

COMMONWEALTH OF AUSTRALIA

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Mental lexicon

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1. The core of the lexicon: semantic primes

The phrase “mental lexicon” conjures up the image of a large collection of words held in some way in a person’s mind. Let’s assume for the sake of simplicity that the person we are talking about is a monolingual speaker of Polish. What sort of “lexicon” does this person “carry” in his or her “mind”? As the inverted commas in the last sentence indicate, the word *mind* is of course problematic (no less so than verbs like *carry* or *hold*), and consequently, so is *mental*. Whatever the collection of words in the head of our monolingual speaker of Polish is, it certainly includes neither the English word *mind* nor its Polish equivalent, because there is no exact equivalent of *mind* in Polish. The concept of ‘mind’, often taken for granted as a valid analytical tool for talking about languages and their speakers, is in fact an element of ethnophilosophy associated with English (cf. Wierzbicka 1992; Yoon 2004).

Trying to clarify the intended meaning of the phrase “mental lexicon” we have to turn to words like KNOW, SAY, THINK and WORD(S), that is words which (as will be discussed below) have equivalents in all languages, including Polish, and thus stand for universal human concepts, which can serve us as valid, non-ethnocentric tools for investigating any language and any way of thinking. The question, then, is, essentially, this: what can we say about the words that a monolingual speaker of Polish knows and can use in thinking and in speaking to other people?

As the remarks already made indicate, one layer of the Polish “mental lexicon” (in the sense elucidated in the last paragraph) includes Polish words which are the exponents of universal human concepts, such as KNOW, SAY, THINK, and WORD(S). Empirical research conducted by many scholars over three decades within the so-called NSM framework (from “Natural Semantic Metalanguage”) indicates that there are sixty or so such concepts, and the result of the investigations carried out into languages as different as English and Chinese, Spanish and Lao, or Mbula (New Guinea) and Malay (cf. Goddard and Wierzbicka eds. 2002) allow us to confidently expect that lexical exponents for these sixty or so universal concepts will be found in Slavic languages as well.

In fact, full lists of such exponents have already be drawn for Polish as well as Russian (cf. Wierzbicka 2002 and 2004a; cf. also Gladkova In press). The universal human concepts which can be found in every language in the form of specific, readily identifiable lexical units (words and wordlike elements), constitute the core of a language’s lexicon – a core on the basis of which all other, more complex, meanings can be built, and through which all other, more complex, meanings can be understood. Within the NSM theory, the sixty or so empirically identified universal human concepts are regarded as each language’s set of “semantic primes” – unanalyzable elements of meaning which underlie a given language’s entire semantic system and which are the cornerstone of its entire lexicon.

Thus, the first, universal layer of the “mental lexicon” of a speaker of Polish can be presented in the form of the following table:

Table 1. Polish lexical exponents of universal semantic primes (cf. Wierzbicka 2002)

Substantives	Evaluators and Descriptors
I <i>ja</i>	GOOD <i>dobry</i>
YOU <i>ty</i>	BAD <i>zły</i>
SOMEONE <i>ktoś</i>	BIG <i>duży</i>
SOMETHING <i>coś</i>	SMALL <i>mały</i>
PEOPLE <i>ludzie</i>	Time
BODY <i>ciało</i>	WHEN/TIME <i>kiedy/czas</i>
Mental Predicates	NOW <i>teraz</i>
THINK <i>myśleć</i>	BEFORE <i>przed</i>
KNOW <i>wiedzieć/znać</i>	AFTER <i>po</i>
WANT <i>chcieć</i>	A LONG TIME <i>długo</i>
FEEL <i>czuć</i>	A SHORT TIME <i>krótko</i>
SEE <i>widzieć</i>	FOR SOME TIME <i>przez pewien czas</i>
HEAR <i>słyszeć</i>	MOMENT <i>moment/chwila</i>
Speech	Space
SAY <i>powiedzieć/mówić</i>	WHERE/PLACE <i>gdzie/miejsce</i>
WORDS <i>słowo</i>	HERE <i>tutaj</i>
TRUE <i>prawda</i>	ABOVE <i>nad</i>
Actions, Events, Movement	BELOW <i>pod</i>
DO <i>robić</i>	INSIDE <i>wewnątrz/w</i>
HAPPEN <i>dziać się/stać się</i>	ON (WHAT) SIDE <i>z (której) strony</i>
MOVE <i>ruszać się</i>	NEAR <i>blisko</i>
Existence, Possession	FAR <i>daleko</i>
THERE IS <i>jest</i>	Logical Concepts
HAVE <i>mieć</i>	BECAUSE <i>bo /z powodu</i>
Life and Death	IF <i>jeżeli</i>
LIVE <i>żyć</i>	NOT <i>nie</i>
DIE <i>umrzeć</i>	MAYBE <i>być może</i>
Determiners	CAN <i>móc</i>
THIS <i>ten</i>	Intensifier, Augmentor
THE SAME <i>ten sam</i>	VERY <i>bardzo</i>
OTHER <i>inny</i>	MORE <i>więcej</i>
Quantifiers	Taxonomy and Partonomy
ONE <i>jeden</i>	KIND OF <i>rodzaj</i>
TWO <i>dwa</i>	PART <i>część</i>
MUCH/MANY <i>dużo</i>	Similarity
SOME <i>niektórzy/niektóre</i>	LIKE <i>tak (jak)</i>
ALL <i>wszyscy/wszystko</i>	

