The Semantics of Clausal Complementation: Evidence from Polish

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Abstract: This paper offers a new approach to post-verbal complement constructions in present-day Polish. The study is couched in the framework of construction grammar theory (cf. Goldberg 1995, 2006; Croft 2001; Diessel 2015). The focus is on four types of complement clauses—the infinitive, gerund, subjunctive, and indicative clauses, which, in keeping with the constructional framework, are taken to represent distinct form-meaning pairings. The main goal of the study is to examine the extent to which these four morphosyntactically different types of complements exhibit differences in meaning and whether there is any semantic patterning in their distribution in present-day Polish. The study employs the method known as collostructional analysis to determine the sets of predicates with which each of the complement constructions is significantly associated and by which it is repelled. The research findings contribute to the semantically based theories of complementation by revealing systematic correspondences between the form and the function of complement clauses, which are modeled in terms of a radial (prototype-based) network of senses. The study provides empirical evidence in support of the thesis that the distribution of (post-verbal) complement constructions is semantically motivated rather than random or arbitrary.

Keywords: complementation, construction grammar, collostructional analysis, gerund, indicative complement, infinitive, subjunctive

1. Introduction

Broadly defined, verbal complements are clauses that function as subject or object arguments of predicates (cf. Givón 2001: 39). The complement clauses that I deal with here are those that appear in post-verbal position and are thus analogous to clausal (nominal) objects. More specifically, I examine the extent to which four morphosyntactically different types of complements—the infinitive, the gerund, indicative clauses, and subjunctive clauses—exhibit differences in meaning and whether there is any semantic patterning in their distribution in present-day Polish.

The study is situated within functional-cognitive approaches to grammar and more specifically within the framework of construction grammar—a fam-

ily of different yet related theories that define grammar as a vast, monostratal repository of constructions, i.e., learned pairings of form with meaning. As defined by Goldberg (2006: 5):

> 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.

Thus, seen from the constructional perspective, all units of a language—from the smallest ones like single words and morphemes to various fixed or semi-fixed expressions, to abstract syntactic patterns, like the passive or the ditransitive—are defined as learned pairings of form with meaning. This view of language presupposes the existence of a lexicon-grammar continuum, which accommodates meanings of different degrees of specificity or generality. While the lexical pole is occupied by meanings that are rich in conceptual detail, the opposite pole accommodates meanings that are maximally general/abstract or schematic. This entails that abstract syntactic templates have meanings of their own, which exist independently of the lexical meanings of the words that happen to fill them. Yet, in order for a lexical item to be "insertable" in a given syntactic slot, there must exist some kind of compatibility between lexical meanings of words, on the one hand, and the schematic meanings of the constructions in which these words occur, on the other (Goldberg 1995). This view has been turned into an effective methodological tool for investigating abstract meanings of schematic constructions. For example, it has been shown in several studies that the English ditransitive construction conveys the general transfer of possession meaning and that this meaning is "recoverable" from the meanings of the verbs that tend to fill the verbal slot in this construction, e.g., *give*, *send*, *bring*, *hand*, *donate* (cf. Goldberg 1995; Stefanowitsch and Gries 2003). Importantly, even if a verb does not carry a transfer meaning in itself, once inserted in the ditransitive construction, it inherits the missing arguments from the constructional template, a process known as semantic coercion (Michaelis 2004; Michaelis and Ruppenhofer 2001). For example, *She baked him a cake* denotes intended transfer, although there is nothing in the semantics of *bake* that would suggest it. This ability of constructional schemas to "override" the meanings of their lexical fillers has been taken as prima facie evidence for the existence of constructional (schematic) meanings.

When approached from the constructional perspective, complement clauses such as the infinitive, the gerund, the subjunctive, or indicative clauses are form-meaning pairings, representing the most schematic pole of the lexicon-grammar continuum. These structures have received a considerable amount of attention from functionally and cognitively oriented researchers.

