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# *Frittering away the day*: Creating an inventory of metaphorical collocations in English

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#### Abstract

Collocations, words that habitually go together, such as "to book a meeting", represent a peculiar linguistic phenomenon that has resulted in numerous studies by linguists and applied linguists, especially those in search of the mechanisms of words forming a companionship and of the effective techniques of teaching and learning collocations in another language. Recently, a new avenue of research has emerged with the aim of exploring metaphorical collocations viewed as "a type of a collocation in which the collocate is used figuratively and the base literally" (Patekar 2022), such as "a big day". There are a number of challenges when it comes to identifying and analyzing metaphorical collocations. Hence, the aim of this paper is to outline the steps and issues in creating an inventory of metaphorical collocations in English. Using a corpus-driven approach, collocations with the noun "day" as the base were extracted automatically, and metaphorical collocations were identified and analyzed manually. The results highlight the challenges in identifying and analyzing metaphorical collocations and outline the steps in creating an inventory of metaphorical collocations. Furthermore, distinguishing collocations from free combinations on the one hand and idioms on the other remains an ongoing challenge in linguistics, which also applies to metaphorical collocations. This has several implications. Firstly, without a better corpus analysis tool, research is bound to rely on manual analysis with all its drawbacks. Secondly, creating an inventory has proven to be the first step in shedding light on metaphorical collocations. Thirdly, an inventory based on the most frequent nouns across different languages is the foundation for further cross-linguistic study of metaphorical collocations.

Keywords: metaphors, metaphorical collocations, corpus research, Sketch Engine, English

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# *Frittering away the day:* создание инвентаря метафорических коллокаций в английском языке

# Я. ПАТЕКАР 🗅 🖂

#### Аннотация

Коллокации – слова, которые привычно сочетаются друг с другом, например, to book a meeting, – представляют собой своеобразное языковое явление, ставшее предметом многочисленных исследований лингвистов, особенно тех, кто исследует механизмы образования слов-компаньонов и эффективные методы обучения и изучения коллокаций в другом языке. В последнее время появилось новое направление исследований, целью которого является изучение метафорических коллокаций, рассматриваемых как «тип коллокации, в которой коллокат используется образно, а основа – буквально» (Patekar 2022), например a big day. Выявление и анализ метафорических коллокаций сопряжено с рядом трудностей. Поэтому цель данной статьи – описать шаги по созданию списка метафорических коллокаций в английском языке и выделить связанные с этим проблемы. Используя корпусный подход, коллокации с существительным day в качестве основы были извлечены автоматически, а метафорические коллокации были выявлены и проанализированы вручную. Полученные результаты свидетельствуют о трудностях, возникающих при выявлении и анализе метафорических коллокаций, и описывают этапы создания реестра метафорических коллокаций. Они показывают, что отграничение коллокаций от свободных сочетаний, с одной стороны, и идиом – с другой, остается постоянной проблемой в лингвистике, которая затрагивает и метафорические коллокации. Отсюда вытекает несколько выводов. Во-первых, без более совершенного инструмента для анализа корпуса исследователи будут вынуждены полагаться на ручной анализ со всеми его недостатками. Во-вторых, создание инвентаря оказалось первым шагом в исследовании метафорических словосочетаний. В-третьих, инвентарь, основанный на наиболее частотных существительных в разных языках, является основой для дальнейшего кросс-лингвистического исследования метафорических коллокаций.

Ключевые слова: метафоры, метафорические коллокации, корпусные исследования, Sketch Engine, английский язык

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#### 1. Introduction

Collocations are a vast field of interest within linguistics and applied linguistics. Thus, it is understandable that there are a variety of perspectives on this linguistic phenomenon, from what a collocation is to how collocations should be taught. Nevertheless, two approaches to the interpretation of collocations have crystallized: the frequency-based and the phraseological approach. The frequency-based approach, originating from Firth's (1957) understanding of what makes a collocation, is based on the frequency of co-occurrence as an indicator of what a

collocation is. This statistical perspective is taken up in corpus research and is the basis of how, for example, the online tool Sketch Engine (used in this research) recognizes collocations. On the other hand, there is the phraseological approach, espoused by, for example, Hausmann (1984) and Nesselhauf (2004). Within this approach, a collocation is understood to be a specific type of a syntagmatic relationship between the semantically autonomous base and the collocate, the base being the one that determines the meaning of the collocate (Hausmann 1984; Stoijć 2012). This study relies on the frequency-based approach for the automatic extraction of collocations and on the phraseological approach for the manual identification of metaphorical collocations. According to the frequency-based approach, a few days would be a collocation (in Sketch Engine, few + day is the most frequent collocation with the noun day as the base in the English Web 2020 corpus). Yet, there is nothing inherently specific in this combination, the components of which are quite semantically transparent individually and as a whole, to be considered a collocation from a phraseological standpoint, so it would be referred to as a free combination rather than a collocation within the latter approach. However, a big day would be considered a collocation because the meaning of the whole transcends the meaning of the base and the collocate, standing for a day of significance in one's life (note that the big day is the day of the wedding). Considering that the focus of this paper are metaphorical collocations, a big day is also a good example of a metaphorical collocation, that is, "a type of a collocation in which the collocate is used figuratively and the base literally" (Patekar 2022). A day is clearly not physically big; rather, big is used figuratively. If to these two examples, a few days and a big day, we add the big day, a synonym or a specific term for a wedding day, it is clear that numerous challenges can arise in identifying collocations, differentiating them from free combinations on one end and idioms on the other, and narrowing down metaphorical collocations when creating an inventory of such collocations. Furthermore, notice the difference between a big day and a black sheep where the day is in fact a day, but the sheep is a person, or between to reach a verdict and to break a heart, where an actual verdict is involved but not an actual heart. These obvious differences imply that special terms are indeed needed for different linguistic phenomena, in particular because the clarity in terminology helps in researching such phenomena. Hence, it would be unjust to use "metaphorical collocations" as an umbrella term for any kind of syntagmatic relationship where metaphorical meaning is involved. To break a heart and a black sheep are metaphorical expressions, whereas to reach a verdict and a big day are metaphorical collocations.

