"The role of metonymy in grammar: a case study of Czech derivational suffixes"
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Abstract

Previous linguistic research on metonymy has focused on lexical phenomena. The present study attempts to extend this line of research to the grammatical domain of word-formation. A database of Czech suffixes and the metonymies they signal offers insights into the systematic role of metonymy in grammar. This empirical approach makes it possible to explore the distribution of metonymy designations and their associated word classes and suffixes.
Key words: Metonymy, Derivation, Word-Formation, Suffixes

1.0 Introduction

There is a debate in contemporary cognitive linguistics over whether to describe metonymy as a shift of meaning that occurs within a single domain (Barcelona 2002, Kövecses 2002, Kövecses & Radden 1998, Panther & Thornburg 1999) or as a contiguity relationship (Seto 1999, Peirsman & Geeraerts 2006). Though this debate is important, this question will not be addressed in this article. We will adopt the definition in (1), which does not require us to take sides in this debate:

(1) Metonymy is present when one item (a VEHICLE) is used to access another item (a TARGET).

Thus metonymy is distinct from metaphor which involves a mapping of structure from a source domain to a target domain (Lakoff & Johnson 1980, Lakoff 1987).

The article is organized as follows. Section 2 presents the central claim of the article, provides relevant theoretical background, and suggests a strategy for classification of metonymy. A number of interesting patterns in the distribution of metonymy types are presented in the analysis of Czech suffixes in section 3, which examines the distribution of metonymy designations (3.1), word class designations (3.2), and suffixes (3.3). Suffixes that do not signal metonymy are described in 3.4, and 3.5 offers some generalizations that can be made based on this. Section 4 concludes the article with a discussion of the practical and theoretical implications of the findings.

2.0 Metonymy from a linguistic perspective
The central claim of this article is stated in (2):

(2) The majority of derivational morphology is dependent on metonymy for its semantic structure.

Linguistic theory has often ignored the role of metaphor and metonymy in language, relegating them to the status of literary devices. In the past few decades, cognitive linguistics has taken important steps to rectify this situation. As a result, metaphor has been recognized as a motivating force in the structure of language, but metonymy has received considerably less attention. More crucially for this article, the work that has been done on metonymy has focused almost exclusively on lexical metonymy. Lexical metonymy, as in examples like *we need a few good heads here*, reveals patterns of word use, but does not explore the role of metonymy within the grammatical system of a language. Very little work has been done on metonymy in grammar (cf. endpoint metonymy mentioned in Janda 2006). Some work has been done on the metonymical nature of Russian aspectual morphology (Janda 2008 and Nesset forthcoming), but no claim has been made concerning the overall relationship of metonymy and derivation. The aim of this article is to demonstrate that metonymy is the driving semantic force behind much of derivational morphology.

Scholars have made valuable progress in analyzing types of lexical metonymy in recent years (cf. Peirsman & Geeraerts 2006 and sources cited therein), so it makes sense to take the results of these efforts as the point of departure for the present study. This approach will thus make use of established means for identifying and classifying types of metonymy and at the same time facilitate a comparison of lexical and grammatical metonymy. The methodology and typology applied in this study most closely resembles that of Peirsman & Geeraerts (2006).

A metonymy can be classified in terms of the following schematic formula: VEHICLE FOR TARGET. Our example *we need a few good heads here* would be parsed in this formula as PART FOR WHOLE, where the VEHICLE is *head*, which is a part of the TARGET which is a whole *person*. Other metonymy types will have other specifications. For example, *the milk tipped over* is classified as CONTAINED FOR CONTAINER, since *the milk* is the VEHICLE for the TARGET which is *the glass or carton* the milk is in.

3.0 Database of Czech suffixal derivation

The present study reports findings from a database of 237 metonymy types and their Czech derivational suffixes. The suffixes are culled primarily from Janda &

Townsend 2000 and Townsend & Komar 2000. The aim of this database is to represent as many types as possible.[1] Each entry in the database presents a metonymy designation, a word class designation, and a suffix. The metonymy designation specifies the VEHICLE class and the TARGET class. The word class designation specifies the VEHICLE's word class and the TARGET's word class. In addition, each entry is supplied with a concrete example listing both the VEHICLE word and the TARGET word. Table 1 presents five sample entries from the database:

metonymy designation		word class designation		suffix	example	
VEHICLE class	TARGET class	VEHICLE's word class	TARGET's word class		VEHICLE word	TARGET word
PART	WHOLE	noun	noun	*áč-Ø*	*břicho* 'belly'	*břicháč* 'pot-bellied person'
CONTAINED	CONTAINER	noun	noun	*áč-Ø*	*květ* 'flower'	*květináč* 'flower-pot'
CONTAINED	CONTAINER	noun	noun	*ovn-a*	*kniha* 'book'	*knihovna* 'library'
ACTION	AGENT	verb	noun	*ař-Ø*	*péci* 'bake'	*pekař* 'baker'
PATIENT	AGENT	noun	noun	*ař-Ø*	*zub* 'tooth'	*zubař* 'dentist'

