
Chained Metonymies

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1 Introduction

This paper is a corpus-based investigation of chained metonymies. Cognitive Linguistics holds the view that metonymy is a conceptual phenomenon, rather than a mere substitution of one word for another. Radden and Kövecses (1999:21) thus define metonymy in the following way:

[M]etonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same idealized cognitive model.

Much like metaphor, metonymy is ubiquitous in language. Common metonymic mappings such as PART FOR WHOLE or CAUSE FOR EFFECT underlie everyday metonymic expressions such as (1) and (2).

- (1) a. We need some new faces around here.
b. body part → person

- (2) a. General Motors had to stop production.
b. obligation to act → action

Both of these examples mean more than they literally state. In example (1), a body part stands for an entire person. Example (2) means that production was actually stopped, hence the obligation to carry out an action stands for the action itself (Panther and Thornburg 2003:4).

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In examples such as (3), one single underlying metonymic mapping seems insufficient to account for the semantic shift that has taken place.

- (3) a. Bob gave an interesting paper.
b. material → writing → ideas

Example (3) roughly means that Bob presented some interesting ideas. While nothing prevents us from positing a metonymic mapping that has the material *paper* directly stand for *ideas*, an intuitively more appealing solution seems a chained metonymy in which *paper* stands for the *writing* on it, which in turn stands for the expressed *ideas*.

While a number of recent studies address chained metonymies, these explore theoretical issues and discuss isolated, chosen examples rather than naturally occurring data. The present study empirically investigates what kinds of metonymies are linked together in chained metonymies.

2 Previous work on chained metonymies

Interest in the serial nature of metonymy goes back at least to Reddy (1979: 309), who observed that expressions such as example (4) involve several metonymic mappings.

- (4) a. You'll find better ideas than that in the library.
b. ideas → words → pages → books

According to Reddy, hearers stepwise conceptualize this chained metonymy, inferring that ideas are expressed in words printed on pages within books, which are actually found in libraries. More recently, several studies have taken up Reddy's observation (Nerlich and Clarke 2001, Ruiz de Mendoza and Diéz 2002, amongst others).

One finding has been that chained metonymies can become opaque over time. Hence there are not only synchronic chained metonymies as in (4), but also expressions such as (5), in which a diachronic series of metonymic mappings brought about the present-day literal meaning.

- (5) a. barbecue
b. wood → meat → social gathering

Nerlich and Clarke (2001:123) point out that the original sense of *barbecue* referred to the wood on which meat is roasted. The word first acquired the sense of the meat itself, before it was extended to mean also the entire social event at which roasted meat is eaten. While the word

barbecue is used nowadays in the latter two senses, the first sense has fallen out of use. Nerlich and Clarke (2001:124) argue that diachronic chained metonymies directly show the role of metonymy in polysemization, and thus deserve more attention.

Ruiz de Mendoza and Diéz (2002:512) discuss synchronic chained metonymies that are similar to the example given by Reddy. They distinguish two types, which they label *domain extension* and *domain reduction*. Examples (6) and (7) illustrate these types; example (8) is a mixed case.

- (6) a. His sister heads the policy unit
b. head → leader → action of leading
- (7) a. Wall Street is in panic.
b. place → institution → people in institution
- (8) a. Shakespeare is on the top shelf.
b. author → work → medium

The authors argue that in (6), the meaning of *head* is extended from its literal core meaning, whereas the meaning of *Wall Street* in (7) is narrowed down. In (8), it is argued that the meaning of *Shakespeare* is narrowed down to Shakespeare's work, and subsequently extended to mean the physical medium of this work.

In analyzing these examples, Ruiz de Mendoza and Diéz (2002:528) propose an inventory of different conceptual interactions that are found in metonymic expressions. Domain extension and reduction are viewed as two cognitive operations that underlie such expressions, and that hearers exploit to understand synchronic chained metonymies.

While the contributions of Nerlich and Clarke (2001) and Ruiz de Mendoza and Diéz (2002) have thus aimed at a theoretical description of synchronic and diachronic chained metonymies, the present study offers a different perspective by adopting a usage-based approach (Barlow and Kemmer 1999, Bybee and Hopper 2001). The next section addresses the used data and methodology.

