

---

## ENGLISH VERBS AS LEXICOGRAMMATICAL UNITS

---

Dilai I. P.

DOI <https://doi.org/10.30525/978-9934-26-425-2-2>

*You shall know a verb by the company it keeps  
(After the Firthian, “You shall know a word  
by the company it keeps”<sup>1</sup>)*

### INTRODUCTION

The development of the lexicogrammar (LxCr) theory is attributed to the founding father of Systemic-Functional Grammar Michael A. K. Halliday. Nowadays, the relevance of this theory is being reconsidered due to the usage-based shift in modern linguistic theories putting forward the study of constructions (Construction Grammar), patterns (Pattern Grammar), collocations, and colligations (Corpus-based Lexicogrammar) as units drawn from the empirical material – the totality of contexts. It has received a new impetus, on the one hand, due to the rapid development of electronic language corpora as major linguistic databases; on the other hand, due to the discovery of the underlying cognitive mechanisms and experimental findings that prove that meaning is stored in human memory (mind) not as individual lexical items but as prefabricated phrases reflecting the natural sequence of occurrence of these units in the flow of speech.

In this respect, the verb is treated as a core lexicogrammatical class of units featuring the intrinsic syntax-semantics interface of the predicate-argument structure. Though the surface structure of the English verb appears to be quite transparent and well-studied, its underlying deep semantic structure is more complex and understudied in terms of the identification of the prototypical members of the lexical paradigmatic sets of arguments filling in the slots in the recurrent lexicogrammatical patterns. The significance of this research direction is reinforced by the views according to which different patterns testify to different senses of lexical items. The key methodology adopted for the verb sense disambiguation draws on building the Behavioral Profiles of

---

<sup>1</sup> Firth J. R. *Papers in Linguistics, 1934–1951*. London : Oxford University Press, 1957. P. 11.

English verbs in order to present a robust model incorporating all structural, semantic and functional information about a verb.

The purpose of this study is to test the methodology of constructing Behavioral Profiles of English verbs. The major assumption is that patterns of use retrieved from the large English language corpus reveal fine-grained nuances of verb semantics and serve as the basis for Behavioral Profiles.

## 1. Problem Statement and Previous Research

Recontextualization is a dominant trend in modern linguistic research<sup>2</sup>. The usage-based theories of language are an approach shared by a number of modern cognitive linguists (R. Langacker, J. L. Bybee, A. Goldberg, Ch. Fillmore, D. Divjak and S. Gries, A. Stefanowich, etc.). According to them, a language structure emerges through usage. Usage-based theories are related to the memory-based exemplar models introduced by R. Langacker<sup>3</sup>, J. Taylor<sup>4</sup>, and J. L. Bybee<sup>5</sup>, which holds that any linguistic unit, such as a word, consists of a cloud of exemplars representing categories of a given language. Like Construction Grammar, Cognitive Grammar takes constructions, rather than rules, to be the primary objects of grammatical description. According to R. Langacker: “A construction is defined as either an expression (of any size), or else a schema abstracted from expressions to capture their commonality (at any level of specificity)”<sup>6</sup>.

Pattern Grammar as a corpus-driven approach to the lexical grammar of English was elaborated by Susan Hunston, Gil Fransis, and John Sinclair. It is concerned with “presenting findings based on, or related to, the cumulative effect of naturally occurring language and on the interpretation of frequency and distributional data”<sup>7</sup>. The patterns of a word are defined as “all the words and structures which are regularly associated with the word and which contribute to its meaning. A pattern can be identified if a combination of words occurs relatively frequently, if it is dependent on a particular

---

<sup>2</sup> Geeraerts D. Recontextualizing Grammar: Underlying trends in thirty years of Cognitive Linguistics. *Cognitive Linguistics in Action*, 2010. P. 71–102.

<sup>3</sup> Langacker R. W. *Foundation of Cognitive Grammar* (in 2 vol.). Stanford : Stanford University Press, 1987.

<sup>4</sup> Taylor J. R. *The Mental Corpus. How Language is Represented in the Mind*. Oxford : Oxford University Press, 2012. 384 p.

<sup>5</sup> Bybee J. L. Usage-based Theory and Exemplar Representations of Constructions. *The Oxford Handbook of Construction Grammar* / ed. by T. Hoffmann, G. Trousdale. Oxford : Oxford University Press, 2013. P. 49–69.

<sup>6</sup> Langacker R. W. Constructions in Cognitive Grammar. *English Linguistics*. 2003. 20(1). P. 43

<sup>7</sup> Divjak D., Gries S. Behavioral Profiles: A Corpus-Based Approach to Cognitive Semantic Analysis. *New Directions in Cognitive Linguistics* / ed. by V. Evans and S. Pourcel, Amsterdam, Philadelphia : John Benjamins, 2009. P. 54.

word choice, and if there is a clear meaning associated with it”<sup>8</sup>. Corpus Pattern Analysis (CPA) is a usage-based approach, “a new technique for mapping meaning onto words in text”<sup>9</sup>. This theory is based on the views on the lexicon of the two prominent scholars, John Sinclair<sup>10</sup> and Michael A. K. Halliday<sup>11</sup>. In particular, J. Sinclair’s Idiom Principle claims that “... texts are largely composed of multi-word expressions that constitute single choices in the mental lexicon”<sup>12</sup>. J. Sinclair’s ideas were implemented in lexicography in the Cobuild project on lexical computing<sup>13</sup> and in the Hector project curated by B. T. S. Atkins<sup>14</sup> and P. Hanks<sup>15</sup>. An important contribution of Pattern Grammar is the identification of verb implementation patterns as networks showing transitivity patterns. S. Hunston developed the construction taxonomy and identified 740 transitive constructions construing a TransitivityNet. P. Hanks dealt with Corpus Pattern Analysis building Behavioral Profiles of English verbs. The latest regular Sinclair lecture at the University of Birmingham (11 September 2023) entitled “From Pattern to System: An Exploration in Lexical Grammar” was given by Susan Hunston, where she attempted to bring together the approaches to lexis and grammar (lexicogrammar) pioneered by Michael Halliday and by John Sinclair. The scholar advocates that Halliday’s concepts of system and system networks demonstrate a hierarchy of constructions derived from patterns<sup>16</sup>. Thus, the corpus-driven analysis has the following stages of generalisation: from a word to a pattern, from a pattern to a construction, and from a construction to a system network. In turn, a system network is already a level of semantics (“meaning potential” according to M. A. K. Halliday<sup>17</sup>).