Diverse perspectives are not a feature of collocations alone, but metaphors as well. As Kalinin and Ignatenko (2024: 167) rightly recognized, this diversity "has led to dispersion of research in the field of metaphor", which adds to the challenge of researching metaphorical collocations. Yet, for the purpose of this study, it is sufficient to differentiate between a metaphor, which refers to how a conceptual domain is understood in relation to another, and a metaphorical expression, which

is the realization of the conceptual metaphor (Lakoff & Johnson 1999, 2003). Likewise, it is important to understand that "metaphors influence ... how people perceive certain issues across different forms of discourse" (Zibin & Solopova 2024: 9). Thus, this study is grounded in the theory of conceptual metaphor as formulated by Lakoff and Johnson (2003), which posits that our understanding and use of language are fundamentally shaped by metaphorical thinking. By applying this theoretical framework, I explore how everyday expressions channel broader conceptual mappings, such as TIME IS MONEY or TIME IS SPACE, which are illustrated through the various metaphorical collocations with "day", the noun selected for the case study in this paper. For instance, metaphorical collocations such as *a long day* or *to waste the day* not only reflect routine linguistic patterns but also reveal deeper cognitive processes that frame time as a quantifiable and expendable commodity. This approach allows us to systematically analyze how metaphorical meanings are constructed within linguistic practices, providing insights into the semantic networks that underpin language use.

Hence, the aim of this paper is to outline the steps and issues in creating an inventory of metaphorical collocations in English. Using a corpus-driven approach, collocations with the noun "day" as the base were extracted automatically, and metaphorical collocations were identified and analyzed manually to answer the following research questions:

RQ1. What are the main challenges in identifying metaphorical collocations in English using Sketch Engine?

RQ2. How can a systematic approach be developed for creating a reliable inventory of metaphorical collocations in English?

These efforts are a part of a larger project *Metaphorical Collocations* – *Syntagmatic Word Combinations between Semantics and Pragmatics* that explores metaphorical collections in Croatian, German, English, and Italian.

# 2. Literature review

While the term "metaphorical collocations" occasionally appears in the work of researchers writing in English (e.g., Dai, Wu & Xu 2019, Hori 2004, Onal 2020, Phillip 2011), in a meta-analysis of that work, Patekar (2022) found that different authors often use the term without specifying what it encompasses, and that they do not always mean the same thing when they refer to such collocations, which leads to the term being (mis)used for linguistic phenomena such as idioms or metaphorical expressions. This means there is currently uncertainty regarding the term among researchers writing in English. Fortunately, this uncertainty has been resolved by authors writing in German, such as Reder (2006) and Volungevičienė (2008). Based on their work, I understand a metaphorical collocation to be "a type of a collocation in which the collocate is used figuratively and the base literally" (Patekar 2022). This definition gives metaphorical expression in which neither component is used literally. Volungevičienė (2008) believes that metaphorical collocations are

based on dead metaphors, that is, those that are no longer perceived as metaphors due to undergoing lexicalization and becoming a part of conventional knowledge (Stojić & Košuta 2021).

Although it is often understood that collocational relations are of arbitrary nature, that is, that there is no pattern that could help a language learner predict which words will go together, it is possible that metaphorization can be identified as an underlying mechanism of metaphorical collocation formation (Stojić & Košuta 2022). Extralinguistic reality is lexicalized in different ways in different languages, but possibly with the aid of the same mechanisms of metaphorization. To illustrate, let me use the example of the noun *day* as the base. In English, the expression *to brighten (up) one's day* means to make the experience of one's day better. In Croatian, the expression is *uljepšati dan* literally means, 'to make the day prettier', but in essence it means 'to make the day better'. Thus, while the two languages lexicalize the idea of making the experience of one's day as an object whose appearance can be changed, which indeed is a mechanism of metaphorization (TIME IS A CHANGER, explained further below).

Seeing that metaphorical collocations are a new avenue of research, it is understandable that there are not many publications that specifically address the phenomenon. However, Stojić and Košuta (2022), team members on the aforementioned project, have noted their observations regarding the creation of an inventory of metaphorical collocations in the Croatian language, specifically working on the noun "godina" (Engl. *year*). According to Stojić and Košuta (2022), creating an inventory of metaphorical collocations is the first step in analyzing metaphorical collocations. The aim of such analysis is to shed light on the patterns of collocational formation and thus clarify the mechanisms of words forming relations. Ultimately, the goal is to establish the theory of metaphorical collocations.

Stojić and Košuta (2022) recognized certain limitations of Sketch Engine's tool Word Sketch in extracting collocations based on their experience. Firstly, they established that creating an inventory of metaphorical collocations is the key step in analyzing patterns of collocation formation. Secondly, initial collocational profiles generated by Sketch Engine's Word Sketch in most cases required a thorough examination from the semantic and pragmatic aspect considering frequently miscategorized items. Thirdly, they found that out of 21 grammatical relations (the meaning of "grammatical relation" will be discussed in the next section) that Sketch Engine's Word Sketch feature provided for the noun "godina", only nine relations were relevant for lexical collocations; the other categories were grammatical collocations or other combinations that do not show a particular pattern of collocation formation. Fourthly, the most productive combinations of metaphorical collocations were those where an adjective or a verb is the collocator and a noun is the base, and there were six such grammatical relations in Sketch Engine.

Brkić Bakarić, Načinović Prskalo, and Popović (2022), the first two authors being team members on the project, have described the technical challenges of potentially automatically detecting metaphorical collocations. Like Stojić and Košuta (2022), they highlight the arduous task of manually sifting through hundreds of collocations per noun in Sketch Engine to isolate metaphorical from other collocations, and they conclude that little if anything can be done to ameliorate this based on the current input, that is, current findings related to metaphorical collocations. Be that as it may, a preliminary analysis of metaphorical collocations across three languages - Croatian, German, and English - has shown that "the most productive grammatical relations and combinations of parts of speech with respect to metaphorical collocations are combinations of an adjective in the function of a collocate + a noun in the function of the base and a verb in the function of the collocate + a noun in the function of the base" (Načinović Prskalo & Brkić Bakarić 2022: 106). Specifically, in German, the most productive grammatical relations are "modifiers of X", "verbs with X as subject", "verbs with X as accusative object", and "nouns with X as genitive object". In Croatian, the most productive grammatical relations in view of metaphorical collocations are "like what" (i.e., "modifiers of X"), "two nouns, one in genitive", "accusative", "subject of", "participle", and "be like what".

Considering that the focus of this paper is a description of the process of creating an inventory of metaphorical collocations in English where the noun "day" as the base is used as a central example, it is not amiss in this part of the paper to delve into the exploration of the conceptual metaphor of TIME. This is important as "day" is a segment of time, and one might expect most metaphors that motivate metaphorical collocations with the noun "day" to be indeed metaphors of time.

