Diachronic semantics in Cognitive Linguistics

1 Diachronic prototype semantics


[The first part of the text introduces the various dimensions of prototype theory. The second part illustrates how semantic change is influenced by prototypicality effects.]

2 Metonymical patterns through time


[This text discusses the demarcation between metaphor and metonymy, and introduces a subclassification of metonymical patterns. In the lecture, it will be shown how these patterns can be used in diachronic analysis.]

3 Metaphor and cultural history


[This paper shows that conceptual metaphors are a cultural phenomenon with a specific historical background, not necessarily universal phenomena.]

Further reading


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Cognitive Semantics and Prototype Theory

With the birth of cognitive semantics, new ideas from the field of theoretical semantics have found their way to the study of meaning changes, and that should not come as a surprise: one of the major things cognitive semantics is interested in is polysemy - and polysemy is, roughly, the synchronic reflection of diachronic semantic change. As elsewhere in the language, diachrony within synchrony equals variation, and in the present case that means semantic variation. The interest of theoretical semanticians working within the framework of cognitive semantics in the study of meaning changes derives from their interest in polysemy, if only because the synchronic links that exist between the various senses of an item coincide with diachronic mechanisms of semantic extension such as metaphor and metonymy.1

The present chapter explores the question what could be the descriptive importance of a prototype-theoretical conception of semantic structure for diachronic semantics: to which kinds of diachronic phenomena does prototype theory draw the attention? As the term cognitive semantics is used here to refer to the study of semantics within the framework of cognitive linguistics, section 1.1 gives a brief introduction to the major theoretical tenets and methodological strategies of cognitive linguistics. Section 1.2 introduces and analyses the concept of prototypicality; four prototype-theoretical characteristics of semasiological structures will be identified. In the final section of this chapter, each of those four features will be correlated with a specific hypothesis about the nature of semantic changes. In chapter 2, each of the four hypotheses will then be tested by means of a historical-semantic case study.

1.1 INTRODUCING COGNITIVE LINGUISTICS
Cognitive linguistics is an approach to the analysis of natural language that focuses on language as an instrument for organizing, processing, and conveying information. Methodologically speaking, the analysis of the conceptual and experiential basis of linguistic categories is of primary importance within cognitive linguistics: it primarily considers language as a system of categories. The formal structures of language are studied not as if they were autonomous, but as reflections of general conceptual organization, categorization principles, processing mechanisms, and experiential and environmental influences. Because cognitive linguistics sees language as embedded in the overall cognitive capacities of man, topics of special interest for cognitive linguistics include the structural characteristics of natural language categorization, the functional principles of linguistic organization, the conceptual interface between syntax and semantics, the experiential and pragmatic background of language-in-use, and the relationship between language and thought, including questions about relativism and conceptual universals.


Terminologically, a distinction imposes itself between cognitive linguistics (as intended here), and the wider domain of approaches to natural language as a mental phenomenon (see for instance Schwarz 1992 for an overview of the latter field, which is sometimes also referred to as 'cognitive linguistics'). Cognitive linguistics in the more restricted sense is but one type of a cognitive science approach to language, to be distinguished from, for instance, generative grammar and many forms of linguistic research within the field of artificial intelligence.

Against the background of the basic characteristics of the cognitive paradigm in cognitive psychology, the philosophy of science, and related disciplines (see De Mey 1992), the viewpoint
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adopted by cognitive linguistics can be defined more precisely. Cognitive linguistics is the study of language in its cognitive function, where cognitive refers to the crucial role of intermediate informational structures in our encounters with the world. Cognitive linguistics is cognitive in the same way that cognitive psychology is: by assuming that our interaction with the world is mediated through informational structures in the mind. It is more specific than cognitive psychology, however, by focusing on natural language as a means for organizing, processing, and conveying that information. Language, then, is seen as a repository of world knowledge, a structured collection of meaningful categories that help us deal with new experiences and store information about old ones.

From this overall characterization, three fundamental characteristics of cognitive linguistics can be derived: the primacy of semantics in linguistic analysis, the encyclopedic nature of linguistic meaning, and the perspectival nature of linguistic meaning. The first characteristic merely states that the basic function of language involves meaning; the other two characteristics specify the nature of the semantic phenomena in question. The primacy of semantics in linguistic analysis follows in a straightforward fashion from the cognitive perspective itself: if the primary function of language is categorization, then meaning must be the primary linguistic phenomenon. The encyclopedic nature of linguistic meaning follows from the categorizing function of language: if language is a system for the categorization of the world, there is no need to postulate a systemic or structural level of linguistic meaning that is different from the level where world knowledge is associated with linguistic forms. The perspectival nature of linguistic meaning implies that the world is not objectively reflected in the language: the categorization function of the language imposes a structure on the world rather than just mirroring objective reality. Specifically, language is a way of organizing knowledge that reflects the needs, interests, and experiences of individuals and cultures. The idea that linguistic meaning has a perspectivizing function is theoretically elaborated in the philosophical, epistemological position taken by cognitive linguistics (see Lakoff 1987, Johnson 1987, Geeraerts 1985a). This position is characterized by two features: negatively, by the
rejection of epistemological objectivism, and positively, by experientialism (the view that human reason is determined by our organic embodiment and by our individual and collective experiences).

It is crucial to note that cognitive linguistics is not a single theory of language, but rather a cluster of broadly compatible approaches - compatible not just on the theoretical level, but also with regard to the methodological approach taken. The general research strategy of cognitive linguistics, in fact, is characterized by two major features.

First, the study of categorization processes in the lexicon is taken as a methodological point of departure for the study of categorization processes in the grammar at large. If linguistic categorization is the major focus of cognitive linguistics, then studying the lexicon first is a plausible step to take: the categorizing function of the lexicon has received more attention in the linguistic tradition (and is also, perhaps, easier to investigate) than that of grammatical constructs. The intention to study the grammar of the language along the same lines as its lexicon obviously leads to a specific kind of grammatical theory, viz. one in which the grammar, like the lexicon, is conceived of as an inventory of meaningful units. At this point in time, this idea has received its clearest and most elaborate form of expression in Ron Langacker's cognitive grammar (1987, 1990, 1991), and in Charles Fillmore's construction grammar (Fillmore, Kay and O'Connor 1988, Goldberg 1995). The symbolic, construction-based perspective epitomized by these models also implies that less attention has so far been devoted to the procedural, algorithmic aspects of grammar (that is to say, to the way in which the various units in the symbolic inventory are combined into larger constructs like phrases and sentences).

Second, the categorization function of linguistic units is systematically studied from three different perspectives: the internal structure of the categories taken separately, the larger conceptual structures that combine several individual categories into coherent mental models, and the relationship between form and meaning. The internal structure of categories is studied primarily in terms of prototype theory; see Taylor (1995) for an
introduction to the application of prototype theory in linguistics, and compare MacLaury (1991) for a bibliographical overview. The larger conceptual structures that combine more specific categories have been studied from different angles. Popular areas of investigation include metaphor research (see a.o. Paprotté and Dirven 1985), more specifically in the form of the theory of generalized metaphors (Lakoff and Johnson 1980, Lakoff and Turner 1989, Sweetser 1990), and frame semantics (Fillmore 1985). When these larger conceptual structures are studied in their relationship to their cultural environment, the investigation is broadened to the study of cultural models (Holland and Quinn 1987, Kövecses 1986). The mental models that combine individual categories need not have the permanent character that they receive within the approaches mentioned so far; the theory of mental spaces developed by Fauconnier (1985) describes the way in which mental models are built up during discourse as temporary constructs. Finally, the relationship between linguistic form and linguistic meaning is studied under the general rubric of motivation, more specifically in the form of iconicity (that is to say, the idea that linguistic forms may in some way reflect aspects of the message that is being communicated; see Haiman 1980, De Pater and Van Langendonck 1989).

Needless to say, the present investigation primarily links up with the use of prototype-theoretical models in cognitive linguistics. Basically, it presents an extrapolation of prototype theory to diachronic semantics. Other aspects of the cognitive linguistic approach as sketched above will not be absent from the book, however. In particular, iconicity (and the related notion of isomorphism) will play an important role in chapter 4, and the philosophical questions concerning the perspectival nature of linguistic meaning will occupy a central position in the discussions of chapter 5.

1.2 CHARACTERISTICS OF PROTOTYPICALITY

The present section describes the scope of the concept ‘prototypicality’. In the section to follow, we will derive a number of hypotheses about the descriptive characteristics of semantic
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Change that link up with a prototype-theoretical conception of semantic structure. Four prototype-based features of semasiological structures will be identified, and for each of those four features, a specific hypothesis about the nature of semantic changes will be determined in the next section. In the sections of the next chapter, then, each of the four hypotheses will be corroborated by means of a historical-semantic case study.

The starting-point of the prototypical conception of categorial structure is summarized in the statement that when describing categories analytically, most traditions of thought have treated category membership as a digital, all-or-none phenomenon. That is, much work in philosophy, psychology, linguistics, and anthropology assumes that categories are logical bounded entities, membership in which is defined by an item’s possession of a simple set of criterial features, in which all instances possessing the criterial attributes have a full and equal degree of membership. In contrast, it has recently been argued ... that some natural categories are analog and must be represented logically in a manner which reflects their analog structure (Rosch and Mervis 1975: 573-574).

The theory originated in the mid 70s with Eleanor Rosch’s research into the internal structure of categories.² From its psycholinguistic origins, prototype theory has moved mainly³ in two directions. On the one hand, Rosch’s findings and proposals were taken up by formal psycholexicology (and more generally, information-processing psychology), which tries to devise formal models for human conceptual memory and its operation.⁴ On the other hand, prototype theory has had a steadily growing success in linguistics since the early 80s, as witnessed by a number of monographs and collective volumes in which prototype theory and its cognitive extensions play a major role.⁵

The present study is situated within the latter, linguistic approach to prototypicality. In particular, we will try to determine what the importance of prototype theory for diachronic semantics might be. What aspects of prototype theory could be relevant for historical semantics? As a first step, let us have a look at four characteristics
that are frequently mentioned (in various combinations) as typical of prototypicality.  

[a] Prototypical categories exhibit degrees of typicality; not every member is equally representative for a category.

[b] Prototypical categories exhibit a family resemblance structure, or more generally, their semantic structure takes the form of a radial set of clustered and overlapping readings.

[c] Prototypical categories are blurred at the edges.

[d] Prototypical categories cannot be defined by means of a single set of criterial (necessary and sufficient) attributes.

For each of these four characteristics, a reference to early prototype-theoretical studies may be invoked to illustrate the points at issue. The following quotations respectively exemplify the four characteristics.

By prototypes of categories we have generally meant the clearest cases of category membership defined operationally by people’s judgements of goodness of membership in the category ... we can judge how clear a case something is and deal with categories on the basis of clear cases in the total absence of information about boundaries (Rosch 1978:36).

The purpose of the present research was to explore one of the major structural principles which, we believe, may govern the formation of the prototype structure of semantic categories. This principle was first suggested in philosophy; Wittgenstein (1953) argued that the referents of a word need not have common elements to be understood and used in the normal functioning of language. He suggested that, rather, a family resemblance might be what linked the various referents of a word. A family resemblance relationship takes the form AB, BC, CD, DE. That is, each item has at least one, and probably several, elements in common with one or more items, but no, or few, elements are common to all items (Rosch and Mervis 1975:574-575).
New trends in categorization research have brought into investigation and debate some of the major issues in conception and learning whose solution had been unquestioned in earlier approaches. Empirical findings have established that category boundaries are not necessarily definite (Mervis and Rosch 1981:109).

We have argued that many words have as their meanings not a list of necessary and sufficient conditions that a thing or event must satisfy to count as a member of the category denoted by the word, but rather a psychological object or process which we have called a prototype (Coleman and Kay 1981:43).

For further illustration, let us consider a category that is a typical example of prototypicality, in the sense that it exemplifies all four characteristics mentioned above. The category fruit is, to begin with, among the categories originally studied by Rosch (1975, Rosch and Mervis 1975). The experimental results exemplify characteristic [a]: for American subjects, oranges and apples and bananas are the most typical fruits, while pineapples and watermelons and pomegranates receive low typicality ratings.

But now consider coconuts and olives. Is a coconut or an olive a fruit? Notice, first, that we are not concerned with the technical, biological reading of fruit, but with folk models of fruit as a certain category of edible things. Technically, any seed-containing part of a plant is the fruit of that plant; as such, nuts in general are fruit. In ordinary language, on the other hand, nuts and fruit are basically distinct categories (regardless of the possible boundary status of the coconut): nuts are dry and hard, while fruits are soft, sweet, and juicy; also, the situations in which nuts and fruits are eaten are typically different. Second, category membership is not the same thing as typicality: a penguin is undoubtedly an uncharacteristic kind of bird, but it is a bird nonetheless; as to the olive, the question is not just whether it is a typical fruit, but rather whether it is a fruit at all.

This indeterminacy establishes characteristic [c], but it also has an immediate bearing on characteristic [d]. In fact, a definitional analysis is initially hampered by the uncertainty surrounding the boundaries of the category. If there is a consensus that olives are
not fruit, we should not include the olive in an analysis of fruit. Conversely, if an olive is considered to be a fruit (however peripheral and uncharacteristic), it will have to be included. To circumvent the problem with olives and their likes, let us restrict the definitional analysis to clear cases of fruit, that is, cases for which doubts about membership do not play a role. Even for these clear cases, it can be shown that characteristic [d] holds true, that is, that fruit cannot be defined by means of a single minimally specific set of necessary attributes. A starting-point for the discussion (which necessarily has to be presented in some detail, and which will therefore inevitably take up some space) can be found in Wierzbicka's definition of the category (1985: 299-300). In order to show that this is not a classical, necessary-and-sufficient definition, it has to be established, on the one hand, that not all attributes of fruit as mentioned by Wierzbicka are general (even within the set constituted by the examples of fruit that are high on Rosch's typicality ratings), and on the other hand, that the remaining set of general attributes is not minimally specific, that is, does not suffice to distinguish fruit from, for instance, vegetables.

The following characteristics mentioned by Wierzbicka are not general, that is, they are not shared by all examples of fruit. (Wierzbicka's formulations are repeated here, though not in the order in which she presents them.)

(a) They have a skin harder than the parts inside.
(b) They have some small parts inside, separate from the other parts, not good to eat. These parts put into the ground could grow into new things of the same kind growing out of the ground.
(c) They are good to eat without being cooked, without having anything done to them, without any other things, and people can eat them for pleasure.
(d) Eating them uncooked makes one feel good.
(e) Before they are good to eat they can be sour.
(f) They have a lot of juice.
(g) Their juice is good to drink.
(h) They are also good to eat dried.
Characteristic (a) is contradicted by the strawberry, which has no skin worthy of that name. Strawberries likewise do not have the seeds mentioned in (b); bananas are another case in point. Attributes (c) and (d) indicate that fruit can be eaten (with pleasant results) without further preparation, but this does not seem to hold for the lemon, whose sour taste generally requires sugaring. Attributes (e) and (f) are not valid for the banana: first, an unripe banana is bitter rather than sour, and second, there is no juice in a banana. Because the generality of (g) depends on the generality of (f), it may likewise be discarded. Finally, as far as (h) is concerned, it is difficult to imagine a dried melon as being good to eat.

Next, there is a set of characteristics whose non-generality seems to be accepted (or at least, implied) by Wierzbicka herself.

(i) Wanting to imagine such things, people would imagine them as growing on trees.

(j) They can be small enough for a person to be able to put easily more than one thing of this kind into the mouth and eat them all at the same time, or too big for a person to be expected to eat a whole one, bit by bit, at one time, but wanting to imagine such things, people would imagine them as too big for a person to put a whole one easily into the mouth and eat it, and not too big for a person to be expected to eat a whole one, bit by bit, at one time, holding it in one hand.

(k) After they have become good to eat they are sweet, or slightly sweet, or sour but good to eat with something sweet.

(l) Wanting to imagine such things after they have become good to eat, people would imagine things which are slightly sweet.

(m) Things on which such things can grow can also grow in some places where people don’t cause them to grow, but wanting to imagine such things, people would imagine them as growing on things growing out of the ground in places where people cause them to grow.

While (k) is a disjunctively defined attribute (that is, is a superficial combination of two characteristics that are each not general when taken separately), the other features are introduced by the formula 'wanting to imagine such things, people would
imagine them as'; this would seem to indicate that the attribute is merely typically associated with the concept, rather than being general. For instance, the sweetness mentioned in (l) does not hold for lemons, and berries do not grow on trees, in contradistinction with the feature involved in (l).

The set of general characteristics that is left over after the elimination of the previous sets contains the following features.

(n) They grow as parts of certain things growing out of the ground.
(o) They don't grow in the ground.
(p) They become good to eat after they have grown long enough on the things growing out of the ground.
(q) Before they are good to eat they are green or greenish outside.
(r) People cause things of this kind to grow in many places because they want to have those things for people to eat.
(s) They are good to eat cooked with sugar, or cooked as part of some things which have sugar in them.

Is this set minimally specific? Up to characteristic (r), the set applies not only to fruit, but also to nuts, herbs, and large collections of vegetables (though not to the ones that grow in the ground, like carrots), so that the crucially distinctive attribute would be (s). However, if one takes into consideration the use of almonds and other nuts in certain types of pastry, the use of herbs (such as tansy) in pancakes, and the habit of cooking rhubarb with sugar, it soon becomes clear that there are counterexamples with regard to (s) in each of the three categories (nuts, herbs, and vegetables). All in all, most of the attributes mentioned by Wierzbicka are not general, whereas those that are, taken together, apparently do not suffice to exclude non-fruits.

Given, then, that we cannot define the uncontroversial core members of fruit in a classical, necessary-and-sufficient fashion, we have not only illustrated characteristic [d], but we can also appreciate the importance of characteristic [b]. If fruit receives a classical definition in terms of necessary and sufficient attributes, all the definitional attributes have the same range of application (viz. the category fruit as a whole). However, because such a classical definition cannot be given, the attributes that enter into the
semantic description of fruit demarcate various subsets from within the entire range of application of fruit. As a whole, the description of fruit then takes the form of a cluster of partially (but multiply) overlapping sets.

The importance of characteristic [b] may be illustrated in yet another way. So far, we have been concerned only with the most common, everyday meaning of fruit (roughly, ‘soft and sweet edible part of a tree or a bush’). There are other meanings to fruit, however. In its technical sense (‘the seed-bearing part of a plant or tree’), the word also refers to things that lie outside the range of application of the basic reading, such as acorns and pea pods. In an expression like the fruits of nature, the meaning is even more general, as the word refers to everything that grows and that can be eaten by people (including, for instance, grains and vegetables). Further, there is a range of figurative readings, including the abstract sense ‘the result or outcome of an action’ (as in the fruits of his labour or his work bore fruit), or the somewhat archaic reading ‘offspring, progeny’ (as in the biblical expressions the fruit of the womb, the fruit of his loins). These meanings do not exist in isolation, but they are related in various ways to the central sense and to each other. The technical reading (‘seed-containing part’) and the sense illustrated by the fruits of nature are both related to the central meaning by a process of generalization. The technical reading generalizes over the biological function of the things covered by the central meaning, whereas the meaning ‘everything that grows and that can be eaten by people’ focuses on the function that those things have for human beings. The figurative uses, on the other hand, are linked to the other meanings by a metaphorical link, but notice also that the meaning ‘offspring’ is still closer to the central sense, because it remains within the biological domain. The overall picture, in short, is similar to that found within the single sense ‘soft and sweet edible part of a tree or a bush’: we find a cluster of mutually interrelated readings. Characteristic [b], then, does not only apply within a single sense of a word like fruit, but it also characterizes the relationship among the various senses of a word. (In what follows, we will consider characteristic [b] primarily from this second angle.)
Having illustrated features [a]-[d], it should be stressed that they are not necessarily co-extensive; in spite of what might be suggested by the discussion of fruit, they do not always co-occur. There is now a consensus in the linguistic literature on prototypicality that the characteristics enumerated here are prototypicality effects that may be exhibited in various combinations by individual lexical items, and may have very different sources. Exactly what those sources are is not a point to be settled in the context of a historical-linguistic discussion (and in fact, there is as yet no general theoretical agreement on this point). For our purposes, it may be sufficient to recognize that the linguistic literature on prototypicality effects has identified various characteristics of semantic structure that fit into a prototype-theoretical framework. Our task as historical linguists will then be to check whether these features may be recognized in the structure of lexical-semantic change.

This remark does not exhaust the comments to be made with regard to features [a]-[d] and their mutual relationships, but before we proceed any further, a number of key concepts that will recur in the course of the book will now have to be defined, if only to clarify the terminological conventions that we will adhere to.

To begin with, let us clarify the distinction between semasiology and onomasiology. Given that a lexical item couples a word form with a semantic content, the distinction between an onomasiological and a semasiological approach is based on the choice of either of the poles in this correlation as the starting-point of the investigation. Thus, the onomasiological approach starts from the content-side, typically asking the question ‘Given concept x, what lexical items can it be expressed with?’. Conversely, the semasiological approach starts from the formal side, typically asking the question ‘Given lexical item y, what meanings does it express?’. In other words, the typical subject of semasiology is polysemy and the multiple applicability of a lexical item, whereas onomasiology is concerned with synonymy and near-synonymy, name-giving, and the selection of an expression from among a number of alternative possibilities. Traditionally, the onomasiological approach takes the form of various types of lexical field research. Our approach will
be predominantly semasiological, but excursions into the onomasiological domain will be occur throughout the book.

Now, the semasiological analysis of a word usually distinguishes between two levels. To begin with, a word is associated with one or more meanings, or (in slightly more technical parlance) senses. In the case of fruit, for instance, we may at least distinguish between the senses ‘something that people can eat and that grows on a tree or a bush’ and ‘the result or effect of something’. On this level of analysis, senses are represented by definitions. On a further level of analysis, senses are represented by sets, each set consisting of the members of the semantic category constituted by each separate sense. The central sense of fruit, for instance, corresponds with the set having as its members oranges, apples, bananas, and so on.\(^\text{10}\)

In line with the terminology used in formal, logical semantics, we will use the terms intensional and extensional to refer to the level of senses and the level of members respectively. For obvious reasons, the intensional level may also be referred to as the definitional level. As an equivalent name for the extensional level, we will use the term referential: the extension constitutes the referential range of application of a word as used in a specific sense – the range of things (in the broadest possible meaning of that word) that the word may possibly refer to. The extension may then also be said to consist of the (potential) referents of the word in question.

The related term denotational, however, will explicitly not be used as a synonym of extensional and referential as just defined. Rather than indicate a particular level in a semasiological analysis, denotational will name a particular type of meaning. When we need to distinguish between the basic referring function of language (regardless of whether this function is considered at the intensional or at the extensional level), and the fact that words may carry various kinds of emotive or stylistic overtones, the term denotational will be used for the former function. Non-denotational kinds of meaning will then include phenomena such as euphemism, or pejorative and ameliorative shifts of meaning. The distinction between denotational and non-denotational kinds of
meaning will, however, not play a central role in our study; it will mainly come to the fore in chapter 3.

In many traditional conceptions of lexical semantics (specifically, in the approaches situated within the tradition of structuralist semantics), the internal structure of the extensional level has no role to play in the semantic analysis. Differences between oranges and watermelons, for instance, are deemed irrelevant as far as their joint membership of fruit is concerned. This restrictive conception is terminologically linked to the distinction between polysemy and vagueness. Distinctions among senses illustrate polysemy: fruit is polysemous because it has at least the meanings ‘something that people can eat and that grows on a tree or a bush’ and ‘the result or effect of something’. Distinctions among the members of a single sense are cases of vagueness: fruit is semantically vague with regard to the differences between oranges and watermelons, because those differences do not lie at the basis of a distinction between senses.

Another terminological distinction that is related to the restrictive conception of semantic analysis, is the contrast between encyclopedic and semantic information. Semantic information (in a narrow sense of semantic, obviously) is information that enters into the definition of senses. Encyclopedic information, on the other hand, is information that pertains to the members of the extension, but that is not included in the definition because it does not apply to all the members of the extension, or because it is not sufficiently distinctive with regard to other categories. If, for instance, the attributes (a) through (h) listed above were to constitute an adequate definition of fruit (according to a classical model for definitions requiring generality and distinctiveness), then (i) through (s) could be considered encyclopedic attributes.

It will have become clear from the discussion of fruit in the previous pages, that prototype theory rejects the restriction of the analysis to the intensional level. Prototype-theoretical analyses show that an analysis of the internal structure of the referential range of a word may be semantically relevant, first because the various members of the extension need not have the same structural weight, and second because clusters of overlapping extensional subsets may take the place of classical definitions in
those cases where a definition in terms of necessary and sufficient attributes appears to be impossible.

One terminological consequence of this recognition is, of course, the fact that in a prototype-theoretical conception of meaning, the distinction between semantic and encyclopedic information cannot be strictly maintained. Surely, there remains a distinction in the structural status of information that pertains to all the members of a category as compared to information that concerns only a single individual member, but in general, no strict dichotomy can be imposed between attributes that are and those that are not relevant for the definitional description on the intensional level.

