Collocations of fictive motion verbs in adventure tourism: A corpus-based study of the English language

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This paper investigates the collocations produced by a set of fictive motion verbs found in a specialized corpus representing the language of adventure tourism. Since our ultimate aim is to contribute to the characterization of this specialized language, we defined two specific objectives: (1) to analyze the motion verbs and their meanings extracted from the ADVENCOR corpus, and (2) to identify the collocates of these verbs as well as the semantic roles they express. After the application of our methodology, eight motion verbs produced 35 collocations satisfying all the established criteria. The results focus on different aspects: (1) the verbs convey distinct meanings, such as motion on a vertical axis or direction towards a destination; (2) the most recurrent combination is noun + verb, where the former describes the inanimate entity that seems to perform motion; (3) collocation production and collocation strength are not correlated; and (4) the collocates accompanying the verbs under analysis shed light on the argument structure of these verbs, for they represent one of the participants. In conclusion, this work provides relevant information about the phraseology of fictive motion verbs in the language of adventure tourism and proves the specialization of this domain.
Keywords: adventure tourism, collocation, fictive motion verb, semantic role, specialized corpus, specialized language

1. Introduction

Phraseology can be understood as the linguistic discipline responsible for exploring groups of words. One of the first studies which mentioned the existence of multiword sequences was conducted in French and authored by Charles Bally (1909). He proposed three types of combinations according to their degree of fixedness, namely, *free combinations, phraseological series*, and *indivisible units*. From this categorization, the second group is the one which has sparked researchers' interest the most. They have become widely known as *collocations* and are the focus of this paper.

Collocations have been approached from different perspectives and have received a wide range of definitions, but, essentially, they can be defined as “a linguistic phenomenon by which words tend to occur together and exhibit idiosyncratic combinatory and semantic properties” (Corpas Pastor, 2017a, p. 29). As they are widely spread in all languages, fluency cannot be achieved without their use. However, no general or syntactic rules apply to them (McKeown & Radev, 2000, p. 507) and, thus, they are difficult to learn by non-native speakers. With the aim of defining and including them in general or specialized resources, many linguistic and lexicographic studies have dealt (and currently deal) with these word combinations.

Most of the studies carried out on collocations so far have focused on general language and consider nouns as the base of the word combination. Consequently, the other elements of the combination, like verbs or adverbs, are identified as collocates (cf. Buendía Castro et al., 2014). In this work, on the contrary, we analyze the collocations of a specialized domain, the language of adventure tourism, and regard verbs as the central element of the combination, that is, the base, since we claim that verbs are units that convey specialized meaning and are worth analyzing.

In general, verbs occupy a key role in this specialized language, but, as proved in a previous study (Durán-Muñoz & L'Homme, 2020), motion verbs stand out. This type of tourism is related to active, risky, and adventurous activities that take place in nature and, thus, motion is an essential part of it as to ascend, descend, climb, raft, paddle (to mention but a few) different natural elements. Regarding motion, we can distinguish two types: (1) real motion, which refers to something, usually a person, that moves physically from one place to another (e.g., *Lace up your hiking boots and* ***trek*** *this trail*),[1] and (2) fictive motion, which describes a feeling of motion but not a real one. The latter is usually identified with inanimate entities, such as roads, paths, among others (e.g., *The climb* ***ascends*** *bulges for over 300 feet and then splits into two gullies*). Real motion in this specialized language has been tackled somewhere else (ibid.) by

[1] All the examples included in this work were retrieved from the ADVENCOR corpus (cf. Section 4). Bold is added by the authors.

means of studying verbs denoting real motion. However, to the best of our knowledge, very few works have explored fictive motion in general (cf. Egorova et al., 2018) and particularly in the language of adventure tourism.

In this context, our goals are two-fold: on the one hand, we will analyze motion verbs and their meanings extracted from the ADVENCOR corpus to distinguish fictive motion in the language of adventure tourism, and, on the other, we will identify the collocates of these verbs as well as the semantic roles they fulfill, paying particular attention to those occupying the subject position. The final aim of this work is to contribute to the characterization of the language of adventure tourism. To do so, the organization of this paper is as follows. Section 2 provides a brief overview of the concept *collocation* and shows its main features and types. Next, Section 3 delves into specialized collocations in general and their role in the domain of tourism in particular. After that, Section 4 describes the methodology used to achieve our objectives, and Section 5 presents the main findings of this study. Finally, Section 6 addresses our main conclusions and includes further research lines.

2. Characterizing collocations

Collocations have been tackled from different perspectives. They were first approached from a pedagogical angle when Harold E. Palmer, a British linguist, submitted his paper "Second Interim Report on English Collocations" (1933) to the *Tenth Annual Conference of English Teachers* in Tokyo (Japan). He realized that these word combinations should be regarded as a unit and suggested that "A collocation is a succession of two or more words that must be learnt as an integral whole and not pieced together from its component parts" (p. 1). His perspective became particularly influential in works on the teaching of the lexicon in foreign languages (e.g., Cao & Badger, 2021; Du et al., 2022; Granger, 2019; Öksüz et al., 2020).

Nevertheless, it was not until the late 1940s that Phraseology was firmly established as a discipline. It was mainly due to the work undertaken by a group of Russian scholars led by Victor V. Vinogradov (disciple of aforementioned Bally). Their principal aim was to categorize all set expressions and describe their varying degrees of fixedness. Additionally, the underlying principle of their classification was semantic motivation, that is, the relation between the meaning of the whole and that of its components, which caused Vinogradov's (1947) tripartite scheme, namely: (1) *phraseological fusions*: groupings of unmotivated and structurally fixed units, (2) *phraseological unities*: partially non-motivated and semantically indivisible units, and (3) *phraseological combinations*: clearly motivated and variable units.

This conception of a continuum along which word combinations are located depending on their flexibility and semantic opaqueness inspired other authors who adopted a lexicographical approach. On the one hand, Anthony P. Cowie (1981, 1998b) aimed to compile dictionaries and unveil the influence that British and Russian phraseologists had exerted on dictionaries of collocations and idioms targeted at students of English as a foreign language. He distinguished two phraseological categories: (1) *formulae*, which recur unchanged and are described as structures being quite stable in form and having a primarily pragmatic rather than syntactic function, and (2) *composites*, which represent unstable word combinations that can undergo semantic changes.

On the other hand, Igor A. Mel'čuk "developed and applied [the classical Russian theory to the design and compilation of dictionaries] with great rigor and sophistication" (Cowie, 1998a, p. 2). He developed the Meaning-Text Theory (1981, 1988) to "assign to the lexicon a central place" (Mel'čuk & Polguère, 1987, p. 261) by providing linguists with a method for its description, based on the idea that semantics has priority over syntax. Furthermore, he classified phraseological units into two groups: (1) *set phrases* (or *phrasemes*), which refer to non-compositional and expressions of "'irregular' semantic and syntactic nature" (Mel'čuk, 1998, p. 24), and (2) *free phrases*, whose elements are freely chosen and combined, and adhere to the semantic and syntactic rules of a language.

