each, all'. Nouns with this configuration of grammatical-semantic properties manifest themselves as generic singular nouns.

In both cases the [generic] feature is present at the same time:

Bažant je hrabavý pták.
'**A pheasant** belongs to galliformes.'

C) In the semantic structure of **singular forms of nouns, non-presence** of the [discontinuity] feature manifests itself in the following

Ca) impossibility to express quantity arithmetically and at the same time there is a pre-condition of expressing quantity not arithmetically, i.e. ,how much' – and there must be [materiality] feature present simultaneously: *voda / (málo, trocha, kapka) vody, tráva / (mnoho, nůše) trávy, kámen / (kupa, tuna) kamene* 'water/ (little, a little, a drop of), grass (a lot of, a basket of), stone (heap of, ton of)'.

Non-presence of the feature is a condition of using a noun in partitive genitive – *(trochu) vody* 'a little bit of water', linear compatibility of a noun with indefinite numerals and quantifiers of other than numerical origin. It excludes compatibility with cardinal definite numerals. Possible compatibility with ordinal numbers shows presence of [batch], [cycle], and [class] feature (*první sníh, druhé seno* 'the first snow, the second hay'). Nouns with this configuration of grammatical-semantic features manifest themselves as material nouns.

*Pole je lehké, samý **písek**.*
'Field is very light, just **sand**.'

D) In semantic structure **of plural forms of nouns**, **presence** of [discontinuity] feature manifests itself in the following

Da) pre-condition of expressing quantity (or, zero) arithmetically ('more/zero pieces') – [materiality] feature must be present at the same time: *(tři) ořechy, (pět) budov, (mnoho) měst* '(three) nuts, (five) buildings, (many) towns'.

Presence of the feature is a condition for linear compatibility of a noun with cardinal, ordinal numerals, definite and indefinite numerals. Nouns with this configuration of grammatical-semantic features come to light as so-called countable nouns.

*Za jednu porci lze považovat: šest **jahod**, dvě **švestky**.*
'A/one portion can be considered: six **strawberries**, two **plums**.'

Db) pre-condition of expressing a quantity of one, zero amount, quantity (or, zero) arithmetically ('a, one/no piece or more/zero pieces') – [materiality] and [complexity] feature must be present at the same time: (*troje*) *kalhoty,* (*patery*) *nůžky,* '(*three pairs of*) *trousers,* (*five pairs of*) *scissors*'.

This configuration of features excludes linear compatibility of a noun with cardinal numerals, (except for words like *bota, sirka 'shoe, match',* (Panevová, Ševčíková 2011)) it is a condition of compatibility with numerals answering the question: how many pairs and generic numerals in the meaning of cardinal numerals. Such nouns manifest themselves as pluralia or names of pairs and sets.

*Potřebuje dvoje **brýle**.*
'He needs two pairs of **glasses**.'

Dc) pre-condition of expressing arithmetic quantity/zero amount in the meaning 'more/zero kinds' – at the same time the presence of [abstract] feature is necessary: (*dvě*) *hlediska,* (*různé*) *svobody,* (*velké*) *rozměry* '(two) points, (different) freedoms, (big) sizes'.

Presence of this feature is a condition of linear compatibility of a noun with cardinal, ordinal, definite and indefinite numerals. Nouns with this configuration of grammatical-semantic features manifest themselves as abstracts.

*Mystifikace pracuje s **optikami** měnícími význam událostí.*
'Mystification works with **optics** changing the meaning of events.'

Dd) pre-condition of expressing quantitative multiplicity/zero in the meaning 'more/zero concretized projections of abstract category' – at the same time the presence of [concreteness] feature and ambivalent residual [abstract] feature are necessary: (*dvě naše*) *radosti* ,děti', *(všechny spokojené) turnusy* ,rekreanti', '(the two of our) loves = children, (all satisfied) bus loads'.

The presence of the feature is a condition of compatibility of a noun with cardinal, ordinal, definite and indefinite numerals. Nouns with this configuration of grammatical-semantic features manifest themselves as concretized abstracts.

*V Africe byly jen čtyři **demokracie**.*
'There were only four **democracies** in Africa.'

De) assumption of expressing arithmetic quantity in the meaning 'more/zero sets' – at the same time there must be [materiality] and [complexity] features: (*obě*) *stáda,* (*všechny*) *dubiny,* (*nula*) *družstev* '(both the) herds, (all the) oak woods, (zero) teams'.

