「論文」

Conceptual Metaphors and Metonymies
of Near-Synonyms of ANGER

Yuki MINAMISAWA

Abstract

This article analyzes conceptual metaphors and metonymies involving near-synonyms of ANGER: *anger* and *rage*. Within conceptual metaphor theory, many studies have been conducted to describe metaphors/metonymies conceptualizing the emotions, and ANGER has attracted much attention in previous studies. A certain number of metaphors/metonymies have been proposed for the emotion, and it is generally agreed that the central metaphor for ANGER is ANGER IS A HOT FLUID IN A CONTAINER. However, few studies have focused on differences between near-synonyms, partly because of the assumption that the words representing similar (or the same) emotions have similar metaphors. Therefore, this study aims to examine the differences in metaphors/metonymies of near-synonyms from the perspective of their centrality to the emotion. The present study uses MI-scores to determine the centrality. The data extracted through the MI-scores shows that there are differences between *anger* and *rage* in the metaphors with which they are strongly associated. This result is further supported by an examination of their metonymical collocates.

1. Introduction

This study investigates figurative expressions of ANGER within conceptual metaphor theory (Lakoff and Johnson, 1980, henceforth CMT). In this theory, metaphor is regarded not as a matter of language, but as a matter of thought and action. We understand abstract concepts, which are often invisible and intangible, in terms of other more concrete concepts.[1] Emotion is one such abstract concept, and many studies have been conducted to elucidate what metaphors/metonymies are used to conceptualize emotions. Among the emotions, ANGER has attracted much attention, and a certain

number of metaphors and metonymies have been proposed in studies (e.g., Kövecses, 1990, 2000; Lakoff, 1987).

In previous studies, however, little attention was paid to the differences between near-synonyms, although there are several different words representing ANGER. For example, previous studies like Lakoff (1987) and Kövecses (1990) did not distinguish between *anger* and *rage*. Although the assumption that the words representing similar (or the same) emotions have similar metaphors and metonymies might be at play, little discussion has been devoted to verifying its validity. Therefore, the present study aims to ascertain whether near-synonyms are associated with the same conceptual metaphors and metonymies.

2. Previous Studies

2.1 ANGER Metaphors and Metonymies

Within CMT, much attention has been paid to emotions, and it was found that metaphors/metonymies play a crucial role in conceptualizing them. For example, ANGER is conceptualized in terms of various concepts like A HOT FLUID IN A CONTAINER (henceforth the FLUID metaphor), FIRE (the FIRE metaphor), A DANGEROUS ANIMAL (the ANIMAL metaphor), and A NATURAL FORCE (the NATURE metaphor). Below are instantiations of each metaphor (1a-d).

(1)   a. She is *boiling with* anger.
      b. His anger is *smoldering*.
      c. He *unleashed* his anger.
      d. It was a *stormy* meeting.   (Kövecses, 2000: 21)

Furthermore, such metaphors are often based on cultural models of physiological and behavioral responses. For example, ANGER is often regarded as something hot (1a,b). This is ANGER IS HEAT, the most general metaphor for ANGER, and it is based on human physiological effects such as BODY HEAT (2a) and AGITATION (2b).

(2)   a. Don't get *hot under the collar*.

b. She was *shaking with anger*.   (Kövecses, 1990: 52)

These physiological and behavioral responses provide the basis of conceptual metaphors, and also metonymically indicate the emotion.

Moreover, such metaphors and metonymies converge on a certain prototypical cognitive model of the emotion (Lakoff, 1987; Kövecses, 1990, 2000). The model has a temporal dimension and consists of different stages. Kövecses (1990) maintains that the prototype of the emotion involves the following temporally and causally connected stages: 1. Cause, 2. Emotion exists, 3. Attempt at control, 4. Loss of control, and 5. Action (+ 0. Emotional calmness).

2.2 Main Issues of Emotion Metaphors

With regards to research on emotion metaphors/metonymies, the following two issues have been discussed: Which conceptual metaphors/metonymies are mainly used for a particular emotion (Issue 1), and which metaphors are the most central to the emotion (Issue 2). In the case of ANGER, there has been much discussion of these issues. In relation to Issue 1, Kövecses (2000: 21) gives 12 main metaphors, including the afore-mentioned metaphors. However, it is not absolutely clear why these 12 metaphors are considered the main metaphors. In fact, Stefanowitsch (2006) found several metaphors through his corpus-based method that were not mentioned in previous studies.

Concerning Issue 2, it is generally agreed that the central metaphor for ANGER is the FLUID metaphor. As reasons for this, Kövecses (1990) states that a variety of words and expressions belong to this metaphor, and that the metaphor productively carries over knowledge from the source (A HOT FLUID IN A CONTAINER) to the target (ANGER).

(3)   a. His pent-up anger *welled up* inside her.
       b. I *suppressed* my anger.
       c. When I told him, he just *exploded*.   (Kövecses, 1990: 54, 55)

The expression in (3a) indicates an increase in the intensity of ANGER by the rise of a fluid, while (3b) highlights the control aspect by comparing it to keeping back a fluid in

a container. When the pressure becomes too high, the container explodes (3c), and this is used for loss of control. In this way, the FLUID metaphor captures different aspects of ANGER, and is therefore regarded as the central metaphor for ANGER.

