

METONYMY IN INDONESIAN PREFIXAL WORD-FORMATION

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ABSTRACT

Major emphasis with respect to the studies of metonymy is mainly on lexical metonymy. This paper builds on Janda's studies and presents a case study with the aim to investigate metonymic relationship in Indonesian prefixal derivation. The database comprises 85 classification types consisting of a unique combination of metonymy, word class, and a prefix. The range of metonymy and word class patterns across prefixes is explored. It is shown that one metonymy and word class pattern can be encoded by more than one prefix. This study also demonstrates that on average prefixes are relatively not specific in terms of metonymy and word class patterns they signal. A number of metonymy patterns exhibit bi-directionality such as ACTION FOR AGENT (*beli pembeli*) and AGENT FOR ACTION (*supir menyupir*) but most patterns are uni-directional.

Keywords: metonymy, word-formation, prefix, Indonesian

I. INTRODUCTION

The main aim of this case study is to investigate metonymic relationship in Indonesian prefixal word-formation. Specifically, this study aims to explore (i) the range of metonymy and word class patterns as well as which patterns are commonly encoded across prefixes in Indonesian, (ii) the extent of the prefixes in specifying the metonymy and word class patterns, and (iii) the directionality of the metonymy patterns.

In Cognitive Linguistics (CL), metonymy has been viewed among one of fundamental cognitive principles involved in human conceptualisation and has been acknowledged to play a central role in motivating the structure of language (Evans & Green 2006). The “cognitive commitment” of CL is that linguistic organisation mirrors general cognitive principles rather than self-contained language modules (Evans & Green 2006, p.41; Langacker 2008, p.8). Therefore, theoretical implication of this study is to analyse semantic relationship of root, prefixes and their derived words as a linguistic phenomenon of word-formation in terms of metonymy as a cognitive principles (Janda 2011b).

Metonymy is defined as an inferential cognitive process between two concepts. One concept, i.e. the source, is used to direct attention or provide mental access to another concept, i.e. the target, based on contiguity (Kövecses 2010; Panther & Thornburg 2007; Peirsman & Geeraerts 2006). Metonymy in CL is formulated in the form of SOURCE FOR TARGET. In

lexical metonymy, the word expressed is associated with the source concept and that word is used to stand for another concept, i.e. the target meaning that is actually profiled. In the realm of word-formation, the root indicates the source concept from which the target meaning of the derived word is invoked and affixes provide the context for metonymic relationship (Janda 2011b). The following examples illustrate lexical metonymy in examples (a) and its counterpart in word-formation in examples (b).

1-1] CHARACTERISTIC FOR ENTITY

(a) (*your*) *majesty* (Peirsman & Geeraerts 2006, p.303)

(b) Indonesian: *pemalu* (lit. *pe-* ‘shy/embarrassed’) ‘shy person’

[1-2] ACTION FOR AGENT

(a) *a snitch* (slang ‘to inform’) ‘informer’ (Kövecses 2010, p.181)

(b) Indonesian: *pembeli* (lit. *pe[m]-* ‘buy’) ‘buyer’

Example [1-1a] shows that ‘king’ as the target referent is conceptualised or accessed via its salient and contiguous characteristic, i.e. *majesty*. In [1-2a], *snitch* as an action is used to refer to the agent of that respective action. Both examples in [1-1b] and [1-2b] also mirror similar metonymy patterns as in examples in (a). The underlined elements in [1-1b] and [1-2b] indicate the root words referring to the source concepts. In example [1-1b], *pemalu* ‘shy person’ (target), referring to an entity, particularly a person, is derived from the adjective *malu* ‘shy/embarrassed’ (source), which indicates the inherent characteristic of the entity. Example [1-2b] involves action as source, i.e. *beli* ‘to buy’, to point to the agent of the respective action as the target referent, i.e. *pembeli* ‘buyer’.

There are several studies focusing on metonymy in word-formation. Dirven (1999) studies conversion or zero-derivation in English and finds three kinds of “Event-schemata metonymy”, i.e. ACTION, LOCATION, and ESSIVE, as the conceptual basis of conversion. Panther & Thornburg (2003) investigate the English nominal suffix *-er* whose meanings are extended and related through metonymy and metaphor. Basilio (2009) analyses the agent noun suffixes, i.e. *-dor*, *-nte*, *-eiro*, and *-ista*, in Brazilian Portuguese and demonstrates that the constructions with those suffixes can be interpreted in terms of metonymy. All of those previous studies are developed further systematically in a series of studies by Janda (2010a; 2010b; 2011b) on Russian, Czech and Norwegian suffixal word-formation. One of her studies’ significant contributions is the classification terms for metonymy based on inventory of lexical metonymy proposed in Peirsman & Geeraerts (2006) to facilitate comparison between lexical and word-formational metonymy.

The present study is directly inspired by Janda’s (2011b, p.389) recommendation to extend the analysis of metonymy in word-formation to languages outside Indo-European family, which, in the case of this study, Indonesian is chosen. The reason is that the intricate behaviour of Indonesian affixes, roots and the target meanings of the words they derive often pose confusion especially for foreign learners when they study the language. It is hoped that

the approach adopted in this study can give an insightfully different perspective pertaining to the description of Indonesian derivation, particularly prefixation.

II. MATERIALS AND METHOD

This paper analyses eight Indonesian prefixes: zero prefix (or conversion), *ber-*, *ke-*, *me-*, *pe-*, *per-*, *se-*, and *ter-*. The data for this paper was compiled mainly from the Indonesian reference grammar by Alwi et al (2000). However, particular topic on word-formation with prefix *se-*, besides its use in equative construction, is not available in Alwi et al (2000). Thus, the data on *se-* is supplied from Sneddon et al (2010). One more word-formation pattern also taken from Sneddon et al (2010) that is not found specifically in Alwi et al (2000) is the noun formation with prefix *ter-*, as in *terpidana* 'the accused'.