---

<sup>8</sup> Hunston S., Francis G. *Pattern Grammar: A Corpus-Driven Approach to the Lexical Grammar of English*. Amsterdam & Philadelphia : John Benjamins, 2000. P. 37.

<sup>9</sup> Hanks P. *Corpus Pattern Analysis*. *Eleventh EURALEX International Congress, EURALEX*. 2004. P. 87.

<sup>10</sup> Sinclair J. Beginning the study of lexis. *In Memory of J. R. Firth*. 1966. P. 410–430.

<sup>11</sup> Halliday M. A. K. Lexis as a linguistic level. *In Memory of J. R. Firth*. / ed. by C. E. Bazell et al. London : Longman, 1966. P. 148–162.

<sup>12</sup> Sinclair J. *Corpus, Concordance, Collocation*. Oxford, UK : Oxford University Press, 1991. P. 76.

<sup>13</sup> Sinclair J., Hanks P. et al. *Collins Cobuild English Language Dictionary*. London : Collins Publishers, 1989. xxiv, 1703 p.

<sup>14</sup> Atkins B. T. C. *Tools for Computer-Aided Corpus Lexicography: the Hector Project*. *Acta Linguistica Hungarica*. 1993. P. 5–71.

<sup>15</sup> Hanks P. Linguistic norms and pragmatic exploitations or, why lexicographers need prototype theory, and vice versa. *Papers in Computational Linguistics: Complex '94*. Budapest : Research Institute for Linguistics. 1994. P. 89–113

<sup>16</sup> Hunston S. *From Pattern to System: an exploration in lexical grammar*. The Sinclair Open Lecture 2023 (11 September 2023). University of Birmingham. URL: <https://www.birmingham.ac.uk/schools/edacs/departments/englishlanguage/events/2023/sinclairlecture.aspx>

<sup>17</sup> Halliday M. A. K. *System and function in language: Selected papers*. London : Oxford University Press, 1976. xxi, 250 p.

According to P. Hanks, CPA deals with prototypical contexts. Thus, it is possible to outline prototypical syntagmatic patterns of verbs, which would include their prototypical arguments. Besides, it is important to identify prototypical lexical paradigmatic sets and their members<sup>18</sup>. It is also worth noting that the distinctions in CPA are semantically motivated. P. Hanks made the following valuable observation concerning this methodology: “We start with verbs because the verb is the pivot of the clause and there is some reason to believe that the patterns for many nouns will start to fall into place semi-automatically (i.e., with the aid of an interactive computer program) once the verbs have been correctly analysed”<sup>19</sup>.

The obtained lexico-syntactic patterns appear to offer a viable solution to polysemy-related issues, given that they are fully specified. The full-specification principle holds that “differences between usage events constitute different senses and image schemas”<sup>20</sup>. The principle problem remains: the representations are vague and the borders between the senses and categories are blurry. V. Evans introduces the criteria to distinguish word senses, among which is a grammatical criterion, according to which, a distinct sense “may manifest unique or highly distinct structural dependencies. That is, it may occur in unique grammatical constructions”<sup>21</sup>.

Since verb semantics is rooted in its argument structure, it is crucial to identify the right degree of granularity for its representation<sup>22</sup>. Modern usage-based theories use corpus data and advanced statistical measures to study word collocations (collostructional analysis)<sup>23</sup>. It has also been observed that most of the previous research focuses on the lemma as the basic unit of analysis, whereas some wordforms of linguistic units can have more occurrences in some patterns, collocations, and constructions than others. Thus the work by S. Rice and J. Newman<sup>24</sup> heavily relies on inflectional forms rather than lemmas. They conduct a corpus-based study of

---

<sup>18</sup> Hanks P. Corpus Pattern Analysis. *Eleventh EURALEX International Congress, EURALEX*. 2004. P. 88.

<sup>19</sup> Ditto. P. 89.

<sup>20</sup> Lakoff G. Women, Fire, and Dangerous Things. What Categories Reveal about the Mind. Chicago : University of Chicago Press, 1987. P. 34.

<sup>21</sup> Evans V. The meaning of time: Polysemy, the lexicon and conceptual structure. *Journal of Linguistic*. 2005. No 41. P. 41.

<sup>22</sup> Gries S. Th. Behavioral profiles: A fine-grained and quantitative approach in corpus-based lexical semantics. *Methodological and Analytic Frontiers in Lexical Research* / ed. by G Libben, G. Jarema, Ch. Westbury. John Benjamins, 2012. P. 57–80.

<sup>23</sup> Stefanowitsch A. Collostructional analysis. *The Oxford Handbook of Construction Grammar*. Oxford : Oxford University Press. 2013. P. 290–307.

<sup>24</sup> Newman, J. Rice S. English SIT, STAND, and LIE in small and large corpora. *ICAME Journal*. 2001. № 25. P. 109–133.

the wordforms of the verbs *to think*, *to allow*, *to rain*, *to eat*, *to drink* and reveal that their frequencies differ and tend to be register-specific.

The pivotal figure in modern usage-based linguistics is Adele Goldberg whose undeniable contribution is a modern understanding of a construction as a “form-function pairing”<sup>25</sup>. She provides the following definition of a construction: “Any linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency”<sup>26</sup>. Constructions are understood to be “emergent clusters of lossy memory traces that are aligned within our high- (hyper!) dimensional conceptual space on the basis of shared form, function, and contextual dimensions”<sup>27</sup>. We retain in memory rich contextual information about how words are used. Thus, words influence the potential meanings of other words and language is a network of constructions<sup>28</sup>.

L. A. Michaelis defines constructions as “form-function-meaning” complexes: “Constructional meanings are the meanings to be discovered at every point along the idiomaticity continuum”<sup>29</sup>.

