CHAPTER 6

Molly married money

Reflections on conceptual metonymy

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This chapter is concerned with the conceptual basis of metonymy. Particular attention is devoted to properties that are considered crucial to conceptual metonymy. The *metonymic source* has received little attention. However, it plays an important role as an element of the target and is given due attention. The notion of *association* is applied to metonymic interconnections, inference, and strength of association. A central element of metonymy is the notion of *relation*: However, neither contiguity nor indexicality adequately covers the range of metonymic relations. The paper argues that two more properties are pertinent to conceptual metonymy: a *metonymic shift* from a source concept to a complex metonymic target, and the *conceptual integration* of source and target and its resulting emergent meanings.

Keywords: association, conceptual integration, conceptual shift, metonymic relation, metonymic source, metonymic target

1. Introduction

Metonymy has only recently emerged as a major field of study. It is a latecomer in Cognitive Linguistics mainly because it was overshadowed by the dominant theory of conceptual metaphor. Like metaphor, metonymy is generally regarded as a conceptual phenomenon. But while the conceptual nature of metaphor has only been discovered in modern times, metonymy had already been conceived of as a cognitive phenomenon in traditional rhetoric. Rhetoricians identified conceptual types of metonymy such as CAUSE FOR EFFECT and PLACE FOR INSTITUTION and, just as in present-day definitions of metonymy, described the entities related in metonymy as being closely associated. But the burden of tradition also makes it harder for Cognitive Linguists to approach metonymy in an unbiased, new way. Thus, it is almost impossible to get away from the misleading formula SOURCE FOR TARGET.

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This chapter provides a critical and constructive survey of the conceptual basis of metonymy, as understood in present-day Cognitive Linguistics. There is wide agreement on a set of properties characterizing conceptual metonymy. These essential properties include (i) the metonymic source and target, (ii) association, and (iii) the metonymic relation. This study considers two more properties that are considered no less relevant to metonymy: (iv) the conceptual shift and (v) the conceptual integration of metonymic source and target. There are, of course, many more aspects of conceptual metonymy that deserve to be included in a survey. The limitation to these five properties of conceptual metonymy is only due to the author's subjective preferences.

2. Metonymic source and target

In analogy to the notions *source domain* and *target domain* in metaphor research, the two conceptual entities related in metonymy are usually described as *source* and *target*. As conceptual units, source and target need to be distinguished from linguistic units. The linguistic expression denoting the source is, as also suggested by Panther and Thornburg (this volume), described as the *vehicle*. Let us look at the interaction of vehicle, source and target in the following uncontroversial instance of metonymy and attempt to retrace the hearer's steps in processing this sentence.

(1) *Molly married money*.[1]
'Molly married a man with a lot of money'.

The elements and cognitive operations that need to be performed in processing this sentence and arriving at the intended meaning are discussed below. Figure 1(a) presents the conceptual structure underlying the metonymy in *marrying money*, and Figure 1(b) represents the metonymic process in general. The arrows in the figures indicate some of the inferential steps taken by the language user in processing the metonymy.

The verb *marry* evokes an idealized cognitive model of marriage, the MARRIAGE ICM. The meaning of *money* is, however, incongruous with the meaning of the verb *marry* and calls for a conceptual resolution within the MARRIAGE ICM. *Money* obviously functions as the vehicle prompting a metonymic process. Once

1. *Molly married money* is the title of a song. http://www.amazon.co.uk/Molly-MarriedMoney/dp/B00FYTGA74. Apart from the metonymy, the poetic alliteration of the three words in the title and the slangy association of *molly* with a gangster's girlfriend give the title a particularly catchy flavor.

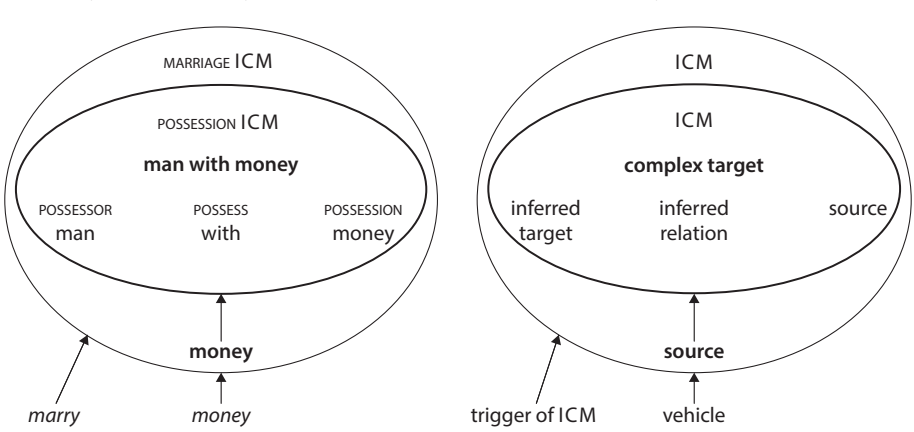

Figure 1.

the metonymic nature of a vehicle is detected, a series of cognitive operations is sparked off in processing the metonymy.

The concept 'money' serves as the metonymic source affording mental access to a target. The metonymic target is, however, not the concept 'man', but, as shown in Figure 1(a), something like 'man with money', i.e. a rich person. This paraphrase indicates that the metonymic target is a complex composed of three conceptual elements: the concept 'man' or 'husband', the relation 'possess', here expressed by *with*, and the source 'money'. We thus need to distinguish the target as an element inferred from the source, in our example 'man', and the target as a complex whole, i.e. 'man with money'. The overall metonymic target is described as *complex target* and the target as an element of the complex target as *inferred target*.