Table 1: Sample entries from database of Czech suffixal derivation

The *břicho* 'belly' is a PART of the WHOLE *břicháč* 'pot-bellied person' it is used to reference and the *květ* 'flower' is what is CONTAINED in the *květináč* 'flower-pot'. The suffix *áč-Ø* is shared by these two metonymy designations. The suffix *ovn-a* can also signal CONTAINED FOR CONTAINER, as we see in the example of *knihovna* 'library'. The word *pekař* 'baker' identifies an AGENT through the VEHICLE of an ACTION, and the same *ař-Ø* suffix identifies *zubař* 'dentist' as the AGENT who works on the PATIENT *zub* 'tooth'.

These examples raise a number of issues. Each entry represents a unique type, which means that it has a unique combination of parameters (as specified in the five leftmost columns in Table 1). Aside from determining the word class of the TARGET, suffixes underspecify the types, since most suffixes are associated with more than one metonymy designation, as we see in the case of *áč-Ø* and *ař-Ø*. Note that *ař-Ø* associates with types that differ in both the metonymy and word class designations of their VEHICLES. Furthermore, metonymy and word class designations do not uniquely

determine the choice of suffix; both *áč-Ø* and *ovn-a* can be used in the CONTAINED FOR CONTAINER metonymy that derives a noun from another noun.

3.1 Distribution of metonymy designations

Fifty-five VEHICLE FOR TARGET designations are represented in the database, distributed as in Diagram 1.
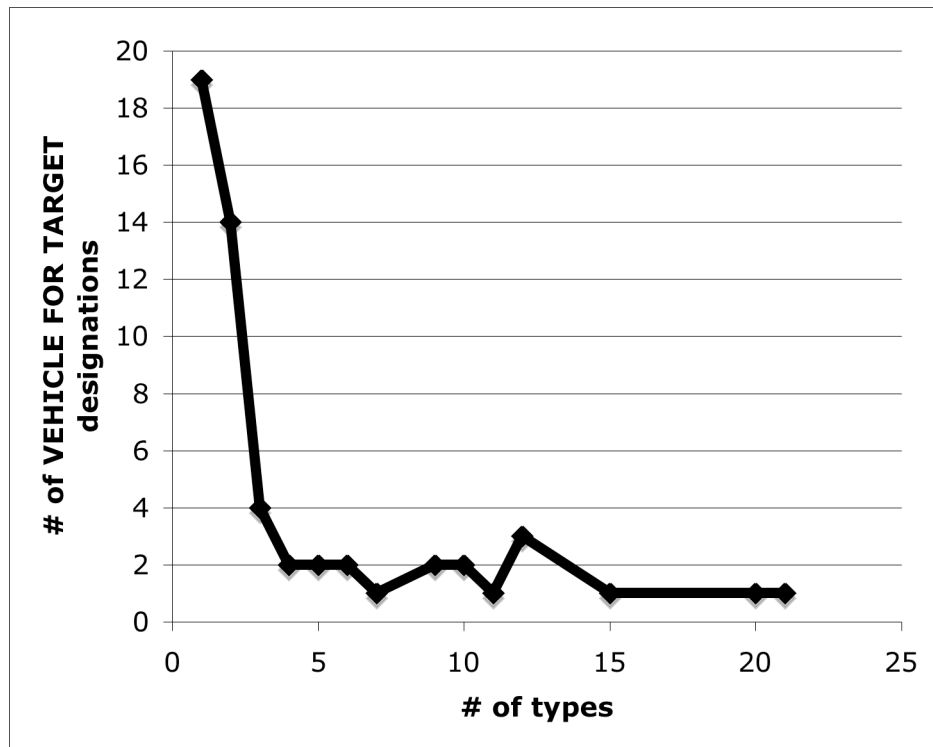

Diagram 1: Relationship of VEHICLE FOR TARGET designations to types

The relationship between metonymy designations and types is very skewed, resembling a J-distribution. There are nineteen VEHICLE FOR TARGET designations that are represented by only one suffix (and one word class designation) each, such as CONTAINER FOR CONTAINED expressed by *n-é* (ex. *kapesné* 'pocket money', derived from *kapsa* 'pocket') and GROUP FOR LEADER expressed by *ník-Ø* (ex. *plukovník* 'colonel', derived from *pluk* 'regiment'). Fourteen metonymy designations can be expressed by two suffixes, such as ACTION FOR PATIENT, which can expressed by both *in-a* and *iv-o* (ex. *vidina* 'vision' derived from *vidět* 'see' and *palivo* 'fuel' derived from *pálit* 'burn'). These two groups, with a metonymy designation expressed by only one or two suffixes, account for 60% of the metonymy designations, but only 20% of the overall entries in the database. Nineteen metonymy designations are expressed in

from three to twelve types. At the exteme end of the distribution are three metonymy designations, one expressed in fifteen types, one in twenty types, and one in twenty-one types. Table 2 lists the metonymy designations that are expressed in ten or more types, plus the suffixes each is associated with and an example (for one suffix).