Construction Grammar (CxG) is a cognitive model, which is learnt, unlike Universal Grammar, which is innate. There is no rigid distinction between lexis and grammar (syntax) in Construction Grammar. Just like in lexicogrammar they form a continuum of items from more lexical to more grammatical (syntactic). This continuum is referred to as ConstructiCon by W. Croft<sup>30</sup>, Hoffman<sup>31</sup> and M. Hilpert: “...the line between the mental lexicon, containing knowledge of words, and the mental grammar, containing knowledge of rules, becomes increasingly blurry... Instead, knowledge of language is seen as a large inventory of constructions, a construct-i-con”<sup>32</sup>, it reflects the nature of links that form semantic (neural)

---

<sup>25</sup> Goldberg A. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago : University of Chicago Press, 1995. 265 p.

<sup>26</sup> Goldberg A. E. *Constructions at Work: The Nature of Generalization in Language*. Oxford : Oxford University Press, 2006. P. 5.

<sup>27</sup> Goldberg A. E. *Explain me this: Creativity, Competition, and the Partial Productivity of Constructions*. Princeton / Oxford : Princeton University Press, 2019. P. 22.

<sup>28</sup> Ditto. P.24.

<sup>29</sup> Michaelis L. A. *Meanings of Constructions*. Oxford Research Encyclopedia of Linguistics. 2017. URL: <https://oxfordre.com/linguistics/view/10.1093/acrefore/9780199384655.001.0001/acrefore-9780199384655-e-309>

<sup>30</sup> Croft W., Cruse A. D. *Cognitive Linguistics*. Cambridge : Cambridge University Press, 2004. 374 p.

<sup>31</sup> Hoffmann Th. *Construction Grammars. The Cambridge Handbook of Cognitive Linguistics*. Cambridge : Cambridge University Press, 2017. P. 310–329.

<sup>32</sup> Hilpert M. *Construction Grammar and its Application to English (Edinburgh Textbooks on the English Language)*. Edinburgh : Edinburgh University Press, 2014. P. 22.

networks. According to L. Fontaine, middle ranks on this continuum are ragged and evoke the biggest interest on the part of the researchers<sup>33</sup>. It is also worth mentioning that the usage-based constructionist approach pertains to different structural levels. Constructions can be morphemes, lexical items, idioms, collocations, predicate-argument structures, etc. The constructionist approach to syntactic analysis (CASA) was adopted by Th. Herbst, the author of the valency dictionary of English verbs<sup>34</sup>, in order to present a construction grid of all constructions in a sentence<sup>35</sup>. In comparison, the constructions studied by S. Hunston are rather textual patterns.

Within CxG, they single out different types of constructions. The pre-fabricated constructions, such as *on the brink of* are called chunks by B. Altenberg<sup>36</sup>. Chunks belong to first-order constructions during the parsing of a sentence. The second-order constructions are longer than chunks and are called clippings. The third and the fourth-order constructions are combinations of two or more constructions and are called clusterings<sup>37</sup>.

Dependency Grammars triggered by the work of Lucien Tesnière “Éléments de syntaxe structurale” (1959) are based on dependency relations rather than constituency relations of phrase structure. All the syntactic units within a sentence (clause) are directly or indirectly connected to the verb (a structural centre of the clause). Case Grammar (Ch. Fillmore)<sup>38</sup> and Valency Theory (Th. Herbst) are the main modern strands of Dependency Grammar.

All the above-mentioned theories and approaches are largely verb-centred, mainly tested on various English verbs and verb phrases. The majority of the patterns and constructions in English are headed by verbs. The implication of the syntax-semantics interface for English verbs lies in their developed polysemy: multiple verb patterns and constructions testify to multiple verb senses. It has been previously established that verbs

---

<sup>33</sup> Fontaine L. Lexis as most local context: towards an SFG approach to lexicology. *Functional Linguistics*. 2017. 4(17). P. 1–17.

<sup>34</sup> Herbst Th., Heath D., Roe I. F. et al. A Valency Dictionary of English: a corpus-based analysis of the complementation patterns of English verbs, nouns and adjectives. Mouton de Gruyter, 2004. 961 p.

<sup>35</sup> Herbst Th., Hoffmann Th. Construction Grammar for Students: A Constructionist Approach to Syntactic Analysis (CASA). *Yearbook of the German Cognitive Linguistics Association*. 2018. 6(1). P. 197–218.

<sup>36</sup> Altenberg B. On the Phraseology of Spoken English: The Evidence of Recurrent Word-Combinations. *Phraseology: Theory, Analysis, and Applications*. (Oxford Studies in Lexicography and Lexicology) / ed. by A. P. Cowie. Oxford : Oxford University Press, 1998. P. 101–122.

<sup>37</sup> Dunn J. Cognitive Linguistics Meets Computational Linguistics: Construction Grammar, Dialectology, and Linguistic Diversity. *Data Analytics in Cognitive Linguistics: Methods and Insights* / ed. by D. Tay, M. Xie Pan. Berlin : De Gruyter, 2022. P. 273–308.

<sup>38</sup> Fillmore Ch. J. The Case for Case. Universals in Linguistic Theory / ed. by E. Bach, R. Harms. New York : Holt, Rinehart, and Winston, 1968. P. 1–88.

generally possess the highest degree of polysemy among other parts of speech; besides, their polysemy is more productive/developed than synonymy. Thus, treating verbs not in isolation but as full-fledged lexicogrammatical units is crucial.

## 2. Methodology

If CxG is viewed as a theory that incorporates lexis in grammar, LxGr is a theory that incorporates grammar in lexis, and Corpus Linguistics (CL) is a methodology applicable to both of them. The rapid development of electronic language corpora as major linguistic empirical databases gave impetus to the corpus-based and corpus-driven study of linguistic units, particularly verbs. Besides, the proposed methodology draws on statistical measures as an objective proxy for situating the verbs on the lexicogrammatical continuum.

The recent advances in Corpus Linguistics enable the processing of multiple contexts and identifying the peculiarities of the collocability of the searched items. To this end, a number of corpus tools are developed and leveraged, such as lemmatizers, concordancers, KWIC (Key Word in Context), stemmers, frequency counts, etc. For example, Figure 1 shows part of the concordance list of the verb *to sweep* in English retrieved from the Corpus of Contemporary American English (COCA)<sup>39</sup> containing 1,001,610,938 words. The total frequency of occurrences of the verb *to sweep* in the corpus is 23,911. After studying all the contexts of the use of the verb, one can make generalizations and come up with a more fine-grained classification of patterns (constructions) and, as a result, senses of the verb in question.