As has been established in the previous research, certain complement types tend to occur with certain semantic types of main-clause predicates. Also, the same predicate may take different complement types depending on its specific senses (cf. Bresnan 1979; Givón 1980, 2001; Noonan 1985; Ransom 1986). This has led to the emergence of the theory according to which the distribution of complement clauses depends on the semantic properties of the main/matrix-clause predicate (see also the early generative accounts). Yet, this theory has come under criticism, mainly for promoting unjustified polysemies of matrix predicates, i.e., positing senses which are unlikely to be represented in the speaker's mental lexicon (cf. Cristofaro 2008; Goldberg 1995). For example, the fact that English perception verbs take both the gerundive complement and the finite complement might suggest the need for positing two different senses for verbs such as *see* or *hear*, i.e., one that designates direct (sensory) perception and another that refers to indirect perception (or inferential reasoning). Hence, the lexical rule theory has been rejected by many scholars, including ones working within the constructional framework, on the grounds that it posits senses that cannot be found in contexts other than the complement constructions themselves (cf. Cristofaro 2008; Goldberg 1995).

Another broad-ranging theory is that individual complement types have meanings of their own and that these meanings contribute to the overall meaning of the sentence. Seen from this perspective, the acceptability of a complementation pattern by a given verb is a consequence of the compatibility between the meanings denoted by the main verb and the meanings associated with the complement pattern itself (cf. Achard 1998; Bolinger 1968; Cristofaro 2008, Dirven 1989; Duffley 2006; Horie 2000; Smith 2008; Wierzbicka 1988). As interesting and revealing as these studies are, they share a common methodological disadvantage in that they rely on introspective methods (i.e., on constructed examples and intuitive judgments of their acceptability), which potentially constrains the scope of semantic generalizations. An alternative approach is the use of corpus-based methods in the study of complement constructions (cf. Egan 2008; Kaleta 2014; Rudanko 2017; Ruohonen and Rudanko 2020; Yoon and Wulff 2016). This approach is much more compatible with the goals and assumptions of construction grammar, which takes a usage-based perspective and defines syntactic constructions as meaningful schemas that emerge as generalizations over actual instances of use (cf. Croft and Cruise 2004; Goldberg 1995, 2006; Langacker 1987, 1991; Tomasello 2003). Thus, when seen from this perspective, studying syntactic constructions entails studying general, schematic representations that motivate and sanction particular "usage events". This, in turn, requires a method that permits a comprehensive detection of all the possible instantiations of a given construction, or at least a representative set of such instantiations, a goal that can hardly be achieved with purely introspective methods of data collection and analysis. Thus, corpus-based methods have by now established themselves as a

standard methodological procedure in constructional frameworks. However, their application to complementation studies has not been as extensive as one would expect, and, importantly, most of the hitherto existing studies are based mainly on English-language data, which means that there is a substantial gap in corpus-based research on complement constructions that needs to be filled with data from less studied languages.

Taking this requirement and the limitations of previous studies as a point of departure, I use a corpus-based method known as collostructional analysis to explore the semantic underpinnings of four main types of Polish post-verbal complement constructions, i.e., the infinitive, the gerund, the subjunctive, and indicative clauses. Following previous research, I assume that matrix verbs hold important clues to the meanings of those constructions. The study relies exclusively on corpus data and, in particular, on exhaustive lists of complement-taking predicates, as extracted from the Polish Web Corpus (cf. §2). With this methodological approach, it was possible to shed new light on the schematic meanings motivating and sanctioning the constructions in question. Significantly, this study brings to light the polysemous structure of the constructions being analyzed, showing that each of them consists of a network of (inter)related senses, radiating from the general schema and centered around the prototypical use.

The paper is structured as follows. Section 2 outlines the method used in this study. Sections 3–6 present the results obtained from applying collostructional analysis to the four complement constructions under consideration (i.e., the infinitive, the gerund, the subjunctive, and indicative clauses). It has been a standard practice in functional/cognitive linguistic studies to contrast different types of complement constructions, as this brings to light the often subtle semantic contrasts exhibited by these structures (cf. Givón 1980; Smith 2008; Wierzbicka 1988). Section 7 offers a detailed discussion of the results presented in the previous sections. The paper closes with some concluding remarks and prospects for future research.