metonymy designation	# of types	associated suffixes[2]	example
ACTION FOR AGENT	21	*ač-Ø, ák-Ø, an-Ø, ař-Ø, ář-Ø, c-e, č-e, č-í, dl-o, ec-Ø, itel-Ø, k-a, kář-Ø, l-Ø, loun-Ø, ník-Ø, Ø-a, oun-Ø, out-Ø, tel-Ø*	*žrout* 'glutton', derived from *žrát* 'devour'
ACTION FOR PRODUCT	20	*b-a, ek-Ø, enic-e, in-a, itb-a, k-a, nic-e, Ø-a, Ø-á, Ø-ě, Ø-Ø masc, Ø-Ø fem, ot-Ø, t'-Ø, t-Ø masc, t-Ø fem, tv-a*	*koupě* 'purchase', derived from *koupit* 'buy'
CHARACTERISTIC FOR ENTITY	15	*ák-Ø, ásek-Ø, as-Ø, átk-o, ec-Ø, ián-Ø, ík-Ø, ist-a, Ø-a, och-Ø, Ø-ě, oun-Ø, ouš-Ø, ul-e*	*mladík* 'young person' *mladý* 'young'
ACTION FOR INSTRUMENT	12	*ač-Ø, ák-Ø, avk-a, dl-o, ík-Ø, k-a, nk-a, Ø-ě, tk-o, tk-o, vin-a*	*mýdlo* 'soap', derived from *mýt* 'wash'
ACTION FOR LOCATION	12	*adl-o, árn-a, dl-o, írn-a, isk-o, išt-ě, lišt-ě, n-a, Ø-Ø, teln-a*	*hřiště* 'playground', derived from *hrát* 'play'
CHARACTERISTIC FOR ABSTRACTION	12	*k-a, n-o, nost-Ø, ob-a, Ø-ě, Ø-í, Ø-o, Ø-Ø, ost-Ø, ot-a, ovin-a, stv-í*	*chudoba* 'poverty', derived from *chudý* 'poor'
ACTION FOR CHARACTERISTIC	11	*at-ý, av-ý, cn-ý, iteln-ý, iv-ý, lav-ý, liv-ý, n-ý, teln-ý, utn-ý, ut-ý*	*škodlivý* 'harmful', derived from *škodit* 'harm'
CONTAINED FOR CONTAINER	10	*áč-Ø, ář-Ø, enk-a, ic-e, ín-Ø, írn-a, išt-ě, ník-Ø, ovk-a, ovn-a*	*cukřenka* 'sugar-bowl', derived from *cukr* 'sugar'
ENTITY FOR CHARACTERITSTIC	10	*ěn-ý, iv-ý, n-í, n-ý, ovin-a, ovit-ý, ovsk-ý, ov-ý, štin-a, stv-o*	*kopcovitý* 'hilly', derived from *kopec* 'hill'

Table 2: Metonymy designations expressed in 10 or more types

The nine metonymy designations (16% of the total of fifty-five) in Table 2 account for 52% of the 237 types in the database.

The metonymy designations reveal two kinds of asymmetry. There are twenty-seven unidirectional metonymies in the database, comprising 49% of all metonymy

designations. Indeed, the most frequent metonymy designation in the database, ACTION FOR AGENT, is unpaired. However, the remaining metonymies form bidirectional pairs. Both members of one such pair is represented in Table 2, which lists both CHARACTERISTIC FOR ENTITY (with fifteen types) and ENTITY FOR CHARACTERISTIC (with ten types). The remaining six metonymy designations in Table 2 are paired, and their corresponding inverse designations are detailed in Table 3.

