Shape in grammar revisited*

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1. Introduction

In his trail-blazing article “Shape in Grammar” Paul Friedrich (1970) discussed in detail the so-called numerical classifiers, classificatory values and body-part suffixes in the Tarascan language of Mexico and raised some fundamental questions about “shape in grammar” in general. Having surveyed a large body of data not only from Tarascan but also from many other languages of the world, Friedrich concluded:

... the foregoing discussion has demonstrated that obligatory categories of shape are salient in some grammars and probably operative to some extent in all. Several of the concepts of shape treated above should certainly figure in any general theory of grammatical semantics, and these include: (1) the complex concept of orifice (-curved) edge, (2) the trichotomy of “long, flat and round,” or the relative salience of one, two and three dimensions, and (3) the overall shape of the zoological body, particularly the human body, as an abstract model of anatomical relations (...) that can be mapped into other corpora. More intensive studies and a wider typological base would lead to greater insight into these probabilities. It has been suggested that shape ranks with time, aspect and the like as one of the fundamental ideas in grammar and, by implication, in the mind of the speakers of natural language. Both sensuous perceptual categories of shape and covert geometrical features are part of the human experience that is immanent in the linguistic code. (Friedrich 1979: 355–6)

Since Friedrich raised the general question of “shape in grammar”, many other authors have discussed the issue in relation to data from some other languages. After more than three decades, however, Friedrich’s paper remains the most important reference point in the field and the one which sets the agenda for further investigations.

One of Friedrich's central ideas was the importance of the human body for the human conceptualization of the world — both as a source of metaphors and a basis for interpreting the visual world, and not just in Tarascan, but in all languages, including English. To quote from another paper (Friedrich 1979 [1969b]: 399):

As will no doubt have occurred to many readers, the structure of referential subsets described above for Tarascan is universal in the natural languages of the world. In English, for example, most common body-part names have conventionally established, metaphor-like secondary and tertiary referents. The word “back” refers metonymically to the spinal column, and is extended by the most multifarious metaphors to adverbial functions (‘to fight back’), and purely verbal ones (‘to back up, to back another’), and to many others that satisfy a feature definition, as in the case of ‘back door’ — often with an idiomatic increment, as in the case of the ‘back’ of a chair.

While focussing on the Tarascan system, Friedrich raised questions about the universal features of human conceptualization of shape reflected in all languages. In particular, he called for research into shape categories encoded in English as a means to understand the semantics of shape in other languages, including Tarascan:

A full analysis of the semantic substructure of even two English body-part words such as ‘back’ and ‘face’ would lead to results more complex than the Tarascan one sketched above. Such a study would yield much more comparative insight into the formal and substantive nature of the Tarascan system, and of the more universal aspects of these semantic relations. (1979: 399)

This paper seeks to undertake a study of the kind that Friedrich was calling for. Together with a related earlier paper (Wierzbicka 2003), it seeks to establish the fundamental conceptual elements on which the semantics of shape is based, and to show how they operate in the grammar and lexicon of English.

I believe with Friedrich, that such a study of English can “yield ... comparative insight into the formal and substantive nature of the Tarascan system, and of the universal aspect of these semantic relations” (ibid. 399). Thus, while this paper focuses on English, with only occasional sideway glances at some other languages, it aims at providing a framework for a broad typological study of the semantics of shape across languages. The issue of what Friedrich calls “geometrical primitives” is crucial to such study, and so is, in my view, Friedrich's intuition that the same “geometrical primitives” operate in Tarascan as in English and that in-depth study of the semantics of shape in English will lead to a better understanding of the semantics of shape in Tarascan and indeed in any

other language. If we can identify a set of universal “geometrical primitives” we will have a common measure for comparing different languages and for understanding the extent, and the nature, of cross-cultural variation.

In addition to Friedrich’s “geometrical primitives”, another important idea which should be mentioned at the outset is Jurij Apresjan’s notion of “naïve geometry” (“naïve” as opposed to “scientific”). For thirty years, Apresjan has argued that the principal task of a semanticist is to reveal the “naïve picture of the world” hidden in the meaning of words. In particular, Apresjan has argued that by studying word meanings we can discover the “naïve geometry” of the speakers of a given language, which is different from the scientific one, and which also differs, to a greater or lesser degree, from language to language. To quote:

The primary task of systematic lexicography is to reflect the naïve world-view which a given language embodies — its naïve geometry, physics, ethics, psychology, and so forth. The naïve pictures of each of these areas are not chaotic but form definite systems and should therefore receive a homogenous description in a dictionary. For this purpose, generally speaking, we should first reconstruct the corresponding fragment of the naïve picture of the world on the basis of lexical and grammatical meanings. In practice, however, in this case and others like it, the reconstruction and the (lexicographical) description go hand in hand and constantly provide each other with correctives. (Apresjan 2000: 104)

While Apresjan focussed more on lexical, and Friedrich, on grammatical semantics, they both clearly saw that the “naïve picture of the world” which guides people’s everyday (non-scientific) thinking is hidden both in the meaning of words and in grammatical categories. In fact, as linguists of different theoretical orientations increasingly agree, there is no hard and fast division in language between grammar and lexicon, and there are good reasons to think that whether a language’s “naïve geometry” is expressed in its lexicon or in its grammar it relies on the same set of “geometrical primitives”. In any case, this is the simplest hypothesis and if it can be sustained, as I will try to show it can, it is obviously preferable to the alternative (that is, to the view that a language’s lexicon and grammar are based on different sets of primitives).

In addition to Friedrich’s ideas on the bodycentric conceptualization of shape and Apresjan’s on the “naïve geometry”, the work presented here connects with Ronald Langacker’s ideas about the importance of imagery and viewpoint in the semantic construal of the situations (cf. e.g. Langacker 1990) and also with George Lakoff’s, Mark Johnson’s and Eve Sweetser’s ideas about

the experiential basis of meaning and the importance of “embodiment” (cf. Lakoff 1987, Johnson 1987, Lakoff and Johnson 1990, Sweetser 1990; see also Varela, Thompson and Rosch 1991). The anthropocentric and “bodycentric” orientation of the analyses put forward in this paper builds also on the anthropocentric, bodycentric and experiential approach to lexical semantics developed in my own work dating two decades back, in particular, in my book *Lexicography and Conceptual Analysis* (1985).

2. Classifiers in English

English does not have an overt system of grammatical classifiers based on shape like Tarascan, but, I would argue, it does have two rudimentary analogues of such a system. One of them is a mini-system of classifiers reflected in the following set of expressions:

something round (e.g. an orange, a rockmelon)

something long (e.g. a stick, a cucumber)

something flat (e.g. a pizza)

something flat and thin (e.g. a piece of paper)

something long and thin (e.g. a piece of string)

For example, when speakers of English see a collection of objects including an orange, a rockmelon, a cucumber, a carrot, a plate, a sheet of paper, a piece of wire and a piece of string, they can readily assign such objects to the categories “something round”, “something long”, “something flat”, “something flat and thin”, and “something long and thin”. On the other hand, if one cucumber in the collection of objects is rather short, English speakers do not agree to describe it as “something short”; and if the string happens to be thick, they do not agree to describe it as “something thick”. This shows that neither the word *short* nor the word *thick* can act as a shape classifier in English, whereas *long* and *thin*, along with *round* and *flat*, can do so.

Similarly, if one saw an object in a basket and was unable to identify what it was, one might describe what one saw as follows:

I saw something long in there.

I saw something round in there.

I saw something flat in there.

I saw something long and thin in there.

On the other hand, one could not say:

*I saw something short in there.

*I saw something thick in there.

*I saw something wide in there.

In addition to the four adjectival classifiers (*round*, *long*, *flat* and *thin*), English has also three verbal classifiers: *to lie*, *to sit* and *to stand*. For example, one can say in English (Croft 1994: 158; see also Newman 2002):

The statue stands in the middle of the town square.

The lake lies at the bottom of the valley.

The box is sitting on a chair.

As noted by Croft, in English (in contrast to, for example, Russian) such distinctions are not obligatory and “one can always use *be* instead of a posture verb to describe location”. In fact, speakers of English tend to prefer the verb *be* rather than *stand*, *sit* or *lie* in relation to inanimate objects. Nonetheless, English, being accessible to all linguists, is a good place to start investigating the semantics of such distinctions.

3. Methodological issues

What exactly does it mean that an object “stands”, “sits” or “lies” in a given place?

Croft (1994) attempts to capture the meanings in question by means of the technical labels “nonextended” (for *sit*), “extended vertical” (for *stand*), and “extended horizontal” (for *lie*). It is unlikely, however, that such labels have any psychological reality for “ordinary” speakers of English. Even the terms *vertical* and *horizontal* belong to school language, not everyday language, and are not known to all English speakers, and the label *extended*, on which much of Croft’s discussion hinges, is incomprehensible to most of them. Technical labels of this kind may be satisfactory to a scholar interested in devising an elegant analysis of a certain domain, but they cannot reveal the “naïve” system that educated and uneducated speakers of English share.

I am not suggesting that either the meanings of shape words or the underlying conceptual primitives can be revealed by posing direct questions to untrained native speakers. Nonetheless, in trying to elucidate ordinary people’s conceptualization of shape we can do better than describe it in technical terms incomprehensible to the people themselves. Using words that ordinary people know gives us a better chance of understanding how people actually think and

of testing our hypotheses with them. Analyses done with terms like “extended” and “nonextended” cannot be put to the test of people’s intuitions. By contrast, analyses couched in ordinary words can be discussed with ordinary speakers and are not proof against their objections. For this reason alone, a theory which operates with ordinary words rather than technical terms is subject to stronger constraints and has a greater explanatory power.

Croft (1994: 158) likens the English verbal classifiers *stand*, *lie* and *sit* to Southeastern Pomo classificatory verbs as described by Moshinsky (1974: 85–86):

sca/mye-/blo-	‘non-long object rests on a surface; sit [of humans WC]’
kto-/no-/blo-	‘long object rests on a surface in a vertical position; stands’
m̥ti-/b̥ti-/x̥qo-	‘long object rests on a surface in a horizontal position; lies’

But in what sense exactly is the English “extended/horizontal” verb *lie* similar to the Pomo “lie”, given that the latter is said to apply to long objects, whereas the English *lie* can apply to flat objects like newspapers and manila folders?

A newspaper/a green manila folder was lying on the table.

If Moshinsky is right about Southeastern Pomo and if the “lie” verb in this language applies only to “long objects”, then this is very different from English where it can also apply to flat objects like newspapers.

It is also not clear what exactly expressions like “a horizontal position” and “a vertical position” mean. For example, is a bed in a bedroom in “a vertical position” or “in a horizontal position”? In English, a bed “stands” rather than “lies”, but does that mean that its position is “vertical” rather than “horizontal”?

One might also query the relationship between English and Russian “posture verbs” mentioned by Croft. Croft points out that in Russian, the use of posture verbs is obligatory whereas in English it is optional. But are English and Russian making the same semantic distinction here? The use of a term like “extended horizontal” blurs the fact that in Russian, in contrast to English, one can say:

Na stole ležalo jabloko.

*‘An apple was lying on the table.’

By relying on words and expressions which speakers themselves know and use — such as, for example, *above* and *below*, *far* and *close to*, or *on one side*, *some parts* and *many parts* — we can account for such differences in the use

of “posture verbs” and give a plausible, and testable, account of the varying underlying conceptualizations.

But the intuitive testability of sentences couched in terms of simple ordinary words like *above* and *below* rather than in terms of technical words like *extended*, *nonextended*, and even semi-technical ones like *vertical* and *horizontal* is only one advantage of using the former ones. From a typological point of view, an even greater advantage is the overcoming of what Goddard (Goddard 2002b, 2004) calls the “terminological ethnocentrism”.

The point is that many languages don’t have semantic equivalents of technical or semi-technical English words like *extended* or *horizontal*. To describe the semantics of shape in those languages in terms of such untranslatable English words means to describe it from an English point of view. Simple words like *above* and *below* differ in this respect from those like *extended* and *horizontal*. Whether or not they have exact semantic equivalents in *all* languages or only in their vast majority, there can be no doubt that they are much more widely attested, cross-linguistically, than the latter kind. As a tool for linguistic typology, therefore, they are obviously preferable: they give us a *tertium comparationis* which is not bound to languages like English and which can free us from the ethnocentric perspective implicit in the use of such language-dependent tools.

4. The “NSM” approach to semantic analysis

In this section, I will sketch the main tenets of the “NSM” theory of meaning, on which the analyses proposed in this paper are based. “NSM” stands for “natural semantic metalanguage” — a semi-artificial language developed over more than three decades, for the investigation and description of meaning (cf. Wierzbicka 1972, 1980, 1996; Goddard 1998a; Goddard and Wierzbicka eds., 2002). The central idea of this theory, supported by extensive empirical investigations by a number of researchers, is that despite their enormous diversity, all natural languages share a common core: a small vocabulary of 60 or so “conceptual primes” and a “universal grammar” (the combinatory properties of the primes). The set of universal conceptual primes includes elements such as SOMEONE, SOMETHING, PEOPLE, GOOD, BAD, KNOW, THINK, WANT, and FEEL. The full set of these primes is given in the table below. (For versions in languages other than English, see Goddard and Wierzbicka eds. 2002.). It is of course impossible to justify the tenets of the NSM theory within the confines of

this paper. For a full exposition and justification see Wierzbicka 1996; Goddard 1998a; Goddard and Wierzbicka eds., 1994, 2002.

Table of universal human concepts — English version

Substantives:	I, YOU, SOMEONE(PERSON), SOMETHING(THING), PEOPLE, BODY
Determiners:	THIS, THE SAME, OTHER
Quantifiers:	ONE, TWO, SOME, MANY/MUCH, ALL,
Attributes:	GOOD, BAD, BIG, SMALL
Mental predicates:	THINK, KNOW, WANT, FEEL, SEE, HEAR
Speech:	SAY, WORD, TRUE
Actions, events, movements:	DO, HAPPEN, MOVE
Existence and possession:	THERE IS (EXIST), HAVE (BELONG TO)
Life and death:	LIVE, DIE
Logical concepts:	NOT, MAYBE, CAN, BECAUSE, IF
Time:	WHEN (TIME), NOW, AFTER, BEFORE, A LONG TIME, A SHORT TIME, FOR SOME TIME
Space:	WHERE (PLACE), HERE, ABOVE, BELOW, FAR, NEAR, SIDE, INSIDE, TOUCHING (CONTACT)
Intensifier, augmentor:	VERY, MORE
Taxonomy, partonomy:	KIND OF, PART OF
Similarity:	LIKE (HOW, AS)

* exponents of primes may be words, bound morphemes, or phrasemes

* they can be formally, i.e. morphologically, complex

* they can have different morphosyntactic properties (including word-class) in different languages

* they can have combinatorial variants (allolexes).