2. Words whose meanings are built directly out of the primes

Semantic primes constitute the deepest layer of the “mental lexicon”, on which everything else rests. Hundreds of concepts encoded in the Polish lexicon as words are built directly out of the primes. For the most part, these concepts are organized into domains each of which is characterized by a distinctive type of structure. Two salient examples of such highly structured domains are the fields of emotions and of speech acts. To start with two simplified examples, the Polish words *zazdrościć* (roughly, ‘to envy someone’) and *współczuć* (roughly, ‘to have compassion for someone’) can be represented as follows:

X zazdrości Y-owi (‘X envies Y’)

X thinks like this about Y:

“something good happened to this person
it didn’t happen to me
this is bad”

when X thinks like this, X feels something bad because of this,
like people feel when they think like this

X współczuje Y-owi (‘X has compassion for Y’)

X thinks like this about Y:

“something bad happened to this person
this person feels something bad because of this
this is bad

I want to do something good for this person”
when X thinks like this, X feels something because of this,
like people feel when they think like this

While the two emotion verbs explicated above have equivalents, or rough equivalents, in English, many other Polish emotion verbs – for example, *martwić się* and *denerwować się* – do not. Nonetheless, as shown below, their meanings can be made transparent for the speakers of English through universal semantic primes.

X martwi się.

X thinks like this about something:

“something bad is happening now
I don’t know what else can happen because of this
something very bad can happen”

when X thinks like this, X feels something bad because of this
like people feel when they think like this

X się denerwuje.

X thinks like this about something:

“something bad can happen
I don’t want it to happen
I have to do something because of this
I don’t know what I have to do”

when X thinks like this, X feels something bad because of this
like people feel when they think like this

Thus, every language lexicalises and, as it were, codifies a different set of emotions. While the content of the thoughts which underlie a given (lexically distinguished) kind of emotion differs from one word to another the overall semantic organization of the words within the domain of emotions is more or less stable, for a large number of words.

Turning now to speech act verbs, I will start with the Polish verb *kazać*, which has an equivalent in the English verb *to order* (in the relevant sense).

X kazał Y-owi zrobić Z. ('X ordered Y to do Z')

X said something like this to Y:

"I say: I want you to do something [Z]

you have to do it because I say this"

In Polish, *kazać* has its "softer" counterpart in *prosić* (perfective *poprosić*), which is different in meaning from the English *to ask (for)*:

X poprosił Y-a, żeby zrobić Z.

X said something like this to Y:

"I say: I want you to do something good [Z] for me

you don't have to do it

I think that you will do it because you will want to do something good for me"

As this explication shows, in *prosić*, the speaker is appealing to the addressee's good will, and in a sense is putting pressure on the addressee in the name of this presumed good will. The English verb *to ask (for)*, which bilingual dictionaries offer as the English counterparts of *prosić*, does not imply the same expectation of "benevolence", and it is semantically, as well as formally, related to the verb *to ask* used in relation to questions. The Polish verb *pytać* 'to ask (questions)' is semantically much further away from *prosić* than *to ask (questions)* is from *to ask (for)*: both in *to ask for* and *to ask (questions)*, the verb *to ask* includes the component "I don't know", which is not included in the meaning of *prosić*.

X asked Y to do Z.