(# of types for designation in Table 2)	inverse metonymy designation	# of inverse types	associated suffixes	example
(20)	PRODUCT FOR ACTION	2	*i-t, ova-t*	*krystalizovat* 'crystallize', derived from *krystal* 'crystal'
(12)	INSTRUMENT FOR ACTION	2	*i-t, ova-t*	*hnojit* 'fertilize', derived from *hnůj* 'fertilizer'
(12)	LOCATION FOR ACTION	1	*ek-Ø*	*pohlavek* 'slap' in the face, derived from *po hlavě* 'along head'
(12)	ABSTRACTION FOR CHARACTERISTIC	2	*n-í, n-ý*	*klidný* 'calm', derived from *klid* 'peace'
(11)	CHARACTERISTIC FOR ACTION	2	*ě-t, nou-t*	*blbnout* 'act stupid', derived from *blbý* 'stupid'
(10)	CONTAINER FOR CONTAINED	1	*n-é*	*kapesné* 'pocket money', derived from *kapsa* 'pocket'

Table 3: Inverse metonymies matching paired types in Table 2

The asymmetries in metonymy designations suggest a number of generalizations. It appears that Czech suffixes are very likely to signal an ACTION as a VEHICLE for a number of TARGETS, such as AGENT, PRODUCT, INSTRUMENT, LOCATION, and CHARACTERISTIC, and much less likely to signal the reverse metonymies. In general, ACTIONS are more likely to be VEHICLES than TARGETS. The relationship between CHARACTERISTICS and ENTITIES is exceptional for being bilateral and strongly represented by both members of the pair.

PART FOR WHOLE is expressed in seven types, while the reverse, WHOLE FOR PART, is expressed in five types, giving a fairly balanced picture. However a series of

similar metonymies show asymmetries. For example, both CONTAINED FOR CONTAINER and ENTITY FOR GROUP (arguably extensions of PART FOR WHOLE, see below) are more likely than their inverses. By contrast, both LOCATION FOR LOCATED and POSSESSOR FOR POSSESSED (extensions of WHOLE FOR PART) are more likely than their respective inverses. The strategy seems to be motivated by our human experience in the world where we are more interested in people or foregrounded entities than backgrounded items like the groups people and entities belong to or their locations. We are also usually more interested in the contents of a package than the packaging because we will probably use the contents and throw the package away.

Only twenty-one of the metonymy designations found in the database of Czech derivational morphology are also found in Peirsman & Geeraerts' (2006) typology.[3] This leaves thirty-four designations that are not found in their typology, among them three of the designations with ten or more types (cf. Table 2): CHARACTERISTIC FOR ABSTRACTION, ACTION FOR CHARACTERISTIC, and ENTITY FOR CHARACTERISTIC. In the group of metonymies not found in Peirsman & Geeraerts' (2006) typology there are three further designations with five or more types, and the remainder are expressed by fewer than five types; fourteen of these metonymies are expressed by only one type. Table 4 represents metonymy designations from these latter two groups.

metonymy designation	# of types	associated suffixes	example
PATIENT FOR AGENT	6	*ař-Ø, ář-Ø, ec-Ø, en-a, ist-a, n-a*	*rybář* 'fisherman', derived from *ryba* 'fish'
ENTITY FOR GROUP	6	*ctv-o, in-a, Ø-í, ov-í, stv-o, tv-o*	*obyvatelstvo* 'population', derived from *obyvatel* 'inhabitant'
QUANTITY FOR ENTITY	5	*ák-Ø, č-e, ičk-a , k-a, ník-Ø*	*sedmička* 'number 7 (bus, highway, etc.)', derived from *sedm* 'seven'
TIME FOR LOCATION	1	*ovisk-o*	*letovisko* 'summer resort', derived from *léto* 'summer'

Table 4: Metonymies not in Peirsman & Geeraerts 2006 expressed by six or fewer types

Table 4 contains the designation QUANTITY FOR ENTITY, which is related to several "new" metonymies (i.e., those not listed in Peirsman & Geeraerts 2006) that entail quantification, which is in some instances connected also to commercial transactions

(prices and tickets). Table 5 gives examples of these previously unidentified metonymies.

metonymy designation	# of types	associated suffixes	example
ACTION FOR PRICE	1	n-é	*vstupné* 'entrance fee', derived from *vstoupit* 'enter'
ENTITY FOR PRICE	1	n-é	*školné* 'tuition', derived from *škola* 'school'
ACTION FOR TICKET	2	enk-a	*jízdenka* 'transportation ticket', derived from *jízda* 'ride'
QUANTITY FOR EVENT	1	in-a	*padesátiny* 'fiftieth anniversary, birthday', derived from *padesát* 'fifty'
QUANTITY FOR GROUP	1	ic-e	*pětice* 'quintet', derived from *pět* 'five'

Table 5: Quantificational metonymies not in Peirsman & Geeraerts 2006

Another striking pattern among the previously overlooked metonymies involves a fairly large number of VEHICLES used to reference TARGETS that are CHARACTERISTICS. In addition to: ACTION FOR CHARACTERISTIC and ENTITY FOR CHARACTERISTIC (cf. Table 2), a number of types are found, as listed in Table 6.