Rejecting a very strict dichotomy between semantic and encyclopedic information has yet another terminological consequence: in talking about the semantic structure of a lexical item, it may sometimes be useful to replace sense with a term that is less theory-laden, in the sense of being less suggestive of a strict separation between the level of senses and the referential level. In this respect, we will often resort to the term reading as an alternative for sense.

The various readings of a lexical item may also be referred to by means of the term category, because they embody a linguistic way of grouping extralinguistic things on the basis of common characteristics. (Again, thing is used here in the broadest possible meaning; it may refer to objects, actions, events, properties, relations, or whatever). Category, however, will be used with a broader range of application than sense or reading. Specifically, it may also refer to the semantic side of a lexical item as a whole, that is, to the cluster of interrelated readings that together constitute the intensional level of the semantic analysis. Thus, the reading ‘edible part of a tree or bush’ of fruit is a semantic category, but the lexical item fruit as a whole will also be said to constitute a category, because the various readings of fruit (‘edible part of a tree or bush’, ‘the result or effect of something’, and so on) together form a cohesive semantic structure. In most cases where we will use the term category, the context will readily distinguish between these two ways of using the term; where it is necessary to stress the fact that we are talking about the
(polysemous) semantic structure of a lexical item as a whole, lexical category will be the standard expression.

Finally, a prototype-theoretical conception also calls for a specific terminology to describe differences in structural weight within the semasiological structure of a lexical item (the fact that some members are recognized as more typical than others, or the fact that some senses occupy a more central position on the intensional level). These differences as such may be referred to by means of the concept salience: greater structural weight equals greater cognitive salience. The structures themselves may be described in terms of a core or central area surrounded by a periphery of less salient readings. Because the peripheral readings often arise as variants or modulations of existing, more salient cases, they may sometimes be referred to as nuances.

Returning from our terminological excursion to the four characteristics [a]-[d], we can now more easily appreciate that they are systematically related along two dimensions. On the one hand, the first and the third characteristic take into account the referential, extensional structure of a category. In particular, they have a look at the members of a category; they observe, respectively, that not all members of a category are equal in representativeness for that category, and that the referential boundaries of a category are not always determinate.

On the other hand, these two aspects (non-equality and non-discreteness) recur on the intensional level, where the definitional rather than the referential structure of a category is envisaged. For one thing, non-discreteness shows up in the fact that there is no single definition in terms of necessary and sufficient attributes for a prototypical concept. For another, the clustering of meanings that is typical of family resemblances and radial sets implies that not every reading is structurally equally important (and a similar observation can be made with regard to the components into which those meanings may be analysed).11

To summarize what has been said so far, let us put forward the following statement.

[e] The concept of prototypicality is itself a prototypically clustered one12 in which the concepts of non-discreteness
and non-equality (either on the intensional or on the extensional level) play a major distinctive role. Non-discreteness involves the existence of demarcation problems and the flexible applicability of categories. Non-equality involves the fact that categories have internal structure: not all members or readings that fall within the boundaries of the category need have equal status, but some may be more central than others; categories often consist of a dominant core area surrounded by a less salient periphery.

The distinction between non-discreteness (the existence of demarcation problems) and non-equality (the existence of an internal structure involving a categorial core versus a periphery) cross-classifies with the distinction between an intensional perspective (which looks at the senses of a lexical item and their definition), and an extensional perspective (which looks at the referential range of application of a lexical item, or that of an individual sense of that item). The observation that the structural characteristics found among the readings of a lexical item are basically the same as those found among the referents of a single reading, provides further support for the idea that the distinction between the semantic level (that of senses) and the referential level (that of category members) may be less important than is suggested by the tradition of structuralist semantics (which tends to restrict the description of linguistic meaning to the level of senses). This suggestion is corroborated by the recent finding that from a theoretical point of view, the borderline between both levels does not appear to be stable\textsuperscript{13} – an observation that will have to be kept in mind when we discuss the diachronic relevance of characteristic [d].
The cross-classification between both relevant distinctions (the distinction between non-discreteness and non-equality, and the distinction between an intensional and an extensional perspective) yields a two-dimensional conceptual map of prototypicality effects, in which the four characteristics mentioned before are charted in their mutual relationships. Figure 1 schematically represents these relationships.

Characteristic [a] illustrates the extensional non-equality of semantic structures: some members of a category are more typical or more salient representatives of the category than others. Characteristic [b] instantiates intensional non-equality: the readings of a lexical item may form a set with one or more core cases surrounded by peripheral readings emanating from the central, most salient readings. Characteristic [c] manifests the notion of extensional non-discreteness: there may be fluctuations at the boundary of a category. And characteristic [d] represents intensional non-discreteness: the definitional demarcation of lexical categories may be problematic, measured against the background of the classical requirement that definitions take the form of a set of necessary attributes that are jointly sufficient to delimit the category in contrast with others.

1.3 HYPOTHESES ABOUT SEMASILOGICAL CHANGE
As far as historical semantics is concerned, we can now turn each of the four characteristics of prototypicality into a statement on the structure of semantic change.

[f] By stressing the extensional non-equality of lexical-semantic structure, prototype theory highlights the fact that changes in the referential range of one specific word meaning may take the form of modulations on the core cases within that referential range.

[g] By stressing the intensional non-equality of lexical-semantic structure, prototype theory highlights the clustered set structure of changes of word meaning.

[h] By stressing the extensional non-discreteness of lexical-semantic structure, prototype theory highlights the phenomenon of incidental, transient changes of word meaning.

[i] By stressing the intensional non-discreteness of lexical-semantic structure, prototype theory highlights the encyclopedic nature of changes in word meaning.

Because actual examples corroborating these hypotheses will only be presented in the context of the case studies brought together in chapter 2, the hypotheses will inevitably remain somewhat abstract at this stage. Still, it can be spelled out how they derive in a straightforward manner from the characteristics listed under [a] through [d].

Hypothesis [f] suggests that changes in the extension of a single sense of a lexical item are likely to take the form of an expansion of the prototypical centre of that extension. If the referents that may be found in the range of application of a particular lexical meaning do not have equal status, the more salient members will probably be more stable (diachronically speaking) than the less salient ones. Changes will then take the form of modulations on the central cases: if a particular meaning starts off as a name for referents exhibiting the features ABCDE, the subsequent expansion of the category will consist of variations on that type of referent. The further the expansion extends, the less features the peripheral
cases will have in common with the prototypical centre. A first layer of extensions, for instance, might consist of referents exhibiting features ABCD, BCDE, or ACDE; a further growth of the peripheral area could then involve feature sets ABC, BCD, CDE, or ACD (to name just a few). In section 2.1, this hypothesis will be supported by a case study involving the close inspection of the development of a recent Dutch neologism, viz. the clothing term legging.

Hypothesis [g] shifts the attention from the extensional structure of an individual meaning of a lexical category, to the intensional structure of the lexical item as a whole, that is, to the overall configuration of the various readings of the word. The hypothesis suggests that the structure of semasiological change mirrors the synchronic semantic structure of lexical categories, given that the latter involves family resemblances, radial sets, and the distinction between central and peripheral readings. Semasiological change, then, involves the change of prototypically clustered concepts. This general statement can be broken down into two more specific ones. First, the structure of semasiological change as a whole is one of overlapping and interlocking readings; specifically, a novel use may have its starting-point in several existing meanings at the same time. Second, there are differences in structural weight among the readings of an item; specifically, there are peripheral meanings that do not survive for very long next to more important meanings that subsist through time. In section 2.2, hypothesis [g] will be corroborated by means of an extended case study involving the Dutch item vergrijpen.

Hypothesis [h] suggests that the synchronic uncertainties regarding the delimitation of a category have a diachronic counterpart in the form of fluctuations at the boundaries of the item. In section 2.3, a specifically striking example of such fluctuations will be discussed under the heading 'semantic polygenesis'. Semantic polygenesis involves the phenomenon that one and the same reading of a particular lexical item may come into existence more than once in the history of a word, each time on an independent basis. Such a situation involves what may be called extremely peripheral instances of a lexical item: readings that are so marginal that they seem to crop up only incidentally
and that disappear as fast as they have come into existence. Specifically, when the same marginal meaning occurs at several points in time that are separated by a considerable period, we can conclude that the discontinuous presence of that meaning is not due to accidental gaps in the available textual sources, but that the meaning in question must actually have come into existence independently at the two moments. The theoretical importance of the phenomenon of semantic polygenesis resides in the fact that it illustrates the existence of transient meanings in the diachronic development of lexical categories. Since such transient meanings could spring into existence at any moment in the history of a word, they are at the same time an illustration of the synchronically flexible character of word meanings: exactly what belongs to a category at one particular moment is not necessarily clear.

Hypothesis [i], finally, suggests that diachronic semantics has little use for a strict theoretical distinction between the level of senses and the level of encyclopedic knowledge pertaining to the entities that fall within the referential range of such senses. In semantic change, the ‘encyclopedic’ information is potentially just as important as the purely semantic ‘senses’ (to the extent, that is, that the distinction is to be maintained at all). This view follows from a prototype-theoretical conception in general, and from feature [d] in particular, in the following way.

If the meaning (or a meaning) of a lexical item cannot be defined by means of a single set of necessary features that are jointly sufficient to distinguish the category from others, the definition necessarily takes the form of a disjunction of clustered subsets. If, for instance, there is no feature or set of features covering ABCDE in its entirety, the category may be disjunctively defined as the overlapping cluster of, for instance, the sets ABC, BCD, and CDE (and, in fact, others). More concretely (and turning from a description from an extensional level to a description from an intensional perspective), if no single combination of the features (a) through (s) yields a classical definition of the core reading of fruit, the category can only be properly described as a disjunction of various groupings of the features in question.

The subsets within the family resemblance structure need not themselves constitute different senses (in the theory-laden
interpretation of the word); they will not necessarily be recognized
as such by the language user. But even if they do not constitute
separate senses, they are definitionally (and hence structurally)
important: even though \( ABC \) does not constitute a separate
meaning of the category \( ABCDE \) in any psychologically or intuitively
important interpretation, it is a subset that has to be taken into
account in the (disjunctive, clustered) definition of the category.
Hence, it is impossible to maintain the view that only the senses of
a category (and not those extensional subsets that do not constitute
separate meanings, or those descriptive features that are supposed
to have ‘encyclopedic’ rather than ‘semantic’ status) are structurally
important.

From a diachronic point of view, this means that semantic
changes may take their starting-point on the extensional level just
as well as on the intensional level, or in the domain of
encyclopedic information just as well as in the realm of semantic
information. Even where a classical definition is possible,
extensional subsets or intensional features with an ‘encyclopedic’
rather than a ‘semantic’ status may play a crucial role in processes
of semantic change. The examples that we will discuss in section
2.4 will show precisely that: the semantic extensions through which
new meanings arise may take their starting-point in extensional
subsets that do not correspond with senses in the structuralist
sense, even in those cases where the categories in question might
be classically defined.

Although specific case studies will be presented in the following
sections to substantiate the claims made in [f] through [i], there will
be an inevitable overlap between the studies in question. The
semantic phenomena to be presented are not restricted to specific
words; each word may exhibit various prototype-theoretical
characteristics at the same time, and we will obviously point them
out when we encounter them.

To round off this overview of the potential descriptive impact of
prototypicality, it should be stressed that the aspects of semantic
change enumerated here are not necessarily new to diachronic
semantics. What is indubitably new, however, is the fact that these
more or (more likely) less known aspects of change can now be
incorporated into a global model of lexical-semantic structure. That
is to say, from a descriptive point of view the importance of prototype theory probably resides less in the novelty of its observations, taken separately, than in the fact that it brings them together in an overall model of the structure of lexical meaning.

Further, the cognitive semantic interest in historical semantics has to be considered in a historical perspective, if only to appreciate its limits together with its innovative features. (This historical comparison will be taken up again in section 5.2.) The cognitive semantic approach as a whole links up with the pre-structuralist tradition of historical semantics that we commonly associate with the names of Bréal, Darmesteter, Paul, Wundt, Marty, Carnoy, Stern and the like; it does so because of its interest in polysemy and the mechanisms underlying it.

But on the other hand, cognitive semantics is not a simple re-enactment of the approach of the older school. Specifically, if we make a distinction between those aspects of semasiological structure that involve the 'qualitative' links between the elements in such structures (like metaphor and metonymy), and the 'quantitative' aspects of semasiological structure, involving the salience effects and the differences of structural weight studied by prototype theory, it may be noted that traditional historical semantics has been primarily interested in the 'qualitative' aspects. Most of the research situated in the pre-structuralist tradition of historical semantics, in fact, is concerned with the classification of semantic changes, that is, with an analysis of the qualitative links in semasiological structures, seen from a diachronic angle. Notions of prototypicality are certainly not absent from the tradition: there is, for instance, a remarkable passage in Karl Otto Erdmann’s Die Bedeutung des Wortes that reads like a straightforward statement of prototypicality. In general, however, these overall 'quantitative' aspects of semasiological structures received much less attention than the individual mechanisms of change that lead from one existing sense to another. After all, the main product of pre-structuralist historical semantics is almost invariably a classification of such mechanisms of change.

So the received view that traditional, pre-structuralist historical semantics is basically atomistic is correct, but we can now see that it is atomistic in two respects. The structuralist criticism of traditional
historical semantics (as initially voiced by Leo Weisgerber in 1927) blames it (among other things) for not taking into account what might be called the external structure of an item - the fact, that is, that words are part of larger structures in the lexicon (such as lexical fields), and that the onomasiological structures in which a word participates have to be studied to get a good grasp of the particular value of the word in question. But we can now see, in the light of prototype theory, that traditional semantics and structuralist semantics alike tended to neglect the internal, semasiological structure of lexical items (in the sense, that is, that they paid relatively little attention to phenomena such as the clustered nature of polysemy and the difference in salience of the various readings of an item). Traditional, pre-structuralist diachronic semantics is atomistic in the sense meant by the proponents of a structural approach, but it is also atomistic on its own semasiological domain, because it concentrates on the meaning relations that hold between individual readings of an item, rather than envisaging the polysemic structure of the item in its entirety. In this respect, the cognitive contribution to historical semantics is at once a return to the pre-structuralist interest in polysemy, and an addition to it.

In general, then, we will have to keep the modest observation in mind that prototype theory, as a model of semasiological structure, can never be a comprehensive theory of diachronic lexicology: it does not cover the field of onomasiology, and nor does it even cover the entire field of semasiology. Prototype theory, in short, may well be a useful addition to diachronic lexicology, but it certainly does not replace the older endeavours.

Notes to Chapter 1

1 The correlation between synchronous polysemy and diachronic change is formulated by Brown and Witkowski (1983: 83) in the following terms: ‘Polysemy is ubiquitous in language and its investigation has considerable potential for illuminating human cognition. In addition, the regular patterns of lexical change ... indicate that the lexicon is amenable to systematic investigation as are other components of language. Most importantly, the study of
these regular lexical patterns can contribute significantly to knowledge of the processes and capacities which underlie human language and culture. For statements along the same lines, see a.o. Sweetser (1990: 3), Lüdtke (1985: 357).

Overviews may be found in Rosch (1978, 1988), and Mervis and Rosch (1981); the basic research is reported on mainly in Heider (1972), Rosch (1973, 1975, 1977), Rosch and Mervis (1975).

Though not exclusively: see Rosch (1988: 386).

Excellent overviews of the representational and experimental issues at stake here are Smith and Medin (1981), and Medin and Smith (1984); samples of more recent psycholinguistic research may be found in Neisser (1987).

The classification of types of prototypicality effects presented here was first introduced in Geeraerts (1989a); it also features prominently in Geeraerts, Grondelaers, and Bakema (1994). A first attempt to apply this classification to the various prototypicality effects that may be observed in historical semantics is to be found in Geeraerts (1992); the present approach, though, is not entirely identical to the one presented in the (1992) article.

Even if this counterexample were not accepted, adding (c) and (d) to the list of attributes that are general for fruit would not solve the problem that that list does not suffice to distinguish fruits from some vegetables and nuts.

See Geeraerts (1989a) for an illustration of the prototypicality of the notion of prototypicality, i.e. for the idea that some lexical items exhibit more typically prototype-theoretical characteristics than others. An overview of possible sources of prototypicality effects is to be found in Lakoff (1987).

It could also be said that onomasiology deals with (formal) lexical variation whereas semasiology deals with semantic variation except for the fact that actual usage of these terms tends to be more loose, tending to obscure the distinction. From a
Cognitive Semantics and Prototype Theory 33

terminological point of view, it should also be noted that semasiology is sometimes used in a broader sense than when it is defined in contrast with onomasiology; that is to say, semasiology may sometimes be used in the sense of lexical semantics at large (encompassing both onomasiology and semasiology in the narrow sense).

10 This model applies primarily to common nouns: it is a matter of debate whether proper names have a sense.

11 If, for instance, one has a family resemblance relationship of the form AB, BC, CD, DE, then the cases BC and CD have greater structural weight than AB and DE.

12 This formulation was first used by Posner (1986).

13 The synchronic unstability of the borderline between the level of senses and the level of referents is discussed in Taylor (1992), Geeraerts (1993a), Tuggy (1993). The common strategy of these articles is to show that different polysemy criteria (i.e., criteria that may be invoked to establish that a particular interpretation of a lexical item constitutes a separate sense rather than just being a case of vagueness or generality) may be mutually contradictory, or may each yield different results in different contexts. The importance that prototype theory attaches to the structural similarities that exist between the referential and the semantic levels, contrasts with Kleiber's view (1990) that the extrapolation of prototype-theoretical studies from the referential to the semantic level somehow weakens the theory. By contrast, the impossibility of maintaining the distinction between both levels in a stable way makes the extrapolation more plausible.

As Margaret Winters (1989) has pointed out, this distinction between the central and the peripheral senses of an item may be the basis for a new typology of semantic changes. She claims, in this respect, that semasiological changes can (simplifyingly) either consist of the change of the prototypical center of a category, or of a change in the periphery. It should be added, however, that this is an incomplete classification: we should also take into account splits and mergers next to mere changes of prototypical centers. (An example of a process of merger will be discussed in chapter 4.)

The passage reads as follows: ‘Denn welche Theorien über Wesen, Bedeutung und Entstehung der Begriffe man auch vertreten mag: vom Standpunkt der Logik wird man immer fordern müssen, daß sie eine unzweideutige, klare Grenze aufweisen, daß sie einen bestimmten Inhalt und Umfang haben. Und Begriffe dieser Art werden durch Worte nicht ohne weiteres bezeichnet. Worte sind vielmehr im allgemeinen Zeichen für ziemlich unbestimmte Komplexe von Vorstellungen, die in mehr oder minder loser Weise zusammenhängen ... Die Grenzen der Wortbedeutung sind verwässert, verschwommen, zerrissend. Treffender aber noch wird meines Erachtens der Sachverhalt gekennzeichnet, wenn man überhaupt nicht von Grenzlinien des Umfangs redet, sondern ... von einem Grenzgebiet, das einen Kern einschließt ... Den Kern denken wir uns dann alle diejenigen Dinge oder anderen Vorstellungen enthaltend, denen unter allen Umständen die Benennung durch das fragliche Wort zukommt, während wir dem Grenzgebiet alle diejenigen Vorstellungen zuweisen, denen man die Benennung sowohl zu- wie absprechen kann ... Nun erscheint es wohl am einfachsten, das Auftreten des Grenzgebietes darauf zurückzuführen, daß ein Wort nicht einen, sondern gleichzeitig mehrere Begriffe bezeichne, die wohl teilweise sich decken und daher ein gemeinsames Gebiet haben’ [But whatever theories about the essential nature, the meaning and the origin of concepts one may adhere to, from the point of view of logic one will always have to require that they exhibit unambiguous, clear boundaries, that their extent and content are clearly specified. But words simply do not indicate concepts of that kind. In general, words are rather signs for fairly unspecific...}
complexes of mental representations that belong together in a more or less loose way ... The boundaries of words are vague, unclear, indeterminate. The situation is, I would say, even more adequately described if one simply would not talk about the borderline of the range of application of a word, but if one were to talk about a border area that includes a core area ... We can then think of the central area as including all those things or representations for which the word in question is an adequate name in all circumstances, while the border area consists of those concepts to which the lexical expression could simultaneously be attributed and not attributed ... It is easiest to derive the presence of a border area from the recognition that a word does not just name one concept, but several concepts that partially cover each other (Erdmann 1910: 46). Note that all the major characteristics of prototype theory appear in the quotation: the distinction between the core and the periphery of a category, the clustered overlapping of senses, and the absence of clear boundaries.
The Prototypical Characteristics of Semasiological Changes

In the previous chapter, we identified four prototype-theoretical features of semasiological structures, and correlated each of those features with a descriptive hypothesis about the structural characteristics of semasiological changes. In the present chapter, four case studies will be presented that successively support the hypotheses [f] to [i].

2.1 MODULATIONS OF CORE CASES

In what follows, a case study will be presented that exemplifies the first prototypical characteristic of semantic change identified in section 1.3. At the same time, the case study will demonstrate how the prototype-theoretical interest in salience phenomena can be extended to the domain of onomasiological variation.

In fact, prototype theory is basically a model for the semasiological structure of lexical categories, but lexicology at large is concerned with more than just semasiological structures: as was already mentioned at the end of the previous chapter, it includes the field of onomasiological research. Moreover, even within the semasiological realm, prototypicality effects are not the only topic to be incorporated into a full-fledged theory of semantics. If prototype theory is so to speak mainly concerned with the ‘quantifiable’ relationships (like salience, centrality, degree of membership) that exist between the elements in a semasiological structure, there exists a more traditional kind of research that is concerned with the ‘qualitative’ links between the elements in semasiological structures. Studying metaphor and metonymy, for instance, implies focusing on the nature of the associations that
Characteristics of Changes

occur between a literal meaning and its transferred reading. The present section, then, will not only try to establish the validity of hypothesis [f], but it will also suggest that the concept of salience may be profitably introduced into diachronic onomasiology.

The case study involves the changes that the concept 'legging' has undergone in the first five years of its existence in Dutch. Leggings – a tight-fitting pair of trousers for women, usually made of an elastic material – are a relatively recent addition to the vestimentary habits of European women. The first examples probably date from around 1987, but the garment soon became very popular, to the extent that it is now a standard piece of clothing, of the same common kind as blouses or skirts. Linguistically, the introduction of such a new concept raises some interesting questions. Semasiologically, the question is how fast the category starts to exhibit prototype-based flexibility. Onomasiologically, the question could be whether a linguistic analysis can reveal that the concept does indeed become more popular: if the concept 'legging' does indeed catch on as a category in its own right, one may expect to see an increase in the relative frequency of the lexical items that specifically name that concept. What we will do, in other words, is to follow the diachronic development of a neologism at very short range.

The corpus used in the study consists of Dutch women’s magazines and catalogues from mail-order firms. These sources were followed from 1988 through 1991. In order to study any differences between Belgian Dutch (the variety of Dutch spoken in the Flemish part of Belgium) and Netherlandic Dutch (the variety of Dutch spoken in The Netherlands), the sources are more or less evenly distributed over both countries: there are two mail order catalogues from each region, and there are three Belgian magazines versus two from The Netherlands.

In the data base compiled from these sources, each record describes a reference to a legging as found in the magazines or the mail-order catalogues. For reasons that will become clear presently, only those references to leggings have been included for which the actual referent of the word is visible: only if a picture or a drawing illustrates the use of the word, has the word been included in the data base. The data base does not just contain leggings that are
referred to by means of the word *legging* or any of its synonyms, but also leggings that are named by means of other lexical items. This implies, to be sure, that the compilation of the data base proceeds in two steps: first the semasiological range of application of the category ‘legging’ is determined, and next, all the alternative names are charted with which the elements in that range of application occur. These alternative terms include hyperonyms like *broek* ‘pair of trousers’ and hyponyms like *stretchlegging* ‘legging made of a stretchy fabric’, but also words that overlap with the range of application of legging. *Tricotbroek* ‘tricot pair of trousers’, for instance, may occur as an alternative for *legging* when referring to more or less tight-fitting pairs of trousers, but not all knitted trousers need be tight enough to fall within the extension of legging. In the same way, trousers that do not reach down to the ankles and that sometimes appear with the name legging may at other occasions receive the alternative name *kuitbroek* ‘calf-long pair of trousers’. But conversely, not all calf-long pairs of trousers are so tight-fitting as to be named legging.

The description in the data base consists of three parts: the lexical part, the contextual part, and the referential part. The contextual part is simply the identification of the place where the attestation is found (which page of which issue of which magazine, etc.). The lexical part contains the lexical item used as a name for the depicted garment. The referential part, finally, describes the garment in question in a componential format. It will be clear now why the data base is restricted to names for depicted garments: only in this way can an independent access to the referential level of language be insured. The componential system used for the description of the referents refers to six dimensions: the length of the garment, its width, the presence of a crease, the material the garment is made of, its function, and the sex of the person wearing it. The fact that leggings are trousers is not included in the componential description: this is a common feature, shared by all the instances of the category compiled in the data base. The full componential system is summarized in Figure 2. The left-hand column indicates the various featural values used in the description. The right-hand column describes the conditions for attributing a particular value.
The prototypical legging, then, receives a componential description of the form &lt;31111f&gt;. The digits refer to the various descriptive dimensions in the order in which they are given in Figure 2: the first digit gives the value for the dimension 'length', the second for 'width', and so on. The prototypical legging, in other words, is long (L=3), tight-fitting (W=1), does not have a crease (C=1), is made of an elastic material (M=1), is worn like a pair of trousers rather than, for instance, a piece of underwear (F=1), and is worn by a woman (S=f). The determination of the prototype is straightforward: not only is &lt;31111f&gt; the single most attested configuration of features in the entire data base, but also, it is the combination of all the featural values that are dominant on each of the six dimensions. Note that there is no logical reason why this should be so, that is, why the preponderant values on each dimension should have a tendency to co-occur. It is, on the other hand, part and parcel of the prototypical model of semantic structure that this should be so.