X said something like this to Y:

"I say: I want you to do something [Z]

I don't say: I know that you will do it because I say this

I don't know it

I know that you will do it if you want to do it"

X zapytał Y-a o Z. (X asked Y about Z)

X said something like this to Y:

"I say: I want you to say something

because I want to know something [about Z]

I don't know it now

I can know it if you say it"

(For further discussion of the semantic patterning of speech act verbs, see Wierzbicka 1987 and 1996; Goddard 1998.)

As these explications of emotion terms and speech act verbs show, the meanings of words from one semantic domain can not only show a good deal of semantic patterning, but can also share certain recurrent semantic components. For example, many emotion terms share the component “when this person thinks like this, this person feels something because of this”, and many speech act verbs share components like “I want you to do something” or “I want you to say something”. Such recurrent components may not be lexicalized in a language, and yet they can play a significant role in the semantic organization of the lexicon – alongside lexicalized “semantic molecules”, which will be discussed in the next section.

3. Semantic molecules

Evidence suggests that while hundreds of words in the Polish mental lexicon encode meanings built directly out of semantic primes, many more are built out of “semantic molecules” of various degrees of complexity. This applies, in particular, to the bulk of the concrete lexicon, that is, to the names of artefacts and cultural kinds, but also to many other semantic domains.

Consider, for example, the Polish word *ręce* ‘hands’. As I have shown in Wierzbicka (2003), the concept of ‘hands’ can be explicated directly via semantic primes. At the same time, the configuration of primes encoded in the words *ręce* constitutes a chunk which enters, as a single unit, many other, more complex concepts. Words like *ręcznik* ‘towel’, *rękawiczki* ‘gloves’ and *poręcz* ‘bar’ (to be held by hands), which are derived from *ręka* ‘hand’, present clear examples of such conceptual chunking; obviously, psychologically plausible explications of these words would include the word *ręka* (or *ręce*).

But even apart from morphological derivation, the concept of ‘hands’ enters as a whole into the semantic structure of a great many other Polish words, for example, nouns such as *garść* ‘handful’ or ‘fistful’, *pięść* ‘fist’, and *palec* ‘finger’ and verbs such as *łapać* ‘to catch’, *chwytać* ‘to catch’, *klaskać* ‘to clap’ and *głaskać* ‘to stroke’. Furthermore, as I have tried to show in my explications of numerous words for artefacts (in Wierzbicka 1985, see also Goddard 1998), words like *filiżanka* ‘cup’, *kubek* ‘mug’ or *łyżka* ‘spoon’ also contain in their meaning the conceptual chunk ‘hand(s)’. For example, one of the essential features of the concept embodied in the word *filiżanka* ‘cup’ is the requirement that a person should be able to hold it in one hand while drinking from it.

Similarly, the word *nogi* ‘legs’, which can be explicated directly in terms of semantic primes, enters as a semantic molecule the meanings of nouns such as *stopa* ‘foot’, *tydka* ‘calf’, *kolano* ‘knee’, *udo* ‘thigh’, *buty* ‘shoes’, *skarpetki* ‘socks’, *pończochy* ‘stockings’, verbs such as *chodzić* ‘to walk’, *biec* ‘to run’, *skakać* ‘to jump’, *stać* ‘to stand’, *kłęczeć* ‘to kneel’, and many other words.

Many semantic molecules which play an important role in the Polish lexicon appear to have their exact semantic equivalents in many other languages but on closer inspection many such molecules turn out to be language-specific. For example, the meanings of the names of both cultural and natural kinds contain in many cases references to shape concepts such as ‘long’ and ‘round’ in English, or ‘podłużny’ and ‘okrągły’ in Polish, and as I have shown in a recent study (Wierzbicka To appear), the Polish word *podłużny* ‘oblong, elongated’ doesn’t mean the same as the English word *long*. Thus, the Polish molecule ‘podłużny’ does not match the English molecule ‘long’.

Having tried to explicate, either fully or partially, hundreds of Polish words, I can offer a list of two or three dozens of semantic molecules which play a very important role in the Polish lexicon: for each word on this list, at least ten other words can be listed which are “semantically generated” by the molecule in question.

One domain which is a rich source of such molecules is that of body parts, as has already been illustrated with the words *ręce* ‘hands’ and *nogi* ‘legs’. Another one is that of natural environment, where the words *woda* ‘water’ and *ziemia* ‘the ground’ show the greatest “generative power”. Yet another domain is that of people (kinds of people), where the words *kobiety* ‘women’, *mężczyźni* ‘men’ and *dzieci* ‘children’ play a central role.

