LEARN Journal: Language Education and Acquisition Research Network
ISSN: 2630-0672 (Print) | ISSN: 2672-9431 (Online)
Volume: 18, No: 1, January – June 2025

Language Institute, Thammasat University
https://so04.tci-thaijo.org/index.php/LEARN/index

A Corpus Linguistics Analysis of Food Metaphors "Eat Up" and "Consume" through the Lenses of Conceptual Metaphor and Lexical Priming Theories

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APA Citation:
Kheovichai, B. (2025). A corpus linguistics analysis of food metaphors "eat up" and "consume" through the lens of conceptual metaphor and lexical priming theories. *LEARN Journal: Language Education and Acquisition Research Network. 18*(1), 1-22. https://doi.org/10.70730/JLWE1459

Received
09/05/2024

Received in revised form
03/08/2024

Accepted
20/08/2024

ABSTRACT

Research has shown that food metaphors play an important role in humans' conceptualization of various domains of experience. However, insufficient attention has been paid to the phraseology of food metaphors. This research aims to investigate food metaphors and their phraseology. Particularly, this paper focuses on the lemmas "consume" and "eat up." These words were searched for in the Corpus of Contemporary American English. One hundred instances of each grammatical form of "consume" and "eat up" were analyzed, using Conceptual Metaphor Theory (Lakoff and Johnson, 1980) and Lexical Priming tTheory (Hoey, 2005). The results indicate that 16 target domains are conceptualized using both words, with some target domains being exclusive to each word. Analyses of collocations, semantic preferences, and semantic prosody reveal that these two words have different connotations. This research casts light on food metaphors, how they are used for conceptualization, and the collocations that distinguish metaphorical and non-metaphorical uses, as well as the meanings of "eat up" and "consume."

Keywords: metaphor, corpus linguistics, lexical priming, food metaphor, American English

Introduction

Metaphor is commonly used in language and communication (Kovecses, 2010). Although it was traditionally viewed as a literary device used for embellishment, Conceptual Metaphor Theory claims that metaphor is not only a feature of language but reflects cognitive processes (Lakoff & Johnson, 1980). Humans use metaphors to comprehend complex and abstract experiences by transferring knowledge and understanding from a more concrete and familiar experience. This leads to various conceptual metaphors such as LIFE IS A JOURNEY, where people can talk about life as if they are on a journey.

One commonly used source of metaphors is food and eating, which is a domain of experience that is very close to human life (Kovecses, 2010). Expressions such as 'devoured the book' and 'food for thought' (Lakoff & Johnson, 1980, p. 52) are instantiations of the conceptual metaphor that IDEAS ARE FOOD, which is commonly found in everyday communication. Apart from ideas, food can be used to conceptualize many other domains of experience. For instance, it can be used to conceptualize PSYCHOLOGICAL TORMENT, as in "Trepidation gnawed at her (…)" (Newman, 1997, p. 226), and VIOLENCE, as in the phrase "make mincemeat of someone" (Kay, 2016, p. 71).

While conceptual metaphors offer insights into how humans potentially use their experience of food consumption to conceptualize various domains of experience, works that employ traditional Conceptual Metaphor Theory have some limitations. This approach has faced criticism for its reliance on introspection and the lack of any empirical evidence from naturally occurring language, and little attention being paid to the co-occurring linguistic features of metaphoric expressions (Deignan, 2005).

To address these issues, corpus linguistics has been used to study metaphor (Deignan, 2005). Studies have yielded insights into phraseology and the meaning of metaphoric expressions in corpus data. However, to the best of my knowledge, Lexical Priming Theory (Hoey, 2005) has not been explicitly used, except for Patterson (2018), even though this theory can shed light on collocations and the association between metaphors and co-occurring linguistic features.

This paper aims to investigate eating metaphors in American English. Conceptual Metaphor Theory (Lakoff & Johnson, 1980) and Lexical Priming Theory (Hoey, 2005) are used as analytical frameworks to cast light on

conceptual mapping and co-occurring linguistic features that may potentially distinguish metaphorical and non-metaphorical uses of words. This is part of a larger research project and due to space limitations only the results for the metaphorically and non-metaphorically used lemmas, “eat up” and "consume", are presented. The research questions are as follows:

1) What are the target domains of the metaphorical expressions "eat up" and "consume”?

2) What are the collocations, semantic preferences, and semantic prosody of metaphorical and non-metaphorical uses of "eat up" and "consume"?

Literature review

Conceptual Metaphor and Food Metaphor

According to Lakoff and Johnson (1980), the essence of metaphor is thinking and talking about one thing in terms of another. Metaphors occur in thought, and they are instantiated in language. In everyday life, people use metaphors when they talk about various topics. By way of illustration, EATING is a basic bodily function of humans and this experience influences humans to talk about various domains of experience, using metaphorical expressions. For instance, ideas are conceptualized as food, as shown in the expressions “food for thought” and “He devoured the book” (Lakoff & Johnson, 1980, p. 52).