We also need to distinguish two functions of the metonymic source: its function as the point of access for the target and its function as an element of the complex target. As a point of access, the metonymic source is equivalent to the sense of the vehicle. As an element of the complex target, the source serves the important function of narrowing down the referential range of the target. Without any such qualifying element, the metonymy would be understood as meaning 'Molly married a man', which would only make sense in a cultural context in which people normally marry partners of the same sex.[2]

2. As observed by Warren (1999: 128), the metonymic source forms part of the target: "We do not refer to music in *I like Mozart*, but to music composed by Mozart; we do not refer to water in *The bathtub is running over*, but to the water in the bathtub".

The metonymic vehicle, or metonym, evokes an ICM that provides access to the metonymic target. In our case, 'money' is typically owned by people and hence evokes the POSSESSION ICM and its conceptual elements of 'possessor', 'possess', and 'possession'. The interaction of the POSSESSION ICM and the MARRIAGE ICM gives rise to further inferences. Thus, we infer that the marriage-partner is the possessor of the money.

A second inference concerns the metonymic source. In our example, the very mention of money in the context of marriage suggests that the amount of money must be considerable. We thus infer the source 'money' to mean 'a lot of money'. The prominence attached to money is also reflected syntactically in the speaker's coding of money as the "secondary focal participant of a clause" (Langacker 2009: 112). Furthermore, the highlighting of money as an attribute of the bridegroom conflicts with our idealized, often hypocritical, romantic model of marriage, according to which people are supposed to marry out of love. A natural assumption will, therefore, be that the bride values money more highly than love and that her partner's fortune was the only reason for marrying this man. The speaker's attitude towards her marriage may thus be interpreted as disparaging or dismissive. These inferred aspects of meaning become apparent in anaphoric reference. Consider the following sentences expressing counter-expectations by means of a *but*-clause.

(2) a. Molly married money but kept *it* a secret.
b. Molly married money but loves *her husband*.
c. ?Molly married money but never spent *it*.

The pronoun *it* in sentence (2a) may refer to the husband's huge amount of money or to Molly's marrying a wealthy husband, i.e., in each case it involves the complex target 'man with a lot of money'. In canceling this inference, the speaker refutes the inference that his wealth was the reason for Molly to get married to this man. In sentence (2b), *her husband* is co-referential with the inferred target 'man' – the MARRIAGE ICM might even license the use of the pronoun *him* as a conceptual anaphor (for conceptual anaphor, see Gibbs 1994: 328–329). However, the complex target is still present in the counter-expectation: as in the previous example, the *but*-clause refutes the inference that the relevant reason for marrying her husband was his money. Sentence (2c) sounds odd pragmatically. The anaphoric referent of the pronoun *it* is *money* and hence is incompatible with the complex target meaning 'man with a lot of money'.

The contextualizations of the sentences under (2) demonstrate that the metonymic target is, in fact, complex and consists of the inferred target, an inferred relation, and the source. Contrary to traditional accounts, the metonymic source turns out to play a crucial role in the interpretation of a metonymic utterance.

3. Association

Both traditional and cognitive definitions of metonymy usually regard the metonymic source and target as being "closely associated". How is the notion *association* to be understood? In associationist psychology, associations are understood as connections of conceptual entities or mental states. In brain research and cognitive sciences modeling human nervous systems, associations are based on a network of connected neurons in the brain. The notion of association in this sense is thus understood as a static network of neural connections or circuitries that has the potential of being activated. Typically, however, the notion of association is understood in the dynamic sense of 'associative thinking'. In neural terms, associative thinking is based on spreading neural activation along pathways: The activation of one idea incites the activation of other ideas, which in turn may activate further ideas.[3]

In his bestselling book *Thinking: Fast and slow*, Kahneman (2011) argues that our brain uses associative thinking in subconsciously making snap and intuitive assessments about the world.[4] He gives the following examples of links that are spontaneously created by associative thinking: "causes are linked to their effects (virus → cold); things to their properties (lime → green); things to the categories to which they belong (banana → fruit)" (p. 52). These are the kinds of relation that look familiar to scholars of metonymy. Thus, the association between the thing 'lime' and its property 'green' is metonymically exploited in the sentence *Dressed in shades of green from lime to olive, she had a tangle of glittery chains around her neck*.[5]

The arrows in Kahneman's notation indicate the priming of the second concept by the first concept and thus correspond to the process of mentally accessing the metonymic target from the source. The directionality of priming is not fixed.

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3. A more technical definition of association as a neural phenomenon is provided by Bierwiaczonek (2013: 232): "Association in neural terms boils down to synaptic connections: through their axons all neurons reach out to other neurons, which through their axons reach out to other neurons and so on". Mental processes are ultimately a matter of "electrochemical conversations between neurons".

4. Kahneman (2011) distinguishes two systems employed by our brain in processing information: the fast system 1 and the slow system 2. System 1 works automatically and cannot be turned off at will, while system 2 monitors and controls thoughts and actions "suggested" by system 1. Spontaneous use of language is processed in system 1.

5. The sentence is quoted in *Dictionary.com* s.v. shades. http://dictionary.reference.com/browse/shades. The color terms lime and orange metonymically derive from the fruits of this color and have become conventionalized. But the metonymy FRUIT FOR COLOR OF THE FRUIT'S SKIN does not apply to any fruit. Thus, there are no color adjectives *tomato, cherry* or *avocado*. In English, color adjectives named after a fruit tend to name the fruit as well, as in *tomato-green* and *cherry-red*.