*each semantic prime has a well-specified set of grammatical (combinatorial) properties.

While no extensive discussion of this table can be undertaken within the confines of this paper, three points need to be made.

First, this set has been arrived at on the basis of extensive empirical investigations, undertaken over many years, by many scholars, across many languages; thus it is not a product of speculation but of wide-ranging cross-linguistic studies.

Second, evidence suggests that despite language-specific patterns of polysemy and other differences (discussed in detail in Goddard and Wierzbicka eds., 2002), this set of primes is universal, that is, that they can be found in all languages in the form of specific words or word-like elements.

Third, the elements included in this set are all identified through simple and intuitively clear everyday words. This is in accordance with Leibniz's observation that all explanations must come to an end, and that the ultimate value of all our explanations depends on how self-explanatory the terms are which

are used in these explanations. Thus, colleagues and I believe that “see” is more self-explanatory than “vision”, “perception” or “ostention”, “touching” more than “surface”, “contiguity” or “adjacency”, and “above” and “below” more than “vertical”, “perpendicular” or “elevation”. Leibniz’s principle, which I believe is fundamental to all conceptual analysis, is best presented by the following passage:

If nothing could be understood in itself nothing at all could ever be understood. Because what can only be understood via something else can be understood only to the extent to which that other thing can be understood, and so on; accordingly, we can say that we have understood something only when we have broken it down into parts which can be understood in themselves. (Couturat ed. 1961 [1903]:430)

This principle — that the terms used in our explanations should be maximally self-explanatory — is closely linked with the assumption that all explanations must come to an end and that they must rely, ultimately, on conceptual primes, that is, terms which can be understood “by themselves”, and which can be seen as the building blocks of all other ideas. To quote Leibniz again: “The alphabet of human thoughts is the catalogue of those concepts which can be understood by themselves, and from whose combinations our other ideas arise” (Couturat ed., 1961 [1903] :430).

If all our explanations depend on some primary concepts which cannot be defined, it is natural to ask: how can we understand those primary concepts themselves? The answer given to this question by the great seventeenth century thinkers was that they are innate. To quote Pascal:

It is clear that there are words which cannot be defined; and if nature hadn’t provided for this by giving all people the same idea all our expressions would be obscure; but in fact we can use those words with the same confidence and certainty as if they had been explained in the clearest possible way; because nature itself has given us, without additional words, an understanding of them better than what our art could give through our explanations. (1954 [1667]: 580)

The empirical NSM linguistic investigations of the last two decades are consistent with this idea of the seventeenth century philosophers, because we find the same simple concepts expressed in words or word-like elements in every language which has been studied from this point of view.

In his persuasive critique of the claims about language universals which have been made over many years by generativists, Shanker (2001: 482) rightly points out that these claims have never been substantiated in any cross-linguistic

research carried out within the generativist paradigm. On the other hand, the two decades of intensive cross-linguistic investigations carried out within the NSM framework have yielded a rich crop of empirical universals, revealing a shared conceptual core of all languages and an outline of universal grammar. (See, in particular, Wierzbicka 1996, Goddard ed. 1997, Goddard 1998a, Harkins and Wierzbicka eds., 2001, and Goddard and Wierzbicka eds., 1994 and 2002; for a commentary on Shanker 2001, see Wierzbicka 2001.) In this research the penetrating but unsubstantiated insights of seventeenth-century philosophers have been translated into a realistic research program and have borne fruit in substantial empirical findings.

5. The “geometrical primitives” of English

I will begin by setting out the semantic elements into which I believe English shape concepts can be shown to resolve. The set listed below is the end product of a very long process of experimentation with different analyses, in accordance with the Leibnizian principle that “the primary terms, the indefinables, cannot be easily recognized by us except in the way that the prime numbers are: we can only recognize them as such if we try to divide them [by the smaller ones]” (Conturat ed., 1961 [1903]: 187).

The key “geometrical primitives” which have emerged from the work on the semantics of shape reported in this paper and in Wierzbicka (2003) include the following spatial elements: PLACE (WHERE), FAR and NEAR, ABOVE and BELOW, ON [THIS, ONE, OTHER...] SIDE OF, and TOUCHING (CONTACT). In addition to these spatial elements, the other concepts crucially involved in the semantics of shape include SOMEONE (PERSON), SOMETHING (THING), PART, MOVE and SEE. The elements SOMEONE and SEE refer to the “observer”, whereas the other elements listed here refer to what it is that a person can see.

The identification of the “right” primitives is crucial for spatial semantics (including shape semantics), which it can free from pseudo-explanations such as, for example, the following one (Coventry et al. 2001: 377): “*in*: functional containment — *in* is appropriate if the ground is conceived as fulfilling its containment function”. Since the terms used in the definiens are never defined themselves, this is a patent case of explaining “ignotum per ignotum”.

Before showing how the “geometrical primitives” postulated here can explain the semantics of shape, I will note that there are also some “intermediate concepts” (cf. Apresjan 2002) which play a significant role in the “naïve

geometry” embodied in English. The most important “intermediate concepts” in this domain are ‘top’ and ‘bottom’, ‘ends’, ‘edges’, and ‘the ground’. The meaning of *ends* and *the ground* has been analysed in Wierzbicka (2003). Here, I will try to show how the concepts ‘top’ and ‘bottom’ can be defined in terms of the primitives (for an analysis of ‘edge’ see Section 10).

the top part (of something)

a part (of something)

this part is above all the other parts of this thing

the bottom part (of something)

a part (of something)

this part is below all the other parts of this thing

Unlike the semantic primes, “intermediate concepts” like ‘top’, ‘bottom’, ‘ends’, ‘edges’ and ‘the ground’ may not be universal (cf. e.g. Brotherson, To appear), but there can be little doubt that they, too, are attested more widely than terms like *horizontal* and *vertical*, not to mention *extended* and *nonextended*, and that they can constitute a useful supplementary tool for cross-linguistic comparison.

To show how “geometrical primitives” like ABOVE and BELOW enable us to explain the shape distinctions drawn in English, and how “intermediate concepts” like ‘top’, ‘bottom’, ‘ends’, ‘edges’ and ‘the ground’ can provide useful shortcuts for such explanations, I will start with the mini-system of the three classificatory verbs: *to stand*, *to lie* and *to sit*.

6. The English classificatory verbs ‘stand’, ‘sit’ and ‘lie’

Take an English sentence of the form: “Thing X stands in place Y”. As a first approximation, I would suggest that a sentence of this kind carries with it the following implications: “the bottom part of thing X is touching some part of place Y”. For example, the sentence:

A vase was standing on the table.

implies that the bottom part of the vase was touching some part of the top of the table (cf. Goddard 2002).

This preliminary and partial analysis of the meaning of the verb *stand* (as used in relation to inanimate objects) is sufficient to explain why sentences like the following ones are not acceptable in English:

* A napkin was standing on the table.

* A pencil was standing on the table.

* An apple was standing on the table.

One reason why they are unacceptable is that people do not speak (and presumably think) of napkins, apples or pens as things which have a top and a bottom. Objects like books, on the other hand, *can* be spoken of (and thought of) in these terms, and so in certain circumstances it is possible to say (b) as well as (a), even though (a) is far more usual than (b):

a. A book was lying on the table.

b. A book was standing on the table.

The positions of the book implied by sentences (a) and (b) are of course different: sentence (b) can only refer to a book “in an upright position”, that is, in a position where the top of every page is above its bottom. By contrast, when a book is described as “lying” (as in (a)), the top of every page is on the same level as its bottom, rather than being above it.

Intriguingly, one can also use the word *stand* with reference to objects like tables, pianos, beds, and chairs, some of which (e.g. beds) may seem to be “horizontal” rather than ‘vertical’:

A table/piano/bed/chair was standing in the corner.

It is hard to see how such objects could be seen as “long and vertical”. On the other hand, linguistic evidence shows that it is possible to think about such objects in terms of “top parts” and “bottom parts”. For example, people talk about the “table top” and “the legs of a table”. The *table top* speaks for itself, and the expression *the legs of*, based on an analogy with the two “long” bottom parts of a human body, always implies the bottom parts of an object.

Thus, the habitual conceptualization of things of a certain kind as things with a “bottom” and a “top” is a necessary condition for describing things of this kind as “standing”. It is not, however, the only condition. For example, things like pots and computers are also thought of as having a bottom and a top, and yet they are normally described as “sitting” (or simply “being”) in a place rather than “standing”:

A pot was sitting (‘standing’) on the table.

A computer was sitting (‘standing’) in the middle of the desk.

I would argue that this contrast between “standing” and “sitting” is based on the perceived distance between the top part of an object and the surface which

its bottom part is touching. An object “sitting” somewhere is perceived as analogous to a person in a sitting or squatting position, that is, with the top part of the body not being far from the ground — but not being near the ground either. By contrast, an object “standing” somewhere is perceived as analogous to a person in a standing position, that is, with the top part of the body being far from the ground.

It is true that some objects habitually described as “standing” are small, and so their top parts cannot really be very far from the surface on which they are standing. Nonetheless, if one thinks of all the other parts at the same time, these tops *can* be thought of in this way: *relatively speaking*, they seem to be far from the supporting surface. It is also true that in the case of a bed, the top part could not be said to be far from the ground in relation to the distance between its ends or its sides; but here, the “legs” of a bed allow the onlooker to think about it otherwise — a point to which I will return shortly (cf. Newman 2002).

As I will also argue in more detail shortly, *stand* implies also that an object has been placed there on purpose: usually, objects which fall somewhere, or are thrown in anger, do not “stand” anywhere as a result.

Consider, for example, a low table, such as a coffee table. The bottom parts of the table are touching the ground. Since the table is not “high”, it can’t be said that its top is far above the ground. Nonetheless, if one thinks about the top in relation to the bottom (which touches the ground), one *can* think that the top of the table is far from the ground. The presence of leg-like supporting parts makes it possible for the onlooker to think that the top parts are far from the ground.

In fact, both tables and beds can be thought of as objects with flat parts “raised above the ground” (and so can chairs). In the case of a table, the main reason might be that people don’t want to eat their food from the ground; in the case of a bed, that they don’t want to sleep on a mattress lying directly on the ground; and in the case of a chair, that they don’t want to sit directly on the ground. In all these cases, then, the idea of a flat part being substantially “raised” (i.e. being “far from the ground”) seems psychologically plausible.

Let us consider the way English speakers speak about large objects functioning as means of transport, such as trains, trams or buses. It would seem that a train should be classified as “extended horizontal” rather than “extended vertical” — yet a train is normally described as “standing” rather than “lying” at the station, as in the words of the song:

Passengers will please refrain
From passing water while the train
Is standing at the station or at rest.

Why is the train (which doesn't even have "legs") said to be "standing" rather than "lying"? Presumably, one reason is that its top parts can be perceived by the onlooker to be far from the ground, while its bottom parts are clearly touching the ground. This may be enough to explain why the train is "standing" rather than "lying" but it doesn't explain why it is not "sitting" at the station. It might seem that the difference between *stand* and *sit* which would explain this can be sufficiently accounted for in terms of the contrast between "far from the ground" (in *stand*) and "not far from the ground" (in *sit*). But the matter is more complicated than that.

First, *sit* differs not only from *stand* but also from *lie*. Comparing *sit* with *stand* we need to say that in the case of *sit*, the top of the object is not far from the top of the table, but comparing *sit* with *lie* we need to add that it is not *close* to the top of the table either.

Second, *sit* implies a sort of compactness and stability: in NSM terms, this can be spelled out as "this thing can't move" (unless someone does something to it). A thing which *stands* on the table could perhaps overturn and fall down; and it goes without saying that a train standing at the station could move (indeed, it can be expected to do so). But a thing which "sits" on the table seems to be there more securely, and is less likely to move.

The implication of "stability" in the use of *sit* under discussion is highlighted by a different but related sense of the verb, which Newman (2002: 18) calls the "non-activity *sit*" (Newman's examples):

- a. The dirty plates are sitting on the table, waiting for someone to take them away.
- b. The new car is sitting in the garage until it is registered.
- c. The books are sitting on the shelf gathering dust.

In sentences of this kind, *sit* implies that the object will not move if someone doesn't do something to it and that it can be in the place where it is for a long time.

These observations lead us to the following explications:

A vase was standing on the table =

if a person saw this place they could think about it like this:
"there is something [a vase] in this place"

because someone wants it to be there
 the top_[M] part of this thing is far from the top_[M] of the table
 the bottom_[M] part is touching the top_[M] of the table

The symbol [M] used in the explications throughout this paper indicates a “semantic molecule”: an element which is not a semantic prime (a “semantic atom”), but a more complex entity which is treated in a given explication as a unanalysable unit. All such molecules have been explicated elsewhere in terms of the primes. (For an extensive discussion of this aspect of the NSM methodology, see Wierzbicka 2003.)

A computer was sitting on the table =

if a person saw this place they could think about it like this:
 “there is something [a computer] in this place
 because someone wants it to be there
 no parts of this thing are far from the top_[M] of the table
 the top_[M] part is not close to the top of the table_[M]
 the bottom_[M] part is touching the top_[M] of the table
 because of these things this thing will not move if someone doesn’t
 do something to it”

The first component of the explications: “if a person saw this place” reflects the perspective of an onlooker implied by posture verbs used in the frame “a thing of kind X was standing/sitting/lying in place Y”: it is a perspective of a person who sees and describes a scene rather than an object as such. (Cf. Newman’s (2002: 1) remark: “These three distinct spatio-temporal configurations constitute strong spatial *images* in human conceptualization” (emphasis added).)

The second line “this person could think about it like this” shows that the scene in front of the speaker is being described from a subjective rather than a purely “objective”, analytical point of view. But an analytical element is there, too, especially in the speaker’s (impressionistic) evaluation of the distance.

The formulae proposed here are certainly longer than, for example, Croft’s (1994) terms “extended vertical” and “nonextended”, but they make predictions which can be discussed with native speakers and tested against their intuitions.