Based on Conceptual Metaphor Theory, these metaphorical expressions are not simply linguistic expressions. Instead, we can understand one domain of experience in terms of another when there are systematic correspondences between two domains of experience (Kovecses, 2010). These systematic correspondences allow us to transfer our understanding of one domain onto another. That is, we map the concepts from one domain of experience onto another domain of experience. We transfer concepts and understanding from a source domain to the target domain.

Studies that investigate eating metaphors are based on various sources of data. Pioneering work, such as that by Kovecses (2010), was based on introspection and intuition. Such a method, however, lacks empirical evidence to support the analysis. A number of studies are based on dictionaries and thesauri (cf. Alsadi, 2017) or literary works (Newman, 1997). Some studies are based on translating metaphorical expressions noted in previous studies in a different language (Quy, 2016). While some forms of data have been collected, the scope was limited and metaphorical expressions were not investigated in their context of use. In addition, studies have focused

on a particular discourse or genre, such as videos (Spilioti, 2019), casting light on the meaning and ideological motivation for using metaphors. However, those findings cannot be generalized to language in general. Recently there have been more studies that used corpus linguistics methods based on large corpus data (cf. Boontam, 2019), rendering the findings more generalizable. Given the potential that corpus linguistics can offer to metaphor studies, the following section discusses definitions and key terms in corpus linguistics, as well as the use of corpus linguistics to study metaphor.

Corpus Linguistics, Lexical Priming, and Metaphor

A corpus is defined as a collection of naturally occurring texts that are selected in a systematic and purposeful manner for electronic storage and analysis using computer software, such as a concordance program (Biber et al., 1998; Hunston, 2002). This type of analysis allows researchers to make generalizations about a larger population based on the sample in the corpus and apply statistical methods in data analysis (Baker, 2023).

Corpus linguistics provides a vast data source for the examination of metaphors in language and can validate the outcomes from non-corpus-based studies. For instance, studies have compared results from introspection with corpus-based studies, such as examination of the ANGER IS FIRE metaphor (Stefanowitsch & Gries, 2006), which identified more metaphorical expressions than prior introspection-based studies.

Corpus linguistics also supports analysis of the phraseology of metaphorical expressions. Research has shown that metaphorical expressions often exhibit restricted phraseology (Deignan, 2005), such as in the example "The announcement will be a heavy blow to investors" (Deignan, 2008, p. 287), where the phrase "heavy blow" is a metaphor for a substantial economic impact, conceptualized as a physical attack.

One theory that casts some light on phraseology is Lexical Priming Theory (Hoey, 2005). It is a phenomenon in which the presence of a word or concept can influence the processing and interpretation of subsequent words or concepts. It is the mental associations and connections that people have between different words and concepts. This led Hoey (2005) to propose Lexical Priming Theory as a psychological explanation of language use. Simply put, when humans are exposed to language input, they make mental associations between words and their linguistic environment. When a word or concept is primed, it can influence the way that subsequent words or concepts are processed and interpreted, reflecting the mental connections that exist between them.

There are four kinds of association, namely, collocation, colligation, semantic preference, and semantic prosody. Collocation refers to the association between a word and other words that tend to occur near it. Thus, when we encounter a word, we tend to think of those other words and this can be investigated through psycholinguistic experiments and corpus data.

Hoey (2005) states that the associations made in our minds are not confined to collocation. Colligation refers to the grammatical association between words and their common linguistic environment. Semantic preference or semantic association is the semantic environment surrounding a word. We tend to find that some words are restricted to occurring in a particular semantic environment. Evidence for this association derives from grouping the collocations of a word based on the meaning they share. Semantic prosody refers to the attitudinal meaning of a word as derived from the co-occurring linguistic environment. It is a connotative meaning of a word that needs to be interpreted from the context. By way of illustration, Stubbs (1995) offers an example of the lemma "cause." He argues that it tends to co-occur with negative words, such as "accident," "alarm," and "injury." These negative words can be sorted into the semantic preferences of abstract nouns, as in "alarm" or the medical words "cancer" and "disease." All of these indicate the negative semantic prosody of "cause." As for colligation, Hoey (2005) analyzed the position of "consequence" in sentences in a corpus of news articles and found that it tends to occurs in the adjunct position, modifying the whole sentence when occurring in the phrases "as a consequence" or "in consequence."

Studies have analyzed both metaphorical and non-metaphorical uses of words, using theories like Lexical Priming (Hoey, 2005). For instance, Patterson (2018) analyzed the words "cultivated," "flame," and "grew" in a corpus of 19th-century novels, and found distinctive features of metaphorical and non-metaphorical uses of these terms, such as the co-occurrence of cultivated with words related to humans, perceptive organs, and human qualities when used metaphorically, versus co-occurrence with plants and land when used non-metaphorically.

There has been increasing use of corpus linguistics methods to study metaphors. The use of corpus linguistics can offer stronger empirical support for the claims made by Conceptual Metaphor Theory. What is more, it is possible to observe linguistic features associated with metaphorical expressions such as collocation and word classes (Deignan, 2005).