2.3 Near-Synonyms

In recent years, an increasing number of studies of emotion metaphors have been performed on the basis of corpus data, as this provides an empirical basis for studying conceptual metaphors from a linguistic perspective. As Stefanowitsch (2006) shows, we might thereby find some metaphors that are not mentioned in previous studies. Moreover, frequency data provides valuable insight into determining the importance of conceptual metaphors (Stefanowitsch, 2006).

However, little attention has been paid to the issue of near-synonyms in previous studies. This is partly because of the assumption that the words representing similar (or the same) emotions should have similar metaphors, but also because of the difficulty in comparing near-synonyms only on the basis of introspective data.

Recently, several corpus-based studies have focused on the similarities and differences of metaphors between near-synonyms. For ANGER, Suzuki (2010) demonstrates that different words representing ANGER are connected to different metaphors. For example, he states that the number of metaphorical expressions for *anger* and *fury* motivated by ANGER IS FIRE is high, while there are few expressions featuring *rage* and *wrath* that are motivated by this metaphor. Suzuki describes some differences between near-synonyms of ANGER, although the focus of the discussion is mainly on ANGER IS HEAT/FIRE and other metaphors like the ANIMAL metaphor are not much discussed.

In this respect, Turkkila (2014) discusses metaphors more inclusively based on data from the Corpus of Contemporary American English. Turkkila's study examines the assumption that near-synonyms occur with the same metaphors. Turkkila provides 37 conceptual metaphors (pp. 136−137, Table 2) and, according to the study, the near-synonyms *anger*, *rage*, and *fury* more or less occur with the same metaphors. Although *wrath* is different in lacking six of these metaphors, such as ANGER IS A DISEASE and ANGER IS A PLANT, Turkkila implies that this is because *wrath* is by far the least frequent in the corpus and is a formal word.

While Turkkila's study shows that *anger*, *rage*, and *fury* are almost the same in

terms of the metaphors applicable to them (Issue 1), there is room for discussion as to which metaphors are more central (Issue 2). According to the list provided in the study (pp. 136−137), the four most frequent source domains for ANGER are A POSSESSION (*have anger*), A PLACE (*in anger*), A MOVING OBJECT (*anger toward X*), and AN OBJECT (*anger against X*). The fifth most frequent is FIRE (*anger burn inside X*), and AN OBJECT IN A LOCATION (*anger in X*) is the sixth. Instances that feature the mappings ANGER IS A POSSESSION/A PLACE/A MOVING OBJECT/AN OBJECT/AN OBJECT IN A LOCATION make up 70.01% of all metaphorical mappings representing ANGER in the corpus.[2] Such results are a little problematic since these metaphors are considered highly general. The words used in these metaphorical expressions are very frequently used by themselves, and these metaphors are shared not only by near-synonyms of ANGER, but also by other emotions and by other abstract concepts. On this matter, Kövecses (2011) emphasizes that the metaphors that contribute to a greater extent to the structure of abstract concepts are specific ones like the FLUID metaphor, and contends that the quantitative advantage of the corpus-based method does not necessarily lead to a qualitative advantage.

3. Materials and Methods

3.1 Metaphorical Pattern Analysis

Although studies of conceptual metaphors are now increasingly conducted using corpora, corpus-based methods do not seem appropriate for analyzing emotion metaphors. This is because we must choose a particular word form when searching metaphorical expressions, although conceptual mappings are originally not linked to particular linguistic forms (Stefanowitsch, 2006: 64). In other words, we cannot know in advance which words and phrases are used for a particular metaphor.

To cope with this problem, Stefanowitsch (2006) suggests Metaphorical Pattern Analysis (henceforth MPA). According to Stefanowitsch, a metaphorical pattern is "a multi-word expression from a given source domain (SD) into which one or more specific lexical item(s) from a given target domain (TD) have been inserted" (p. 66).

(4) a. He was *bursting with* anger.

　　 b. I was *fuming*.   (Kövecses, 1990: 54)

Following the above definition, (4a) is a metaphorical pattern since the example includes both a source-domain word (*bursting*) and a target-domain word (*anger*). On the other hand, (4b) is not a metaphorical pattern, because the sentence does not contain a target-domain word (an emotion word). Stefanowitsch claims that investigating metaphorical patterns like (4a) makes it possible to perform target-domain-oriented studies based on corpus data. Although the metaphorical expressions without a target-domain word as in (4b) are not taken into account, the data Stefanowitsch provides show that with MPA it is possible to find examples of almost all of the metaphors identified by the previous introspective methods, as well as other metaphors.

Therefore, this study was conducted on the basis of metaphorical patterns, and also attempts to analyze metonymies using the same MPA method. In extracting metonymical expressions from a corpus, however, there is another problem.