Besides, corpus tools enable tracing clusters of the words that occur with the verb particularly frequently and can feed the analysis of patterns and constructions. Figure 2 shows the clusters of different sizes of the verb *to sweep* identified on the basis of the COCA.

---

<sup>39</sup> The Corpus of Contemporary American English (COCA). URL: <https://www.english-corpora.org/coca/>

its cleanup work and road reconstruction after the floods that	swept	across	his	state	last month . " It 's frustrating to me
as various forms of criminal justice legislation	swept	across	statehouses	over	the early 1990s and governors across
left a brassy taste in his mouth . Derisive green eyes	swept	across	the	august	assembly of celebrities and VIPs , surveying
brushed-out areas of snow where the ravens wing tips had	swept	across	the	snow	. The pittery-pat markings of the coyotes who had
to play . # Within a few years , baseball had	swept	all	before	is	. By the early 1870s , there were 2,000
scales. (n63) The viewer of Near Great Barrington ,	swept	along	in	its	fluent evocation of the New England wilderness , was
Albee nods . But we do n't continue because he is	swept	along	in	some	conversation about theater of the absurd and talk
in mandibular molars , starts at the mesiolingual line angle and	sweeps	around	the	aural	to the end at the distal aspect of the
MBS buying spree . The goal is quite simple when we	sweep	away	any	confusing	jargon ; keep all rates low , and lower
say the giddiness of one who , despite himself , is	swept	away	by	a	ludicrous disguise . # As Cameron Porteous has
. " Just like that Pinkie forgot I was there ,	swept	away	by	some	interaction of his saliva with whatever he had
# Without defense , without skin # May spirit and word	sweep	away	the	apartheid	walls of Israel . The state of Israel does
strong southwesterly wind , the waves were not violent enough to	sweep	away	the	boiler	which weighed about 54.5 tons , (iii)
conservative opponents , who despised Barth as a liberal were	swept	away	together	in	a purge at Calvin Seminary . Nevertheless , a
rapidly , just like her wages and buying power were being	swept	away	with	the	rise of inflation . # It was very effective

**Fig. 1. The concordance list of the verb to sweep (based on the COCA)**

#	Clusters	Examples
1	sweep*	swept away, swept up, swept through, swept into, swept across, swept under; swept by
2	*sweep	he swept, has swept, she swept, had swept, get swept, have swept, they swept, will sweep
3	sweep**	swept up in, swept away by, swept away in, swept up by, sweeping the country, sweep in under; swept over her, sweeping the nation
4	**sweep	had been swept, have been swept, will be swept, going to sweep, they were swept, has been swept, would be swept, I was swept
5	sweep***	swept under the rug, swept out to sea, swept under the carpet, swept off her feet, sweep under the rug, swept off my feet, sweeping the Middle East, swept back and forth
6	***sweep	would have been swept, going to be swept, changes that have swept, want to be swept, not to be swept, easy to get swept, come in and sweep

\* stands for a string (a word)

**Fig. 2. The most frequent clusters with the verb to sweep (based on the COCA)**



The theoretical prerequisite for the construction of the Behavioral Profiles of English verbs is the theory of meaning potential, which was introduced by M.A.K. Halliday within the framework of Systemic Functional Grammar (SFC). The meaning potential is “all the information that a word expresses, either by an individual or at the social level by a language community,”<sup>40</sup>. The concept of SFG is largely based on Wittgenstein’s neo-positivist semantics, which states that meaning is the use<sup>41</sup>, since the potential of meaning is realized, activated in context and determined by use. P. Hanks implements the construction of the Behavioral Profiles as a methodology to study meaning potential. He states that the semantics of each verb is determined by the totality of its complementation patterns<sup>42</sup>.

The behaviorist approach to verb semantics focuses on the dependence of the activation of certain features of a lexical item in its environment. At the same time, this approach integrates the theory of the meaning potential and the study of mental representations drawn from context. The schematized syntagmatic structural models show a dependence on the filling of their slots with paradigmatically related lexical items. Figure 3 provides an example of the Behavioral Profile of the verb *to urge* built by P. Hanks on the data from the British National Corpus. Apart from the information about the typical patterns, the slots filled in these patterns, and typical constructions of the verbs, the Behavioral Profile also includes information about the frequency of use of these patterns in the corpus.

Patterns are wordform-sensitive: some verb forms appear more often than others in different patterns. Besides, P. Hanks suggests discriminating between norms and exploitations while identifying verb patterns<sup>43</sup>. Exploitations feature metaphorical extensions, metonymies, alternations, names, mentions, mistakes, and unassignables in a corpus.

Other attempts at constructing Behavioral Patterns of English verbs have been made by S. Gries and D. Divjak<sup>44</sup>. They relied on more robust statistic measures of patterns, used ID tags and clustering to identify separate patterns which distinguish synonyms and different word senses. S. Gries

---

<sup>40</sup> Halliday M. A. K. *System and function in language: Selected papers*. London : Oxford University Press, 1976. xxi, 250 p.

<sup>41</sup> Wittgenstein L. *Philosophical Investigations*. Oxford : Basic Blackwell, 1952. 250 p.

<sup>42</sup> Hanks P. Contextual Dependency and Lexical Sets. *International Journal of Corpus Linguistics*. 1996. 1(1). P. 75–98.

<sup>43</sup> Hanks P. *Lexical Analysis: Norms and Exploitations*. Cambridge, Mass : MIT Press. 2013. xv + 462 p.

<sup>44</sup> Divjak D., Gries S. *Behavioral Profiles: A Corpus-Based Approach to Cognitive Semantic Analysis*. *New Directions in Cognitive Linguistics* / ed. by V. Evans and S. Pourcel, Amsterdam, Philadelphia : John Benjamins, 2009. P. 57–75.

built a Behavioral Profile of the verb to run<sup>45</sup>, C. Chrispin and L. Fontaine<sup>46</sup> used this methodology to construct the Behavioral Profiles of the English verbs *to watch* and *to see*.