Other taxonomic concepts (i.e. words for “kinds”) which enter the meaning of numerous Polish words are *zwierzę* ‘animal’, *ptak* ‘bird’, *ryba* ‘fish’, *drzewo* ‘tree’, *kwiat* ‘flower’ and *grzyb* ‘mushroom’. The last element on this list is particularly interesting in a comparative perspective: while in English, too, it would be easy to cite ten or more words which include in their meaning the concepts ‘animal’, ‘bird’, ‘fish’, ‘tree’ and ‘flower’, it would not be possible to do the same for ‘mushroom’. In Polish, however, there are many words for kinds of *grzyby* (mushrooms), and so words which include in their meaning the concept ‘grzyb’: *kurki*, *maślaki*, *koźlaki*, *prawdziwki*, *borowiki*, *rydze*, *pieczarki*, *muchomory*. There are also well established words like *grzybobranie* ‘a mushroom-gathering expedition’ and expressions like *psie grzyby* ‘toadstools’ (lit. ‘dog’s mushrooms’) and *grzybek do cerowania* ‘mushroom-shaped wooden object used to hold a sock tight while darning it’ (cf. *darning ball* in English).

Among verbs which function as semantic molecules in Polish the following ones are particularly productive: *jeść* ‘to eat’, *pić* ‘to drink’ and *pracować* ‘to work’, and also *czytać* ‘to read’ and *pisać* ‘to write’. Thus, *jeść* is included as a molecule in the meaning of the names of numerous eating and cooking utensils, such as *łyżka* ‘spoon’, *widelec* ‘fork’, *talerz* ‘plate’, *talerzyk* ‘small plate’, *garnek* ‘pot’, *patelnia* ‘frying pan’, and foods like *chleb* ‘bread’, *kluski* ‘noodles/pasta’, *kasza* ‘gruel/porridge’, *masło* ‘butter’, *kartofle* ‘potatoes’, *zupa* ‘soup’ and so on. *Pić* is included in the names of utensils like *filiżanka* ‘cup’, *kubek* ‘mug’, *szklanka* ‘glass’, and beverages like *mleko* ‘milk’, *herbata* ‘tea’, *kawa* ‘coffee’, *sok* ‘juice’, and so on. The molecule *pracować* is included in the meaning of numerous nouns describing professions, for example, *lekarz* ‘doctor’, *nauczyciel* ‘teacher’, *krawiec* ‘tailor’, *szewc* ‘shoemaker’, *kucharz* ‘cook’, *ogrodnik* ‘gardener’, *kolejarz* ‘railway worker’, *praczka* ‘washerwoman’ and so on.

4. The hierarchical structure of the lexicon

The molecular structure of the lexicon has not yet been investigated for a long time and much remains to be discovered. It is already known, however, that there are several levels of molecules: those of level one (M_1) are built directly of semantic primes, those of level two (M_2) include in their meaning molecules of level one, those of level three (M_3) – molecules of level one. It is very likely that there are also molecules of level four and five.

For example, if we consider a complex concept like ‘parasol’ (‘umbrella’), we will see that it includes the molecule ‘deszcz’ (‘rain’), which in turn includes the molecule ‘woda’ (‘water’). ‘Woda’ can be explicated directly in terms of primes and thus is an M_1 , whereas ‘deszcz’ is an M_2 .

A more complex sequence is built on the concept ‘niebo’ (‘sky’). ‘Niebo’ itself, which is an M_1 , generates, as it were, molecules like ‘słońce’ (‘sun’), ‘gwiazda’ (‘star’), ‘księżyc’ (‘moon’), ‘chmura’ (roughly, ‘dark cloud’), ‘zorza’ (aurora) and ‘niebieski’ (roughly, ‘blue’) – each an M_2 . ‘Słońce’, in turns, generates ‘dzień’ (‘day’), which is an M_3 , and which is included, for example, in the meanings of words like *poniedziałek* ‘Monday’, *wtorek* ‘Tuesday’ and so on.