Moving now to the verb *lie*, which Croft (1994) described as “extended horizontal”, we will discover that here, too, things are more complex than they may seem at first sight.

According to most people’s intuitions, of the following three sentences only the first two are acceptable:

A cucumber was lying on the table.

A newspaper was lying on the table.

*A pot was lying on the table.

*A tall vase with long stemmed roses was lying on the table.

?An orange was lying on the table.

A cucumber is conceptualized by speakers of English as “something long”, but a newspaper would normally be described as “something flat” rather than “something long”. This shows that a newspaper is conceptualized as different in shape from a cucumber; yet they both combine with the verb *lie*.

Seeking to determine what the decisive factor applying in both cases is, let’s consider the following sentence (from the COBUILD corpus):

A still life — an old table bearing two long-stemmed pipes; a glass lying on its side; a flute; a candle which had petered out....

As this example shows, an object which would be normally described as “standing” can also be described as “lying” if the speaker specifies that in this case the parts which are touching the supporting surface are not the bottom parts. This suggests that while in the case of an object “standing” on the table its bottom is touching the top of the table, in the case of an object “lying” on the table it must be some part other than the bottom parts. This leads us to the following explication:

A book (a cucumber, a newspaper, an overturned vase) was lying₁ on the table. =

if a person saw this place this person could think about it like this:

“there is something [a cucumber, a newspaper, an overturned vase]
in this place

because someone wanted it to be in this place

no parts of this thing are far from the top_[M] of the table

many parts are touching the top of the table

people don’t think about these parts like this:

“these parts are the bottom_[M] parts of this thing”

The expression *many parts of this thing* explains, I think, why a cucumber can be said to be lying on the table whereas an orange cannot. In the case of a cucumber (whose shape is elongated) the area touching the table is, in relative terms, larger than it is in the case of an orange and thus more compatible with the component “many parts”. What is relevant here is not so much the size as the shape: a perfectly spherical object cannot be said to be “lying” on the table

even if it is large, whereas an elongated object like a cucumber is, for many native speakers, acceptable. Ultimately, however, what matters is not the elongated shape but the “extensive contact”: a cucumber meets this requirement because it is elongated, but a newspaper meets it because it is flat (and a book, because it is flattish). What all these differences can have in common is that “many parts of the object” are touching the supporting surface.

The distinction drawn by English between objects supported by their bottom parts and those supported by many parts which are not bottom parts is revealing of English naïve geometry. Clearly, in this geometry many objects are seen in terms of bottom parts and top parts. The expectation is that those objects which can be seen in those terms will normally be supported on the bottom parts. If they are supported on other than bottom parts, they can be said to “lie” — provided however, that the contact is extensive, that is, that “many parts” are in contact with the supporting surface. (As we will see shortly, this applies only to objects positioned above the ground. I will come back to this issue in a moment.)

The locution “many parts” may seem jarring in the case of objects which are in continuous contact with the raised surface on which they are “lying”. Can one really think of a cucumber “lying” on the table in terms of “many parts” touching the top of the table? Wouldn’t it be better to speak of a “large area” of contact or of a “big part” of the cucumber’s surface?

I acknowledge that to speak of “many parts” in the case of continuous contact is unidiomatic, but I think that it is justifiable. One reason is that the contact does not have to be continuous. For example, depending on its shape a vase lying on the table may be touching it in several places rather than throughout its “length” (e.g. at its two “ends” and in the middle).

Furthermore, it does not seem impossible to think of such an object (a vase “lying” on its side) in terms of “parts” touching the top of the table. Certainly, these parts are not discrete, but the word *part* does not necessarily imply discreteness. For example, one can easily say that some parts of a cucumber are bitter, without implying that they are discrete. I conclude, then, that the phrase “many parts” is a legitimate, if unidiomatic, way of explicating the technical term “extended contact”.

Let us compare the analysis proposed here with analyses based on the technical terms “horizontality” and “verticality”. As we have seen, Croft (1994) linked “lying” with the phrase “extended horizontal”. Bierwisch (1967) linked the German verbs of “lying” and “laying” (*liegen, legen*) with the feature “-vertical”. Croft’s term “extended” can be readily linked with the idea of “many parts

(touching something)". But what exactly do the terms "horizontal" or "-vertical" mean?

I suggest that insofar as these terms belong to ordinary language, they are both based on the concepts ABOVE and BELOW, and on the concept SEE. Roughly speaking, if something is "vertical", or is in a "vertical position", it looks (from many sides) as if it is far from the top part to the bottom part; and if something is "horizontal", or is in a "horizontal position", it looks (from many sides) as if no parts are far above any other parts.

Since many objects which are seen as inherently "vertical" (or, in ordinary language, "tall" — see Section 7) can be said to be "lying" on the table if they are overturned, the decisive factor in the choice of the verb *lie* is not the object's inherent "verticality" or "tallness" but whether or not they are supported by some parts other than the bottom parts. Similarly, since neither cucumbers nor newspapers are inherently "horizontal" the decisive factor in the choice of the verb *lie* for them is not their putative "horizontality" but the extensive contact between the supporting surface and some parts (many parts) which are not thought of as bottom parts.

Consider, for example, a vehicle which has overturned and is "lying" on one side. The height of such a vehicle might not be any lower than that of a vehicle "standing" at the station, so the difference between the two cannot be accounted for in terms of "+verticality" and "+horizontality". It can, however, be accounted for in terms of "side" and "bottom": in the case of a "lying" train, many parts on one side (or possibly the top parts) are touching the ground, whereas in the case of a "standing" train it is the bottom parts (the wheels) which are touching the ground.

But this is not the end of the story. As the following four sentences illustrate, what matters is not only the shape of the object, but also the presumed intentionality (or otherwise) of the object's position and the location of the surface which this object is touching.

- a. A cucumber was lying₁ on the table.
- b. ? An orange was lying₁ on the table.
- c. An orange was lying₂ on the floor.
- d. An orange was lying₂ on the ground.

The contrast between sentence (a), which is acceptable, and sentence (b), which for many speakers is not acceptable, can be explained in terms of shape: an extended contact in (a), and a lack of such a contact in (b). The contrast between (b) and (c) or (d), however, must be explained in other terms: firstly, in terms

of location, and secondly, in terms of intentionality. To account for all these contrasts, we need to posit two distinct meanings of *lie*: *lie*₁ and *lie*₂. *Lie*₁, which implies an extended contact, implies also a position above the ground and suggests that the location was probably intentional, whereas *lie*₂ implies a position on the ground and suggests a careless, more or less accidental, location.

A sentence like “an orange was lying₂ on the floor” implies “contact”, of course, but in contrast to “a cucumber was lying₁ on the table” it does not imply that this contact is extended: being spherical, an orange is incapable of *extended* contact with a flat surface, and this is why it cannot be said to be “lying on the table”. If something is “lying” on the floor, however, all that is implied is “some contact”, that is, that “*some* parts” (rather than “many parts”) on one side are touching the floor, and this makes the sentence “an orange was lying on the floor” acceptable.

This difference in shape requirements between *lie*₁ and *lie*₂ is at first puzzling. Trying to solve this puzzle we need to acknowledge that from a human point of view there may be a crucial difference between things that are on the ground and things that are above the ground. The things that are on the ground can be there not because someone wanted them to be there, whereas the things which are above the ground — on tables, but also on shelves, desks, kitchen counters and so on — are likely to be there because someone put them there, that is, because someone wanted them to be there.

But if someone wants an object to be somewhere then presumably, they want it not to fall from that place. Putting a round object like an orange directly on the table could be regarded as unwise because the round object would be likely to roll off the raised surface and fall down. For this reason, people usually use plates, bowls, baskets and so on, to keep these objects securely where they want them.

The importance of stability of things above the ground helps explain the polysemy of the English verb *lie* as used of inanimate objects: *lie*₁ refers to objects which seem to have been placed deliberately above the ground and to their stable position, based on extended contact, whereas *lie*₂ refers to objects on the ground which may have fallen down accidentally and whose exact position doesn't seem to matter to anyone.

In the case of *stand* and *sit*, the stability of the position has been ensured by placing the object on its bottom parts, specially devised as “bases” on which the object can be supported. In the case of *lie*₁, which implies a position on one side (or possibly on the top, if the object is “upside down”) rather than on the bottom, the stability is ensured by a sufficient area of that one side (“many

parts”). But in the case of objects “lying on the ground” the question of stability does not arise: they are stable anyway because there is nowhere for them to fall down to. This explains why in this case there is no requirement of an extended contact, and why no such requirement has been built into the meaning of *lie*₂.

To appreciate the crucial difference between the things on the ground and those above the ground consider the following two sentences:

- a. A pot was sitting in the middle of the floor.
- b. A pot was lying on the floor.

The choice of the verb *sit* in sentence (a) makes it clear that the pot was there on purpose (someone wanted it to be there); and also, that it was the bottom of the pot which was touching the floor. The choice of the verb *lie* (*lie*₂) in sentence (b), however, suggests that the pot was there probably not on purpose (not because someone wanted it to be there); and also, that in this case, it was not the bottom but one side (or the top) of the pot which was in contact with the floor.

The phrase *in the middle of the floor* helps in the case of sentences with *sit*, because it further supports the idea that the object was placed there intentionally (not *anywhere* on the floor, but right in the middle). But soft and “shapeless” objects do not easily combine with *sit* even if a further locative phrase is added, whereas they, too, combine readily with *lie*:

A pillow/a piece of string was lying (*sitting) in the middle of the floor.

These observations support the polysemy of the verb *lie* linked with the object’s location (on the ground or above the ground). A location above the ground suggests what looks like a purpose and implies an “extended contact” (i.e. “many parts” in contact with the surface), whereas a location on the ground suggests what looks like a lack of purpose and does not imply an extended contact.

The references to purpose or lack of purpose have been qualified with the hedge “what looks like” because what matters is not the speaker’s factual knowledge about the situation but rather his or her idea of what the scene might look like to a casual observer: “if someone saw this place they could think about it like this”. The speaker him/herself may know that in fact a given pillow, string, a newspaper was left on the floor on purpose, as in the following passage from the British National Corpus (provided by an anonymous reviewer):

Ianthe entered her house, her thoughts now on John again. There was a folded note lying on the floor by the front door. It was an invitation from Rupert Stonebird to the dinner party he had mentioned some time ago.

Even here, however, a casual observer of the scene could easily think that a piece of paper “lying” on the floor by the front door was dropped there accidentally. Presumably, it was only after the protagonist had picked up that piece of paper and examined it that she realized that it was an invitation to a dinner party, placed there on purpose.

The requirement of presumed intentionality in the case of *lie*₁ may seem inconsistent with its use in sentences like the one (cited earlier) about “a glass lying on its side”, which does not imply, needless to say, that the position of the glass was intentional. Nonetheless, it can be said to suggest that the glass has been placed on the table (in that exact place) intentionally (someone wanted it to be there), and that it overturned.

Objects which have been placed deliberately on the ground (or the floor) normally cannot be said to be “lying” there:

* A Persian rug was lying₂ on the floor.

A Persian rug normally cannot be said to be “lying” on the floor because “lying” would suggest that a casual observer could think that it was there “not because someone wanted it”, which would go against the normal assumption that rugs are placed on the floor intentionally.

Thus, we have established three differences between *lie*₁ and *lie*₂, linked with shape, location, and (presumed) intentionality. In the explication below, I will use the expression “a thing of kind X” instead of a particular noun (e.g. a vase, an orange, or a pot), in order to show what is implied by the verb as such rather than by any particular noun.¹

A thing of kind X was lying₂ on the ground. =

if someone saw this place they could think about it like this:

“there is a thing of kind X in this place

it is there not because someone wants it to be there

no parts of this thing are far from the ground_[M]

some parts are touching the ground_[M]

people don’t think about these parts like this:

“these parts are the bottom_[M] parts of this thing”

7. Objects “lying” in English and in Russian

Distinctions between objects on the ground and objects above the ground appear to be lexicalized and even grammaticalized in many languages of the

world. A good example is provided by Tzotzil, which, according to de León (2001), has special verbs that are acquired early, glossed as “be located on raised surface” and “be lying on the ground, carelessly”.

But the semantic distinctions linked with the English posture verbs are far from universal. In particular, the obligatory distinction between “standing” and “lying” drawn by Russian does not distinguish between objects “lying” above the ground and those “lying” on the ground (in the way English does). As mentioned earlier, in Russian an orange can well be described as “lying” on the table (most likely placed there on purpose), and so can an apple core (most likely dropped there carelessly, “anywhere”):

Na stole ležal apel'sin.
on table lie.PAST.3SG orange.NOM.SG
'An orange was “lying” on the table.'

Na stole ležal ogryzok jabloka.
on table lie.PAST.3SG core.NOM.SG apple.GEN.SG
'An apple core was “lying” on the table.'

What these examples illustrate is that in Russian, the use of *lie* as a classificatory verb implies neither an extended contact nor intentionality, and also, that Russian doesn't draw a semantic distinction between objects “lying” above the ground and those “lying” on the ground. The following sentences confirm this suggestion:

Na polu ležal apel'sin.
on floor.LOC.SG lie.PAST.3SG orange.NOM.SG
'An orange was lying on the floor.'

Ee plat'e ležalo na polu.
her dress.NOM.SG lie.PAST.3SG on floor.LOC.SG
'Her dress was lying on the floor.'

Na polu ležal persidskij kover.
on floor.LOC.SG lie.PAST.3SG Persian rug.NOM.SG
'A Persian rug was lying on the floor.'

Presumably, the dress had been simply dropped, carelessly, on the floor, whereas the Persian rug had been placed on the floor intentionally. Unlike the English verb of “lying”, however, the Russian verb *ležat* ‘to lie’ pays no attention to the action's (presumed) intentionality or otherwise. Since there are no differential conditions on the shape of the object “lying” above the ground or on

the ground either, the Russian verb *ležat'* (used as a classificatory verb) can be given a unitary explication:

Vešč' roda X ležala na stole/na polu.