Thus, in an associated pair of concepts A and B, A may evoke B and B may evoke A. Kahneman (2011: 54) illustrates reciprocal activation by way of the following example: "being amused tends to make you smile, and smiling tends to make you feel amused". Bidirectionality is also a property of metonymic relations and distinguishes metonymy from unidirectional metaphorical mappings. Thus, the conceptual metonymies CONTAINER FOR CONTENT (*drink two mugs*) and CONTENT FOR CONTAINER (*clink beers*)[6] are reversible. However, the content of a particular metonymy itself is not reversible.

Due to these striking commonalities shared by association and metonymy it is not surprising that many scholars regard the entities related in metonymy as being "closely associated".[7] We may, therefore, suspect that metonymy also shares further aspects with association and its underlying neural basis. The following aspects of metonymy and its associated, or neural, counterparts immediately come to mind and are discussed below: (i) co-activation, (ii) inference, and (iii) strength of association.

3.1 Co-activation

The conceptual elements that participate in the online processing of metonymy are interconnected or, in neural terms, co-activated. Two kinds of interconnection can be distinguished: the connection between a conceptual complex and its elements, and the connection between elements within a conceptual complex.

The complex whole shared by the metonymic elements has variously been described as domain, frame or idealized cognitive model (ICM). In neural terms, these complex wholes are collections of neural nodes that form a "schema circuit" or "gestalt node". Following Lakoff (2009), schema circuits characterize frames and have the following property: "The activation of even some of the salient parts activates the whole. And the activation of the whole activates all the parts". In the metonymic sentence (1), *Molly married money*, the concept expressed by the verb *marry* activates the MARRIAGE ICM and the concept expressed by the noun *money*

6. A sentence in which clinking beers is used is *Surely we would be clinking beers by Sunday afternoon admiring our accomplishments*. (http://wanderingwithpurpose.com/2013/08/). The vehicle *beers* is a plural count noun and thus agrees with the plural target of the containers 'mugs of beer'. The use of the plural in beers may have been induced by the fact that an act of clinking requires at least two vessels, typically glasses, as well as two people.

7. After reviewing an impressive amount of neurolinguistic work in his chapter on "Metonymy in the embodied mind", Bierwiaczonek (2013: 237) concludes that "[M]metonymy uses the same basic principle of association and co-activation".

the POSSESSION ICM. The MARRIAGE ICM in its turn activates the part 'man' and the POSSESSION ICM the parts 'possess' and 'possessor'.

The elements within a gestalt node are connected by a "linking circuit". The flow of activation in the linking circuit is asymmetric and, according to Lakoff (2009), characterizes metonymy. Lakoff has the classical unidirectional "stand-for" relation of metonymy in mind. As will be shown in Section 6, however, metonymy also involves the conceptual integration of source and target and the emergence of additional meanings. The neural basis for this view of metonymy would be the co-activation of both nodes creating a new coherent conceptual unit.

3.2 Inference

Most scholars regard metonymy and metonymic thinking as a matter of inferencing (e.g. Panther and Thornburg, this volume). In fact, all forms of indirect speech including metaphor and metonymy require inferential reasoning for their interpretation. Since the ICMs, the metonymic target, the conceptual relation holding between source and target, and emergent meanings are not explicitly stated, they need to be inferred by the hearer. In neural terms, "inferences occur when the activation of one meaningful node, or more, results in the activation of another meaningful node" (Lakoff 2009). Inferences are thus new activations, which, however, make use of established neural pathways.

The meaning associated with a given metonymy is not only inferred by the hearer, but also by the speaker. A cooperative speaker takes the inferences the hearer is likely to draw into account when construing a metonymic utterance. The speaker may also exploit the inferences the hearer is likely to draw. This typically happens in marketing products. Cosmetic products that are advertised as "clinically proven" or "dermatologically tested" invite the inference that they have been tested under medical supervision and hence are safe and effective.[8] The past participles *proven* and *tested* are inferred to mean 'proven safe' and 'tested to be effective'. Interestingly, consumers hardly ever recognize that they have been fooled by their own inferences. Instead, they blame companies for their "vague science", "false claims of superiority over other rivals", and "meaningless jargon". The notion of inference should, therefore, be somehow objectifiable and measurable. Norrick (1981: 30) offers a nice criterion for the validity of an inference: "Conclusions conforming to the rules of valid inference are acceptable in scientific inquiry or courts of law".

8. Many complaints about misleading information on products have appeared on the Internet and in the *Daily Telegraph* of July 29, 2015.

3.3 Strength of association

In their analysis of metonymy as a prototypical category, Peirsman and Geeraerts (2006) propose as the first dimension strength of contact, which corresponds to strength of association. In neural terms, the activation across synapses is strengthened where "there is a lot of activity" (Lakoff 2009). The strength of associative links has been shown to correlate with the speed of metonymic processing, as reflected in people's eye-movements. In a study carried out by Frisson and Pickering (1999, referred to by Bierwiaczonek 2013: 236–237), subjects processed sentences with the familiar PLACE FOR INSTITUTION metonymy much faster than sentences with less familiar metonymies. Familiarity of association may also correlate with conventionality and frequency in the use of metonymy. For example, the strength of contact between a producer and the product produced is certainly high, and the metonymy PRODUCER FOR PRODUCT is quite productive, as in the well-known example (3a). However, its inverse variant, PRODUCT FOR PRODUCER, is highly restricted, as shown in (3b), but it is not completely excluded, as illustrated in the German sentence (3c).

(3) a. Shakespeare is on the top shelf. (= book)
b. Hamlet is known all over the world. (≠ Shakespeare)
c. *Die Blechtrommel schweigt für immer*. (= Günter Grass)
'The Tin Drum is silent forever'.