### Dimension: Length
- **Value 1**: The garment is not longer than the knee
- **Value 2**: The length falls in a range from just below the knee to the calves
- **Value 3**: The length of the garment falls in a range from below the calves to the ankles

### Dimension: Width
- **Value 1**: The garment is very tight-fitting, as it were sticking to skin
- **Value 2**: The garment is somewhat tight-fitting, but not extremely
- **Value 3**: The garment is loose-fitting

### Dimension: Crease
- **Value 1**: The garment does not have a crease
- **Value 2**: The garment has a clearly identifiable crease along the middle of the front and the back of the leg

### Dimension: Material
- **Value 1**: The garment is made of a smooth, finely woven or knitted material


<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The garment is made of a more coarsely woven or knitted material</td>
</tr>
<tr>
<td>7</td>
<td>The garment is made of a transparent material (like lace or voile)</td>
</tr>
<tr>
<td>x</td>
<td>The garment is made of any other type of material (corduroy, jeans, ...)</td>
</tr>
</tbody>
</table>

**DIMENSION F: FUNCTION**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The garment is worn as a piece of upperwear, that is, is at least partly visible as the uppermost layer of clothing</td>
</tr>
<tr>
<td>2</td>
<td>The garment is worn as a piece of underwear, or as part of a night dress</td>
</tr>
</tbody>
</table>

**DIMENSION S: SEX**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>The garment is worn by a woman</td>
</tr>
<tr>
<td>m</td>
<td>The garment is worn by a man</td>
</tr>
</tbody>
</table>

---

**Figure 2**

The componential system used in the compilation of the legging-database

On the basis of the corpus as just described, the semasiological development of the category 'legging' in the period from 1988 to 1992 can be charted as in Figures 3-7. The category is represented by three synonymous words: legging, leggings, and caleçon. As we will see further on in this section, the distinction between these alternative items involves geographic variables, viz. the distinction between Belgian Dutch and Netherlandic Dutch. Because there are no differences in the referential value of the three items, the diagrams describe the range of application of the category 'legging' as represented by the three synonyms taken together.
Figure 3
The semasiological range of application of the category legging in 1988

In each diagram, the range of application of the category in one particular year is represented as a cluster of overlapping sets. Each set contains a number of componential configurations as attested in the corpus; a set is defined on the basis of one of the componential features used in the description of the garments. For reasons of graphical economy and elegance, the C-dimension (referring to the presence of a crease) has been ignored. For each dimension, only the dominant feature receives a separate representation as one of the overlapping sets. (For the L-dimension, the values 2 and 3 are
taken together; we shall presently see that the overall picture does not change significantly when this is not the case.) The figures between brackets accompanying the componential configurations indicate the absolute frequency with which that configuration is present in the 'legging'-material for the year under description.

![Figure 4](image)

The semasiological range of application of the category legging in 1989
The overall picture resulting from the overview exhibits two striking features, each of which conforms to the expectations put forward by prototype theory. First, at each synchronic point, the semasiological structure of the category is characterized by a dominant core (the prototypical instantiation of the category), surrounded by peripheral instantiations that deviate in one or more features from the central cases. The category does not consist of identical cases with equal weight, but the category is as it were held together by the presence of a predominant central case, less
central and less frequent instantiations being related by similarity to the central case. The dominant area is not just statistically dominant (in the sense that it contains the majority of cases), it is also structurally dominant, in the sense that it constitutes the area where the sets in the semasiological cluster exhibit maximal overlap.

<table>
<thead>
<tr>
<th>M=1</th>
<th>31112m [1]</th>
<th>W=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>321x2m [1]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Second, from a diachronic angle, the category shows an increasing flexibility: from year to year, the periphery of the category becomes more and more extended. The core area remains intact, but the fringe area of allowed variation grows broader and broader. The pattern is quite regular: in each year, the innovations for that year are the least frequent cases. Again, this is a
pattern that fits in neatly with the predictions of prototype theory. Although the prototypical view does not predict that all categories will exhibit a flexibility that increases over a certain period, it does imply a hypothesis about the path that the increasing flexibility (if it occurs at all) will take: taking its starting-point in the prototypical core, it will move ever further away from the centre. Such a step by step development is precisely what is revealed by the gradual filling up of the representation from Figure 3 to Figure 7.

Two remarks are necessary at this point. To begin with, the fact that this exploitation of the prototype-based flexibility of the category occurs already after no more than five years of the category’s presence in the language is perhaps surprising, but the phenomenon has in fact been observed before: see, in particular, Moerdijk’s minute description of the rapid semantic development of the Dutch neologism kamerbreed (Moerdijk 1985).

Further, it is of course true that the increased flexibility is correlated with an increased absolute frequency of the category. So could we not presume that the 1988 material would exhibit the same degree of diversity as the 1992 material, if only we had a similar amount of attestations for the former year as for the latter? Note, however, that the differences in absolute frequency are not without significance: they do not result from a deficient coverage of the earlier years, but reflect the actual situation that leggings are less present in the early material than in the later material, relatively speaking just as well as absolutely speaking. Leggings simply were not as common in 1988 as they were in 1992, and in this sense, the expansion away from the prototypical centre that is attested in the figures is likely to reflect an actual progression, rather than just being an observational artefact.

An alternative way of charting this semasiological development towards increasing flexibility is to determine the degree of deviation of the exemplars of the category that do not conform to the prototype. The degree of deviance increases as a particular exemplar of the category shares less features with the prototype. The nature of the features has to be taken into account as well: if a dimensional value is not prototypical but still quite common, a degree of variation of 0.5 rather than 1 may be attached to it. In practice, the dimensional values L=2, B=2, and M=2 were given a
deviational weight of 0.5. The dimensional values of the prototypical configuration \(<31111f>\) obviously received a weight of 0. All the other dimensional values were weighted as exhibiting a degree of deviation of 1. It will be noted, then, that the calculation is slightly at variance with the picture drawn in Figures 2 to 6: the C-dimension is not ignored, and the prototypical core is determined in a more restricted way (to the extent that only the value 3 on the L-dimension is included in the prototype).

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Figure 8
Relative frequencies of configurations with a given degree of deviation with regard to the prototype

The overall picture remains the same, though. In Figure 8, the top row indicates the degrees of variation found in the range of application of the ‘legging’-category. (The zero degree obviously corresponds with the prototype.) The columns specify the relative frequency with which the configurations exhibiting a particular degree of deviation occur in the material for each particular year. The crucial point about the figure is the fact that the degrees of variation attested in the corpus increase over the years, and that the increase follows a regular pattern from less to more deviant cases. The new configurations that are added to the range of application of the category are not chosen randomly, but exhibit a more or less stepwise pattern from minimal to maximal deviation.

As an addition to the previous figure, it can also be shown that the number of configurations exhibiting a given degree of variation increases over the time. Figure 8 charts the relative frequency of the configurations with a given degree of deviation compared to
the prototype. Figure 9, on the other hand, indicates how many different configurations may each year be found with a given degree of deviation. Figure 8 shows, for instance, that 4.8 percent of the 1989 materials consists of configurations with a degree of deviation of 1.5. Figure 9 reveals that there is actually only one such configuration. In 1992, the frequency of the configurations with a degree of deviation 1.5 has increased to 8.2 percent, but Figure 9 adds the information that this 8.2 percent is distributed over nine different configurations. Figure 8 stresses the horizontal dimension: from year to year, there is an increase in the degree of deviation that occurs in the corpus. The increase in the flexibility occurs along the vertical dimension as well, as Figure 9 shows: the number of different configurations exhibiting a degree of variation of 1.5, gradually increases from 1 to 9.

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<td>2</td>
<td>2</td>
<td>1</td>
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<tr>
<td>1990</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>1</td>
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<td>1991</td>
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<td>1992</td>
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<td>6</td>
<td>9</td>
<td>6</td>
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Figure 9
Number of different configurations corresponding with the various degrees of deviation

Given that these data establish the validity of hypothesis [f] from section 1.3, we may now venture an excursion into the onomasiological domain. The onomasiological development of the category 'legging', in fact, will appear to be no less outspoken than its semasiological development. It is well known, of course, that onomasiology involves a reversal of the semasiological perspective. While a semasiological perspective takes the word-form as its starting-point, and investigates how several meanings are associated with that word, onomasiological research reverses the perspective, and takes its starting-point in the concepts expressed; it
investigates, basically, which various words may express a given concept, and what the structural links between those words are.

An onomasiological interpretation of salience phenomena, then, will be concerned with statistical differences in the selection of one lexical item rather than another for naming a referent or a class of referents. Such a selection procedure may however involve two radically distinct kinds of choice.

First, the choice for one item rather than another may imply semantic differences: a miniskirt that is at the same time a wrap-around skirt could be called miniskirt or wrap-around skirt, or simply skirt. Each time, a distinct semantic category is chosen: the concept 'miniskirt' is different from the concept 'wrap-around skirt', that is, miniskirt and wrap-around skirt are no synonyms. Selecting the term miniskirt for naming a particular garment automatically places it in a different category than if wrap-around skirt had been used. The onomasiological salience of a lexical item like miniskirt or wrap-around skirt or skirt may then be defined informally as the probability that the category in question will be chosen to name any of the entities that it may legitimately refer to.

The following operational definition of onomasiological salience may be put forward: the onomasiological salience of a category is the frequency of the lexical item naming the category divided by the cumulative token frequency in the data base of the referents in the extension of that lexical item. The rationale behind this definition is as follows. For each kind of referent in the extension of a lexical item, there may exist alternative terms (co-hyponyms, hyponyms, hyperonyms). A category is onomasiologically highly salient if it is a likely choice for the referents it names, that is, if it is stronger than the alternatives. Thus, given a corpus of language use, the onomasiological salience of an item like miniskirt can be calculated by counting how many times miniskirts (that is, the potential referents of miniskirt) are named in the corpus, and then checking how many times these are actually referred to with the lexeme miniskirt, rather than alternative ones like wrap-around skirt or skirt.

With regard to our 'leggings' example, the formula for calculating the entrenchment (that is, the onomasiological salience) of the category will have to take into account the fact that the category
may be named by three synonymous items. As mentioned above, the category ‘legging’ occurs with three names: legging and leggings, with an English origin, and the French caleçon. In calculating the entrenchment of the category ‘leggings’, the occurrences of these three synonyms will clearly all contribute to the salience of the category. However, the question then arises whether no preferences can be discovered in the selection of either legging or leggings or caleçon with regard to each other. The variation at stake here, in other words, is of a formal rather than conceptual nature – an observation that suggests looking for a correlation between the frequency of legging, leggings, and caleçon, and classical variational parameters of a sociolinguistic or geographical or stylistic nature.

What then are the actual results of the investigation? Figure 10 charts the development of the onomasiological entrenchment of the category. The results clearly show that ‘legging’ is a category that catches on: more and more, the garments that fall within the range of application of ‘legging’, are actually being called by one of the names that are unique for the category. The growing success of the category does, of course, also show up in the rising absolute frequency of the items legging and caleçon, which we noticed in the semasiological part of the investigation. It should be clear, however, that the notion of onomasiological entrenchment described here is an independent measure that does not coincide with the absolute frequency of the items legging and caleçon. Figure 10, in other words, shows that it becomes more and more natural to identify and name leggings as leggings, and not as anything else. Or, one could say, the cognitive salience of the category ‘legging’ as such increases. This is, to be sure, not a necessary development: a newly introduced concept could just as well have no success and remain in a marginal position.

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<tr>
<td>a: frequency of leggings - leggings - caleçon</td>
<td>18</td>
<td>21</td>
<td>47</td>
<td>185</td>
<td>318</td>
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The onomasiological entrenchment measure described in Figure 10 is based on a cognitive conception of onomasiological variation. The phenomena in question are straightforwardly semantic phenomena: they involve a cognitive preference for categorizing a particular thing (or set of things) one way rather than the other. As mentioned above, there is yet another interpretation of onomasiological salience, according to which differences of salience between denotational synonyms are correlated with contextual factors such as are commonly studied in dialectological research, sociolinguistics, and stylistics. In our present case study, such phenomena can in fact also be found.

Figure 11 shows that the distribution of the three synonyms legging, leggings and całeçon is not random: there is a clear preference for całeçon in the Belgian sources, whereas legging(s) is virtually the only form in The Netherlands. (The figures are percentages; legging and leggings are treated as a single lexical type for simplicity.) Remarkably, though, the Belgian preference for the French term diminishes over the years. It would seem, however, that this ties in with the specific relationship that exists between Belgian Dutch and Netherlandic Dutch. Historically, the standardization process in the Dutch-speaking part of Belgium developed much later than that in The Netherlands. In The Netherlands, standard Dutch largely developed in the 17th century. In the Dutch-speaking part of Belgium, on the other hand, the development of a Dutch standard was halted by the dominant presence of French as the language of government, education, and higher culture, specifically in the late 18th and the 19th century. When, from the late 19th century onwards, the Flemish nationalist
movement stimulated the gradual adoption of Dutch as the standard language in those parts of Belgium where a situation of diglossia was found (with Dutch dialects as a substratum and French as the superstratum), the Dutch standard as it existed in The Netherlands was generally accepted as the normative model for the Belgian variety of standard Dutch. Contemporary sociolinguistic research reveals, however, that the influence of French is still present in Belgian Dutch, specifically in its more informal or regional varieties.

In this respect, the pattern exhibited by the data in Figure 11 makes good sense. In line with the historical background, Belgian Dutch initially appears to have undergone the influence of French. After a while, however, the normative model provided by Netherlandic Dutch begins to exert its influence, and the English terms that are prevalent in The Netherlands penetrate in Belgian Dutch. This interpretation of the data in Figure 11 should not, to be sure, be extrapolated into a general model of the present-day linguistic relationship between Belgian Dutch and Netherlandic Dutch; in many other cases, in fact, both language varieties share innovations taken over from English. At any rate, Figure 11 clearly exemplifies the second, formal type of onomasiological salience introduced above.

<table>
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<tr>
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<td>legging(s)</td>
<td>caleçon</td>
</tr>
<tr>
<td>1988</td>
<td>100</td>
<td>-</td>
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<tr>
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<tr>
<td>1992</td>
<td>66.5</td>
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Figure 11
The geographical distribution of legging, leggings and caleçon
Metonymy as a Prototypical Category

YVES PEIRSMAN & DIRK GEERAERTS

Abstract

A definition of metonymy that has gained some popularity in Cognitive Linguistics contrasts metonymical semantic shifts within a domain or domain matrix with metaphorical shifts that cross domain boundaries. In the past few years, however, this definition of metonymy has become subject to more and more criticism, in the sense that it relies too much on the vague notions of domains or domain matrices to be fully reliable. In this article, we address this problem by focusing on a nonunitary, prototypical definition of contiguity (the concept that used to be seen as the defining feature of metonymy before Cognitive Linguistics introduced domains and domain matrices). On the basis of the traditional pre-structuralist literature on metonymy, we identify a large number of typical metonymical patterns, and show that they can be classified in terms of the type of contiguity they are motivated by. We argue that metonymies, starting from spatial part-whole contiguity as the core of the category, can be plotted against three dimensions: strength of contact (going from part-whole containment over physical contact to adjacency without contact), boundedness (involving an extension of the part-whole relationship towards unbounded wholes and parts), and domain (with shifts from the spatial to the temporal, the spatio-temporal and the categorial domain).

Introduction

The discussion of metonymy in the context of Cognitive Linguistics has so far concentrated on a definition of metonymy as
a shift of meaning within one domain or domain matrix (Kövecses 2002: 145). It is gradually becoming clear, however, that this definition relies too much on the vague notion of “domain (matrix)” to be fully operational; see Taylor (2002) or Ruiz de Mendoza & Otal Campo (2002) among a number of critical voices. Various linguists (among them Croft & Cruse 2004, Feyaerts 1999 and Riemer 2001) now suggest that it is less than straightforward to use identity versus difference between the semantic domains involved as a basis for the differentiation of metaphor and metonymy.

At the same time, however, a simple return to the older definition of metonymy in terms of contiguity (see Ullmann 1967) is precluded. After all, this unitary definition is as problem-ridden as a unitary definition in terms of domains or domain matrices. Rather, it would seem that a non-unitary definition is called for. And the obvious way of constructing such a definition in Cognitive Linguistics is to use a prototype-theoretical model of categorization.

This prototypically structured category needs to account for the wide variety of metonymical patterns that can be found in the linguistic literature. Section 2 therefore presents the empirical basis of the paper, a list of metonymical patterns that is nowadays widely accepted by linguists. This list was compiled to a large extent on the basis of the pre-structuralist literature on diachronic semantics (specifically from the works of Esnault 1925, Nyrop 1913, Paul 1880 and Waag 1901). While the current interest in metonymy (since Nunberg’s 1978 seminal work) has a mainly theoretical orientation, the pre-structuralist tradition is still, descriptively speaking, the richest source on varieties of metonymy. The analytical part of the paper, sections 3 to 6, argues that these metonymical types can all be related to the prototypical core of spatial part-whole contiguity. The relations between this core case and the derived types (and between the extended types among each other) can be plotted against three dimensions: strength of contact (going from part-whole containment over physical contact to adjacency without contact), boundedness (involving an extension of the part-whole relationship towards unbounded wholes and parts), and domain (with shifts from the spatial to the temporal, the spatio-temporal and the categorial domain). As may be expected in a prototypically structured category, these dimensions interact in various ways.
1. The cognitive linguistic view of metonymy

The most widespread definition of metonymy in Cognitive Linguistics is the following one:

“Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or idealized cognitive model (ICM).”

(Kövecses 2002: 145)

The appeal of this definition lies not only in its unitary character, but also in the clear way in which it seems to distinguish between metonymy and metaphor: metonymy is a shift within one domain; metaphor is a shift across domains.

In spite of its popularity (e.g. Barcelona 2002, Kövecses 2002, Kövecses & Radden 1998, Panther & Thornburg 1999), however, this single-domain approach has also been the object of much criticism. First, the notion of “domain” is not well-defined: “What constitutes one domain has to date not been satisfactorily elucidated in the literature and remains a topic for future research” (Panther & Thornburg in press). Second, as Croft (2002) notes, metonymies regularly seem to cross domain boundaries. In Proust is tough to read, for instance, the source belongs to the domain of human beings, but the target to that of creative activity. There are thus indications that the definition above needs to be revised.

Croft (2002) proposes to replace “domain” by “domain matrix”. He shows that “a concept is profiled against an often very complex domain structure or matrix, even if there is only one abstract domain as the base” (Croft 2002: 177). Croft (2002: 179) claims that metonymy involves “domain highlighting (see e.g. Cruse 1986: 53), since the metonymy makes primary a domain that is secondary in the literal meaning”. Hence, the definition of metonymy should be rephrased as “a metonymic mapping [which] occurs within a single domain matrix, not across domains (or domain matrices)” (Croft 2002: 177).

Still, this proposal does not solve all problems. Although it successfully addresses the topic of metonymies that cut across domain boundaries, it further seems to face the same problem as a definition in terms of domains as such. Feyaerts (1999: 318) notes that semantic structures, and thus domain matrices as well as domains, are “experientially based and consequently to a large extent individually determined”. Moreover, Taylor (2002: 196–197) claims that “it would be an error to suppose that domains
constitute strictly separated configurations of knowledge; typically, domains overlap and interact in numerous and complex ways”. These observations suggest that domain matrix descriptions of a metonymical meaning shift often apply only *a posteriori*, that is to say, it is often only after the metonymical shift has occurred that we can see that a certain feature is a relevant part of the domain matrix.

Consider the Italian word *moneta*, “coin”, which is derived from the Roman name *Juno Moneta*, the goddess whose temple was used as a mint in Rome. This shift of meaning may be accounted for after the fact in terms of conceptual relationships between two entities within a domain matrix (the goddess and the temple, the temple and the coins). However, if we were to describe the domain matrices while being unaware of the metonymic shift, these relationships would not easily be recognized as relevant. The notion of domain matrix, in other words, appears to be a very general one that does not restrict the set of possible metonymies very much. A restriction on possible metonymical meaning shifts, by contrast, would seem to require a more detailed description of the relationships that they are motivated by.

Croft’s (2002) notion of “domain highlighting” is not without its problems either. Ruiz de Mendoza & Otal Campo (2002) show that this phenomenon occurs in metaphor, too, and Feyaerts (1999: 319) similarly argues that “one cannot exclude metaphoric mappings taking place within the boundaries of a domain matrix”. In Goossens’s (1995) example “Oh dear,” she giggled, “I’d quite forgotten”, for instance, *giggle* can be interpreted metonymically as well as metaphorically. In the metonymical interpretation it means ‘to say something while giggling’; in the metaphoric one it means ‘to say something as if giggling’. Feyaerts (1999), unlike Goossens (1995), sees no reason whatsoever to conclude that in the metaphorical reading “the domain (HUMAN) SOUND does not belong to the domain matrix of the profiled concept linguistic action” (Feyaerts 1999: 320). Instead, he considers the auditory experience “an essential aspect of every linguistic utterance” (Feyaerts 1999: 320), and thus a part of the same domain matrix. A similar example is the Dutch *vingers op het raam*, ‘fingers on the window’. This phrase can be explained metaphorically, where the crucial relationship is the similarity between the fingers and their prints on the window, as well as metonymically, where everything fingers can do belongs to the “finger” domain matrix. Yet, in spite of these two different explanations, the entities and domains
involved remain the same. The inclusion of two entities within the same matrix and the highlighting of a secondary subdomain are thus not restricted to metonymy.

In the light of the arguments above, Croft & Cruse (2004), Feyaerts (1999, 2000) and Riemer (2001) all agree that “it is unwise to use identity versus difference between the semantic domains involved as a basis for the differentiation of metaphor and metonymy: the determination of the two should not be based on considerations of semantic domain in the absence of independent means of delimiting these, because one’s definition of semantic domain would be crucial for the classification of a meaning transfer as one or the other.” (Riemer 2001: 383)

There are two possible ways of dealing with this problem. The first would be to try and find better criteria of delineating the conceptual entities within which metonymies operate. Barcelona (2002) and Kövecses & Radden (1998), for instance, suggest replacing domains by frames or ICMs, which are easier to define. The second approach shifts its attention from the domain matrices underlying the metonymical mapping to the specific nature of this mapping, which is, for instance, more asymmetric than the one in metaphor. It defines metonymy “in terms of the nature of the conceptual relationship rather than the range of the extension vis-à-vis the boundaries of a domain matrix” (Feyaerts 1999: 317).

In this paper, we take the second approach, since we identify metonymy in terms of contiguity (as opposed to similarity, which yields metaphor). In a long-standing linguistic tradition, this notion of contiguity has been specified in terms of referential contiguity (e.g. Norrick 1981), in terms of several kinds of linguistic contiguity (Eco 1973, Jakobson 2002, Ullmann 1967) and finally in terms of conceptual contiguity (Dirven 2002, Feyaerts 1999, Schmid 1993). The first conception sees contiguity as a number of objective relationships (such as part-whole and adjacency) that exist in the referential world. The second defines it as a linguistic phenomenon, either as the relationship between two elements that are syntactically combined (Jakobson 2002) or as the relationship between the senses or “semes” of a word (Eco 1973). Cognitive Linguistics, finally, starts from a modified version of the referential approach, stressing that the relations that lie at the basis of metonymic shifts of meaning are not just objectively given, but rely on a process of construal (Dirven 2002: 88). It is this last
conceptual definition of contiguity that will form the backbone of our analysis of metonymy, and which will allow us to extend the category to include non-referential cases.

Importantly, this new stress on contiguity rather than on domains or domain matrices does not require us to use a unitary definition of contiguity. After all, the concept of contiguity is no less vague than that of domain or domain matrix. We will therefore argue (not surprisingly in the context of Cognitive Linguistics) that metonymy is a prototypically structured concept. This prototypicality of metonymy (as well as metaphor) was already suggested by, for instance, Barcelona (2002, 2003) and Dirven (2002). Barcelona focused on varying degrees of “metonymicity”, as opposed to literal language, while Dirven uncovered a continuum from metonymy to metaphor, in terms of conceptual distance between source and target. By contrast, we want to reveal conceptual relationships within the category of metonymy itself.

Some existing studies of metonymy already offer a number of useful perspectives. Blank’s (1999) hierarchical view of contiguity and metonymy in particular will return in our sections 3 to 6. Our analysis, however, will be more fine-grained than Blank’s (1999), in that it systematically investigates the relations between metonymical patterns, some of which have already been suggested by Kövecses & Radden (1998). In this way we will be able to show that the same types of contiguity recur in different domains of conceptualization, as in Seto’s (1999) classification.