'a thing of kind X was lying on the table/on the floor' =

if a person saw this place they could think about it like this:

"there is something of kind X in this place

no parts of this thing are far from the top_[M] of the table/the floor

at the same time some parts are touching the top_[M] of the table/the floor

people don't think about these parts of a thing of this kind like this:

"these parts are the bottom_[M] parts of this thing"

The components "some parts on one side of this thing are touching something" and "...these parts are not bottom parts" link the Russian verb *ležat'* with the English verb *lie*₂. What these components do is to ensure *some* "lateral" contact with the supporting surface and thus exclude "upright" objects like vases or TV sets. A sentence like

Vaza ležala na polu.

vase.NOM.SG lie.PAST.3SG on floor.LOC.SG

'A vase was lying on the floor.'

could only mean — as its counterpart in English — that the vase was lying on its side. Unlike its English counterpart, however, there would be no implication of unintentionality, and this is why the same verb *ležat'* could also be used about a Persian rug lying on the floor, whereas as noted earlier the English verb *lie* would normally not be so used.

The Russian verb of "standing" is also used differently, to some extent, from its English counterpart. The differences can be explained, partly, by the absence of a classificatory verb of sitting in Russian. Thus, in Russian, not only a vase or a lamp but also a pot or a TV set would be described as "standing" on the table:

Na stole stojal goršok/televizor.

on table.LOC.SG stand.PAST.SG pot/TVset.NOM.SG

'A pot/TV set was "standing" on the table.'

For the English verb *stand*, I have postulated the component "some parts of this thing are far from (the top of the table)", but this would hardly apply to a pot or a TV set. For the English verb *sit*, I have posited the component "no parts of

this thing are far from (the top of the table)”, but this would not apply to a tall vase or a tall lamp. To cover both objects like pots and TV sets which are not long, and longish ones like vases and lamps we could use another component from the explication of the English verb *sit*: “some parts of this thing are not close to (the top of the table)”. The component of intentionality is also implied by the Russian verb *stojat*, as it is by the English verbs *stand* and *sit*. This brings us to the following explication of *stojat*:

Na stole stojal goršok.

‘A pot was “standing” on the table.’ =

if a person saw this place they could think about it like this:

“there is something [a pot] in this place

because someone wanted it to be there

some parts of this thing are not close to the top_[M] of the table

the bottom_[M] part is touching the top_[M] of the table”

As we have seen, then, the Russian semantic system of classificatory verbs is similar to the English one in some respects and different in others.² The logic to which I appealed accounting for the differences between *lie*₁ and *lie*₂ in English is, as it turns out, a “cultural” rather than “natural” logic. There are good reasons why a location of objects above the ground should be distinguished from one on the ground, and it is not surprising that some analogues to this distinction should be found as far afield as in Tzotzil, but as a comparison of English and Russian shows, it is not a universal distinction. The fact that in Russian in contrast to English only two posture verbs are used for inanimate objects is of course related to the fact that the range of use of the Russian verb *ležat* is wider than that of its English counterpart *to lie*. At the same time, parameters such as “the top of the object”, “the bottom of the object”, “some parts are far from (close to)” and “touching” do appear to play a role in all languages, as does also the use of human postures as templates for the interpretation of the visual world.³

8. “Stand”, “lie” and “sit” as posture verbs

It has often been pointed out in the literature that classificatory verbs like *stand*, *lie* and *sit* are semantically related to the same verbs used in relation to people. To my knowledge, however, the nitty-gritty of such links has never been spelled

out, at least not beyond formulae like “extended vertical” (for “stand”), “extended horizontal” (for “lie”) and “non-extended” (for “sit”).

My own hypothesis is that, here as elsewhere, the key conceptual molecules include ‘top’, ‘bottom’, and the ‘ground’, and the conceptual atoms FAR, NEAR (CLOSE TO), ABOVE, BELOW, ON...SIDE, TOUCH and SEE. An additional molecule relevant to this mini-system is that of ‘legs’, and an additional ‘atom’ is BODY. Thus, if someone is standing somewhere, the bottom parts of this person’s legs (i.e. the feet) are touching the ground, and the top part of the body is far from the ground. This is of course analogous to objects “standing” somewhere, except that in the case of people, there are specific references to the ‘body’ and the ‘legs’.

If a person is sitting on the ground, some parts of the body above the legs (close to the legs) are touching the ground, and the top part of the body is neither far from nor close to the ground. Being in that position, a person “can’t move” (at least not in the way people move when they move because they want to be in another place): to walk, they would have to stand up, to roll over, they would have to lie down. (Cf. Goddard and Harkins 2002.) In all these aspects, the “sitting” of inanimate objects (in English) is analogous to the human sitting.

It will no doubt be pointed out that a person who is standing or sitting somewhere may not really *want* to be standing or sitting in that place. But even if a person is standing or sitting somewhere under duress, ultimately it is their own choice whether to remain in that position and place or not. If it is not their choice then the verbs *stand* and *sit* would not be appropriate. For example, a person in a coma would not be described as “standing” or “sitting”, even if they were skilfully propped up. In the case of “lie”, however, no volition needs to be involved: even a person who is in a coma could be described as “lying on the ground”.

In the case of “lying”, there are also some further analogies with inanimate objects, as well as some differences. If a person is lying, many parts of their body are touching the ground and no parts of the body are far from the ground. Does it matter here, too, whether a person is lying on the ground or above the ground? Apparently not. A sentence like:

Someone was lying on the ground.

does not carry the implication that the person’s location or position was involuntary; the sentence is simply vague in this respect (lie₃). These considerations bring us to the following explanations:

Someone was standing on the ground. =

if a person saw this place they could think about it like this:

“there is someone in this place
because this someone wants to be there
the top_[M] part of this person’s body is far from the ground_[M]
the bottom_[M] parts of this person’s legs_[M] (the feet_[M]) are touching
the ground_[M]
because these parts are touching the ground_[M] like this
this person can’t move at any moment
like people move when they are doing something with their legs_[M]
because they want to be in another place”
this person is not moving like this now

Someone was sitting on the ground. =

if a person saw this place they could think about it like this:

“there is someone there
because this someone wants to be there
the top_[M] part of this person’s body is not far from the ground_[M]
at the same time, it is not close to the ground_[M]
some parts of this person’s body above the legs_[M], close to the
legs_[M],
are touching the ground_[M]
because these parts of this person’s body are touching the ground
like this
this person can’t move now
like people move when they are doing something with their legs_[M]
because they want to be in another place”

Someone was lying₃ on the ground. =

if a person saw this place they could think about it like this:

“there is someone there
no parts of this person’s body are far from the ground_[M]
many parts of this person’s body are touching the ground_[M]”

9. Shape and dimensions

The conceptual primes FAR, PART, SOMEONE (PERSON), and SEE, which we have encountered in our analysis of the classificatory and posture verbs *stand*, *sit*,

and *lie*, also play a key role in the semantics of adjectives like *high* and *low*, *wide* and *narrow*, and *deep* and *shallow*. Far from being “objective”, physical parameters, words of this kind, too, embody a conceptualization which reflects the subjective perspective of a human observer. As in the case of the verbal classifiers *stand*, *sit*, and *lie*, these so-called “dimension adjectives”, too, embody conceptualizations which are language-specific. For example, as has been shown in detail elsewhere, even the English adjective *long* differs in meaning from its closer translation equivalent in Polish (cf. Wierzbicka, In press) and in the Papuan language Makasai (cf. Brotherson, To appear). Similarly, the English words *high*, *low*, *wide*, *narrow*, *deep* and *shallow* differ in meaning from their closest counterparts in Polish (and of course in many other languages) and the distinctions that English draws between *high* and *tall*, or between *wide* and *broad*, have no parallels in most other European languages, let alone languages further afield. While it is impossible, for reasons of space, to discuss such cross-linguistic differences in this paper, the analysis of the English “dimension adjectives” presented here provides a model which can be readily applied to any language, making rigorous and fine-grained cross-linguistic comparisons possible.

10. ‘High’ and ‘tall’

The conceptual primes FAR, ABOVE and BELOW, and the molecules TOP and BOTTOM, which we have encountered in our analysis of the classificatory and posture verbs *stand*, *sit*, and *lie*, also play a key role in the semantics of the adjectives *high* and *tall*. I will argue that the two main differences between these two adjectives are that *high* applies to places, whereas *tall* applies to people and things, and that *tall* implies a certain shape (roughly, longish), whereas *high* does not. Consider, to begin with, the following contrasts:

- a tall man / *a high man
- a tall glass / *a high glass
- a high hill / *a tall hill
- a high wall / *a tall wall

A hill or a wall can be thought of as a “thing”, but it can also be thought of as a part of a “place”. It is not thought of as a thing which is always (as it happens) in the same place, but rather as a thing which is a part of a place. Leaving for the moment expressions like *a high chair* or *a high collar*, I would propose that the adjective *high* collocates with those entities which can be thought of as places,

or as parts of places. Entities of this kind can be discrete and countable, like individual things, but they must be inherently immovable, like places. If they are also elongated in shape (vertically), they can also be described as “tall”. Thus, a wall can be thought of as part of a place, and so it can be *high*; and it is usually not elongated, so it cannot be *tall*. A man or a wine glass cannot be thought of as part of a place, so they cannot be *high*. Some things, however, can be called either *tall* or *high*:

a tall tower / a high tower
a tall building / a high building

The reason for this, I suggest, is that such objects can be thought of in two different ways: either as a thing or as part of a place, and that they also have an elongated shape.

This distinction between places or parts of places, (in the case of *high*) and things or people (in the case of *tall*) is consistent with Herbert Clark’s (1973:38) suggestion that *high* means “far off the ground”. In the case of a “tall glass”, the top part is proportionately far from the bottom part, but not necessarily far from the ground, whereas in the case of a “high mountain”, or a “high tower”, the top part is indeed “far off the ground”, or, as I would put it, “far above the ground”.

Taylor (2002) has made the following comment about *high*: “High (...) is rarely used of humans (or of animals). Otherwise the word applies to just about all kind of physical bodies.” In support of this statement, he offered expressions like *a high chair* and *a high collar*. But if *high* were really applicable to objects (“of all kinds”), why would expressions like **a high mug*, **a high vase*, **a high lamp*, **a high jacket* or **a high dress* be judged as unacceptable?

According to my hypothesis, expressions of this kind are unacceptable because the objects referred to can only be seen as things, not as places or parts of places. What needs to be explained is why *high* can be combined with words like *chair*, *collar*, or *heels*; but this, I think, can be explained readily.

First, expressions like *high chair*, *high collar* or *high heels* are set phrases referring to a particular kind of thing rather than free combinations of nouns and adjectives. Second, phrases of this kind imply a reference to a place and can be interpreted as describing (adverbially) a certain position in relation to a place. They are analogous to expressions like *a high ceiling*, which Taylor himself describes as “positional”. For example, a *high collar* reaches high up on the person’s neck, and similarly, *high boots* reach high up on their legs. A *high*

chair allows a child to be sitting high up, and *high heels* allow the feet to be on a raised level. What matters here is *where* the child is, or *where* the feet are.

I do not claim that *high* in expressions like *a high collar* (let me call it *high*₂) means the same as *high* in expressions like *a high mountain* (let me call it *high*₁) — if only because, as I will discuss in a moment, *high*₁ implies a reference to the ground. I do suggest, however, that the semantic extension from *high*₁ to *high*₂ is motivated by a reference to ‘place’. In what follows, I will not discuss *high*₂ any further and will focus on the wholly productive use of *high* in combination with nouns which refer to things thought of as places or parts of places.

In fact, when we try to understand the meaning of *high* (*high*₁) as an adjective, it will be helpful to start with the use of *high* as an adverb. For example:

Look at that kite — how high it is.

A sentence of this kind, in which *high* could be paraphrased, informally, as “a long way up”, implies the perspective of a person on the ground raising their eyes towards some place above the ground. Thus, *high* as an adverb could be paraphrased as follows:

high (ADV)

[something (e.g. a kite) is in a place above the ground_[M]]

if a person sees the place where this thing is

they can think about it like this:

“it is far above the ground_[M]”

Similarly, a phrase like *a high jump* implies that the body of the jumping person was, for a moment, “far above the ground” (or could be judged in this way by an onlooker).

Turning now to the adjectival uses of *high*, as in *a high mountain*, we must note, first of all, that in collocations of this kind the meaning of the noun must be compatible with that of the adjective. More specifically, the noun ensures, by virtue of its meaning, that the thing in question can be thought of as part of a place, that it has parts normally thought of as the top and the bottom, and that the top is above the ground. The adjective *high* adds to this a visual perspective (from the ground upwards) and the information that, in comparison with other things of the same kind, the top is not just *above* the ground, but in fact *far above* the ground. In the explication below the conditions implied by the noun are shown in small print and in square brackets to distinguish them from the semantic contribution of the adjective; the conditions refer to “things of

this kind”, whereas the main part of the explication refers to a particular thing, “this thing”:

a high mountain (a high wall)
 [people can think about things of this kind like this:
 “it is a part of a place
 the top_[M] part is above the ground_[M]”]
 when someone sees this thing
 if they think about other things of this kind [other mountains] at the
 same time
 they can think about it like this:
 “the top_[M] part of this thing is far above the ground_[M]”

For the adjective *low*, we can propose a symmetrical explication:

a low hill
 [people can think about things of this kind like this:
 “it is a part of a place
 the top_[M] part is above the ground_[M]”]
 when someone sees this thing
 if they think about other things of this kind [other hills] at the same time
 they can think about it like this:
 “the top_[M] part of this thing is not far above the ground_[M]”

As John Wilkins (1668) pointed out three hundred years ago, the perspective implied by *high* (and *low*) is different from that implied by *deep* (and *shallow*): *high* implies a direction of gaze from the bottom up, whereas *deep*, from the top down. This perspective or direction of gaze is captured correctly by some dictionaries of English, e.g. by COBUILD (1991), which defines *high* (adverb) as follows: “if something is high, it is a long way above the ground, above sea level, or above someone or something else”. The adjective *high* is defined by COBUILD as follows: “something that is high extends a fairly long way from the bottom to the top when it is upright”.

While I do not think that these definitions are justifiable in all their details, the idea of mental scanning of some area from the bottom to the top is, I believe, right. But of course this mental scanning has to be done by someone — an imaginary human observer. (On “mental scanning” and “fictive motion” implied by words like *extend*, see Langacker 2003a, 2003b; Talmy 2000).

COBUILD correctly attributes the opposite perspective to *deep* (adjective): “if something is deep it extends a long way down from the ground or from the top surface of something.” I will discuss *deep* and *shallow* in the next section. Here, I would like to emphasize the need for the upward perspective in the

explications of *high* and *low* (in contrast to those of *deep* and *shallow*), and also for a reference to a hypothetical human observer.