Shakespeare in (3a) would be interpreted metonymically, but *Hamlet* in (3b) would be interpreted literally, probably as Shakespeare's play of this name, not as its author. The headline in (3c), however, is understood metonymically. The article appeared in a German newspaper commemorating Günter Grass's death on April 13, 2015, and *The Tin Drum* refers to his most famous novel. The metonymic and metaphoric diction in the headline has a literary touch, as befits a Nobel-Prize winning author. This effect is partly due to the fact that the PRODUCT FOR PRODUCER metonymy is so rare that it arouses our special attention. Its rarity is due to the preference principle HUMAN OVER NON-HUMAN for the selection of metonymic vehicles (Radden and Kövecses 1999: 45). Strength of contact between metonymic entities thus varies considerably depending on the directionality of the metonymy.

4. Metonymic relation

It is probably easier to identify particular metonymic relations than to find a common property shared by all types of metonymy. We may even doubt that a unifying property characterizing metonymy-producing relations can be found. The approach taken by Denroche (2015) avoids this problem. In his all-embracing

research program "Metonymics", he views relatedness as the distinguishing mark of metonymy and detects metonymy in all phenomena that involve a relation from a source to a target, as in translation, language acquisition, art, law or conflict resolution. In translation, for instance, the translator goes from the original text to the first translated draft and from the revised draft to the final version. This broad understanding of metonymy opens up fascinating new challenges but is unlikely to be endorsed by the majority of linguists on the grounds that it would be inflationary and hence vacuous. At least for linguistic purposes, the notion of metonymy apparently needs to be constrained.

The alternative view of assigning a unified meaning relation to all types of metonymy is the generally favored approach but is not without its problems. Candidates for a shared property are the relations of contiguity and indexicality, which will be considered below.

4.1 Contiguity

The notion 'contiguity' goes back to traditional rhetoric. Metaphor was seen as involving a relation of similarity and metonymy as involving a relation of contiguity. Both notions are "fraught with difficulties" (Haser 2005: 22). Without further specifications, the notion of contiguity is too broad to serve as a viable criterion for metonymy. In Radden and Kövecses (1999: 29), we gave the example of *I hit him in the nose*, which, of course, does not mean that 'I him in the mouth', although the facial body parts are spatially contiguous. There is no reason for the hearer to depart from the literal interpretation of this sentence. As insightfully pointed out by Barcelona (2011: 12), the related concepts must be asymmetric to guarantee a metonymic interpretation.[9] The concepts related in the sentence *He has a good nose*, i.e. the body part 'nose' and the sensation 'smell', are asymmetric and hence may trigger a metonymic interpretation, such as 'He has a good sense of smell' (for metonymic trigger(s) see Hernández-Gomariz, this volume).

The notion of contiguity is a useful concept after all in allowing us to distinguish relations based on *internal contiguity* and *external contiguity*. Internally contiguous metonymies involve inclusive relations, i.e., relations in which one concept represents an internal part, element or property of another concept. Internal relations hold, for example, between a WHOLE and a PART, a WHOLE EVENT and a SUBEVENT,

9. Barcelona's (2011: 12) distinction between structural similarity or equivalence on the one hand and asymmetry or non-equivalence on the other hand is a useful criterion for distinguishing metaphor and metonymy: "Metonymy constitutes an *asymmetrical mapping*, whereas metaphor constitutes a *symmetrical mapping*". The notions of asymmetry and non-equivalence can also be seen as a prerequisite of metonymy-producing relations.

a SCALE and a SCALAR POINT, a THING and a PROPERTY, a THING and the MATERIAL it is made of, etc. Internal relations are inherently asymmetric and hence qualify as metonymy-producing relations. For example, the internal relation between a scale and a point on the scale licenses the use of the inverse pair of metonymies:

(4) a. SCALE FOR SCALAR POINT: *Henry is speeding*
for: 'Henry is going too fast'.
b. SCALAR POINT FOR SCALE: *How fast was he going*?
for: 'what was his speed?'.

External relations, by contrast, hold between non-inclusive concepts. The source and target domains of metaphor are symmetric and externally related – the source is not included in the target nor is the target included in the source. But how come certain externally related concepts can also be exploited by metonymy? This applies, for instance, to the relations between CONTAINER and CONTENT, CAUSE and EFFECT, and PRODUCER and PRODUCT. These related concepts are complementary notions and as such are closely associated. Thus, the function of a glass is to "contain" some "content" and, conversely, a liquid needs to be "contained" in a container. Likewise, a cause and its effect are mutually dependent within the shared CAUSATION ICM in the same way that producers and their products are interdependent within the PRODUCTION ICM. The related complementary concepts are thus symmetric with respect to their shared ICM, but they are asymmetric with respect to their conceptual content. This can be illustrated with complementary image-schematic pairs: the CONTAINER FOR CONTENT metonymy, as in (5a), is arguably so productive because a container and its content represent a highly dissimilar pair. Situations of CONTACT may also be exploited by metonymy but only when the things in contact are clearly dissimilar, as in the sentence under (5b). All other image-schematic pairs, such as FRONT-BACK, UP-DOWN, and CENTER-PERIPHERY, are apparently not dissimilar enough to license metonymy, as shown for FRONT-BACK in (5c).

(5) a. CONTAINER-CONTENT: *He already has three glasses in him.*
for: 'three glasses of beer'.
b. CONTACT: *Can you set the table*?
for: 'put plates, glasses and cutlery on the table'.
c. FRONT-BACK: *The key is in front of the door*.
for: #'the key is behind the door'.

The view of metonymy as a relation of contiguity is still widely held. As argued above, it still has a certain value if supplemented with the notion of dissimilarity. However, a major shortcoming of the notion of contiguity is the static view it imposes on metonymy. Most cognitive linguists have, therefore, adopted the more dynamic notions of association or indexicality.