Our general approach, then, is quite similar to Blank’s (1999). Blank (1999) combines an abstract classification of types of contiguity with concrete metonymical patterns. He identifies a hierarchy of three abstract levels that lie at the basis of metonymy. On the highest level, Blank (1999) argues, there are two “domains of contiguity”. These two domains, co-presence and succession, roughly correspond to Bonhomme’s (1987) “métonymies situatives” and “métonymies actancielles” and give rise to an open list of “types of contiguity” on the second level. These can “best be compared to the “image schemas” underlying metaphors (see e.g. Lakoff & Johnson 1980; Johnson 1987), which are highly recurrent and conventionalized, but nevertheless build on an open list” (Blank 1999: 183). It is these various types of contiguity that lead to the concrete metonymies on the lowest level. Blank’s (1999) classification is thus useful in that it relates concrete metonymical patterns to higher-level subtypes of contiguity. Still, the specific
kinds of contiguity and the relations between the various metonymical patterns are left for the reader to discover. In the present paper, we will address this issue by establishing a prototypical core from which other patterns can be derived and by investigating in what way these patterns are related to each other and to the core.

Some of these detailed relations have already been noted by Kövecses & Radden (1998). They mention, for instance, that there exists a metaphorical link between CATEGORY & PROPERTY and POSSESSOR & POSSESSED: “[T]he relationship between a category and one of its properties may be analyzed as a special, metaphorical case of the relationship between a possessor and his possessions” (Kövecses & Radden 1998: 53). This means that a metonymy such as jerk for ‘stupidity’ (CATEGORY FOR DEFINING PROPERTY) can be seen as metaphorically akin to cases such as This is Harry for ‘Harry’s drink’ (POSSESSOR FOR POSSESSED).

Unfortunately, Kövecses & Radden (1998) mention such motivating relationships between concrete patterns only sporadically. We will argue, instead, that they form the fundamental tissue that keeps the metonymical category together.

Moreover, the same relationships seem to appear in different “domains of contiguity”, in Blank’s (1999) terms. Seto’s (1999) classification, for instance, nicely shows how the temporal domain of metonymy mirrors the spatial domain. Seto distinguishes between three kinds of spatial metonymies: whole-part, container-contents and adjacency (see figure 1). Some examples are He picked up the telephone for whole-part, The kettle is boiling for container-contents and He looked at his wrist. “I’d better get back to work” for adjacent relations that “resist a neat classification” (Seto 1999: 104). Two of these classes, viz. “whole-part” and “adjacency”, again crop up in the temporal domain. First, “whole-
"Part" is reflected in "whole event-subevent", which involves a complex event and a part of that event. A good example is *He is reading for his first degree*, where *reading* is just a part of the more complex action of studying. "Adjacency", second, is reflected in "preceding-ensuing", which involves two events that closely follow each other. A good example here is *I felt fiercely proud of my mother for standing up for her righteous neighbors*: the action of standing up is "adjacent" to the action of defending people. This correspondence between the spatial and the temporal domain suggests that they are closely related.

In short, by linking up with suggestions that are already present in the recent work of scholars like Riemer, Barcelona, Dirven, Blank, Feyaerts and Seto, the analysis of metonymy that we will develop in the following sections represents a logical step forward in the Cognitive Linguistic study of metonymy. The identification of various levels of contiguity, the detailed relationships between concrete metonymical patterns, and the correspondence between various domains of contiguity have already been suggested, albeit sometimes reluctantly, by other metonymical studies. To these earlier insights, however, we now add an attempt to structure the inventory of metonymical patterns in prototype-theoretical terms.

2. **An inventory of metonymical patterns**

In order to come to a prototypical classification of metonymy, we need to establish an empirical basis of metonymical patterns that linguists generally agree upon. Lists of such patterns can be found particularly in pre-structuralist studies of semantics (cp. Geeraerts 1988 for the importance of pre-structuralist semantics for Cognitive Linguistics). We have consulted three major early studies, *Prinzipien der Sprachgeschichte* by Hermann Paul (1880), *Grammaire historique de la langue française* by Kristoffer Nyrop (1913) and *Bedeutungsentwicklung unseres Wortschatzes* by Albert Waag (1901), together with Gaston Esnault’s *Métaphores occidentales* (1925) and Neal R. Norrick’s *Semiotic Principles in Semantic Theory* (1981). If we combine the five lists of metonymical patterns these books present, the following (still unstructured) inventory emerges:

1. **SPATIAL PART & WHOLE (P) (W) (Ny) (E) (No)**
   - Tony Blair is the Prime Minister of England.

2. **TEMPORAL PART & WHOLE (W)**
   - Dutch and German *morgen* ‘morning’ for ‘tomorrow’
   - (Waag 1901: 92)
3. LOCATION & LOCATED (P) (W) (Ny) (E) (No)
   German Das ganze Haus wurde aus dem Schlaf geschreckt. (Waag 1901: 96)
4. ANTECEDENT & CONSEQUENT (P) (W) (Ny) (E)
   Greek phobos ‘flight’ for ‘fear’ (Nyrop 1913: 213)
5. SUBEVENT & COMPLEX EVENT (P) (W) (No)
   Mother is cooking potatoes. (Kővesces 2002: 153)
6. CHARACTERISTIC & ENTITY (P) (W) (Ny) (E)
   French beauté ‘beauty’ (Nyrop 1913: 224)
7. PRODUCER & PRODUCT (P) (W) (Ny) (E) (No)
   I’m reading Shakespeare. (Kővesces 2002: 143)
8. CONTROLLER & CONTROLLED (W) (Ny)
   Schwarzkopf defeated Iraq. (Kővesces & Radden 1998: 57)
9. CONTAINER & CONTAINED (W) (Ny) (E) (No)
   French aimer la bouteille ‘love the bottle’ (Nyrop 1913: 199)
10. MATERIAL & OBJECT (Ny) (E)
    French carton ‘cardboard’ for ‘cardboard box’ (Nyrop 1913: 201)
11. CAUSE & EFFECT (Ny) (E) (No)
    unlock the prisons for ‘let the prisoners free’ (Norrick 1981: 87)
12. LOCATION & PRODUCT (Ny) (E)
    china (Kővesces & Radden 1998: 57)
13. POSSESSOR & POSSESSED (E) (No)
    the long straw starts for ‘the person with the long straw’ (Norrick 1981: 98)
14. ACTION & PARTICIPANT (P) (W) (Ny) (No)
    to author a book (Kővesces & Radden 1998: 54)
15. PARTICIPANT & PARTICIPANT (E) (No)
    the pen is mightier than the sword for ‘the writer is mightier than the soldier’ (Norrick 1981: 53)
16. PIECE OF CLOTHING & PERSON (P) (W) (Ny) (E) (No)
    French une vieille perruque ‘an old wig’ for ‘an old person’ (Nyrop 1913: 196)
17. PIECE OF CLOTHING & BODY PART (P) (W)
    German Sohle ‘sole (of a shoe)’ for ‘sole (of a foot)’ (Waag 1901: 93)
18. SINGLE ENTITY & COLLECTION (W)
    German Imme ‘swarm of bees’ for ‘bee’ (Waag 1901: 92)
19. TIME & ENTITY (E)
   French un mardi-gras ‘a Shrove Tuesday’ for ‘a
disguised man’ (Esnault 1925: 32)

20. OBJECT & QUANTITY (E)
   French un quart ‘a quarter’ for ‘a tin of sardines in oil’
   (Esnault 1925: 32)

21. CENTRAL FACTOR & INSTITUTION (No)
   the press (Norrick 1981: 57)

22. POTENTIAL & ACTUAL
   Can you see him? (Panther & Thornburg 1999: 339)

23. HYPOnym & HYPERonym
   the pill for ‘the contraceptive pill’

Most of these patterns are very general metonyms that were
named regularly by many of our sources. Some, however, were
either mentioned by only one source or refer to very specific
entities such as pieces of clothing. While a number of these
specific metonyms constitute a pattern in their own right, others
will have to be subsumed under other, more general patterns, as
sections 3 to 6 will show. Finally, patterns (22) and (23) were not
named by any of our initial sources. Still, they have received
sufficient attention in recent years to be included in our inventory.
Pattern (22), POTENTIAL & ACTUAL, was investigated in some
detail by Panther & Thornburg (1999). It relates a potential
situation to an actual one – an ability to its realization, for instance.
Pattern (23), HYPOnym & HYPERonym, allows a hyponym to stand
for its hyperonym or vice versa. It is mentioned as a type of
metonymy by Kövecses & Radden (1998), but we will argue later
that it actually constitutes a borderline case.

It should be mentioned with some insistence that this inventory
of metonymical patterns is by no means meant to be an exhaustive
classification of types of metonymy. Its purpose is not to present a
complete and definitive list of metonymical types, but merely to
define an empirical basis for the analytical exercise that we intend
to pursue in the following sections. If we try to define the concept
of “metonymy” (regardless of whether we aim at a unitary or a
non-unitary definition), we need an observational basis of semantic
shifts that are considered by most or many linguists to be examples
of metonymy: these are the cases that should minimally be
accounted for by the analysis.

Whereas most typologies of metonymy limit themselves to a
similar enumeration of general patterns of contiguity and
metonymy, we use such a list only as a starting point for the
analysis. We believe, like Blank (1999), that linguistics has to look for a comprehensive cognitive framework that is able to cover and relate all these types of contiguity. Moreover, we are convinced that prototype theory presents us with such a framework. Although Barcelona (2002, 2003) and Dirven (2002) have applied prototype theory to distinguish metonymy from literal language or from metaphor (see section 1), no one has yet tried to classify the metonymical patterns we just presented in a prototypical way. We will now put forward such a classification, based on the different types of contiguity that motivate all these metonymical patterns. In line with Seto (1999), we believe that contiguity, and thus metonymy, is present in both space and time. However, these two domains, which will be discussed in sections 3 and 4 respectively, do not exhaust the metonymical patterns in our inventory. Two other domains, that of actions, events and processes on the one hand, and that of assemblies and collections on the other, will be added in sections 5 and 6. In each of these four domains, different types of contiguity will motivate specific metonymical patterns from our inventory. This classification thus shifts the attention from the domains themselves to the contiguous relationships within these domains.

3. Contiguity in the spatial and material domain

Contiguity has always constituted the definitional core of metonymy, albeit in different forms (see section 1). In our prototypical classification of conceptual contiguity, it seems intuitively straightforward to postulate spatial or material contiguity as the prototypical core. Metaphor theory has shown that space is a basic domain in our conceptualization: “We use ontological metaphors to comprehend events, actions, activities, and states. Events and actions are conceptualized metaphorically as objects, activities as substances, states as containers” (Lakoff & Johnson 1980: 30). Hence, it seems a plausible idea to start our classification of metonymy with this basic spatial and material domain.

Our discussion of this domain will start with an enumeration of the patterns in our inventory that rely on spatial or material contiguity. Next, we will assume that the prototypical spatial contiguity relation is constituted by part-whole contiguity and that all other metonymical patterns are related to it. We will allow two relations, which will form the two dimensions that structure our classification of spatial and material metonymies. The first of these
Figure 2. Metonymical patterns in the spatial and material domain: preview.

dimensions, “strength of contact”, will allow us to extend the prototypical core in the direction of containment, contact and adjacency. The second dimension involves the “boundedness” of one or two of the contiguous entities; it allows us to conceptualize a bounded object as a part of an unbounded one. By combining these two dimensions, we will come to a classification of spatial metonymical patterns which will take the graphical form presented in figure 2.

In order to delineate the category of spatial or material metonymies, we need to have a look at our inventory first. Six of the patterns it contains rely on purely spatial or material contiguity:

1. SPATIAL PART & WHOLE
2. LOCATION & LOCATED
3. CONTAINER & CONTAINED
4. MATERIAL & OBJECT
5. PIECE OF CLOTHING & PERSON
6. PIECE OF CLOTHING & BODY PART

These types can now be classified systematically in interrelated groups. An analysis of these subgroups is important because we will see later that similar subgroups may be distinguished when we move from this domain to other domains.

Seto (1999) claimed that the spatial domain contains three metonymical groups: whole-part, container-contained and adjacency. If we apply this analysis to our six metonymical
patterns, three subgroups emerge: SPATIAL PART & WHOLE and MATERIAL & OBJECT represent part-whole relations, PIECE OF CLOTHING & PERSON, PIECE OF CLOTHING & BODY PART and LOCATION & LOCATED are motivated by adjacency, and CONTAINER & CONTAINED straightforwardly corresponds to Seto’s (1999) containment pattern. Seto’s (1999) classification is thus able to account for all the patterns from our inventory. Nevertheless, whereas Seto (1999) classifies these metonymies into three separate and largely unrelated groups, it is also possible to view them from a prototypical perspective as being more closely related. We will do this by relying on the different types of contiguity that they are motivated by.

SPATIAL PART & WHOLE. The prototypical core of contiguity is formed by, we believe, part-whole relations. Tversky & Hemenway (1984) and Kövecses & Radden (1998), among others, have shown that parts and wholes are very basic categories in our conceptualization of the world. Kövecses & Radden (1998: 49), for instance, note that “[t]hings, in particular physical objects, are typically conceived of as forming a gestalt with well-delineated boundaries and as internally composed of various parts”. If we look at contiguity from a prototypical perspective, part-whole relations are therefore a good candidate for the core of the category. Here are some examples:

PART FOR WHOLE:
Tony Blair is the Prime Minister of England; sich einen eignen Herd gründen ‘to build one’s own hearth’ (Waag 1901: 86); Pfeffer ‘pepper’ for ‘dish with pepper sauce’ (Waag 1901: 91); un Peau-rouge ‘redskin’ (Nyrop 1913: 193); We need some good heads on the project. (Kövecses 2002: 145)

WHOLE FOR PART:
George Bush is the president of America; We have to fill up the car; I took up the telephone for ‘I picked up the receiver’; aigrette ‘small heron’ for ‘bundle of feathers’ (Nyrop 1913: 196)

The frequency and familiarity of many of these examples indicate that SPATIAL PART & WHOLE may indeed be situated at the core of the category.
CONTAINER & CONTAINED. Part-whole relations like those above are closely related to the containment pattern. An example such as Tony Blair is the Prime Minister of England, for instance, can be explained in two ways: on the one hand, England is a part of the UK; on the other, it is also contained by it. In this case, a container is conceptualized as a (functional, almost experiential) whole, on the basis of the containment relation with its content, its part. The following examples represent some typical CONTAINER & CONTAINED metonymies:

CONTAINER FOR CONTAINED:
I drank a glass too many; aimer la bouteille ‘love the bottle’ (Nyrop 1913: 199); un nid babillard ‘a chirping nest’ (Nyrop 1913: 198); Platte ‘dish’ (Waag 1901: 95); Mörtel ‘barrel’ for ‘mortar’ (Waag 1901: 95)

CONTAINED FOR CONTAINER:
The milk tipped over. (Norrick 1981: 58); dépôt ‘deposit’ for ‘depot’ (Nyrop 1913: 200); Mappe ‘map’ for ‘file’ (Waag 1901: 95); Eingeweide ‘food eaten by grazing animals’ for ‘intestines’ (Waag 1901: 95)

The precise relation between PART & WHOLE and CONTAINER & CONTAINED seems to be that of a continuum that can be described in terms of “strength of contact”. This is an intuitive notion that refers to the strength of the relation between the two entities involved. In part-whole constellations, this relation is at its strongest. England cannot normally be physically separated from the UK, just like heads cannot be separated from people without the application of brute force. In the case of containment, however, this relation is a little looser: mostly the content can easily be removed from its container. It is thus “strength of contact” that determines the place of a particular metonymy on the continuum.

LOCATION & LOCATED. If we now allow this “strength of contact” to become a bit looser still, we arrive at a third metonymical pattern from our inventory: LOCATION & LOCATED. In these metonymies, an entity is referred to by its location or vice versa:

LOCATION FOR LOCATED:
das ganze Haus wurde aus dem Schlaf geschreckt ‘the whole house was started out of its sleep’ (Waag 1901: 96); die ganze Stadt lacht darüber ‘the whole city laughs at it’ (Waag 1901: 96); Kapelle ‘chapel’ for ‘band’, originally ‘singers and musicians in the
chapel’ (Waag 1901: 96-97); *Frauenzimmer* ‘room for the women in the household’ for ‘women’ (Waag 1901: 97); *tout le théâtre* ‘the whole theatre applauded him’ (Nyrop 1913: 198); Washington is negotiating with Moscow (Kövecses 2002: 143)

**LOCATED FOR LOCATION:**
*Universität* ‘fellowship’ for ‘university building’ (Waag 1901: 98); *Welt* ‘mass of people’ for ‘world’ (Waag 1901: 98); *Hammer* ‘hammer’ for ‘workplace’ (Waag 1901: 86); *billard* ‘billiards’ for ‘room where billiards is played’ (Nyrop 1913: 200); *banque* ‘bank where money-dealers are seated’ for ‘table where money is traded’ for ‘bank, the building where money is traded’ (Nyrop 1913: 200)

These **LOCATION & LOCATED** examples are somehow intermediate between containment and adjacency relations. Their relation with adjacency is obvious: the location is adjacent to the entities that are situated there. Yet, whereas adjacency merely involves two entities that are situated near one another, **LOCATION & LOCATED** presupposes a place (not merely an entity) that serves as a reference point for the entities that are located there. The relation with containment is sometimes less clear. Often **LOCATION & LOCATED** involves literal containment, as in *das ganze Haus wurde aus dem Schlaf geschreckt*. However, even in examples in which no literal container is present (such as *die ganze Stadt lacht darüber*), we can still descry a metaphorical relation of containment:

“We project our in-out orientation onto other physical objects that are bounded by surfaces. (…) Rooms and houses are obvious containers. (…) But even where there is no natural physical boundary that can be viewed as defining a container, we impose boundaries – marking off territory so that it has an inside and a bounding surface – whether a wall, a fence, or an abstract line or plane.” (Lakoff & Johnson 1980: 29-30)

In short, although **LOCATION & LOCATED** at first sight seems to rely on adjacency relations only, it is better to situate it in between adjacency and containment.
ENTITY & ADJACENT ENTITY. The logical next step in the continuum constituted by the weakening of the “strength of contact” dimension consists of adjacency relations, where strength of contact is at its loosest. By this final extension of the continuum, we arrive at a general type of metonymical patterns that was not explicitly mentioned in our inventory, but that certainly exists. Two patterns from our initial list, PIECE OF CLOTHING & PERSON and PIECE OF CLOTHING & BODY PART, are merely specific manifestations of this more general type. We will call this type ENTITY & ADJACENT ENTITY.

Whether concrete metonymies belong to adjacency or real contact often depends on interpretation. PIECE OF CLOTHING & PERSON and PIECE OF CLOTHING & BODY PART both seem to be motivated by contact contiguity. Other cases, however, seem to rely more on adjacency. Tafelrunde ‘round table’, for instance, does not only refer to a piece of furniture, but also to the people sitting around it, and Liedertafel ‘table of songs’ can serve as a name for a choir. Similarly, Tross and Pack, German for the luggage of an army, also refer to the army personnel, and more generally to someone’s followers. These examples (from Waag 1901) are thus situated at the bottom of our continuum, which so far takes the form given in figure 3.

MATERIAL & OBJECT. The classification of spatial and material metonymies in figure 3 ignores one pattern from our initial list:
MATERIAL & OBJECT. In the literature on metonym, this pattern is often subsumed under PART & WHOLE. This is in line with Kövecses & Radden’s (1998: 51) reasoning: “Substances may be conceived of as parts which constitute or make up things, in particular physical objects.” Schofer & Rice (1977: 140), too, claim that “both on the semantic – iron is a feature of sword – and the referential levels – the sword is made of iron – there is a relationship of inclusion.” There is thus reason enough to locate these metonymies together with SPATIAL PART & WHOLE at the upper end of our continuum.

Still, we believe that there is a characteristic difference between these two metonymical patterns that needs to be spelled out. Let us first have a look at some examples to clarify the point:

OBJECT FOR MATERIAL:
There was cat all over the road. (Kövecses & Radden 1998: 51); hermine ‘ermine’ (Nyrop 1913: 197); des gants de chevreau ‘goat gloves’ for ‘goatskin gloves’ (Nyrop 1913: 197)

MATERIAL FOR OBJECT:
carton ‘cardboard’ for ‘cardboard box’ (Nyrop 1913: 201); verre ‘glass’ (Nyrop 1913: 201); fer ‘iron’ for ‘instrument made of iron’ (Nyrop 1913: 202); cuivre ‘brass’ for ‘brass instruments’ (Nyrop 1913: 202)

OBJECT FOR MATERIAL + MATERIAL FOR OBJECT:
castor ‘beaver’ for ‘beaver (fur)’ for ‘hat of beaver fur’ (Nyrop 1913: 201); loutre ‘otter’ for ‘otter (fur)’ for ‘hat of otter fur’ (Nyrop 1913: 201)

As these examples show, the basic difference between SPATIAL PART & WHOLE and MATERIAL & OBJECT lies in the “boundedness” of the contiguous entities. In the former, the two entities are bounded, whereas in the latter, the material is unbounded. Most researchers, however, ignore this difference and classify the substance as a part of the object. Still, it would be at least as plausible to look at things the other way round, i.e. to see the bounded object as a part of the unbounded substance. For one, a substance is not really a part of a material entity, because the object may be completely made of this substance. Moreover, even if iron were a part of a sword, it is still different from more straightforward parts such as the handle or the blade, and the former type of metonymy should therefore be distinguished clearly from the latter more simple part-whole relationship. Finally, our
classification of the substance as a whole can also be observed in other constructions, such as the German partitive genitive. In these cases, the substance is depicted as an unbounded resource, from which smaller quantities can be “individuated”: eine Summe Geldes, ‘a sum of money’, ein Liter dieses guten Weines, ‘a liter of this good wine’.

If we thus see the substance as the whole and the object as a part, we can easily see in what way MATERIAL & OBJECT is distinct from SPATIAL PART & WHOLE: the “whole” in the latter pattern is a bounded entity, whereas in the former it is unbounded. This means that, perpendicular to the continuum described in the previous pages, two types of contiguity can be discerned. If both entities are bounded, we may speak of part-whole contiguity in the strict sense. If the whole is unbounded, we speak of a “loose” form of contiguity or, more to the point, individuation. This variation in boundedness constitutes a second basic dimension along which our prototypical core of part-whole relations can be extended.

Two questions now arise that could lead to further extensions of the variational structure that we have so far uncovered. First, could the shift from bounded to unbounded entities be carried even further, to the extent that we might come across examples of individuation that involve both an unbounded whole and an unbounded part? If we consider an example like chocolate, such cases would certainly seem to exist: chocolate does not only refer to the substance that is made from cacao beans, but also to a drink that is made from the substance in question by dissolving it in milk or water, i.e. to a drink that contains the substance. The substance is part of the drink, but both are unbounded entities.

A second question to consider is whether the distinction between strict contiguity and individuation can be generalized to the rest of the continuum, i.e. to the first dimension, which was summarized in figure 3. If “metonymy” is indeed a prototypically structured category, such interactions may certainly be expected, given that multidimensional covariation is typical of prototypicality. In the case of CONTAINER & CONTAINED such an interaction may indeed be envisaged. The container would then have to be conceptualized as an unbounded material that contains smaller bounded entities, just like water contains minerals or impurities. A metonymy based on such a configuration would be the (informal) Dutch expression bubbel ‘bubbles’, which can refer
Figure 4. Metonymical patterns in the spatial and material domain.

To the champagne that contains the bubbles: the bubbles are bounded, countable entities that are contained in the unbounded mass of champagne.

If we now combine the two dimensions, that of “strength of contact” on the one hand, and that of “boundedness” on the other, we arrive at the prototypical classification of spatial and material metonymies that is graphically represented in figure 4.

Let us summarize. The prototypical core of contiguity in the spatial and material domain is constituted by SPATIAL PART & WHOLE, in the upper left corner. This core can be extended into two directions. The vertical dimension of “strength of contact” takes it via CONTAINER & CONTAINED and LOCATION & LOCATED to ENTITY & ADJACENT ENTITY. The horizontal dimension takes it into the direction of MATERIAL & OBJECT. The combination of these two dimensions covers all the metonymical patterns from our inventory that we mentioned at the beginning of this section, together with some additional examples that do not belong to our initial base.

The prototypical nature of the analysis has two important consequences. First, we do not wish to exclude the possibility of defining alternatives to the model as we sketched it above. The very multidimensionality of prototypically structured categories, in fact, would seem to allow for different ways of analyzing the structure of the category. The important point we want to make is that metonyms in the spatial and material domain seem to be
prototypically organized as a cluster of extensions around the core pattern of SPATIAL PART & WHOLE. Two dimensions, the “strength of contact” between the two entities and their “boundedness”, structure this cluster and relate more marginal patterns to the central ones. The precise way these relations are presented, however, depends on interpretation and probably allows for alternatives.