Turning now to *tall*, we will note that, for example, COBUILD does not include in its definition any direct reference to a particular perspective: “someone or something that is tall has a greater height than is normal or average”, although it does include such a reference in its definition of *height*, at least in one of its meanings: “the height of a person or thing is its measurement from the bottom to the top”. In fact, it seems clear that *tall*, like *high*, implies a perspective from the bottom up — if only because things described as “tall” are being likened implicitly to human bodies (cf. Taylor 2002). People seem to become “tall” by growing in an upward direction because “tall” implies an upright position (babies who can’t stand up can’t be “tall”); and as children grow, when they are in an upright position the tops of their heads get further and further from the ground.

In collocations like *a tall tree* or *a tall mug*, (as in those like *a high hill*) the meaning of the noun must be compatible with that of the adjective. In this case, too, the meaning of the noun must imply the presence of parts thought of, habitually, as the top and the bottom, and a vertically elongated shape, that is, a considerable distance between the top and the bottom in relation to all the other parts of the same thing:

a tall tree (mug, glass, lamp)

[when people think about things of this kind
if they think about all the parts at the same time
they can think like this:
“the top_[M] part is far from the bottom_[M] part”]

when someone sees this thing

if they think about other things of this kind [other trees] at the same time
they can think about it like this:

“this thing is not like many other things of this kind
the top_[M] part is very far from the bottom_[M] part”

Comparing this explication of *tall* with that of *high* given earlier, we will note the following differences between the two: 1. the explication of *high* refers to things thought of as a part of a place, whereas that of *tall* does not; 2. the explication of *high* includes the component “the top part is far above the ground”, whereas that of *tall*, includes, instead, the component “the top part is far from the bottom part”; 3. the explication of *tall* refers not only to the relative “height” of the object (in comparison with other objects of the same kind) but also to its proportions; 4. the explication of *tall* presents the object so described as unusual, outstanding, noticeable — “not like many other things of this kind”.

To start with the last of these four points, I will quote Taylor's (2002:271) remark that "tall entities stand out — they are seen as gestalt, distinct and discontinuous from the background against which they are viewed". I think this observation is correct: *tall* presents the object in question as visually striking, unusual — "not like many other things of this kind". The fact that *a tall mug* implies a mug that is non-standard lends to this component additional support, as does also the fact that *tall* has no opposite (**a short mug*, ?*a low mug*): something *tall* is visually striking by virtue of looking as if it were "overgrown", or seeming to have an "elevated" top. Similarly: *a tall building* vs. ?*a short building*, *a tall tree* vs. ?*a short tree*. (The reason why a glass can be described as *a short glass* is that there is also *a long glass*.)

The discrete and discontinuous nature of entities described as "tall" is related to their conceptualization as "things" rather than parts of places, which has already been commented on. The difference between "far above" (in *high*) and "far from" (in *tall*) is also related to that between places and things. Since places are stationary, the top is always above the bottom, and always above the ground. In the case of things which are not necessarily stationary, the top part is not always above the bottom part; if they are "tall", however, it is always far from it.

In both cases, a mental comparison is involved — in the case of a *high mountain*, with other mountains, and in the case of a *tall tree*, with other trees. In addition, however, *tall* implies a mental comparison of the distance between the top and the bottom with that between all the other parts: as mentioned earlier, *tall*, in contrast to *high*, implies an elongated shape. For example, a "tall building" has to be higher than it is wide; a very large and massive building like St. Peter's Basilica in Rome would be unlikely to be described as "tall" (cf. Taylor 2002). *High*, on the other hand, does not refer to the proportions, and can be applied to a sprawling mountain as well as to a tower.

It may be worth adding that sometimes (rarely) *tall*, too, can be used in relation to places — if these places are thought of as highly individual features of the landscape. Just as a tower can be thought of as either a thing or a part of a place (*a tall tower*, *a high tower*), so a visually striking mountain can (in some speakers' judgment) be described as *a tall mountain*. The expression *a tall mountain* implies that the mountain in question is thought of as something unusual, visually striking, relatively slender, and with the top part far from the bottom part (rather than far above the ground, as *a high mountain* would imply).

In their article on "tall", Keil and Carroll (1980) have discussed — and rejected — the hypothesis (offered in the literature) according to which "the

meaning” of this word consisted of features such as “applies to physical objects”, “spatial”, “has extent”, “vertical dimension”, and “+pole” (p.22). While one can wholeheartedly agree with the authors’ rejection of such a hypothesis, it must be noted that they have not proposed an alternative. They suggested that children “seem to first learn ‘tall’ in highly idiosyncratic ways that are bound to particular classes of objects” (p.27) and that “[f]inally, they discover that there is an abstract critical situation that governs all uses of ‘tall’, and they begin to use it instead” (ibid.), but they did not spell out what this “abstract critical situation” really is. Similarly, no definitions of either *tall* or *high* have been offered in the otherwise very interesting articles on the subject by Dirven and Taylor (1988) and Taylor (2002). The explications proposed here are meant to capture the conceptualizations which are encoded in these words and which are responsible for the acceptability judgments reported by these authors.

11. ‘Deep’ and ‘shallow’

The concept of ‘deep’ may seem to be closely related to that of ‘high’, and in fact John Wilkins defined them both in terms of the distance between the top and the bottom. As mentioned earlier, what distinguished the two according to Wilkins, was the onlooker’s point of view: in the case of ‘high’, it is a view from the bottom to the top, whereas in the case of ‘deep’, it is a view from the top to the bottom. Clearly, in Wilkins’ conception the onlooker is on the ground, looking either upwards or downwards. But from a human point of view the two directions are not exactly symmetrical.

One difference is that looking upwards, one can see a great deal, whereas looking downwards, one often cannot. Another difference is that in the case of a mountain, the onlooker can usually see both the bottom part and the top, and the expression *the top of the mountain* does exist (as well as *the foot of the mountain*), whereas in the case of a sea, or a lake, one usually cannot see the bottom and one does not think of the visible surface of the water as “the top of the sea”. All these facts suggest that we should perhaps be suspicious of an explication of *deep* which would be strictly symmetrical to our explication of *high*, like the following one:

a deep lake

[people can think about things of this kind like this:
 “it is a part of a place
 the bottom_[M] part is below the ground_[M]”]

when someone sees this thing

if they think about other things of this kind [other lakes] at the same
time

they can think about it like this:

“the bottom_[M] part is far below the ground_[M]”

Before we decide whether or not an explication of this kind can be sustained for *deep* used in relation to places (which I will call *deep*₁), let us consider its use in relation to objects, such as, for example, bowls (which I will call *deep*₂). When we compare the expressions *a tall vase* and *a deep bowl* we can see a difference in the perspective: a “tall vase” reflects the point of view of a potential onlooker, whereas a “deep bowl” (*deep*₂) reflects not that of a potential onlooker (someone looking at the vase from the side and visually scanning it upwards), but rather that of a potential user, that is someone trying to reach — from the top — something that is inside the bowl.

The nonvisual perspective implied by *deep*₂ is particularly clear in the case of the expression *deep pocket*: clearly, people do not look inside a pocket to see if it is deep, but rather, put a hand inside it. In the case of a *deep bowl* the user may put a utensil rather than a bare hand inside it in order to reach the bottom, but again, it is a matter of reaching it (touching it) rather than seeing it (cf. the expression *to dig deep into one's pocket*, which refers to generous donations).

The notion of ‘inside’ appears to be essential to the meaning of *deep* as used in relation to objects (*deep*₂). In fact, Herbert Clark (1973: 39) suggested that the word *deep* always refers to “containers”: “*Deep – shallow* is the next pair that presupposes a three-dimensional application, and it means, roughly, ‘distance into something from its surface’. That is, an object to which *depth* is applied must be thought of as a container, having a definable surface and an inside dimension.”

But while I think Clark’s comments are insightful, they apply, in my view, to what I call *deep*₂ (as in *a deep bowl*) and do not apply to *deep*₁ (as in *a deep lake*). While it is true that places described as “deep” usually “contain” water in them, I do not think that a lake or a sea is conceptualized as a “container” or that the water is thought of as being “inside” the sea or the lake. On the other hand, the contents of a bowl (or a pocket) are most certainly conceptualized as being inside that bowl (or that pocket). I do not deny that a lake, or a swimming pool, *can* be thought of as a reservoir of water, but I don’t see any evidence that it *is* habitually thought of in this way. A tub or a bath are indeed thought of like this, as witnessed by the following definitions from COBUILD: “a bath is a long, rectangular container which you fill with water and sit or lie in while you wash your body”, “a tub is a wide circular container of any size, into which a liquid

can be poured; e.g. a tub big enough to hold eighteen gallons". But words like *lake* or *river* cannot be normally described as "containers".

Assuming, then, that things like bowls or tubs are thought of as "containers", that is, as things inside which some other things can be for some time, we somehow need to combine, in the explication of *deep*₂, a reference to "inside" with a reference to the bottom parts. Roughly speaking, an expression like *a deep bowl* implies that it is far from the opening at the top to the bottom parts inside. Drawing on the semantic molecule of an 'edge', which will be discussed in the next section, we could say that the distance to which *deep*₂ (as in *a deep bowl*) refers is that between the edge at the top of the bowl and the bottom parts inside it. This leads us to the following explication:

a deep bowl (a deep pocket)

[	people can think about things of this kind like this: "there is a place inside this thing because of this there can be something inside this thing when someone wants it the top part is not like the bottom part it has edges when there is something inside this thing it touches the bottom part"	]
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when a person wants to do something with this thing

like people do with things of this kind

if this person thinks about other things of this kind [other bowls] at the same time

this person can think about it like this:

"the bottom_[M] parts inside are far below the edges_[M] at the top_[M]"

The user's perspective reflected in phrases like *a deep bowl* explains also the logical links between the component referring to "a place inside" and the one referring to "the edges at the top". The "place inside" is the place where the user wants something (e.g. some soup) to be for some time. For this to happen, the object has to have an opening through which the thing in question (e.g. the soup) can be brought to the place inside. If the contents of the "deep" object are not to fall out (because of gravity), this opening needs to be at the top, not at the bottom; and the boundaries of the opening are the edges in question. The bottom part has no edges, and when something is inside the "container", it touches the bottom part (again because of gravity).

But if expressions like *a deep bowl* or *a deep pocket* reflect the perspective of someone doing something with (rather than viewing) the objects in question, is it possible that *a deep lake* or *a deep river*, too, may reflect the perspective of a "doer" rather than that of an onlooker?

A *deep lake* is, of course, a lake where a person can drown (while doing something there, e.g. bathing or rowing); it is also a place where a person can swim or fish. The *deep end* of a swimming pool is the part meant only for people who can swim; a *shallow place* in a river is a place where people can cross that river on foot. Even a *deep hole* is most likely to refer to a hole in the ground and to be of interest to people because when a person is walking in the place where there is a deep hole, the person's foot might slip into it and they might fall or twist their ankle. (A *deep hole* in the wall may be different, conceptually, from a *deep hole* in the ground, and comparable to a *deep wound*. I will return to this further sense of *deep* shortly.) In all the cases considered above — fishing, rowing, swimming, or even walking — the activities that people may engage in in places of this kind appear to be more relevant to the concept of 'depth' than what an onlooker can or cannot see.

It is also worth pointing out that it is usually difficult to know how deep the water is, or whether it is deep at all, by simply looking into it, whereas one look at a tower, or a mountain, can be sufficient to tell us that it is, or is not, high. Often, to know whether the water is deep people need to reach into it — with their feet, with a pole, or with some other appropriate instrument. (Cf. also the images behind the word *unfathomable* and the expression *to get to the bottom of*.)

In the light of these considerations, I would propose for "deep places" the following, revised explication:

a deep lake

[people can think about things of this kind like this:
"it is a part of a place
the bottom_[M] part is below the ground_[M]"]

when a person is doing something in this place

like people can do in places of this kind

if this person thinks about other things of this kind [other lakes] at the
same time

they can think about it like this:

"the bottom_[M] part is far below the ground_[M]"

Shallow can be given a symmetrical explication:

a shallow lake

[people can think about things of this kind like this:
"it is a part of a place
no part of this place is above the ground_[M]
the bottom_[M] part is below the ground_[M]"]

when a person is doing something in this place

like people can do in places of this kind
 if this person thinks about other things of this kind [other lakes] at the
 same time
 they can think about it like this:
 “the bottom_[M] part is not far below the ground_[M]”

As we will see in the next two sections, the “user’s” (doer’s) perspective reflected in expressions like *a deep bowl*, and probably also in those like *a deep lake*, plays also a significant role in some other seemingly “objective” and purely descriptive spatial concepts, including *wide*, *narrow*, and *straight*.

As recognised in many dictionaries, e.g. in COBUILD, *deep* has also an extended use (or uses) implying that it is far from the edge of something to some parts inside it, as for example in the phrases *deep in the forest* or *a deep wound*. Such uses would require separate explications, as would of course various non-spatial uses of *deep*, for example, *deep in thought* or *a deep thinker*.

While I cannot undertake here an exhaustive discussion of all the uses of *deep*, I will propose, as a conclusion to this section, an explication of *a deep wound*. I have mentioned earlier that the explication given for *a deep hole* in the ground may not be applicable to a deep hole in the wall (left, for example, by some nails). I would now suggest that *a deep hole* in the wall may in fact be conceptualized in the same way as *a deep wound* rather than as *a deep hole* in the ground.

a deep wound (a deep hole in the wall)
 [people can think about things of this kind like this:
 “this thing has edges
 there is a place inside this thing”]
 when a person sees this thing
 if this person thinks about other things of this kind at the same time
 they can think about it like this:
 “the edges are far from some parts inside”

12. ‘Wide’, ‘narrow’ and ‘broad’

The English words *wide* and *narrow*, and their equivalents in many other languages, can be used in a number of different senses. To be able to identify these senses we have to recognize, from the outset, that they are “senses”, in the plural, and not one unitary sense. To be sure, these senses are interrelated; but to see how they are interrelated we need to first identify each one of them separately.

Let us start by comparing the following expressions:

a wide (narrow) chair
a wide (narrow) bench

It is clear that while both chairs and benches are objects made for people to sit on, the words *wide* and *narrow* refer here to two different dimensions: in the case of a bench, to the distance between the front and the back, and in the case of a chair, to that between the two (lateral) sides.