4.2 Indexicality

Since metonymy is not confined to language but occurs in other semiotic systems as well, a semiotic framework should also be commendable for the study of metonymy. Within the semiotic framework, metonymic relations are characterized as indexical as opposed to iconic relations characterizing metaphor (e.g. Panther and Thornburg 2009: 16). Indexical signs point to an object, and their recognition requires inferential reasoning. Thus, to a doctor, medical symptoms point to particular diseases. Not surprisingly, many diseases have been named after their symptoms, such as a *cold*, *asthma* from Greek *asthma* 'panting', or *scabies* from Latin *scabere* 'scratch'. Indexical relations and metonymic inferences are, therefore, closely related, and hence it makes perfect sense viewing metonymic relations as indexical.

Norrick's (1981) study of indexical relations includes pairs such as "Cause and Effect", "Acts and Major Participants" and "Part and Whole". In language, indexical relations may hold between semantically as well as morphologically related pairs. Thus, the morphological pair *please* and *pleasure* exhibits a CAUSE-EFFECT relation and the pair *baker* and *bake* an AGENT-ACT relation. The polysemous verb *cook* exhibits a PART-WHOLE relation in two of its senses: The whole represents the complex act of preparing food and the parts are particular acts or events that are "crucial to its character or success", such as cleaning, slicing, or activating a source of heat. One can, therefore, say "I am cooking" even when I am preparing a roast and potatoes in the oven and tossing a salad (Norrick 1981: 55).

In using indexical relations as a point of departure, we look at language from an *onomasiological*, or conceptual, perspective. This approach reveals that the same indexical relation can be construed differently within the same language or across languages. For example, in English the indexical relation between agents and their actions tends to be reflected in a common lexical base and morphological derivations. Words for agents are derived from words for action and typically formed by *er*-derivation, as in *reviewer* from *to review*, *driver* from *to drive*, or *author* from the hypothetical verbal base *to auth*.[10] Words for action, on the other hand, are often derived from words for agents and typically formed by zero-derivation, as in *to author*, *to butcher*, and *to nurse*. The complementary indexical relations underlying these derivations are on a par so that, depending on the researcher's notion of metonymy, both or neither of them might be considered metonymic. If both derivational processes are seen as metonymic, derived forms such as *reviewer* from *to review* instantiate the metonymy ACTION FOR AGENT, and converted forms such as *to author* from *author* instantiate the metonymy AGENT FOR ACTION.

10. Latin *auctorem* derives from the past participle *auctus* of *augere* 'to increase'. The spelling of *author* with a *th* is due to the mistaken assumption of its Greek origin in the 16th century.

The semasiological approach takes a different view of morphological processes with respect to metonymy. In his study of noun-to-verb conversion in English, Dirven (1999) analyzes converted verbs as highlighting a particular participant of an implied event schema. Thus, in *He was fishing*, the patient *fish* is highlighted and metonymically stands for the action schema as a whole.[11] Derivation, by contrast, would be regarded as non-metonymic, even if it also involves a change of word-class. The stem in conjunction with the suffix already express the derived sense of a word, so there is no metonymic target to be inferred. A consequence of distinguishing between conversion as a metonymic process and derivational morphology as literal wording is that metonymy is seen as a language-specific phenomenon and that different languages make different use of metonymy. Languages that make wide use of conversion like English would be "more metonymic" than languages with elaborate morphology like Finnish or Russian. Scholars of metonymy are divided over the issue of morphological derivation.[12]

The indexical view of metonymy is not without its problems either. Not all types of metonymy appear to be based on indexical relations and not all indexical relations give rise to metonymy. Thus, some of Norrick's (1981: 31–40) iconic relations have been shown to be metonymic. For example, Radden (2009) has analyzed the supposedly iconic relation between Specific and Generic as metonymic, and Barcelona (2004) has done so for the relation between Object and Feature in his study of paragon names. Denroche (2015: 64–65) points out that metonymy is also involved with all three types of signs. One of his examples is the icon of a wheelchair on the London Tube Map. The icon is only part of the message and its information of indicating wheelchair access has to be metonymically inferred.

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11. In her section on "Metonymy and morphology", Sweep (2011) discusses the pros and cons of viewing conversion as a metonymic shift or as a side-effect of grammar and provides the nice example of the Dutch noun *aubergine* used as a noun and adjective describing the color 'aubergine purple'. The vegetable noun is grammatically feminine, *de aubergine*, and the color name should, like all color nouns, have neuter gender, *het aubergine*, but it keeps its feminine gender. This example shows that, at least in Dutch and possibly other languages as well, the conceptual shift precedes the grammatical shift and thus supports the predominant view of treating zero-derivation as a metonymic process.

12. The different positions taken on derivation as a metonymic process became apparent in Brdar and Brdar-Szabó's (2014) review of Janda's (2011) study of word-formation in Russian, Czech, and Norwegian. Laura Janda contrasts suffixation in these three languages according to their metonymic patterns, which Brdar and Brdar-Szabó challenge on the grounds that the target is manifest in the suffix rather than implicitly left to be inferred. Such disagreements are, in fact, inherent in the notion of *metonymy* as a phenomenon that comprises linguistic and conceptual levels. The majority of linguists tend to take a language-based view of metonymy and hence implicitly subscribe to the semasiological approach.