2.1 The scope and classification of the database

There are several limitations imposed on the selection of the data. The use of prefixes in comparative construction is ignored on the basis that it does not encode metonymy (Janda 2010b, p.264). For example, when they are attached to adjective roots, prefix *ter-* and *se-* indicate superlative (e.g. *baik* 'good' *terbaik* 'the best') and equative (e.g. *baik* 'good' *sebaik* 'as good as') constructions respectively. The combination of prefixes with bound roots that are meaningless by themselves in an utterance is likewise excluded for the reason that the source cannot be identified. One example is *berjuang* 'fight; struggle' from the root *juang*, which is unidentified in terms of source concept it refers to. The inflectional use of prefix *me-*, and hence *di-*, as voice marker is excluded because this study only focuses on its derivation function. The formation with (i) complex sources, for example *berterus terang* 'confess; admit', (ii) reduplicated root, as in *menerka-nerka* 'guess' and *tembak-menembak* 'shoot at each other', and (iii) compounding, such as *jatuh bangun* 'to rise and fall', are not covered in this study. Prefix-suffix combination, such as *berlarian* 'run about in a random manner', and examples showing multiple prefixes, such as *bersikeras* 'insist', are beyond the scope of this study as well. Because Janda (2011b) also analysed conversion or zero derivation, this type is included in this study. One example in Indonesian is the zero-verbalisation of noun *gunting* 'scissors' into *gunting* 'to cut with scissors' via INSTRUMENT FOR ACTION metonymy.

The database in this study is classified into TYPES (see Table 2 in Section 2.2). Each type uniquely consists of three items: a) metonymy pattern, b) word class pattern, and c) a prefix. This means that no duplicates are present for the combinations of metonymy patterns, word-class patterns, and prefix. Each type is provided with an illustrative example. Furthermore, neither the number of examples associated with each type (type frequency) nor the text frequency of the type's illustrative examples is included in the present case study. Such quantitative data can be very useful in assessing the prominence of particular types in the language but this analysis will be left as future research.

Other than the database, classification difficulty also occurs when assembling the data. The difficulty concerns with ambiguous data, i.e. a particular derived word that can signal more than one metonymy. For example, based on *Kamus Bahasa Indonesia*, *berair* derived from *air*

‘water’ can mean (i) ‘contain/be filled with water’, hence MATERIAL FOR STATE, or (ii) ‘excrete water’, hence MATERIAL FOR ACTION. Since this level of detail is not covered in this study, Janda’s (2011b, p.371) solution is adopted: “it was decided to recognize only one metonymy pattern for each entry, but to include enough entries to cover the full range of possibilities”. Therefore, the first meaning of *berair* listed in the dictionary, namely ‘contain/be filled with water’, is the one identified in relation to this entry but adding *berdamar* ‘to use/collect resin’, derived from *damar* ‘dammar; resin’, to illustrate the MATERIAL FOR ACTION pattern. Another reason is that the main aim of this study is to look into the possible range of metonymy patterns and not to come to a definitive interpretation for every example (Janda 2011b, p.371).

2.2 The classificatory terms and size of the database

For classifying the metonymic relationships between the roots, the derived words and the prefixes, the classificatory terms proposed by Janda (2011b, p.372) are adopted and they are shown in Table 1 below. Janda stated that these classification terms “can furthermore be applied to word-formation systems of other languages [...]” (2010b, p.272). That becomes the main reason to adopt this classification and hence to apply it in Indonesian.

Table 1 Classificatory terms for SOURCES and TARGETS (from Janda (2011b))

Relating to Actions:	ACTION, STATE, CHANGE STATE, EVENT, MANNER, TIME
Relating to Participants:	AGENT, PRODUCT, PATIENT, INSTRUMENT
Relating to Entities:	ENTITY, ABSTRACTION, CHARACTERISTIC, GROUP, LEADER, MATERIAL, QUANTITY
Relating to PART FOR WHOLE:	PART, WHOLE, CONTAINED, CONTAINER, LOCATED, LOCATION, POSSESSED, POSSESSOR

Metonymy patterns as composite structures out of the classificatory terms can be in some ways regarded as constructions (Janda 2011b; cf. Langacker 2008, pp.164–166). Each metonymy pattern is an entity as a whole. The parts, in this case the source terms expressed by the roots and the prefixes, as the component structure of the metonymy patterns should be thought as “stepping-stones”, but not as the “building blocks”, to reach the composite conception, i.e. the target signalled by the derived word (cf. Janda 2011b, p.373 & Langacker 2008, pp.164–165). Therefore, the relationship between the parts and the composite structures is not fully but only partially compositional (Langacker 2008, p.164; 2009, p.11).