(5)   a. She was *quivering* with rage.
      b. Don't get *hot under the collar*.   (Kövecses, 1990: 52)

The expression in (5a) is an instantiation of the metonymy AGITATION FOR ANGER, while (5b) is yielded by BODY HEAT FOR ANGER. Following the above method, it is possible to retrieve expressions like (5a) since they include an emotion word, but expressions like (5b) cannot be retrieved because of the absence of an emotion word. However, since the expressions of the former type include an emotion word, they are not genuinely metonymical (rather literal) as Oster (2010) admits of such expressions. Nevertheless, Oster claims that these expressions provide us with an insight into which physiological and behavioral responses are prevalent in the conceptualization of these emotions. In fact, many previous studies (e.g., Lakoff, 1987; Kövecses, 1990, 2000) regard such expressions as instantiations of metonymies. In light of this, expressions like (5a) may be regarded as instantiations of metonymies to the extent that the physiological and behavioral responses are strongly connected to the emotion.

3.2 Metaphorical Pattern as Collocation

In brief, the analysis in this study is based on metaphorical/metonymical expressions that include an emotion word as in (4a) and (5a). In these expressions, an

emotion word and a metaphorically/metonymically used word always co-occur. In (4a), *anger* co-occurs with the metaphorical collocate *bursting*, and in (5a), *rage* co-occurs with the metonymical collocate *quivering*. Since collocation is "the occurrence of two or more words within a short space of each other in a text" (Sinclair, 1991: 170), such a metaphorical/metonymical expression is a specific type of collocation.

Considering that collocation is often measured using statistical methods (Hunston, 2002), it is expected that such figurative expressions can be measured in the same way. Although there are different measurements for calculating collocation, this study uses the Mutual Information score[3] (henceforth MI-score). The purpose of this study is to analyze metaphors/metonymies representing ANGER, as they play an essential role in how we understand the concept. Since the MI-score is appropriate for investigating collocations that are semantically connected to each other (Akano, 2009), it is expected that the MI-score effectively retrieves metaphorically/metonymically used collocates.

Using the MI-score, this study attempts to measure the centrality of metaphors and metonymies. In general, the MI-score indicates the strength of a collocation (Hunston, 2002: 71), and this leads to the idea that a collocate with a higher score is considered to be more central, namely, more strongly associated with the emotion (Criterion 1). Furthermore, centrality can be defined from the perspective of the number of significant collocates. According to Hunston (ibid.), co-occurrences may be considered significant when the MI-score is three or greater. By categorizing the significant collocates into various metaphors/metonymies, we can create a list of which metaphors/metonymies contain such significant collocates and then define the metaphors/metonymies that contain more significant collocates as more central to the emotion (Criterion 2).

In the following sections, the centrality of metaphors/metonymies is measured according to the above criteria. Presumably, these criteria provide valuable information for describing the differences between near-synonyms from the perspective of Issue 2.

3.3 Methods

In this research, the analysis is based on the data extracted from the British National Corpus (BNC*web*, CQP-Edition, Version 4.3, henceforth BNC), a balanced corpus of British English containing 100 million words. In extracting metaphorical/

metonymical collocates from the corpus (both written and spoken texts), *anger* and *rage* were selected as search words, for the reason that they are relatively frequent in the corpus and many previous studies have dealt with these two words without distinction in the analysis of ANGER. Furthermore, the present analysis is confined to singular forms in order to exclude, for example, the name of the city in western France, *Angers*. Thus, the search was conducted in the form "anger_NN1" and "rage_NN1". As for the window size (span), 4:4 is used (Krishnamurthy, 2003), and the words extracted are lemmatized. Finally, words which occur only in one text are excluded, since they are likely characteristic of the author.

As described above, the present study adopts the MI-score to determine the centrality of metaphors/metonymies to the emotion, and only takes the significant collocates (MI≧3) into account. However, since the MI-score becomes unstable when the number of co-occurrences is very small (Church and Hanks, 1990), the present research does not consider collocates if they occur fewer than four times.

All of the significant figurative collocates extracted in this way are then classified into various metaphors or metonymies. In classifying these collocates, previous studies such as Lakoff (1987), Kövecses (1990, 2000), and Stefanowitsch (2006) are the most often cited. For example, Kövecses regards the expression *boiling with anger* (2000: 21) as an instantiation of the FLUID metaphor, and *shaking with anger* (1990: 52) as that of the metonymy AGITATION FOR ANGER. Accordingly, the present study classifies the verb *boil* into the FLUID metaphor, and *shake* into AGITATION FOR ANGER.

4. Results and Discussion

The above procedure retrieved 150 significant collocates for *anger* and 63 for *rage*. Of these significant collocates, 75 collocates of *anger* and 40 of *rage* are instantiations of metaphors/metonymies. Since over 30 significant collocates of *anger* and about 15 of *rage* are emotion words like *frustrated*, *sorrow*, and *hatred*, which do not directly represent ANGER, it is possible to state that many of the significant collocates are instantiations of metaphors/metonymies. Considering that the MI-score tends to extract collocates that are semantically connected to the search words, it appears that these corpus data provide supporting evidence for the CMT argument that

we understand abstract concepts like emotions with the help of metaphors and metonymies.

4.1 Top Collocates

Table 1 shows the top 20 collocates of *anger* and *rage* according to MI-score.