Second, in a prototypical classification, individual examples can often be related to several more general types at the same time. This characteristic, which we may call “multiple motivation”, applies to many of the metonymies cited above. *Hermine ‘ermine’, for instance, and des gants de chevreau for ‘goatskin gloves’ link up with SPATIAL PART FOR WHOLE as well as with OBJECT FOR MATERIAL, as the skin of an animal is a natural part of this animal. Further, we classified the metonymical patterns PIECE OF CLOTHING & PERSON and PIECE OF CLOTHING & BODY PART along with ENTITY & ADJACENT ENTITY. They can, however, also be related to CHARACTERISTIC & ENTITY or POSSESSOR & POSSESSED, as we will see in the following sections. Similarly, the chocolate example could be ranged with the INSTRUMENT & RESULT pattern that will be mentioned in section 5. The theory of prototypicality does not force us to choose for one of these alternatives – it allows concrete examples to have multiple motivations.

4. **Contiguity in the temporal domain**

As we have already mentioned, our conceptualization of time is inextricably bound up with that of space. This relationship was noted by Kronasser (1952: 158), among others: “In der Vorstellungswelt der Völker sind ja Raum und Zeit völlig identisch, da es ja in der Praxis des täglichen Lebens weder ein Raum erlebnis ohne Zeit noch ein Zeiterlebnis ohne Raum gibt [in the conceptualized world of peoples, space and time are completely identical, because in the practice of everyday life there exists neither an experience of space without time nor an experience of time without space]”. Many expressions, he noted, which are used both in a spatial and in a temporal way stem from the spatial domain: “Der Bedeutungswandel vom Räumlichen zum Zeitlichen ist überall eine Alltäglichkeit [the meaning shift from space to time is ordinary everywhere]”. Similarly, Lakoff & Johnson (1980) showed that time is conceptualized through metaphors of space. There are thus good reasons to explore whether the types of
contiguity we identified in space are metaphorically reflected in the domain of time.

We will now try to substantiate this hypothesis with concrete patterns from our inventory. It will be shown that several spatial types of contiguity correspond to temporal patterns. As before, the core of the category will be constituted by PART & WHOLE metonymies. In the temporal domain, this prototypical core can be extended into one direction: a loosening of the “strength of contact” dimension takes it over containment relations (TIME & ENTITY) to contact (ANTECEDENT & CONSEQUENT). It will thus become clear that the structure of the temporal field of application is closely related to its spatial counterpart. This observation will lead us to the classification of temporal metonymies previewed in figure 5.

**TEMPORAL PART & WHOLE.** TEMPORAL PART & WHOLE, our metonymical pattern (2), corresponds straightforwardly to SPATIAL PART & WHOLE: both its source and target are periods of time, and these stand in a part-whole relationship. As Waag (1901) documents, some German expressions of time have undergone a diachronic change along these lines and now refer to a larger stretch of time than they used to do. For instance, the Dutch and German *morgen*, ‘morning’ or ‘tomorrow’, no longer only refer to the morning of the next day: this “part” meaning was extended, so that it now includes the whole next day. Similarly, German
**Sonnabend** literally means ‘the evening before Sunday’ but actually refers to Saturday as a whole. In Southern Germany, the expression **Mittag** ‘noon’ also includes the afternoon. **Tag** ‘day’ originally only referred to the period from dawn to dusk, but in its metonymical meaning of ‘twenty-four hours’ it also includes the night. In short, just like their spatial counterparts, these metonymies pick out a part of a time period (such as the evening or the morning) in order to refer to the whole (the day).

**TIME & ENTITY.** One step further along the “strength of contact” dimension, we find the contiguous relationship of containment. This relationship motivates the temporal pattern **TIME & ENTITY**, metonymical pattern (19). It includes examples such as the following:

**TIME FOR ENTITY:**
- ‘40-'45 changed the history of the world; 9-11 will never be forgotten; **The sixties** were very progressive; **The next decades** will be faced with important problems such as pollution and overpopulation; **un mardi-gras** ‘a Shrove Tuesday’ for ‘a disguised man’

(Esnault 1925: 32)

At the basis of all these examples lies a conceptualization of time as a container. Like a container, a time period can accommodate all kinds of things: ‘40-'45 and 9-11 refer to the events which took place at that time, while **the sixties, the next decades** and **un mardi-gras** refer to the people that live at a certain time or take part in certain festivities.

**ANTECEDENT & CONSEQUENT.** Just like in the spatial domain, the dimension of “strength of contact” can now be extended even further in the direction of temporal contact. This kind of contiguity can be found in our conceptualization of two temporal entities that follow each other. One metonymical pattern from our inventory that meets these requirements is **ANTECEDENT & CONSEQUENT**, pattern (4). It explains the shift of meaning that took place in the Greek word **phobos**. Originally, this word meant ‘flight’, but it gradually came to stand for the antecedent of this action, viz. ‘fear’. The **Mittag** example that we mentioned earlier could also be analyzed in a similar way: the shift from ‘high noon’ to ‘afternoon’ is a case of an **ANTECEDENT & CONSEQUENT** pattern if the period of noon is not seen as part of the second half of the day, but as a
distinct period preceding the afternoon. Both perspectives would seem to be possible – which is yet another indication for the possibility of multiple motivations in a prototypically structured category.

The purely temporal domain of metonymical patterns, which is given in figure 6, is not a very productive one. Even though its structure clearly mirrors that of the spatial domain, many of the examples above represent historical evolutions that present language users do not recognize as metonymical anymore. Moreover, the pattern ANTECEDENT & CONSEQUENT appears to extend beyond the temporal domain. Our Greek example phobos includes an action rather than a purely temporal entity, and the relationship between its source and target is not merely temporal, but also causal. It is therefore not surprising that a combination of the spatial and temporal types of contiguity gives rise to a third, very productive domain – that of actions, events and processes.

5. Contiguity in actions, events and processes

The temporal domain of contiguity that we have just discussed is metaphorically related to the spatial domain, since the spatial entities were straightforwardly replaced by temporal ones. Up to a point, the next domain of contiguity combines elements from these two sources: it contains relationships between the temporal entities
of actions, events and processes on the one hand, and their mostly spatial participants on the other. Thanks to this combination of sources, its structure is again richer than that of the purely temporal domain, as figure 7 indicates. Not only does the dimension of “strength of contact” extend beyond “contact” to “adjacency”; the second dimension of “boundedness” again plays a major role.

**SUBEVENT & COMPLEX EVENT.** The prototypical structure of the domain of actions, events and processes again has its core in part-whole relations between bounded entities. Instead of relating two spatial entities or two periods of time, however, the metonymical pattern **SUBEVENT & COMPLEX EVENT** comprises two actions, events or processes, one of which is conceptualized as a part of the other. This metonymical pattern thus allows us to pick out one subevent of a more complex event in order to refer to this more complex event. As the following examples show, this pattern is omnipresent in everyday language:

**SUBEVENT FOR COMPLEX EVENT:**
How did you get to the party? (Lakoff 1987: 78)
- I stepped into a car.
- I started to come.
- I drove.
- I borrowed my brother’s car.
- I just stuck out my thumb.
- I hopped on a bus.
In this example, the listed replies do not straightforwardly answer the initial question. The first two answers are possible in a language such as Ojibwa. Both of these metonymies foreground a subevent at the beginning of the more complex event. The other four answers are also acceptable in English, even though they all name a subevent instead of the complex event that they refer to. Some similar examples are *Mother is cooking potatoes* (Kövecses 2002: 153) and *I have to grade hundreds of papers* (Kövecses 2002: 153). Parallel to the previous instances, *cooking* is only one action in the more complex process of preparing food, just like *grading* papers does not simply involve writing down marks. All these examples thus rely on the same ability to conceptualize simplex activities as parts of more complex wholes.

Moreover, this pattern also includes those instances of metonymy which Waag (1901) and Paul (1970) termed SYMBOLIC SUBEVENT FOR COMPLEX EVENT. Symbolic actions such as ‘putting a king on the throne’, or ‘leading a girl to the altar’ are all subevents of the more complex event they refer to. The following examples may therefore be identified as special cases of the metonymical pattern under investigation:

**SUBEVENT FOR COMPLEX EVENT:**
- *auf den Thron setzen* ‘put on the throne’ (Waag 1901: 102);
- *ein Mädchen zum Altar führen* ‘lead a girl to the altar’ for ‘marry’ (Waag 1901: 101);
- *den Handschuh aufnehmen* ‘take up the gauntlet’ (Waag 1901: 102);
- *die Hand auf etwas legen* ‘lay hands on something’ (Waag 1901: 101);
- *die Hände in den Schoß legen* ‘put your hands in your lap’ for ‘sit back’ (Paul 1970: 99)

In short, we have now found a third type of entities that may stand in contiguous part-whole relationships to each other. In addition to the spatial and purely temporal patterns that we observed in the previous sections, it is now clear that actions, events and processes as well may act as parts and wholes.

**ACTION/EVENT/PROCESS & STATE.** Interestingly, this part-whole relationship also exists between actions and states. In sentences such as *Mary speaks Spanish, John smokes, or Harry drinks*, the activities of speaking, smoking and drinking metonymically stand for the states of which they are a part. Speaking, for instance, is only one sub-activity of the general knowledge of a language. Similarly, the references to the actions of smoking and drinking
actually mean that John is a smoker and Harry an alcoholic. Since actions, events and processes are temporally bounded, while states are unbounded, these examples instantiate the phenomenon that we have called individuation (see section 3). 7

A similar analysis can be applied to those metonymies that have formerly been called POTENTIAL & ACTUAL, i.e. pattern (22) in our inventory. These metonymies have been studied in detail by Panther & Thornburg (1999). For instance, in She was able to finish her dissertation, the person’s ability, which is unbounded in time, stands for the actual occurrence of a situation in which she passed the test: She finished her dissertation. Similarly, in indirect speech acts such as Can you let me in? the speaker is not interested in the listener’s ability to open the door, but asks the listener to do so. POTENTIAL & ACTUAL metonymies such as these are very frequent, as the following examples (from Panther & Thornburg 1999) show:

POTENTIAL FOR ACTUAL:
perceptual events: Can you see him?
mental states and processes: Mary can’t believe that Steve is guilty, but I can.
hedged performatives: I can give you my word that he is not at home.
indirect speech acts: When you come to Budapest, I can be your translator.
extra-linguistic actions: I can come to your party on Friday.
character dispositions: He can be very unfriendly.
acquired skills: Mary can speak five languages.

These constructions all involve two situations: a potential, unbounded one and an actual, bounded one. Therefore they can be analyzed as STATE FOR ACTION.

ACTION/EVENT/PROCESS & PARTICIPANT. In the previous sections, we subsequently observed that the prototypical core of part-whole relations could be extended along the continuum of “strength of contact” in the direction of containment. This seems to be the case in the domain of actions, events and processes as well. In ACTION/EVENT/PROCESS & PARTICIPANT, pattern (14), the container is not a spatial or purely temporal entity, but an action, event or process, with its participants as its contents. This action is a “functional” container (cf. Vandeloise): even though most
participants exist before as well as after the action, they can still be conceptualized as the action’s contents.

Since an action can have a whole range of participants, the pattern ACTION/EVENT/PROCESS & PARTICIPANT is a very productive one. The participant entities involved include its agent, its patient, its location, its time and its instrument. Because actions are typically referred to by verbs, and participants by nouns, it is not surprising that many examples of this metonymical pattern are either verbifications or nominalizations. The grammatical phenomena that go hand in hand with the metonymical shifts certainly deserve further investigation, but will not be treated here.

The most prototypical participant of an action/event/process is probably the agent. This active participant can metonymically refer to the action he performs, or vice versa:

AGENT FOR ACTION/EVENT/PROCESS:
to butcher the cow (Kövecses & Radden 1998: 54); to author a book (Kövecses & Radden 1998: 54)

ACTION/EVENT/PROCESS FOR AGENT:
snitch (slang: ‘act of informing’ for ‘informer’)
(Kövecses & Radden 1998: 54); aide ‘act of helping’ for ‘helper’ (Nyrop 1913: 215); pince ‘act of pinching’ for ‘pincers’ (Nyrop 1913: 215); assistance ‘act of attending’ for ‘public’ (Nyrop 1913: 218);
Regierung ‘government’ (Waag 1901: 106)

In the first group of examples, it is the agent that stands for the action: it is the butcher that butchers and the author that authors. In the second group, the action stands for its agent: it is, for example, the government that performs the act of governing.

The second adjacency relation is constituted by an action/event/process and its patient:

ACTION/EVENT/PROCESS FOR PATIENT:
achat, first ‘act of buying’ then ‘purchase’ (Nyrop 1913: 221); vitrage ‘act of putting in a pane of glass’ for ‘window pane’ (Nyrop 1913: 222); peinture ‘act of painting’ for ‘painting’ (Nyrop 1913: 221); envoi ‘act of sending’ for ‘package’ (Nyrop 1913: 215);
Versammlung ‘collection’ (Paul 1970: 100);
Vereinigung ‘association’ (Paul 1970: 100); Anlage ‘act of laying out’ for ‘public garden, park’ (Waag 1901: 107)
The French word *achat* originally referred to the action of buying things before the metonymical meaning ‘the things bought’ was added. *Vitrage* underwent a similar evolution: it can now refer to the patient of the original action as well. The other examples can be explained in a similar way.9

Location is the third participant entity that can enter into a metonymical relation with an action/event/process. For instance, in French, *marché* used to denote the act of trading, but its meaning changed into that of English *market*, location of trading (Nyrop 1913: 223). Here are some other examples:

**ACTION/EVENT/PROCESS FOR LOCATION:**


The reverse metonymy, in which the location is the source and an action/event/process the goal, is attested in the following examples:

**LOCATION FOR ACTION/EVENT/PROCESS:** A lot of Americans protested during *Vietnam*. (Frisson & Pickering 1999: 1370); America doesn’t want another *Pearl Harbor*. (Kövecses 2002: 143); Let’s not let *El Salvador* become another *Vietnam*. (Kövecses 2002: 144); *Watergate* changed our politics. (Kövecses 2002: 144)

The Americans obviously did not protest against the country of Vietnam, but against the war in Vietnam, and the location consequently refers to the action situated there. The other examples are constructed in a similar way.

The fourth participant entity to enter into a metonymy with its action/event/process is time. Time, often seen as the metaphorical counterpart of location (cf. supra) can thus serve as the metonymical source for the action taking place at that moment, or vice versa:

**ACTION/EVENT/PROCESS FOR TIME:**

*tonte* ‘act of shearing’ for ‘shearing season’ (Nyrop 1913: 216); *la saison* first ‘act of sowing’ then ‘season’ (Nyrop 1913: 223); *fenaison* ‘act of
haymaking’ for ‘haymaking season’ (Nyrop 1913: 223); *fauchaison* ‘act of mowing’ for ‘mowing time’ (Nyrop 1913: 223); *cueillaison* ‘act of picking’ for ‘picking season’ (Nyrop 1913: 223)

**TIME FOR ACTION/EVENT/PROCESS:**

to *summer* in Paris (Kövecses & Radden 1998: 55)

All the (agricultural) actions above refer to the season or period in which they are performed. By contrast, if one “summers in Paris”, one lives in Paris during summer, the season that metonymically refers to the action.

The fifth and last participant entity that leads to a productive metonymical pattern is the instrument with which the action/event/process is performed. Skiing, for instance, is an action that obviously requires skis as instruments, and, similarly, hair cannot be shampooed without the necessary instrument, shampoo. It is because of their indispensable presence that these instruments can stand for the action in which they are used:

**INSTRUMENT FOR ACTION/EVENT/PROCESS:**
to *shampoo* one’s hair (Kövecses & Radden 1998: 54); to *ski* (Kövecses & Radden 1998: 54)

**ACTION/EVENT/PROCESS FOR INSTRUMENT:**
*Andenken* ‘act of remembering’ for ‘keepsake’ (Waag 1901: 109); *Letze* ‘act of leaving’ for ‘farewell drink/gift/...’ (Waag 1901: 109)

All in all, the metonymical pattern **ACTION/EVENT/PROCESS & PARTICIPANT** appears to be a constellation of five more specific metonymical patterns, depending on the participant entity that is involved. This entity can be the agent, the patient, the location, the time or the instrument of the action, event or process. All these minor patterns can be interpreted as a result of metaphorical containment relations in the spatio-temporal domain.

Because of the productivity of this metonymical pattern, it is no surprise that it can also involve unbounded entities. This happens in two cases. First of all, it is possible that the participant is an unbounded entity, as in the following examples:

**ACTION/EVENT/PROCESS FOR PATIENT:** *Sprache* ‘act of speaking’ for ‘language’ (Waag 1901: 107-108)

**ACTION/EVENT/PROCESS FOR INSTRUMENT:** *Nahrung* ‘act of feeding’ for ‘food’ (Waag 1901: 109)
Second, instead of a bounded action, event or process, the metonymy can also involve an unbounded state and its participants, as in these examples:

**STATE FOR LOCATION:** *Gehorsam* ‘obedience’ for ‘location where people are taught to obey’ (Waag 1901: 109)

**STATE FOR INSTRUMENT:** *connoissances* ‘state of knowing someone’ for ‘gifts to knights from their ladies (Middle Ages)’ (Nyrop 1913: 215)

These metonymies thus show that the containment pattern of ACTION/EVENT/PROCESS & PARTICIPANT can be extended along the dimension of boundedness.

**CAUSE & EFFECT.** A further loosening of the strength of contact between the source and the target takes us again from containment to contact contiguity. This contact relation between two actions, events or processes lies at the basis of metonymical pattern (11), CAUSE & EFFECT, which is closely related to the purely temporal ANTECEDENT & CONSEQUENT (see section 4). In the following cases, the preceding action is the cause of the subsequent one:

**CAUSE FOR EFFECT:**

*unlock the prisons* for ‘let the prisoners free’ (Norrick 1981: 87); *That was a slap in the face* for him.

**EFFECT FOR CAUSE:**

*empty* a glass for ‘drink a glass’ (Norrick 1981: 87); *erfährt auf* ‘he starts to his feet’ for ‘he is angry’ (Waag 1901: 99); *staunen* ‘stare’ for ‘be astonished’ (Waag 1901: 100); *das entsetzt mich* ‘it un-seats me’ for ‘it alarms me’ (Waag 1901: 100)

In contrast to SUBEVENT & COMPLEX EVENT, the two actions/events/processes here have the same status: there is no necessary or obvious part-whole relationship between them. Rather, their relationship corresponds to that of two neighbouring entities in the spatial domain. In the first examples, the cause stands for its effect, while in the other metonymies, the metonymical targets are the cause of their sources.

As before, CAUSE & EFFECT metonymies can involve unbounded entities as well as bounded ones. In the CAUSE FOR EFFECT examples below, an unbounded cause (*‘cowardess, ‘charity’, ‘malice’*) stands for a bounded effect (*‘act of cowardess’,
‘a small amount of money’ and ‘trick’). In the EFFECT FOR CAUSE examples, an unbounded effect (‘fragrance’, ‘lustre’, ‘light’) stands for its bounded cause (‘perfume’, ‘chandelier’, ‘lamp’).

CAUSE FOR EFFECT:
lâcheté ‘cowardess’ for ‘act of cowardess’ (Nyrop 1913: 225); demander la charité ‘ask for charity’ (Nyrop 1913: 226); malice ‘malice’ for ‘trick’ (Esnault 1925: 32)

EFFECT FOR CAUSE:
parfum ‘perfume’ (Nyrop 1913: 207); lustre ‘lustre’ for ‘chandelier’ (Nyrop 1913: 207); lumière ‘light’ for ‘lamp’ (Esnault 1925: 31)

These metonymies thus illustrate that in this domain, the unbounded dimension stretches further than before, since it now includes contact contiguity as well.

PARTICIPANT & PARTICIPANT. The lower end of the continuum in the spatial domain was occupied by the contiguous relationship between two entities that are situated near one another. We believe that this description corresponds to the relationship between two participants of an action. This relationship is looser than the types of contiguity above. First, the participants are only indirectly related via the action, event or process in which they both participate. Second, although this relationship also involves causality, just like CAUSE & EFFECT, this time it has a weaker form. This causality is most obvious in those patterns that include the agent and the patient of an action, but also plays a role in INSTRUMENT & RESULT and LOCATION & PRODUCT.

Although the strength of contiguity is thus rather weak here, this metonymical pattern is very frequent. This may be due to the fact that both temporal and spatial contiguity play a role. On the one hand, PARTICIPANT & PARTICIPANT certainly has a spatial component: typically, the two participants are spatial entities that are related by spatial contiguity. On the other hand, however, it is the temporal action, event or process that conceptually keeps them together. That is why, for instance, china can still be called china even when the spatial adjacency does not exist anymore; the temporal tie between the product and the location is still present in our minds. This pattern thus constitutes a clear case of multiple motivation. Moreover, since we have already mentioned that participants may be unbounded, it is not surprising that the present pattern can be extended along the axis of boundedness.
PARTICIPANT & PARTICIPANT includes five important subpatterns: CONTROLLER & CONTROLLED, pattern (8), POSSESSOR & POSSESSED, pattern (13), PRODUCER & PRODUCT, pattern (7), LOCATION & PRODUCT, pattern (12), and INSTRUMENT & RESULT, which was not present in our initial inventory but which needs to be added, as we will see presently. Three of these subpatterns result from the adjacency relation between the agent and the patient. Depending on the type of action/event/process, this contiguity relation leads to CONTROLLER & CONTROLLED, POSSESSOR & POSSESSED or PRODUCER & PRODUCT.

For one, the agent can be the controller of the patient, as in the following examples:

CONTROLLER FOR CONTROLLED:
Schwarzkopf defeated Iraq. (Kövecses & Radden 1998: 57); Nixon bombed Hanoi. (Kövecses 2002: 143); Ozawa gave a terrible concert last night. (Kövecses 2002: 144)

CONTROLLED FOR CONTROLLER:
The Mercedes has arrived. (Kövecses & Radden 1998: 57); That’s a cautious lorry.

Contrary to what the first example may literally say, Schwarzkopf did not defeat Iraq on his own. Rather, it was the army controlled by Schwarzkopf that did the job. Similarly, Ozawa did not give concerts on his own; the terrible performance was given by the orchestra he conducted. The last example, finally, does not intend to convey that a certain car has arrived, but rather that the person who sits in the car and controls it is now present.

Other metonymies that can also be categorized under CONTROLLER & CONTROLLED are those in which a certain entity or salient attribute thereof metonymically stands for the person by whom it is “controlled”. In the piano is ill today, the controlled entity (the piano) stands for the person that usually plays (and hence controls) it. Analogous to this example, a large eater can be called une bonne fourchette [a good fork] in French (Nyrop 1913: 192) on the basis of the control relation between the eater and the cutlery.

A second possible instantiation of the agent-patient relation is one in which the patient is possessed by the agent. This relation serves as a motivation for metonymies such as the following:
POSSESSOR FOR POSSESSED:
This is *Harry* for ‘Harry’s drink’ (Kövecses & Radden 1998: 57).

POSSESSED FOR POSSESSOR:
He married *money* for ‘someone who has money’ (Kövecses & Radden 1998: 57); She married *power* for ‘someone who has power’ (Kövecses 2002: 155);
*the long straw* starts for ‘the person with the long straw’ (Norrick 1981: 98).

*Harry*, the name of the possessor of the drink, here refers to this drink, and someone who marries money obviously does not marry a pile of bank notes, but rather conceals his intentions by marrying someone who *possesses* heaps of money. This latter example moreover indicates that PARTICIPANT & PARTICIPANT can also involve unbounded entities.

In a third instantiation of the agent-patient relationship, the agent is the producer of the patient. These metonymies were already present in our inventory as metonymical pattern (7). In all the following examples, the product is named after the producer, or vice versa:

**PRODUCER FOR PRODUCT:**
a *Ford* (Kövecses & Radden 1998: 56); I’m reading *Shakespeare*. (Kövecses 2002: 143); She loves *Picasso*. (Kövecses 2002: 144); Does he own any *Hemingway*? (Kövecses 2002: 144); *du macadam* ’macadam’ (after MacAdam) (Nyrop 1913: 205)

**PRODUCT FOR PRODUCER:**
coucou ’cuckoo’ (Nyrop 1913: 208); French *turlut* ’meadow pipit’ (Nyrop 1913: 208); *goddam* ’goddamn’ for ‘Englishman’ (Nyrop 1913: 210)

A well-known metonymy of this type is ARTIST FOR HIS WORK, as in *He doesn’t like Picasso*, or *He likes to read Hemingway*. “Producers of highly outstanding ‘products’ of a culture like artists, scientists and inventors receive particular metonymic attention” (Kövecses & Radden 1998: 57), and the name *Picasso* can thus refer to a painting or drawing made by this artist, just like *Hemingway* can refer to a book as well as to its author. Kövecses & Radden (1998) claim that this metonymical relation is irreversible. Still, there are for instance bird names, such as English *cuckoo* or French *turlut* ’meadow pipit’ (Nyrop 1913: 208), which name the
producer after its product. The reverse relationship thus seems to be possible after all.

A second adjacency relation can be observed between the location of an action/event/process and its patient. This metonymical pattern was taken up in our inventory as pattern (12), LOCATION & PRODUCT.