2. Methodology

Collostructional analysis is a collocation-based method which investigates syntagmatic relationships between words and constructions associated with them. Its distinguishing feature is that it ranks words not by raw frequencies, but by their degree of attraction to a construction. Specifically, the method is aimed at studying the semantic properties of schematic constructions by examining how the words filling constructional slots (called collexemes) fall into semantic classes (Stefanowitsch and Gries 2003; Gries and Stefanowitsch 2004).

The data for the study have been extracted from the Polish Web 2012 corpus, available via Sketch Engine software (https://www.sketchengine.eu; see Kil-

gariff et al. 2014). The relevant patterns have been obtained using the SQL (Structured Query Language) function of the Sketch Engine. Given that Polish Web 2012 is a very large corpus (around 812,818,518 words) and the search constructions are highly conventional and thus very frequent in use, a smaller sub-corpus of approximately 43,226,158 words was created from randomly chosen texts in order to avoid very high token frequencies and also to ensure the possibility of manual inspection (cleaning) of the data where appropriate. The table below presents the token and type frequencies of the constructions being analyzed together with the SQL query codes used for their extraction from the corpus.

Table 1. Data obtained from the Polish Web 2012 (sub-corpus of 43,226,158 words)

Construction	SQL code	Tokens	Types
Verb + infinitive	[tag="V.*"][]{0,2}[tag="inf.*"]	463,312	105
Verb + gerund	[tag="V.*"][]{0,2}[tag="ger.*"]	16,712	191
Verb + *żeby*-clause	[tag="V.*"][]{0,2}[word="żeby"]	5,856	67
Verb + *że*-clause	[tag="V.*"][]{0,2}[word="że"]	217,859	261

The procedure followed in the collostructional analysis involves calculating the expected frequencies for each of the verbs occurring with a particular construction and comparing them with the corresponding observed frequencies. Next, it is determined whether the deviation observed between these two types of frequencies is statistically significant. The Fisher Exact test is generally recommended for significance testing in collostructional analysis. Yet other statistics are also eligible, if the expected frequencies are higher than 5. Given that this is the case in the present study (i.e., the expected frequencies tend to exceed 5), the z-score test was used to test the statistical significance of the associations between matrix verbs and the complement constructions.

Given that no specific semantic theories concerning Polish complementation are available in the existing literature, the study has an exploratory rather than hypothesis-testing character. That is, the main goal is to uncover the semantic factors that motivate the four complement constructions based on their distributional (collocational) properties. Due to space limitations, the sections to follow present only the top 30 collexemes of each construction. However, given their significance, these predicates tend to be representative of the constructions as whole.

Table 2. 30 most strongly attracted collexemes of the infinitival complement

Collexemes	English	Raw freq.	z-score
móc	can	119,116	1,176.46
musieć	must	54,071	853.58
chcieć/zechcieć	want	51,580	682.31
powinien	should	28,675	628.30
zaczynać/zacząć	begin, start	29,982	521.60
potrafić	know how	15,236	427.04
próbować/spróbować	try, attempt	11,723	360.57
przestawać/przestać	stop	6,933	292.18
trzeba	one should	13,097	278.17
udawać się/udać się	manage	8,121	261.17
starać się/postarać się	endeavor, try	7,342	255.38
umieć	know how, be able to	5,284	241.43
pozwalać/pozwolić	allow, let	8,429	231.90
postanawiać/postanowić	decide	4,478	231.57
zamierzać	intend	3,706	217.59
warto	it is worth	4,802	187.85
kazać/rozkazać	tell, order	2,826	179.66
dawać/dać	give (let, allow)	12,579	173.37
woleć	prefer	2,884	154.05
zdążyć	manage to do on time	2,174	148.50
wystarczyć	suffice, be enough	4,141	148.15
usiłować	endeavor	1,365	135.81
zdołać	succeed, manage	1,366	135.40
pragnąć/zapragnąć	desire	2,383	129.45
lubić/polubić	like	5,015	126.53
pomagać/pomóc	help	4,140	95.46
prosić/poprosić	ask, request	3,345	82.42
decydować/zdecydować	decide	1,287	65.43
uczyć (się)/nauczyć (się)	teach, learn	2,778	64.21
ośmielać się/ośmielić się	dare	349	61.39