The hierarchical structure of this kind should not be confused with levels of categorisation such as those posited in the work of Eleanor Rosch (1978) or Brent Berlin (1992). What matters here is a structure which can only be discovered by trial and error, by attempting to explicate complex concepts in terms of independently identified semantic primes. Thus, it is

by trying to explicate ‘parasol’ (‘umbrella’) in terms of primes that we discover the need to include in the explication the molecule ‘deszcz’ (‘rain’), and only by trying to explicate ‘deszcz’ in terms of primes that we discover the need to take a shortcut via the molecule ‘woda’ (‘water’). Our hypothesis that ‘parasol’ (‘umbrella’) includes the molecule ‘deszcz’ (‘rain’), and ‘deszcz’, the molecule ‘woda’ (‘water’), can only be validated by explications showing that ‘woda’ can be explicated in terms of primes, ‘deszcz’, via ‘woda’, and ‘parasol’ via ‘deszcz’. Relations of this kind cannot be posited on the basis of a priori logical schemas, but have to be established by trial and error, on a case by case basis, and always with reference to the independently identified semantic primes.

The idea of a molecular structure of the lexicon illustrated here with some examples from Polish bears a certain resemblance to the conception of “intermediate concepts” developed in the Moscow school of semantics (cf. in particular Apresjan 2000). One key difference between the two approaches is that in the present one, the whole edifice of concepts is seen as built on a specific, clearly identified, set of universal semantic primes, lexically embodied in all languages. Another difference is that in the present approach molecules are posited very sparingly and that their validity has to be justified in terms of very strict criteria. Many semantic domains – for example, those of emotions and speech acts – are analysed directly in terms of primes, without any recourse to any molecules at all. Generally speaking, molecules are not introduced for the semanticist’s convenience, but have to justify themselves as psychologically real parts of many words’ meaning (as is clearly the case with ‘rain’ as a component in the meaning of *umbrella*, or ‘water’, in the meaning of *rain*).

A full description of a language has to include a complete list of this language’s semantic molecules and an account of their hierarchical arrangements. Since semantic primes are universal whereas semantic molecules can be language-specific, in a sense, the set of a language’s molecules gives us the best “semantic portrait” of this particular language, including its family resemblance to other languages with which it is genetically, geographically or culturally related. For example, Polish shares, naturally, very many molecules with other Slavic languages.

5. Lexical fields and semantic structures

The bulk of a language’s lexicon consists of words which are neither primes nor molecules but complex configurations of either primes alone or primes and molecules. How can one hold such a huge collection of words – a whole mental dictionary – in one’s head? And how

can one retrieve the one word necessary or appropriate at a particular moment, in a particular situation?

The key factor in this astonishing capacity of the human mind appears to be the systematic character of that seemingly haphazard “collection”: the many thousands of words included in it are not so many idiosyncratic semantic elements, but rather, fairly tightly structured groups of elements. Two examples of such a tight patterning were mentioned earlier: emotion terms and speech act verbs. (For many more examples of such tight patterning within these particular semantic domains, see my 1987 book *English Speech Act Verbs – A semantic dictionary* and chapter 2 of my 1999 book *Emotions Across Languages and Cultures*).

Other semantic domains which include a very large number of words with the same or similar overall semantic organization are names of artefacts and natural kinds. For example, the meanings of words designating kinds of animals, such as *dog, cat, horse, tiger, lion, mouse* and so on, are very complex, and looked at individually might seem to be a horrendous burden on a person’s memory. (I don’t mean here scientific concepts linked with such words, but “naïve” everyday concepts in the sense of Apresjan 2000, which include a great deal of cultural knowledge and cultural ideas.) The semantic organization of such concepts can be illustrated with the following explication of the word *mysz* ‘mouse’ (cf. Wierzbicka 1985, 1996; Goddard 1998).

mysz (‘mouse’)

a kind of small animal

CATEGORY

they live in or near places where people live
sometimes there can be many small animals of this kind in one place

HABITAT

they are very small
a person can hold one easily in one hand
not many people want to hold them

SIZE

people cannot see them easily in a place
 because they look like part of the ground
when they move people can’t see their legs
if people see them when they are moving in a place
 they can think that their whole body is touching the ground
when they are moving in a place, they can go quickly into small holes in this place
they can squeeze into very narrow places
they have a long thin tail
their head doesn’t look like a separate part of the body
the front part of the head is pointed
a few stiff hairs stick out on both sides of the head
two round ears stick out on two sides of the top of the head
they have small sharp teeth

APPEARANCE

they don't want to be near people or other animals
when people or other animals are near they make no noise
they hide from people and animals in places where people and animals can't
reach them
they move in places where people live looking for something to eat
when people are not there
they can move very quickly
they can move without making any noise