LOCATION FOR PRODUCT:

- mokka (Kövecses & Radden 1998: 57); java (Kövecses & Radden 1998: 57); china (Kövecses & Radden 1998: 57); du carrare ‘carrara’ (Nyrop 1913: 205); du camembert ‘camembert’ (Nyrop 1913: 205); du bordeaux ‘Bordeaux’ (Nyrop 1913: 205)

In all these cases, the place where a certain product originates from or is produced comes to stand for the product itself. As an alternative possibility, we can also analyze these examples as a metonymical chain. This chain combines LOCATION FOR LOCATED and PRODUCER FOR PRODUCT: the location refers to the people that live there, and these people then stand for the products they manufacture. In this analysis, the link with causality is particularly clear. The reverse relation is rare, but not impossible, again contrary to Kövecses & Radden’s (1998) findings. A counterexample to their claim can be found in Madeira:

“Un exemple curieux nous est fourni par le nom portugais Madeira, tiré de makeira (…), bois de construction; comme l’île fournissait beaucoup de madeira, elle en reçut le nom. [A curious example is furnished by the Portuguese name Madeira, derived from madeira (…), construction wood; as the island supplied much madeira, it took on its name]” (Nyrop 1913: 208).

Note that, since products are typically unbounded, these examples again show that PARTICIPANT & PARTICIPANT can be extended along the axis of boundedness.

Finally, an example such as whistle indicates that the instrument of an action can enter into a metonymical relation with the patient or result of this action. This metonymical pattern of INSTRUMENT & RESULT was not included in our inventory, as pre-structuralism mainly treated it as a subtype of PRODUCER & PRODUCT (see e.g. Nyrop 1913: 206). Again, the reverse relation is much less frequent, but seems to be possible, as in this example from Funck-Brentano (quoted by Nyrop 1913: 207): when she wanted
to take revenge on her enemies, his marquise of Brinvilliers said “qu’il y avait dans cette boîte bien des successions [that there were some successions in this box]”. The box she refers to does not contain the successions themselves, but rather the instrument, the poison, which will help to bring them about. Still, metonymies such as this one appear to be very infrequent, and the literary source of this example may point to its artificial character. Another marginal example is The 8:40 just arrived (Kövecses 2002: 145). Here the moment of the action stands for the agent, the train arriving at 8:40. This metonymy can thus be analyzed as TIME FOR AGENT. PARTICIPANT & PARTICIPANT thus contains a wide variety of typical and less typical metonymies that are all motivated by the same type of contiguity.

To summarize, the structure of the metonymical patterns that we find in the domain of actions, events and processes closely corresponds to the organization of the patterns in the spatial and temporal domains. The overall structure is presented in figure 8, which repeats the structure of figure 7. As in the previous sections, the core of the domain is constituted by part-whole relations. The dimension of “strength of contact” relates this core to containment,
contact and adjacency relations. The second dimension takes us from metonymies with bounded entities to those that involve unbounded states or participants.

Again, alternative conceptualizations are not precluded by our model. As we discussed in note 10, MANNER FOR ACTION metonymies, for instance, may be classified as PARTICIPANT FOR ACTION, or as CHARACTERISTIC FOR ENTITY. As always, the preferred conceptualization of MANNER will be the decisive factor. CAUSE & EFFECT presents a further example. In metonymies such as secourir, ‘rush forward’ for ‘help’ (Nyrop 1913: 213), or er fährt auf, ‘he starts to his feet’ for ‘he is angry’, (Waag 1901: 99) one action can easily be conceptualized as a part of the other. Rushing forward then becomes part of the helping event, and starting to one’s feet is only one aspect of anger. By adopting this conceptualization, these metonymies turn from CAUSE & EFFECT into COMPLEX EVENT & SUBEVENT. In addition, the POTENTIAL FOR ACTUAL metonymies we mentioned earlier can also be analyzed as CAUSE FOR EFFECT: A person’s ability to do something can be conceptualized as (part of) the cause of this action. Finally, Kövecses’s (2002) example The 8:40 just arrived can be classified as TIME FOR AGENT or as CHARACTERISTIC FOR ENTITY. Again, as in the other domains, multiple motivations are allowed and can all be fitted into our model. This fact thus underpins our model’s reliability as the motivating background behind metonymy.

6. Contiguity in assemblies and collections

The metonymical patterns from our initial set that we have not yet covered are CHARACTERISTIC & ENTITY, INDIVIDUAL & COLLECTION, OBJECT & QUANTITY, CENTRAL FACTOR & INSTITUTION, and HYponym & HYPERONYM. Whereas all previous metonymical patterns could be related fairly straightforwardly to a spatial or temporal basis, the analysis of the remaining patterns requires a further step: we will argue that these patterns can be seen as the extension of the part-whole relationship to the domain of assemblies and collections.

As a first step, let us note that both Cruse (1986) and Seto (1999) distinguish between two types of part-whole relations: taxonomy and partonomy (or meronymy):

“[T]axonomy is a ‘kind-of’ relation while partonomy is a ‘part-of’ relation. In other words, taxonomy is the relation between a more comprehensive category and
Figure 9. Taxonomy vs. partonymy (Seto 1999:93).

a less comprehensive one, while partonomy is the relation between an entity and its parts, such as the relation between a table and its legs.” (Seto 1999: 93)

This distinction is illustrated by figure 9. *Fir* is a kind of tree, whereas *arm* is a part of the body. “Partonomy is based on real-world constitutive relations; taxonomy is concerned with mental (re)classifications of categories” (Seto 1999: 94). Hands are thus inextricable parts of the body, whereas firs show no such relation to trees. In the real world, firs are not contiguous to trees. It is our biological classification that forces a (conceptual) contiguity upon them.

We will come back to this specific feature of taxonomical relations in the final part of this section. At this point, we need to point out that the partonomical type of part-whole relations can be broken down into two further types, which we will call *assembly* and *collection*. In the figure above, *body* is an assembly, because it is constituted by widely different parts – hands, legs, ears, eyes, etc. A swarm of bees, in contrast, is a collection, because all its parts are largely identical: a swarm of bees is made up of only bees. Prototypically, assemblies are functional structures of different parts, whereas collections are sets of roughly equal members. There are likely to be borderline cases, in the sense, for instance, in which a committee is a collection of members but the president of the committee has a different function than the ordinary member. Even so, the distinction between prototypical assemblies and prototypical collections is clear enough to be used as an analytical tool. This results in the tripartite structure graphically represented by figure 10.

Now, while the part-whole relations that we considered so far involved assemblies that were firmly grounded in the spatial or temporal domain, or a combination of both, we now come across
assemblies that are neither predominantly spatial or predominantly temporal, but that do involve structured entities with different functional parts.

First, consider the CENTRAL FACTOR & INSTITUTION metonymy, which we took from Norrick (1981). It includes examples such as the press, where the printing machine stands for the institution of which it is a part. The machine is a concrete thing, but the institution has a rather mixed status, involving people and activities next to concrete entities like buildings and newspapers, and printing machines. The mixed nature of the functional whole that we call the press precludes a straightforward analysis as SPATIAL PART & WHOLE, but an “assembly” interpretation, in the more general sense of “assembly”, is able to deal with this problem. The entity which is conceptualized as an assembly is not necessarily spatial, and may thus also include people, machines, buildings, etc., one of which may be chosen to metonymically stand for the abstract whole to which it belongs.

Second, the CHARACTERISTIC & ENTITY type of metonymy presents a further extension of the “assembly” interpretation. It differs from the previous one, as it relies on the type of contiguity that we called individuation, i.e. it involves unbounded entities. When a pretty girl is referred to as a beauty, a king as (your) majesty, a judge as (your) honour etc., the people in question are conceptualized as assemblies of characteristics (of which one typical example is selected as the basis for identifying the individual), but these characteristics (beauty, majesty, honour) are essentially unbounded. The individual people, conversely, can be seen as bounded individuations of the unbounded category, as figure 11 shows.

Some more examples are:

CHARACTERISTIC FOR ENTITY:

Jugend ‘youth’ (Paul 1970: 99); Menge ‘mass’ (Paul
beauty

Mary Ann Carol Jane

Figure 11. CHARACTERISTIC FOR ENTITY in the case of beauty.

1970: 99); Verwandtschaft ‘kinship’ for ‘relatives’ (Paul 1970: 99); Neugigkeit ‘novelty’ for ‘bit of news’ (Paul 1970: 99); beauté ‘beauty’ (Nyrop 1913: 224); génie ‘genius’ (Nyrop 1913: 224); curiosité ‘curiosity’ (Nyrop 1913: 224); délicatesse ‘delicacies’ (Nyrop 1913: 225); Hang ‘inclination’ for ‘slope’ (Waag 1901: 104); Sänfte ‘comfort’ for ‘sedan chair’ (Waag 1901: 105)

OBJECT & QUANTITY, our metonymical pattern (19), can be analyzed in a similar way. For instance, in Esnault’s (1925) example, un quart ‘a quarter’ metonymically means ‘a tin of sardines in oil’, which always contains this quantity of fish. According to our analysis, QUANTITY can be conceptualized as an unbounded entity. One entity with this quantity can then be metonymically focused upon, just like people with a specific characteristic were. In other words, the admittedly somewhat uncommon OBJECT & QUANTITY pattern can be analyzed as a subtype of CHARACTERISTIC FOR ENTITY.

Other extensions of CHARACTERISTIC FOR ENTITY may be envisaged when we consider entities that are themselves unbounded. The relationship between faith ‘trust, confidence’ and fiaith ‘religious belief’ is one between two unbounded entities: as trust in God is a characteristic part of the abstract assembly ‘religious belief’, the CHARACTERISTIC FOR ENTITY metonymy applies. Such a relationship in the domain of abstractions like trust and belief parallels the part-whole relationship between unbounded spatial entities that we discussed in connection with figure 4.

We see, in other words, that part-whole relationships apply to assemblies with different degrees of abstraction, beyond the purely spatial and temporal domains. But what about collections? When we think of functional entities, the shift from assemblies to collections parallels the shift from part-whole relations to contact and adjacency: the entities in collections are typically conceived of as relatively independent but still loosely associated, rather than being connected by strong hierarchical relations, as in typical
assemblies. Further, we will have to take into account the distinction between bounded and unbounded cases. Countable collections are bounded wholes, whereas uncountable categories are unbounded. INDIVIDUAL & COLLECTION, metonymical pattern (18), can thus be classified as either strict contiguity or as individuation, depending on the nature of the collection involved — whether it is countable or not.

Let us start with countable collections. On the one hand, an individual can stand for a collection, as Waag (1901: 92) shows:

“A Entwicklung zum Kollektivbegriff gleicher Einzelgegenstände (...) zeigt sich bei Rute, das zunächst die lebendige, gewöhnlicher eine abgeschnittene Gerte bezeichnet, hauptsächlich als Züchtigungswerkzeug, am häufigsten jedoch (...) eine Mehrheit von dünnen Zweigen, die zusammengebunden sind. [A development towards reference to a collection of similar entities (...) is shown by Rute, which first refers to the living, or more commonly cut twig, mostly as a punishing instrument, most often still (...) as a collection of thin twigs tied together.]”

On the other hand, a collective term can be used for one entity only, as in German Imme, which in Middle High German times meant ‘swarm of bees’, but now just ‘bee’ (example from Waag 1901). Figure 12 visualizes this example.

A similar phenomenon is attested in the case of uncountable collections. These are unbounded entities made up of single entities: cattle, for instance, is an unbounded whole, constituted by individual entities such as cows, bulls, etc. When one of these entities is picked out and refers to the uncountable collection, or vice versa, a metonymy is created. This is for instance the case with German Frauenzimmer, ‘woman’, and Bursche, ‘fellow’, two examples (taken from Waag 1901)\(^ {12}\) that we will look at in a bit more detail.

First, the German word Frauenzimmer has passed through a whole chain of metonymic changes, including, among others, LOCATION FOR LOCATED. In this paragraph it is the last shift,
from ‘female sex’ to ‘woman’, that is of interest, since it shows how the name for an uncountable collection can come to refer to one individual only:

“Frauenzimmer ist ursprünglich „Zimmer, in welchem sich die Hausfrau mit dem weiblichen Teil der Hausgenossenschaft aufhält“, (...), und bedeutet erst späterhin „Gesamtheit der darin befindlichen Personen“, weiterhin „Gesamtheit des weiblichen Geschlechts“ (...); im 18. Jahrhundert wird es dann auch für eine einzelne Person üblich. [Frauenzimmer originally means ‘room for the lady of the house and the women in the household’, (...) and only later means ‘whole collection of people there’, further ‘entirety of the female sex’ (...); from the 18th century it commonly refers to a single person.]” (Waag 1901: 97)

This last development is represented by figure 13.

Second, Bursche shows a similar development: originally, it means

“einerseits ein Haus, das von einer aus gemeinschaftlicher Kasse lebenden Gesellschaft bewohnt wurde (...), andererseits eine solche Gesellschaft selbst namentlich von Studenten, Handwerksgesellen oder Soldaten, bis es schliesslich wegen der Kollektivbedeutung in seiner Form die Bursch(e) im 17. Jahrhundert als Plural aufgefasst und mit einem den einzelnen Teilnehmer bezeichnenden männlichen Singular der Bursch(e) ausgestattet wurde. [on the one hand a house, occupied by a company living from shared funds, on the other hand such a company itself, particularly of students, journeymen or soldiers, until it was, because of its collective meaning in its form die Bursch(e),
interpreted as a plural in the 17th century, and was supplemented with a male singular *der Bursch(e)*, referring to a single participant.]” (Waag 1901: 97)

Again the original metonymical change, which we have termed LOCATION FOR LOCATED, is followed by UNCOUNTABLE COLLECTION FOR INDIVIDUAL: a word that originally referred to a company of people now picks out only one individual in this group.

Now that we have established that part-whole relations apply to collections as well as assemblies, we can move on to the third type of relationship that we distinguished in figure 10, viz. taxonomies. Lexical changes in taxonomies may involve the substitution of a hyponym by a hyperonym, or the substitution of a hyperonym by a hyponym. The former process can be illustrated by English *the pill*, the latter by Dutch *een Kodak*. The English word *pill* does not only refer to all kinds of medical tablets, but also to one specific instance, viz. the contraceptive pill. The hyperonym here refers to one of its hyponyms, often as a sort of euphemism. Conversely, the Dutch word *Kodak* refers to one type of camera, viz. those of the make *Kodak*, but it is also often used as a synonym for *camera*, its hyperonym. Figure 14 illustrates these processes.

Different interpretations of these patterns are possible. The traditional interpretation (which has been in vogue at least since Paul 1880) does not consider them to be cases of metonymy at all, but assumes a distinct type of semantic change: specialization for ‘the pill’ and generalization for ‘Kodak’. A metonymical interpretation is not excluded, however, and it may itself take two different forms, according to whether the categories involved are envisaged from an extensional or an intensional perspective.

Let us first look at the matter from an extensional perspective, since this is probably the most straightforward approach, and take a sentence such as *A Kodak is a camera* as our starting point. An
extensional characterization of the category *camera* now implies enumerating all possible types of camera – *Kodaks, Nikons, Minoltas, Canons*, etc. *Camera* is defined as a (strict) collection of more specific instances, of which *Kodak* is only one example. *Camera* is thus seen as a countable collection, from which *Kodak* is merely one individual. Hence, the metonymy *Kodak* for ‘camera’ can be interpreted as **INDIVIDUAL FOR COUNTABLE COLLECTION**, as figure 15 shows.

Let us now take the same sentence, *A Kodak is a camera*, but consider it from an intensional perspective. This implies that a category is not defined by means of the types of entities to which it refers, but by the (intensional) characteristics by which it is identified. A *camera* can then be defined as ‘a piece of equipment that is used for taking photographs, making films, or producing television pictures’ (Collins Cobuild 1995: 230), and a *Kodak* is ‘a camera of the make Kodak’. *Camera* is thus a part of the intensional definition of *Kodak*, and can consequentially be metonymically focused upon thanks to the metonymical pattern **ENTITY FOR CHARACTERISTIC**. This process is shown in figure 16.

In short, the first interpretation involves “strict” part-whole contiguity, in which the bounded entity *Kodak* is conceptualized as a part of the bounded collection of cameras. The second interpretation entails individuation, in which *camera* is seen as an unbounded characteristic of the assembly *Kodak*.

The same two interpretations can be appealed to for the explanation of **HYPERONYM FOR HYponYM**. Extensionally, the contraceptive pill can be seen as a part of the collection of pills, and the metonymy is then classified as **COUNTABLE COLLECTION FOR INDIVIDUAL**. Intensionally, *pill* can be conceptualized as one of the characteristics of the *contraceptive pill*, which entails a classification as **CHARACTERISTIC FOR ENTITY**.\(^{13}\)
Figure 17. Metonymical patterns in assemblies and collections.

It is beyond the scope of the present article to decide whether the traditional interpretation of the HYPERONYM FOR HYPONYM and the HYPONYM FOR HYPERONYM patterns in terms of specialization and generalization are more appropriate than the metonymic interpretation. We should recognize, though, that categorial relations of the taxonomical kind are metonymical only in a more or less derived sense. It is only, for instance, when we see categories as sets of members that we can apply the INDIVIDUAL & COLLECTION metonymy. As we mentioned before, firs and trees are not directly contiguous, but it is only when the abstract category “tree” is conceived of as a collection that the metonymical pattern can apply. However, seeing categories as collections is a specific form of metalinguistic activity that need not be spontaneously or universally present in the average language user. In this respect, we should be careful not to range the HYPERONYM & HYPONYM pattern too rapidly with metonymy. In any event, we seem to have reached the borderline of metonymy with the HYPERONYM & HYPONYM pattern: to the extent that it is a metonymy at all, it is a highly specific and peripheral case.

The domain of assemblies and collections is now summarized in figure 17. Its prototypical core is constituted by contiguity between an assembly and its elements. This type of contiguity mirrors the part-whole relationships from the previous domains, and motivates the metonymical pattern CENTRAL FACTOR & INSTITUTION. If we then move along the axis of boundedness, we arrive at CHARACTERISTIC & ENTITY, which allows us to name a
characteristic to refer to a bounded or unbounded entity and vice versa. A looser strength of contact, finally, brings us to metonymies involving collections. Here, two patterns can be identified, COUNTABLE COLLECTION & INDIVIDUAL and UNCOUNTABLE COLLECTION & INDIVIDUAL, depending on whether the collection is bounded or unbounded, respectively. Hence, it becomes clear that the domain of assemblies and collections displays the same structure as the other domains we discussed above.

7. Conclusions

The point of departure of our exercise in semantic analysis was the recognition that a unitary definition of metonymy in terms of a semantic shift within a domain or a domain matrix is far from unproblematic, given the relative vagueness of the concepts “domain” and “domain matrix”. Rather than attempting to refine these concepts, we have explored the possibility of a non-unitary definition of metonymy in the form of a prototypically structured analysis of the notion of contiguity – the concept that used to be seen as the defining feature of metonymy par excellence before Cognitive Linguistics introduced a definition in terms of domains and domain matrices.

Taking spatial part-whole relations as the core of the category, we showed that the set of metonymical patterns that we derived predominantly from the rich pre-structuralist literature on semantic change, can be related to this presumed core case along three interacting dimensions. First, while the strongest form of contiguity involves the partonomic incorporation of one entity in the global structure constituted by the other, weaker forms of contiguity are situated along a dimension leading from part-whole relations over containment and contact to adjacency without contact. Second, while the core case of the contiguity cluster is situated in the spatial and material domain, similar part-whole relations and their derivatives are also found in other domains: in the domain of temporal expressions, in the spatio-temporal domain of actions, events, and processes, and in the domain of functional assemblies and collections. Third, while the central part-whole configuration links concrete and bounded parts and wholes, extended patterns involve unbounded (and possibly abstract) entities. These three interacting dimensions are shown in figure 18.
Figure 18. The prototypical category of metonymical patterns.

The prototype-theoretical nature of the resulting network of extensions resides not just in the choice of a core reading as a starting-point for the analysis, but also in the structural characteristics of the network: in the way in which the features of the central case are systematically transformed, extrapolated, weakened in the derived cases; in the way in which the various lines of extension interact to form a multidimensional structure; and in the way in which individual extensions may be multiply motivated. All of these features have been noted before as typical of prototypicality; see e.g. Geeraerts (1997).

Crucially, none of the lines that connect the extensions to the core themselves involve a metonymical change (which would condemn the whole enterprise to a certain degree of circularity). The mechanisms of extension, in fact, are largely based on similarity: metaphorical similarity in the form of a shift from the spatial and material domain to temporally characterized entities and to functional and abstract wholes, and similarity in the form of a gradual weakening of the contiguous part-whole relationship to looser forms of contact and adjacency.

The success of the analytical attempt to bring together different types of metonymy into a prototypically structured category establishes the basic point we set out to explore: a definition of metonymy in terms of contiguity is possible, if we accept a non-
unitary, prototype-based analysis of contiguity. This does not mean, to be sure, that all questions have been answered. First, it is clear that not all contiguous entities can metonymically refer to one another. Metonymies, and their directionality, are also motivated by pragmatic factors, which we left largely unexplored. Second, as we have already mentioned, metonymy interacts with certain grammatical phenomena. These processes, which we largely ignored, certainly deserve further treatment. Third, it will be necessary to enlarge the empirical basis of the approach by incorporating even more metonymical patterns and examples. This should include the consultation of other linguistic sources and a supplementation of the present metonymical patterns (most of which are lexical) with more predicational, propositional and illocutionary metonymies. On the basis of what was achieved in the previous pages, however, we are confident that such an extended analysis will not radically alter the basic picture that we have drawn, even though we may expect multiple refinements on individual points.

The attempts of Cognitive Linguistics to bring a specific perspective to the study of metonymy have so far been dominated by a focus on domains and domain matrices. The present analysis shows that there is another typically Cognitive Linguistic concept that may be brought to bear on the definition of metonymy, viz. that of prototypicality. It is not yet clear which perspective, the domain-related one or the prototype-related one, will ultimately prove to be most fruitful, but at least it has become clear that the study of metonymy within Cognitive Linguistics should take both perspectives into account. Depending on how one evaluates the domain matrix definition of metonymy, our prototype-based analysis may either replace this definition (if it turns out to be insufficient for independent reasons) or provide a network-like expansion of the schematic domain matrix account.

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Notes
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1. We will symbolize a metonymical pattern by \textsc{entity} 1 & \textsc{entity} 2 when the direction of the meaning shift is irrelevant. In order to refer to a specific direction, we will use the notation \textsc{source} for \textsc{target}. In other words, \textsc{entity} 1 & \textsc{entity} 2 generalizes over \textsc{entity} 1 for \textsc{entity} 2 and \textsc{entity} 2 for \textsc{entity} 1.

2. This inventory is not a simple enumeration of all the metonymical patterns that are found in these five studies of metonymy. Instead, two major adaptations were made. First, very idiosyncratic patterns were, if possible, subsumed under more general patterns from other sources. Paul’s (1880) \textsc{sound} for \textsc{animal}, for instance, is a clear example of \textsc{producer} & \textsc{product}, and Nyrop’s (1913) \textsc{colour} for \textsc{cloth} seems a more specific application of \textsc{characteristic} & \textsc{entity}. When there is considerable disagreement between our sources as to where the pattern belongs, we listed it separately. This was the case with, for instance, \textsc{piece of clothing} & \textsc{person}, which was treated as \textsc{spatial part} & \textsc{whole} by Paul, Nyrop and Waag, as \textsc{container} & \textsc{contained} by Norrick, and as \textsc{person} & \textsc{fashion} by Esnault. Second, overlap between the various sources was removed. The pattern \textsc{location} & \textsc{located}, for instance, was not literally named by any of our sources, but combines the frequently mentioned \textsc{place} & \textsc{people} with Nyrop’s \textsc{thing} for \textsc{place} and Norrick’s \textsc{locality} & \textsc{occupant}. Adaptations such as these were necessary to present a convenient inventory of metonymical patterns that best suits our purposes.

3. The symbols following the patterns indicate the sources that they were named by, where P = Paul (1880), W = Waag (1901), Ny = Nyrop (1913), E = Esnault (1925) and No = Norrick (1981).

4. It has to be noted that, traditionally, \textsc{part} & \textsc{whole} metonymies have often been classified as synecdoche (cf. Fontanier 1968). In contemporary linguistics, however, the distinction between metonymy and synecdoche is often blurred, because of its problematic nature. Yet, some researchers, such as Seto (1999), still defend a specific treatment of synecdoche.

5. This paper presents a rational reconstruction of the relationships between the metonymical patterns in the inventory. It thus addresses the developments in the use of the term \textit{metonymy} in the linguistic literature rather than the historical developments of the metonymical patterns themselves.

6. Note that we use the term ‘domain’ in a slightly different context than the one above. Here, it refers to the four conceptual realms in which contiguity can occur (space, time, action/event/process and category), and not to ‘a semantic structure that functions as the base for at least one concept profile (typically, many profiles)’ (Croft 2002: 166).

7. In the literature, another analysis of these examples can be found. Kövecses (2002), in particular, classifies a metonymy such as \textit{Mary speaks Spanish} as \textsc{subevent for complex event}. The reason for this classification is intuitively clear: Mary does not only speak the language, but also writes it, listens to it, etc., so that the act of speaking can be conceptualized as a smaller part of a complex action. The way in which this metonymy is classified will thus depend on the conceptualization that is chosen. Either we perceive of the knowledge of a language as an unbounded state in time and we classify the metonymy as \textsc{action for state}, or we see the knowledge of a language as a complex set of related events and classify the metonymy as \textsc{subevent for complex event}.
8. The importance of a functional rather than a spatial conception of containment has been pointed at early in the history of Cognitive Semantics; see Vandeloise (1986).