This different interpretation of *a wide (narrow) bench* and *a wide (narrow) chair* points to two different senses of the words *wide* and *narrow*. Let us consider first the case of *a wide (narrow) chair*. How do we know which “sides” of a chair are being referred to? I think we know it because, by virtue of its very meaning, the word *chair* suggests the image of one person sitting on the flat part of the object in question, with two similar sides of the chair on two similar sides of his or her body: the sides where the person’s arms are. The links between the sides of the body where the arms are and the sides of the chair where the arms are expected to be are highlighted in the word *armchair*: an armchair has two similar parts on two similar sides, specially designed for the person’s arms to rest on.

Thus, the concept of ‘width’ as applied to a chair is bodycentric: it takes the perspective of an average person sitting on a chair and either having some room on either side of their body (if the chair is “wide”) or having none (if the chair is “narrow”). Crucially, the two sides of the person’s body to which the words *wide* and *narrow* refer here are the sides on which the person’s arms are, and not the sides on which their face and the back are.

As mentioned earlier, in English, and in many other languages as well, the expression *the sides of the body* brings to mind primarily those sides which are called “right” and “left”, that is, those where the two arms are. The “side” of the body where the face is (the “front”) can also be conceptualized as a “side”, but since the face doesn’t have a comparable counterpart on the opposite side of the body, and since the side where the face is (the front side) and the one where the back is (the back side) play very different roles in human life (in relation to seeing, walking, interacting with other people, etc.), the notion of “two sides of the body” is linked, naturally, with the sides on which the two (comparable) arms are rather than with those on which the face and the back are. (I will return to this issues in Section 11).

I suggest, then, that one sense of the words *wide* and *narrow* is bodycentric and is linked with two “sides” of the human body — those on which the person’s arms are. Apart from a *wide* (or *narrow*) *chair*, this sense can be illustrated with expressions like the following ones:

a wide (narrow) seat
 a wide (narrow) saddle
 a wide (narrow) bed
 a wide (narrow) mattress
 a wide (narrow) door

A particularly telling contrast, next to that between a *wide (narrow) chair* and a *wide (narrow) bench*, is that between a *bench* and a *sofa*. As noted earlier, *wide* as in a *wide bench* usually refers to the distance between the front and the back. *Wide* as in a *wide sofa*, however, refers (or can refer) to a different dimension: like an armchair, it refers, so to speak, to elbow-room.

Clearly, the speaker describing a sofa as “wide” takes the perspective of a person sitting on it and having plenty of room on the right and on the left. Presumably, one reason for the difference in the interpretation of a *wide bench* and a *wide sofa* is that a sofa normally has a “back” whereas benches often don’t. Another reason may be that sofas often have “arms”. In any case, however, it is clear that *wide* in a *wide sofa* does not mean the same as *wide* in a *wide bench*.

What does it mean, then, that a chair, a seat, a bed or a sofa is “wide”? In essence, *wide* in this sense, which I will call, for convenience, *wide*₁, implies that the object in question has two boundaries, on two sides of the human user’s body (or, in the case of a sofa, on the two sides of the users’ bodies). But what sort of “boundaries” are these, or how are they conceptualized?

One possible hypothesis is that they are conceptualized as “edges”. For example, it can be said that the flat part of a chair has two “edges” on two sides of the user’s body where his or her arms are, and that if the chair is “wide” this means that it is far from one of these two edges to the other. Of course, the concept of an ‘edge’ needs to be defined, too, but arguably, it functions as a semantic molecule in the meaning of *wide* (as well as in many other concepts) and can therefore be used as such in its explication.

As in the case of *high* and *low* or *deep* and *shallow*, here, too, the meaning of the noun has to be compatible with that of the adjective and has to meet certain conditions. In the case of *wide*₁ (and *narrow*₁), these conditions are quite complex. They will be spelled out in the introductory part of the explication.

*a wide*₁ *chair (seat, bed, sofa, mattress)* =

[	people can think about things of this kind like this: “it is a kind of place this place has edges _[M] a person’s body can be in this place when a person’s body is in this place one of the edges _[M] is on the side of the body where one of the person’s arms _[M] is	]
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another edge_[M] is on the side of the body
where the other arm_[M] is”

The objects in question (which can be thought of as places) have edges — not necessarily two edges, because, for example, a chair can be said to have three: if someone is said to be sitting “on the edge of her chair” the word *edge* would normally not refer to either of the lateral edges. Nonetheless, the object in question must also have two “lateral” edges, intended to be on the two sides of the user’s body where the arms are.

It would be tempting to suggest that the judgment concerning that distance is attributed to the hypothetical user: “the edge on one side of my body is far from the edge on the other side of my body”. In fact, however, such a suggestion does not seem tenable. For example, the expression *a wide pram* does not reflect the judgment of the infant in the pram but of the onlooker: it is the person who sees the pram rather than the infant who lies in it, that judges the distance between the two lateral edges to be considerable (in comparison with other prams).

Before moving on to another sense of *wide* (*wide*₂), let me explicate the semantic molecule *edge*. As we will see, this concept, too, involves, crucially, the semantic prime SIDE (ON ...SIDE). Essentially, an edge is a part of an object which can be seen a boundary separating that object from everything else: on one side of this boundary there are some other parts of the same object, on the other side there are no more parts of it. In being like a visible boundary an edge is also like a line: a line, too, is something that visibly separates some part

of a piece of paper, of a blackboard, or whatever (those which are on one side of it) from some other parts (those which are on the other side). Unlike a line, however, an edge (a brim, a hem, the lip of a cup, the edge of a knife etc.) is not only visible but also tangible: touching it with one's hand, one can know that this part of an object is also its boundary.

An "end", too, could be said to be a limiting part of an object (where this object, for example a stick, "comes to an end"). But in the case of an "end", this limiting part is not like a line. An "edge", on the other hand, *is* like a line — not necessarily a straight line (as in the case of the edge of a knife or a ruler), possibly a curved or even closed line (as in the case of the edge of a bowl), but still, a line. In the explication of the word *edge*, this aspect will be accounted for by means of the component "this part is like something long" (where "long" is a semantic molecule; for an explication of this molecule see Wierzbicka 2003, In press)

the edge of something

a part of something

when someone sees this thing they can think about this part like this:

"this part is not like the other parts of this thing

it is like something long_[M]

on one side of this part there are other parts of the same thing

on the other side of this part there are no more parts of the same thing"

if a person's hands touch this part this person can think the same

The meaning of *wide*₂ can be illustrated with expressions like the following ones:

a wide (narrow) passage

a wide (narrow) corridor

a wide (narrow) trail

a wide (narrow) track

a wide (narrow) path

While these expressions refer to "places" rather than "things" (thought of as a kind of place), arguably, here too the perspective is bodycentric: the speaker envisages a person moving through the entrance or a passage, in the way people move through such places, having more or less "elbow-room" on either side of their body.

Can such places, too, be conceptualized as having "edges"? I think trails and paths clearly can, and perhaps the other ones can too. In this case, however, there have to be two, rather than an unspecified number of, edges. Here,

too, the noun has to meet certain conditions, on which the explication of the adjective depends:

a wide path

people can think about things of this kind like this:
 “it is a kind of place
 it has two edges_[M]
 when a person is moving in this place
 like people move in places of this kind
 one of these two edges_[M] is on the side of this person’s body
 where one of the person’s arms_[M] is
 the other edge_[M] is on the side of the body
 where the other arm_[M] is”

when a person sees both edges_[M] of this place at the same time
 if this person thinks about other things of this kind at the same time
 they can think about it like this:

“one edge_[M] is far from the other edge_[M]”

The “edge” of a place could of course be explicated in the same way as the “edge” of an object, except for the need to replace the references to “parts of something” with references to “parts of a place”, and to delete the reference to touching:

the edges of a place

a part of a place

when a person sees this place they can think about this part like this:

“this part is not like the other parts of this place

it is like something long_[M]

on one side of this part there are other parts of the same place

on the other side there are no more parts of the same place”

It is clear, however, that the analysis proposed here for *wide*₁ (as in *a wide chair*) and *wide*₂ (*a wide path*) cannot apply to collocations like *a wide belt*, *a wide ribbon*, or indeed, *a wide bench*. Here, what matters is not the relation to the two sides of the human body, but the relation between the two sides of a “long” object.

In his classic paper on the semantics of dimensional adjectives, Manfred Bierwisch (1967) described the German counterpart of “wide” (*breit*) as a “secondary dimension”. What he appears to have meant by this was that “width” is secondary to “length”, that is that only something that can be described as “long” can also be described as “wide”. Two decades later, Ewald Lang (1989) endorsed Bierwisch’s “semantic representation” (SR) of *wide* (originally, of the German word *breit*), which takes the following form:

SR (wide) = (+Pol) [(1 Space) [*[(+Sec)]]]

In my view, “semantic representations” of this kind throw little light on words’ meanings and it is not clear how they could be tested (for discussion, cf. Wierzbicka 1972). Nonetheless, the intuition that *wide* (in one sense of the word) is conceptually related to *long* is, in my view, correct and worth pursuing.⁴

One point that needs to be emphasized here is that the English word *long* is multiply polysemous. Among its many meanings, the two relevant in the present context can be called *long*₁ (as in *I saw something long in the basket*) and *long*₂ (as in *a long stick* or *a long tail*). I have argued (Wierzbicka 2003, In press) that both these meanings of *long* are based on the intermediate concept ‘ends’, which I have defined there in terms of the universal semantic primes. Since normally only “something *long*₁” (e.g. a stick) can be described as *long*₂ (e.g. a “long stick”) the explication for *long*₁ is included in that of *long*₂:

*something long*₁

people can think about this thing like this: “this thing has two ends_[M]”

*a long*₂ *stick*

people can think about this thing like this: “this thing has two ends_[M]”

if someone thinks about other things of this kind [other sticks] at the same time

they can think about this thing (this stick) like this:

“one end_[M] is far from the other end_[M]”

But of course not everything that can be described as having two ends can also be described as being either “wide” or “narrow”. For example, a piece of string can be said to have two ends but cannot be described as either “wide” or “narrow”. What else does a “long” object need to have to be able to be described as “wide” (or “narrow”)? One possible hypothesis is that, like an object which is “wide” in a bodycentric sense (e.g. a chair), a long (*long*₂) object, too, needs to have “edges”: for example, a piece of string, which can be “thick” but not “wide”, does not have “edges” because it doesn’t have any parts perceived as elongated boundaries, whereas a belt, a ribbon, and a bench, which can all be “wide”, can all be conceptualized in terms of edges.

Before proposing an explication for *wide*₃ (as in *a wide belt*), I will point out that while in the bodycentric meanings of *wide* (*wide*₁ and *wide*₂) the perspective includes the user (the person who is sitting on a chair or moving through a passage) in the case of *wide*₃, what matters is only the perspective of an onlooker. Furthermore, collocations with *wide*₃ (*a wide ribbon*, *a wide belt*, *wide shoes*) appear to imply the perspective of someone looking at one

side of the object. Typically, “wide” objects in the sense of *wide*₃ are in fact “flat and thin”, like belts or ribbons, and can be conceptualized as having two sides. Shoes, however, or even feet, do not have to be thought of as “flat and thin” in order to be able to be thought of as *wide* (*wide*₃) or “narrow” (*narrow*₃); but the expression *narrow feet*, too, seems to imply a look from one side (in this case, from the top).

a wide belt

people can think about things of this kind like this:
 “it has two ends_[M]”
 at the same time they can think about a thing of this kind like this:
 “it has two edges_[M]”

when a person sees both edges of this thing at the same time on one side
 if they think about other things of this kind [other belts] at the same time
 they can think about it like this:

“one of the two edges_[M] is far from the other”

The polysemy of *wide* and *narrow* posited here in relation to objects (*wide*₂ vs. *wide*₃) is confirmed by two different interpretations of the expression *a wide desk*: on one reading, what matters is the distance between the two long edges which are on two sides of the (short) ends, on another — the distance between the two short edges on two sides of the person sitting at the desk. These different readings do not derive simply from two different interpretations of the same meaning. Roughly, they are: “the edge on one side of the person’s [user’s] body is far from the edge on the other side” (*wide*₁) and “the edge on one side of the two ends is far from the edge on the other side” (*wide*₃). Such two interpretations are possible because the two shorter sides of a desk can be thought of either as its “ends” or as the “edges” on the two sides of the person sitting at it. (On this point, cf. H. Clark 1973:45; Zubin and Choi 1984:343.)

One can speculate that the primary and perhaps the most widely attested (cross-linguistically) meaning of “wide”-type words is *wide*₂, as in *a wide path* or *a wide passage*: the need to move in a restricted space (e.g. forest, bush, jungle) may well be a universal human concern. If we assume that, it would be easy to see how the two other meanings attested in English, ‘wide₁’ and ‘wide₃’, may have developed out of ‘wide₂’. The conceptual route from a “wide passage” to a “wide chair” may well have led via a “wide door”, which can be seen both as a place (like “a passage”) and as a thing (like “a chair”). What links all three (*a wide passage*, *a wide door*, and *a wide chair*) is a bodycentric perspective of the user. The conceptual route from *a wide passage* to *a wide ribbon* may well have led via *a wide path*: while the *wide ribbon* is not bodycentric, it is certainly long (in shape), like a path, and it has two edges, like a path.

In fact, one could well argue that expressions like *a wide road*, *a wide street*, or *a wide river*, which refer to places that have both “ends” and “edges”, do not have the bodycentric perspective of *a wide (narrow) passage*, *a wide (narrow) trail*, or *a wide (narrow) path* either. Such expressions, therefore, may be closer in meaning to *a wide ribbon* or *a wide bench* than they are to *a wide (narrow) passage* or *a wide (narrow) trail*:

a wide₄ river (a wide street)

[	people can think about a thing of this kind like this:	]
	“it is part of a place	
	it has two ends _[M] ”	
	at the same time, they can think about it like this:	
	“it has two edges _[M] ”	]

when a person sees this thing

if this person thinks about other things of this kind [other rivers] at the same time

they can think about it like this: “one edge_[M] is far from the other”

I do not intend to present here an exhaustive study of the word *wide*, which is a very wide subject indeed. Let me note, as a final point, that *wide* has also developed some uses which require neither a bodycentric perspective nor a long shape. Such uses may rely, instead, on the notion of “edge” or on the notion of “passage”. For example, a hole can be described as “not wide enough” for some particular purpose; and the neck of a bottle could be described as “too narrow” for something to pass through. It is interesting to note that a human neck (which can be described as “thin”) cannot be described as “narrow”, although the neck of a bottle can: surely the difference is that in the case of a human neck there is no question of anything passing through it, whereas in the case of a bottleneck this is precisely what matters. For the same reason, a throat can be described as “too narrow” (for something to pass through), whereas a neck can only be described as “thin”.