- PATTERN 1 (61%):  
[PERSON<sub>i</sub>] urges [PERSON<sub>j</sub>] to-INF [DO]
- PATTERN 1.1 (*passive*):  
[PERSON<sub>j</sub>] is urged to-INF [DO]
- PATTERN 2 (15.4%):
  - 2.1:  
[PERSON<sub>i</sub> or SPEECHACT] urges [ACTION or ATTITUDE]  
((up)on [PERSON<sub>j</sub>])
  - 2.2:  
[PERSON<sub>i</sub> or CIRCUMSTANCE] urges [REASON\_FOR [ACTION  
or ATTITUDE]] ((up)on [PERSON<sub>j</sub>])
- PATTERN 3 (4.3%):  
[PERSON] urges that [CLAUSE]
- PATTERN 4 (5.4%):
  - 4.1 [QUOTE], urged [SUBJECT [PERSON]]
  - 4.2 [QUOTE], [SUBJECT [PERSON]] urged
  - 4.3 [QUOTE], [SUBJECT [PERSON<sub>i</sub>]] urged [OBJECT [PERSON<sub>j</sub>]]
- PATTERN 5 (3.5%):
  - 5.1 [PERSON<sub>i</sub>] urges [PERSON<sub>j</sub>] [A-DIR]
  - 5.2 [PERSON] urges [STEED] [A-DIR]

**Fig. 3. The Behavioral Profile of the verb *to urge* after P. Hanks**

In this paper we apply the methodology of Behavioral Profiles to study the semantics of the English verb *to sweep* whose patterns offer insightful information about the senses and their use in the COCA. The procedure adopted by us to construct the Behavioral Profile of a verb followed the stages described by P. Hanks<sup>47</sup>:

- 1) scanning a verb concordance,
- 2) identifying contexts that share meaning and patterns,
- 3) assigning semantic roles to all the arguments of the verb,
- 4) identifying semantic sets filling the slots in the patterns,
- 5) classify each concordance line either as a norm or as an exploitation.

---

<sup>45</sup> Gries St. Th. *Corpus-based methods and cognitive semantics: The many meanings of to run. Corpora in Cognitive Linguistics: Corpus-Based Approaches to Syntax and Lexis* / ed. by St. Th. Gries, A. Stefanowitsch, Berlin : Mouton de Gruyter, 2006. P. 57–99.

<sup>46</sup> Chrispin L., Fontaine L. A cognitive-functional approach to watch as a verb of perception. *Reconnecting Form and Meaning*. John Benjamins / ed. by C. Gentens et al. 2023. P. 209–236.

<sup>47</sup> Hanks P. *Corpus Pattern Analysis. Eleventh EURALEX International Congress, EURALEX*. 2004. P. 87–98.

The obtained Behavioral Profile of the verb *to sweep* is presented in Figure 4.

**PATTERN 1 (61%) Transitive**  
[PERSON] sweeps (up) [OBJECT]  
[OBJECT]: {floor, room, ground, chimney, etc.}

**PATTERN 1.1 (passive):**  
[OBJECT] is swept (by [PERSON])

**PATTERN 2 (9%) Intransitive**  
**2.1:**  
[CIRCUMSTANCE] sweeps (across / through / [DIRECTION])  
[CIRCUMSTANCE]: {wave, hurricane, fire, flood, storm, sea, river, etc.}

**2.2:**  
[PERSON or CIRCUMSTANCE] sweeps into / past / by / along [OBJECT]

**PATTERN 3 (9%) Transitive/Intransitive**  
[SENSATION] sweeps (over) [PERSON] / [PLACE]  
[SENSATION]: {gaze, touch, eyes, }

**PATTERN 4 (12%) Intransitive**  
[OBJECT] sweeps (down) [PLACE] [PERSON]

**Fig. 4. The Behavioral Profile of the verb *to sweep* based on the COCA**

### 3. Results and Discussion

The conducted corpus analysis of the verb *to sweep* allows making some observations and generalizations reflected in the above given Behavioral Profile of this verb.

The patterns of the verbs *to sweep* build different types of constructions: transitive and intransitive, active and passive. Some patterns are idiomatic, may contain metaphor or metonymy.

The majority of the patterns are transitive. The following configurations of the constituents exemplify them:

[PERSON] sweeps (up) [OBJECT], where [OBJECT]: {floor, ground, rugs; dust, dirt, droppings, crumbs, cracks, glass, sawdust, leaves, clutter, debris, litter, peels, etc.}. The Objects above can be of two main types: denoting the surface (floor, ground, rugs) and denoting the objects to be swept from the surface (dust, dirt, droppings, crumbs, etc.). The place to be swept is also a direct object in the transitive construction:

[PERSON] sweeps (off, up) [PLACE], where [PLACE]: {house, room, place, stairwell, porch, stairs, street, driveway, courtyard, dock, walk, foyer, etc.}, or

[PERSON] sweeps [PLACE] (with [INSTRUMENT]), where [INSTRUMENT]: {besom, broom, dustpan, pushbroom, carpet sweeper, paintbrush, mop, etc.}:

*Women with besoms are still sweeping the streets, brooming off the dust of time* [COCA, FIC, 2001].

[PERSON] sweeps (up) [OBJECT] with [INSRTUMENT], or [PERSON] sweeps [OBJECT] [DIRECTION]:

*Joe is **sweeping** a puddle of water into a drain by the seal tank* [COCA, FIC, 2010].

*Ghosn took a paintbrush from the sack and began **sweeping** the last of the dirt from the weapon* [COCA, FIC, 1991].

[PERSON] sweeps [OBJECTs] into [OBJECT]:

*Jane **sweeps** a scattering of crumbs into a neat little pile* [COCA, FIC, 2012].

There are also cases of transitive constructions with the zero object: *Doll slept at the house most nights, and maybe she paid for it by **sweeping** up a little* [COCA, FIC, 2014].

The transitive constructions are also used figuratively:

[...] *she **swept** the rest of the pearls into her pocket* [COCA, FIC, 1994].

*Take a moment to sweep your mind clean* [COCA, FIC, 2009].

The passive pattern [OBJECT] is swept by [PERSON] is exemplified by:

*The floor of her house was dirt, but it had been **swept** with a broom made of reeds* [COCA, FIC, 2018].

*It was as if everything fine and glittering had been ground from the world and **swept** away as dust* [COCA, FIC, 2012].