Time is one of the few subjects that can only be expressed metaphorically (Rigotti 1986), or rather, it is "a natural kind of experience that is understood almost entirely in metaphorical terms" (Lakoff & Johnson 2003: 118). Kövecses (2010: 26) observed that time is "a notoriously difficult concept to understand", noting that the primary metaphor to understand time is TIME IS AN OBJECT THAT MOVES. In addition, time is one of the most common target domains, along with emotion, desire, thought, society, communication, etc. Interestingly, if "we go back to the origins of the terms we use to designate the phenomena of time, we find only spatial etymologies or, at most, time/space ones" (Rigotti 1986: 157). Indeed, spatial expressions for notions of time have been "attested in many of the world's languages" (Radden 2011: 1).

In the Master Metaphor List compiled first by Lakoff, Espenson, and Goldberg in 1989 and Lakoff, Espenson, and Schwartz in 1991, we find the following metaphors of time:

TIME IS SOMETHING MOVING TOWARD YOU (e.g., "When Tuesday comes...") TIME IS A LANDSCAPE WE MOVE THROUGH (e.g., "He didn't make it to Tuesday.") TIME IS MONEY (e.g., "The diversion should buy him some time.") TIME IS A RESOURCE (e.g., "Don't waste time.") TIME IS A CONTAINER (e.g., "We're well into the century.") TIME IS A PURSUER (e.g., "Time will catch up with him.") TIME IS A CHANGER (e.g., "Time had not been kind to him.")

However, Pérez Hernández (2001: 68) notes that "the number of metaphors underlying the concept of time is actually bigger than that included in the aforementioned index" and that it is possible to "distinguish four general time metaphors" and "establish a hierarchy of dependency of other more specific instances". These four general time metaphors are:

TIME IS SPACE TIME IS AN OBJECT TIME IS A CONTAINER TIME IS A FORCE

Thus, TIME IS A LOCATION, TIME IS A PATH, TIME IS A LANDSCAPE, etc., are part of the metaphor TIME IS SPACE. TIME IS MONEY, TIME IS A COMMODITY, TIME IS A MOVING OBJECT COMING TOWARDS YOU, etc., are part of the metaphor TIME IS AN OBJECT. TIME IS A FORCE includes TIME IS A CHANGER and TIME IS A HEALER.

One final note regarding metaphors of time is that time is frequently personified in literature. Personification "permits us to use knowledge about ourselves to comprehend other aspects of the world" (Kövecses 2010: 56). Thus, time is perceived as an external event that has agency and can affect people and their lives. TIME IS A CHANGER is an example of personification.

# 3. Data and methodology

The aim of this paper is to outline the steps and issues in creating an inventory of metaphorical collocations in English. I was guided by the following research questions:

RQ1. What are the main challenges in identifying metaphorical collocations in English using Sketch Engine?

RQ2. How can a systematic approach be developed for creating a reliable inventory of metaphorical collocations in English?

Answers to these questions were obtained through the following steps. The project team used the Sketch Engine tool to extract collocations from the corpora of project languages. Specifically, for the English language, the corpus English Web 2020 (enTenTen20) was used. The corpus consists of more than 43 billion tokens (more than 36.5 billion words) and was compiled from texts from the internet. Using Sketch Engine allows researchers to access authentic data and employ the corpus-driven approach to validate their hypotheses. However, it needs to be noted that Sketch Engine's collocation extraction is based on computational linguistics, that is, the frequency approach to collocations whereby words that frequently co-occur are identified as collocations. To identify a collocation, Sketch Engine relies on the *LogDice* measure (explained below). Therefore, it is important to analyze the data provided by the aforementioned tool in line with the described phraseological approach, which involves examining the semantic nature of the

relation of two words. Understandably, such an analysis is time- and energyconsuming, so the project team opted to focus on the most frequent nouns across the four languages. The most frequent nouns were identified using Sketch Engine's option Wordlist for each language and respective corpus and then cleaned (e.g., from proper nouns) and coordinated to get a consolidated list that includes 59 nouns. To illustrate, the ten most frequent nouns in English are: *time*, *vear*, *people*, day, way, system, world, service, part, state. The following step included analyzing the collocational profiles of the most frequent nouns and engaging in a semantic analysis to identify metaphorical collocations. The semantic analysis involved examining each collocation to establish whether there is a transfer of meaning at the level of the collocator that is based on a metaphoric process. In case of uncertainty, the collocation was discussed within the project team to reach a decision on its status of a metaphorical collocation. This procedure resulted in an inventory of metaphorical collocations, and this paper further delineates how such procedure was carried out for the fourth most frequent noun in the English language, the noun "day". Considering that this study is a part of wider project efforts and taking into account that other team members have analyzed other most frequent nouns in the other three project languages (Croatian, German, and Italian), I opted for the noun "day" for the project team to benefit from insights into metaphorical collocations with a variety of most frequent nouns across four languages (as opposed to team members analyzing the same noun in-depth across four languages, which is a step to be undertaken at the contrastive analysis stage of the project that is to follow).

#### 4. Results

Upon choosing the noun "day" for the case study, I used Word Sketch, a feature of Sketch Engine that enables the extraction of collocations based on grammatical relations. Each grammatical relation is represented by a column in Word Sketch (Figure 1), with collocations within the column listed according to frequency and a measure called *LogDice*. Frequency refers to how many times a collocate appears in the corpus, whereas *LogDice* is a typicality score that indicates the strength of a collocation. Thus, the higher the score, the stronger the collocation. On the other hand, a low score indicates that those collocational components enter combinations with many other words (Sketch Engine, n.d.). Each column represents a pattern obtained from the corpus, where each category is a different morphosyntactic structure, such as "nouns modified by X" or "verbs with particle up and X as object". Each collocate within the category is provided with a few words of context, and the full context can be seen by expanding a particular collocation to see its concordances (Figure 2).

Specifically, for the noun *day*, there are 28 grammatical relations and more than 9 600 collocations within those categories. These grammatical relations, along with examples of collocations within the categories, are given in the table below for

quick reference. At first glance, one can notice the faults in categorizing certain cooccurrences as collocations or as belonging to a particular category.