Finally, a perspective that must be highlighted when dealing with collocations is the one based on the frequency of the co-occurrences. The statistical approach emerged in the 1970s and the 1980s along with the development of corpus and computational linguistics. John Sinclair was the leading figure and defined a collocation as "the occurrence of two or more words within a short space of each other in a text [which are] frequently repeated" (1991, p. 170). To put it differently, two words do not need to co-occur in immediate text, but they can be separated by a span of four other words. Moreover, both words can become the *node* (or the base, i.e., the one under study) and the *collocate* of the combination, depending on where the focus is.

2.1 Features and types

Considering the different perspectives from which collocations can be covered, this research adopts a hybrid approach by combining the frequency of co-occurrence, combination restrictions, and semantic opacity. Before exploring these variables separately, other factors must be acknowledged. For instance, regarding the number of elements included in a collocation, it is generally accepted that they are composed of two lexical items (Baker, 2016; Gablasova et al., 2017; Uhrig et al., 2018) which do not have the same status within the combination (Corpas Pastor, 2017b; Sánchez-Berriel et al., 2018; Valencia Giraldo & Corpas Pastor, 2019), that is, the base and the collocate.
As for the frequency of co-occurrence of the constituents, it seems to be the most widely accepted characteristic, since it is used in plenty of definitions, such as "frequency of use […] is an important indicator" (Brezina et al., 2015, p. 140), "frequent combinations" (Buendía Castro & Faber, 2017, p. 196), "the statistically frequent co-occurrence of words" (Cao & Deignan, 2019, p. 234), "combinations of words which […] occur together much more frequently than one would predict" (Dąbrowska, 2014, pp. 401-402), "collocation stability is related to […] repeated and frequent use" (Lorente Casafont et al., 2017, p. 204), "Collocations are especially frequency sensitive" (Riches et al., 2021, p. 4), "'habitual' word combinations" (Matsuno, 2017, p. 61). Nevertheless, experts have not reached a consensus yet on how often two elements must co-occur in order to be categorized as a collocation.
Apart from frequency, another criterion that defines a collocation is the combination restrictions of a word. It is widely considered that there is not an underlying motivation for two words to co-occur in a language, to put it differently, collocations are "comprised of a sequence of words which, for mostly arbitrary reasons, occur together" (Zaabalawi & Gould, 2017, p. 21). However, collocational choices block other options. For instance, the adjectives *strong* and *powerful* collocate with *argument*, whereas only *strong* collocates with *tea* and only *powerful* collocates with *car* (Halliday, 1966). Thus, *strong* could be substituted for *powerful* at the paradigmatic axis when they modify *argument* at the syntagmatic axis, but it would not be possible with *tea* or *car*.
With respect to the semantic compositionality of collocations, they are said to be located along a continuum between free combinations, which are completely transparent, and idiomatic expressions, which are semantically opaque. Hence collocations are not entirely transparent in meaning, that is, some of them "cannot be understood on the basis of its constituents" (Henriksen, 2013, p. 33). As an illustration,

it is utterly impossible to find the height in *highly dangerous* or the having in *have a look*. Consequently, we agree with Revier (2009) that collocations must be interpreted as "*holistic units*" (p. 128), for the meaning conveyed by one element may entirely depends on the other.

Moving on to a typology of these word combinations, classifications based on the grammatical category of their components have been typical throughout the years (e.g., Corpas Pastor, 1996; Hausmann, 1989; Koike, 2001; Seretan, 2011; Uhrig et al., 2018). Without a doubt, the most comprehensive classification and the one which has inspired other linguists belongs to Morton Benson, Evelyn Benson, and Robert Ilson (1986). They distinguish between two categories: (1) *grammatical collocations*, where a lexical word (noun, adjective, verb, adverb) is combined with a preposition or grammatical structure, such as a *that*-clause or an infinitive (e.g., *an agreement that, necessary to*), and (2) *lexical collocations*, which are constituted by two lexical words (e.g., *warmest regards, to commit murder*). Each of the groups consists of a significant number of subtypes.

In this research, we are particularly interested in lexical collocations of verbs, thus, the distinct types which will be potentially examined are verb + noun (e.g., *break a consensus, pose a risk*), noun + verb (e.g., *a war breaks out, his writings reflect*), adverb + verb/verb + adverb (e.g., *honestly think, sleep soundly*), and verb + adjective (e.g., *become tired, smell delicious*). This typology can characterize both general and specialized collocations, being the latter the topic of the next section.

3. Specialized collocations: their role in the language of tourism

Although interest in collocations was first expressed in the 1930s and they have been examined since then, the investigations have chiefly centered on word combinations found in the general language, ignoring their role in specialized languages. However, the same phenomenon of collocation is present in specialized texts.

Since the 1990s, several authors have explored collocations and their characterization in this kind of texts within the discipline of Terminology (cf. Budin, 1990; Buendía Castro, 2020; Cigan, 2018; Heid, 2001; Leiva Rojo, 2018; L'Homme, 1998, 2017; L'Homme & Leroyer, 2009; Pavel, 1993; Sanz Vicente, 2011, to name but a few). Approaching collocations from this perspective offers significant advantages (Cabré

Castellví et al., 1996, pp. 5-6), for instance: (1) terms are contextualized, which facilitates their identification and conceptual delimitation; (2) terminological resources might incorporate specialized collocations, encouraging their use; and (3) this incorporation would favor the design of criteria for the selection of these units.
Nevertheless, general and specialized collocations do not differ greatly. For instance, Patiño (2014) points out that "In specialized texts, the same phenomenon of collocation is present" (p. 125) and defines a specialized collocation in terms of the same features which characterize the collocations found in the general language, namely: (1) unpredictability, (2) semi-compositionality, and (3) statistical tendency of preference.
The main idea about specialized collocations is that they convey a specialized meaning and are combinations of terms (or, at least, they contain one term). Moreover, they represent an academic community that acquires them by choice, therefore, they are used to express specialized knowledge.
In this context, collocations have been addressed through a wide range of specialized languages in the last decades. For example, research has been done on the role of collocations in the field of English for Academic Purposes (Frankenberg-Garcia, 2018), in the language of medicine (Bieliaieva et al., 2017), law (Biel et al., 2018), the environment (Buendía Castro et al., 2014), economics (Malyuga & Madinyan, 2020), or scientific writing (Jiménez-Navarro, 2019). In the context of the language of tourism, which is the one under study here, there have been few studies on these word combinations to the best of our knowledge, despite being characterized by a series of phraseological units (Fuster-Márquez, 2014, p. 85). For instance, Fuster-Márquez (ibid.) demonstrates that "hotel websites share highly distinctive phraseological preferences which are not shared by other registers or text types" (p. 105).
Some examples are the works performed by Alfonso Corbacho Sánchez (2005), who conducts a contrastive study of specialized collocations containing the bases *Tour(ismus)* [tourism], *Reise* [trip], and *Fahrt* [trip] in German and their translations into Spanish, and Corbacho Sánchez (2017), where the author analyzes verb + noun collocations and proves that the language of German tourism is characterized by an array of specific collocations which give it the status of specialized language.
Apart from nouns, the collocations of other word types have also been explored. By way of illustration, Elena Manca (2008) centers on specialized collocations containing qualifying adjectives in British and Italian texts; Sara Piccioni and Gianluca Pontrandolfo (2019) analyze the collocations of fictive motion verbs in the language of

tourism in general and point out that metaphors are a key feature of the texts used in tourism; and Durán-Muñoz and Jiménez-Navarro (2021) present a contrastive study (English-Spanish) of collocations of verbs included in the semantic frame TRAVERSING (*cross, pass, traverse*) in adventure tourism. These studies are clearly the background of the current research, whose ultimate aim is to contribute to the characterization of the language of adventure tourism.