There are also cases of transitive constructions with a person as a direct object:

[COLLECTIVE] sweeps [PERSON] onto [PLACE]/[DIRECTION]:

*Then the crowd **swept** him onto the other bank* [COCA, FIC, 2000],

[PERSON] sweeps [PERSON] in [PLACE], where [PLACE]: {arms}

*Louis runs up the stairs, **sweeps** Claudia in his arms* [COCA, FIC, 1994].

Sweep is also found in the sense “to push” within the idiomatic construction:

[PERSON] sweeps [PERSON] off her feet:

*I wish someone like that would come along and **sweep** my mom off her feet* [COCA, FIC, 2012].

[PERSON] sweeps [PERSON] out of [PLACE]:

*“T.W.” performed without risk or distinction until a young cowhand named Frank B.Tippins **swept** him out of office twelve years later* [COCA, FIC, 1990].

[PERSON] is swept back by [PERSON]:

*... he’s already being **swept** back by the pushing, shoving passengers* [COCA, FIC, 1992].

Sweep is often used in the sense “to search, to survey”:

[PERSON]/[OBJECT] sweeps [PLACE] (for [OBJECT]):

*Jimmy had taken to **sweeping** his room for bugs: the hidden mini-mikes, the micro-cams* [COCA, FIC, 2005].

... he put a fresh tape in a security camera that **sweeps** Biscayne Boulevard, then watched the old one on a monitor [COCA, FIC, 2010].

Greico was worried about electronic surveillance and hired me to **sweep** the office and the three cars he used regularly, and to check the telephone [COCA, FIC, 2019].

The modification of the human subject of the verb *to sweep* leads to the transitive and intransitive constructions associated with natural powers, forces that become the agent of the action:

[CIRCUMSTANCE] sweeps [OBJECT] into [PLACE]/[DIRECTION]:

*Last night's storm had **swept** every bug and lost leaf into the chlorinated water* [COCA, FIC, 2009].

[CIRCUMSTANCE] sweeps [PERSON] [DIRECTION]:

*Debris swirls around him... the wave **sweeps** him up...* [COCA, FIC, 1997].

[CIRCUMSTANCE] sweeps [PLACE], where [CIRCUMSTANCE]: {storm, contagion, virus, tornado, blasts, wind, wave, flood, gust, pogrom, landslide, hurricane, dusk, darkness, outbreak, power, current(s), force, fire, hunger, news, typhoon, tsunami, blight, tide, revolution, time, change, snow-slide, downpour, food poisoning, etc.}:

*Civilization was wounded. Then a contagion **swept** the world* [COCA, FIC, 2007].

*The grasses had reclaimed the middle of America and **swept** uninterrupted through East Africa* [COCA, FIC, 1998].

[CIRCUMSTANCE] sweeps through/across [PLACE]:

*As the door opened, a gust of air **swept** through the room* [COCA, FIC, 2003].

*Tornadoes **swept** across towns that could have lasted for centuries more, turned houses, fences...* [COCA, FIC, 2012].

[CIRCUMSTANCE] sweeps [PERSON]:

*Their gamble had failed, the pogrom would **sweep** them all before it into the trash heap of history* [COCA, FIC, 2017].

It is also found in the Passive construction:

[OBJECT] is swept by [CIRCUMSTANCE]:

*... cruiser of the State, the steamer, and the beech canoe; they are **swept** by Borean and dismasting blasts as direful as any that lash the salted wave* [COCA, FIC, 2009].

Intransitive:

[CIRCUMSTANCE] sweeps:

*Winds had **swept** through the night, sloughing away the smog and scent of exhaust and decay* [COCA, FIC, 2005].

[CIRCUMSTANCE] sweeps in:

*Despite the balmy weather, it was still winter, and the darkness had **swept** in suddenly and completely from the west* [COCA, FIC, 1998].

The patterns are modified and used figuratively:

*A wave of nostalgia **swept** over Nate* [COCA, FIC, 2010].

*A wave of gooseflesh **swept** up Drumain's spine to prickle the close-cropped hair at the back of his neck* [COCA, FIC, 2006].

*The tide of shopping **swept** past me, tossed up a young man in a burly tweed jacket* [COCA, FIC, 1997].

These give rise to a new conceptual metaphor: SENSATION is CIRCUMSTANCE, where SENSATION: {anger, sweetness, hate, urge, sensation, disgust, recklessness, yearning, desire, anxiety, thrill, exultation, relief, fear, fury, impulse, regret, panic, affection, generosity, suspicion, etc.}:

[SENSATION] sweeps (over/upon) [PERSON]:

*Anger **swept** her* [COCA, FIC, 1990].

*... relief **swept** upon him* [COCA, FIC, 1926].

[SENSATION] sweeps in:

*For her kind, at her age, sweetness **swept** in not just through the eating but through her nose, through her pores* [COCA, FIC, 2012].

In the Passive: [PERSON] is swept away by [SENSATION]:

*I was **swept** away by an urge to have another child of my own* [COCA, FIC, 1992].

or [SENSATION] is swept away by [CIRCUMSTANCE]:

*But the anger didn't last. Soon it was **swept** away by a river of tears* [COCA, FIC, 2012].

Also in the Active Voice:

[CIRCUMSTANCE] sweeps away [SENSATION]:

*It's a funny thing about time, you know. It **sweeps** away anger and hate* [COCA, FIC, 2007].

[SENSATION] is swept away:

*Whatever suspicion Meyer felt was **swept** away* [COCA, FIC, 2002].

Intransitive constructions are related to the verb *sweep* in the sense “to move quickly”:

[PERSON] sweeps into [PLACE]/[DIRECTION]:

*The wig popped out of sight and Zo **swept** into the room* [COCA, FIC, 1997].

*She turned and **swept** forward toward the shuttle* [COCA, FIC, 2006].

[PERSON] sweeps past [PERSON]/[OBJECT]:

*Evon **swept** past her, with the two agents trailing* [COCA, FIC, 1999].

[OBJECT] sweeps ([DIRECTION]):

*A small block – which had been **sweeping** toward the gravelly shore – shuddered to a sudden halt* [COCA, FIC, 1994].

... *the pack moved faster than even a well-motivated pig. They **swept** across the meadow toward him* [COCA, FIC, 2005].