Methodology

Data

The data for this study are based on the Corpus of Contemporary American English (Davies, 2020), or COCA. This corpus of American English is very comprehensive and widely used. It is composed of more than a billion words from eight genres: spoken, fiction, popular magazines, newspapers, academic texts, TV and movie subtitles, blogs, and web pages. COCA contains more than 25 million words of corpus data collected each year from 1990 to 2019, with an even distribution of genres.

Metaphor Retrieval and Identification

To retrieve metaphors from this corpus, the study selected metaphorical expressions noted in previous literature, namely, Lakoff and Johnson (1980), Newman, (1997), and Kay (2016). For instance, Lakoff and Johnson (1980, p. 50) noted expressions such as "devoured the book" and "spoon-feed our students," while Newman (1997, p. 217) collected data from literary works and provided examples such as "…he wanted to eat me up," and Kay (2016, p. 71) made observations from the Historical Thesaurus of the Oxford English Dictionary, providing several expressions related to food and how they acquired metaphorical meanings over time. By way of illustration, Kay gave an example where "consume" is used metaphorically to convey a sense of destruction. However, only verbs are included, and they must be related to EATING, not COOKING or PREPARING FOOD. Thus, words such as 'jell', 'cook up', and 'percolate' were excluded. A word should not be related to other source domains. Furthermore, as this study aims to analyze the lexico-grammatical features associated with metaphorical and non-metaphorical uses of eating terms, they should have high frequency. Thus, each grammatical variant of a word must occur at least 100 times in the corpus.

The search term to be used in COCA can be formulated as follows: [EATING TERM]_vv. Here, the square brackets indicate that all the grammatical variants are accounted for. The part of speech tag '_vv' was used to ensure that only verbs are included. Thus, no nouns, adjectives, or other word classes were included. For example, to search for the words "eat up", the following search term was used: [eat]_vv up. Here, all the grammatical variants of the words "eat up" were accounted for. One hundred concordance lines of each grammatical variant were randomly selected from

COCA for analysis. This resulted in 500 lines of "eat up" and 400 lines of "consume."

The concordance lines noted in previous sections were analyzed for metaphorical and non-metaphorical uses. The process for identifying metaphors is derived from a protocol called the Metaphor Identification Procedure (MIP), which consists of the following:

> 1. Read the text or discourse in its entirety to grasp the overall meaning.
> 2. Analyze and divide the text into lexical units, which could be words or multi-word expressions.
> 3. Determine the contextual meaning of lexical units.
> 4. Compare the contextual meanings with the basic or literal meanings of lexical units.
> 5. If there is a contrast between contextual and literal meanings, the lexical unit is marked as metaphorical. (Pragglejaz, 2007, p. 3)

Metaphor Analysis

After the metaphorical and non-metaphorical uses of the search terms were identified, co-occurring linguistic features were investigated and compared for each grammatical variant of the search term. The co-occurring linguistic features werein line with Lexical Priming Theory (Hoey, 2005), comprised collocation, semantic preference, and semantic prosody. Analysis of colligation is not included in this paper as it does not seem to heavily influence the meaning of metaphorical expressions. Statistical tests are not employed to determine these co-occurring linguistic features. Although COCA is equipped with a collocation function, it cannot calculate the collocation of metaphorical and non-metaphorical uses separately. Furthermore, collocation is calculated based on the frequency of co-occurrences of individual words. Baker (2023) argues that such an approach might exclude low-frequency collocates, which can be grouped together as a semantic category with relatively high frequency. Thus, in light of this, the researcher needed to make observations manually by reading through concordance lines. Furthermore, only semantic groups of collocates with a frequency of at least five tokens in the metaphorical or non-metaphorical uses of one of the lemmas were included in the analysis.

Results

This section reports on the analysis of the metaphorical expressions "eat up" and "consume". First, the target domains conceptualized by these two metaphorical expressions are presented with examples. After that, analysis of the linguistic features of metaphorical and non-metaphorical uses is expanded on in relation to Lexical Priming |Theory (Hoey, 2005).

Concordances of metaphorical and non-metaphorical uses at a glance

This section centers on the analysis of collocation, semantic preference, and semantic prosody associated with "eat up" and "consume." It aims to contrast the metaphorical and non-metaphorical uses of these terms. Also, contextual meanings and co-occurring target domains are discussed. This can shed light on the cross-domain mapping, meanings derived from context, semantic preference, and semantic prosody of "eat up" and "consume."

The analysis of concordance lines indicates that context plays an important role in identifying the metaphorical and non-metaphorical meanings of the lemmas "eat up" and "consume." Analysis of the target domains led to the observation of collocation and semantic preference that distinguish between the metaphorical and non-metaphorical uses of "eat up" and "consume." Tables 1 and 2 shows example concordance lines of each word. The first five lines in each table demonstrate metaphorical uses of the words, whereas the last five lines in each table show non-metaphorical uses of the words.