Table 2 Snippet of the database entries

Metonymy Pattern		Word class Pattern		Prefix	Illustrative Example	
Source	Target	Source	Target		Source	Target
INSTRUMENT	ACTION	Noun	Verb	Ø	<i>gunting</i> 'scissors'	<i>gunting</i> 'to scissor'
LOCATION	ACTION	Noun	Verb	<i>me-</i>	<i>laut</i> 'sea'	<i>melaut</i> 'to go to sea'
QUANTITY	GROUP	Numeral	Numeral	<i>ber-</i>	<i>dua</i> 'two'	<i>berdua</i> 'be in a group of two'
CHARACTERISTIC	ACTION	Qualitative adjective	Verb	<i>per-</i>	<i>luas</i> 'wide'	<i>perluas</i> 'to widen'
ACTION	PATIENT	Verb	Noun	<i>ter-</i>	<i>tuduh</i> 'to accuse'	<i>tertuduh</i> '(the) accused'
STATE	ABSTRACTION	Verb	Noun	<i>ke-</i>	<i>hendak</i> 'to wish'	<i>kehendak</i> 'wish'
ACTION	AGENT	Verb	Noun	<i>pe-</i>	<i>beli</i> 'to buy'	<i>pembeli</i> 'buyer'
GROUP	QUANTITY	Numeral	Numeral	<i>se-</i>	<i>ribu</i> 'thousand'	<i>seribu</i> 'one thousand'

The overall database comprises 85 classification types, consisting of the combinations of metonymy patterns, word class patterns, and prefixes. In sum, from the database types, there are 49 different metonymy patterns, 17 different word class patterns, and 8 different prefixes. These numbers should not be regarded as absolute but only indicative of the relative sizes represented by the prefixes since word-formation is in fact very dynamic.

III. RESULTS AND DISCUSSION

3.1 Metonymy patterns

Out of 49 metonymy patterns found, six patterns are associated with the most numbers of prefixes, at least three prefixes. Table 3 below shows the shared metonymy patterns across prefixes.

Table 3 Top-shared metonymy patterns across prefixes

Metonymy Pattern		Illustrative Example		Prefixes
Source	Target	Source	Target	
ENTITY	STATE	<i>ranjang</i> 'bed'	<i>seranjang</i> 'to be of one bed (with)'	<i>ber-, me-, se-, ter-</i>
PRODUCT	ACTION	<i>telur</i> 'egg'	<i>bertelur</i> 'to lay egg'	\emptyset , <i>ber-, me-, ter-</i>
CHARACTERISTIC	ACTION	<i>dekat</i> 'close; near'	<i>mendekat</i> 'to come closer'	<i>ber-, me-, per-</i>
LOCATION	ACTION	<i>ladang</i> 'unirrigated field'	<i>berladang</i> 'to cultivate unirrigated field'	\emptyset , <i>ber-, me-,</i>
LOCATION	STATE	<i>letak</i> 'location'	<i>terletak</i> 'to be located/situated'	<i>ber-, se-, ter-</i>
PATIENT	ACTION	<i>budak</i> 'slave'	<i>perbudak</i> 'to enslave'	<i>ber-, me-, per-</i>

Thus, for example, PRODUCT FOR ACTION and ENTITY FOR STATE metonymy patterns are signalled by the most prefixes, i.e. four prefixes, while the rest are signalled by three prefixes. Overall, there are six different prefixes, i.e. \emptyset , *ber-*, *me-*, *per-*, *se-*, and *ter-*, concerning those top patterns in Table 3. Additionally, it can be observed that a metonymy pattern can be signalled by more than one prefix. In total, including that in Table 3, twenty metonymy patterns are expressed by at least two or even more prefixes and the twenty-nine are signalled by one prefix each. This multi-prefix association for a given metonymy has been previously noted (Janda 2010a; 2010b; 2011b). Section 3.3 will discuss in more detail the specificity of the prefixes in Indonesian. Another intriguing pattern visible is that four of the top-shared metonymy patterns shown in Table 3 have ACTION as target concept, and it is accessed via different kinds of sources. It may be interpreted as indicative of most prefixes associated with those top metonymy patterns are verbal prefixes since ACTION is typically expressed by verb. In total, ACTION and STATE is the most accessed target terms embedded in eleven different metonymy patterns for both of them. QUANTITY and CHARACTERISTIC serve as the targets for nine and six metonymy patterns respectively. This may suggest the relative prominence of those concepts as the targets associated with prefixal word-formation in Indonesian.

3.2 Word class patterns

In total, nine word classes act as sources and/or targets in Indonesian prefixal word-formation: adverb, classifier, interjection, noun, numeral, pronoun, qualitative adjective, relational adjective, and verb. Four of them, i.e. noun, numeral, qualitative adjective, and verb, serve both as source and target. Interjection and pronoun act only as source in Indonesian, which

are also attested only as source in Czech and Russian (Janda 2011b, p.375). Adverb, classifier, and relational adjective in the database serve exclusively as targets.

Adjective here is split into qualitative and relational adjective because of their distinct behaviour. “Relational adjectives are less likely to form comparatives and abstract nouns” (Janda 2011b, p.374). One example found in the database is the denominal adjective *seranjang* ‘to be of one bed (with)’ (Sneddon et al. 2010, p.56) that is derived from nominal root *ranjang* ‘bed’, manifesting ENTITY FOR STATE metonymy. The adjective can function as modifier in a noun phrase as in *teman seranjang*, which literally means ‘friend of one bed’. In that noun phrase, *seranjang* does not refer to the quality of the head noun *teman* ‘friend’. However, it serves to express some relation between the nominal root of the adjective and the head noun, which according to Booij “[t]he precise nature of that relationship is not specified, and needs further interpretation by the language user” (2007, p.57). In *teman seranjang*, it can be interpreted that a person is a bedmate of the other. In contrast, “qualitative adjectives refer to inherent qualities” (Janda 2011b, p.374). An example is *luas* ‘wide’ that refer to the quality of an entity (see Table 4 below).

From 17 different word class patterns, 13 of them are associated with the most entries, i.e. occurring at least in two entries in the database. Nine out of those 13 patterns are shared by two or more prefixes. Three patterns, i.e. (i) Noun Noun, (ii) Numeral Verb, and (iii) Qualitative adjective Noun, are shared by two prefixes. Five patterns i.e. (i) Interjection Verb, (ii) Numeral Numeral, (iii) Qualitative adjective Verb, (iv) Verb Noun, and (v) Verb Verb are shared by three prefixes, and another pattern i.e. Noun Verb is shared by five prefixes. Table 4 shows the top-shared word class patterns.