BEHAVIOUR

RELATION TO PEOPLE

people think that they can do bad things in places where people live
because of this people don't want them to live in places where people live
sometimes when small animals of this kind live in a place
people want animals of another kind [cats] to live in the same place
because they think that these other animals can kill these small animals
sometimes people leave things of a certain kind [mouse traps] in some places
because if these small animals touch things of this kind
these things can kill them
if there are many small animals of this kind in a place where people live
this can be very bad for these people

This explication of the “naïve” (non-scientific) concept ‘*mysz*’ starts with a component labelled here (for the sake of convenience) as “category”, which presents this concept as what Berlin (1992) calls a “folk genus”. But the fact that *mysz*y (‘mice’) are presented here as a kind of a small animal (in Polish, *zwierzątko*) rather than animal tout court (in Polish, *zwierzę*), constitutes a further departure from the biological model. The “category” component is followed by a series of components spelling out what Putnam (1975) calls the stereotype: what people think about mice. As with most other stereotypes of animals, the stereotype is organized around the following signposts: habitat, size, appearance, behaviour, and relation to people. The sequence in which the components are given is not arbitrary but seeks to elucidate the internal logic of the folk concept (see Wierzbicka 1985).

Many “smaller” domains (with fewer members) also exhibit fairly tight semantic patterning. These include, for example, verbs of bodily movement and posture, verbs of thinking, colour terms, words for dimensions, categories of people, illocutionary particles, and so on. Many such domains are similarly structured in many different languages, but there are also many differences, even among closely related languages such as Polish and Russian. For example, some of the most common verbs of thinking (such as *sčitat’* in Russian and *śqđzić* in Polish), do not match in meaning (cf. Gladkova 2004), and neither do colour terms (e.g. *niebieski* in Polish and *goluboj* and *sinij* in Russian, all three, roughly, ‘blue’; cf. Wierzbicka 2004b).

Some domains, for example, that of illocutionary particles, differ greatly between Polish and Russian. Finally, each language has its own cultural key words, such as, for example, *los*

in Polish and *sud'ba* in Russian (both, roughly, 'fate/destiny', cf. Wierzbicka 1992), which have no semantic equivalents in other languages and yet play an important role in the speakers' mental lexicon, in their thinking and their lives.

6. Derivational mechanisms

In Polish, as in other Slavic languages, the organization of the lexicon depends to a large extent on derivational mechanisms of various kinds and various degree of productivity. I will illustrate this aspect of the Polish lexicon with two examples: aspectual prefixes on verbs of motion and diminutive suffixes on names of artefacts.

Thus, consider the verb *iść* 'to walk', and its semantic relatives *pójść*, *przyjść*, *dojść*, *przejsć*, *wyjsć*, and *wejść*. The past tense stem of this verb is *-szed-*, as in the examples below, and *-ł-* indicates third person singular, masculine gender, past tense.

1. *X szedł do miejsca P.* ('Person X was walking to place P')
2. *X przyszedł do miejsca P.* ('Person X came, walking, to place P')
3. *X doszedł do miejsca P.* ('Person X reached, walking, place P')
4. *X poszedł do miejsca P.* ('Person X went, walking, to place P')
5. *X wszedł do miejsca P.* ('Person X entered, walking, place P')
6. *X przeszedł koło miejsca P.* ('Person X passed, walking, place P')
7. *X wyszedł z miejsca P.* ('Person X went, walking, out of place P')

The English glosses used above rely, for the most part, on separate verbs of motion: *to come*, *to reach*, *to go*, *to enter*, *to pass*. In Polish, however, the semantic distinctions in question rely on prefixes which can be used, depending on semantic compatibilities, in many domains other than motion. For example, while *doszedł* refers to the last phase of walking to a target place, *dojeść* (from *jeść* 'to eat') refers to the last phase of eating something (e.g., a sandwich), and *doczytać* (from *czytać* 'to read'), to the last phase of reading something (e.g., a book).

In some cases, the meanings of the prefixes illustrated above can be compared to the meanings of some English prepositions: *w-* to *in*, *wy-* to *out of*, *przy-* to *to*. But Polish, too, has spatial prepositions of this kind, for example *do*, *w*, *z*. The system of verbal prefixation is something over and above the system of prepositions, and it can be better compared to prefixes in English words of Latin origin such as *ex-* (as in *extricate oneself* or *exit*), or *trans-* (as in *transcontinental* or *trans-Atlantic*). To understand how the Polish lexicon "works" we

need to understand the meaning of the prefixes as such, and loose ad hoc glosses such as “the last phase” will not give us that understanding – especially in view of the fact that most prefixes present us with intricate patterns of polysemy.