Table 1

Sample concordances of 'eat up'

1	low level rube investor readily	eats	up the cheerleading and propaganda crap
2	to do or not. I just, I was	eaten	up by hate. I wanted him to die like a
3	of your body weight, but it	eats	up about 20 percent of your oxygen
4	housing costs, which typically	eat	up 40% of retirees' budgets, according to
5	responsibilities I had always	ate	up a good chunk of time. I threw back
6	beast! Hay? I can't eat hay.	Eat	up! You have a busy day ahead of you,
7	urged the boys, " Come now,	eat	up your porridge quickly. You don't
8	I guess. Listen. You better	eat	up before that gets cold. Yeah, um --
9	tried to get away he would be	eaten	up by alligators and stuff like that.
10	along came a rabbit and	ate	up all the cabbages. The woman said...

Table 2

Sample concordances of "consume"

1	country forward. Dang, he just	consumes	the news with negativity.
2	frightened by the passion that	consumed	her. She told no one of these
3	Chronic leaks in pipes already	consume	20 percent of the water carried by
4	billion interest bill on this debt	consumes	about 50 percent of the earnings
5	to Hartford, a city increasingly	consumed	by battles over who is to blame for
6	Roger Ivester has juiced and	consumed	5 pounds (2.3 kilograms) of carrots
7	men found that those who	consumed	about two to three drinks per day
8	35 billion glasses of iced tea	consumed	last year accounted for an
9	hatching, the wasp larva will	consume	the resident fly. // The Eurostar
10	lightheaded. " Experts suggest	consuming	1,800-2,400 calories a day,

From Table 1, it can be seen that the collocation observable in the concordance lines can distinguish metaphorical from non-metaphorical uses. Thus, "eat up" in lines 1–5 co-occurrs with words that are not related to food. In line 1, it co-occurs with propaganda, indicating the source domain of IDEA. In line 2, "I," a human subject, is construed as being eaten up by the emotion of hate. In line 3, oxygen intake is conceptualized as food consumed by the brain. In line 4, budgets are conceptualized as FOOD eaten up by housing costs, thereby indicating a FINANCIAL RESOURCES ARE FOOD metaphor. In line 5, time is conceptualized as being eaten up by responsibilities, indicating the conceptual metaphor TIME IS FOOD. In contrast, lines 6–10 "eat up" co-occur with words related to food, drink, or drugs that can be physically eaten, as in "mealtime," "porridge," and "cabbages," respectively. Line 9 shows an example where a human could become alligators' food as well. These examples indicate the crucial role that collocation plays in determining the meaning and uses of these words.

Regarding the word "consume" in Table 2, the concordance lines also show collocations that indicate metaphorical uses in lines 1–5. In line 1, it co-occurs with "news," suggesting the conceptual metaphor IDEAS ARE FOOD. In line 2, "her", used as a human object in the sentence, is consumed by the emotion of passion. In line 3, although the collocation 'water' can be physically consumed, in this context it refers to wasting water. This is because the grammatical subject is "chronic leaks," which is inanimate. Therefore, in this context, "chronic leak" is conceptualized as humans who consume large amounts of water wastefully. In line 5, the city "Hartford" is conceptualized as food that is consumed by battles. This example indicates that social groups are destroyed by conflicts, like food being masticated and consumed by humans. Lines 6–10 show instances where "consume" is used metaphorically.

These can be seen from the collocations of "consume", which are related to food, drink, or animals. In line 6, the word "carrots" is food that is consumed. In lines 7 and 8, the words "drinks" and "iced tea" are beverages that are consumed. Line 9 shows an example of animals eating other animals. In line 10, the collocation of "calories" indicates food that people consume and receive calories from.

Apart from this type of collocation, closer observation reveals that there are collocations that contribute to the pragmatic meaning of these words. By way of illustration, regarding the words "eat up," in line 1, the word "readily" seems to indicate eagerness, whereas "propaganda crap" seems to show a negative attitude towards the reliability of the idea. Lines 3–5 contain words denoting an amount. Based on the context, they also seem to indicate the excessiveness of the amount. In the case of "consume," collocations that affect its pragmatic meaning can also be identified. For instance, in Line 1, the emotion word "negativity" co-occurs with "consumes." This may indicate the negative semantic prosody of "consume." Another negative emotion can be detected in the word "frightened" in line 2, which corroborates the negative emotion associated with "consume." Lines 3 and 4 illustrate instances where "consume" co-occurs with words signifying a large amount. From the context, it might even be argued that "consume" in lines 3 and 4 implies a sense of wasteful resources that could be used more efficiently. While words related to AMOUNT also co-occur with non-metaphorical uses of "consume," as shown in lines 6–8 and 10, it seems to primarily convey information about quantity. The co-occurrences with the semantic groups discussed above provide a basis for further investigation, which is discussed in the next section.

Target domains and collocations of "eat up" and "consume"

This section discusses the target domains that are conceptualized using the eating source domain, as evidenced through the metaphorical expressions "eat up" and "consume." Fifteen metaphorical target domains are identified for both "eat up" and "consume." In Table 3, each target domain is presented with an example from each metaphorical expression. Target domains that are exclusive to either "eat up" or "consume" are shown in Table 3, along with examples from the corpus data. Metaphorical expressions of "eat up" and "consume" are italicized, while words instantiating the target domains are underlined. There is only one distinctive target domain in "consume" and two distinctive target domains in "eat up." The former is EMOTION, whereas the latter consists of LIGHT AND DARKNESS.