Table 4 Top-shared word class patterns across prefixes

Word class Pattern		Illustrative Example		Metonymy Pattern	Prefixes
Source	Target	Source word	Derived word		
Noun	Verb	<i>supir</i> ‘driver’	<i>menyupir</i> ‘to drive’	AGENT FOR ACTION	5
Interjection	Verb	<i>kokok</i> ‘crow’	<i>berkokok</i> ‘to crow’	PRODUCT FOR ACTION	3
Numeral	Numeral	<i>tiga</i> ‘three’	<i>bertiga</i> ‘be in a group of three’	QUANTITY FOR GROUP	3
Qualitative adjective	Verb	<i>luas</i> ‘wide’	<i>perluas</i> ‘to widen’	CHARACTERISTIC FOR ACTION	3
Verb	Noun	<i>suruh</i> ‘to order’	<i>pesuruh</i> ‘courier; lackey’	ACTION FOR PATIENT	3

Verb	Verb	<i>campur</i> 'to mix'	<i>bercampur</i> 'to be mixed'	ACTION FOR STATE	3
Noun	Noun	<i>pidana</i> 'punishment'	<i>terpidana</i> '(the) convicted'	ABSTRACTION FOR PATIENT	2
Numeral	Verb	<i>satu</i> 'one'	<i>bersatu</i> 'to be united'	QUANTITY FOR STATE	2
Qualitative adjective	Noun	<i>malas</i> 'lazy'	<i>pemalas</i> 'slacker'	CHARACTERISTIC FOR ENTITY	2

A number of compelling patterns emerge in Table 4. Five of nine word class patterns shared by most prefixes have “Verb” as their word class target. This can corroborate the previous finding (section 3.1) regarding to the most shared metonymy patterns in which ACTION relatively becomes the more prominent target, which is then followed by STATE. ACTION, and possibly STATE to some extent, is typically associated with and grammatically encoded by “Verb”. In addition, Noun Verb pattern has the most entries in the database, i.e. 31, and it is attested with the highest number of prefixes, i.e. five.

3.3 Specificity of prefixes in terms of metonymy and word class patterns

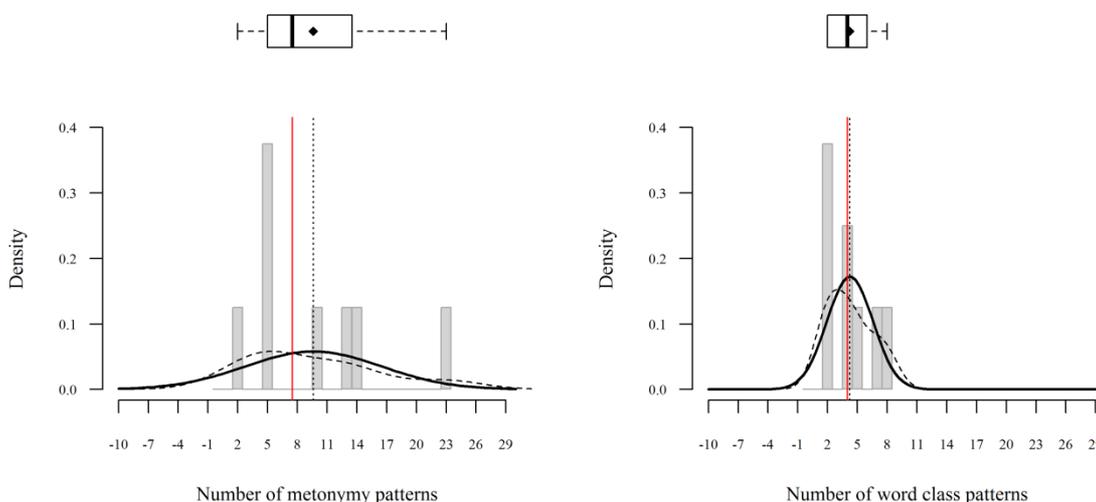
Janda (2010b, p.269) argues that the extent of prefixes in specifying metonymy patterns becomes the key point in examining the role of metonymy in word-formation. There are two ways proposed by Janda (2010b, p.269) to measure the specificity of affixes. The first one starts from a metonymy and then identifies the number of affixes associated with it. This measure has been shown previously in Table 3. Hence, given a metonymy pattern, it is hard to tell which prefix will occur with it. The second measure is by looking at the number of metonymy pattern found per prefix. This measure may also be used for examining the specificity of prefixes in terms of the word class patterns.

Following Janda (2011b; 2010b *inter alia*), this study computed the mean/average for both the number of metonymy and word class patterns. However, several facts about the distribution of the data have to be established, in this case checking whether the values averaged across are approximately normally distributed and whether there are outliers (Crawley 2007, p.277). If those assumptions were not met by the data, reporting the mean would be inaccurate since the mean is a good estimate if the data is normally distributed and it is very sensitive to the so-called “outliers”, i.e. high or low extreme values in the data (Gries 2009, pp.107–108). This can cause the mean to be skewed in the directions of the outliers and in turn can distort the central tendency. The solution is to report the median that is more resistant to outliers but reporting both would never be a bad idea (King et al. 2011, p.57).