4. Methodology

The methodology employed in this research is divided into three steps: (1) extract and select a list of motion verbs from a specialized corpus of promotional texts, (2) retrieve their collocates, and (3) identify fictive motion in the collocations selected. They are explained in the next subsections.

4.1 Extraction and selection of motion verbs

The specialized corpus used in this study is the ADVENCOR corpus, compiled for the linguistic analysis of the terminology and phraseology found in the specialized language of adventure tourism. It contains original English written promotional texts about adventure tourism published in websites hosted in English speaking countries all over the world, such as the United Kingdom, the United States, and Ireland. The corpus management software Sketch Engine[2] was employed for its automatic compilation. However, some manual work was needed to discard several webpages which did not adjust to the criteria set, for instance, they had not been originally written in English or may contain unreliable information (such as *YouTube, Amazon, eBay*). The final result was a monolingual specialized corpus containing 1,005,480 words and whose main features are described in Table 1.

Table 1. Defining characteristics of the ADVENCOR corpus

Number of words	1,005,480
Number of types	50,401
Type of corpus	Specialized/electronic

[2] URL: https://www.sketchengine.eu/ (Last accessed: 25/07/2022)

Size	Small
Mode	Written
Language	English
Domain	Tourism
Subdomain	Adventure tourism
Genre	Promotional
Text length	Complete texts
Purpose	Terminological and phraseological analyses
Communicative situation	Semi-specialized
Publication date	Recent
Source of texts	Websites
Publishers	English-speaking public or private institutions

After the compilation of the specialized corpus, its exploration was also undertaken with the above-mentioned software Sketch Engine. The extraction of candidate motion verbs was performed through the 'Keywords' function. It employs a hybrid method whereby statistical plus linguistic information is considered, which is the ideal situation for terminology extraction (Vargas-Sierra, 2010, p. 33). The keyness score, *simple math* (Kilgarriff, 2009), utilizes a reference corpus (the one set by default was the English Web 2013, known as 'enTenTen13,' for it was the largest English corpus available in Sketch Engine at the time of this research) to measure the difference between keyness in the two corpora. At this point, no threshold was set because simple math produces real keywords, so we were confident that they were typical of the specialized corpus. Nevertheless, a minimum frequency of the candidate verbs was set in two, that is, the verb should occur at least two times in the ADVENCOR corpus to avoid a haphazard use. A list of 978 candidate verbs was produced automatically. However, manual work was needed to evaluate the results for two reasons: first, because automatic extraction can be imperfect due to taggers that are not 100% correct, and second, because we were interested in verbs representing motion. Consequently, 860 candidates were discarded for the following reasons:

a. They were not regarded as motion verbs (e.g., *beep, enroll*)
b. They belonged to different parts of speech (e.g., *our, these*)
c. They were abbreviations (e.g., *yrs, lbs*)
d. They bore no specific relation to the domain of adventure tourism (e.g., *book, chime*)

e. They displayed distinct lemmata of the same motion verb (e.g., *paraglided, paraglides, paragliding* for *paraglide*)

The final list of motion verbs amounted to 118. A sample of the verbs selected is shown in Table 2.

Table 2. Extract from the list of the motion verbs selected

1. *skydive*-v	2. *raft*-v
3. *rappel*-v	4. *trek*-v
5. *abseil*-v	6. *glide*-v
7. *canoe*-v	8. *hike*-v
9. *parachute*-v	10. *paddle*-v

4.2 Extraction of collocates

The 'Word Sketch' function of Sketch Engine was profitably exploited to obtain potential lexical collocates of the motion verbs selected in the previous step. Thus, the resulting combinations were verb + noun, noun + verb, and adverb + verb/verb + adverb collocations (no verb + adjective collocations were identified). Two criteria were applied: first, a minimum *logDice* score of 7 points, which is half the theoretical maximum and a useful indicator of a significant association (Aldhubayi & Alyahya, 2014, p. 428), and second, a frequency cut-off threshold of two tokens, following Stefan Evert's (2009) statement that "any pair of words that co-occur at least twice in a corpus is a potential collocation" (p. 1215).

In addition to this, one more step was taken in order to ensure that they could be regarded as typical collocations of the domain under study. To explain, the *logDice* scores obtained in the ADVENCOR corpus were matched against the *logDice* scores obtained for the same collocations in the reference corpus 'enTenTen13.' When the former were higher than the latter, it could be safely assumed that the collocations selected were characteristic of the specialized language of adventure tourism.

The criteria set were satisfied by 55 motion verbs, some of which are represented in Table 3.

Table 3. Extract from the list of motion verbs which produced collocations

1. *abseil*-v	2. *arrive*-v

3. *ascend*-v	4. *board*-v
5. *cascade*-v	6. *climb*-v
7. *cross*-v	8. *depart*-v
9. *descend*-v	10. *drive*-v

4.3 Identification of fictive motion in collocations

The ‘Concordance’ function of Sketch Engine gave access to the contexts of the collocations that had satisfied the previous extraction criteria. This step allowed us to have a closer look at the verbs and their collocates and, thus, identify fictive motion events within the set of collocations under study. To illustrate, examples (1) and (2) represent actual motion of the verbs *ascend*-v and *descend*-v, given that the subjects of the actions are animate entities.[3] However, examples (3) and (4) display fictive motion of the same verbs, respectively, since the subjects of the motion are inanimate entities, that is, they are characterized as if they were moving, but they are static in the real life:

(1) ***You*** *also* <u>*ascend*</u> *more slowly, walking up the long valley*.

(2) *Your canopy opens and* ***you*** <u>*descend*</u> *safely down to earth*.

(3) *The scenery becomes more remarkable as* **the climb** <u>*ascends*</u> *toward Larkya La*.

(4) ***The trail*** *again gradually* <u>*descends*</u> *until Phakding*.

Checking the concordance lines of the collocations also permitted to assign semantic roles to the participants in the argument structures of the motion verbs according to the classification suggested by Durán-Muñoz and L’Homme (2020) and, therefore, to carry out a deeper analysis. This led to detection of the different participants (both arguments and circumstantials) of the verbs, as illustrated in example (5):

(5) *During the first 4 miles* [DURATION] ***the trail*** [PATH] <u>*climbs*</u> *about 2000 feet* [DISTANCE] *past the beautiful Vernal Falls and Nevada Falls* [PLACE].

The total number of motion verbs occurring in collocations that triggered fictive motion events was eight, namely: *ascend*-v, *climb*-v, *cross*-v, *descend*-v, *head*-v, *reach*-v, *rush*-v, and *wind*-v. The findings they revealed are presented in the following section.

[3] The verbs are underlined, and the subjects of the verbs are highlighted in bold.

5. Results

This section presents the study performed on the fictive meaning of the verb *climb*-v as a way of example, while the collocations of the other verbs (i.e., *ascend*-v, *cross*-v, *descend*-v, *head*-v, *reach*-v, *rush*-v, and *wind*-v) are displayed in Appendix 1. Besides, subsection 5.2 provides an analysis of the results, including relevant quantitative and qualitative findings.