3. The Infinitival Complement and Its Collexemes

Table 2 lists 30 collexemes most strongly attracted by the infinitival complement in descending order of their significance. Both imperfective and perfective forms of the verbs have been retrieved where applicable. Note that some verbs do not form aspectual pairs, i.e., they do not have perfective counterparts. In all the tables, the imperfective forms come before the perfective ones.

The verbs combining with the infinitival complement fall into a few distinct, albeit related semantic classes, viz., modal, volition, causation, and aspectual verbs. Table 2 shows that modal verbs have a particular prominence among these collexemes. The single most strongly attracted verb is *móc* 'can', which expresses abilities or possibilities, and also extends to speech acts such as offers and permissions. The second most significant lexeme—*musieć* 'must'—is a modal verb of necessity. Apart from these two verbs, the list of the top collexemes of the infinitival complement features other predicates expressing modal meaning. One of them is *powinien* 'should', which codes different types of obligation. The modal meaning of obligation is also expressed by a range of impersonal (subjectless) verb forms, which occur exclusively in third-person singular, neuter form, e.g., *trzeba* 'one should', *warto* 'it is worth', *wystarczy* 'suffice'. The cluster of modal predicates also includes two nearly synonymous verbs expressing ability to perform an action—*umieć* 'know how' and *potrafić* 'know how, be able to'. Finally, there are two light-verb constructions, one with *mieć* 'have to do' and the other with *dać* 'let', which also convey modal meanings: the former expresses different shades of necessity, while the latter conveys permission.

Another cluster that can be found in Table 2 consists of verbs expressing various desiderative meanings, e.g., wanting, desire, intention, decision to perform an action: *chcieć* 'want', *pragnąć* 'desire', *woleć* 'prefer', *zamierzać* 'intend', *postanawiać* 'decide', and *decydować* 'decide'. The most significant of these is *chcieć*, which comes right after the two most strongly attracted modals (*móc* and *musieć*). All of these verbs refer to future, that is, non-realized actions or events. However, the infinitival construction also combines with some verbs that denote the performance or occurrence of an action rather than hypothetical (future) actions. Here we find verbs denoting attempted action: *próbować* 'try', *usiłować* 'attempt', *starać się* 'try'; verbs of successful action: *udawać się* 'succeed', *zdołać* 'manage', *zdążyć* 'manage', *ośmielać się* 'dare'; and aspectual verbs designating the onset and cessation of an action or event, e.g., *zaczynać* 'begin', *przestać* 'stop'.

Yet another set of infinitive-taking lexemes consists of causative directives such as *kazać* 'tell, order'; *prosić* 'ask, request'; and *pozwalać* 'allow, let'. Most predicates in this category relate to a message directed at the addressee, and their function is to influence the addressee's action. As defined by Searle

(1979), directive speech acts have illocutionary (performative) force, as the main-clause subject tries to get the complement subject to perform an action by means of an utterance. The causing event is usually a verbal rather than a physical action. However, the list of significantly attracted lexemes also features verbs such as *uczyć* 'teach, learn' and *pomagać* 'help', which can express causing events that are physical actions.

Finally, the infinitive forms a significant relationship with verbs of like *lubić* 'like', and the whole construction denotes enjoyment derived by the main clause agent from performing the activity described in the complement clause. Other verbs belonging to this cluster, e.g., *uwielbiać* 'adore', *kochać* 'love', and *nienawidzieć* 'hate', either rank much lower or are repelled by the infinitival complement rather than being attracted by it.