, ₽		<b>D</b>	×	₽	51	0	×	<i></i> ₽	5.	0	$\times$	≓	E	• (C)	×
modifiers of "day"			nouns modified by "day"			verbs with "day" as object				verbs with "day" as subject					
few a few days	1,001,412	10.3	•••	trip day trip	85,060	9.0		spend spend the day	345,055	9.9		follow days following the	62,629	8.0	
next the next day	725,037	10.1		especially: recreation	52,317	7.9		especially: recreation     work	196,585	9.2		pass day passes	28,116	7.7	
early the early days of	290,232	8.9		tour	25,118	7.4		come	147,846	8.8		day comes	62,769	7.0	
last the last day	366,694	8.8		• especially: recreation	26.809	7.3		follow	217,355	8.4		start day started	30,246	7.0	
first the first day of	481,274	8.6		day i delivery	18.925	7.2		last	55,460	8.0		especially: recreation	58,946	6.9	
same on the same day	343,078	8.6		next day delivery • especially: business				• especially: health	52.352	7.8		explore	11,819	6.9	
several for several days	207,411	8.3	•••	week days , weeks	37,280	7.1		dying day	70,600	7.0		especially: recreation	0.667	6.0	
present to the present day	124,729	8.2		care day care	30,341	7.1		start the day	13,000	7.0		days notice	3,007	0.0	
sunny day	77,807	7.8		period day period	36,982	7.1		go days gone	66,698	1.1		day began	26,315	6.6	
especially: recreation	n 121.612	7.8		workshop	17,377	6.9		remember remember the day	48,104	7.6		day arrives	11,588	6.6	
business days	121,012	7.0		celebration	13,283	6.8		enjoy enjoy a day	59,172	7.5		lead in the days leading up to	19,530	6.5	
single every single day	108,720	7.7		Day celebrations	32 023	6.6		especially: recreation	45 306	74		precede	7,503	6.5	
final	99,426	7.6		day to day life	01,010	0.0		ended the day				days preceding the	14.009	6.4	
the final day of • especially: sports				event	35,738	6.6		especially: recreation	41.264	74		day brings	14,000	0.4	
	~			day event				celebrate the day	41,304	7.4			1		~

Figure 1. Grammatical relations represented in columns in Sketch Engine's tool Word Sketch

Details       Left context       KWIC       Right context         1       O clientopla.com       >SS> So i was a seasonal employee at best buy (BOO) up untill a few       days       ago.s/s>S>This actually happened to me twice as i was selling a lapting         2       O troubled-diva.com       >ver 50,000 users – had reached my corner of blogland, and for a few       days       there was a small flurry of sign-ups, as we all took turns at answering if         3       O acutebronchitis       bevelop pneumonia(S>S> Most cases clear up on their own in a few       days       especially if you rest, drink plenty of fluids, and keep the air in your hr         4       O acutebronchitis       ment of bronchitisS> So Then the horse will only be fed softened food for a few       days       viltout lasting effects in most people, however the coughs due to bron         6       O horsehints.org       hagusdss-as>Often the horse will only be fed softened food for a few       days       allowing the esophagus to heal, before it is allowed to gradually resure         7       O gilmerfreepress       mSlatyfork to Point Mountain were outstandingdss-as>During a few       days       allowing the short will only adss-as>The was convinced about the efficience         8       O dailymail.co.uk       in Statyfork to Point Mountain were outstandingdss-as>The was on-vinced about the efficience       days       intershed and energized in many waysdss-as>It also causes       file         10	CQL da 23.22 pe	y + few • 1,001,412 million tokens • 0.0023%	Ŧ	হ	ŧ	≡ (	•	×	F 7	GD EX		ıl. KV	VIC -	+ (	D ☆
1       Image: Control is the image: Contrent is the image: Control is		Details		Left conte	xt	KWIC	Right	t conte	ext						
2       Image: Second production of the second product product product the second product product product product the second product product product product the second product	1	i) clientcopia.com	>>>So i was a seasonal employee at best buy (	BOO) up untill	a <mark>few</mark>	days	ago.<	/s> <s></s>	This actu	ally happe	ned to me	e twice as	s i was s	elling a l	apti 📄
3 <ul> <li>acutebronchitis</li> <li>bevelop pneumonia.</li> <li>bevelop</li></ul>	2	i troubled-diva.c	over 50,000 users - had reached my corner of blo	gland, and for	a <mark>few</mark>	days	there	was a	small flur	y of sign-u	ps, as w	e all took	turns at	answeri	ng t 📄
4 <ul> <li>acutebronchitis</li> <li>pment of bronchitis</li> <li>pment of bronchitis</li> </ul> <li>acutebronchitis</li> <li>brosehints.org</li> <ul> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the past few</li> <li>deveral vlogs relaying his experience in Honduras over the first few</li> <li>deveral vlogs relaying his experience in Honduras over the first few</li> <li>deveral vlogs relaying his experience in the Mayo Clinic, USA, volunteered for a few</li> <li>deveral vlogs relaying his experience in the Mayo Clinic, USA, volunteered for a few</li> <li>deveral vlogs relaying his experience in the Mayo Clinic, USA, volunteered for a few</li> <li>deveral vlogs relaying his experience in the Mayo Clinic, USA, volunteered for a few</li> <li>deveral vlogs relaying his experience in the Mayo Clinic, U</li></ul>	3	i) acutebronchitis	develop pneumonia.Most cases clear up o	on their own in	a few	days	, espe	cially i	if you rest	, drink pler	ty of fluid	ds, and ke	eep the a	air in you	r hc 📄
s       Citizentube.com       d several vlogs relaying his experience in Honduras over the past few       days       .	4	i) acutebronchitis	pment of bronchitis.Bronchitis usually disa	appears within	a <mark>few</mark>	days	withou	ut lasti	ng effects	in most pe	ople, how	wever the	coughs	due to b	oron 🕞
a       horsehints.org       hagus.       hagus.       bagus.       hagus.       hagus. <th>5</th> <th>i citizentube.com</th> <th>d several vlogs relaying his experience in Hondura</th> <th>as over the pas</th> <th>t few</th> <th>days</th> <th>.</th> <th>≪s&gt;In t</th> <th>he first or</th> <th>e, shot on</th> <th>Monday</th> <th>when the</th> <th>unrest l</th> <th>began, h</th> <th>e is 🐚</th>	5	i citizentube.com	d several vlogs relaying his experience in Hondura	as over the pas	t few	days	.	≪s>In t	he first or	e, shot on	Monday	when the	unrest l	began, h	e is 🐚
7 <ul> <li>glimerfreepress</li></ul>	6	i) horsehints.org	hagus.Often the horse will only be fed sof	tened food for	a <mark>few</mark>	days	, allov	ving th	e esopha	gus to heal	, before i	t is allowe	ed to gra	adually re	esur 🕞
a       Image: Construction of the second performance of	7	i) gilmerfreepress	om Slatyfork to Point Mountain were outstanding.<	/s>>During	a <mark>few</mark>	days	away,	it refre	eshed and	l energized	in many	ways.	s≫s>lt a	also caus	es 📄
9       Image: State of the start of gameweek 14 just a few days       days       during her short visit to India.       days       days       to prepare his new team for the away game against West Ham, so we'       days         11       Iso.co.uk       tunity to pass up on.       days       days       away, we're about to enter one of the Premier League season's busies       days         12       katherinetimes       that time who are not immune may have symptoms over the next few       days       .       days       away, we're about to enter one of the Premier League season's busies         13       katherinetimes       that time who are not immune may have symptoms over the next few       days       later by a red blotchy rash which often starts on the face and then beac         14       ipswichstar.co       mances in training ahead of the Blues' two cup games in the next few       days       .       .       .       .       .       .       .       .       .       .       .       .       .       .       .       .       .	8	i) dailymail.co.uk	asn't been all plain sailing so far - a power cut and	flood in the firs	t few	days	left he	er wond	dering if s	he had ma	de the rig	ght decisio	on.	<s>Myst</s>	the 🖺
10 <ul> <li>iso.co.uk</li> <li>iso.co.uk<th>9</th><th>i) tgfworld.org</th><th>d experienced nurse from the Mayo Clinic, USA, v</th><th>olunteered for</th><th>a <mark>few</mark></th><th>days</th><th>during</th><th>) her s</th><th>hort visit t</th><th>o India.<mark></mark></th><th></th><th>was con</th><th>vinced a</th><th>about the</th><th>effi 📄</th></li></ul>	9	i) tgfworld.org	d experienced nurse from the Mayo Clinic, USA, v	olunteered for	a <mark>few</mark>	days	during	) her s	hort visit t	o India. <mark></mark>		was con	vinced a	about the	effi 📄
11 <ul> <li>iso.co.uk</li> <li>tunity to pass up on.</li> <li>with the start of gameweek 14 just a few</li> <li>des</li> <li>away, we're about to enter one of the Premier League season's busies</li> <li>iso.co.uk</li> <li>iso.co.uk</li> <li>iso.co.uk</li> <li>tunity to pass up on.</li> <li>with the start of gameweek 14 just a few</li> <li>des</li> <li>iso.co.uk</li> <li>iso.c</li></ul>	10	i fiso.co.uk	o.	nager just had	a <mark>few</mark>	days	to pre	pare h	is new tea	am for the a	away gar	ne agains	st West I	Ham, so	we' 📄
12       ① katherinetimes       that time who are not immune may have symptoms over the next few days       .	11	i fiso.co.uk	tunity to pass up on.	eweek 14 just	a <mark>few</mark>	days	away,	we're	about to e	enter one a	f the Pre	mier Lea	gue sea	son's bus	sies 🕞
13       ① katherinetimes       /hich usually occur 7-10 days after exposure to a case, followed a few days       later by a red blotchy rash which often starts on the face and then becc         14       ① ipswichstar.co       mances in training ahead of the Blues' two cup games in the next few days	12	i) katherinetimes	that time who are not immune may have sympton	ns over the nex	t few	days	.	s>The	e second	person was	at the Te	op End M	ledical C	Centre in	Stu 📄
14 🔲 🛈 ipswichstar.co mances in training ahead of the Blues' two cup games in the next few days .	13	i) katherinetimes	/hich usually occur 7-10 days after exposure to a	case, followed	a <mark>few</mark>	days	later b	oy a re	d blotchy	rash which	often sta	arts on the	e face a	nd then b	Dect 📄
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Figure 2. Expanding a collocation into concordances provides more context