metonymy designation	# of types	associated suffixes	example
TIME FOR CHARACTERISTIC	1	sk-ý	*loňský* 'last year's', derived from *loni* 'last year'
ABSTRACTION FOR CHARACTERISTIC	2	n-í, n-ý	*hudební* 'musical', derived from *hudba* 'music'
CHANGE STATE FOR CHARACTERISTIC	2	il-ý, l-ý	*shnilý* 'rotten', derived from *shnít* 'rot'
MANNER FOR CHARACTERISTIC	2	n-í, ov-ý	*opravdový* 'real', derived from *opravdu* 'really
MATERIAL FOR CHARACTERISTIC	2	at-ý, it-ý	*písčitý* 'sandy', derived from *písek* 'sand'
PART FOR CHARACTERISTIC	2	at-ý, ovan-ý	*chlupatý* 'hairy', derived from *chlup* 'hair'
LOCATION FOR CHARACTERISTIC	3	n-í, n-ý, sk-ý	*městský* 'municipal', derived from *město* 'city'

Table 6: Metonymies not in Peirsman & Geeraerts 2006 where TARGET is a CHARACTERISTIC

One thing the types in Table 6 share is that the word class of the TARGET is adjective. The Peirsman & Geeraerts (2006) typology focused mainly on nouns and verbs, thus

overlooking other word classes. In addition to the data in Table 6, this oversight contributes also to the failure to identify QUANTITY, which entails a numeral as a possible VEHICLE, as well as the failure to identify types such as ACTION FOR MANNER where the TARGET is expressed by an adverb, as in *kradmo* 'stealthily', derived from *krást* 'steal'.

Peirsman & Geeraerts (2006) also identify fourteen designations that are not attested in the Czech database. They are: ANTECEDENT FOR CONSEQUENT, SUBEVENT FOR COMPLEX EVENT, STATE FOR ACTION, AGENT FOR ACTION, TIME FOR ACTION, EFFECT FOR CAUSE, CAUSE FOR EFFECT, CONTROLLER FOR CONTROLLED, CONTROLLED FOR CONTROLLER, LOCATION FOR PRODUCT, PRODUCT FOR LOCATION, INSTRUMENT FOR RESULT, HYPERNYM FOR HYPONYM and HYPONYM FOR HYPERNYM. The fact that these designations appear in Peirsman & Geeraerts' (2006) typology but not in the Czech database may be due to the fact that the Czech database deals exclusively with conventional metonymy that is systematic in a grammar. Derivational suffixes generally do not code isolated or novel uses of the type found in lexical metonymy, such as the use of *china* to refer to plates (LOCATION FOR PRODUCT) or *kodak* to refer to any camera (HYPONYM FOR HYPERONYM).

Some of the metonymy designations in the database are closely related to each other, and in the case of individual examples, they may be nodes in a continuum rather than discrete designations. Both a CONTAINER and a GROUP can also be thought of as WHOLES that encompass their contents or group members, motivating a link to PART FOR WHOLE/WHOLE FOR PART. WHOLES have PARTS, which are like inalienable possessions (cf. for example body parts), and this motivates a link to alienable possessions, thus connecting POSSESSED FOR POSSESSOR to PART FOR WHOLE. PARTS and WHOLES also share a LOCATION, motivating a further link. Diagram 2 outlines the relationships between these designations.

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                  ┌─────────────────┐
                  │   ENTITY FOR    │
                  │  GROUP/GROUP    │
                  │   FOR ENTITY    │
                  └─────────────────┘
                          │
┌──────────────────┐ ┌──────────────┐ ┌──────────────────┐
│  CONTAINED FOR   │ │  PART FOR    │ │  POSSESSION FOR  │
│ CONTAINER/CONTAINER│─│ WHOLE/WHOLE │─│POSSESSED/POSSESSED│
│  FOR CONTAINED   │ │  FOR PART   │ │  FOR POSSESSION  │
└──────────────────┘ └──────────────┘ └──────────────────┘
                          │
                  ┌─────────────────┐
                  │   LOCATED FOR   │
                  │LOCATION/LOCATION│
                  │  FOR LOCATED    │
                  └─────────────────┘
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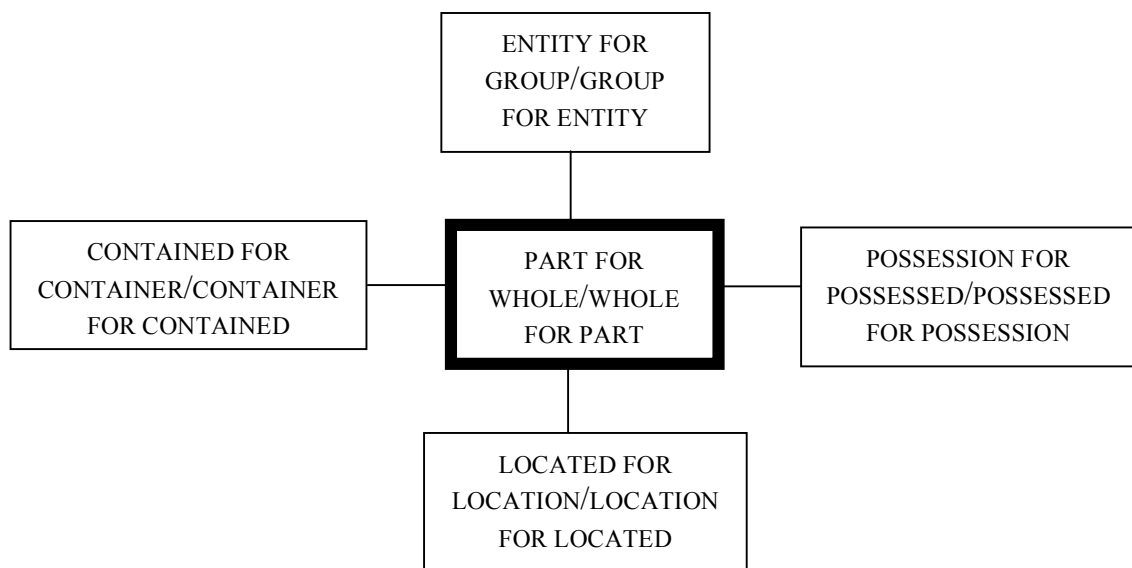
Diagram 2: Relation of PART FOR WHOLE/WHOLE FOR PART to other designations