*The door **swept** open and there the man stood, reeking of alcohol* [COCA, FIC, 2011].

The examples from the corpus contain metonymy cases:

[OBJECT] sweeps [PLACE], where Object stands for Person, i.e., is a part (of the body) of a person or is somehow associated with a person:

*An intent look **sweeps** the faces of the staff* [COCA, FIC, 2007].

*As her gaze **swept** the panorama of Willow Ridge farmsteads, Nora was amazed at what she could see* [COCA, FIC, 2015].

*...his uncle yelled, eyes **sweeping** the crowd* [COCA, FIC, 2014].

*I jumped when my grandmother's shadow **swept** across my notes* [COCA, FIC, 2017].

*... a gloved hand parted the folds of the cloak, **swept** back the hood... and very nearly caused him apoplexy* [COCA, FIC, 2001].

Besides, we come across the exploitations of the verb *to sweep* involving unique metaphorical extensions that do not enjoy high-frequency counts in the corpus:

*We felt a planet that will eventually be **swept** of life would be ideal for our purposes* [COCA, FIC, 2000].

*He wades in up to his thighs and **sweeps** his line in an expert arc, almost careless* [COCA, FIC, 2016].

*... bitter words could easily slip out and a carefully managed career could quickly be **swept** onto the ash pile* [COCA, FIC, 2013].

As it can be inferred from the retrieved patterns and examples above, the subject of the verb can have different semantic roles and form the corresponding semantic sets as paradigmatic units.

The object of the verb *to sweep* occurs only in transitive constructions and is also restricted to certain semantic sets. It can be the surface, objects on the surface, a person, sensations, a place, etc.

The figurative use of the patterns shows the exploitations of the verb, mostly in fiction, and adds an expressive value to the meaning potential of the given verb.

## CONCLUSIONS

The overview of the usage-based linguistic theories treating verbs as lexicogrammatical units allows drawing certain conclusions. According to the principles of the Construction Grammar framework, verbs are not treated in isolation overlooking the surrounding in the utterances but as integral constituents of larger linguistic constructions. These constructions determine the relationships between verbs, subjects, objects, and other elements in a

sentence. This perspective provides a broader understanding of how and why verbs vary across different linguistic settings.

The Corpus Linguistic approach fosters the empirical analysis of vast language corpora, providing a more data-driven and usage-based understanding of language phenomena, including verb use. This methodology shifts the focus from abstract theories to the actual usage of language in diverse contexts, facilitating a detailed exploration of the sophisticated patterns typical of English verbs. The corpus analysis elaborates on the contextual behavior of verbs. This involves a scrupulous exploration of syntactic structures, separating the grammatical configurations that frame the occurrence of verbs and shed light on verb semantics.

The Behavioral Profiles methodology is aimed at the study of a word's meaning potential, yielding multiple patterns drawn from the language corpus. It is crucial in revealing a syntax-semantics interface and "form-function pairings". These profiles help understand the characteristics of verbs in terms of their usage as predicate-argument structures in a sentence. It provides insights into how verbs function, involving their categories, such as transitivity, semantic roles of the arguments, and various exploitations, as has been illustrated by the Behavioral Profile of the verb *to sweep*. The implications of this approach go far beyond its application in modern lexicography and language teaching. The multiplicity of the corpus-driven exemplars sheds light on the intricate structure of the mental lexicon, or rather, Constructicon, given that verbs are treated as lexicogrammatical units.

## SUMMARY

The modern shift towards usage-based theories and corpus methodology in linguistics offers new insights into the treatment of language units. These theories encompass Construction Grammar, Pattern Grammar, Dependency Grammar, and Corpus-Based lexogrammar. In this respect, verbs are viewed as important lexicogrammatical units that bridge both the lexical and grammatical aspects of language, serving as meaningful building blocks. The applied corpus-driven methodology of the Behavioral Profiles of English verbs enables the uncovering of subtle nuances of their semantic structure through the syntax-semantics interface. Verbs are pivotal parts of the patterns and constructions, exhibiting preferences of various arguments within them. The identification of the prevailing frequency of the patterns in the corpus helps to identify the prototypical patterns. The identification of the patterns both conforming with the language norms and showing exploitations of different types provides a holistic picture of the verb use.



## Bibliography

1. Altenberg B. On the Phraseology of Spoken English: The Evidence of Recurrent Word-Combinations. *Phraseology: Theory, Analysis, and Applications*. (Oxford Studies in Lexicography and Lexicology) / ed. by A. P. Cowie. Oxford : Oxford University Press, 1998. P. 101–122.
2. Atkins B. T. C. Tools for Computer-Aided Corpus Lexicography: the Hector. Project. *Acta Linguistica Hungarica*. 1993. P. 5–71.
3. Bybee J. L. Usage-based Theory and Exemplar Representations of Constructions. *The Oxford Handbook of Construction Grammar* / ed. by T. Hoffmann, G. Trousdale. Oxford : Oxford University Press, 2013. P. 49–69.
4. Chrispin L., Fontaine L. A cognitive-functional approach to watch as a verb of perception. *Reconnecting Form and Meaning*. John Benjamins / ed. by C. Gentens et al. 2023. P. 209–236.
5. Croft W., Cruse A. D. Cognitive Linguistics. Cambridge : Cambridge University Press, 2004. 374 p.
6. Divjak D., Gries S. Behavioral Profiles: A Corpus-Based Approach to Cognitive Semantic Analysis. *New Directions in Cognitive Linguistics* / ed. by V. Evans and S. Pourcel, Amsterdam, Philadelphia : John Benjamins, 2009. P. 57–75.
7. Dunn J. Cognitive Linguistics Meets Computational Linguistics: Construction Grammar, Dialectology, and Linguistic Diversity. *Data Analytics in Cognitive Linguistics: Methods and Insights* / ed. by D. Tay, M. Xie Pan. Berlin : De Gruyter, 2022. P. 273–308.
8. Evans V. The meaning of time: Polysemy, the lexicon and conceptual structure. *Journal of Linguistic*. 2005. No 41. P. 33–75.
9. Fillmore Ch. J. The Case for Case. Universals in Linguistic Theory / ed. by E. Bach, R. Harms. New York : Holt, Rinehart, and Winston, 1968. P. 1–88.
10. Firth J. R. Papers in Linguistics, 1934–1951. London : Oxford University Press, 1957. xii, 233 p.
11. Fontaine L. Lexis as most local context: towards an SFG approach to lexicology. *Functional Linguistics*. 2017. 4(17). P. 1–17.
12. Geeraerts D. Recontextualizing Grammar: Underlying trends in thirty years of Cognitive Linguistics. *Cognitive Linguistics in Action*. 2010. P. 71–102.
13. Goldberg A. Constructionists approaches. *The Oxford Handbook of Construction Grammar*. Oxford : Oxford University Press, 2013. P. 15–31.
14. Goldberg A. Constructions: A Construction Grammar Approach to Argument Structure. Chicago : University of Chicago Press, 1995. 265 p.
15. Goldberg A. E. Constructions at Work: The Nature of Generalization in Language. Oxford : Oxford University Press, 2006. 280 p.