Most indexical relations probably do not give rise to metonymy. Let us reconsider Kahneman's example of association that was already mentioned in Section 3: "being amused tends to make you smile". Here, the emotional state of being amused is indexically related to the physiological reaction of smiling and may also evoke the idea of smiling. However, the utterance *She was amused* is probably not understood metonymically as meaning 'she was smiling'. There could be two reasons why *She was amused* is not understood metonymically. First, the associative link between 'being amused' and 'smiling' may not be strong and unique enough and, secondly, the indexical relation between an emotion and its physiological reaction appears to be exploited in one direction only, i.e. by the metonymy PHYSIOLOGICAL REACTION FOR EMOTION, as in *His face went ashen* for 'he was shocked'. Here, our focus of attention shifts from the reaction to the emotional state. We are undoubtedly more concerned with people's inner states than with the external signs of them, and the unidirectional metonymy reflects our prime interest. The presence of a conceptual shift thus serves as a critical factor distinguishing metonymy from purely indexical relations.

5. Metonymic shift

Cognitive work on metonymy has mainly focused on aspects such as metonymic relations, types of metonymy, metonymic inference and source-to-target mapping.[13] The result of the metonymic process has received fairly little attention. The traditional view of metonymy was quite explicit about the result: the substitution of one expression by another expression. As has been noted by many scholars, the metonymic source is not obliterated but still present to at least some extent.

The mental process of accessing the complex target as its resultant state will be described as *metonymic shift*. The term *shift* is commonly used in linguistics to describe systematic changes in phonology and semantics and also lends itself as an appropriate term for metonymic as well as metaphorical processes. The notion of conceptual shift also allows us to distinguish the "narrow", language-based view of metonymy from a "broader" view of metonymy, as proposed by scholars working in the multimodal paradigm.

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13. The use of the term *mapping* for metonymic shifts is controversial. As a mathematical term, *mapping* refers to a correspondence between two sets. Barcelona (2011: 12) argues that it "can also be understood, in a narrower sense, as the projection of one structure onto another". Strack (2015) argues against the use of the term mapping for the single-domain correlations of metonymy. He suggests using the more adequate term *binding*. In the neurosciences, binding refers to "the process that links neural activation patterns across modalities to form concepts" and could be applied to metonymic connectivity as well. This proposal certainly deserves to be taken seriously.

Metonymic inferencing is an online process, and so are metonymic shifts. A metonymic shift involves a change of focus from a source concept to a complex target, as illustrated in the *money-marrying* example. Quite often, however, a metonymic shift is contingent on a host of language-external factors such as the situational context, cultural norms, the language user's world knowledge, attitudes, interests, etc. Let us consider a few examples illustrating the problems of recognizing online instances of metonymy and performing the metonymic shift.

The following excerpt is taken from an interview, in which former UEFA president Lennart Johansson described information he received from a close associate.

(6) "He came to me, someone who was close to me, that I co-operated with for several years previously, who had seen how *brown envelopes* were given from one to the other".[14]

The brown envelopes mentioned in the passage may be interpreted differently: some people might understand the envelopes literally, e.g. as being handed out to the delegates to cast their ballots, and other people might understand the envelopes metonymically and shift their attention from the containers to their content. Here again, some may think of the default content of envelopes, i.e. letters, and others, who have heard of the corruption scandals surrounding the world football association, might suspect that the envelopes contained bribe money for the delegates. To these amateur sleuths, the CONTAINER FOR CONTENT metonymy may be particularly attractive in that it enables them to solve the "mystery of the brown envelopes". In this case, the hearer's knowledge and interest may have affected the particular metonymic shift.

Metonymic inferences may also be affected by the way they are presented. The following excerpt from *Time* magazine (March 16, 2015) compares the leading role still played by the United States to the minor role played by other big countries:

(7) The most important reason why the U.S. will continue to dominate is the lack of a viable rival. *The European Union* is too fractured, *Japan* is too old, *Russia* is too corrupt, *India* is too poor, *Brazil* is too unproductive.

The sentences characterize one political union and four countries, and each of these states is related to a metonymic target of its own: *The European Union* probably refers to its 28 member states pursuing their own interests, *Japan* refers to its aging population, *Russia* could refer to its politicians or to its institutions, *India* might refer to its population or to its government budget, and *Brazil* can refer to its economy or to its industry. The metonymies involved in these sentences might be described as POLITICAL UNION FOR STATES, COUNTRY FOR INHABITANTS, COUNTRY

14. http://uk.reuters.com/article/2011/06/01/uk-soccer-fifa-johansson-idUKTRE7507IK20110601.

FOR POLITICIANS, COUNTRY FOR INSTITUTION, COUNTRY FOR BUDGET, COUNTRY FOR ECONOMY, and COUNTRY FOR INDUSTRY. However, it is very unlikely that readers of this chapter will even notice the different targets and shift their attention accordingly. The structural parallelism of the clauses strongly suggests similar content so that the reader also tends to see the characterizations predicated about the five states as similar.

The following example shows that a metonymic description may not lead to a metonymic shift. In situations such as warfare, it is not the holders of power that bear the burden of war but the common people. Therefore, these situations are usually analyzed as instantiating the metonymy CONTROLLER FOR CONTROLLED. This is, however, not the case in a letter to the editor in response to an article in *Time* magazine in which Reagan and Gorbachev were given the credit for ending the Cold War.

(8) *Reagan and Gorbachev won the Cold War*? What of the citizens of Eastern Europe who worked so hard, often with great sacrifice, to gain freedom?

The author of these lines picked up the wording of the article and apparently understood it literally rather than metonymically – otherwise her reference to the citizens of Eastern Europe, i.e. the people under control, would not make sense. We might even question the psychological reality of the CONTROLLER FOR CONTROLLED metonymy.