5.1 Analysis model: *climb*-v

The fictive meaning of the motion verb *climb* (*climb*-v) was one of the most productive one in terms of collocations. Table 4 shows these word combinations and the results organized in different columns, including their *logDice* score and the frequency per million (*fpm*)[4] in both corpora, that is, the specialized corpus (ADVENCOR) and the reference corpus ('enTenTen13'). They are ranked according to the *logDice* score obtained in the former. These data and the analysis of the contexts allowed us to: (1) unveil the meaning of the motion verbs, (2) know the most recurrent and strongest types of collocations, and (3) identify the most common semantic roles played by the collocates and other participants.

Table 4. *logDice* score and frequency per million of the collocations containing *climb*-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
climb steeply	10.16	5.02	8.4	0.07
climb up	10.11	32.15	5.98	1.77
gradually climb	9.64	4.01	5.82	0.05
climb uphill	9.43	3.01	7.18	0.03
(a) pitch climb	8.81	8.03	4.02	0.006
climb (a) face	7.89	7.03	4.69	0.04
(a) trail climb	7.76	6.02	7.07	0.08
(a) route climb	7.03	3.01	5.59	0.02

[4] This score allows linguists to compare frequencies in corpora of different sizes and is calculated by dividing the overall frequency of the collocation in the corpus by the number of words contained in the corpus. Then, the result is multiplied by 1,000,000.

This verb produced three different types of lexical collocations, namely, adverb + verb/verb + adverb (four), noun + verb (three), and verb + noun (one). The strongest collocations are the ones where the verb is modified by an adverb, but they are not in all the cases the most frequent combinations. To clarify, while *(a) pitch climb, climb (a) face*, and *(a) trail climb* have a lower *logDice* score, they are more recurrent than three of the adverb + verb/verb + adverb collocations, that is, *climb steeply, gradually climb*, and *climb uphill*. Furthermore, all the collocations are stronger and more frequent in the specialized corpus than in the reference corpus, therefore, they can be considered typical collocations of the specialized language of adventure tourism.

With respect to the meaning of the verb, *climb*-v usually refers to upward direction on a vertical axis.[5] In fact, this feature is emphasized in the collocations *climb up* and *climb uphill*, where the two collocates, *up* and *uphill*, represent the semantic role DIRECTION. Another semantic role played by the collocates is MANNER. For instance, *climb steeply* suggests that the climbing activity is performed in a difficult way, and *gradually climb* involves a slow climbing happening in small stages. Similarly, the PLACE where the motion event takes place is provided in *climb (a) face*. Finally, the stationary PATH which seems to be moving is specified in the collocations *(a) pitch climb, (a) trail climb*, and *(a) route climb*. The following examples[6] show concordance lines of the collocations containing *climb*-v:

(6) ***The trail*** *climbs steeply requiring participants to be hands free*.

(7) ***The first two pitches*** *climb up to a wide ledge*.

(8) *Look for* ***a path*** *that gradually climbs down from the ridge*.

(9) *Cross the bridge and turn right onto* ***a small track****, which climbs uphill*.

(10) ***The second pitch*** *climbs over a 60-foot pillar*.

(11) ***The route*** *climbs the northwest face of the Tofana di Rozes*.

(12) ***The trail*** *climbs a small hillside*.

(13) *We did* ***an 80-foot route*** *that climbs a short face*.

Apart from the semantic roles represented by the collocates, others can be identified in the contexts. For instance, 60% of the sentences which do not exemplify a noun + verb collocation has a PATH as the subject, which is at the same time recognized as a

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[5] The verb *climb*-v can also indicate a downward direction, although it is not very frequent. In this study, all the collocations identified for the meaning of fictive motion refer to upward direction. In a previous study, Jiménez-Navarro (2020) discovered downward direction of motion in one collocation containing *climb*-v, namely, *climb down*, although it was only extracted for actual motion events.

[6] The collocations are underlined, and the subjects of the verbs are highlighted in bold.

collocate of the verb, namely, *trail* in (6), *pitches* in (7), and *route* in (11). The other two, *path* in (8) and *track* in (9), also represent PATH, but there were not enough recurrences of the combinations in the corpus so as to identify both nouns as collocates of *climb*-v. On the other hand, the PLACE that is climbed is provided in (12): *a small hillside* and (13): *a short face*; in fact, the latter is another example of the collocation *climb (a) face* along with (11). Additionally, the DESTINATION of motion is specified in (7): *to a wide ledge*, and the DIRECTION and SOURCE of motion are mentioned in (8): *down from the ridge*. Both the DESTINATION and DIRECTION are introduced by a prepositional phrase. Last but not least, it must be said that most of the uses of *climb*-v are intransitive, except for the examples (11), (12), and (13), where the verb is accompanied by a direct object.

5.2 Analysis of results

The analysis performed in this paper covers the eight motion verbs which produced collocations representing fictive motion according to the extraction criteria established, that is, *ascend*-v, *climb*-v, *cross*-v, *descend*-v, *head*-v, *reach*-v, *rush*-v, and *wind*-v. This analysis focuses on several aspects: (1) the meaning of the motion verbs, (2) the types of collocations extracted, their frequency, and strength, (3) the collocation production of the verbs as well as the strength and recurrence of the collocations, and (4) the semantic roles played by the collocates.

A closer look at the meaning of the verbs reveals that *ascend*-v, *climb*-v, and *descend*-v describe motion on a vertical axis. While the first two suggest upward direction of motion, the last one implies downward direction of motion. On the other hand, *cross*-v focuses attention on a path that goes from one side to the other, and *head*-v describes direction oriented toward a destination. Also *reach*-v is related to destination, although it centers on the arrival in the destination. Finally, the implied meaning of *rush*-v and *wind*-v draws attention to the speed and the direction of motion, which is very quick and twisting, respectively. As for the constructions in which these verbs are found, 75% of them are used transitively and intransitively (i.e., *ascend*-v, *climb*-v, *descend*-v, *cross*-v, *head*-v, and *wind*-v), whereas 12.5% occurs only in transitive constructions (*reach*-v) and 12.5% is used only in intransitive sentences (*rush*-v).

In total, our study covers 35 collocations. The most productive verbs are *climb*-v and *cross*-v, for each of them produced eight collocations. After that, *descend*-v produced seven collocations, and *ascend*-v and *head*-v produced four collocations each. Finally, the least productive verbs are *wind*-v, which produced two collocations, and *reach*-v and *rush*-v, each of which produced only one. The most recurrent lexical collocation is noun + verb, since we identified 20 different types (57.14%), for instance, *(a) bridge cross, (a) trail reach, (a) road wind*. After that, there are nine combinations (25.72%) where the verb is modified by an adverb (occurring either before or after the verb), such as *climb steeply, slowly descend, head north*. Finally, six collocations (17.14%) consist of the motion verb followed by a noun, for example, *ascend (a) slope, cross (a) river, descend (a) gully*. These three lexical types are present in the collocations of *climb*-v and *descend*-v. Then, *ascend*-v and *cross*-v host two distinct types (noun + verb and verb + noun) as well as *head*-v (noun + verb and verb + adverb), and the rest of the verbs (i.e., *reach*-v, *rush*-v, and *wind*-v) only one (noun + verb). Nevertheless, frequency and strength of the lexical types of collocations are not correlated, given that noun + verb collocation is the most recurrent type in general, but the average *logDice* score of these combinations is the weakest (8.78 points). In fact, this score is the highest in the least common type, namely, verb + noun collocation (10.47 points), which is closely followed by the score of the verb + adverb/adverb + verb combinations (10.31 points).