Table 1: Top 20 collocates of a*nger* and r*age*

No.	anger	Freq.	MI	rage	Freq.	MI
1	*vent*_(V)	26	9.99	*incandescent*_(A)	7	10.18
2	*sethe*_(V)[4]	9	8.91	*bellow*_(S)	5	9.87
3	*suppressed*_(A)	11	8.81	*vent*_(V)	8	9.60
4	righteous_(A)	11	8.65	*contort*_(V)	5	9.56
5	*seethe*_(V)	4	8.43	*suppressed*_(A)	7	9.47
6	*contort*_(V)	5	8.24	*howl*_(S)	8	9.23
7	*pent-up*_(A)	4	8.14	*impotent*_(A)	7	9.03
8	*livid*_(A)	5	8.08	*speechless*_(A)	5	8.71
9	*well*_(V)	6	7.78	*bristle*_(V)	5	8.59
10	*simmering*_(A)	5	7.75	righteous_(A)	4	8.51
11	frustration_(S)	49	7.65	*murderous*_(A)	5	8.50
12	resentment_(S)	31	7.57	*towering*_(A)	5	8.30
13	placate_(V)	4	7.30	*choke*_(V)	11	7.71
14	*bubble*_(V)	8	7.28	drunken_(A)	7	7.56
15	hurt_(S)	5	7.22	frustration_(S)	16	7.35
16	*outburst*_(S)	11	7.21	humiliation_(S)	6	7.29
17	*subside*_(V)	10	7.15	*roar*_(S)	5	7.17
18	*surge*_(S)	16	7.08	*scarlet*_(A)	5	7.01
19	*speechless*_(A)	4	7.08	*tremble*_(V)	11	6.99
20	abate_(V)	4	6.94	*fit*_(S)	8	6.96

In the table, all of the figurative collocates are highlighted in italics. The symbols (S), (V), and (A) correspond to nouns, verbs, and adjectives. Obviously, many of the top collocates of *anger* and *rage* are instances of metaphors or metonymies (13 collocates for *anger* and 16 for *rage*).

However, there are interesting differences between *anger* and *rage*. Of the top 20 collocates, as many as eight collocates of *anger* are associated with the FLUID metaphor[4] (shaded in light gray), which indicates that *anger* is strongly associated with this metaphor. The result is in line with the observations of most previous studies. However, in the case of *rage*, only two belong to the FLUID metaphor. Instead, five

collocates go into the ANIMAL metaphor (shaded in dark gray). Such collocates do not appear among *anger*'s top 20 collocates.

According to the criterion that a collocate with a higher score is considered to be more strongly associated with the emotion (Criterion 1), *anger* is strongly associated with the FLUID metaphor, whereas *rage* is strongly associated with the ANIMAL metaphor.

4.2 Conceptual Metaphors

When all of the significant metaphorical collocates are categorized under different metaphors, the difference becomes clearer.

Table 2: Metaphorical collocates significantly connected to ₐ*nger* and ᵣ*age*

Source	*anger* [57 collocates]	*rage* [27 collocates]
FLUID	*vent*_(V), *seethe*_(V), *suppressed*_(A), *pent-up*_(A), *well*_(V), *simmering*_(A), *bubble*_(V), *outburst*_(S), *evaporate*_(V), *vent*_(S), *seep*_(V), *explode*_(V), *suppress*_(V), *boil*_(V), *burst*_(S), *explosion*_(S), *drain*_(V), *burst*_(V), *inside*_(P), *rise*_(V), *fill*_(V) [21 (36.8%)]	*vent*_(V), *suppressed*_(A), *boil*_(V), *burst*_(S), *explode*_(V), *burst*_(V), *fill*_(V) [7 (25.9%)]
FIRE	*glitter*_(V), *flare*_(V), *flash*_(S), *blaze*_(V), *fuel*_(V), *spark*_(V), *flash*_(V), *flame*_(S), *burn*_(V) [9 (15.8%)]	*incandescent*_(A), *flash*_(S), *consume*_(V) [3 (11.1%)]
ANIMAL	*uncontrollable*_(A), *howl*_(S), *rouse*_(V), *arouse*_(V), *fierce*_(A), *growing*_(A), *control*_(V), *violent*_(A) [8 (14.0%)]	*bellow*_(S), *howl*_(S), *bristle*_(V), *murderous*_(A), *roar*_(S), *roar*_(V) [6 (22.2%)]
NATURE	*subside*_(V), *surge*_(S), *surge*_(V), *wave*_(S) [4 (7.0%)]	*tide*_(S) [1 (3.7%)]
Others	*impotent*_(A), *fit*_(S), *direct*_(V), *mixture*_(S), *melt*_(V), *swallow*_(V), *fade*_(V), *vanish*_(V), *pure*_(A), *convey*_(V), *stir*_(V), *deep*_(A), *widespread*_(A), *cold*_(A), *depth*_(S) [15 (26.3%)]	*impotent*_(A), *fit*_(S), *towering*_(A), *icy*_(A), *blind*_(A), *fly*_(V), *mad*_(A), *beside*_(P), *possess*_(V), *cold*_(A) [10 (37.0%)]

As the table shows, over one-third of *anger*'s metaphorical collocates are associated with the FLUID metaphor (36.8%), followed by the FIRE metaphor (15.8%), the ANIMAL metaphor (14.0%), and the NATURE metaphor (7.0%).