9. It has to be noted that this metonymical pattern often overlaps with another pattern that is generally called ACTION & RESULT. In many of the examples above, the patient is at the same time the result of the action. In general, ACTION & RESULT metonymies can often be subsumed under other metonymical patterns. When the result is also the patient of the action, a classification as ACTION & PATIENT seems appropriate. When the result, in contrast, is a state caused by the action, it seems logical to subsume the metonymy under CAUSE & EFFECT. ACTION & RESULT metonymies thus seem to form a subtype of other metonymical patterns, rather than to constitute their own separate type.

10. In the literature (see e.g. Kövecses & Radden 1998, Brdar & Brdar-Szabó 2003), another action metonymy is distinguished, viz. MANNER FOR ACTION. There is, however, no reason to claim the existence of a new metonymical pattern to accommodate these cases. In general, the metonymies that are distinguished as MANNER FOR ACTION fall into two groups. The first group is represented by Kövecses & Radden’s (1999) example She tiptoed to her bed. Setting aside the morphological issue we referred to earlier, we believe that metonymies such as this one should be subsumed under INSTRUMENT FOR ACTION, because the tips of the toes are the instrument of the action performed. The second group of MANNER FOR ACTION metonymies is represented by Brdar & Brdar-Szabó’s (2003) I must be open with her for I must speak openly with her and by Lapata & Lascarides’s (2003) easy problem. This group can be analyzed as CHARACTERISTIC FOR ENTITY, since an action can be seen metaphorically as an entity that has ‘manner’ as one of its characteristics. Note, finally, that Langacker (1999) calls this last example an ‘active-zone metonymy’, since it activates an implicit relation with respect to which the problem is easy.

11. Note that we use the terms agent and patient rather broadly: they can also refer to the participants in a stative relation such as possession.

12. Waag (1901) did not distinguish between this metonymical pattern and the previous one, so that they are both represented by the same metonymical pattern in our inventory.

13. In metonymical patterns such as HYPERONYM & HYPONYM, prototypicality plays a major role. Prototypicality is the prime motivation behind the choice of the source in HYPONYM FOR HYPERONYM metonymies and behind the interpretation of HYPERONYM FOR HYPONYM metonymies. In the former pattern, it is the most prototypical hyponym which is chosen as the source of the metonymy. This is the reason why Kodak and not Olympus or Pentax can refer to cameras in general. In the latter pattern, it is prototypicality which guides the calculation of the metonymical goal. The metonymical interpretation of pill as ’contraceptive pill’ – and not as pills against headache, stomach-ache, etc. – can be accounted for by the prototypical status of the former. In fact, the influence of prototypicality in instances such as these may be so significant that it suggests yet another way of looking at the HYPERONYM FOR HYPERONYM cases: the shift may be due to similarity with the prototype, in the sense that Nikons and Minoltas and so on are equated with the Kodak prototype.
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Looking Back At Anger: 
Cultural Traditions and 
Metaphorical Patterns.

Dirk Geeraerts & Stefan Grondelaers


Abstract
This paper addresses the question of the influence of the Medieval doctrine of the four humours and the four temperaments on our contemporary vocabulary. Specifically, given the psychological part of the humoral theory, is there any way in which the influence of the theory can be felt in the way emotions are being talked about today? Concentrating on the concept of anger, the paper will try to show that there is. By taking a closer historical look at Kövecses' analysis of expressions for the emotional concept 'anger' (1989), it will be argued that his a-historical method obscures the possible role of cultural traditions as a source of emotion concepts.

1 The Mysteries of Masturbation

In the course of 1989, the Belgian Department of Education started a school campaign against truancy. The major slogan of the campaign read Van spijbelen word je doof 'Playing truant makes you deaf' - a jocular (but probably inefficient) reference to the old belief that excessive masturbation could cause deafness. It is not likely that this belief itself is still very much alive in our post-sexual revolution, sex education era, but the very fact that knowledge of it was assumed in the campaign seems to indicate that it is still around, and that it was being handed down from educators to pupils not too long ago. But what was the origin of that belief (which, incidentally, came in a number of variants, in the sense that next to deafness, blindness and deterioration of the spinal marrow were cited as the sinful results of promiscuous self-indulgence) ? Was it just a conspiratorial invention of priests and parents, intended to keep personal frustration and public morality up ? Or was there an actual basis for it ? Let us turn to a specialist for an answer.

In 1772, the honourable doctor Tissot (member of learned societies in London, Basel, Bern, and Rotterdam) published a lengthy treatise entitled L'Onanisme. Dissertation sur les Maladies produites par la Masturbation (Grasset, Lausanne), in which all is revealed about this 'crime obscène'. After an extensive treatment of
the detrimental influence of masturbation, he asks the question 'Comment une
trop grande émission de semence produit-elle tous les maux que je viens de
décirre ?' [How does an excessive emission of sperm produce all the evils that I
have just described ?]. On page 69, he begins his answer with a reference to the
father of medicine, Hippocrates of Kos (approx. 460-377 BC). (The relevant
passages are in the Hippocratean treatise known as De Genitura.)

'Hippocrate a cru qu'elle [la semence] se séparoit de tout le corps, mais sur-
tout de la tête. La semence de l'homme vient, dit-il, de toutes les humeurs
de son corps, elle en est la partie la plus importante. ... Il y a des veines &
des nerfs qui de toutes les parties du corps vont se rendre aux parties
génitales: quand celles-ci se trouvent remplies & échauffées, elles
éprouvent un prurit, qui se communiquant dant tout le corps, y porte une
impression de chaleur & de plaisir; les humeurs entrent dans une especce de
fermentation, qui en sépare ce qu'il y a de plus précieux & de plus
balsamique, & cette partie, ainsi séparée du reste, est portée par la moële de
l'épine aux organes génitaux'.

[Hippocrates thought that semen secreted itself from the entire body, but
specifically from the head. A man's semen, he says, comes from all the
humours of his body, of which it is the most important component. ... There
are veins and nerves that go towards the genital organs from all over the
body, and when these organs are filled up and warmed up, they experience
an urge that communicates itself through the entire body, producing an
impression of warmth and pleasure. The humours then enter into some sort
of fermentation that separates out the most precious and balsamic
substance they contain, and this part, when it is separated from the rest, is
carried to the genital organs by the spinal marrow.]

If, in other words, semen is produced by a process of fermentation and distillation
of the 'humours', it is plausible that an overproduction of sperm weakens the
body, given the vital importance of those 'humours'. Specifically, the role of the
head and the spinal cord in this process explains why, in particular, the functions
of the head (such as seeing and hearing), and the spinal marrow may suffer the
detrimental effects of excessive sperm production. In this sense, it all falls it into
place - but it only does so against the background of the doctrine of the four
humours. In Classical and Medieval physiology, the human body was thought to
contain four kinds of fluids, or humours, which regulated the body's functioning
and whose disproportionate presence could cause illness. Admittedly, conflicting
views were expressed within the humoral framework about the origins of sperm,
and the humoral doctrine as a whole was no longer valid in its original
Hippocratean form by the end of the eighteenth century. But, although Tissot
hardly follows Hippocrates in detail, he quotes him approvingly, and like most of
his contemporaries does retain the basic idea that the production of semen (and
the harmful effects of overproduction) involves the extraction of the seminal
substance from the vital bodily humours.
Against the background of this historical link, extending from classical antiquity well into the modern era, the lingering belief in the negative effects of masturbation appears to be a recently deceased (or at least moribund) remnant of what was once solid science. And to be sure, it is not the only relic. In the Dutch-speaking part of Belgium, for instance, the concept 'cold, inflammation of the mucous membrane of nose and throat' is expressed in a majority of the dialects by the word *valling*. While *valling* is morphologically complex (being a nominalization of the verb *valen* 'to fall'), it is not semantically transparent to the majority of speakers. Historically speaking, however, its formal complexity makes perfect sense in the framework of the theory of humours: when the nose runs or sputum is expectorated, what 'falls' is nothing else than phlegm, one of the four humours. Given that the head was considered to be the major locus of phlegm (and taking into account that phlegm was described as a cold humour, in contrast with, for instance, blood as one of the warm humours), a *valling* or a cold is nothing but a precipitation of the brain's fluid. And of course, in non-historical parlance, the English word *phlegm* now refers precisely to the thick semi-fluid secretion of the mucous membranes of the respiratory passages. Similarly, we speak of *catarrh* (derived from the Greek *katarrheo* 'to flow down'), and - in the case of another disease attributed to an excess of phlegm - of rheumatism, in which the Greek verb *rheo* 'to flow' can be discerned (cf. Siegel 1968:323).

Faced with examples such as these, we would like to address the question of the influence of the humoral doctrine on our contemporary vocabulary more systematically. What other relics of the old beliefs can we find? Specifically, given the psychological part of the humoral theory, is there any way in which the influence of the theory can still be felt in the way we talk about emotions? Concentrating on the concept of anger, we will try to show that there is. By taking a closer historical look at Kövecses' analysis of emotional expressions in terms of generalized metaphors (1989), we shall argue that his a-historical method obscures the possible role of cultural traditions as a source of emotion concepts. Our purpose, in other words, is factual to the extent that we will try to establish the importance of the old humoral theory for our contemporary emotional vocabulary, critical to the extent that we will try to qualify Kövecses' analysis, and methodological to the extent that we will stress the methodological importance of a diachronic perspective for linguistic studies with a cultural orientation. Before dealing with the specific linguistic part of the investigation, we will first give some more information on the theory of humours and its historical importance.

2 The History of the Humours

In this section, we will briefly (and simplifyingly) present the humoral doctrine, and sketch its historical development. On various aspects of the history of medicine at large and the humoral theory in particular, more information may be found in a.o. Lindeboom (1985), Godderis (1988), Beek (1969), Irwin (1947), Siegel (1968), Major (1954), Schäfer (1966), and Diepgen (1955). Klibansky, Panofsky & Saxl (1964) deserve to be mentioned separately for their detailed history of the humoral doctrine up to the seventeenth century (with special
emphasis on the concept of melancholy).

The foundations of the humoral doctrine were laid by Hippocrates of Kos. Three aspects of his approach should be mentioned: the physiological, the psychological, and the medical. Physiologically, the four humoral fluids regulate the vital processes within the human body; the secretion of the humours underlies the dynamical operation of our anatomy. Psychologically, on the other hand, they define four prototypical temperaments, i.e., a person’s character is thought to be determined by the preponderance of one of the four vital fluids in his body. Thus, the choleric temperament (given to anger and irascibility) is determined by a preponderance of the yellow bile, while the melancholic, gloomy and fearful, suffers from a constitutional excess of black bile. The phlegmatic personality is typically placid and unmoved, while the sanguine temperament (defined in correlation with blood, the fourth humour) is passionate, optimistic, and brave. The singular combination of physiological and psychological concepts that characterizes the theory of humours also shows up in the fact that a disequilibrium of the fluids does not only characterize constitutional temperaments, but also causes temporary diseases which are then typically described in bodily, biological terms as well as in psychic terms. For instance, an overproduction of yellow bile may be signalled by the patient’s vomiting bile, but also by his dreaming of fire. In the same line, an excess of blood shows up in the redness of the skin and swollen veins, but also in carelessness and a certain degree of recalcitrance. In this sense, the humoral theory is a medical doctrine: it identifies diseases and their symptoms, and defines a therapy. Obviously, the basic therapeutic rule will be to restore the balance of the humours, given that a disturbance of their well-balanced proportion is the basic cause of the pathological situation. The long-lasting popularity of blood-letting, for instance (a standard medical practice that continued well into the nineteenth century) has its historical origins in the theory of humours.

The connection between yellow bile and fire that was mentioned a moment ago is not accidental. It is part of a systematic correlation between the human, anatomical microcosm and the macrocosm, thought to be built up from four basic elements. Thus, yellow bile, black bile, phlegm, and blood corresponded with fire, earth, water, and air respectively. In the Aristotelian elaboration of the Hippocratean doctrine, a ‘componential analysis’ was added to these correlating sets of microcosmical and macrocosmical basic elements. They were defined, in fact, as combinations of four basic features: cold, warm, wet, and dry. (Needless to say, these four features are themselves related along two dimensions.) Blood was thought to be warm and wet, phlegm cold and wet, yellow bile warm and dry, and black bile cold and dry.

The classical humoral doctrine received the form in which it was to dominate the Middle Ages in the work of Galen (129-199). His incorporation of the humoral approach into an encompassing theory of the human digestive system is of particular interest. Galen distinguishes between three successive ‘digestions’. In the first digestive process, food is transformed into chyle in the stomach; the residue of this first digestion is faeces. In the second step, the humoral fluids
enter the picture. For instance, by the transformation of chyle in the spleen, black bile is produced, while the liver refines chyle into blood; the residue of the second digestion is urine. The third step takes the blood and carries it through the body, sustaining the growth of the body; the residue of this third digestion is perspiration. But while the substance that ensures the growth and maintenance of the body is known as the nutrimental spirit, there are also two other spirits to be taken into account in this third step. In a continuing and cumulative refining process, the heart produces the vital spirit (which regulates the temperature of the body and controls the passions), and the brain produces the animal spirit (Aristotle's pneuma psychicon, which commands the movement of the body, but also feeling and the workings of the mind).

Further, Galen’s digestive anatomy leads to a dietary pharmacology. All plants (and foodstuffs in general) could be characterized by one of four degrees of warmth, cold, wetness, and dryness. Given that diseases are caused by an excess of one of the four humours, and given that these are themselves characterized by the four features just mentioned, the basic therapeutic rule is to put the patient on a diet that will ensure a decrease of the superfluous humour. For instance, because yellow bile is hot and dry, patients suffering from choleric diseases should avoid plants such as garlic and ginger, which are both warm in the fourth degree and dry in the fourth degree. Rather, they should resort to plants such as opium (wet in the fourth degree) and henbane (cold in the fourth degree).

In the course of the Middle Ages, the Galenic framework was further developed into a large-scale system of signs and symbols. In a typically medieval analogical way of thinking, widely divergent phenomena (ranging from the ages of man to astrological notions such as the system of the planets and the signs of the zodiac) were fitted into the fourfold schema presented by the medical theory. In Table 1, an overview is given of a number of those correlations. It should be mentioned, however, that the system was not entirely without uncertainties (which is not surprising for a system that was to a large extent devised independently of empirical observation). For instance, while there was general agreement on the core of the system, authors would differ as to the more peripheral elements (such as the question which planet correlates with which humour; in particular, the associated animals are highly unstable across authors). Also, the system so to speak contained its own sources of confusion. There is, for instance, a marked ambiguity in the use of the concept ‘blood’, which was not only considered to be one of the four basic fluids, but which was also thought to transport the other humours, and which could hence also be used to refer to the mixture of the humours that was carried through the body (cf. Schäfer 1966: 4). And while the basic colour associated with yellow bile is obviously yellow, it was believed that yellow bile turned red when heated (and black when it was entirely burned up), so that the colour ‘red’ could receive multiple interpretations within the system.
The humoral edifice began to be undermined as soon as the Renaissance introduced renewed empirical medical investigations. Harvey’s discovery of the circulation of the blood, for instance, was in direct contradiction with the traditional position of the blood in the Galenic ‘digestive’ system. However, the disappearance of the theory from the medical scene was only very gradual, and it took approximately another three centuries before the last vestiges of the humoral framework were finally removed. The standard view of the historians of medicine is, in fact, that only in the middle of the nineteenth century (and more particularly, with the publication of Rudolf Virchow’s *Die Cellularpathologie* of 1858) did the humoral pathological conception receive its final blow. This ‘final’ character only holds, of course, for the official medical science: we have already seen in the introductory section about masturbation that traces of the old doctrine continued to exist much longer in popular belief. Along the same lines, it could probably be shown that the contemporary revival of herbalist medicine at the fringe of official medicine has direct links with the Galenic dietary pharmacology.

### 3 Anger in Art

As we have seen, the humoral doctrine had developed into a full-fledged semiotic system in the course of the Middle Ages: an ordered set of signs for medical and psychological interpretation. As a first indication of the fact that this semiotic system was not confined to the field of medicine, let us see how it influenced the artistic production of the Renaissance. We shall give two examples, one from the pictorial arts, and one from the dramatic arts.

Cesare Ripa’s *Iconologia* of 1593 was undoubtedly one of the major reference works for the seventeenth century graphic artist. It contained a thematic inventory of the emblematic subject-matter of art, that is to say, of the topics,
motifs, and symbols that could be used in paintings, drawings, engravings, and the like. There is a separate section in Ripa devoted to the four temperaments, with a detailed enumeration of the iconography associated with each of the four types. This is how Ripa introduces the cholerica temperament.

'Vn giouane magro di color gialliccio, 6 con sguardo fiero, che essendo quasi nudo tenghi con la destra mano vna spada nuda, stando con prontezza di voler combattere. Da vn lato (cioè per terra) sar... vno scudo in mezo del qual sia dipinta vna gran fiamma di fuoco, 6 dall’altro lato vna feroce leone.'

[A thin young man in yellow, with a ferocious face, almost naked, holding a drawn weapon in his right hand, ready to fight. From one side, a shield will be placed on the ground, with a flame of fire painted in the middle, and from the other side, a ferocious lion.]

Each of these characteristics is then further explained and elaborated in the course of Ripa's expos, which is interspersed with references to and quotations from authorities such as Galen, Ovid, Seneca, and Avicenna. In general, the attributes mentioned in Ripa's description can be easily related to the characteristics mentioned in Table 1. Basically, the irascibility of the cholerica person is symbolized by depicting him as a battle-prone warrior. Note that each of the details subtly contributes to the meaning of the whole; in particular, the fact that the young man is naked, and the fact he is not carrying his shield but that it is merely lying on the ground, indicate the impulsiveness of his hot-tempered nature: in his fits of rage, he does not even think about his own protection. If this impulsiveness is the negative side of his personality, the braveness symbolized by the lion is its positive side. Further elements that can be traced easily are the fire, and the yellow colour (corresponding, of course, with the yellow bile that is the physiological basis of this type). Less clear perhaps is the leanness of the young man's body, but this is an expression of the consuming character of the dry heat that is typical of the cholerica physiology.

It is worthwhile noticing that Ripa's description contains only the basic iconography of the four temperaments. It suffices to have a look at Klibansky, Panofsky & Saxl's (1964) magisterial monograph on Dürer's well-known wood-cut Melancolia I to get an idea of the intricacies and subtleties that arise when the humoral iconology is used and transformed by a truly creative artist.

But the influence of the humoral semiotic system was not confined to the graphic arts. For instance, it has been described by various authors (Campbell 1930, Cruttwell 1951, Draper 1965, Schäfer 1966, Pope 1985, Kail 1986) how the psychology of Shakespeare's dramatic characters unmistakably refers to the theory of humours. Just a few quotations from The Taming of the Shrew suffice to demonstrate this.

(1) *Were I not a little pot and soon hot* [IV:1:5]

(2) *Is she so hot a shrew* [IV:1:17]
I tell thee, Kate, 't was burnt and dried away, and I expressly am forbid to touch it, for it engenders choler, planteth anger; and better it were that both of us did fast, since, of ourselves, ourselves are choleric [IV:1:156]

Gru. What say you to a neat's foot ?
Kath. 'Tis passing good. I prithee let me have it.
Gru. I fear it is too choleric a meat.
How say you to a fat tripe finely broil'd ?
Kath. I like it well. Good Grumio, fetch it me.
Gru. I cannot tell. I fear 'tis choleric.
What say you to a piece of beef and mustard ?
Kath. A dish that I do love to feed upon.
Gru. Ay, but the mustard is too hot a little [IV:3:25]

The conceptualization of anger in these quotations conforms to the model furnished by the theory of humours: anger is caused by choler (3), the production of which may be stimulated by certain kinds of food (3,4); while a choleric temperament is a permanent personality trait (3), the main attribute of the choleric personality is hotness (1,2). (This is not to say, by the way, that Shakespeare's use of the humoral doctrine is unoriginal: see Pope 1985 on the vivid and original way in which he handles the humoral concepts.) The fact that passages such as the ones quoted above can be multiplied from the work of Webster, Marlowe, or Jonson, leads Schäfer (1966) to the conclusion that the humoral conception of physiology and psychology is something of a true fashion in Elizabethan drama. He attributes this to the fact that it is only in the middle of the sixteenth century that the doctrine became known to a wider audience that that of learned men who could read the medical authorities in their Latin and Greek originals. It is only, in other words, after the invention of printing that works such as Thomas Elyot's Castel of Helthe (1539), Andrew Boorde's A Breuyary of Helth (c. 1542) and A Compendyous Regyment or A Dyetary of Helth (c. 1542), or Thomas Vicary's A Profitable Treatise of the Anatomie of Mans Body (1548) could be widely distributed, and that they could contribute to the spreading of the humoral doctrine to the community at large. (In Chapman 1979:277, the wide distribution of almanacs is mentioned as a specific factor contributing to its popularity.) But if this dissemination of the doctrine of humours from the realm of learned knowledge to that of popular belief implies that it is technically a piece of gesunkenes Kulturgut, the question arises how far it actually sank. In particular, how deep did it become entrenched in the language itself ?

4 The Lexical Legacy

We have already seen, in the case of valling, catarrh, rheumatism, and even cold, that single lexical items that are current today may be traced back to the humoral doctrine. These items are not isolated cases. In Table 2, we have systematically brought together a number of items and expressions in three European languages (English, French, and Dutch) that can be considered a part of the legacy of the
theory of humours.

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>French</th>
<th>Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phlegm</td>
<td>phlegmatic: calm, coll, apathetic</td>
<td>avoir un flegme imperturbable: to be imperturbable</td>
<td>ralling: (dialectal) cold</td>
</tr>
<tr>
<td>Black bile</td>
<td>spleen: organ filtering the blood; sadness</td>
<td>mélancolie: sadness, moroseness</td>
<td>zwartgallig: sad, depressed (literally 'black-bilious')</td>
</tr>
<tr>
<td>Yellow bile</td>
<td>bilious: angry, irascible</td>
<td>colère: anger</td>
<td>z’n gal spuwen: to vent (literally 'to spit out') one’s gall</td>
</tr>
<tr>
<td>Blood</td>
<td>full-blooded: vigorous, hearty, sensual</td>
<td>avoir du sang dans les veines: to have spirit, luck</td>
<td>warmbloedig: passionate (literally 'warm-blooded')</td>
</tr>
</tbody>
</table>

Table 2. Lexical relics of the humoral doctrine

It will be noticed that the items exhibit various kinds of etymological or semantic relationships with regard to the older medical vocabulary. To begin with, there are items like mélancolie, colère, and flegme that refer directly to the original Latin denominations of the four basic fluids or types of personality. Next, there are items such as bilious and zwartgallig, which are based on a synonym (bile) or a translation in the vernacular (gal) of the technical term for the humour in question. Finally, there are items that have a more indirect relationship with the humours, in the sense of being metonymically related with them. Thus, spleen and valling are not formed on the basis of the name of one of the basic fluids, but rather refer, respectively, to the organ typically associated with black bile (and hence to the associated temperament), and to a physiological effect thought to involve phlegm. Not included in the figure but equally revealing are items such as French humeur ‘temperament; mood’, that involve the generic term for the four fluids. If we zoom in on one of the cells of Table 2, still further examples may be found. According to Roget’s Thesaurus, the items listed under (5) all refer to anger or related concepts (the glosses are our own).

(5) choler ‘anger’
   gall ‘anger’
   rouse one’s choler ‘to elicit anger’
   stir one’s bile ‘to elicit anger’
   galling, ‘vexing, causing anger’
   choleric ‘irascible’
   liverish ‘irascible’
   splenetic ‘irascible’
   hot-blooded ‘irascible’
Although we will return to methodological problems more systematically further on in the paper, a brief methodological remark may be useful at this point. The basis for quoting a particular item as evidence for the influence of the humoral doctrine is the degree of etymological or semantic motivation that may be attributed to the item in question when it is interpreted in that historical light. Because items such as gall, liverish, choleric, and to stir one's bile would simply remain etymological puzzles if the historical medical background were not taken into account, a humoral interpretation has explanatory value for them. But not all of the cases mentioned under (5) are equally clear. Two kinds of more or less problematic cases can be distinguished.

In the first place, there are items whose global motivation in terms of the theory of humours is plausible, but whose local motivation within the theory is not entirely clear. Take the case of hot-blooded: if the typical fluid associated with anger is yellow bile, how come this expression contains a reference to the warming up of blood rather than bile? However, we have already seen that blood had a highly specific position in the whole doctrine: it is not only a humour in itself, but also carries the other humours through the body. If, then, blood can also refer to the mixture of the four humours as it circulates through the body, it is not surprising that the warming up that causes anger may be metonymically said to involve the entire mixture.