In the same vein, collocation production and strength are not correlated, for the average *logDice* score of the collocations produced by highly productive verbs is not very high. As an illustration, *climb*-v was one of the most productive verbs (eight collocations), but the average score of these word combinations is 8.85 points. However, *rush*-v only produced one collocation, although a particularly strong one since it obtained 10.97 points. By the same token, *head*-v and *ascend*-v produced four collocations each, but their average *logDice* score is quite high, namely, 9.85 and 9.83 points, respectively. In addition to that, collocation strength and recurrence are not connected, since the verbs producing the strongest collocations were less frequently used in the corpus. As an example, the average *fpm* of the collocations produced by *head*-v (average *logDice* score: 9.85 points) and *descend*-v (average *logDice* score: 9.63 points) is 4.51 and 4.01 tokens, whereas it is 8.53 tokens for *climb*-v (average *logDice* score: 8.85 points). Last but not least, it must be emphasized that the figures representing the average *logDice* scores and *fpm* in the reference corpus are all lower than in the ADVENCOR corpus, which means that the collocations selected are specialized collocations characterizing the domain of adventure tourism. Table 5 collects these data; the verbs are organized according to the collocation average *logDice* score obtained in the specialized corpus.

Table 5. Average *logDice* score and frequency per million of the collocations produced by the verbs

Verb	**Number of collocations produced**	**Collocation average *logDice* in ADVENCOR**	**Collocation average *fpm* in ADVENCOR**	**Collocation average *logDice* in 'enTenTen13'**	**Collocation average *fpm* in 'enTenTen13'**
rush-v	1	10.97	2	4.3	0.01
head-v	4	9.85	4.51	6.77	0.31
ascend-v	4	9.83	4.26	5.34	0.01
cross-v	8	9.76	8.53	6.98	0.41
descend-v	7	9.63	4.01	6.22	0.03
climb-v	8	8.85	8.53	6.09	0.25
wind-v	2	8.65	4.51	7.13	0.08
reach-v	1	7.99	3.01	4.51	0.03

The previous syntactic analysis of the collocations selected sheds additional light on the semantic roles played by the collocates of the verbs, which is the last aspect covered in this section. For instance, the most recurrent lexical collocation is noun + verb (57.14%), from which it can be inferred that the collocates of the verbs participating in fictive motion events tend to portray the inanimate entity which seems to perform motion. The collocate in these cases represents a PATH and belongs to the argument structure of the verbs, for it is a core element necessary to understand the meaning of the accompanying motion verb. The most recurrent collocate is *(a) trail* (35%), which co-occurs with all the verbs except for *rush*-v. After that, *(a) route* is identified in collocations with *ascend*-v, *climb*-v, *cross*-v, and *descend*-v (20%), and *(a) road* and *(a) path* co-occur with two verbs each (10% each), namely, *cross*-v and *wind*-v with the former and *descend*-v and *head*-v with the latter. Moreover, PATH is also a semantic role present in verb + noun collocations (50%), such as *cross (a) bridge, cross (a) river,* and *cross (a) stream*. Apart from PATH, the argument PLACE is also identified in some nominal collocates functioning as the direct object of the verbs (50%), namely, *ascend (a) slope, climb (a) face,* and *descend (a) gully*.

Moving on to the combinations where the motion verb is accompanied by an adverb, most of these elements (66.67%) represent a circumstantial, that is, a semantic role that adds extra information to the motion but is not central to the meaning of the verb. The most common semantic role is MANNER, present in five collocations: *climb steeply, gradually climb, gradually descend, descend steeply*, and *head directly*; SPEED is the other circumstantial discovered in one collocation: *slowly descend/descend slowly*. As we can see, *steeply* and *gradually* are the most recurrent adverbial collocates. On the other hand, some adverbs (33.33%) are considered arguments, that is, core elements of the meanings of the verbs, and all of them represent DIRECTION: *climb up, climb uphill*, and *head north*. Summarizing, five semantic roles (being PATH in two different positions) are played by the collocates of the motion verbs selected in this work, as Figure 1 reveals.

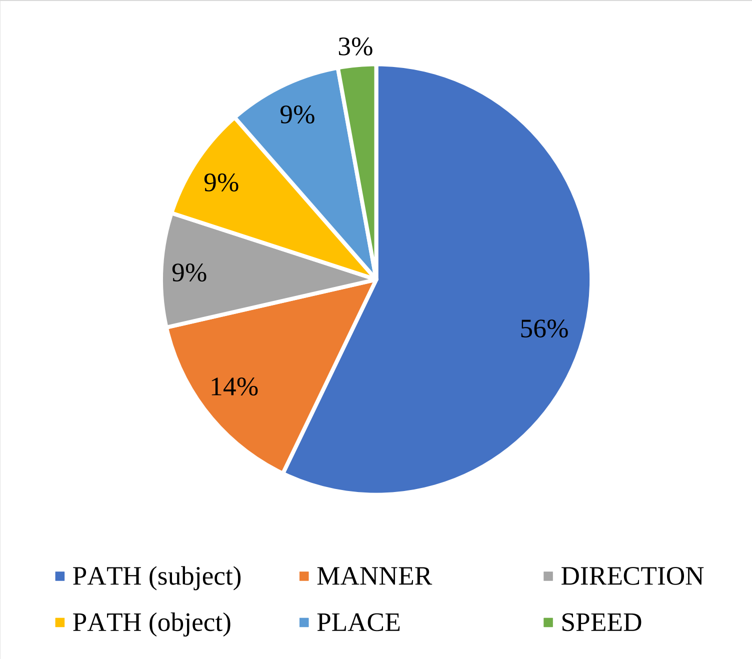

Figure 1. Frequency of the semantic roles of the collocates

An interesting fact is that the semantic roles SOURCE and DESTINATION, present in the argument structure of the vast majority of the verbs under analysis, are not described by the collocates extracted. Nevertheless, they are very recurrent if we delve into the contexts extracted from the corpus, as it is displayed in the following examples:[7] *<u>The Moraine Trail</u> [...] <u>ascends a gentle slope</u>* ***from Snowshed Pond*** *through wooded and glacial moraine before joining the Wildlands Trail* (SOURCE); ***From this creek bed*** *<u>the trail</u> turns sharply to the west and <u>heads directly</u> toward the shoreline of Lewis Lake* (SOURCE); *We walk on <u>a trail that gradually descends</u>* ***to Cheplung village***

[7] The collocations are underlined, and the words representing a semantic role are highlighted in bold.

(DESTINATION); *We take the local bus on a road which winds through the mountains* ***to Misurina Lake*** (DESTINATION).

Finally, some other circumstantials discovered in the contexts are: (1) TIME, such as ***Today*** *the trail ascends first to a ridge* ***before dropping steeply through Simbu (1700m)***; (2) CONDITION, for instance, *The trail climbs steeply* ***requiring participants to be hands free as they pull on trees and rocks to make their way up to the rock scramble***; and (3) DISTANCE, for example, *In one tenth of a mile keep straight when a woods road crosses over and across a wooden footbridge* ***in another tenth of a mile***.