4. The Gerund and Its Collexemes

The gerundive construction has turned out to be highly productive in terms of the number of verb types that it felicitously combines with (cf. Table 1). This diversity is not surprising given that the verbs which accept the gerundive complement can also often occur with regular noun phrases. This multiplicity and diversity of verbal collexemes makes it difficult to find regularities in the distribution of the gerundive construction. Yet some coherent sets of verbs can be identified among the most significant matrix verbs, which are listed in Table 3 on the opposite page. The single most strongly attracted collexeme is *umożliwiać* 'enable'. Also, its antonym—*uniemożliwiać* 'disenable'—ranks high, that is, as the fourth most strongly attracted verb. Other collexemes that convey related meanings include *ułatwiać* 'facilitate', *sprzyjać* 'be conducive to', and *służyć* 'serve'. All these verbs tend to appear with non-human subjects, which are construed as instruments that make something possible, or make it possible for someone to do something. Note that the complement agent tends to remain unspecified or has generic reference. Consider examples (1–3)[1]:

[1] The following abbreviations are used throughout the paper: 1 = first person, 3 = third person, SG = singular, PL = plural, ACC = accusative, GEN = genitive, DAT = dative, INST = instrumental, PRES = present tense, PST = past tense, INF = infinitive, GER = gerund, IMP = imperative, IMPER = impersonal, REFL = reflexive. As most sentential examples in the paper are relatively long, the specific constructions of direct relevance to the analysis are set off with italics for greater clarity.

Table 3. The 30 most strongly attracted collexemes of the gerundive complement

Collexemes	English	Raw freq.	z-score
umożliwiać/umożliwić	enable	762	306.24
powodować/spowodować	cause	1,025	219.80
odmawiać/odmówić	refuse	639	218.53
uniemożliwiać/uniemożliwić	disenable, prevent	318	184.72
zaprzestawać/zaprzestać	cease	214	164.84
ułatwiać/ułatwić	facilitate	329	162.87
wymagać	require	659	159.47
sprzyjać	be conducive to, foster	263	129.02
zapobiegać/zapobiec	prevent	223	124.23
żądać/zażądać	demand	270	117.34
ulegać/ulec	undergo	312	112.61
utrudniać/utrudnić	hamper/impede	195	108.87
zabraniać/zabronić	forbid	216	108.11
unikać/uniknąć	avoid	341	105.39
zakazywać/zakazać	ban, forbid	191	102.38
rozważać/rozważyć	consider	154	86.85
grozić/zagrozić	threaten	263	85.00
skutkować	result in	94	77.46
proponować/zaproponować	propose	301	76.44
służyć/posłużyć	serve	301	76.36
nakazywać/nakazać	order	139	75.65
rozpoczynać/rozpocząć (się)	start, begin	379	75.30
przyspieszać/przyspieszyć	accelerate	124	74.07
znaczyć/oznaczać	entail, mean	508	73.47
zalecać/zalecić	recommend	104	62.75
przewidywać/przewidzieć	envision	191	61.90
planować/zaplanować	plan	240	61.27
postulować	postulate, propose	54	60.01
zapowiadać/zapowiedzieć	announce	177	58.09
zlecać/zlecić	commission, task sb with	61	51.17

(1) To usługa, która *umożliwia* *odbieranie* i
this tool which enable.3SG.PRES receive.GER.ACC and
wysyłanie e-maili za pośrednictwem urządzeń
send.GER.ACC emails through means devices
przenośnych.
portable
'This is a tool which enables receiving and sending emails through portable devices.'

(2) Facebook *ułatwia* nam *śledzenie* poczynań
Facebook facilitate.3SG.PRES us follow.GER.ACC activities
naszych znajomych.
our friends
'Facebook facilitates following our friends' activities.'

(3) Mantra *służy* *wprowadzaniu* umysłu w stan
Mantra serve.3SG.PRES bring.GER.DAT mind in state
bezmyślenia.
thoughtlessness
'Mantra serves bringing the mind to the state of thoughtlessness.'