3 Data and Methodology

Within a usage-based model of language, it is assumed that frequency of actual usage reflects the linguistic categories that speakers have in their minds (Bybee and Hopper 2001:3). Hence, observation of large amounts of corpus data is viewed as a viable method of grammatical description.

The main objective of this paper is to investigate the structure of chained metonymies. Are there types of metonymic mappings that occur with greater than chance frequency within chained metonymies? Are some metonymic mappings more apt to occur at the beginning of a chained metonymy than at the end? What does the prototypical chained metonymy look like? These questions go beyond previous investigations, and they can only be answered with recourse to authentic data.

The present study investigates lexical material from three semantic domains: *containers*, *body parts*, and *time-spans*. From each domain, three lexical items are chosen. All respective tokens are extracted from a sample of the British National Corpus. For *body parts* and *time-spans*, the sample consists of 10.5 million words; for *containers*, the sample contains 59 million words. The samples are balanced for spoken and written data to allow generalization across genres. Table 1 presents the lexical items under investigation along with their raw frequencies in the respective samples.

containers	body parts	time-spans
bottle (2727)	eye (909)	day (5652)
cup (6117)	hand (3723)	hour (1223)
glass (6718)	heart (1044)	night (2962)

Table 1. Three lexical items from three semantic domains

These semantic domains have been chosen, because they are known to function as vehicles in metonymic expressions. Consider the following examples.

- (9) a. Dave drank the glasses. (Fass 1997)
 b. container → content
- (10) a. set all hearts on fire (Niemeier 2000)
 b. body part → person
- (11) a. Things were different in my day.
 b. day → longer period of time

The procedure of the corpus analysis is organized into four steps. First, the complete concordances are categorized into literal examples such as *eye surgeon* and non-literal examples like *run an eye over the manuscript*.

Second, the non-literal examples are analyzed with respect to their form and meaning. Many of these involve idiomatic, semi-fixed patterns (Hunston and Francis 2000:37), in which the figurative meaning cannot be

attributed to a semantic shift within one single word. Rather, these patterns should be viewed as *constructions* in the sense of Goldberg (1995), since their overall meaning cannot be fully predicted from the meaning of their component parts. Consider the following examples.

- (12) a. Lisa reflected to Joey over a cup of tea that evening.
 b. V over a cup of NP → V while drinking NP
- (13) a. Keep your eye on the paper.
 b. keep POSS eye on NP → pay attention to NP
- (14) a. Like other Vietnamese of his day, he was given two names.
 b. NP of POSS day → NP of POSS past period of time

Whereas in example (7) the metonymic vehicle *Wall Street* can be straight-forwardly replaced with the target ‘people working in Wall Street’, no such replacements can be made in the above examples. In expressions such as *keep your eye on the paper* the non-literal meaning results from the interplay of several words. As a convenient label, I would like to suggest the term *constructional metonymy* for these expressions.

In a third step, all non-literal patterns that occur at least three times in the database are compiled into a sample of constructional metonymies. These patterns are analyzed according to the metonymic mappings that they employ. Constructional metonymies do not allow the substitution of vehicle and target, but it is still possible to stipulate the metonymic mappings that underlie these expressions. A plausible scenario for example (13) is that *eye* was extended to mean ‘watching’ in an INSTRUMENT FOR ACTIVITY metonymy; and ‘watching’ was extended to mean ‘attention’ by a second metonymy.

The fourth step is concerned with those constructional metonymies that involve more than one metonymic mapping. In order to investigate how different types of metonymic mappings are involved in chained metonymies, we need a basic classification system of such mappings. Several typologies of metonymy have been put forward (Stern 1931, Lakoff and Johnson 1980, Fass 1997, Kövecses and Radden 1998, amongst others). For the present analysis, I follow Seto (1999) in drawing a distinction between two basic types of metonymic mappings. The first type covers all relations between an *entity* and its *parts*. Metonymic mappings of this kind will be called *E-metonymies*. The second type includes relations that obtain between *categories* and *subcategories*. Such metonymic mappings will be called *C-metonymies*. Table 2 illustrates the two types.