As a rule-of-thumb, besides reporting the central tendency, i.e. mean and median, a corresponding measure of dispersion *has always to be* reported. Gries (2009, p.111) states that “without such a measure of dispersion you never know how good the measure of central

tendency is at summarizing the data.” *Standard deviation* (henceforth *SD*) and *interquartile range* (*IQR*) are dispersion measures for mean and median respectively (Gries 2009, p.112). The bottom-line is the larger the dispersion score, the more the values in the data vary from the central tendency (Gries 2009, p.111). Statistical analyses and graphical plotting are performed by using *R*, an open source software for statistical environment and programming language (R Development Core Team 2011).

Figure 1. Histogram & boxplot for metonymy & word class patterns



Firstly, the data are explored graphically via histogram and box plot for assessing the normality. Figure 1 above shows histograms with normal distribution curves (straight bold curve) and density curves (dashed curves) imposed for comparison. The vertical dashed lines are the mean and the red, straight vertical lines are the median. The x-axis represents the number of metonymy and word class patterns and the y-axis represents the relative frequency of the occurrence of values in x-axis. For the box plots, the bold lines within the boxes represent the medians and the diamond-shaped points are the means. The regular lines that make up the left and right borders of the boxes show approximately the 25% (left) and 75% (right) quartiles. The whiskers—the dashed horizontal lines—represent the largest and smallest values. From the box plots, it is clear that there are no outliers in the data, which is usually shown by a small circle outside the end of the whiskers. The plots also show that the numbers of metonymy patterns signalled by the eight prefixes are more scattered from its central tendencies than the number of word class patterns. This impression should of course be later verified by the measures of dispersion scores.

At first glance, Figure 1 reveals that the distributions look somewhat skewed to the right since the tails of the histograms and the whiskers of the box plots are more drawn-out to the right. Additional indication for right skew is the means for both metonymy and word class pattern are higher than their medians even though it is so only very minimally for word class. This may lead to a conclusion of non-normal distribution but real test have to be done. The Shapiro-Wilk test for normality is used for such purpose (Gries 2009, p.150). According to the Shapiro-Wilk test, the distributions of the number of metonymy and word class patterns

signalled by the eight prefixes do not deviate significantly from normality: for metonymy, $W = 0.9$, $p = 0.26$; and for word class, $W = 0.88$, $p = 0.18$. Thus, reporting the mean as the central tendency measure for the data is justified.

Janda (2011a, p.30) suggests that signalling sixteen (for instance as in Czech), fifteen (Russian), and eleven (Norwegian) metonymy patterns per suffix is considered as indicative of high unspecificity or indeterminacy of the suffix. On the other hand, Janda (2011a, p.30) also states that low specificity is indicated when only one metonymy pattern is signalled by many different suffixes. The average for metonymy patterns per prefix found by Janda (2011b, p.377) in her study is 2.6 (for Russian and Czech) and 3 (Norwegian). Those averages found in Janda's study are not going to be compared in detail with the ones found in this study because they are of different populations (prefix vs. suffix), come from different database size, and might have different syntactic and semantic properties in the respective languages. Suffice here is the way Janda (2011a, p.30) talks about the degree of specificity of the suffixes can be used as guidance in this study.

Figure 2. Scatter plot for metonymy & word class patterns per prefix

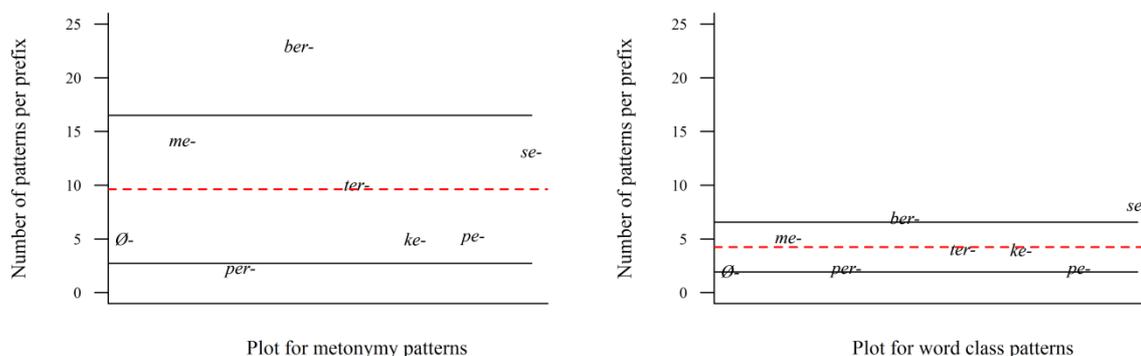


Figure 2 plots the eight Indonesian prefixes relative to their number of metonymy and word class patterns. The means are shown by the red, horizontal dashed lines. The two black, horizontal lines represent the area of one standard deviation below (mean score - 1SD score) and above (mean score + 1SD score) the mean. Of eight Indonesian prefixes, the mean for metonymy patterns per prefix is 9.62 ($SD = 6.89$; $Median = 7.5$, $IQR = 8.25$). Referring to Janda's (2011a, p.30) description towards the degree of specificity presented in the previous paragraph and then to the mean value of 9.62 patterns, it appears that prefixes in Indonesian are highly unspecific regarding to the number of metonymy patterns they signal. Based on the standard deviation score, however, the eight prefixes in fact vary much widely from the mean in terms of the number of metonymy patterns. Six of eight prefixes signal metonymy patterns whose numbers lie within the range of 2.73 and 16.51 patterns, i.e. one standard deviation below and above the mean: Ø-, ke-, and pe- signal five metonymies; ter-, se-, and me- signal ten, thirteen, and fourteen metonymies respectively. These prefixes can still be considered to have high number of metonymies and hence they are relatively not specific. Prefix per- and ber- falls within the two opposite extreme: per- appears to be quite specific with its two metonymies

whereas *ber-* appears to be highly unspecific with 23 metonymy patterns. Table 5 illustrates prefix *ber-* as an example of a highly versatile prefix.