So here is a set of explications, which keeps the meaning of *szed-* ‘walk’ intact but seeks portray the differences in meaning between the different verbs based on a combination of this stem with a particular prefix.

Przyszedł do P (\approx he came to place P)

he was doing something [walking] for some time
because he wanted something to happen [he wanted to be in P]
at one time, it happened [he was in P]
after this, he could be in P for some time

Doszedł do P (\approx he reached place P)

he was doing something [walking] for some time
because he wanted something to happen [he wanted to be in P]
at one time, it happened [he was in P]
a short time before, someone could think about him like this:
“he doesn’t have to do much more now”

Przeszedł koło P (\approx he passed place P)

he was doing something [walking] for some time
at one time, something happened [he was near P]
a short time before, he was on one side of P
a short time after, he was on the other side of P

Wszedł do P (\approx he entered P)

he was doing something [walking] for a short time
because he wanted something to happen [he wanted to be inside P]
at one time, it happened [he was inside P]
before this, he was not inside P
after this, he was inside P

Wyszedł z P (\approx he left P)

he was doing something [walking] for a short time
because he wanted something to happen [he wanted not to be inside P anymore]
at one time, it happened [he was not inside P anymore]
before this, he was inside P
after this, he was not inside P anymore

Poszedł do P (\approx he went to P)

he was doing something [walking] for a short time
because he wanted something to happen
[he wanted not to be in the same place any more, he wanted to be in P]
at one time, it happened [he wasn’t in the same place anymore]
some time after, someone could think about him like this:
“he can be now in P”

Can the meanings of verbs like *przyjść*, *dojść*, *przejsć*, *wejść*, *wyjsć* and *pojść* be computed from the meaning of the stem and that the prefix or are such combinations of stems and prefixes lexicalized to some extent? Presumably, both. There are in Polish series of verbs based on *jechać* ‘to go by vehicle’, *biec* ‘to run’, *lecieć* ‘to fly’ and *płynąć* ‘to swim’, which are entirely (or almost entirely) analogous in form and meaning to those based on *iść* ‘to walk’, to wit:

1. *przyjechać*, *dojechać*, *przejechać*, *wjechać*, *wyjechać*, *pojechać*
2. *przybiec*, *dobiec*, *przebiec*, *wbiec*, *wybiec*, *pobiec*
3. *przylecieć*, *dolecieć*, *przelecieć*, *wlecieć*, *wylecieć*, *polecieć*
4. *przy płynąć*, *dopłynąć*, *przepłynąć*, *wpłynąć*, *wypłynąć*, *popłynąć*

And yet the very fact that people normally enter, and go out of, places by walking rather than, say, flying or swimming, means that the verbs *wpłynąć* and *wlecieć* have a somewhat different status in the Polish lexicon than *wejść* and that their metaphorical or other meanings are more salient than their meanings parallel to that of *wejść*.

In the case of other motion verbs, for example, *skoczyć* ‘to jump’, the parallels with the derivational family of *iść* are far more limited. For example, while *wskoczyć* (‘to jump in’) is parallel to *wejść*, and *wyskoczyć* (‘to jump out’), to *wyjsć*, *przeskoczyć* would normally be interpreted as ‘to jump over something’ rather than ‘to jump past something/someone/some place’. The reason is obvious: people normally walk rather than jump past other people or places, and in fact *skoczyć* ‘to jump’ (a perfective verb) implies one jump (and the iterative *skakać* is derived from it), whereas *iść* (an imperfective verb) implies a certain duration.

Furthermore, when we compare Polish words like *wejść* and *wyjsć* with the English expressions *to walk in* and *to walk out* it becomes clear that these words are established units of the “mental lexicon” in a sense in which the combinations *to walk in* and *to walk out* are not. As mentioned earlier, some parts of Polish derivational morphology may have been more productive and more “computable” than others, but large parts of it are no doubt parts of the Polish mental lexicon.