The distribution of the significant metaphorical collocates of *rage* is somewhat different. The table shows that *rage* is strongly associated with the ANIMAL metaphor (22.2%), as well as the FLUID metaphor (25.9%). Most of the collocates of *rage* still go into the FLUID metaphor, but almost as many collocates belong to the ANIMAL metaphor. The result indicates that, although *anger* and *rage* are similar in the types of metaphors they are associated with, they are different in the metaphors with which they are strongly associated. On the basis of the criterion that a metaphor that contains more significant collocates is more central to the emotion (Criterion 2), both *anger* and *rage* are most strongly associated with the FLUID metaphor. Nevertheless, the data clearly shows that *rage* is almost as strongly associated with the ANIMAL metaphor.

4.2.1 ANGER IS A HOT FLUID IN A CONTAINER

Kövecses (2000) defines the FLUID metaphor as the central metaphor for ANGER, and this is confirmed by the present analysis. Each sentence extracted from the BNC is shown with its filename. In addition, the emotion word is underlined and the metaphorical/metonymical collocate (or phrase) is highlighted in italic.

(6) a. Indeed, one of the worst things you can do with <u>anger</u> is *suppress* it.(AYK 642)

b. She could feel the <u>anger</u> *boiling* up inside her. (CH4 265)

c. Then suddenly he seemed to *explode* with <u>anger</u>. (GV7 214)

d. Children give *vent* to their <u>anger</u> in various ways. (B10 1322)

e. To his own surprise all his <u>anger</u> against Edouard had *evaporated*. (C8X 1613)

A variety of collocates of the FLUID metaphor can be found through the MI-score method, and they represent different aspects of ANGER. For instance, (6a) implies an angry person trying to keep his or her anger back, while (6b) indicates very intense anger. Once anger becomes too intense and cannot be held back any more, the person loses control, as in (6c). Before losing control, an angry person can let anger out like in (6d), and anger sometimes disappears as in (6e).

In the case of *rage*, however, the significant collocates represent rather specific aspects.

(7) a. 'I'm not at all impressed, Maggie,' he rasped, *filled* with unusual <u>rage</u>. (HGK 2661)

b. Lewis was *boiling* with <u>rage</u> and misery and shock. (CDB 746)

c. Her <u>rage</u> *burst* over him like hailstones. (HH9 2339)

Many of *rage*'s collocates represent either intense anger (7a,b) or loss of control (7c). There are no significant collocates corresponding to the disappearance of the emotion. Considering that collocates such as *evaporate* and *drain* do not co-occur with *rage*, we can deduce that the emotion represented by *rage* seems to be so intense that it cannot disappear without an act of retribution.

4.2.2 ANGER IS A DANGEROUS ANIMAL

In Lakoff (1987), ANGER IS A DANGEROUS ANIMAL is one of the main metaphors for ANGER. Table 2 shows that both *anger* and *rage* have a strong association with this metaphor.

The significant collocates of *anger* for this metaphor represent various aspects of the emotion.

(8) a. They *aroused* <u>anger</u> and she felt uncomfortable with it, shifting, frowning.

(JYD 305)

b. All he could do now was keep steady despite his *growing* <u>anger</u>. (H86 1622)

c. Immediately the anger and irritation he had brought with him from the house erupted in a *howl* of <u>anger</u>. (FU8 2408)

This metaphor focuses on control of the emotion and the danger to others (Kövecses, 1990). The example in (8a) describes anger being brought into existence and approaching the limit, while (8b) describes anger that is growing more intense. In (8c), the angry person behaves in an angry way. For this aspect, Kövecses proposes ANGRY BEHAVIOR IS AGGRESSIVE ANIMAL BEHAVIOR, which is an extension of the ANIMAL metaphor.

Interestingly, *rage* is more strongly associated with the ANIMAL metaphor than *anger*, and most of its significant collocates represent an angry behavior.

(9) a. A great *bellow* of inhuman <u>rage</u> froze his hand in mid air. (BPA 2920)

b. George felt the <u>rage</u> *roar* in his head. (FAB 1243)

c. Sir John pushed back his chair, his red face *bristling* with <u>rage</u>. (H90 1103)

d. Mandeville looked down, his eyes glowing with a *murderous* <u>rage</u>. (H90 1733)

Within the results, many of the significant collocates represent the loud cry of an animal (9a,b). In (9a), *rage* collocates with the adjective *inhuman*, which emphasizes the characteristics of *rage* as a dangerous animal. The examples in (9c,d) describe anger that is very intense. In particular, *murderous* indicates that the anger is very dangerous. Considering that *rage* co-occurs with *murderous* five times while *anger* collocates with it only once, we can say that the emotion represented by *rage* is very intense and can be dangerous to others. For the verb *bristle*, Kövecses (1990: 63) gives the example: "*he was bristling with anger*." However, *bristle* is not significantly connected to *anger* but only to *rage*.