Table 5 Prefix ber- and its twenty-three metonymy patterns

Metonymy Pattern		Illustrative Example	
SOURCE	TARGET	SOURCE	TARGET
ABSTRACTION	CHARACTERISTIC	<i>bahaya</i> 'danger'	<i>berbahaya</i> 'dangerous'
ABSTRACTION	STATE	<i>minat</i> 'interest'	<i>berminat</i> 'interested'
ACTION	STATE	<i>campur</i> 'to mix'	<i>bercampur</i> 'to be mixed'
CHARACTERISTIC	ACTION	<i>salah</i> 'wrong'	<i>bersalah</i> 'to make an error'
CONTAINED	STATE	<i>isi</i> 'content'	<i>berisi</i> 'to contain'
ENTITY	ACTION	<i>bedak</i> 'face powder'	<i>berbedak</i> 'to apply face powder'
ENTITY	CHARACTERISTIC	<i>bintang</i> 'star'	<i>berbintang</i> 'to have/be with stars'
ENTITY	STATE	<i>kawan</i> 'friend; comrade'	<i>berkawan</i> 'to be friend'
EVENT	ACTION	<i>denyut</i> 'pulse'	<i>berdenyut</i> 'to pulse'
INSTRUMENT	ACTION	<i>layar</i> 'sail'	<i>berlayar</i> 'to sail'
INSTRUMENT	STATE	<i>senjata</i> 'weapon'	<i>bersenjata</i> 'to be armed'
LOCATION	ACTION	<i>ladang</i> 'unirrigated field'	<i>berladang</i> 'to cultivate unirrigated field'
LOCATION	STATE	<i>dasar</i> 'base; foundation'	<i>berdasar</i> 'to be based on'
MATERIAL	ACTION	<i>damar</i> 'dammar; resin'	<i>berdamar</i> 'to use/collect resin'
MATERIAL	STATE	<i>air</i> 'water'	<i>berair</i> 'to contain/be filled with water'
PART	STATE	<i>pagar</i> 'fence'	<i>berpagar</i> 'to be fenced'

PATIENT	ACTION	<i>kurban</i> 'religious offering'	<i>berkurban</i> 'to do religious offering'
POSSESSED	STATE	<i>suami</i> 'husband'	<i>bersuami</i> 'to have husband; get married'
PRODUCT	ACTION	<i>telur</i> 'egg'	<i>bertelur</i> 'to lay egg'
PRODUCT	STATE	<i>hasil</i> 'yield; crop; outcome'	<i>berhasil</i> 'to succeed'
QUANTITY	GROUP	<i>tiga</i> 'three'	<i>bertiga</i> 'to be in a group of three'
QUANTITY	STATE	<i>satu</i> 'one'	<i>bersatu</i> 'to be united'
STATE	ACTION	<i>gembira</i> 'happy; glad'	<i>bergembira</i> 'to be brightened up'

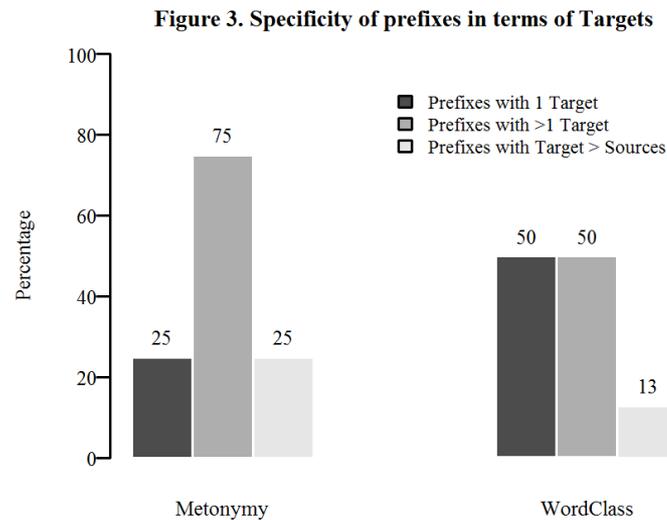
With respect to the word class pattern, the mean is 4.25 ($SD = 2.31$; $Median = 4$, $IQR = 3.5$) per prefix. This may indicate that prefixes are also not quite specific if the numbers of word class patterns they signal are taken into account. Based on the standard deviation, it appears that the number of word class patterns associated with each prefix shows less variation than the number of metonymy patterns and clusters quite closely around the mean. Most prefixes signal word class patterns whose numbers fall within the range of 1.94 and 6.56 patterns: \emptyset , *pe-*, and *per-* signal two word class patterns; *ke-* and *ter-* signal four word class patterns; *me-* signals five word class patterns. Prefix *ber-* and *se-* behave somewhat differently with seven and eight word class patterns respectively.

Nevertheless, the number of metonymy and word class patterns found per prefix cannot be the sole factor in capturing the specificity of the prefixes. It is because according to Janda (2011b, p.377) sources and targets of a particular metonymy and word class pattern play different role in determining the specificity of a given prefix. The discussion of that factor becomes the topic of the following sub-section.

3.3.1 The role of Sources and Targets in the specificity of prefixes

In the previous discussion, it is shown that on average prefixes are not relatively specific in terms of the number of metonymy and word class patterns. Another way to measure the specificity of prefixes in Indonesian more comprehensively is by looking at the proportion of the targets of the metonymy and word class patterns (Janda 2011b, p.377; 2010a, p.250). Since the roots overtly express the source concepts, it is the variability of the targets encoded by the derived words that can lead to more possible ambiguity of the prefixes (Janda 2011b,

p.377). Figure 3 below shows the proportion of prefixes in relation to the metonymy and word class targets they signal.