6. Conclusions

This paper has examined the collocations of the fictive meanings of a set of motion verbs used in adventure tourism, namely, *ascend*-v, *climb*-v, *cross*-v, *descend*-v, *head*-v, *reach*-v, *rush*-v, and *wind*-v. The findings of this study confirm the specialization of the language of adventure tourism, since all the collocations selected display higher figures regarding average *logDice* scores and *fpm* in the ADVENCOR corpus than in the reference corpus.

As for productivity, the fictive meaning of the verbs *climb*-v and *cross*-v are the most productive ones, producing eight collocations each. Although the other verbs also show different word combinations (from seven to two), the verb *rush*-v and *reach*-v have only one each.

The most recurrent lexical collocation is noun + verb with 20 different types, followed by the verb + adverb/adverb + verb combination. The construction with less collocations (six) is verb + noun, as most of the motion verbs analyzed are intransitive. However, frequency and strength of these structures are not correlated, given that, despite being noun + verb collocation the most recurrent type in general, the average *logDice* score of these combinations is the weakest (8.78 points). This can be explained by the high frequency of these structures in the general language, but further research on this is required.

Finally, the analysis of the fictive meaning of these verbs also provides information about the participants of the verbs, that is, arguments and circumstantials, and shows that the most common semantic role in these units is PATH as subject, followed from a distance by MANNER, DIRECTION, PATH (as object), and PLACE.

To sum up, the corpus-based analysis performed in this research provides relevant information about a set of motion verbs with fictive meaning in the language of adventure tourism and proves the specialization of this domain. Besides, the methodology followed allows us to complete the lexico-semantic analysis of the verbs and detect their main arguments, which is important to disambiguate their meanings. This will be applied to further analyses of other sets of verbs, both with fictive and real meanings in English, but also in other languages, like Spanish, which will help us enrich the specialized resource *DicoAdventure* (under construction).[8]

References

Aldhubayi, L., & Alyahya, M. (2014). Automated Arabic antonym extraction using a corpus analysis tool. *Journal of Theoretical and Applied Information Technology, 70*(3), 422–433.

Baker, P. (2016). The shapes of collocation. *International Journal of Corpus Linguistics, 21*(2), 139–164. https://doi.org/10.1075/ijcl.21.2.01bak

Bally, C. (1909). *Traité de Stylistique Française, vol. I.* Carl Winters Universitätsbuchhandlung.

Benson, M., Benson, E., & Ilson, R. (1986). *The BBI combinatory dictionary of English: A guide to word combinations*. John Benjamins Publishing Company.

Biel, Ł., Biernacka, A., & Jopek-Bosiacka, A. (2018). Collocations of terms in EU competition law: A corpus analysis of EU English collocations. In S. Marino et al. (Eds.), *Language and law. The role of language and translation in EU Competition Law* (pp. 249–274). Springer. https://doi.org/10.1007/978-3-319-90905-9_14

Bieliaieva, O. M., Lysanets, Y. V., Znamenska, I., Roxhenko, I. V., & Nikolaieva, N. M., (2017). Terminological collocations in medical Latin and English: A comparative study. *Wiadomosci Lekarskie, 70*(1), 139–143.

Brezina, V., McEnery, T., & Wattam, S. (2015). Collocations in context: A new perspective on collocation networks. *International Journal of Corpus Linguistics, 20*(2), 139–173. https://doi.org/10.1075/ijcl.20.2.01bre

[8] URL: http://olst.ling.umontreal.ca/dicoadventure/ (Last accessed: 25/07/2022)

Budin, G. (1990). Terminological analysis of LSP phraseology. *Terminology Science and Research. Journal of the International Institute for Terminological Research (IITF), 1*(1-2), 64–69.

Buendía Castro, M. (2020). *La fraseología en lexicografía y terminografía: Aplicaciones a la traducción*. Comares.

Buendía Castro, M., & Faber, P. (2017). Verb collocations for natural disasters: A contrastive study of Mexican and Peninsular Spanish. *Sendebar, 28*, 189–208.

Buendía Castro, M., Montero Martínez, S., & Faber, P. (2014). Verb collocations and phraseology in EcoLexicon. *Yearbook of Phraseology, 5*(1), 57–94. https://doi.org/10.1515/phras-2014-0004

Cabré Castellví, M. T., Estopà Bagot, R., & Lorente Casafont, M. (1996). Terminología y fraseología. Paper presented at the *V Simposio de Terminología Iberoamericana*, Ciudad de México (Mexico).

Cao, D., & Badger, R. (2021). Cross-linguistic influence on the use of L2 collocations: The case of Vietnamese learners. *Applied Linguistics Review*, 1–26. https://doi.org/10.1515/applirev-2020-0035

Cao, D., & Deignan, A. (2019). Using an online collocation dictionary to support learners' L2 writing. In C. Wright, L. Harvey, & J. Simpson (Eds.), *Voices and practices in applied linguistics: Diversifying a discipline* (pp. 233–249). White Rose University Press. https://doi.org/10.22599/BAAL1.n

Cigan, V. (2018). Terminological collocations and term variation in mechanical engineering discourse. *FLUMINENSIA: časopis za filološka istraživanja*, *30*(2), 91–120. https://doi.org/10.31820/f.30.2.3

Corbacho Sánchez, A. (2005). Los conceptos de *Tour*(ismus) y *Reise* en los fraseologismos alemanes y su traducción al español. *Pragmalingüística, 13*, 65–75. https://doi.org/10.25267/Pragmalinguistica.2005.i13.04

Corbacho Sánchez, A. (2017). Colocaciones verbo-nominales de la correspondencia hotelera en alemán: Incidencia en la enseñanza y traducción al español. *Encuentro, 26*, 94–112.

Corpas Pastor, G. (1996). *Manual de fraseología española*. Gredos.

Corpas Pastor, G. (2017a). Collocational constructions in translated Spanish: What corpora reveal. In R. Mitkov (Ed.), *Computational and corpus-based phraseology. Second International Conference, Europhras 2017, London, UK, November 13–14,* *2017. Proceedings. Lecture Notes in Artificial Intelligence 10596* (pp. 29–40). Springer. https://doi.org/10.1007/978-3-319-69805-2_3

Corpas Pastor, G. (2017b). Collocations in e-bilingual dictionaries: From underlying theoretical assumptions to practical lexicography and translation issues. In S. Torner & E. Bernal (Eds.), *Collocations and other lexical combinations in Spanish: Theoretical, lexicographical and applied perspectives* (pp. 173–199). Routledge.

Cowie, A. P. (1981). The treatment of collocations and idioms in learners' dictionaries. *Applied Linguistics, 2*(3), 223–235. https://doi.org/10.1093/applin/II.3.223

Cowie, A. P. (1998a). Past achievements and current trends. In A. P. Cowie (Ed.), *Phraseology: Theory, analysis and applications* (pp. 1–20). Clarendon Press.

Cowie, A. P. (1998b). Phraseological dictionaries: Some east-west comparisons. In A. P. Cowie (Ed.), *Phraseology: Theory, analysis and applications* (pp. 209–228). Clarendon Press.

Dąbrowska, E. (2014). Words that go together: Measuring individual differences in native speakers' knowledge of collocations. *The Mental Lexicon*, *9*(3), 401–418. https://doi.org/10.1075/ml.9.3.02dab

DicoAdventure. An online dictionary of adventure tourism. OLST.