Another interesting point regarding the ANIMAL metaphor concerns body-part nouns. Importantly, *anger* significantly collocates with *face* (MI=3.91) and *eye* (MI=3.26), and *rage* with *tooth* (MI=4.24) and *face* (MI=3.84). Here, it is worth noting that *tooth* is strongly connected to *rage*.

(10) a. Kate *ground her teeth* in helpless <u>rage</u>. (HGM 915)

b. 'I expect he'd *gnash his teeth* in impotent <u>rage</u>,' said Beuno. (G0X 2044)

These expressions are similar to an example Kövecses (1990: 63) gives: "*he began to bare his teeth*." Kövecses categorizes this expression as ANGRY BEHAVIOR IS AGGRESSIVE ANIMAL BEHAVIOR. Seemingly, expressions such as *grind one's teeth* (10a) and *gnash one's teeth* (10b) fall under the same metaphor, although these expressions are metonymical when the angry person literally grinds his or her teeth. The collocate *tooth* is not metaphorical by itself, but expressions including this collocate can be metaphorical, and they surely evoke a dangerous animal. The significant body-part collocates also indicate that *rage* is highly associated with the ANIMAL metaphor.

4.2.3 ANGER IS FIRE

With regard to the FIRE metaphor, both *anger* and *rage* have several significant collocates (11a-d).

(11) a. But as she looked at him, a tiny spark of <u>anger</u> *flared* within her. (JY5 836)

  b. Their <u>anger</u> has been *fuelled* by plans to build a THIRD giant store on their doorstep, which they say would threaten the very fabric of their town. (K1U 1351)

  c. He was violently interrupted by a Sally-Anne almost *incandescent* with <u>rage</u>.

                                                                                    (HGE 545)

  d. <u>Rage</u> *consumed* him. (CJJ 932)

In the FIRE metaphor, the size of the fire corresponds to the intensity of the emotion. The example in (11a) portrays anger that is not intense at first (*a tiny spark*), but then becomes very intense. In (11b), the anger is quite intense from the beginning, and grows even more intense. These expressions indicate that *anger* is used to represent varying degrees of the emotion, such as mild anger, increasing anger, and intense anger, while *rage* generally represents very intense emotion.

4.2.4 ANGER IS A NATURAL FORCE

The above claim is further confirmed by the NATURE metaphor. Below are some examples of this metaphor (12a-c).

(12) a. She felt a sudden *surge* of <u>anger</u>. (JXY 209)

  b. Then as soon as it had come, his <u>anger</u> *subsided* and he smiled. (FU8 2049)

  c. 'And let me tell you,' she swept on, powered by the hot *tide* of <u>rage</u> flowing through her veins. (JXX 1036)

According to Kövecses (1990), the main focus of this metaphor is lack of personal control over the emotion. This aspect can be seen in both *anger* (12a) and *rage* (12c). Interestingly, the verb *subside*, which corresponds to a decrease in emotional intensity, is also a significant collocate of *anger* (12b). No words representing this aspect can be seen in the list of *rage*'s collocates.

4.2.5 The Prototype Scenario

While *anger* represents different aspects of the emotion, *rage* exclusively represents very intense, violent emotion. In Table 3, all of the significant metaphorical collocates are categorized according to different stages of the emotion. The stages

generally correspond to the prototypical cognitive model of ANGER: 1. Emergence, 2. (Intense) Anger, 3. Attempt at control, 4. Loss of control, 5. Act of retribution, and 6 (0). Disappearance (see Section 2.1).

Table 3: Distribution of the significant metaphorical collocates

Stage	*anger* (57 collocates)	*rage* (27 collocates)
1	*flash*_(S), *spark*_(V), *flash*_(V), *rouse*_(V), *arouse*_(V) [5 (8.8%)]	*flash*_(S) [1 (3.7%)]
2	*seethe*_(V), *pent-up*_(A), *well*_(V), *simmering*_(A), *bubble*_(V), *boil*_(V), *rise*_(V), *fill*_(V), *glitter*_(V), *flare*_(V), *blaze*_(V), *fuel*_(V), *flame*_(S), *burn*_(V), *fierce*_(A), *growing*_(A), *violent*_(A), *surge*_(S), *surge*_(V), *wave*_(S), *convey*_(V), *stir*_(V), *deep*_(A), *depth*_(S) [24 (42.1%)]	*boil*_(V), *fill*_(V), *incandescent*_(A), *consume*_(V), *murderous*_(A), *tide*_(S), *towering*_(A) [7 (25.9%)]
3	*suppressed*_(A), *suppress*_(V), *control*_(V), *swallow*_(V) [4 (7.0%)]	*suppressed*_(A) [1 (3.7%)]
4	*outburst*_(S), *explode*_(V), *burst*_(S), *explosion*_(S), *burst*_(V), *uncontrollable*_(A) [6 (10.5%)]	*burst*_(S), *explode*_(V), *burst*_(V), *blind*_(A), *mad*_(A), *beside*_(P), *possess*_(V) [7 (25.9%)]
5	*vent*_(V), *vent*_(S), *howl*_(S), *fit*_(S) [4 (7.0%)]	*vent*_(V), *bellow*_(S), *howl*_(S), *bristle*_(V), *roar*_(S), *roar*_(V), *fit*_(S) [7 (25.9%)]
6	*evaporate*_(V), *drain*_(V), *melt*_(V), *subside*_(V), *fade*_(V), *vanish*_(V) [6 (10.5%)]	[0]
Others	*seep*_(V), *inside*_(P), *impotent*_(A), *direct*_(V), *mixture*_(S), *pure*_(A), *widespread*_(A), *cold*_(A) [8 (14.0%)]	*impotent*_(A), *icy*_(A), *fly*_(V), *cold*_(A) [4 (14.8%)]