Individual examples are sometimes hard to classify among designations. Is *vinice* 'vineyard' (derived from *víno* 'grapes') CONTAINED FOR CONTAINER or LOCATED FOR LOCATION? Is *březina* 'birch grove' (derived from *bříza* 'birch') ENTITY FOR GROUP or LOCATED FOR LOCATION? What about *světluška* 'firefly': is its *světlo* 'light' a PART of its body or something POSSESSED by the insect? Or could it be an INSTRUMENT that the insect uses?

Types where the TARGET might be identified as an INSTRUMENT are likewise difficult to classify, since INSTRUMENTS can be hard to distinguish from several other designators. Is *klavír* 'piano' the patient of what the *klavírista* 'pianist' does or an instrument? Is the *led* 'ice' merely that which is CONTAINED in a *lednice* 'refrigerator', or is this a holdover from pre-modern times when the ice was the INSTRUMENT that kept a box cold (cf. English *ice-box*, still used as a synonym for *refrigerator*). In the database *pračka* 'washing machine' (derived from *prát* 'launder') is designated as ACTION FOR INSTRUMENT, but if I only have push a button in order to launder clothes is the machine actually something closer to an AGENT? Is *pec* 'oven' (derived from *péci* 'bake') an example of ACTION FOR LOCATION or ACTION FOR INSTRUMENT? Maybe it depends upon how big the oven is?

Overall, it is worth noting that the metonymy designations found in the Czech database suggest three somewhat overlapping frames. The first involves spatial contiguity connecting PART/WHOLE and its nearest neighbors, as described above. The

second frame is connected to the temporal domain of an ACTION which might have one or more arguments such as an AGENT, a PATIENT, a PRODUCT, an INSTRUMENT, a LOCATION, and a TIME when it takes place. The relationship of AGENTS to PRODUCTS and INSTRUMENTS can overlap with portions of the PART/WHOLE frame, as can any designation that involves a LOCATION. The third major frame is abstract and involves ENTITIES and their CHARACTERISTICS, thus overlapping with the other two frames via POSSESSOR and INSTRUMENT and possibly also LOCATION. These three frames correspond to the three types of metonymy, namely spatial, temporal and abstract, recognized by Seto (1999).

3.2 Distribution of word class designations

Table 7 gives an overview of the word class designations present in the database.

VEHICLE's word class	TARGET's word class	# of types	example
adjective	noun	29	*chudák* 'poor person', derived from *chudý* 'poor'
adjective	verb	5	*chladit* 'make cool', derived from *chladný* 'cold'
adverb	adjective	3	*zvláštní* 'peculiar', derived from *zvlášt'* 'particularly'
noun	adjective	20	*dřevěný* 'wooden', derived from *dřevo* 'wood'
noun	noun	77	*otroctví* 'slavery', derived from *otrok* 'slave'
noun	verb	5	*číslovat* 'number', derived from *číslo* 'number'
numeral	noun	8	*pětník* '5 crown piece', derived from *pět* 'five'
prep phrase	adjective	1	*mezibuněčný* 'intercellular', derived from *mezi buňkami* 'between cells'
prep phrase	noun	6	*podprsenka* 'brassiere', derived from p*od prsy* 'under breasts'
verb	adjective	13	*váhavý* 'hesitant', derived from *váhat* 'hesitate'
verb	adverb	1	*kradmo* 'stealthily', derived from *krást* 'steal'
verb	noun	69	*žebrák* 'beggar', derived from *žebrat* 'beg'