It is usually assumed that the metonymic target is more prominent than the source. A standard test of a metonymic shift is, therefore, the pronominalization of the target in the subsequent discourse, as in *Shakespeare is on the top shelf. It is recommended reading*, where *it* refers to a book of a play or plays by Shakespeare. It is, however, not uncommon to accept the metonymic shift and, at the same time, pronominalize the source. The following mundane example of metonymy illustrates this situation:

(9) "The kettle is boiling", Katherine announced the other night during another television commercial break.
"Don't worry", I said in soothing tones. "It's an *automatic* kettle so my bet is it will turn itself off".[15]

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15. The excerpt is taken from the story "When marriage reaches boiling point" by John Martin, an Australian writer of funny fiction. http://www.dunno.com.au/when-marriage-reaches-boili.html. Anaphoric *it* might also be used within a complex sentence, as in the following instructions on how to cook tea. In sentence (a), *it* is co-referent with the metonymic target, in sentence (b), *it* is co-referent with the metonymic source.

a. *When the water in the kettle is boiling, pour it* (= water) *into the teapot*.
b. *When the water in the kettle is boiling, remove it* (= the kettle) *from the heat source*.

Katherine's use of *boiling* indicates that the metonymic target she had in mind is the water contained in the kettle. Yet, the anaphoric pronoun *it* in the partner's reply does not refer to the target concept 'water' but to the source concept 'kettle'. The source is thus more prominent than the target and also remains in focus as the topic of discourse. The partner was certainly aware of Katherine's metonymic use of *the kettle* but behaves as if it was meant literally. He has, in fact, to do so because the alternative, the use of the metonymic target *water*, does not provide an appropriate antecedent: #*The water is boiling. Don't worry, it's an automatic kettle*.

The explanation for these phenomena is to be found in the complex target, which, as outlined in Section 2 and Figure 1, comprises both the inferred target and the source. Irrespective of the metonymic shift, either of them may be selected to become the topic in the ensuing discourse, with a preference for the target. At the same time, the co-activation of the target and source concepts leads to their conceptual integration and gives rise to emergent meanings.

6. Conceptual integration

Metaphor is widely regarded as involving the conceptual integration of two input spaces, but only few scholars have applied the blending approach to metonymy (Alač and Coulson 2004; Coulson and Oakley 2003; Ruiz de Mendoza 2003: 124–126). The fusion of metaphorical source and target domains is certainly more conspicuous than the fusion of metonymic sources and targets. There is, however, no strict categorical difference between these two processes: metaphor and metonymy shade into one another along a continuum of figurative modes of thought. In both figurative processes, source and target concepts are co-activated and, as a result, form an integrated whole and lead to emergent meaning. The emergence of additional meanings is, in fact, the essence of conceptual integration. Kahneman (2011: 50–51) has demonstrated the power of the conjunction of isolated words by presenting subjects the words *bananas* and *vomit*. The subjects automatically formed a sketchy scenario in which bananas caused sickness and even made them experience a temporary aversion to bananas.

The conjunction of a metonymic source and its inferred target also induces emergent meaning, of course less dramatically than in the vomiting scenario. The impact of a metonymic construal can most clearly be seen in contrast to its corresponding literal construal. Let us consider an often-cited instance of metonymy and its literal counterpart.

(10) a. The clarinet went to the powder room.
b. The clarinetist went to the powder room.

In the metonymic construal (10a), the focus on the source 'clarinet' makes us see the clarinetist in her part of playing the clarinet in a piece of music. We infer that

there is only one musician playing the clarinet on the orchestra and that the orchestra cannot start playing without her. This inference would be accepted as valid in a court of law. The non-metonymic construal (10b), by contrast, focuses on the clarinetist – the instrument is not even mentioned. The sentence might also invite the inference that the orchestra could not play without her, but it would be one out of many inferences and hence be weaker and not be considered valid. The speaker might, for example, have alluded to the clarinetist's habit of putting lipstick on or rearranging her hair in the powder room before the performance. The fusion of source and target in metonymy thus prompts more specific emerging inferences while the inferences invited by a literal construal are rather indeterminate.

We can now also re-analyze the "money-marrying" metonymy discussed in Section 2 in terms of conceptual integration. Let us again compare the metonymic and literal construals.

(11) a. Molly married money.
b. Molly married a rich man.

As pointed out in Section 2, the focus on money in the metonymic construal (11a) makes us infer that the amount of money was considerable and that her husband's money was the main reason for Molly to get married to this man. The literal construal (11b) may also invite this inference, but to a much lesser degree. Molly may have married her rich husband out of love and did not care about his money.

Figure 2 presents the blending analysis of the metonymy in *Molly married money*. The target and source concepts are projected from their input spaces and compressed in the blended space. Most importantly, the blended space also contains

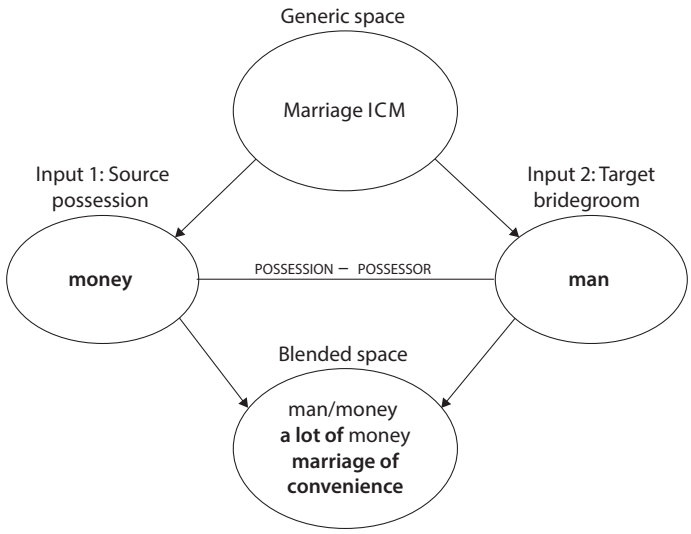

Figure 2. *Molly married money*

inferred emergent meanings, printed in bold, namely the specification 'a lot of' with 'money' and the evaluation of her marriage as a 'marriage of convenience'.