Table 3 shows that various metaphorical expressions are used to represent the different aspects of *anger*. As described in 4.2.1, the FLUID metaphor covers most stages of the emotion. On the other hand, most of *rage*'s significant collocates concentrate on the stages of intense anger (Stage 2), loss of control (Stage 4), and act of retribution (Stage 5). There are no significant collocates corresponding to its disappearance (Stage 6). In addition, few significant collocates correspond to the aspects of emergence (Stage 1) or attempt at control (Stage 3). This indicates again that *rage* represents an intense, violent

emotion that cannot disappear without an act of retribution.

4.3 Physiological Effects and Behavioral Responses

We observed above that *anger* and *rage* show some differences in the metaphors with which they are strongly associated. These differences appear to be compatible with the results of the significant metonymical collocates.

Table 4: Metonymical collocates of *anger* and *rage*

Response	*anger* [18 collocates]	*rage* [13 collocates]
SCREAMING/ CRYING	*shout*_(S), *tear*_(S), *scream*_(V), *cry*_(S) [4 (22.2%)]	*scream*_(S), *cry*_(S), *scream*_(V), *weep*_(V), *tear*_(S), *cry*_(V) [6 (46.2%)]
REDNESS/ BODY HEAT	*livid*_(A), *flush*_(V), *darken*_(V), *dark*_(S) [4 (22.2%)]	*scarlet*_(A), *hot*_(A) [2 (15.4%)]
STIFFENING	*speechless*_(A), *taut*_(A), *stiffen*_(V), *tight*_(A) [4 (22.2%)]	*speechless*_(A) [1 (7.7%)]
AGITATION	*quiver*_(V), *tremble*_(V), *shake*_(V) [3 (16.7%)]	*tremble*_(V), *shake*_(V) [2 (15.4%)]
CONTORTION	*contort*_(V) [1 (5.6%)]	*contort*_(V) [1 (7.7%)]
Others	*pale*_(A), *bite*_(V) [2 (11.1%)]	*choke*_(V) [1 (7.7%)]

The most important difference is SCREAMING/CRYING FOR ANGER. Although SCREAMING is connected to FEAR, according to Kövecses (1990), it is also strongly connected to ANGER. Of *rage*'s significant metonymical collocates, almost half (46.2%) go into this category. Below are some examples (13a,b).

(13) a. I *scream* with <u>rage</u>. (HGN 3313)

    b. Blindly, Alan ran to his room, where he beat and punched his bed and *cried* aloud in a <u>rage</u> like a child. (HJH 644)

The strong association between *rage* and SCREAMING/CRYING is compatible with the data on conceptual metaphors. As mentioned above, *rage* is strongly associated with the ANIMAL metaphor, which conceptualizes violent aspects of the emotion. As the ANIMAL metaphor is undoubtedly based on the angry act of screaming, it is

natural that *rage* is strongly associated with this behavioral response.

In contrast, *anger* is associated with different physiological and behavioral responses, such as AGITATION (14a), REDNESS (14b), and STIFFENING (14c).

(14) a. Suddenly Shiona was *trembling* with <u>anger</u>. (JXS 1586)

b. When he came back his face was *livid* with <u>anger</u>. (G04 2468)

c. She was almost *speechless* with <u>anger</u> now. (JY3 934)

With regard to STIFFENING, Kövecses (1990: 71) gives INABILITY TO MOVE ("*she was scared stiff*") and INABILITY TO SPEAK ("*I was speechless with fear*") as metonymies of FEAR. Kövecses does not state that these are metonymies of ANGER, but this study's results indicate that STIFFENING is also an important part of ANGER.

Finally, the data of this study show that *rage* is significantly associated with the verb *choke* as in (15).

(15) My voice came out like a croak — I was *choking* with <u>rage</u>. (BMS 1077)

This section examined the significant metonymical collocates. While *anger* and *rage* share quite many collocates, there are differences that should be noted. First, *rage* is more strongly associated with SCREAMING/CRYING than *anger*. This is compatible with the result that *rage* is more strongly associated with the ANIMAL metaphor. Secondly, *anger* is associated with different responses including AGITATION, REDNESS, and STIFFENING, while *rage* is significantly associated with INABILITY TO BREATHE. Metonymies such as STIFFENING/INABILITY TO BREATHE FOR ANGER have not been much discussed as metonymies of ANGER in previous studies.