 Table 1. Grammatical relations for the noun "day" in Sketch Engine and accompanying examples of collocations categorized under each relation

No.	Relation	Examples of collocations
1	modifiers of "day"	a few days, sunny day, business days
2	nouns modified by "day"	day trip, day job, all day Sunday
3	verbs with "day" as object	spend the day, the coming days, day filled
4	verbs with "day" as subject	day starts, days notice, day sitting

No.	Relation	Examples of collocations
5	"day" and/or	day and night, days or weeks, in this day and age
6	prepositional phrases	day of, for day, on day
7	adjective predicates of "day"	days past, days old, day was hot
8	"day" is a	day was Sunday, day is today, day is something
9	day's	days' notice, day's work, day's reading
10	possessors of "day"	Valentine's Day, a summer's day, parents' day
11	pronominal possessors of "day"	my day, our day, your day
12	is a "day"	tomorrow is another day, Monday is the day, period is 30 days
13	verbs with particle "up" and "day" as object	wake up one day, wrap up the day, dress up day
14	verbs with particle "out" and "day" as object	go out every day, started out the day, wait out the day
15	verbs with particle "off" and "day" as object	round off the day, crossing off the days, left off the day before
16	verbs with particle "down" and "day" as object	sitting down all day, wind down the day, feeling down these davs
17	verbs with particle "around" and "day" as object	sit around all day, take around a day, work around the day
18	verbs with particle "away" and "day" as object	whiling away the day, went away the next day, wish away the days
19	verbs with particle "aside" and "day" as object	set aside a day
20	verbs with particle "over" and "day" as object	reminisce over the days, come over one day, take over one day
21	verbs with particle "open" and "day" as object	remain open
22	verbs with particle "on" and "day" as object	died on the 14 <sup>th</sup> day, rise on the third day, happened on that day
23	verbs with particle "unto" and "day" as object	continue unto this day
24	verbs with particle "apart" and "day" as object	set apart a day, fall apart the day
25	verbs with particle "through" and "day" as object	going through day by day
26	verbs with particle "along" and "day" as object	went along one day
27	verbs with particle "upon" and "day" as object	reflect upon your day
28	usage patterns	it is a day to remember

Although there is variation in the type of grammatical relations across not only different languages but words within a single language as well (for example, the eighth most frequent noun in English, "service", has 23 grammatical relations in contrast to "day" that has 28), these relations do provide a framework for contrastive analysis where similarities are present. Therefore, the study relies on Sketch Engine's grammatical relations to systemize findings.

# 5. Discussion

# 5.1. Extracting collocations

Seeing that there are quite a few grammatical relations and for each there are numerous collocations, I shall go in depth with several of them to illustrate the difficulties researchers face when creating an inventory of (metaphorical) collocations.