The presence of the feature is a condition for linear compatibility with cardinal numerals – both definite and indefinite. Nouns with this configuration of grammatical-semantic features manifest themselves as mass nouns.

*Chovateli zůstala jen tři **včelstva**.*
'Only three **hives** left out to the breeder.'

Df) assumption of expressing quantitative multiplicity with the meaning 'more objects with the same feature of uniqueness' – at the same time there must be relativized presence of [originality] feature and ambivalent (non)presence of [materiality]/[abstract], or [complexity], [summary] feature: (*všichni*) *Evropané, Petrové* (*mají svátek*), (*sto*) *Fiatů Punto* '(all) Europeans, Peters (have their name days), (one hundred) Fiat Puntos'.

Presence of this feature is a condition of possible linear compatibility with cardinal numerals, both definite and indefinite. Nouns with this configuration of grammatical-semantic properties manifest themselves as proper nouns, chrematonyms with apelativization potential.

*Ty rozumíš trhu líp než všichni ti **Arméni** a **Syřani**.*
'You understand the market better than all these **Armenians** and **Syrians**.'

Dg) pre-condition of expressing quantity with the meaning 'more seemingly unique objects' – at the same time there must be relativized presence of [originality] feature and ambivalent presence or nonpresence of [materiality]/[abstract] feature or [summary] feature: (*všichni ti*) *Klausové* '(all these) Klauses'.

Presence of the feature is a condition of possible linear compatibility of a noun with cardinal numerals, usually indefinite. Nouns with

this configuration of grammatical-semantic features manifest themselves as proper nouns with implicit apelativization potential and depreciative specificity (*jidášové* ‚Judases').

> *Tisíckrát mohou všichni ti **Chaloupkové, Váňové, Gehmové** přesvědčovat, že své koně milují.*
> 'All these **Chaloupkas**, **Váňas**, **Gehms** can persuade you a thousand times they love all their horses.'

E) In semantic structure of **plural forms of nouns**, ambivalent **presence or non-presence** of [discontinuity] feature manifests itself in dependence of its interpretation in the following

Eaa) pre-condition of expressing generic non-quantity, i.e. 'all hypothetic (abstract, empty) class of phenomena including any of possible words': *savci / jehličnany (obecně), (obecně všechny) energie* 'mammals / conifers (generally), (generally all) energies'.

Non-presence of the feature excludes compatibility with numerals, or, quantification generally.

Eab) pre-condition of total distribution of the attribute in category quantity, i.e. 'each member from the class of phenomena in any possible worlds': *(kterýkoli myslitelný) savec / jehličnan, (jakákoli myslitelná) energie* '(any thinkable) mammal / conifer, (any thinkable) energy'.

Presence of this feature excludes compatibility with numerals, or, it enables compatibility exclusively with singular expressions making individual quantity total (*každý, všechen* 'every, all'). Nouns with this configuration of grammatical-semantic features manifest themselves as generic pluralia – in both cases there must be [generic] feature present simultaneously:

> ***Ptáci** jsou významným indikátorem zdravého prostředí.*
> '**Birds** are a significant indicator of a healthy environment.'

F) In semantic structure of **plural forms of nouns, non-presence** of [discontinuity] feature manifests itself in the following

Fa) impossibility of expressing quantity arithmetically – at the same time there is an [abstract] feature present: *spalničky, tropy, způsoby* 'measles, tropicals, manners'.

> Nouns with this configuration of grammatical-semantic features manifest themselves as pluralia.
> *V **letopisech** se pokračovalo dvě století.*
> 'The **annals** were continued two centuries.'

Fb) impossibility of expressing quantity arithmetically – at the same time there is [materiality] feature present: *mlhy, vody, sněhy* '*fog[s], *water[s], *snow[s]'.

Nouns with this configuration of grammatical-semantic features manifest themselves as material nouns with attribute of unusual amount, expressed as stratification of the material.

> ***Mlhy** se rozestoupily a my jsme spatřili břeh.*
> '[A lot of] heavy ***fog[s]** cleared and we saw the bench.'