5. Conclusion

This study investigated the similarities and differences in metaphors/metonymies between two near-synonyms of ANGER: *anger* and *rage*. With regard to emotion metaphors/metonymies, much discussion has concerned the following two issues: 1) Which conceptual metaphors/metonymies are mainly used for a particular emotion, and

2) which metaphors are the most central to the emotion. As for ANGER, a certain number of metaphors/metonymies have been proposed, and it is generally agreed that the central metaphor for ANGER is ANGER IS A HOT FLUID IN A CONTAINER. However, little attention has been paid to the similarities and differences between near-synonyms. As an exception, Turkkila (2014) compares near-synonyms of ANGER from the perspective of Issue 1 and concludes that near-synonyms of ANGER generally have the same metaphors.

Based on these discussions, the present study attempted to elucidate the similarities and differences of near-synonyms of ANGER from the perspective of the centrality of metaphors/metonymies to the emotion (Issue 2). To determine the centrality, this paper introduced the MI-score method and applied two criteria: 1) A collocate with a higher score is considered to be more central, and 2) the metaphors/metonymies that contain more significant collocates are more central. The analysis showed that ANGER IS A HOT FLUID IN A CONTAINER is the central metaphor for *anger*, whereas *rage* is strongly associated with ANGER IS A DANGEROUS ANIMAL, as well as with the FLUID metaphor. Above all, instantiations of the ANIMAL metaphor tended to top the list of *rage*'s significant collocates. Furthermore, through the categorization of the significant metaphorical collocates, it was found that *anger* represents different aspects of the emotion, while *rage* represents only the intense, violent aspects. This result is supported by the metonymical collocates. In this way, the method proposed in this article is a useful way of studying conceptual metaphors and metonymies.

Notes

1. It is thus important to distinguish conceptual metaphor from metaphorical expression. A metaphorical expression is a linguistic manifestation of a conceptual metaphor. In this article, a conceptual metaphor is called either conceptual metaphor or metaphor, and its linguistic instantiation is called metaphorical expression. Conceptual metaphors are written in capitals.
2. Turkkila's categorization of metaphors appears to be a little different from that of many previous studies, but we do not discuss their validity here. It is nevertheless obvious that the most frequent metaphors are generic-level metaphors.
3. The MI-score is the observed frequency divided by the expected frequency, converted to a base-2 logarithm (Hunston, 2002).

4. The collocates *sethe*_(V) and *seethe*_(V) should be counted as a single collocate *seethe*_(V).

An earlier version of this paper was presented at the 43rd Conference of Japan Association for English Corpus Studies, held at Kwansei Gakuin University in September 2017.

References

Akano, I. (2009). Corpus gengogaku [Corpus linguistics]. In K. Imai (Ed.), *Gengogaku no ryoiki 2* (pp. 125–148). Tokyo: Asakura Shoten.

Church, K. W., & Hanks, P. (1990). Word association norms, mutual information, and lexicography. *Computational Linguistics*, 16(1), 22–29.

Deignan, A. (2005). *Metaphor and corpus linguistics*. Amsterdam: John Benjamins.

Hunston, S. (2002). *Corpora in applied linguistics*. Cambridge: Cambridge University Press.

Kövecses, Z. (1990). *Emotion concepts*. New York: Springer-Verlag.

Kövecses, Z. (2000). *Metaphor and emotion: Language, culture, and body in human feeling*. Cambridge: Cambridge University Press.

Kövecses, Z. (2011). Methodological issues in conceptual metaphor theory. In S. Handl, & H. J. Schmid (Eds.), *Windows to the mind: Metaphor, metonymy and conceptual blending* (pp. 23–39). Berlin/New York: Mouton de Gruyter.

Krishnamurthy, R. (2003). *English collocation studies: The OSTI report*. Birmingham: University of Birmingham Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.

Oster, U. (2010). Using corpus methodology for semantic and pragmatic analysis: What can corpora tell us about the linguistic expression of emotions? *Cognitive Linguistics*, 21(4), 727–763.

Sinclair, J. (1991). *Corpus, concordance, collocation*. Oxford: Oxford University Press.

Stefanowitsch, A. (2004). Happiness in English and German: A metaphorical-pattern analysis. In M. Achard & S. Kemmer (Eds.), *Language, culture, and mind* (pp. 134–149). Stanford: CSLI.

Stefanowitsch, A. (2006). Words and their metaphors: A corpus-based approach. In A. Stefanowitsch & S. Th. Gries (Eds.), *Corpus-based approaches to metaphor and metonymy* (pp. 63–105). Berlin: Mouton de Gruyter.

Suzuki, K. (2010). <Ikari> wo arawasu eigo ruigigo ga motsu metaphor eno senkou: Gainen hiyu riron no shiten kara [Preference of English emotional terms on metaphorical patterns]. *Kobe Papers in Linguistics*, 7, 60–77.

Turkkila, K. (2014). Do near-synonyms occur with the same metaphors: A comparison of anger terms in American English. *Metaphorik.de*, 25, 129–154.

（南澤　佑樹　大阪大学大学院　Email: un_permis_de_conduire@yahoo.co.jp）