For the most part, (1) "modifiers of 'day" include adjectives as modifiers, such as a few days, a sunny day, or a fun day. However, the category also includes nouns as modifiers, such as business days, wedding day, or feast day. (2) "nouns modified by 'day'" include some well-known combinations, such as day trip, day job, day care, day traders, but also a number of miscategorized items such as day today ("we enjoyed a spring-like day today"), day yesterday, all day Sunday. In either case, "day" is not in the role of a base, so this category will be excluded from further analysis. (3) "verbs with 'day' as object" indeed include verbs, such as spend the day and live each day, but collocates such as "coming" in the coming days and "passing" in *each passing day* are not verbs; they are verbal adjectives or present participles whose grammatical role is quite different from verbs. Furthermore, examples such as *live each day* highlight the problem of the frequency approach in identifying collocations. There is hardly anything specific about the relation between *live* and *dav* to call it a collocation from a semantic point of view. It is doubtful whether a learner would store it as such in their mental lexicon (Stojić & Košuta 2017). Yet, because of statistically high co-occurrence, it is considered a collocation within the frequency-based approach. In addition, there are a number of miscategorized items, such as *day filled* where "day" is the subject, not an object of the sentence, e.g., "The rest of the day was filled with lots more fun." In the category (4) "verbs with 'day' as subject", we find combinations such as *day starts* and *day* seems as well as miscategorized days notice where "notice" is actually a noun and there is an apostrophe missing on "days" or "spent the whole day sitting in a room" where "day" is not the subject of "sitting". Further examples of miscategorized items are day dreaming, e.g., "have spent most of my time cleaning, day dreaming, playing with a new phone", day reading, e.g. "I've spent most of my day reading this story", etc. The most frequent occurrences of verbs with "day" as subject are follow, pass, come, start, go, etc. The category (5) "day' and/or ..." contains expressions such as day and night, days or weeks, in this day and age, a day and a half, etc., as well as a number of miscategorized items, e.g., day, people: "These days, many people are not afraid...". As such, this category is not relevant for our collocational research and will be excluded from further analysis. The following category, labeled (6) "prepositional phrases", includes any preposition next to the word "day", e.g., day of, for day, on day, day at, day behind, etc., and will likewise be excluded from analysis. (7) "adjective predicates of 'day" include expressions such as days past, days old, days early, days pregnant, days worth of, but also day was warm, day was hot, day is enough, days are busy, etc. This category will be

excluded from further analysis. The category (8) "day' is a ..." refers to structures such as day was Sunday ("Mother's Day was last Sunday"), day was a great success, day is today, day is something ("filming that day is something she won't forget") and a number of examples as the last one where the connection between the noun "day" and another word is tangential or non-existent. Hence, the category will be excluded from this study. The category (9) "day's ..." includes possessives of "day", for example, days' notice, day's work, day's reading, day's hike, etc. and is not relevant to the present research. The same is with the following category, (10) "possessors of 'day", where one can find Valentine's Day (and many other holidays), a summer's day, parents' day, Ladies' Day, etc. (11) "pronominal possessors of 'day'" is a category that includes possessive pronouns: my day, our day, your day, etc. It is clearly not relevant for further analysis. The category (12) "... is a 'day" features structures such as tomorrow is another day, Monday is the day, period is 30 days, park is open every day, etc., which are difficult to perceive as collocations even with the most liberal interpretation of what makes a collocation. Therefore, this category will be excluded as well.

Word Sketch's "verbs with particle X and 'day' as object" (13–27), which could be considered phrasal verbs, encompass 15 categories, some of which appear to be quite fruitful collocation-wise. However, in a number of instances, "day" is not an object of the phrasal verb, e.g., *hang out one day, cropped up every day, went down that day* in contrast to collocations where *day* is actually an object, such as *wrap up the day, plan out your day*, or *kick off the day*. These categories will be dealt with in more detail in the next section considering the wealth of metaphorical collocations found within them. The category (28) "usage patterns" encompasses the structure "it's 'day' to..." and will be excluded from this study as it is irrelevant.

To conclude this section on collocation extraction, while Sketch Engine is an immensely helpful tool for researchers to work with corpora and, in particular, collocations, researchers are still required to thoroughly check the results as false items appear. This is because Sketch Engine in good part relies on automatic tagging. In addition, I noted in the analysis that Sketch Engine extracts the most frequent collocations across all grammatical relations up to a certain degree. This is to say that any combination of words that is not as frequent does not show up in the list of co-occurrences, which means some linguistically valuable combinations of words might not be included in the results.

# 5.2. Creating an inventory of metaphorical collocations

Following the extraction of collocations with the noun "day", and excluding Sketch Engine's grammatical relations that are not relevant to the study at hand, I proceeded with an in-depth analysis of collocations within the following categories: (1) "modifiers of 'day", (3) "verbs with 'day' as object", (4) "verbs with 'day' as subject", and (13–27) "verbs with particle X and 'day' as object".

Several patterns emerged upon a closer look at collocations within the category (1) "modifiers of 'day". Expectedly, a number of modifiers are adjectives and

nouns referring to weather and seasons: sunny, rainy, windy, cloudy, hot, warm, cold, clear, winter, summer, spring, etc. Similarly, many nouns in combination with "day" are terms such as wedding day, business day, school day, election day, working day, sick day, etc. Yet the category of most interest in this case are potential metaphorical collocations. Thus, we find adjectives describing the noun "day" as long, short, whole, full, good, bad, sad, fun, happy, old, busy, great, perfect, beautiful, wonderful, lovely, etc. "Day" is hence understood as a container with the properties of "whole" or "full", an object that can be "short", "long", or even "big". The underlying metaphors are TIME IS A CONTAINER and TIME IS AN OBJECT. Furthermore, "day" can be personified, bearing the qualities of "good", "bad", "beautiful", etc., as well as showing emotions "happy", "sad", and so on. There are other interesting collocations, namely, field day, dark days, glory days. A field day may refer to a day spent outdoors, and "a time of extraordinary pleasure or opportunity" (Merriam-Webster n.d.)., as in "the media is still having a *field day* with the incident". Since in the latter sense "day" is not an actual day, this would be considered an idiom rather than a metaphorical collocation. Similarly, dark days can indeed be dark because of the lack of sunlight, or they may refer to "times of extreme misfortune or difficulty" (Farlex Dictionary of Idioms n.d.), as in "As in the dark days of fascism, some collaborate with the enemy". Glory days, on the other hand, refer to a period of time one was very successful (Cambridge Dictionary n.d.). Both dark days and glory days are interesting to discuss further. To distinguish metaphorical collocations from idioms, we adhere to the definition that the collocate is used figuratively and the base literally. Is the base "days" in the two items used figuratively or literally? While clearly "days" in dark or glory days refer to a period of time, one can ponder whether a period could in fact be understood as a string of days, in which case "days" are used literally, and the items are thus metaphorical collocations.