Du, X., Afzaal, M., & Al Fadda, H. (2022). Collocation use in EFL learners' writing across multiple language proficiencies: A corpus-driven study. *Frontiers in Psychology, 13*, 1–10. https://doi.org/10.3389/fpsyg.2022.752134

Durán-Muñoz, I., & Jiménez-Navarro, E. L. (2021). Colocaciones verbales en el turismo de aventura: Estudio contrastivo inglés-español. In G. Corpas Pastor, M. R. Bautista Zambrana, & C. M. Hidalgo-Ternero (Eds.), *Sistemas fraseológicos en contraste: Enfoques computacionales y de corpus* (pp. 121–142). Comares.

Durán-Muñoz, I., & L'Homme, M.-C. (2020). Diving into English motion verbs from a lexico-semantic approach. A corpus-based analysis of adventure tourism. *Terminology*, *26*(1), 33–59. https://doi.org/10.1075/term.00041.dur

Egorova, E., Tenbrink, T., & Purves, R. S. (2018). Fictive motion in the context of mountaineering. *Spatial Cognition & Computation, 18*(4), 259–284. https://doi.org/10.1080/13875868.2018.1431646

Evert, S. (2009). Corpora and collocations. In A. Lüdeling & M. Kytö (Eds.), *Corpus linguistics. An international handbook, vol. II* (pp. 1212–1248). Walter de Gruyter. https://doi.org/10.1515/9783110213881.2.1212

Frankenberg-Garcia, A. (2018). Investigating the collocations available to EAP writers. *Journal of English for Academic Purposes, 35,* 93–104. https://doi.org/10.1016/j.jeap.2018.07.003

Fuster-Márquez, M. (2014). Lexical bundles and phrase frames in the language of hotel websites. *English Text Construction,* *7*(1), 84–121. https://doi.org/10.1075/etc.7.1.04fus

Gablasova, D., Brezina, V., & McEnery, T. (2017). Collocations in corpus-based language learning research: Identifying, comparing, and interpreting the evidence. *Language Learning, 67*(S1), 155–179. https://doi.org/10.1111/lang.12225

Granger, S. (2019). Formulaic sequences in learner corpora: Collocations and lexical bundles. In A. Siyanova-Chanturia & A. Pellicer-Sánchez (Eds.), *Understanding formulaic language: A second language acquisition perspective* (pp. 228–247). Routledge.

Halliday, M. A. K. (1966). Lexis as a linguistic level. In C. E. Bazell, J. C. Catford, M. A. K. Halliday, & R. H. Robins (Eds.), *In memory of J. R. Firth* (pp. 148−162). Longman.

Hausmann, F. J. (1989). *Wörterbücher: Ein Internationales Handbuch zur Lexikographie / Dictionaries: An International Encyclopedia of Lexicography / Dictionnaires: Encyclopédie Internationale de Lexicographie, vol. I.* Walter de Gruyter.

Heid, U. (2001). Collocations in sublanguage texts: Extraction from corpora. In S. E. Wright & G. Budin (Eds.), *Handbook of terminology management, vol. 2: Application-oriented terminology management* (pp. 788−808). John Benjamins Publishing Company. https://doi.org/10.1075/z.htm2.31hei

Henriksen, B. (2013). Research on L2 learners’ collocational competence and development – A progress report. In C. Bardel, B. Laufer, & C. Lindqvist (Eds.), *L2 vocabulary acquisition, knowledge and use* (pp. 29–56). Erosla.

Jiménez-Navarro, E. L. (2019). Nominal collocations in scientific English: A frame-semantic approach. In G. Corpas Pastor & R. Mitkov (Eds.), *Computational and corpus-based phraseology. Third International Conference, Europhras 2019. Málaga, Spain, September 25-27, 2019. Proceedings. Lecture Notes in Artificial Intelligence 11755* (pp. 187–199). Springer. https://doi.org/10.1007/978-3-030-30135-4_14

Jiménez-Navarro, E. L. (2020). *Treatment and representation of verb collocations in the specialized language of adventure tourism* (Doctoral thesis). Universidad de Córdoba, Córdoba, Spain. https://helvia.uco.es/xmlui/handle/10396/20976

Kilgarriff, A. (2009). Simple maths for keywords. In M. Mahlberg, V. González-Díaz, & C. Smith (Eds.), *Proceedings of the Corpus Linguistics Conference 2009 (CL2009)* (pp. 1–6). University of Liverpool.

Koike, K. (2001). *Colocaciones léxicas en el español actual: Estudio formal y léxicosemántico*. Universidad de Alcalá de Henares.

Leiva Rojo, J. (2018). Phraseology as indicator for translation quality assessment of museum texts: A corpus-based analysis. *Cogent Arts & Humanities*, *5*(1442116), 1–16. https://doi.org/10.1080/23311983.2018.1442116

Lorente Casafont, M., Martínez-Salom, A., Santamaría, I., & Vargas-Sierra, C. (2017). Specialized collocations in specialized dictionaries. In S. Torner & E. Bernal (Eds.), *Collocations and other lexical combinations in Spanish: Theoretical, lexicographical and applied perspectives* (pp. 200–222). Routledge.

L'Homme, M.-C. (1998). Caractérisation des combinaisons lexicales specialisees par rapport aux collocations de langue generale. In T. Fontenelle (Ed.), *Proceedings of the 8th EURALEX International Congress* (pp. 513–522). Université de Liège.

L'Homme, M.-C. (2017). Combinatoire spécialisée: Trois perspectives et des enseignements pour la terminologie. *Translations Studies: A Forward-Moving Discipline*, *30*(1-2), 215–241. https://doi.org/10.7202/1060025ar

L'Homme, M.-C., & Leroyer, P. (2009). Combining the semantics of collocations with situation-driven search paths in specialized dictionaries. *Terminology*, *15*(2), 258–283. https://doi.org/10.1075/term.15.2.05lho

Malyuga, E., & Madinyan, E. (2020). Culturally marked collocations in New Zealand national variety of economic discourse. *SHS Web of Conferences*, *88*(01006), 1–6. https://doi.org/10.1051/shsconf/20208801006

Manca, E. (2008). From phraseology to culture: Qualifying adjectives in the language of tourism. *International Journal of Corpus Linguistics*, *13*(3), 368–385. https://doi.org/10.1075/ijcl.13.3.07man

Matsuno, K. (2017). Processing collocations: Do native speakers and second language learners simultaneously access prefabricated patterns and each single word? *Journal of the European Second Language Association*, *1*(1), 61–72. https://doi.org/10.22599/jesla.17

McKeown, K. R., & Radev, D. R. (2000). Collocations. In R. Dale, H. Moisl, & H. Somers (Eds.), *A handbook of natural language processing* (pp. 507–523). Marcel Dekker.

Mel'čuk, I. A. (1981). Meaning-text models: A recent trend in Soviet linguistics. *Annual Review of Anthropology, 10*, 27−62. https://doi.org/10.1146/annurev.an.10.100181.000331

Mel'čuk, I. A. (1988). *Dependency syntax: Theory and practice*. SUNY Press.

Mel'čuk, I. A. (1998). Collocations and lexical functions. In A. P. Cowie (Ed.), *Phraseology: Theory, analysis and applications* (pp. 23–53). Clarendon Press.