Table 3

Target domains and examples

Target domain	Excerpts from metaphorical expressions
Idea	1. This was the case with the little book that Ezekiel was commanded to *eat up*. 2. This would meet the needs of those readers who *consume* 1-20 books a year.
Human	3. I just, I was *eaten up* by hate. I wanted him to die like a dog. 4. This case is about a man who was *consumed* with his desire to keep his accumulated wealth.
Natural resources	5. All of these *eat up* scarce resources. 6. As a group, Americans *consume* a disproportionate amount of the earth's resources (…)
Places	7. (…) prevent suburban sprawl that *eats up* farmland 8. The fire that *consumed* the campground in 1937 ended the meetings as biphasic festivals;
Mind and attention	9. (…) during the Fourth of July parade last year, head hanging out the window, *eating up* all the attention. 10. Because when your own nervousness *consumes* all your available attention, there's little left for anybody else.
Activities	11. (…) slowed to a crawl as he fell unconscious and the crowd was roaring wildly, *eating up* the insane action unfolding. 12. (…) not because there is a lack of enough Chinese Yuan that the poor are not *consuming* more spa treatments and more dog psychologists.
Money and valuables	13. (…) the bank and the fed each *eat up* 50k with the fed getting a promissory note for 50% of any sale value(…) 14. The annual $3.6 billion interest bill on this debt *consumes* about 50 percent of the earnings on Poland's merchandise exports to the West.
Sound	15. The big rifle fired, and the Killflash *ate up* the noise as the bullet entered beneath the right armpit of the officer, 16. He argues that music is now *consumed* by the American public in greater quantities than ever before.
Physical objects and machines	17. We should make a robot that *eats up* all the garbage, then we can blast it to Jupiter. 18. 70 percent of the goods they *consume* come from the United States.
Society and organization	19. The teeth and the toughness to *eat up* the world. "With a broad, tenacious hand gesturing toward the horizon 20. Even at a time when the *EU* is *consumed* by internal problems (…)
Multimedia	21. certain colors can really just *eat up* everything in the picture. So I try to keep a tonality over the (…) 22. Today, the media we *consume* are more dependent on sound than ever.

Energy	23. Power savings appear to be *eaten up* by processor and screen demands (…) 24. (…) used on a smaller scale to relate, for example, the amount of energy *consumed* in buildings to the amount of residential or commercial floor space.
Time	25. Tech support alone will *eat up* many hours in a day (…) 26. (…)the Bears marched downfield time after time, methodically *consuming* the clock to keep Stanford's high-powered offense off the field.
Electronic resources	27. It *ate up* all of my bandwidth, and within a month, it told me it (…) 28. " Right now, UPMC's health data – not including human genome records – *consumes* about 6 petabytes worth information.
Economy and markets	29. Unchecked capitalism eventually *eats up* the very markets it wishes to sell to. 30. The actual the majority the adventure programmes *consume* a seasoned retail store in order to boost your current low-cost jordans (…)
Emotion	31. (…) violence was rising, in a spiral that eventually *consumed* the remaining goodwill on both sides.
Light and darkness	32. I had a candle, but the black rock just *ate up* all the light.
Other	33. Social Security is *eating up* its political capital now. 34. (…) art history is more likely to *consume* itself, or to implode under its own weight. (…)

A closer look at the collocations instantiating the target domains indicates that there are noticeable similarities and differences between the collocations of "eat up" and "consume." In what follows, examples of collocations will be provided with the numbers of their occurrences, but when a collocation occurs only once, no number is provided. In the target domain of IDEA, the lemma "eat up" co-occurs with neutral words such as "book" and "story," but also negative words such as "propaganda." In contrast, collocations of "consume" are all neutral words, as in "short story," "content" (2 instances), and "books." This indicates that, in terms of semantic prosody, "eat up" can be used to convey a negative meaning about believing negative ideas without critical thinking, as shown in the word "propaganda." Regarding the target domain of HUMAN, words associated with human, the human body, and pronouns are identified as collocations of "eat up" and "consume." For instance, "eat up" co-occurs with "he" (8 instances) "life" (3 instances), and man, while "consume" co-occurs with "life" (7 instances), "you" (6 instances), and "people." This indicates that humans are conceptualized as food to be consumed, rendering them powerless against the metaphorical agents that consume or eat them up. Further investigation

reveals that metaphorical agents can be illnesses, emotions, or social groups. This will be discussed further in the section that follows.

In terms of NATURAL RESOURCES, both "eat up" and "consume" co-occur with similar words, namely, "resources" (5 instances for "eat up" and 6 instances for "consume") and "land" (1 instance for "eat up" and 2 instances for "consume"). There are also collocates that are unique to each word, such as "oxygen" co-occurring with "eat up" and "woods" occurring with "consume." In the target domain of BUILDING, example collocations of "eat up" are "ground" (3 instances), "track" (2 instances), and "space" (2 occurrences). In the context of this target domain, "eat up" conveys a sense of taking up space or it can also mean moving swiftly. Example collocations of "consume" are "Duplex," "campground," and "establishment." This, on the other hand, conveys a sense of destruction, as in "The fire that consumed the campground in 1937(....)" and "(…) a fire that consumed a Riverdale duplex." Thus, when "consume" is used with the BUILDING target domain, it tends to be in a negative sense, referring to destruction.