Feature / Category	[Dis-continu ity]	[mate-riality]	[Ab-strac-tness]	[comp lexity]	[uniqu eness]	Type of nouns	Para.
Singular of nouns	+	+	-	-	-	Countable concrete nouns *(jeden) ořech* '(one) nut'	Aa
	+	-	+	-	-	Abstract nouns expressing sorts *(jedno) hledisko* '(one) point'	Ab
	+	+	-	+	-	Collective nouns *(jedno) stádo* '(one) herd'	Ac
	+	±	±	±	+	Proper nouns *Praha* 'Prague'	Ad
	±	±	±	±	±	Generic singularia *hvězda* 'star'	Baa Bab
	-	+	-	-	-	Material nouns *voda* 'water'	Ca

11

12

Plural of nouns							
	+	+	-	-	-	Countable concrete nouns *(pět) ořechů* 'five nuts'	Da
	+	±	±	+	±	Pluralia tantum *kalhoty* 'trousers'	Db
	+	-	+	-	-	Abstract nouns expressing sorts *(více) hledisek* 'more points'	Dc
	+	+	-	-	-	Concretized abstract nouns *(radosti)* 'loves'	Dd
	+	+	-	+	-	Collective nouns *(tři) stáda* 'herds.'	De
	+	±	±	±	+	Proper nouns *Evropané* 'Europeans'	Df
	+	±	±	±	-	Depreciative proper nouns *různí Klausové* 'different Klauses'	Df
	±	±	±	±	±	Generic pluralia *savci* 'mammals'	Eaa Eab
	-	±	±	+	±	Pluralia *spalničky* 'measles'	Fa
	-	±	±	+	-	Material nouns *mlhy* '[A lot of] *fog[s]'	Fb

Tab. 1. Distribution of grammatical-semantic features in grammatical number of nouns

2.2. Discontinuity in grammatical gender (and animacy) of nouns

A) In semantic structure of **masculine animate** nouns, the **presence** of [discontinuity] manifests itself as excluding animal a non-masculine attribute and also in the following

Aa) pre-condition of expressing belonging to masculine/male gender with the meaning 'male animal': *čtenář* (*muž*), *pes* (*samec*), *čmelák* (*samec*) 'male reader, male dog, bumble-bee (male)' (nouns which do not contain the information about the gender in its semic structure of the lexeme: *hřebec* 'stallion').

Presence of this attribute limits direct linear compatibility with lexemes with lexical-semantic [feminity] / [adult feminity] feature (*kojící pes 'breastfeeding dog'). It also enables compatibility of a noun with lexemes with lexical-semantic [masculinity] / [adult masculinity] feature (*varlata psa, pes alfa-samec* 'testicles of a dog, the alpha male dog') at the same time.

*Jako samec může být **pes** pronajímán ostatním chovatelům.*
'A **male dog** as a male can be rented to other breeders.'

B) In semantic structure of **masculine animate** nouns, **non-presence** of [discontinuity] attribute manifests itself as not excluding the non-masculinity and also in the following

Ba) pre-condition of expressing generic validity, above-the-gender feature with the meaning 'a member not only of male/masculine but also female/feminine and young non-gender group', i.e. [animal he/she/it].

*Citlivější **psi** na petardy reagují zkratově.*
'Rather sensitive **dogs** can react in panic at firecrackers.'

Bb) [animal he] feature is expressed only formally: *dni, činitelé* 'days, agents [formally with ‚animal feature' ending]'.

C) Analogically, presence or non-presence of [discontinuity] feature expresses itself in semantic structure of feminine and neuter gender. Neuter can be understood with the priority of lexical-semantic [infantility] feature, or, [adult non-masculinity + non-femininity] feature which limits direct linear compatibility with lexemes with lexical-semantic [adult masculinity], and [adult femininity] feature: *štěně háralo 'the puppy was in heat'.

D) In masculine inanimate nouns, presence or non-presence of [discontinuity] feature does not influence the interpretation of grammatical gender as it is fully formalized.