The emergence of meaning as a result of conceptual integration is the most outstanding feature of metonymy. Lakoff and Johnson (1980: 39) provide a telling example of emergent meanings resulting from the fusion of Picasso and his work in *He's got a Picasso in his den*: "When we think of *a Picasso*, we are not just thinking of a work of art alone, in and of itself. We think of it in terms of its relation to the artist, that is, his conception of art, his technique, his role in art history, etc." Excellent real-life instances of emergent meaning are also provided by Littlemore (2015) in her introductory chapter to her metonymy book, such as *set of wheels* for the young racer (p. 6):

(12) "In this example, 'set of wheels' refers to the whole car. Corpus evidence suggests that when the expression *set of wheels* is used to refer to the whole car, it is nearly always in the context of a young man purchasing a car, or of positively evaluating a car. This positive evaluation may come from the fact that the focus is on *the wheels* and these are the key part of the car that moves; the expression may thus evoke an image in which there is nothing on the wheels to slow them down".

The function of the wheels of a car motivates the emergent meaning of mobility and its positive associations, especially by young men. Similar effects have also been observed by Denroche (2015: 84–95) and Song (1997: 101) in his comparison of two metonymic construals of 'driving' in Japanese:

(13) a. *konogoro kuruma-ni notte-inai*
'I have not ridden on wheels recently'.
b. *konogoro handoru-wo nigitte-inai*
'I have not held a steering wheel recently'.

The metonymic use of 'wheels' in (13a) highlights the aspect of mobility and the metonymic use of 'steering wheel' in (13b) the controlling aspect of driving.

The clearest cases of metonymy-induced emergent meaning are probably found in grammar because grammatical categories are marked by stricter boundaries. A few examples of tense metonymies may illustrate the motivation of emergent meanings. Tenses are understood as denoting the corresponding notions of time. Usages diverging from these default patterns have often been noted and discussed by grammarians. Here, the meanings emerging from non-default usages of tense are explained as resulting from the conceptual integration of different notions of time.[16]

16. For non-present uses of the Present tense, see Langacker (2009: 193–198). Langacker (2009: 194–195) explains these usages in terms of special viewing arrangements, which "involve the distinction between a *represented event*, which may be actual, and a *representing event*, which – as a representation – is necessarily virtual".

(14) a. Early Bird registration ends this Sunday, March 31.
b. Lakoff and Johnson argue that metaphors shape our conceptual system.
c. (Speaker pointing at buildings): This was the school, and that was the town hall.

Sentence (14a) in the Present tense illustrates the interplay of present and future times giving rise to the meaning known as *scheduled future*: a future situation has been scheduled much earlier and is valid for the whole period from the past through the present to the future. The future situation is thus available to the speaker at any time including the present moment.

Sentence (14b) in the Present tense illustrates the interplay of present and past times motivating the meaning of the *scientific present*. Scholarly work is assumed to have timeless validity. This also applies to supposedly past discussions among scholars and their positions taken in them, as in this example.

Sentence (14c) in the Past tense illustrates the fusion of past and present times when seeing things that evoke memories of past events. The thing described serves as the metonymic vehicle providing access to the past event in which it participated.

It finally needs to be mentioned that metonymy represents a special situation of conceptual integration. In metonymy, one of the conceptual units that get fused is inferred, but both units may, of course, also be present in language. For example, the Present Perfect in English combines the notions of present and past time in its form. As noted by Brinton (1988: 102), the dual nature of the perfect in present English with its meaning of current relevance is remarked upon by all grammars. Thus, in the telic event described by *I have installed Word 10*, the past event of installing the new version of Word is in some way connected with, or pertinent to, the present and hence currently relevant. We may, for example, now start drawing fancy tree diagrams.

7. Conclusions

Section 2 outlined the inferential steps needed in processing metonymy and demonstrated that the conceptual units *source* and *target* have to be distinguished from the *vehicle* as a linguistic unit. The inferred target entity forms part of a *complex target*, which also includes the metonymic relation and the metonymic source. The metonymic source functions as a point of access for the target and is itself a prominent element of the complex target.

The notion of association plays a central role in the online processing of metonymy. Section 3 discussed the neural basis of association in metonymy and its impact on metonymic interconnections, inference and strength of association.

Conceptual relationships are at the core of metonymy. Section 4 examined two types of relation that are often regarded as characterizing metonymy: contiguity and indexicality. Neither of them qualifies as a unique determinant of metonymy-producing relationships. Criteria that prove to be useful in identifying metonymy are the notions of *asymmetry* of source and target and *internal* and *external contiguity*. A *semasiological* approach to metonymy is based on contiguous relations, an *onomasiological* approach is based on indexical relations. The metonymic status of morphological derivations remains an unresolved problem.

A conceptual shift is claimed to be crucial to metonymy in its narrow, language-based sense. However, metonymic shifts are dependent on a host of language-external factors. Section 5 considered several instances of metonymy that may, or may not, give rise to a conceptual shift in online language use.

An essential part of any metonymy is the conceptual integration of source and target and the resulting emergence of additional meanings. Comparisons between metonymic and literal construals of the same conceptualization indeed reveal differences in inferred meanings. Section 6 also included a few instances of grammatical metonymy, which apparently display emergent meanings more clearly.

It is hoped that the reflections on conceptual metonymy presented here will stimulate wider research on metonymy and help to solve the many problems that have remained unresolved.

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