The first two clusters of bars, adding up to 100%, for each category shows the proportion of Indonesian prefixes that have a single or more than one metonymy and word class target. For metonymy, of eight prefixes, most of them (75%) have more than one metonymy target: for *ke-*, S(ource)=4 and T(arget)=5; *pe-*, S=3 and T=4; *ter-*, S=6 and T=4; *se-*, S=10 and T=3; *me-*, S=11 and T=4; *ber-*, S=15 and T=4. This may further suggest that in terms of metonymic target as well as sources, most prefixes in Indonesian are not very specific. Two prefixes that only have one specific metonymic target, in this case ACTION, are *per-* (two sources) and \emptyset - or conversion (five sources). It means that despite the proliferation of sources, *per-* and \emptyset - is quite specific in terms of their target.

Regarding to the word class patterns, there are four prefixes, which have only one word class target: *me-* (five sources), *per-* (two sources), and \emptyset - (two sources) have “Verb” as target; *pe-* (two sources) has “Noun” as target. The other four prefixes have more than single word class target: *ke-*, S(ource)=4 and T(arget)=2; *ter-*, S=2 and T=2; *ber-*, S=6 and T=2; *se-*, S=3 and T=5. It means that no less than half of the prefixes are specific in terms of their word class targets while the other half is not. Lastly, the high end of unspecificity in the system is reflected by the fact that between 13% and 25% of the prefixes for word class and metonymy respectively have targets that exceed the sources.

From CL point of view, particularly Cognitive Grammar (CG), the indeterminate nature of the Indonesian prefixes in specifying metonymy and word class patterns when they derive words is not seen as a pitfall but a canonical phenomenon in language, as in the present case of word-formation (Langacker 2009, pp.40–42; Janda 2010b, p.270). Indeterminacy in language reflects the essential tenets of CL and CG “that grammar is not autonomous from semantics, that semantics is neither well-delimited nor fully compositional, and that language draws on more general cognitive systems and mental capacities from which it cannot be neatly separated” (Langacker 2009, p.41). One of factors that create indeterminacy in linguistic

meaning and constructions is imaginative phenomena such as metonymy (Langacker 2009, p.42; 2008, pp.35–36).

The explicit coding of the component structures of word-formation, i.e. the prefix and root words, and their integration to arrive at the composite structures do not fully determine the meanings of the derived words in a precise and compositional way (Langacker 2009, pp.6, 13). The integration of prefixes and root words builds “conceptions which merely provide mental access to elements with the potential to be connected in specific ways [...]” (Langacker 2009, p.41; 2008, p.165). This is a typical characteristic of metonymic conceptualisation. The “elements” accessed here are the potential target concepts that are profiled in the composite structures. This further exemplifies Langacker’s statement that “grammar is basically metonymic” (2009, p.41).

To illustrate, ACTION is a source in three unique metonymy patterns with three different targets signaled by prefix *pe-*: ACTION FOR AGENT (*beli* ‘to buy’ *pembeli* ‘buyer’), ACTION FOR INSTRUMENT (*hapus* ‘to erase’ *penghapus* ‘eraser’), and ACTION FOR PATIENT (*suruh* ‘to command’ *pesuruh* ‘messenger’). Grammatically, there is no big problem here knowing that words with prefix *pe-* in the examples above are all deverbal nouns. Indeterminacy of the prefix appears when dealing with the semantics of the derived words: why does the integration of the semantically same source words (ACTION) with the same prefix *pe-* result in semantically three distinct target profiles while grammatically they are all nominal? Here comes the role of metonymy into play. In some cases, deverbal noun with prefix *pe-* metonymically profile the AGENT who does the action indicated by the root. In another case, it is the INSTRUMENT with which the action is done is brought into focus as the target. Additionally, the PATIENT affected by the action can also be profiled. Therefore, metonymy (i) motivates the relationships between the composition of constructional elements of word-formation, i.e. affix and root, and the composite structure, and (ii) becomes the source of unpredictability on the semantic pole or the target meaning of the composite structure, i.e. the derived words.

3.4 Directionality of metonymy

Of 49 metonymy patterns in the database, they actually comprise 39 metonymy relationships. The other ten patterns are grouped into bi-directional patterns. To illustrate, ABSTRACTION FOR STATE and STATE FOR ABSTRACTION are two different metonymy patterns in the database but they belong to the ABSTRACTION & STATE metonymy relationship because the two terms can act as both source and target, and thus exhibiting bi-directionality (cf. Janda 2010b, p.271; 2011b, p.384). The rest of the metonymy relationships (29) are exclusively uni-directional (74% of all cases).

Closer inspection on the uni-directional metonymy relationships reveals that most of the uni-directional metonymy patterns (69% of all cases) are rarely represented, i.e. associated with only one prefix each (cf. Janda 2011b, p.384). The other 31% characterise relatively strong patterns, which are signaled by at least two prefixes. Table 6 below illustrates examples of the “strongly attested” or “robust” (Janda 2011b, p.385) uni-directional metonymies in Indonesian

prefixal word-formation. On the other hand, balanced distribution of terms used as source and target suggests that such relationship indicates a perfect bi-directional metonymy (Janda 2011b, p.384).

In addition, a bi-directional metonymy relationship can even show asymmetry in the sense that the direction of one relationship is more favoured (Janda 2011b, p.384; 2010b, p.271). This can be identified by looking at the number of occurrence of one particular direction of a bi-directional metonymy compared to the other direction (see Table 7 below). Only 30% of all bi-directional metonymy relationships that show balanced distributions of their terms used as sources and targets. The other 70% of bi-directional metonymies are skewed. Table 7 illustrates bi-directional metonymies.