E- METONYMIES	C- METONYMIES
PART FOR WHOLE (body part → person) We need some new <i>faces</i> around here.	SUB- FOR SUPERCATEGORY (brand name → generic product) Could you give me some <i>scotch tape</i> ?
WHOLE FOR PART (institution → people) <i>Wall street</i> is in panic.	SUPER- FOR SUBCATEGORY (generic person → specific person) He thinks he's really <i>somebody</i> .
PART FOR PART (used object → user) The <i>buses</i> are on strike.	SUB- FOR SUBCATEGORY (short time → other short time-span) Gimme a <i>second</i> .

Table 2. A taxonomy of metonymic mappings

Both E-metonymies and C-metonymies fall into three subtypes. With E-metonymies, a salient subpart may stand for a whole entity and vice versa. A PART FOR PART mapping obtains when an expression evokes a whole domain and one part of this domain substitutes another. Besides the example in Table 2, such relations are also exemplified by mappings such as INSTRUMENT FOR ACTIVITY or CAUSE FOR EFFECT. In a C-metonymy, a subcategory may stand for a supercategory and vice versa. There are also mappings between subcategories, where one subcategory stands for another subcategory within a larger category that is common to both.

All chained metonymies in the database are coded according to the above classification of metonymic mappings. Consider again example (13), here repeated as (15).

- (15) a. Keep your eye on the paper.
 b. EYE FOR WATCHING → WATCHING FOR ATTENTION
 c. E (PART FOR PART) → C (SUB- FOR SUPERCATEGORY)

In this chained metonymy, an E-metonymy is further extended by a C-metonymy. The metonymy EYE FOR WATCHING is a PART FOR PART mapping in which an instrument stands for a related activity. To watch something is one way of being attentive, one could also listen or rely on tactile perception; hence the metonymy WATCHING FOR ATTENTION can be viewed as a SUB- FOR SUPERCATEGORY mapping. The chained metonymy in (15) thus receives the coding E→C.

The coding allows us to make some generalizations regarding the internal structure of chained metonymies. If for example the patterns E→C and E→E occur more often in the sample than C→E or C→C, we have evidence that chained metonymies tend to start with a mapping between a whole and its parts, rather than with a mapping between categories. The

significance of the distribution of E-metonymies and C-metonymies is calculated using the Chi-square test.

4 Results

The corpus analysis establishes that figurative meaning is quite common with body parts, but much less so with containers and time-spans. Figure 1 presents the percentages for all nine investigated lexical items.

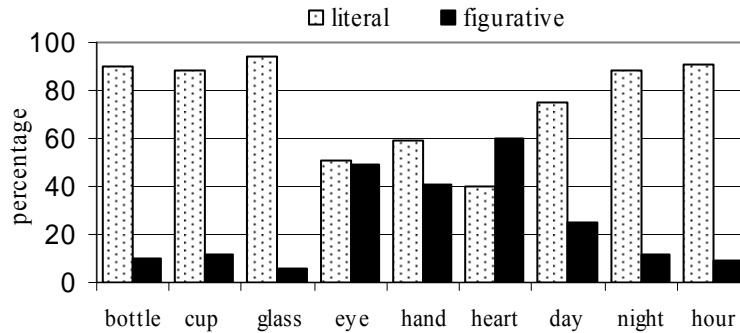


Figure 1. Literal and figurative usages

The figurative percentages are lowest for containers. By contrast, body parts show a ratio of more than 40 percent. With *heart*, the figurative usages actually exceed the literal usages. This reproduces the finding of Deignan and Potter (2004) that non-literal meaning is very common with *heart*. The distribution is uneven for the three time-spans. Whereas *day* is used figuratively in twenty-five percent of all cases, *hour* is used with a non-literal reading in only nine percent of all cases.