As another example of this, let’s consider the diminutive versions of the names of artefacts. Since size is an important semantic dimension in Polish, variation in the size of artefacts is often indicated obligatorily by derivational means. Consider, for example, the following sets:

butelka ‘bottle’, *butla* ‘big bottle’, *buteleczka* ‘small bottle’
ławka ‘bench’, *ława* ‘big bench’, *ławeczka* ‘small bench’

In words like *butelka* and *ławka*, the suffix *-k-* indicates a standard size, the deletion of this suffix – a large size, and the expansion from *-k-* to *-ecz-*, a small size. In many other words, however, *-k-* indicates a small size, and *-ecz-*, a very small size. For example:

dom ‘house’, *domek* ‘small house’, *domeczek* ‘very small house’
kwiat ‘flower’, *kwiatek* ‘small flower’, *kwiateczek* ‘very small flower’

The words *domek* and *kwiatek* have a stable position in the Polish lexicon, and have to be used to refer to small houses and small flowers. For example, pansies are *kwiatki* (‘small flowers’), not *kwiaty*. On the other hand, forms like *domeczek* and *kwiateczek* can be derived at will but are not really part of the lexicon. Similarly, the word for a bicycle is *rower*, the word for a child’s bicycle (or tricycle), *rowerek*, and the form *rowereczek* can be created at will but does not “exist” as part of the lexicon.

What complicates the situation much more is that Polish has several other “diminutive” suffixes, in addition to *-k-* and *-ecz-*, and that in many cases, the use of forms based on those other suffixes is lexicalized. For example:

dzbanek ‘jug’, *dzban* ‘big jug’, *dzbanuszek* ‘little jug’
garnek ‘pot’, *gar* ‘big pot’, *garnuszek* ‘little pot’
wianek ‘wreath’, *wieniec* ‘big wreath’, *wianuszek* ‘little wreath’
nóż ‘knife’, *nożyk* ‘little knife’
widelec ‘fork’, *widelczyk* ‘little fork’
stół ‘table’, *stolik* ‘little table’, *stoliczek* ‘very little table’
głos ‘voice’, *głosik* ‘little voice’ (i.e. a child’s voice)
tom ‘volume’ (i.e. a book), *tomik* ‘little volume’

The overall picture of the relations between forms and meanings in this area is extremely complex. It is clear, however, that derivation of the kinds illustrated here is a powerful resource for building and organizing the Polish “mental lexicon”.

7. Conclusion

In a recent extended interview for the journal “Intercultural Pragmatics”, Noam Chomsky (in Andor 2004) declared that next to nothing is currently known about the mental lexicon. Since evidently all that falls into Chomsky’s field of vision is the work done within the generative paradigm, his conclusion is not surprising: the sterility of the generative approach to semantics in general and to the mental lexicon in particular must be evident to anyone, friend or foe, who has followed the fortunes of the generative enterprise. As this article shows, however, outside the Chomskyan paradigm a great deal has come to be known about the mental lexicon.

Since only the NSM approach could be presented in some detail in the confines of this article, in this brief summary I will restrict myself to generalizations emerging from the NSM work, and will leave aside other contemporary approaches, including the extraordinarily fruitful and productive work of the Moscow semantic school (cf. e.g. Apresjan, 2000, 2004; *Mašinnyj Perevod i Prikladnaja Linguistika* 1964; Melčuk and Žolkovskij 1984, Padučeva 2004).

First of all, it has been established that at the heart of this lexicon lies a set of sixty or so universal semantic primes, each with its own set of combinatory characteristics. This set corresponds to the indefinables posited as a logical necessity by Descartes and Cartesians – a key feature of their theory of language and thought, curiously ignored in Chomsky’s (1966) profoundly asemantic account of “Cartesian Linguistics”.

Secondly, it is now known that large sections of the mental lexicon have a hierarchical structure, with several levels of semantic molecules operating as chunks of meaning and providing a way to combine great conceptual complexity with relative simplicity of semantic structures.

Thirdly, it is now known that many sections of the mental lexicon are organized according to a certain pattern, shared by a large number of words (such as, for example, emotion terms or speech act verbs); and also, that such patterns include shared semantic components, such as, for example, “when this person (X) thinks like this, this person feels something because of this” – components which have not been lexicalized and which nonetheless contribute greatly to the systematic character of the lexicon.

Finally, it is now known that the mental lexicon of the speakers of any given language includes many words whose meanings are unique to that particular language; and that such words (a language’s cultural key words cf. Wierzbicka 1997) play an important role in binding the speakers of a language into a cohesive cognitive and cultural community.

The empirically discovered set of universal semantic primes and the Natural Semantic Metalanguage based on it provide an effective tool for exploring both the diversity and the similarity of conceptual systems embodied in the languages of the world; and in relation to individual speakers, both the universal and the culture-specific aspects of their mental lexicon.

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