With regard to MIND AND ATTENTION, there are only two collocations of "eat up," namely, "attention" and "spotlight." On the other hand, "consume" has a wider variety of collocations and examples, including "thoughts," "attention," and "mind." In the context of this target domain, these words convey a sense of occupying someone's mind or attention. With respect to the target domain of ACTIVITIES, example collocations of "eat up" are "innings" (3 instances), "uppercut," and "high school civic." As for "consume," example collocations are "services," "spa treatments," and "writing." The distinction between "eat up" and consume seems to be that while "eat up" tends to be used in the domain of sport and aggressive action, as shown in the collocates "uppercut" and "innings," "consume" tends to be used in either the sense of benefiting from activities, as in "spa treatments," or doing laborious activities that take a long time, as shown in "(…) writing is an exhausting, consuming, draining business (...)."

With regard to the target domain of MONEY AND VALUABLES, example collocations of "eat up" are "budgets" (16 instances), "income" (7 instances), and "savings" (6 instances). Example collocations of "consume" are "budgets" (2 instances), "revenues," and "earnings." Both words convey a sense of using a large amount of money or valuables. In the case of SOUND, while both can convey a sense of listening to sound or music, "eat up" can also convey a sense of noise-canceling, as well. This can be seen from the example below. However, the excerpt looks slightly dubious since the kill flash is antiglare equipment, not a noise-canceling device. Still, the co-occurrences of "ate up" and "noise" are not affected by this potential error.

> 35. The big rifle fired, and the Killflash *ate up* the noise as the bullet entered beneath the right armpit of the officer (…)

The PHYSICAL OBJECTS AND MACHINES source domain reveals some similarities between "eat up" and "consume." Collocations within this category consist of words related to machines, as in "scantron machine" and other physical objects that are man-made, such as "garbage" and "hardware." Collocations associated with EMOTION only appear with "consume." In excerpt 36, emotions are construed as being destroyed. Additionally, emotions can be construed as being cherished, as in excerpt 37.

> 36. (…) violence was rising, in a spiral that eventually *consumed* the remaining goodwill on both sides.

> 37. (…) I trust and hope that in that moment she also eats and drinks and *consumes* Christ's love for her. I say goodbye, assuring her I will see (…)

With respect to SOCIETY AND ORGANIZATION, collocations of both words are related to social groups, which can be large or small. In the case of "eat up," this metaphor conveys a sense of destruction, While "consume," on the other hand, conveys a sense of overwhelming, causing trouble for social groups to the point of overwhelming them. As for LIGHT AND DARKNESS, only collocations of "eat up" can be identified in this category. Here, light is conceptualized as being covered, whereas darkness, that is, shade, is conceptualized as being eaten up by a shining light.

In the MULTIMEDIA category, the collocations of "eat up" seem to be more emotional than those of "consume." This can be seen from emotive words such as "this crap," which refers to a bad movie. Also, the word "everything," as in "everything they see and hear," may indicate eagerness, as the agent tries to enjoy every part of the multimedia. The ENERGY category shows similarities between "eat up" and "consume." Regarding TIME, it seems that while "consume" occurs with general words, as in "time" and "clock," "eat up" co-occurs with more specific words, such as "55 hours a week" and "many hours in a day."

Collocations within the semantic category of ELECTRONIC RESOURCES reveal various kinds of electronic resources that are conceptualized as food. These can be generic words, as in "data," memory in a computer, as in "memory," or Internet data, as in "bandwidth."

The ECONOMY AND MARKET category shows some differences between "eat up" and "consume." While "consume" tends to co-occur with

business organizations and people, as in "retail store" and "investors," respectively, "eat up" co-occurs with "market" (2 instances) and processes, as in "domestic production." In the other category, the collocation of "eat up" is "art history." On the other hand, "consume" co-occurs with "complexity," "political capital," and "bread." Although "bread" is food, the context of this example is that bread is being burned by the fire, making it metaphorical. The analysis of collocations for each target domain leads to the identification of similarities and differences between "eat up" and "consume" in terms of meanings and uses. Although the same target domains are identified, differing collocations reveal different connotative meanings. This indicates the importance of contextual usage and the usefulness of lexical priming in elucidating differences.

Regarding the frequency of the target domains, the following observation can be made. Overall, the words "eat up" are used metaphorically more frequently than "consume" (80.8% vs 59%). While the percentages of the target domains seem to be relatively close for both words, sharp contrasts can also be identified. The target domain ENERGY occurs with much higher frequency with the word "consume." On the other hand, the target domains of MONEY AND VALUABLES and "time" occur much more frequently with "eat up."