In view of (3) "verbs with 'day' as object", evidently certain collocations are motivated by the metaphor TIME IS MONEY and TIME IS A RESOURCE: spend a day, save a day, waste a day, lose a day. Note the difference between save a day in "The itinerary here is conservative and you may save a day near the beginning" and save the day in "Only girl power can save the day"; the latter is an idiom that means "to make a bad situation end successfully" (Merriam-Webster n.d.). There are other metaphorical collocations such as make one's day and brighten one's day that essentially refer to improving one's day by making them feel better, thus motivated by the metaphor TIME IS A CHANGER. In certain cases, "day" is treated as an object or a container: observe the day, mark the day, fill the day. Other collocations, on the other hand, are idioms, such as, one's days are numbered, carry the day, win the day. It appears that this category of collocations is fruitful when it comes to metaphorical collocations. Similarly, (4) "verbs with 'day' as subject" abound with metaphorical collocations because expressions with "day" are motivated by the metaphor TIME IS A MOVING OBJECT: a day *approaches*, *arrives*, *comes*, *starts*, *goes*, follows, passes, progresses, continues, elapses.

Finally, phrasal verbs with "day" as object are a very productive category of metaphorical collocations. They are quite evocative and clearly involve figurative meaning. Table 2 provides a wealth of examples.

	Verbs with	
No.	particle and	Phrasal verbs that form metaphorical collocations with "day"
	"day" as object	
1	up	brighten up, wrap up, finish up, break up, fill up, sum up, light(en) up,
		liven up, use up, mess up, wind up, cheer up, warm up, spice up, fuck up,
		eat up, free up, screw up, perk up, add up, split up, round up, mix up,
		soak up, take up, save up, burn up, rack up
2	out	live out, start out, close out, plan out, round out, finish out, see out, wait
		out, block out, map out, bat out, eke out, count out, wash out, drag out,
		carve out, mark out, cross out, stretch out, balance out, win out, top out,
		schedule out, grind out, sort out, fill out, pick out, single out
3	off	start off, round off, cap off, top off, finish off, kick off, put off, mark off,
		count off, cross off, take off, tick off, end off, check off, block off, stave
		off, wash off, write off, close off, sleep off, lead off, shave off, blow off,
		burn off, shake off, throw off, trade off, push off, knock off, scratch off,
		cut off, shrug off, tear off, polish off, ward off, fight off, fend off, live off
4	down	count down, wind down, mark down, cut down, cool down, tick down,
		note down, set down, nail down, live down, jot down, knock down
5	around	
6	away	w(h)ile away, laze away, waste away, sleep away, idle away, sin away,
		fritter away, wish away, dream away, melt away, soak away, tick away,
		wash away, whittle away, relax away, lounge away, pine away, drink
		away, doze away, snooze away, play away, wear away, chase away,
		wipe away, clear away
7	aside	set aside, put aside
8	over	go over, take over
9	open	
10	on	
11	unto	
12	apart	set apart
13	through	go through
14	along	go along
15	upon	reflect upon

Table 2. Examples of metaphorical collocations in the categor
"verbs with particle X and 'day' as object"

Such an abundance of metaphorical collocations with phrasal verbs is to be expected because many phrasal verbs are motivated by conceptual metaphors (De Macedo Valerio 1998, Porto Requejo & Pena Díaz 2008, Yasuda 2010). In this study, the most productive phrasal verbs are those with the particles *up*, *out*, *off*, and *away*, while there are some where no metaphorical collocation with the noun "day" appear, such as *around*, *open*, *on*, *unto*.

With particle "up" it is difficult to find a pattern that would reveal a single motivating conceptual metaphor. A number of phrasal verbs refer to improving

one's experience of a day, e.g., brighten up, light up, lighten up, liven up, cheer up, warm up, perk up, spice up, or, on the other hand, making one's experience worse, e.g., mess up, fuck up, screw up. With the potential to make a change, this would be the metaphor TIME IS A CHANGER. Yet, we could also ponder grouping warm up, spice up, with eat up, soak up, and mix up into the metaphor TIME IS A SUBSTANCE that can be manipulated in these ways, as a dish would. Phrasal verbs such as *add* up, split up, round up, rack up are evocative of the TIME IS MONEY metaphor. Evidently, phrasal verbs with the particle "up" in combination with the noun "day" as a base are motivated by several conceptual metaphors. The case is the same with the particle "out". For example, see out the day is personification, as you would see out a guest from your home. Other phrasal verbs, on the other hand, treat "day" as an object: wash out, carve out, stretch out, balance out, pick out. TIME IS AN OBJECT appears to be a common – yet certainly not the only – theme with phrasal verbs with the particle "off": kick off, take off, wash off, blow off, burn off, push off, scratch off, etc. Personification can be recognized in ward off, fight off, fend off as if "day" is an enemy whose attack needs to be stopped.

In view of verbs with the particle "down", one can notice a pattern whereby "day" is something you *mark down, note down, set down, jot down* in the context of organizing one's time. A particularly interesting collocation is "wind down the day" as in "We returned to our B&B, where we *wound down our day* on Paula's 2<sup>nd</sup> floor porch, enjoying the wonderful breeze...". This seems to be a combination of the two meanings of "to wind down": "1) to draw gradually toward an end, 2) relax, unwind" (Merriam-Webster n.d.). Thus, "to wind down the day" is to finish one's day by relaxing.

The general pattern when it comes to phrasal verbs with the particle "away" and the noun "day" is that it describes a period of time when a person is being inactive or unproductive (and often enjoys it): *w(h)ile away, laze away, waste away, sleep away, idle away, fritter away, dream away, melt away, soak away, wash away, whittle away, relax away, lounge away, pine away, drink away, doze away, snooze away, play away, wear away.* For example, "to fritter" means "to spend or waste bit by bit, on trifles, or without commensurate return – usually used with *away*" and "to break into small fragments" (Merriam-Webster n.d.), so in "to fritter away the day", the "day" is something that one uses up irrationally. The underlying metaphor TIME IS AN OBJECT is found in other (but not all) examples above: *waste away, melt away, soak away, wash away, whittle away, drink away, wear away.* 

Other phrasal verbs in Table 2 are not as productive, and since the examples are quite self-evident, I shall not go into details regarding those.

At this point it is worth noting that any calculation of the share of metaphorical collocations in the total number of all collocations is a futile endeavor for three reasons. Firstly, Sketch Engine is a tool that extracts collocations based on the frequency of co-occurrence of words – it functions on the frequency-based as opposed to the phraseological approach to the understanding of collocations. Researchers working with metaphorical collocations take the latter approach.