Having explored *wide* and *narrow*, I will now briefly look at *broad*. Trying to substitute *broad* for *wide* in a variety of expressions one discovers that in most cases such a substitution is not possible, and that in fact, the range of use of *broad* is very restricted. To illustrate:

a wide belt / *a broad belt
 a wide margin / *a broad margin
 a wide mouth / *a broad mouth
 a wide path / *a broad path
 a wide desk / *a broad desk

Generally speaking, it appears that *broad* is not used with artefacts at all and that it applies only to naturally occurring phenomena: (A) features of the human body and (B) aspects of the environment. To illustrate:

- a. a broad back (cf. wide hips, broad hips)
broad shoulders (cf. wide feet, broad feet)
a broad smile (cf. a broad grin, a wide grin)
a broad face (cf. a wide nose)
- b. broad banks (cf. a wide river)
a broad field (cf. a wide street)
broad expanses (cf. a wide valley)

In most contexts, *broad* cannot be replaced by *wide* either, and comparisons such as the following ones are highly instructive:

a broad field / *a wide field
broad expanses / *wide expanses

As such pairs of expressions illustrate, *wide* is more restricted in space than *broad* and better defined: it refers to the distance between one specific place (e.g. one edge of a road) and another equally specific place (the other edge of the road). By contrast, *broad* refers to fairly open spaces, without strict boundaries, often stretching in more than one direction. Furthermore, *wide* can refer to manipulable objects (e.g. a belt) whereas *broad* refers only to places, or areas of the body which can be thought of as places.

What links *broad* with *wide*₂ is its bodycentric character: like *wide*₂, it appears to imply a reference to the human body. In the case of “broad” areas of the body this reference is evident. For example, *a broad back* implies that it is far from the places on one side of the body (one side of the back) to those on the other side; and the same applies to *broad shoulders*, *broad hips*, *a broad face*, and *a broad smile*. The sides of the body relevant to the meaning of *broad* are those where the person’s arms are (see below): a person cannot be “broad” from the front to the back.

The contrasts between *a broad face* and **a broad head* and between *a broad smile* and **a broad mouth* suggest two further factors: full visibility and the absence of clearly delineated edges. A face can only be described as “broad” because all its parts can be seen at the same time, which is not true in the case of a head. At the same time, a face (or a smile) doesn’t have any “edges” whereas a mouth does. Some body parts can be described as either “wide” or “broad”, depending on the context. For example, in a shoe shop, a person’s feet (which may need to be measured) are (for many speakers) more likely to be described

as “wide”, whereas on the beach, they are (for many speakers) more likely to strike an onlooker as “broad”. The element of visibility is also supported by extended uses of *broad* in collocations like *a broad hint* (very obvious), *a broad accent* (very noticeable), and *broad daylight* (when it is easy to see things). This brings us to the following explication:

a broad face (back) [cf. **a broad head*; ?*broad mouth* ?*broad teeth*]

[	people can think about this part of a person's body like this:	]
	“it is like a place	
	it has no edges _[M]	
	a person can see all the parts of this part of the body	
	at the same time	
	some parts are on the side of the body	
	where one of the person's arms _[M] is	
	some other parts are on the side	
	where the person's other arm _[M] is”	]

when a person sees this place

they can think about it like this:

“some parts on one side of the body are far from some parts on the other side”

While *broad*, in contrast to *wide*, is incompatible with clearly defined edges, it, too, implies a distance between some parts on the left and right sides of the body. Since, however, in this case the exact location of the parts in question is not identified, *broad* suggests a distance between different sides in a much vaguer way than does *wide*: it can only refer to a general visual impression, not to something that could be measured.

Turning now to *broad*₂, as in *a broad field* or *a broad meadow*, we will note that it is parallel in most respects to *broad*₁, as in *a broad face*. The anthropocentric nature of *broad*₂ is less evident but I would argue that it is also there, and that, moreover, in this case the perspective is not only bodycentric but also egocentric, that is, involving “my body” rather than “this person's body”. For example, *a broad field*, or *a broad meadow*, it is an open space, not planned (made by people), without neat edges, fully visible (and perhaps accessible to people). Presumably, expressions like **a broad mountain* or **a broad forest* are ruled out by the requirement of visibility, those like **a broad street*, by the planned, man-made character of their referents, and **a broad lake*, by the presence of “edges” (a consideration which applies also to *paths* and *sheets*).

a broad field (a broad meadow) [cf. **a broad mountain*; **a broad forest*]

[	people can think about places of this kind like this:	]
	“this place has no edges _[M]	
	when a person is near this place	
	this person can see all the parts of this place at the same time”	]

when a person sees this place
if this person is in this place
they can think about it like this:
 “some parts of this place are in front of_[M] me
 these parts are far from many other parts of this place
 these other parts are on other sides of my body”

Just as the expression *a broad back* refers to the distance between the parts on different sides of the body, so does the expression *a broad field*. In the case of “broad” body parts, however, the body in question is the same body which has those parts, whereas in the case of the environment (as in *a broad field*) the body in question is that of a human onlooker. An additional difference is that in the case of “broad body parts” there are two relevant sides of the body (those where the arms are), whereas in the case of “broad places” the number of different sides of the onlooker’s body is not limited to two. Presumably, for an onlooker, the parts of the place which are in front of them are at least as salient as those on other sides of their body. As a result, *a broad field* implies a place sprawling as it were in an unspecified number of directions.

The element “many” included in the explication of *broad* is also supported by the extended, non-spatial use of the word, as in *broadcast to all and sundry* or *a broad field of possibilities* (i.e. very many possibilities).

13. Straight

The last expression which I want to discuss here is *straight*. Like *high*, *deep*, and *wide*, *straight*, too, is used primarily in relation to places rather than things; and I would argue that — like with *wide* — its primary use is bodycentric and in fact — unlike with *wide* — egocentric. More specifically, I will argue here that all the spatial and shape-related senses of *straight* involve, in some way, the concept of ‘in front of’, and more particularly, ‘in front of me’. The expression *in front of me* can be explicated as (roughly) “on that side of my body where my face is”. As I noted in an earlier work (1996: 93),

To speak of a person’s front as a “side” may seem counter-intuitive, even absurd, because with reference to a person’s body we normally speak of only two sides: the right side and the left side. But this is due to the polysemy of the word *side* in English. For example, in Polish, the two “sides” of a person’s body, that is, the right side and the left side, are called *boki*, whereas *SIDE* as a semantic primitive is expressed by the word *strona*.

Assuming that the expression *in front of me* has been satisfactorily explicated in terms of semantic primes (for an explication of *face* see Wierzbicka 1996: 218), I will use it in the explications that follow as a convenient semantic molecule. As the starting point for my discussion I will take sentences with an adverbial and place-related use of *straight*:

- a. I will go straight.
- b. I will go straight ahead.
- c. *I will go straight left.
- d. *I will go straight back. (except in the sense of without delay, straight away)

As the unacceptability of (c) and (d) shows, *to go straight* implies “to go straight ahead”. *To go straight ahead* means, I would suggest, to go towards some place which is now in front of us, facing that place the whole time. More exactly, I would propose the following line of interpretation:

I want to go straight ahead
 when people move because they want to be in another place
 they can think like this:
 “I want to be in this place
 this place is now in front of_[M] me
 when I move I want this place to always be in front of_[M] me”
 if they think like this they can move like this
 I want to move like this

While the primary meaning of *straight* is, arguably, that portrayed in the explication above, there are of course various extensions, both among its adverbial and adjectival uses. To begin with another adverbial use, *straight* can also be used in sentences where no intention of reaching a target place is implied. Roughly speaking, sentences of this kind imply that a person or an object moving “straight” in a certain direction is moving like people do when they move “straight” because they want to reach a target place that is in front of them. To better understand the difference between moving towards a place and moving “straight” towards a place let us compare the following two sentences:

- a. She was moving towards the exit.
- b. She was moving straight towards the exit.

Sentence (a) describes a certain direction and does not refer necessarily to the agent’s intentions:

She was moving towards the exit. =

she was moving like people move when they want to be in another place
if someone saw this they could think about it like this:

“if she moves like this for some more time

she will be where the exit is”

Sentence (b), however, does refer to the agent's (hypothetical) intentions; even though the speaker doesn't claim to know what these intentions are, the agent's movement is being described as seemingly purposeful and goal-oriented:

She was moving straight towards the exit. =

she was moving like people move when they think like this about a place:

“I want to be in this place

this place is now in front of_[M] me

if I move like this after some time I will be in this place

when I move I want this place to always be in front of_[M] me

I don't want to be in any other places before I am in this place

if they are not in front of_[M] me

like this place is in front of_[M] me”

if someone saw this they could think about it like this:

“if she moves like this for some more time

she will be where the exit is”

The need for some negative component such as “I don't want to be in any other places before I am in this place” is highlighted by the temporal use of *straight*, as for example in the sentences: *I went straight to the library* or *I'll go straight back*, which imply that I will not do anything else before going to the place in question. On the other hand, a negative component of this kind is not present in sentences like *I will go straight* (rather than left or right), which refer to a certain direction without indicating, as it were, the exact path. They are different in this respect from sentences like *I will go straight towards the exit*, which do indicate a path because they deny any deviation from the direction identified by the target place. This “deviation” refers to some hypothetical additional target place not in front of the agent now, and so not on the way to the target place.

If it is not a person but, say, a rock which is moving “straight” towards some place, the situation can also be seen as analogous to one where a person is heading straight towards a target place:

The rock was rolling straight towards the tent. =

the rock was moving like people move when they think like this:

“I want to be in another place
 this place is now in front of_[M] me
 when I move I want this place to always be in front of_[M] me
 if I move like this for some time, after some time I will be in this
 place
 I don’t want to be in any another places before I am in this place
 if they are not in front of_[M] me
 like this place is in front of_[M] me”
 if someone saw this they could think about it like this:
 “if it moves like this for some more time
 it will be in this place where the tent is”

The concept of a ‘straight path’ can also be derived, semantically, from the idea of a person walking “straight ahead” towards a target and not deviating towards any places which are not in front of them (that is, on their way). Here, too, the perspective is that of someone who is moving along a path, with the purpose of approaching a certain place and facing that place the whole time:

a straight path
 [a place (a path)
 people think about a place of this kind like this:
 “it has two ends_[M]”]
 when someone moves in this place like people move in places of this
 kind
 they can think about it like this:
 “one of the two ends_[M] is now in front of_[M] me
 when I move it can always be in front of_[M] me
 if I move like this for some time after some time I will be in the place
 where this end_[M] is
 I know that I will have to be in some other places before I can be in
 this place
 because these places are now in front of_[M] me, like this end_[M] is in
 front of_[M] me
 I don’t have to be in any other places”

A “straight path”, then, is a path which enables a person to go “straight” towards the destination. Langacker (2003b: 10) comments on sentences like *The path rose quickly as we climbed* that “though imagined, the motion has an experiential basis, reflecting what a person experiences while moving along the expanse of the trail, highway, or path.” The same applies, in my view, to a *straight path*.

When the adjective *straight* is applied to objects rather than places, it does not have a similarly egocentric perspective, but to be able to be described as

“straight”, objects have to be similar to paths in having two ends (cf. **a straight orange*, **a straight plate*). In the case of “straight objects” (in contrast to “straight paths”), however, the perspective is that of an onlooker (as in the case of “wide belts” or “wide benches”), not that of a person on the move. For example, if someone’s hair is “straight” this means that looking at it one can see that it has no curls or waves in it — that is, I suggest, that every hair, or every strand of hair, “looks like a straight path”.

Turning now to “straight lines”, I would suggest that they, too, are conceptualized, in essence, as things “looking like a straight path”. The notion of a ‘straight line’ is not purely static but also involves what Langacker (2003b) calls “virtual motion” and “mental scanning” (cf. also Talmy 1996). To be able to describe a line as “straight”, the speaker (or, as Langacker puts it, the “conceptualizer”) has to mentally follow that line with his or her eyes — as a person walking along a path follows that path. As suggested by Cliff Goddard (personal communication), the process of determining that a line is “straight” may also involve actual (visual) scanning and may be linked with a physical movement of the eyes and the sensation of one’s eyes moving in a certain direction. If the line “followed with one’s eyes” is “straight”, then presumably the eyes following it can be moving the whole time in one direction — just like a person following a “straight path” can be moving the whole time in one direction. For the present purposes, however, it is sufficient to suggest that a “straight line” is conceptualized as being “like a straight path”.

In conclusion, I am suggesting that while *straight*, like *wide*, has several interrelated senses (cf. Cienki 1998), a conceptual starting point for all of them can be found in the idea of a person doing something: moving towards a mental target that is in front of them. As in the case of *wide* (and *narrow*), the description of objects as “straight” is secondary: it is based on an analogy with the movements of a person who is moving in order to be in a particular place and who doesn’t want to be in any other places before that which are not on the way.

14. Conclusions

Among the conclusions emerging from this study the most striking one, perhaps, is the one concerning the anthropocentric and bodycentric character of many basic concepts in the area of space, shape and dimension (cf. Johnson 1987). As I have tried to show, in English it is not only verbs like *stand*, *sit* and

lie (used in relation to objects), or clearly impressionistic adjectives like *tall* and *broad*, but also seemingly objective words such as *high* and *low*, *deep* and *shallow*, *wide* and *narrow*, and last but not least, *straight*, which reflect a subjective, anthropocentric, and often bodycentric, and even egocentric, perspective on the world.