16. Goldberg A. E. Explain me this: Creativity, Competition, and the Partial Productivity of Constructions. Princeton / Oxford : Princeton University Press, 2019. 195 p.
17. Goldberg A. E. Constructions: A new theoretical approach to language. *Trends in Cognitive Sciences*. 2003. № 7. P. 219–224.
18. Gries S. Th. Behavioral profiles: A fine-grained and quantitative approach in corpus-based lexical semantics. *Methodological and Analytic Frontiers in Lexical Research* / ed. by G. Libben, G. Jarema, Ch. Westbury. John Benjamins, 2012. P. 57–80.
19. Gries St. Th. Corpus-based methods and cognitive semantics: The many meanings of *to run*. *Corpora in Cognitive Linguistics: Corpus-Based Approaches to Syntax and Lexis* / ed. by St. Th. Gries, A. Stefanowitsch, Berlin : Mouton de Gruyter, 2006. P. 57–99.
20. Halliday M. A. K. Lexis as a linguistic level. *In Memory of J. R. Firth*. / ed. by C. E. Bazell et al. London : Longman, 1966. P. 148–162.
21. Halliday M. A. K. System and function in language: Selected papers. London : Oxford University Press, 1976. xxi, 250 p.
22. Hanks P. Contextual Dependency and Lexical Sets. *International Journal of Corpus Linguistics*. 1996. 1(1). P. 75–98.
23. Hanks P. Corpus Pattern Analysis. *Eleventh EURALEX International Congress, EURALEX*. 2004. P. 87–98.
24. Hanks P. Lexical Analysis: Norms and Exploitations. Cambridge, Mass : MIT Press. 2013. xv + 462 p.
25. Hanks P. Linguistic norms and pragmatic exploitations or, why lexicographers need prototype theory, and vice versa. *Papers in Computational Linguistics: Complex '94*. Budapest : Research Institute for Linguistics. 1994. P. 89–113.
26. Herbst Th., Heath D., Roe I. F. et al. A Valency Dictionary of English: a corpus-based analysis of the complementation patterns of English verbs, nouns and adjectives. Mouton de Gruyter, 2004. 961 p.
27. Herbst Th., Hoffmann Th. Construction Grammar for Students: A Constructionist Approach to Syntactic Analysis (CASA). *Yearbook of the German Cognitive Linguistics Association*. 2018. 6(1). P. 197–218.
28. Hilpert M. Construction Grammar and its Application to English (Edinburgh Textbooks on the English Language). Edinburgh : Edinburgh University Press, 2014. xiii + 236 p.
29. Hoffmann Th. Construction Grammars. *The Cambridge Handbook of Cognitive Linguistics*. Cambridge : Cambridge University Press, 2017. P. 310–329.
30. Hunston S. From Pattern to System: an exploration in lexical grammar. The Sinclair Open Lecture 2023 (11 September 2023). University

of Birmingham. URL: [https://www.birmingham.ac.uk/schools/edacs/departments/english\\_language/events/2023/sinclairlecture.aspx](https://www.birmingham.ac.uk/schools/edacs/departments/english_language/events/2023/sinclairlecture.aspx)

31. Hunston S., Francis G. *Pattern Grammar: A Corpus-Driven Approach to the Lexical Grammar of English*. Amsterdam & Philadelphia : John Benjamins, 2000. 289 p.

32. Lakoff G. *Women, Fire, and Dangerous Things. What Categories Reveal about the Mind*. Chicago : University of Chicago Press, 1987. 632 p.

33. Langacker R. W. *Constructions in Cognitive Grammar*. *English Linguistics*. 2003. 20(1). P. 41–83.

34. Langacker R. W. *Foundation of Cognitive Grammar (in 2 vol.)*. Stanford : Stanford University Press, 1987.

35. Michaelis L. A. *Meanings of Constructions*. *Oxford Research Encyclopedia of Linguistics*. 2017. URL: <https://oxfordre.com/linguistics/view/10.1093/acrefore/9780199384655.001.0001/acrefore-9780199384655-e-309>

36. Newman, J. Rice S. English SIT, STAND, and LIE in small and large corpora. *ICAME Journal*. 2001. № 25. P. 109–133.

37. Sinclair J. *Beginning the study of lexis*. *In Memory of J. R. Firth*. 1966. P. 410–430.

38. Sinclair J. *Corpus, Concordance, Collocation*. Oxford, UK : Oxford University Press, 1991. 179 p.

39. Sinclair J., Hanks P. et al. *Collins Cobuild English Language Dictionary*. London : Collins Publishers, 1989. xxiv, 1703 p.

40. Stefanowitsch A. *Collostructional analysis*. *The Oxford Handbook of Construction Grammar*. Oxford : Oxford University Press. 2013. P. 290–307.

41. Taylor J. R. *The Mental Corpus. How Language is Represented in the Mind*. Oxford : Oxford University Press, 2012. 384 p.

42. Wittgenstein L. *Philosophical Investigations*. Oxford : Basic Blackwell, 1952. 250 p.

43. *The Corpus of Contemporary American English (COCA)*. URL: <https://www.english-corpora.org/coca/>

#### **Information about the author:**

**Dilai Iryna Petrivna,**

Candidate of Philological Sciences,

Associate Professor at the Department of English Philology

Ivan Franko National University of Lviv

1, Universytetska str., Lviv, 79000, Ukraine