Table 7: Word class designations in database of Czech suffixal derivation

By far the most frequent TARGET word class is that of noun, which accounts for 189 (= 80%) of all types in the database. This word class is also unique in that it is the only one that can serve as both the VEHICLE and the TARGET in the same designation,

and in fact such designations are the most common, accounting for seventy-seven types (= 32%) in the database. Adjective comes in a distant second with thirty-seven types (= 16%), followed by verb with ten types (= 4%) and adverb with only one. The distribution of VEHICLE word classes is a bit more varied and balanced, with noun leading (102 types = 43%), followed by verb (eighty-three types = 35%), adjective (thirty-four types = 14%), numerals (eight types), prepositional phrases (seven types), and adverbs (three types).

The adjective, noun, and verb word classes are all bidirectional, since all possible combinations are possible using these three as VEHICLE and TARGET. In other words, adjectives can be used to form both nouns and verbs, and both nouns and verbs can be used to form adjectives, etc. All remaining word classes form only unidirectional designations: for example, numerals can only form nouns and adverbs can only form adjectives.

Though the Czech database most strongly represents nouns, it is much more diverse in terms of word classes than Peirsman & Geeraerts (2006). This difference is probably due to the fact that nouns and verbs are more salient when one focuses on lexical metonymy, whereas investigation of grammatical metonymy is more likely to uncover a greater diversity of grammatical categories.

3.3 Distribution of suffixes

We already know from section 3.1 that a given metonymy designation can be expressed by as many as twenty suffixes, so it is clear that metonymy designations do not specify suffixes. It appears that the converse is also the case: most suffixes are non-specific, since a given suffix can be associated with more than one metonymy designation.

The database contains 136 suffixes. Eighty-six suffixes are associated with only one metonymy designation, but the remaining fifty suffixes are associated with from two to eight metonymy designations. Table 8 shows the metonymy designations of the *in-a* suffix, with eight designations, along with two etymologically related suffixes *ovin-a* (with two designations) and *vin-a* (with one designation).

metonymy designation	VEHICLE's word class	example
in-a		
LOCATED FOR	noun	*bažina* 'marsh', derived from *bahno* 'mud'

LOCATION		
ENTITY FOR GROUP	noun	*březina* 'birch grove', derived from *bříza* 'birch tree'
WHOLE FOR PART	numeral	*šestina* 'one sixth', derived from *šest* 'six'
POSSESSOR FOR POSSESSED	noun	*medvědina* 'bearskin', derived from *medvěd* 'bear'
QUANTITY FOR EVENT	numeral	*padesátiny* 'fiftieth anniversary, birthday', derived from *padesát* 'fifty'
CHARACTERISTIC FOR LOCATION	adjective	*nížina* 'lowlands', derived from *nízký* 'low'
ACTION FOR PATIENT	verb	*vidina* 'vision', derived from *vidět* 'see'
ACTION FOR PRODUCT	verb	*pilina* 'piece of sawdust', derived from *pilovat* 'file'
ovin-a		
ENTITY FOR CHARACTERISTIC	noun	*švejkovina* 'Švejk-like behavior', derived from *Švejk*
CHARACTERISTIC FOR ABSTRACTION	adjective	*blbovina* 'nonsense', derived from *blbý* 'stupid'
vin-a		
ACTION FOR INSTRUMENT	verb	*trhavina* 'explosive', derived from *trhat* 'tear'

Table 8: Metonymy designations and VEHICLE word classes for the suffix *((o)v)in-a*

In addition to demonstrating that a given suffix can be associated with a number of metonymy designations, Table 8 illustrates the fact that suffixes also underspecify the VEHICLE's word class. Whereas all of the TARGETS produced by this suffix are nouns, they can be formed from numerals, adjectives and verbs as well as from other nouns. Derivational morphology is therefore, in terms of word class, a product-oriented phenomenon.

We also note from Table 8 that although eleven metonymy designations are represented, there are no "pairs" such that one is the inverse of the other. This observation holds for the entire database. Although many suffixes can be associated with several metonymy designations, none of the suffixes is clearly bidirectional. There are only two sets of examples that come close to joining a bidirectional metonymy relationship in a single suffix, and they are illustrated in Table 9.

metonymy designation	example
"pair" candidate 1: related suffixes *ovnic-e* and *nic-e*	
LOCATED FOR LOCATION	*šachovnice* 'chess board', derived from *šachy* 'chess pieces'
LOCATION FOR LOCATED	*naušnice* 'earring', derived from *na uších* 'on ears'
"pair" candidate 2: related suffixes *ík-Ø* and *ovník-Ø*	

| GROUP FOR ENTITY | *straník* 'party member', derived from *strana* 'party' |
| PART FOR WHOLE | *čajovník* 'teabush', derived from *čaj* 'tea' |

Table 9: Possible "pairs" of metonymy designations associated with suffixes

Both sets of "pairs" are imperfect examples. Both use etymologically related but not identical suffixes, and the designation of PART FOR WHOLE for *čajovník* 'teabush' is debatable, while at the same time GROUP FOR ENTITY is not a precise inverse either. The fact that such examples are so rare and flawed points to limitations in the system. Whereas there is a lot of underspecification in the association of suffixes with metonymy designations, it is not usually possible to use the same suffix to signal both directions of a metonymy relation.