Table 6 Uni-directional metonymies

Metonymy	Prefixes	Illustrative example	
		Source word	Target word
PRODUCT FOR ACTION	4	<i>cicit</i> 'squeak (of a mouse)'	<i>mencicit</i> 'to squeak'
LOCATION FOR ACTION	3	<i>jalan</i> 'street'	<i>(ber)jalan</i> 'to walk'
LOCATION FOR STATE	3	<i>dasar</i> 'base; foundation'	<i>berdasar</i> 'to be based on'
ABSTRACTION FOR ACTION	2	<i>teror</i> 'terror'	<i>(men)eror</i> 'to terrorise'
ABSTRACTION FOR CHARACTERISTIC	2	<i>bahaya</i> 'danger'	<i>berbahaya</i> 'dangerous'
ABSTRACTION FOR PATIENT	2	<i>pidana</i> 'punishment'	<i>terpidana</i> 'a convict'
EVENT FOR ACTION	2	<i>denyut</i> 'pulse'	<i>berdenyut</i> 'to pulse'
MATERIAL FOR ACTION	2	<i>rotan</i> 'rattan'	<i>merotan</i> 'to collect rattan'
PRODUCT FOR STATE	2	<i>luka</i> 'wound;cut'	<i>terluka</i> 'to get wounded'

Looking at data in Table 6, the first three patterns suggest that PRODUCT and LOCATION are often used as metonymic sources in Indonesian prefixal word-formation construction to activate mental contact with the targets, in this case ACTION and STATE. It could be hypothesised that (i) the products are more easily invoked to refer to the action that give rise to them and that (ii) the location, in which the action happens and which is associated with a particular state, is more salient than the targets. The reverse direction for those three metonymies is not attested. This might point to the more salient nature of those sources used by considerable number of prefixes to profile the targets.

Table 7 Bi-directional metonymies

Balanced bi-directional metonymies				
Term A	Term B	Term A being Source	Term B being Source	Num. of Prefixes
ACTION	STATE	2	2	3
ACTION	AGENT	1	1	2
QUANTITY	STATE	1	1	2
Unbalanced bi-directional metonymies				
Term A	Term B	Term A being Source	Term B being Source	Num. of Prefixes
ACTION	<u>PATIENT</u>	2	3	5
<u>ENTITY</u>	STATE	4	1	5
ACTION	<u>CHARACTERISTIC</u>	2	3	4
<u>ABSTRACTION</u>	STATE	2	1	3
ACTION	<u>INSTRUMENT</u>	1	2	3
<u>CHARACTERISTIC</u>	ENTITY	2	1	3
GROUP	<u>QUANTITY</u>	1	2	3

The underlined terms in the unbalanced bi-directional metonymies indicate the terms that are more often used as sources. Nearly all the unbalanced patterns have varied sources (six out of seven). The targets are mostly ACTION and STATE. It seems that ACTION and STATE can be easily accessed via variety of more salient source concepts. Moreover, an ENTITY with particular characteristic tends to be profiled via its CHARACTERISTIC, plausibly suggesting that characteristic is seen more prominent than the entity itself. QUANTITY FOR GROUP metonymy may reflect our ability on “grouping” demonstrated “at the level of basic perception.”, for example when recognising “spatial proximity” and “familiar configuration” of entities (cf. Langacker 2008, pp.104–105).

IV. CONCLUSION

This paper shows that metonymy is prominent in Indonesian prefixal word-formation and serves as the conceptual basis in interpreting the semantic relationships between affix, root, and derived word. In the database of 85 classification types, there are 49 different metonymy

patterns and 17 different word class patterns. Out of 49 metonymy patterns, there are 20 patterns shared by at least two prefixes. Of 20, six metonymy patterns constitute the top with four of them are signalled by three prefixes each and the other two are encoded by four prefixes each. ACTION becomes the target in four of those six metonymy patterns and STATE becomes the targets in two patterns. In overall, ACTION and STATE are the most accessed targets in eleven different metonymy patterns each. For word class patterns, Noun-to-Verb pattern has the most entries in the database, i.e. 35. This pattern is attested with the highest number of shared prefixes, i.e. five. The top-shared metonymy and word class patterns may suggest that (i) most of the prefixes in Indonesian are verbal prefixes, particularly when considering the target of those patterns besides (ii) indicating salient metonymy and word class patterns across prefixes in the language.

Given that a metonymy pattern can be signalled by at least two prefixes up to four prefixes (up to five prefixes for word class) and one prefix can signal up to 23 unique metonymy patterns (up to eight patterns for word class) may suggest a high degree of unpredictability of the prefixes. Observation from the proportion of metonymy and word class targets encoded by the prefixes indicates out of eight prefixes, 75% have more than one metonymy target. For word class targets, the proportion of prefixes with only one and more than one target is balanced. Hence, in terms of the kind of metonymy patterns, to a great extent there is nothing specific indicated by the prefix except that metonymy relationships are present during the prefixal word-formation process (Janda 2010a, p.250) meanwhile in terms of the metonymy targets in particular, only two prefixes (*per-* and *Ø*conversion) that have one specific target, i.e. ACTION. Similarly, the word class patterns signalled by the eight prefixes are also heterogeneous and not specific even though half of the prefixes are specific with respect to the word class targets.

There are only a few metonymy relationships that are equally balanced in terms of their directionality while most of them are either only uni-directional or skewed in one direction. Future research should extend this study by investigating metonymy in Indonesian suffixal word-formation as well as the prefix-suffix word-formation.

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