Secondly, as has been shown in several instances above, items are frequently miscategorized into grammatical relations they do not in fact belong to. This means that the ranking according to frequency or *LogDice* measure is not entirely correct because the false items are a part of that list. Thirdly, it is not only that items are often miscategorized, but when an item is expanded into its concordances, one can see that not all examples are actually right for the item at hand. For example, there are 1076 occurrences of break up + day, which places that combination  $11^{th}$  in the ranking within the category "verbs with particle 'up' and 'day' as object" based on the frequency and the *LogDice* score of 7.7 (the two measures are generally, but not always, proportional). Yet, when we expand the item, listed as "break" and exemplified with the fragment "break up the day", and dive into more than a thousand occurrences in context, we find the following, among many, examples:

- (1) Katie and I broke up a few days ago.
- (2) The council *broke up* that *day*, its results amounting to nothing.
- (3) The resort offers a wide range of daily activities to *break up* your *day*.

Clearly, the sense of "to break up" is different in all three cases, and in the first two, "day" is not an object of "break up". Thus, it is only the third example that fits the category of "verbs with particle 'up' and 'day' as object". Hence, any attempt to determine the share of metaphorical collocations, with the aim of distinguishing less from more productive grammatical relations, would first require manually cleaning concordances, recalculating frequency and *LogDice*, and cleaning the items from categories accordingly. This is not a realistic goal considering the size of the corpus and the number of occurrences that sometimes reach hundreds of thousands or even a million per collocation.

To conclude, here are the steps involved in creating an inventory of metaphorical collocations in English:

1) Selecting a collocation-extraction tool and a representative corpus of the English language.

2) Using the tool to extract collocations for a specific word.

3) Engaging in the first round of manual analysis of the results to exclude irrelevant categories (e.g., certain grammatical relations in Sketch Engine).

4) Engaging in the second round of manual analysis of the results to identify metaphorical collocations.

5) Identifying the motivating metaphor behind the metaphorical collocation.

6) Finalizing the inventory.

Therefore, an inventory consists of a list of metaphorical collocations organized into grammatical relations and within those categories ranked according to the *LogDice* measure (both this measure and frequency are indicated in the inventory). Next to each metaphorical collocation is a sentence or sentences that show it used in context (from the corpus used). The next column is a note on the motivating metaphor of the metaphorical collocation, and the last column is for any additional notes. This is to be done for each of the 59 most frequent nouns across four languages of the project (English, Croatian, German, and Italian). Upon

completing intralanguage analysis based on the inventory, a contrastive analysis of the inventories is expected to result in additional relevant findings.

In developing the inventory, I have found that Sketch Engine, a widely used collocation extraction tool, has its shortcomings. It relies on a statistical, frequencybased, approach to collocations and often miscategorizes items. In addition, identifying and extracting metaphorical collocations as a subtype of collocations is currently not possible with any tool. This means that researchers need to manually sift through vast numbers of collocations and concordances, which is neither feasible nor sustainable. Furthermore, in several instances, I have come across the age-old stumbling block of discerning collocations from free combinations on one end and idioms on the other end, a perennial issue in linguistics. Finally, any corpus analysis is bound by the limitations of the corpus, as Selmistraitis and Bolkova (2020) have wisely observed in their study on smell-related metaphorical collocations. Despite these challenges, I find metaphorical collocations to be a fascinating linguistic phenomenon that merits the attention of the wider research community.

# Conclusion

This study was driven by two research questions:

RQ1. What are the main challenges in identifying metaphorical collocations in English using Sketch Engine?

RQ2. How can a systematic approach be developed for creating a reliable inventory of metaphorical collocations in English?

In view of the first question, identifying metaphorical collocations in English using Sketch Engine presents several challenges. Firstly, the tool primarily relies on a frequency-based approach to extract collocations, which often results in the inclusion of free combinations and idiomatic expressions that are not collocations. Secondly, the automatic tagging and categorization of collocations is occasionally inaccurate, leading to certain miscategorized items. This in turn requires extensive manual filtering and analysis, which is time-consuming and prone to human error. The tool, understandably, lacks the capability to automatically detect figurative meanings, which is crucial for identifying metaphorical collocations. As a result, researchers must manually sift through vast amounts of data to distinguish metaphorical collocations, making the process labor-intensive and inefficient.

Regarding the second question, creating a reliable inventory of metaphorical collocations in English involves a systematic approach that addresses the limitations of current tools. The process begins with selecting an appropriate collocation extraction tool and a representative corpus. Researchers then conduct an initial manual filtering to exclude irrelevant grammatical relations. This is followed by a detailed manual analysis to identify metaphorical collocations. Each identified metaphorical collocation is then noted, along with example sentences and notes on the conceptual metaphor behind the metaphorical collocation.

This study has several implications. Firstly, it is evident that without an improved corpus analysis tool, researchers are bound to manually analyze a vast amount of data to gain insights into the formation and nature of metaphorical collocations. With advancements in large language models and generative artificial intelligence, perhaps more could be done to automatically recognize figurative meaning, which would make automatic extraction of metaphorical collocations feasible. I hope this study may be of help to computational linguists. Secondly, creating an inventory of metaphorical collocations has been identified as the first step in understanding how metaphorical collocations are formed, laying the groundwork for further research into the processes involved in the formation of metaphorical collocations. Finally, comparable inventories based on the most frequent nouns across different languages are seen as the foundation of further cross-linguistic investigation of metaphorical collocations that may ultimately lead to a theory of this linguistic phenomenon.

Seeing that manual extraction and analysis of metaphorical collocations is neither feasible nor sustainable, researchers will possibly need to limit themselves. Although limiting themselves to 59 most frequent nouns across four languages is certainly a step in the right direction, researchers will have to impose limits within these nouns as well. One way is to set a *LogDice* or frequency score below which the results would not be taken into considerations. Thus, researchers could look for patterns in, for example, the first twenty or thirty items within each category. While this approach would certainly result in linguistically valuable findings being left out, it might be the only feasible option. Another option is to choose a category that has shown to be very productive across the four languages, for example, modifier + noun, and focus on analyzing the collocations within that category alone, without imposing any limitations to frequency. Lastly, there is some hope that by thoroughly analyzing the first few most frequent nouns across the four languages researchers might identify a pattern that would help the computational linguists in the project team to devise a method of automatically extracting metaphorical collocations. Yet, based on the efforts thus far (Brkić Bakarić, Načinović Prskalo & Matetić 2023), this will likely not be accomplished in the near future.

To conclude, by investigating the challenges and steps involved in identifying and analyzing metaphorical collocations and creating an inventory of metaphorical collocations, this study has laid the foundations for further research of this peculiar linguistic phenomenon.

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