3.4 Non-metonymical suffixes

A further restriction in the system of Czech suffixal derivation is the fact that a whole class of suffixes has no metonymical function at all, namely those that derive diminutives and augmentatives. Czech has a rich system for such derivations involving nouns (*knižka* and *knižečka* are both diminutives derived from *kniha* 'book', *psisko* is an augmentative derived from *pes* 'dog') adjectives (*slaboučký, slabounký, slaboulinký* and *slabouninký* are all diminutives of *slabý* 'weak', *velikánský* and *velikanánský* are both augmentatives of *veliký* 'big') and verbs (*spinkat* is a diminutive of *spát* 'sleep'). An important difference between the use of suffixes to signal metonymy and the derivation of diminutives and augmentatives is the fact that the latter never changes the word class, whereas the former usually does. The one exception is noun, which serves as both VEHICLE and TARGET word class in seventy-seven metonymy designations. Note that Townsend (1975: 196) describes the formation of diminutives and augmentatives in Russian as something more akin to inflection than derivation since it does not result in the formation of new independent words. When new independent words are formed, metonymy is involved.

3.5 Summary of findings

This empirical study probes the relationship between metonymy and Czech derivational morphology. When derivational suffixes create independent words (i.e. words that are not merely diminutives or augmentatives), metonymy is always involved and there is usually a concomitant shift in word class. The metonymy

designations primarily involve three somewhat overlapping frames, namely PART/WHOLE, ACTION and its arguments and ENTITY/CHARACTERISTIC. In most cases there is clearly no one-to-one mapping relationship between metonymy designations and suffixes: a given designation can be associated with several suffixes and a given suffix can be associated with several designations. It appears, however, that it is not possible for a single suffix to signal both directions of a metonymy relationship (i.e., there is no suffix that signals both PART FOR WHOLE and WHOLE FOR PART). This study identifies some metonymy designations that have been previously overlooked, such as those relating to quantification and commercial transactions. This study also examines metonymies that involve numerals, adjectives, prepositional phrases and adverbs in contradistinction to previous studies that have focused on only nouns and verbs. The finding that the derivation of diminutives and augmentatives does not entail metonymy supports previous claims in the literature that this kind of derivation does not form new independent words.

4.0 Conclusions

This is a modest study limited only to suffixal derivation in a single language, but it points in a new direction, namely toward the investigation of metonymy as a systematic grammatical function, not merely a lexical one. This study suggests differences in the scope of grammatical metonymy as compared to lexical metonymy, since the Czech database attests some metonymy designations not recognized by Peirsman and Geeraerts (2006) and also fails to attest some designations in their typology. More research on more languages is needed in order to test these findings and determine the parameters of grammatical metonymy. In particular, we need to develop better classification methods for metonymy and to address the way in which metonymy frames overlap.

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[1] There is no attempt in this database to capture information on the relative token frequencies of the metonymy types. Note that Czech morphology contains zero suffixes and zero endings, both represented as "Ø" in our database. A hyphen is used to mark the boundary between a suffix and its citation form ending.
[2] The number of types and suffixes are not always the same because a suffix can be associated with various word class designations, as we see with the suffix *as-Ø*, which can form CHARACTERISTIC FOR ENTITY metonymies using both nouns and adjectives

as TARGET word classes, as in *klid'as* 'calm person' derived from *klid* 'peace' as opposed to *krut'as* 'cruel person' derived from *krutý* 'cruel'.

[3] The classification in the database sometimes makes more distinctions than were present in Peirsmann & Geeraerts' (2006) typology. For example, the database distinguishes between patient and product: *hrnčíř* 'potter' is someone who creates the previously non-existent *hrnec* 'pot' (metonymy designation PRODUCT FOR AGENT) vs. *zubař* 'dentist' is someone who works on a previously existing *zub* 'tooth' (metonymy designation PATIENT FOR AGENT). These types are not reported as missing from the Peirsmann & Geeraerts' typology since they are merely further specifications of their types. It is important to note that Peirsman & Geeraerts' (2006: 277) aim was not to create an exhaustive inventory, but a representative one.

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