Table 4

Frequencies of the target domains

Target domain	**"consume"**		**"eat up"**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Idea	10	2.5	23	4.6
Human	48	12	60	12
Natural resources	25	6.25	27	5.4
Places	5	1.25	26	5.2
Mind and attention	5	1.25	2	0.4
Activities	4	1	15	3
Money and valuables	12	3	114	22.8
Sound	3	0.75	4	0.8
Physical objects and machines	16	4	16	3.2
Emotions	10	2.5	0	0
Society and organization	10	2.5	9	1.8
Light and darkness	0	0	2	0.4
Multimedia	6	1.5	9	1.8

Energy	44	11	8	1.6
Time	19	4.75	66	13.2
Electronic resources	11	2.75	12	2.4
Economy and markets	5	1.25	8	1.6
Other	3	0.75	3	0.6
Total metaphorical	236	59	404	80.8
Total non-metaphorical	164	41	96	19.2

Collocations influencing pragmatic meanings

Concordances of metaphorical and non-metaphorical uses of "eat up" and "consume" were analyzed for collocations and semantic preferences that may influence their meanings and uses. The analyses revealed the following semantic groups. In what follows, the semantic groups and examples are provided. It is important to note that some semantic categories may only occur with either "eat up" or "consume." As a consequence, the number of examples in each category might differ. Table 5 shows semantic preferences and examples from the corpus. The metaphorical expressions of "eat up" and "consume" are italicized, while collocations associated with semantic preferences are underlined.

Table 5

Semantic preferences and examples

Semantic preference	**Examples**
Violence	38. Drivers coming to Poland should drive aggressive at all times, or be *eaten up*. 39. Part of being a serial killer is to *consume*, to eradicate, to end the lives of others …
Eagerness	40 (…) the Apollo program spurred my interest in science and I *ate up* everything I could about Apollo.
Animal	41. We were sunburned and *eaten up* with black fly bites
Illness	42. (…) should have let her die naturally from the cancer, most probably in pain, *eaten up* inside. 43. (…) a woman's eating disorder affects all of these areas until it eventually *consumes* her life (Parks &; Read, 1997).
Speed	44. Work at highly contaminated areas could quickly *eat up* a worker's quota.

Sport	45. (…) a veteran group of receivers and a very efficient quarterback, and frankly they just *ate up* LSU's younger corners with good route running on a lot of underneath throws…
Amount	46. Grubhub's profits were *eaten up* by a 60-percent increase in sales and marketing costs, to $74.1 million. 47. It *consumes* 39% of the world's copper, 36% of the nickel …
Emotion	48. I just, I was *eaten up* by hate. 49. I believe she is speaking FROM a person that has done wrong and is *consumed* with guilt and regret.
Task	50. One project, he says with disgust, *ate up* 400 engineer years about 6 million working hours before it was killed. 51. As time passes Hope's life is *consumed* with domestic duties.
Fire	52. Most of that oxygen got *ate up* by the fire on its way out the door. 53. In Southern California, fires have *consumed* over 567,000 acres.

Table 6 shows the categories of semantic preferences of "eat up" and "consume," and the frequency distribution and percentage in relation to the total metaphorical/ non-metaphorical uses of each word. Please note that not all instances contain collocations of this kind and thus the percentage numbers may not add up to 100.

Table 6

Frequencies of semantic preferences

Semantic preference	**"eat up"**				**"consume"**			
	metaphorical	**%**	**nonmetaphorical**	**%**	**metaphorical**	**%**	**nonmetaphorical**	**%**
Violence	10	2.48	0	0.00	14	5.93	3	1.83
Eagerness	16	3.96	0	0.00	1	0.42	1	0.61
Animal	9	2.23	20	20.83	0	0.00	16	9.76
Illness	10	2.48	0	0.00	2	0.85	4	2.44

Speed	9	2.23	1	1.04	1	0.42	1	0.61
Sport	11	2.72	0	0.00	1	0.42	0	0.00
Amount	164	40.59	7	7.29	77	32.63	74	45.12
Emotion	21	5.20	0	0.00	44	18.64	5	3.05
Task	33	8.17	0	0.00	6	2.54	0	0.00
Fire	5	1.24	0	0.00	14	5.93	0	0.00
Total	289	71.55	65	67.7	160	67.78	104	63.42

Analyses of collocations indicated a distinction between metaphorical and non-metaphorical uses of "eat up" and "consume." In the case of "eat up," metaphorical uses are associated with excessiveness, eagerness, emotion, illness, task, and violence. Non-metaphorical uses are more frequent with animal words to describe animal behaviors. It seems, then, that metaphorical uses of "eat up" convey a sense of using something excessively, as shown in collocations related to the amount of something. In addition, there are words related to eagerness and emotions of other kinds, further intensifying the emotive sense conveyed through the collocations that are associated with the target domains. A negative sense is also observed when illness is described as eating up humans, as shown in example 42. Here, humans are powerless, as they are eaten up like food, as illness damages the body. "Eat up" also occurs with violent collocations, while its meaning is also one of destruction. Finally, collocation associated with tasks seems to indicate that tasks take a very long time, supporting a sense of excessiveness.