In section three the notion of *constructional metonymy* was introduced for patterns like *keep an eye on NP*, which convey a metonymically motivated, non-literal meaning, but defy substitution of the metonymic vehicle with its target. The corpus data suggest that in fact most non-literal usages occur within constructional patterns that involve metonymic and metaphorical mappings. For all lexemes under investigation, more than sixty percent of all cases are found to belong to a fixed or semi-fixed pattern. With *hand*, the ratio reaches eighty-eight percent due to the high frequency of expressions such as *on the other hand* or *get out of hand*. Figure 2 presents the percentages of figurative patterns and single-word figurative expressions for the investigated lexical items.

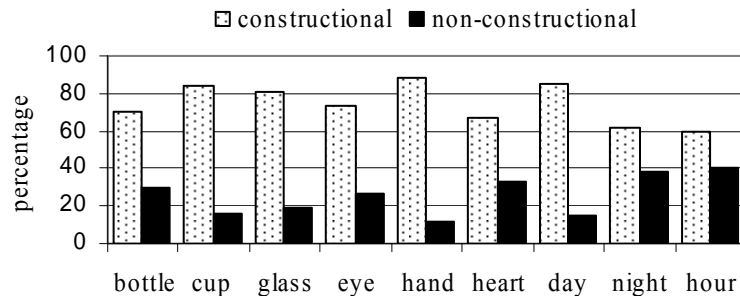


Figure 2. Constructional and non-constructional expressions

These percentages corroborate findings that prefabricated chunks are a major part of the lexicon (Partington 1998), while posing a problem for the view that metonymy usually is a substitution of one word for another. Most metonymic expressions involve larger units of text. The high ratio of constructional metonymies reiterates Nerlich and Clarke's point (2001:124) that metonymies tend to conventionalize.

A raw count of all constructional expressions in the database yields 172 patterns that convey a non-literal meaning and occur at least three times. Table 3 lists the numbers for each investigated lexical item.

containers	body parts	time-spans
bottle (15)	eye (26)	day (18)
cup (16)	hand (34)	hour (11)
glass (16)	heart (27)	night (9)

Table 3. Constructional expressions in the database

Table 3 shows that most patterns are found with body parts. These are expressions such as *my heart goes out to NP* or *see eye to eye*. With the containers, we find patterns like *hit the bottle*. Constructional expressions with time-spans are *late in the day* and *over night*.

Of these patterns, ninety-seven involve a single metonymic mapping. Eleven patterns involve a single metaphorical mapping, while seven patterns combine a metaphorical with a metonymic mapping. We are left with fifty-seven patterns that can be classified as chained metonymies. Consider the following patterns with *hand*.

- (16) a. And that's when things got out of hand.

- b. get out of hand → get out of control
 - c. HAND FOR CONTROL
- (17)
- a. They work hand in glove with the government.
 - b. hand in glove → closely together
 - c. PHYSICALLY CLOSE IS CONCEPTUALLY CLOSE
- (18)
- a. On the other hand, these benefits could turn into disadvantages.
 - b. on the other hand → alternatively
 - c. HAND FOR SIDE, SIDES ARE ALTERNATIVES
- (19)
- a. A lot of people buy a second hand car privately.
 - b. second hand → pre-owned
 - c. HAND FOR HOLDING, HOLDING FOR POSSESSION

Examples (16) to (18) illustrate single metonymies and metaphors, as well as a combination of both; example (19) shows a chained metonymy.

Using the classification into E-metonymies and C-metonymies outlined above, we can now investigate the types of metonymic mappings that occur in chained metonymies. A first point of interest is if the two types prefer different positions within a chained metonymy. Table 4 shows that the distribution of E-metonymies and C-metonymies is significantly asymmetrical ($\chi^2= 30.33$, $df = 1$, $p < 0.01$). While both types occur at the end of a chained metonymy with approximately the same frequency, C-metonymies almost never occur at the beginning of a chained metonymy.

	initial	final
E-metonymies	56	31
C-metonymies	1	26

Table 4. Initial and final E- and C-metonymies

Chained metonymies strongly tend to begin with a mapping such as PART FOR WHOLE or WHOLE FOR PART. Example (20) is the only instance in the database that deviates from this tendency and begins with a mapping between categories.