A similar but less easily explainable case of a possible local lack of motivation is splenetic: although this expression supports our general point that the influence of the humoral theory on our contemporary emotional vocabulary can be demonstrated, there seems to be a contradiction in the fact that items referring to the spleen may be either related to the melancholic temperament (see Table 2) or to the choleric temperament, as in (5). Given that the link between the spleen and melancholy is the orthodox one in the framework of the humoral approach, there are at least two ways in which the association between the spleen and anger could be explained. First, the association between the spleen and anger could be an effect of the confusion about aspects of the humoral doctrine that we have already drawn the attention to. Second, the association could be motivated by specific subtleties and refinements of the theory that we have not yet dealt with. In fact, Klibansky, Panofsky & Saxl (1964:88) draw the attention to a passage in Avicenna where a distinction is made between the natural, primary form of melancholy, caused by an overproduction of black bile, and a secondary form of melancholy caused by a combustion of one of the other humours; thus, there is a specifically 'choleric' form of melancholy, which typically expresses itself as a state of frenzy (compare Starobinsky 1962, Jackson 1986 for the history of melancholy). At stake here is the notion of 'adust melancholy', which was thought to lead to more aggressive behaviour and less fearfulness and sorrow than the natural melancholy that was engendered in a straightforward manner by an overabundance of black bile. (On the distinction between natural melancholy, adust melancholy, and choleric - and on the confusion it leads to among scholars - see Soufas's 1990
argumentation that Don Quixote is an adust melancholic rather than the choleric type he has been made out to be in earlier humoral interpretations of Cervantes's work.)

Our intention here is not to choose between these alternatives, but to make the methodological point that settling the question requires a detailed diachronic analysis of the development of the humoral theory and of its influence on our emotional vocabulary. If it is in general clear that the historical motivation behind the meaning 'irascible' of splenetic has to be sought in the older physiological-psychological conceptions of the theory of humours, a closer historical look at the development of that theory would yield valuable information about the specific history of splenetic. If, on the one hand, an explanation is sought in the less central aspects of the humoral theory, the historical analysis should be able to show how, for instance, the dissemination of Avicenna's view that was mentioned above led to the lexical association between the spleen and anger. If, on the other hand, that association is the result of a confusion, it is probably a later development, caused by impurities in the dissemination of the theory from its learned origins to the common people (or, perhaps, by the fact that the theory became less transparent when it gradually lost its scientific and medical respectability).

If, then, the cases that are characterized by an apparent local lack of motivation merely establish the need for more detailed historical research, the items that raise global motivational questions are potentially more damaging for the humoral hypothesis. Consider an example like fiery: the (metaphorical) reference to heat could be attributed to the lingering influence of the humoral doctrine, but it could also be motivated on entirely different grounds. Suppose, in fact, that increased body heat is a physiological effect of being in a state of anger, and that anger is metonymically conceptualized in terms of its physiological effects. Rather than an historical motivation as a relic of a now abandoned medical theory, an expression such as fiery would then have an a-historical physiological motivation. At this point, we can include another set of expressions for the concept 'anger' into the discussion. In an analysis that has been published in several places (Kövecses 1986, Lakoff & Kövecses 1987, Lakoff 1987, Kövecses 1989), conventionalized phrases such as those in (6) have been subsumed by Kövecses and Lakoff under the general metaphor ANGER IS HEAT, which is further specified into ANGER IS THE HEAT OF A FLUID IN A CONTAINER when the heat applies to fluids, and into ANGER IS FIRE when the heat is applied to solids. (We will base our discussion on Kövecses 1989; there are only minimal differences in any case between the four published versions of the analysis).

(6) I had reached the boiling point
    She was seething with rage
    He lost his cool
    You make my blood boil
    He was foaming at the mouth
    He's just letting of steam
    Don't get hot under the collar
Billy's a hothead
They were having a heated argument
When I found out, I almost burst a blood vessel
He got red with anger
She was scarlet with rage
I was fuming
When I told him, he just exploded
Smoke was pouring out of his ears
He was breathing fire
Those are inflammatory remarks
That kindled my ire
He was consumed by his anger

At a still lower level of analysis, these and many similar expressions are grouped together under labels such as when the intensity of anger increases, the fluid rises (his pent-up anger welled up inside him), intense anger produces steam (I was fuming), and when anger becomes too intense, the person explodes (when I told him, he just exploded). Next to the basic general metaphor anger is heat, less elaborate metaphorical patterns such as anger is insanity, anger is an opponent, anger is a dangerous animal, and causing anger is trespassing are identified.

It will be obvious that the general metaphor anger is the heat of a fluid in a container neatly fits into the humoral views: the body is the container of the four cardinal fluids, and anger involves the heating up of specific fluids (either yellow bile as the direct source of ire, or blood as the mixture of the four humours). However, given the alternative explanation of the general metaphor in terms of a physiological metonymy, is there any way in which we can say that the humoral hypothesis provides a better explanation of the motivation behind this particular subset of our emotional vocabulary? Apart from the general methodological point that a humoral explanation achieves greater generality by being able to combine an explanation of the cases under (5) with an explanation of those under (6), we have to consider two specific reasons for preferring it over a purely physiological explanation.

First, it seems better able to motivate the reference to fluids in the expressions. Kövecses explains these references in the following terms: 'The fluid version [of the basic metaphor] is much more highly elaborated. The reason for this, we surmise, is that in our overall conceptual system we have the general metaphor the body is a container for the emotions' (1989:53). The latter is illustrated by expressions such as he was filled with anger and she could not contain her joy. However, it is not clear how this metaphor combines with the basic anger is heat metaphor to yield the application to fluids (as Kövecses claims it does): the fact that the body is a container for the emotions does not predispose the interpretation towards a conception of the emotions as fluids; after all, the contained emotions could just as well be solids or gases as far as the container metaphor is concerned. We will presently have more to say about the 'solids' version of the basic metaphor, but it can already be remarked here that in Kövecses's view of the matter, one would not expect the fluid version to be more
elaborate than the solid version, because the container metaphor that is invoked as an explanation does not seem to favour the one over the other.

Second, the humoral interpretation may help us to make sense of cases that are beyond the reach of a physiological explanation. In general, one is tempted to argue that a physiological interpretation entails that like physiological effects lead to like patterns of lexicalization. In this sense, it would be a counterargument for the physiological approach that an emotion such as shame, which is no less characterized by redness in the face (flushing) and a subjective impression of increased body temperature than anger, is not lexicalized by the same set of expressions as anger. It would make no sense, for instance, to say that one's blood boils with shame, or that someone is fuming with shame. However, Kövecses has rightly pointed out that there need not be a simple correlation between physiological effects and linguistic patterns, and that motivation does not equal prediction (1989:85). The physiological effects of anger motivate our anger vocabulary, but because they do not predict the linguistic situation, emotions with similar physiological effects may be differently conceptualized. This element of caution does not, however, work as easily in the other direction: similar physiological effects need not have similar lexical reflections, yet similar patterns of lexicalization had better correlate with similar physiological effects if the physiological explanation is to have any generality. To take up an example, there exists a rather hackneyed set of expressions to the effect that love is a fire: you can let the flame of your love die out, you can have a steadily burning devotion for someone, and you can feel warm towards that person. On the one hand, this accords well with the humoral belief that love is one of the ‘hot’ emotions. On the other hand, it is physiologically unlikely that persons in love have a permanently raised skin temperature (we, at least, are not aware of physiological research to that effect). Granting, in other words, that the methodological key element is motivation rather than prediction, it does seem to be the case that taking into account the historical humoral background may lead to better motivational success.

(A related point that will only be mentioned in passing here concerns the subjective experiential prominence of the physiological effects thought to underlie our emotional vocabulary. Kövecses refers to the experimental results of Ekman, Levenson & Friesen (1983) to prove that anger indeed correlates with higher skin temperature, whereas fear correlates with a decrease. However, independent evidence is needed to show that these objective increases and decreases correlate with subjective experiences of warm and cold. This question is relevant because the changes that were measured were rather small: an increase of 0.15 degrees in the case of anger, and a decrease of 0.01 degrees in the case of fear. Are these changes noticed at all by the individuals concerned? Are they sufficient to cause the subjective experiences that could influence our vocabulary?)

On the other hand, let us now play the devil’s advocate. A possible objection against the hypothesis that the anger is heat metaphor is a legacy of the humoral theory could be based on those cases in which the basic metaphor is applied to solids rather than to body fluids: there is no reference to solids, after all, in the
original medical doctrine. Notice, however, that most of the expressions cited by Kövecses as evidence for the 'solids' interpretation, as listed under (7), refer to fire as the source of combustion rather than to a solid substance that is being warmed up; this is aptly rendered by Kövecses's labeling of this metaphorical subpattern as anger is fire. By contrasting heat as applied to solids with heat as applied to fluids, Kövecses's formulations suggest that in the former case, the solids have the same function within the metaphorical image as the fluids in the latter case. But while the fluids are the object of the process of warming up, there is no reference to solids as things that are being warmed up in most of the expressions in (7). On the contrary, we mainly find references to fire as the source of the process of warming up. Therefore, while there would be an incompatibility in the images referring to fluids and to solids as the object of the heating process, there is merely a complementarity between the expressions referring to fluids as the object of the heating up and the expressions referring to fire as the source of the combustion process. And of course, these complementary images dovetail with the hypothesis that the expressions historically have humoral origins.

(7) Those are inflammatory remarks
   She was doing a slow burn
   He was breathing fire
   Your insincere apology just added fuel to the fire
   After the argument, Dave was smoldering for days
   That kindled my ire
   Boy, am I burned up !
   He was consumed by his anger

But what about the last two expressions in (7) ? In the metaphorical image, there is an unmistakable reference to the person's body as a solid substance being consumed. But either in the presupposition that the fire of anger naturally takes its fuel from the body, or in the presupposition that it may detrimentally spread to the whole body and consume substances that are not its natural source of fuel, there is again no contradiction with the humoral conception of anger. On the contrary, we have already seen in Ripa's description of the choleric that a consumptive burning up of the body, resulting in leanness and thinness, is part and parcel of the original views. We see no reason, in short, to argue that the 'solids' interpretation of the anger is heat metaphor endangers a humoral interpretation of the motivation behind that metaphor.

5 Attenuating the Analysis

The foregoing does not imply, to be sure, that the humoral interpretation of our emotional vocabulary is without problems. In order to avoid misunderstanding, we would now like to specify a number of views that we explicitly do not intend to propagate. First and foremost, we do not think that our analysis could not be further corroborated. Specifically, because we claim that a sizeable portion of our contemporary anger vocabulary is part of the lexical legacy of the theory of the four humours, we are convinced that a historical analysis of the development of our emotional vocabulary is necessary to supplement the foregoing remarks. It
would have to be shown, in this respect, that the conceptual model of anger that we attribute to the humoral doctrine has indeed entered the language under the influence of the popular dissemination of the latter, and further, that there is a continuous tradition from that period to ours. Because the (a-historical) physiological model does not impose such restrictions on the historical development of the language (assuming at least that the physiological correlates of our emotions are historically stable), the ultimate test for the humoral hypothesis consists of a diachronic lexicological analysis. The purpose of this paper, to be sure, is not to carry out this diachronic analysis, but merely to show how it follows in an obvious manner from the humoral hypothesis.

Further, we do not want to create the impression that the whole of our emotional vocabulary can be motivated in humoral terms. We are well aware that various patterns of conceptualization can be discerned in our emotional vocabulary; the fundamental importance of Kövecses’s research is precisely that it takes a major step towards the identification of those patterns. As a consequence, we do not claim that the humoral doctrine has had the same amount of impact on every possible emotion concept. Our basic claim so far has merely been that such an influence cannot be disregarded if a proper insight is to be obtained into the motivation behind our contemporary emotional vocabulary. Precisely how far the humoral influence goes is another matter, and one that can only be solved by further research.

Specifically, we do not wish to imply that physiological factors are unimportant for the structure of our emotional vocabulary, nor that they could not interact with the historical humoral influences. Such an interaction could take various forms, one of which is that the physiological factors have a marked influence on the reinterpretation process that expressions with a humoral origin undergo in the course of time. The fact that a number of contemporary emotional expressions has its historical origin in the theory of humours does not imply, to be sure, that the theory synchronically determines the interpretation of those expressions: though our vocabulary for the concept of anger may still bear the imprint of ancient medical theories, we no longer believe in the theory as such (notwithstanding isolated relics like the masturbation beliefs mentioned above). This implies that the expressions have gone through a process of reinterpretation. Pope (1985:179) correctly identifies this reinterpretation process as one in which expressions that were once taken literally acquire a figurative interpretation:

‘Though it [the humoral doctrine] now may be dead in our minds it is far from dead on our tongues. We have been taking each other’s temperatures for over a hundred years and finding them steady at around 98.4 øF, but we still use and understand the language of humoral psychology. The only difference is that when we describe somebody as having hot blood or a cold heart or a dry wit we realize that we are talking metaphorically, whereas in the past we would have believed ourselves to have been talking about physical qualities.’

We would suggest, then, that the physiological factors that Kövecses concentrates
on could be a crucial factor in this reinterpretation process. As the original literal motivation gradually disappears, the elements of our emotional vocabulary could receive a new interpretation as figurative expressions of the physiological effects of particular emotions. Such a physiological reinterpretation would not be automatic, however: in some cases, the expressions could simply lose all transparency (following the valling model), while in others, the new figurative meaning could be purely metaphorical rather than metonymical along the ‘physiological effects’ line. For instance, taking for granted that the origins of fiery in the sense ‘irascible’ are humoral, and also taking for granted that the expression has not become totally opaque in the way in which valling has, its contemporary reinterpreted meaning could be based on the physiological metonymy that anger causes body heat (as Kövecses would suggest), but it could also be the case that fiery is synchronically interpreted on the basis of a metaphorical image: the propensity of the irascible person to burst out abruptly could be compared with the fire’s tendency to flare up suddenly.

Methodologically, what is required here is an investigation of the way in which the expressions in our contemporary emotional vocabulary are actually interpreted: what kind of interpretation (if any) do people associate with them? Again, we wish to emphasize that a closer scrutiny of the reinterpretation process also naturally includes a historical analysis - if only because the reinterpretation process is a historical phenomenon. By following the historical development of our emotional vocabulary on a step by step basis, information about the reinterpretation process can be obtained. In particular, it can be hypothesized that those lexical items that are not easily reinterpreted will sooner disappear from the language than others. On the basis of this assumption, the relevance of more specific hypotheses can be determined. Is it correct, for instance, that expressions that are easily reinterpreted along the physiological lines set out by Kövecses, are more resistant to a process of lexical loss? The obsolescence of a number of the expressions mentioned under (5) could be an illustration of the same reinterpretation process: if the expressions under (5) are synchronically less lively than those under (6), this may very well signal a historical shift from a humoral to a physiological interpretative framework. It is beyond the scope of this paper to deal with the question in detail, but we hope to have made clear that historical questions such as these follow logically from a consideration of the possible humoral origins of our contemporary emotional vocabulary.

Finally, it should be pointed out that we have not tried to answer the question where the humoral theory itself comes from, conceptually speaking. Obviously, it is based on anatomical observations concerning the bodily fluids, but is there any reason why, within the theory, the concept of anger should be specifically linked to the yellow bile, and to fire? Within a physiological conception of our emotion vocabulary, it seems attractive to postulate that the humoral theory itself draws on a pre-theoretical physiological experience of the emotions. At the time of its conception, the humoral theory would then be a literalization of a pre-existing, physiologically motivated metaphorical understanding: the conceptualisation of anger as fire, for instance, would then primarily be a physiological metaphor that
is later turned into a literal statement in the framework of the medical theory of humors. This is a position that is implicit in Kövecses contribution to this volume: accepting the possible influence of culture-specific influences on the emotion vocabulary available in a specific language, he argues that there exist cross-culturally uniform factors of a physiological nature that constrain and stabilize the cultural conceptions.

Kövecses argues that such a conception contradicts the suggestions made in the present paper, but this is a conclusion that we explicitly have to oppose: as should have become clear from the foregoing remarks, we do not claim that only cultural factors are important, and that physiological factors could not play a role in the development of our emotion vocabulary. It is important, in this respect, to distinguish between the methodological and the substantive part of the present article. The article purports to do two things: to argue for the importance of culture-specific historical research when present-day emotion vocabularies are being considered, and to put forward a particular hypothesis (the humoral one) within such a perspective. In his contribution to the present volume, Kövecses accepts the methodological point to the extent that he explicitly recognizes the potential influence of cultural factors on the development of our emotion vocabulary, but he exaggerates the weight we would like to attach to the humoral theory. In particular, we claim that including the humoral doctrine into the picture is important for accounting for our present emotion vocabulary, but we have made no statement about the origins of the doctrine itself. In general, we would therefore like to leave open the possibility that Kövecses is right when he suggests that the humoral doctrine is a culture-specific rationalisation of a universal physiologically-based metaphorical understanding of the emotions. However, we would like to stress that there is once again a methodological point to be made: if the physiological conceptualization of anger (as typically embodied in physiological metaphors) precedes the humoral theory, the only way to establish this is by doing historical research. If the suggestion implicit in Kövecses's contribution to this volume is correct, the pre-Hippocratic conceptualisation of anger in Classical Greek should be based on physiological metaphors. It is beyond the scope of this article to test the hypothesis, but it is methodologically important to see that it is an empirical hypothesis that can be tested through historical research. Here again, our conclusions on the methodological level are more important than those on the substantive level: regardless of whether the origins of the humoral theory are indeed physiologically metaphorical or not, the very question about the origins of the humoral doctrine calls for historical research.

To summarize, the present paper is to a large extent hypothesis-forming: we claim that it is necessary to take into account the historical background of our emotion concepts to get a clear picture of the present-day situation, and in particular, that it is necessary to include the humoral doctrine into the investigation. Also, this investigation naturally entails a longitudinal historical analysis of the development of our emotional vocabulary. But if we hope to have established the necessity and the attractiveness of such a research programme, we certainly do not pretend that we have already carried it out.
6 Methodological Musings

In the previous sections, we have presented an alternative for Kövecses's analysis of the general metaphor ANGER IS THE HEAT OF A FLUID IN A CONTAINER. Instead of a straightforward physiological interpretation, we suggest that it has undergone the influence of the humoral doctrine, but that the original set of humoral expressions has been subjected to a process of reinterpretation and obsolescence. We are now in a position to make some further methodological remarks. Two related topics will be discussed: the use of conventionalized language, and the relationship between folk models and scientific knowledge.

Kövecses explicitly takes the conventionalized way in which a particular culture talks about the emotions as an indication of the way in which that culture conceptualizes the emotions; the conventionalized language under scrutiny includes idioms, clichés, sayings, proverbs, collocations, and set expressions in general (1989:43). Now, while Kövecses states with some emphasis that 'each and every expression related to a concept has to be examined if we wish to uncover the minute details of the concept' (1989:44), the question arises why expressions such as those that are mentioned under (5) are not included in the observational basis of his treatment of the concept ‘anger’. Why has Kövecses picked out for consideration the particular set of expressions that he actually concentrates on?

It could be hypothesized that Kövecses has explicitly restricted his analysis to those expressions that are the most transparent ones for a contemporary audience, i.e. those expressions whose metaphorical nature is still a live one, or, more generally, those expressions that are most readily considered to be motivated by today's speakers' of English. The question of motivation can be illustrated by comparing an expression such as valing with an item such as to make one's blood boil. Although they have a common historical motivation in terms of the theory of humours, valing is entirely fossilized and opaque for the contemporary language user, whereas to make one's blood boil could possibly receive a motivation along the physiological lines set out in the previous section.

The problem that is at stake here is the same as the one mentioned there; also, it has been identified several times in connection with the ‘generalized metaphors’ approach of Lakoff & Johnson (1980), on which Kövecses’s identification of metaphorical patterns is based: if generalized metaphors are cited as evidence for our contemporary way of conceptualizing the world, it does not suffice to identify the metaphor, but it has to be shown on independent grounds that the metaphors are not just dead ones (see a.o. Traugott 1985, Geeraerts 1981). Those ‘independent grounds’ could be the researcher's intuition, but also, for instance, psycholinguistic experiments in the line of Gibbs (1990). So, what would have to be shown before expressions such as those in (6) are cited as evidence for our present-day way of conceptualizing emotions is not just that they are not dead metaphors (in the sense in which valing is opaque and fossilized), but also that the motivation that they actually receive is in terms of the physiological effects of anger. (On related questions, see also Ortony 1988.)

Now, it would be unfair to claim that Kövecses ignores the question whether the
conventionalized language we use to talk about the emotions actually reflects our current beliefs. He discusses the problem by making a comparison with our astronomical model of the world: expressions such as *the sun came up* and *the sun went down* cannot be used as evidence for a geocentric folk model, basically because formalized education has profoundly influenced our way of thinking. This is, says Kövecses, in marked contrast with the situation on the emotional field.

'As a result of certain scientific discoveries, our educational system has spent several centuries on changing our geocentric view of the relationship between the earth and the sun. The consequence is that, despite our language use, anyone with at least some elementary education would refuse the geocentric view as his or her folk model of the earth/sun relationship. Nothing like this has been the case with the emotions. No such large-scale attempts have been made to change our thinking about them (...). As a result, we pretty much believe what we say about them. (...) It seems then that, as far as the emotions go, we still live by and think in terms of a geocentric emotional universe.' (1989: 45-46).

There are various things to be said about this view. To begin with, it does not invalidate the methodological problem identified above. Because Kövecses reaffirms the necessity to take into account all expressions - and to take them at face value - the fact remains that he does not follow his own methodological dictum. But if he would have followed it, the unmistakable presence of items derived from the theory of humours might have led him to the conclusion that we indeed still (partially) adhere to a ‘geocentric’ view of emotions (i.e. to a prescientific, medieval theory), but that the theory is a humoral one rather than the physiological one he suggests. So we are faced with a dilemma: either Kövecses is right in affirming that our present-day views about the emotions have not been influenced by scientific discoveries (but then his method of taking expressions at face value would lead to the conclusion that we still have a humoral conception of anger), or he would have to reconsider his statements about the influence of scientific theories on our emotional vocabulary, (together, in fact, with his belief that emotional expressions can be taken at face value, i.e. without considering the possibility of reinterpretations).

The fact, on the other hand, that we clearly no longer take the humoral expressions literally (the fact, that is, that we no longer believe the theory) can only be attributed to the same kind of dissemination of scientific theories that led to the downfall of the geocentric view in astronomy. Because we have learned about the new anatomical and physiological discoveries, we have abandoned our earlier folk models (by and large, i.e., not counting relic beliefs like those about masturbation that we started off with). And even this older folk model itself was not a pure folk model. As we have seen, it was a piece of high, Latinate culture that was gradually incorporated into the common culture through the intermediary of popularizing publications. There is no reason, in short, to believe that our emotional vocabulary is free of scientific influences, and there is no ground for a methodological exploitation of such a conception of the specificity of our emotional vocabulary.
7 Culture and Cognition

To sum up, we have tried to establish the following points. First, the medieval physiological-psychological theory of the four humours and the four temperaments has left its traces on our emotional vocabulary. Second, the anger is the heat of a fluid in a container metaphor identified by Kövecses (1989) can be seen as one of those traces. It is then not motivated directly by the physiological effects of anger, as Kövecses suggests, but it is part of the historical (but reinterpreted) legacy of the humoral theory. Third, Kövecses's neglect of the historical background of our emotional vocabulary prevents him from appreciating the possible impact of the humoral theory; once this possible impact is taken into account, inconsistencies in Kövecses's methodology become apparent. Fourth, a further corroboration of the historical-humoral hypothesis requires a longitudinal scrutiny of the historical development of our emotional vocabulary.

Because they are the most wide-ranging, we consider the methodological consequences of our investigation to be of primary importance. The basic point as we see it is this: an adequate analysis of the motivation behind cultural phenomena in general and language in particular has to take into account the diachronic dimension. Cultural models, i.e. the more or less coherent sets of concepts that cultures use to structure experience and make sense of the world are not reinvented afresh with every new period in the culture's development. Rather, it is by definition part of their cultural nature that they have a historical dimension. They can only fulfill their role of shaping a community's life if they have a historical permanence, that is, if they can be transmitted from generation to generation, assuring continuity over and above an individual's and an individual generation's activities (though not, to be sure, unaffected by them). If cognitive models are cultural models, they are also cultural institutions, and as such, they carry their history along with them: their institutional nature implies their historical continuity. It is only by investigating their historical origins and their gradual transformation that their contemporary form can be properly understood.

Now, while one of the major steps forward taken by cognitive semantics has been to put the study of meaning back into its cultural and experiential context, it would seem that the natural consequence of including the diachronic dimension into the investigation has perhaps not yet been fully appreciated. There is an instructive parallel to be drawn here between the cognitive-semantic study of single lexical concepts (as in prototype theory) and the cognitive-semantic research into supra-lexical structures such as the cultural models of emotion that Kövecses concentrates on. In the case of purely lexical research, the emphasis on the mechanisms of semantic flexibility that underlie the structure of polysemy (such as metaphor and metonymy) naturally entails a renewed interest in diachronic semantics (see Geeraerts 1988): to a large extent, the synchronic polysemy of lexical items is a reflection of their diachronic development. The point that we are trying to bring home here is that an awareness of the synchronic reflection of diachronic patterns is just as natural and just as important in the case of supralexical cognitive structures as in the case of lexical concepts.
If cultures are only cultures because they have a tradition, and if, therefore, cognitive models are only cultural models if they have a chronological continuity and a historical permanence, an awareness of the history of ideas is methodologically indispensable for cognitive semantics.

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