In terms of "consume," both similarities and differences can be identified between its metaphorical and non-metaphorical uses. Unlike "eat up," the metaphorical and non-metaphorical uses of "consume" frequently co-occur with words related to the amount of something. However, a disparity can be observed in that metaphorical uses tend to co-occur with words associated with emotion and violence. Emotions are conceptualized as consuming humans, giving a sense of being overwhelmed and helplessness. This indicates a high intensity of emotion, to the point where emotions seem to be out of control. What is more, "consume" co-occurs with violent words, suggesting the semantic prosody of aggression.

The analyses of semantic preferences indicates similarities and differences between "eat up" and "consume." Both frequently co-occur with words related to amount, but "eat up," when used non-metaphorically, does not. This suggests that a sense of excessiveness is present when "eat up" is used metaphorically, while "consume" conveys a sense of excessiveness when used both metaphorically and non-metaphorically.

Furthermore, metaphorical uses of these lemmas are associated with both emotional words and violent words, but not when they are used non-

metaphorically. This may indicate that metaphorical and non-metaphor uses of these words result in different semantic prosodies. The two lemmas also differ in that the metaphorical uses of "eat up" co-occur more frequently with collocations associated with eagerness and task than metaphorical uses of "consume" (3.96% vs 0.42% for eagerness; 8.17% vs 2.54% for tasks). Eagerness shows desire and enthusiasm, whereas tasks tend to indicate burdens that take a long time to complete. Non-metaphorical uses of "eat up" and "consume" co-occur with animal terms. This indicates that these words are not frequently used metaphorically in the context of animal behaviors. Instead, they are more likely to be used metaphorically when describing humans and society. By contrasting metaphorical and non-metaphorical uses, we can discern the meanings and uses of these words in a more detailed manner.

Discussion and Conclusion

This paper has investigated the metaphorical and non-metaphorical uses of "eat up" and "consume." Data were drawn from the Corpus of Contemporary American English, COCA, and analyses focused on target domain identification, collocation, semantic preferences, and semantic prosody of these two words and comparisons of their metaphorical and non-metaphorical uses. The results indicate that there are 15 target domains where these words are used to conceptualize. These comprise the following: 1) IDEA, 2) HUMAN, 3) NATURAL RESOURCES, 4) PLACE, 5) MIND AND ATTENTION, 6) ACTIVITIES, 7) MONEY AND VALUABLES, 8) SOUND, 9) PHYSICAL OBJECTS AND MACHINES, 10) SOCIETY AND ORGANIZATION, 11) MULTIMEDIA, 12) ENERGY, 13) TIME, 14) ELECTRONIC RESOURCES, and 15) OTHER. On the other hand, the target domain of EMOTION was only identified in "consume," whereas LIGHT AND DARKNESS were only identified in "eat up." Moreover, the frequency distributions of the target domains were different. MONEY AND VALUABLES and TIME were more frequent in "eat up," but ENERGY was much higher in "consume."

A closer look at the collocations of "eat up" and "consume" revealed both similarities and differences among different semantic groups and resulted in different semantic prosodies. This could be gleaned from the semantic preferences of collocations instantiating target domains and those conveying pragmatic meanings. Findings indicate that context plays an important role in the meanings and uses of metaphorical expressions. In addition, surrounding co-texts can help to distinguish metaphorical and non-metaphorical uses. This, then, indicates the usefulness of Conceptual

Metaphor Theory, which might influence the meanings and conceptualizations of words. However, it is limited in that it cannot cast light on contextual meanings and usages. Therefore, Lexical Priming Theory can supplement this aspect to paint a fuller picture of how "eat up" and "consume" are used.

This research has various teaching implications. It suggests how collocations of metaphorical and non-metaphorical uses of "eat up" and "consume" might be motivated by various food metaphors. Furthermore, the analysis of lexical priming might facilitate students' understanding and enable them to use these words more accurately. As students often struggle with the phraseology of metaphorical expressions, findings related to collocation, semantic preference, and semantic prosody can be applied to raise students' awareness of the typical phraseology associated with metaphorical and non-metaphorical uses of "eat up" and "consume."

Despite the insights afforded by the applications of Conceptual Metaphor Theory and Lexical Priming Theory, as well as their teaching implications, there are some limitations associated with this study. First, only American English is represented in the data. In consequence, future studies should compare findings in other varieties of English to see if similar or different patterns emerge. Second, this study has not compared across registers. Given the role of register in metaphor variation (Deignan et al., 2013), future studies should compare the conceptualization and phraseology of metaphors across different registers. In addition, this study has focused on words noted in previous studies, thus the findings are limited to these. Future studies could use a more open-ended approach via the use of semantic annotation programs such as Wmatrix (Hardie et al., 2008), or explore a wider variety of search terms. This can hopefully lead to painting a more comprehensive and complete picture of food metaphors, their meanings, and uses, and promoting successful communication.

Acknowledgements

This research received research funding from the Research, Innovation, and Creative Fund, Faculty of Arts, Silpakorn University, in the fiscal year 2024. I'd also like to express my heartfelt gratitude to the reviewers who offered constructive feedback on this paper. Special thanks go to the research assistants who facilitated the research process.

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