- (20)
- a. I've been through a terrible rush hour.
 - b. rush hour → heavy traffic
 - c. HOUR FOR INDEFINITE TIME-SPAN, TIME-SPAN FOR EVENT
 - d. C (SUB- FOR SUBCATEGORY) → E (WHOLE FOR PART)

A rush hour may take up more or less time than sixty minutes, so that *hour* metonymically stands for a time-span that is roughly comparable in length. The second mapping in this chained metonymy has this time-span stand for the actual event.

To summarize Table 4, we can generalize that all three semantic domains avoid C-metonymies in initial position, while E- and C-metonymies are distributed somewhat evenly in final position. This raises the question whether the distribution is in fact identical across domains, or if there are domain-specific preferences. Table 5 shows that the three semantic domains differ significantly ($\chi^2= 16.77$, $df = 2$, $p < 0.01$).

	final E-metonymy	final C-metonymy
containers	16	1
body parts	8	18
time-spans	7	7

Table 5. Final E- and C-metonymies across domains

Containers prefer chained metonymies that end in an E-metonymy while body parts show the opposite tendency. Time-spans seem to be indifferent. We can make sense of these differences with the following examples. Example (21) shows a representative E→E mapping.

- (21) a. Do you turn red after a glass of vin rouge?
 b. after a glass of NP → after drinking some NP
 c. CONTAINER FOR CONTENTS, CONTENTS FOR CONSUMPTION
 d. E (WHOLE FOR PART) → E (PART FOR PART)

The most frequently occurring metonymy with containers is, perhaps not surprisingly, CONTAINER FOR CONTENTS. If this metonymy is further elaborated, the target usually is *consumption*, which is a strongly associated activity. This type of chained metonymy is found with all three container lexemes under investigation. Example (22) illustrates an E→C mapping, as it is regularly found with body parts.

- (22) a. So I had to give my father a hand, you know, to keep the garden.
 b. give NP a hand → help NP
 c. HAND FOR ACTIVITY, ACTIVITY FOR HELP
 d. E (PART FOR PART) → C (SUPER- FOR SUBCATEGORY)

Body parts are most commonly extended to mean an associated activity through an INSTRUMENT FOR ACTIVITY metonymy. In some patterns, the meaning is then narrowed down to refer to a specific type of activity, such

as for example ‘help’ as in *give NP a hand*, ‘physical violence’ as in *lay a hand on NP*, or ‘supervision’ as in *under the eye of NP*.

5 Discussion

In the preceding section, we have seen that the three investigated semantic domains differ in some respects, but behave alike in others.

All investigated lexemes show some non-literal usages, but body part terms are more frequently used with non-literal meanings than are containers and time-spans.

With all investigated lexemes, a high ratio of non-literal usages is organized into constructional patterns whose overall meaning goes beyond the meaning of the respective parts. The fact that word senses go along with certain collocations has been known for some time and is frequently used in computational linguistics (Yarowsky 2000). This paper argues that in many examples, the non-literal meaning should be attributed to the pattern as a whole, not to the isolated lexical item. I have suggested the term *constructional metonymy* for these expressions.

A survey of the constructional metonymies found in the database shows that C-metonymies (Seto 1999) are very infrequently found at the beginning of a chained metonymy. This holds for all semantic domains under investigation. On the basis of this generalization, we can put forward a tentative hypothesis. If a mapping between categories is no appropriate starting point for a chain of meaning shifts, then this should not only pertain to C-metonymies, but also to metaphors. Like C-metonymies, metaphors instantiate categorical relations. For example, the metaphor ARGUMENT IS WAR (Lakoff and Johnson 1980) establishes a relation between two categories of conflict. The investigated data suggests that there should be no chained metaphors. If the hypothesis turned out to be correct, it would establish another interesting difference between metaphor and metonymy.

A further difference between the investigated semantic domains concerns the mappings at the end of chained metonymies. With containers, we frequently encounter final E-metonymies, while final C-metonymies are regularly found with body parts. These preferences reflect a difference in conceptualization. While containers seem to be limited to the semantic frame of drinking, body parts are more easily extended to a wide variety of associated activities, which underlines the importance of body concepts in human cognition (Lakoff and Johnson 1999).

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