Mel'čuk, I. A., & Polguère, A. (1987). A formal lexicon in the Meaning-Text Theory (or how to do lexica with words). *Computational Linguistics, 13*(3-4), 261−275.

Öksüz, D., Brezina, V., & Rebuschat, P. (2020). Collocational processing in L1 and L2: The effects of word frequency, collocational frequency, and association. *Language Learning*, *00*(0), 1–44. https://doi.org/10.1111/lang.12427

Palmer, H. E. (1933). *Second interim report on English collocations*. Kaitakusha.

Patiño, P. (2014). Towards a definition of specialized collocation. In G. Quiroz & P. Patiño (Eds.), *LSP in Colombia: Advances and challenges* (pp. 119–133). Peter Lang.

Pavel, S. (1993). Vers une méthode de recherche phraséologique en langue de spécialité. *L'Actualité Terminologique, 26*(2), 9–13.

Piccioni, S., & Pontrandolfo, G. (2019). La construcción del espacio turístico a través de la fraseología metafórica. *Linguistik Online*, *94*(1/19), 137–153. https://doi.org/10.13092/lo.94.5436

Revier, R. L. (2009). Evaluating a new test of whole English collocations. In A. Barfield & H. Gyllstad (Eds.), *Researching collocations in another language: Multiple interpretations* (pp. 125–138). Palgrave Macmillan.

Riches, N., Letts, C., Awad, H., Ramsey, R., & Dąbrowska, E. (2021). Collocational knowledge in children: A comparison of English-speaking monolingual children, and children acquiring English as an Additional Language. *Journal of Child Language*, 1–16. https://doi.org/10.1017/S0305000921000490

Sánchez-Berriel, I., Santana Suárez, O., Gutiérrez Rodríguez, V., & Pérez Aguiar, J. R. (2018). Network analysis techniques applied to dictionaries for identifying semantics in lexical Spanish collocations. In P. Cantos-Gómez & M. Almela-Sánchez (Eds.), *Lexical collocation analysis: Advances and applications* (pp. 39–57). Springer. https://doi.org/10.1007/978-3-319-92582-0_3

Sanz Vicente, M. L. (2011). *Análisis contrastivo de la terminología de la teledetección. La traducción de compuestos sintagmáticos nominales del inglés al español* (Unpublished doctoral thesis). Universidad de Salamanca, Salamanca, Spain.

Seretan, V. (2011). *Syntax-based collocation extraction*. Springer.

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

Sketch Engine [Computer software]. Lexical Computing Limited.

Uhrig, P., Evert, S., & Proisl, T. (2018). Collocation candidate extraction from dependency-annotated corpora: Exploring the differences between parsers and dependency annotation schemes. In P. Cantos-Gómez & M. Almela-Sánchez (Eds.), *Lexical collocation analysis: Advances and applications* (pp. 111−140). Springer. https://doi.org/10.1007/978-3-319-92582-0_6

Valencia Giraldo, M. V., & Corpas Pastor, G. (2019). *The Portrait of Dorian Gray*: A corpus-based analysis of translated verb + noun (object) collocations in Peninsular and Colombian Spanish. In G. Corpas Pastor & R. Mitkov (Eds.), *Computational and corpus-based phraseology. Third International Conference, Europhras 2019, Malaga, Spain, September 25–27, 2019. Proceedings. Lecture Notes in Artificial Intelligence 11755* (pp. 417–430). Springer. https://doi.org/10.1007/978-3-030-30135-4_30

Vargas-Sierra, C. (2010). Combinatoria terminológica y diccionarios especializados para traductores. In M. Ibáñez Rodríguez (Ed.), *Lenguas de especialidad y terminología* (pp. 18–49). Comares.

Vinogradov, V. V. (1947). *Izbrannye Trudy. Leksikologija i leksikografija*. Nauka.

Zaabalawi, R. S., & Gould, A. M. (2017). English collocations: A novel approach to teaching the language's last bastion. *Ampersand*, *4*, 21–29. http://dx.doi.org/10.1016/j.amper.2017.03.002

Appendix 1

ascend-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
ascend (a) slope	11.3	5.02	7.05	0.02
(a) climb ascend	10.11	2	3.54	0.0008

(a) trail ascend	9.48	8.03	6.41	0.03
(a) route ascend	8.43	2	4.37	0.005

cross-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
cross (a) bridge	11.13	20.09	9.7	1.21
cross (a) river	11	22.1	9.89	1.37
cross (a) stream	10.57	10.04	7.31	0.22
(a) bridge cross	10.23	4.01	8.09	0.18
(a) road cross	10.21	4.01	7.22	0.16
(a) trail cross	8.39	4.01	7.53	0.13
(a) trek cross	8.34	2	--	--
(a) route cross	8.24	2	6.14	0.04

descend-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
gradually descend	11.58	7.03	5.83	0.04
descend (a) gully	10.97	3.01	5.24	0.004
descend steeply	10.82	3.01	8.9	0.04
slowly descend / descend slowly	10.24	3.01	6.01	0.09
(a) trail descend	9.48	8.03	7.1	0.06
(a) path descend	7.21	2	5.85	0.02
(a) route descend	7.17	2	4.63	0.009

head-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
head north	11.35	8.03	9.9	0.98
(a) path head	9.75	2	5.07	0.03
head directly	9.5	3.01	5.78	0.16
(a) trail head	8.8	5.02	6.35	0.07

reach-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**

(a) trail reach	7.99	3.01	4.51	0.03

rush-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
ground rush	10.97	2	4.3	0.01

wind-v

Collocation	***logDice* in ADVENCOR**	***fpm* in ADVENCOR**	***logDice* in 'enTenTen13'**	***fpm* in 'enTenTen13'**
(a) road wind	9.77	3.01	6.82	0.09
(a) trail wind	7.53	6.02	7.45	0.08

Título, resumen y palabras clave en español:

Colocaciones de verbos de movimiento ficticio en el turismo de aventura: Un estudio del inglés basado en corpus

Este artículo investiga las colocaciones de un conjunto de verbos de movimiento ficticio localizadas en un corpus especializado que representa el lenguaje del turismo de aventura. Dado que nuestro propósito esencial es contribuir a la caracterización de este lenguaje especializado, se definieron dos objetivos: (1) analizar los verbos de movimiento y sus significados extraídos del corpus ADVENCOR, y (2) identificar los colocativos de estos verbos, así como los roles semánticos que expresan. Tras aplicar nuestra metodología, ocho verbos de movimiento produjeron 35 colocaciones que cumplían todos los criterios establecidos. Los resultados se centran en diferentes aspectos: (1) los verbos transmiten distintos significados, como son el movimiento en un eje vertical o la dirección hacia un destino; (2) la combinación más recurrente es sustantivo + verbo, en la cual el primer elemento describe el sujeto inanimado que parece realizar el movimiento; (3) la producción y la fuerza colocacionales no están correlacionadas; y (4) los colocativos que acompañan a los verbos analizados arrojan luz sobre la estructura argumental de estos verbos, puesto que representan uno de sus participantes. En conclusión, este trabajo proporciona información relevante sobre la

fraseología de los verbos de movimiento ficticio en el lenguaje del turismo de aventura y muestra la especialización de este dominio.

Palabras clave: turismo de aventura, colocación, verbo de movimiento ficticio, rol semántico, corpus especializado, lenguaje especializado

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