The “straightness” of a stick, or a path, cannot be measured, at least not in ordinary language; and neither can “lowness”, “shallowness”, or “narrowness”. For “height”, “depth” and “width” (concepts based on so-called unmarked dimension adjectives) English and many other languages have of course developed measurements, and so the words *high*, *deep* and *wide* may seem to us to refer to some objective properties of objects or places. I think that this impression is correct — but only with respect to the secondary meanings of these words as used in phrases like *17 metres high*, *15 metres deep*, or *33 cm. wide*. What tends to be overlooked is that these “objective” meanings of the words in question need to be distinguished from their “subjective” meanings (unrelated to any measurements), which have not disappeared from ordinary language with the advent of modernity and the spread of scientific outlook but which continue to be used in everyday speech — probably much more widely than their “objective” counterparts.

The meanings which I have discussed in this paper — as in *a high mountain*, *a deep lake*, *a wide road* or *a straight path* — all imply the perspective of a human viewer, experiencer, or agent, usually located on “the ground” and looking at a place or doing something in a place. It is a profoundly human and anthropocentric way of looking at, and thinking about, the world in which we live. It hardly needs mentioning that before the scientific revolution (cf. Crosby 1997) it was the human body, and human bodily experience, which was the source of most measurements (cf. foot, yard [three feet; cf. yardstick], inch [one twelfth of a foot], cubit, an arm’s length, a stone’s throw, a day’s journey, and so on); or that the decimal system is based on the ten fingers of the human hands.

The semantics of spatial relations, Friedrich (1979 [1969a]: 398) observes, “is handled in some way at a fairly deep level in the semantics of every language system: space, dimension, shape, and the like, are presumably as fundamental and universal in semantics as such more familiar categories as voice and number, to which theorists have given so much penetrating thought”.

The analysis of English shape-related categories undertaken in this paper (and in Wierzbicka 2003, In press) leads to a similar conclusion. In particular, it confirms the fundamental importance of the human body as a model and

point of reference for interpreting the visual world. It also confirms Friedrich's observations about the significance of the "upwards" and "downwards" directions (in NSM terms, ABOVE and BELOW); and also of the trichotomy of "long, flat and round".

Friedrich's suggestion that the notion of "orifice(-curved) edge" should "figure in any general theory of grammatical semantics" does not seem to apply to English in the form in which it has been proposed, but does so when reinterpreted. In fact, Friedrich himself has suggested that the underlying general meaning of the phenomena that he had in mind is probably 'edge' (1979: 350), and as we have seen, the concept of 'edge' plays an important role in the semantics of shape in English, too, alongside 'ends', 'top' and 'bottom'.

Friedrich's notion of 'orifice' points to the importance of the notion INSIDE in the semantics of space. While this notion has played only a relatively modest role in the discussion in this paper, it has emerged as essential to the concept of 'deep' (as in *deep*₂) (Cf. Goddard 2002c, vol.1, pp. 148–9). The concept of 'laterality' (that is of something being ON this or that SIDE OF something) has been repeatedly called on here (cf. also Wierzbicka 2003; and Goddard 2003). Indeed, this notion emerges, alongside ABOVE and BELOW, as the central "geometrical primitive" in the semantics of shape.

Other conceptual primes which have proved to be central are SEE and TOUCH, FAR and NEAR (CLOSE), PART, MOVE and BODY. My hypothesis is that the same concepts also provide the key to both the lexical and grammatical semantics of shape in all other languages of the world. In particular, I would argue that these concepts provide useful analytical tools for any future exploration of the semantics of classifiers — that is, an area of semantics which throws most direct light on the human categorization of the world.

In his paper "Universal semantic primes of space — a lost cause?" Cliff Goddard (1998b: 25) wrote:

My main goal in this paper has been to assess how the NSM proposals about universal primes of spatial meaning stand up to the "new wave" of cross-linguistic research into language and space. There can be no question that this research debunks certain pieces of conventional wisdom about spatial semantics which have emanated from developmental psychology (e.g. from Piaget and Inhelder 1948), from philosophy (e.g. from Kant), or from the first wave of language acquisition studies of the 1970s and 1980s (e.g. from the work of Dan Slobin and colleagues). The new wave researchers have done a great service by showing that many of these received notions do not fare well when measured against hard linguistic data.

In the same paper, Goddard pointed out that the “new wave researchers” had not addressed the set of hypotheses about universals of spatial semantics put forward within the NSM framework; and he concluded:

As far as I can see, not only do the NSM proposals stand up to the new data, but if anything, their claim to universal status is strengthened. Furthermore, a typological perspective on the grammaticalisation of spatial meaning is also consistent with the proposal that *HERE, ABOVE, BELOW, NEAR, FAR, ON (ONE) SIDE* and *INSIDE* are entitled to be regarded as “fundamentals” of spatial meaning.

I believe that what Goddard (1998b) wrote about the universals of spatial semantics applies also to the universals of shape semantics; and that more recent research into the conceptualization of space (such as, e.g., that reported in Bowerman and Levinson eds. 2001) is consistent with the hypotheses about the universals of space and shape emanating from the NSM framework. In particular, the claim of the notion of *SIDE* (*ON* [this, one, etc.] *SIDE OF*) to universality has if anything been strengthened by the new data. While the concepts of ‘right’ and ‘left’ have been shown to be relatively unimportant in languages like Tzeltal, Tzotzil, or Guugu Yimithirr (cf. e.g. Levinson 1996), there is evidence of considerable salience and early acquisition of the concept of ‘laterality’ (*ON...SIDE OF*) in Tzotzil. To quote de León (2001: 556):

From the very beginning, they [children] use posture verbs appropriately to draw distinctions between lying ‘face up’, ‘mouth up’, ‘belly down’, ‘down with stretched limbs’, ‘on one’s side’, and so on. In addition to early attention to posture and orientation, the children showed awareness of where and how an object is located on the vertical axis (i.e. on the ground vs. on a raised surface, hanging, perched, etc.). Here again the children paid close attention to just those distinctions that are central to Tzotzil positional verb semantics.

The semantic parameters emerging from de León’s discussion of the distinctions “that are central to Tzotzil positional verb semantics” are clearly similar to those emerging from the analysis of the English classificatory verbs presented in this paper. The distinction between things “on the ground” and those “above the ground” speaks for itself, but so too does the salience of ‘on one side’. For example, Tzotzil expressions like ‘face up’ or ‘belly down’ refer to the parts on one particular side of an object as being temporarily above, or below, the other parts, and as touching the ground.

De León’s comment (p.561) that “many Tzotzil directionals express ‘boundary-crossing’ (path across a border)” also highlights the importance of *SIDE* in Tzotzil lexicon and grammar. The technical expression “path across a border”

clearly refers to something moving in a place and as a result, being subsequently on another side of some “border” (the words *crossing* and *across* implying the notion ON...SIDE OF).

It has been claimed recently that the body is not universally the point of reference in human interpretation of space and shape. For example, Levinson (1996: 369) contrasts the conceptualization of space reflected in English, where “the primary coordinate system is based on the viewer”, with the “Tzeltal spatial description, in which (...) the human frames play almost no part in the actual concepts employed” (p.367). English is, in this view, an example of a “relative system of spatial description”, which is not universal: “Relative systems of spatial description build in a viewpoint and are thus essentially ‘subjective’” (p.370). “Tenejapan Tzeltal uses no relative frame of reference, and has no ‘left’, ‘right’, ‘front’, ‘back’ terms for spatial reference in that frame” (p.376). More recently, Levinson (2002: 181) has reaffirmed this point, in discussing “languages like Guugu Yimithirr or Tzeltal, which lack a relative frame of reference”.

But if the analysis of concepts like ‘wide’ and ‘straight’ presented here is on the right track, and if languages like Tzeltal and Guugu Yimithirr do have such concepts, then the generalization about the absence of a relative frame of reference in such languages may go too far. In fact, according to information kindly provided to me (personal communication) by Brent Berlin (on Tzeltal) and John Haviland (on Tzotzil and Guugu Yimithirr), all these languages do have words corresponding to the English words *wide* and *straight* (as in *a wide path* and *a straight path*). For example, in Tzeltal, which has no word for “narrow”, the words for “wide” and “straight” are, respectively, *hamal* and *tohol*:

hamal be ‘wide path, trail’
tojol be ‘straight path, trail’
ma ba hamal be ‘it’s not a wide trail, path’

Presumably, no one would claim that when a Tzeltal person says, for example, *ma ba hamal be* they could mean by this that “this trail is not (+Pol) [(1 Space)[* (+ Sec)]]”, so this is an example of “hocus pocus semantics”, in the sense of Burling (1969), unrelated to any psychological reality. According to my hypothesis, which does attempt to capture this reality and which assumes a bodycentric perspective, the speaker means (roughly speaking) that when one moves along this trail one has plenty of room on either side.

If ‘right’ and ‘left’ are not important in some languages it is not necessarily so that ‘front’ and ‘back’ (especially ‘front’) are equally unimportant in those languages. In particular, the idea of a person walking “straight ahead” and “fac-

ing” the goal of the journey may well be a human universal, reflected in the presence of words comparable to *straight*, *wide* and (sometimes) *narrow*.

In *Semantics: Primes and Universals*, I (1996: 93) wrote:

Levinson and Brown (1991) question the importance of the concepts ‘in front of’ and ‘behind’ in the conceptualization of space, referring, in particular, to the Australian language Guugu-Yimidhirr: “Instead of notions like ‘in front of’, ‘behind’ ‘to the left of’, ‘opposite’, etc., which concepts are unencoded in the language, Guugu Yimidhirr speakers must specify locations as (in rough English gloss) ‘to the North of’, ‘to the South of’, ‘to the East of’, etc.” However, Haviland’s (1979:179) basic vocabulary list of this language does include a word (in fact, two) glossed as ‘in front’.

The presence of words like ‘straight’ in Guugu Yimidhirr, Tzotzil and Tzeltal supports, I think, the relevance of the notion ‘in front’ to the “naïve geometry” of all languages — including those where ‘right’ and ‘left’ play little or no role in the conceptualization of space. In any case, it is too early to claim that there are languages in which the concept of ‘in front’ is “unencoded”.

The fact that the word for ‘straight’ is used in many Australian languages⁵ as a key ethical concept (Cliff Goddard, personal communication) and is glossed in dictionaries as ‘honest’, ‘right’ and ‘true’ (cf. e.g. Goddard 1996; Hale, Farmer, Nash and Simpson 1981; Hansen and Hansen 1991) points to the importance of ‘straight’ as a spatial concept. Clearly, the moral concept is based on a metaphorical extension of the spatial one: when you want to go to another place it is good if you can go “straight” to that place, always “facing” the goal (that is, always having the goal in front of you); when you want to do something it is good if you do it “straight”, that is, if you don’t “deviate” from what you tell others you are doing.

Speaking of “elementary notions common to everyone in the human race that can be expressed in all languages”, Umberto Eco (2000:87–88) writes:

We are animals of erect stature, for whom it is painful to remain upside down for long. We therefore have a common notion of up and down, and tend to privilege the former over the latter. We likewise have a notion of right and left, of immobility or motion, sitting up or lying down, crawling or jumping, of being awake or asleep.

The details of what Eco says are not quite right: it is not “up” and “down” but ABOVE and BELOW that we all have, as well as PEOPLE, BODY and PARTS OF THE BODY. Furthermore, it is not “right” and “left” that we all have but a notion that different parts of the body are ON different SIDES of the body; and also, that some places can be thought of as being on different sides of a person’s body: on

the side where this person's face is, on the side where one of their arms is, on the side where the other arm is, or on the side where their back is.

As the Nijmegen group (i.e. Levinson and his associates) have shown, the importance of the body in the interpretation of space varies greatly across languages and the notions of 'right' and 'left' are not universal. At the same time, cross-linguistic evidence suggests that the notion of "laterality" (i.e. of something being on this or that side of a human body, an object, or a place) is indeed something that we all share and that universally plays some role in the human interpretation of both shape and space.

The importance of "the ground" in the conceptualization of space and shape reflects a deeply anthropocentric perspective on the world (the ground is where people — in contrast to, for example, birds, insects, and fish — can live); and the importance of "facing" (reflected, inter alia, in concepts like 'wide' and 'straight') reflects a bodycentric and egocentric perspective.

More generally, I would argue that to understand both the diversity and the universals in the human conceptualization of space and shape we have to engage, inter alia, in lexical semantics: we have to study the meaning of words like *straight*, *wide*, and *narrow*, *long* and *short*, *round*, *flat* and *thin*, *to lie* and *to stand*, *to face*, and many others. To engage in such research, one must have at one's disposal a semantic theory. As noted by Goddard (1998b: 5), however, "most discussions of spatial semantics are notable for their inexplicitness on matters of semantic theory". But the question of an explicit theoretical framework for the exploration of the human conceptualization of both space and shape will not go away; and without such a framework, we can neither identify the universals nor understand the range and the nature of linguistic and cognitive variation. As I hope to have shown in this paper, the NSM semantic theory offers such a framework.

Notes

* This paper owes more than I can say to lengthy discussions with Cliff Goddard. Many of the ideas presented here were developed by us jointly. I am also grateful to the anonymous reviewers for their thoughtful and helpful comments.

1. When the verb *to lie* is used in relation to a place, as in Croft's sentence: *The lake lies at the bottom of the valley*, it has yet another sense — related to, but different from, its use in relation to objects. This use will not be discussed here.

2. Many other languages which use 'lie' and 'stand' but not 'sit' for inanimate objects appear to be similar to Russian (and different from English) in the ways described here. Cf. e.g. in German:

Ein Apfel liegt auf dem Tisch.
'An apple "lies" on the table.'

Der Fernseher steht auf dem Tisch.
'The TV set "stands" on the table.'

*Der Fernseher sitzt auf dem Tisch.
'The TV set sits on the table.'

3. In a comparative perspective, for example, in relation to Russian and other Slavic languages, the use of posture verbs as classificatory verbs in English is very limited. This typological feature of English can be linked with the relative absence of other subjective and impressionistic characteristics discussed by Bally (1920). (See also Wierzbicka 1992).

4. In a subsequent discussion of the meaning of *wide* and its closest counterparts in a number of other languages, Zubin and Svorou (1984) rejected a "criterial feature analysis" à la Bierwisch in favour of an analysis which posits what they call an "object-space continuum". Although I, too, find Bierwisch's (and Lang's) analysis unsatisfactory, I cannot see that Zubin and Svorou's discussion, which offers no verbal definition or explication of *wide* at all, can be regarded as much more helpful. (On this point, cf. also H. Clark 1973:39).

5. Guugu Yimithirr is no exception in this respect (John Haviland, personal communication).

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