A related cluster consists of verbs which express causation: *powodować* 'cause', *skutkować* 'result in', *przyspieszać* 'accelerate'. These verbs also tend to occur with non-human (often processual) subjects, which are nonetheless conceptualized as "causers" rather than instruments, and the complement clause codes the resultant state or situation. This is illustrated in (4–5):

(4) Zastąpienie godła państwowego godłem uczelni może
replacing emblem state emblem school can
spowodować *obniżenie* rangi dyplomów
cause.INF downgrade.GER.ACC prestige diplomas
'Replacing the state emblem with the school emblem may cause the downgrading of the prestige of the diplomas.'

(5) Kończę opakowanie termogeniku, który teoretycznie
finish packet thermogenic which theoretically
przyśpiesza *spalanie* tłuszczu.
accelerate.3SG.PRES burn.GER.ACC fat
'I'm finishing the packet of thermogenic, which is said to accelerate fat burning.'

The notion of result or producing a particular effect is also conveyed by predicates such as *wymagać* 'require', *ulegać* 'undergo', *oznaczać* 'entail', and *grozić* 'threaten', as illustrated in the examples below:

(6) Zmiana hasła *wymaga* *wpisania* hasła
change password require.3SG.PRES type.in.GER.GEN password
aktualnie obowiązującego.
currently valid
'The change of password requires entering the current password.'

(7) Do 2050 populacja Afryki ma *ulec* *podwojeniu*.
till 2050 population Africa has undergo.INF double.GER.DAT
'By 2050 the population of Africa is to undergo doubling.'

(8) Wyrejestrowanie się z portalu *oznacza*
signing.out REFL from portal mean.3SG.PRES
usunięcie wszystkich usług jakie użytkownik nabył.
remove.GER.ACC all services that user obtained
'Signing out of the portal means removing all the services that the user has obtained.'

(9) Niedostarczenie skierowania *grozi* *usunięciem*
failure.to.deliver referral threaten.3SG.PRES remove.GER.INST
z listy oczekujących
from list waiting
'Failure to deliver a referral might lead to removal from the waiting list.'

Among the top collexemes of the gerund we also find the antonyms of the verbs expressing enablement and causation—*uniemożliwiać* 'disenable', *utrudniać* 'hamper', *zapobiegać* 'prevent'. Other verbs that share this negative orientation are directive speech act verbs that denote the notion of prevention: *zabraniać* 'forbid', *zakazywać* 'forbid, ban'. Note that *zabraniać* is also found on the list of the significant collexemes of the infinitival construction. A closer consideration of the relevant concordance lines shows that the gerundive construction is most common in impersonal contexts, that is, where the identity of the complement clause subject, and often also the identity of the matrix subject, remains unspecified. The infinitive, on the other hand, tends to be found in constructions with expressed and specific subjects. Examples (10) and (11) illustrate this contrast:

(10) Regulamin serwisu […] *zabrania* *umieszczania* treści
regulations service forbid.3SG.PRES publish.GER.GEN content
pornograficznych […].
pornographic
'Service regulations forbid publishing pornographic content.'

(11) Rodzice *zabronili* *mi* gdziekolwiek *dzwonić* dopóki
parents forbid.3PL.PST me anywhere phone.INF until
nie wypełnię swoich obowiązków.
not fulfil one's.own duties
'My parents forbade me to phone anywhere until I fulfil my duties.'

A related cluster consists of verbs of negative volition, i.e., *odmawiać* 'refuse' and *unikać* 'avoid'. Yet, unlike verbs of prevention, they accept only the gerundive complement, and the issue of agent specificity or non-specificity appears to be irrelevant in this case. Consider (12) and (13):

(12) Wdowa Katarzyna Herbert *odmówiła* *przyjęcia*
widow Katarzyna Herbert refuse.3SG.PST accept.GER.GEN
odznaczenia.
decoration
'Widow Catherina Herbert refused to accept the decoration.'

(13) Przed snem należy *unikać* *palenia* papierosów i
before sleep should avoid.INF smoke.GER.GEN cigarettes and
picia alkoholu.
drink.GER.GEN alcohol
'One has to avoid smoking and drinking alcohol before going to sleep.'