Feature / Category	[discontinuity]	[animacy]	[masculinity]	[femininity]	[infantility] [non-fem. / non-masculinity]	Type of nouns	Para.
Masculine animate	+	+	+	-	-	Naming of men / males *řidič / kůň* 'male driver / male horse'	A
	-	+	±	±	±	Generic masculine *člověk, občan, dravec* 'man, citizen, predator'	Ba
	-	-	-	-	-	Formally animate *sčítanci, bacili* 'sumands, bacilli'	Bb
Feminine	+	+	-	+	-	Naming of women / females *kočka* 'female cat'	C
	-	+	±	±	±	Generic feminine *osoba, sova* 'person, owl'	C
	-	-	-	-	-	Formal feminine *lípa, židle* 'lime, chair'	C
Neuter	+	+	-	-	-	Naming of the youngs *dítě, kuře* 'child, chicken'	C
	-	+	±	±	±	Generic neuter *prase, morče* 'pig, guinea-pig'	C
	-	-	-	-	-	formal neuter *umyvadlo* 'washbasin'	C
Mask. inanim.	-	-	-	-	-	formal masculine (inanimate) *dům, smrk* 'house, spruce'	D

Tab. 2. Distribution of grammatical-semantic properties in grammatical gender (and animacy) of nouns

3. Discontinuity in the grammemes of adjectives

3.1. Discontinuity in the grades of adjectives

A) In semantic structure of the **positive of adjectives, presence** of [discontinuity] is visible in the following

Aa) pre-condition of their grading with the meaning 'having a higher degree of attribute than a positive form expresses' – at the same time there must be [gradual] feature and ambivalent presence of [isolation] feature: *(in the basic extent) big, wide (with the value of etalon/standard; less than wider).*

B) In semantic structure of **positive of adjectives, non-presence** of [discontinuity] attribute manifests itself in the following

Ba) general validity of a positive form as a criterium without gradation, it is possible to include all values of possible grades in the meaning 'howsoever tall'. Neutrality of such a positive form and its openness to all degrees of attribute predisposes it for the following type of questions: 'how much some kind of'.

*Jak **vysoký** bude ten strom?*
'How **high** will the tree be?'

4. Discontinuity in the grammemes of verbs

4.1. Discontinuity in a verbal aspect

A) In semantic structure of **perfect of the verbs**, **presence of** [discontinuity] feature manifests itself as

Aa) expressing dynamic feature as period (time line segment) except for current presence with the beginning and ending with the meaning 'from – to and not now', 'how long' – at the same time there must be [atelic] feature, or more precisely, no [telic] feature: *posedět, přeběhnout* 'to sit for some time, to run across the street in a minute'.

*Pár dní si v klidu **poležíte**.*
'You will have to stay in bed a bit longer.'

Ab) expressing dynamic attribute as time half line including starting phase of the action which is not situated in current presence: *rozepsat, vyběhnout, odletět* 'start writing, start running, take off'.

*Brzo **zapálíme** svíčku na jeho památku.*
'We **are going to light** a candle to remember him.'

Ac) expressing dynamic attribute as a time half line including the aimed/finishing phase of the action, where the end of the action is not situated in current presence – at the same time there must be [telic] feature: *dopsat*, *usnout*, *zvadnout* ,finish writing, fall asleep, fade.'

*Po prvním mrazu listí **opadá**.*
'The leaves **fall down** after the first frost.'

Ad) expressing action as a point, or, momentary action including minimum time period: *píchnout, střihnout, skočit* 'sting, cut, jump', or pre-condition of such an interpretation: *pustit (větev : vodu)* 'release a branch : switch on water'.

B) In semantic structure of **verbal perfects**, **non-presence of** [discontinuity] attribute manifests itself under as

Ba) interpretation of action attribute as (resulting) feature including potentially also not current presence with the meaning 'long time', and 'every time' – at the same time [reflexivity] must be present to block current validity: *vejít se, naběhat se* 'get into, run many miles'.

Načekám se pokaždé dlouho.
'I always **have to wait** ages.'

5. Conclusion

The text presents the aim of processing a catalogue/lexicon of grammatical (grammatical-semantic) features (gramm). These are the smallest, further not dividable components of complex grammemes – values of grammatical categories – as they manifest themselves in real communication, including their variability. Changeability of values of grammatical category is given by presence and mutual relationships of grammatical features and lexical-semantic features. The aim is to de-scribe elementary grammaticalized features which can be identified in grammatical categories in all parts of speech. Also phenomena on the edge – as grading of adjectives and adverbs, category of grammatical mood (aktionsart), negation etc. – are studied for this purpose. It increases the possibility to follow links between grammatical and lexical-semantic properties (and phenomena in various phases of grammaticalization). The work also has a beneficial effect on cognitive linguistics and psycholinguistics, besides its main benefit for studies of grammatical and lexical aspect of the language.

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