Another cluster consists of directives such as *żądać* 'demand', *nakazywać* 'order', *proponować* 'propose', *zalecać* 'recommend', *zlecać* 'commission', and *postulować* 'postulate'. Here the identities of the complement agents tend to remain unspecified, and the constructions convey formal requirements, or recommendations, as illustrated in (14–17):

(14) Prawnicy *żądali* *wstrzymania* nowego wydania
lawyers demand.3PL.PST suspend.GER.GEN new issue
"Baśni" lub *usunięcia* z książki "obscenicznych"
fairy.tales or remove.GER.GEN from book obscene
fragmentów.
fragments
'Lawyers demanded that the publication of the new edition of "Fairy Tales" be suspended or the obscene fragments be removed from the book.'

(15) Znów prawo *nakazuje* *publikowanie* oświadczenia
again law demand.3SG.PRES publish.GER.ACC statement
majątkowego wójta.
financial major
'Again the law demands that the Major's tax return be published.'

(16) Ich autorzy *proponują* *wzięcie* udziału w
their authors propose.3PL.PRES take.GER.ACC part in
ankiecie i objecują za jej wypełnienie 75 dolarów.
questionnaire and promise for its filling 75 dollars
'Their authors propose taking part in the questionnaire and promise 75 dollars for filling it out.'

(17) Lekarze *zalecają* *korzystanie* z sauny
doctors recommend.3PL.PRES use.GER.ACC from sauna
w celu wzmocnienia organizmu.
in purpose strengthening body
'Doctors recommend using the sauna for the purpose of strengthening one's body.'

The gerundive complement can also be found with aspectual verbs *zaprzestawać* 'cease' and *rozpoczynać* 'begin'. They both are rather formal variants of the two other verbs of aspect, i.e., *zaczynać* 'start' and *przestawać* 'stop', which are significantly attracted to the infinitival complement (cf. §3). These contrasts deserve a study of their own, yet it can be hypothesized at this point that it is again the impersonal aspect that plays a crucial role here: the gerundive constructions tend to de-focus the role of the agents (which are either unexpressed or generic), as a result of which the constructions have a rather formal character. Consider (18) and (19):

(18) Po moim odejściu ze sztabu *zaprzestano* *zbierania*
after my leaving from staff stop.IMPER collect.GER.GEN
raportów na ten temat.
reports on this topic
'After my leaving the staff, they stopped collecting the reports on this subject.'

(19) Majowie […] *rozpoczynali* *liczenie* dni od ważnych
Mayans start.3PL.PST count.GER.ACC days from important
wydarzeń […].
events
'Mayans … started counting the days from important events….'

Finally, let us consider verbs such as *planować* 'plan', *przewidywać* 'envision', *zapowiadać* 'announce', and *rozważać* 'consider'. They are semantically related in that they all refer to the possibility of a future occurrence of an action or event. Like the predicates discussed earlier, they allow de-focusing of the role of the complement agent, who does not have to be strictly coreferential with the main-clause subject and therefore may not be directly responsible for the process described in the complement clause. Consider the following examples:

(20) Premier Donald Tusk *zapowiedział* *wycofanie*
prime.minister Donald Tusk announce.3SG.PST withdraw.GER.ACC
się Polski z umowy ACTA.
REFL Poland from agreement ACTA
'The PM Donald Tusk announced withdrawing Poland from ACTA agreement.'

(21) Harmonogram prac *przewiduje* *oddanie* budynku
schedule work predict.3SG.PRES return.GER.ACC building
do użytkowania do końca marca 2013 roku
for use till end March 2013 year
'The work schedule predicts putting the building into use by the end of March 2013.'

In (20) the Prime Minister is construed as one of the decision-makers rather than someone who will be directly and personally involved in the complement process. By the same token, in (21) the identities of complement agents remain unspecified and also irrelevant. What is at issue here is the possibility

of an event occurring in the future rather than the role of the actors in effecting this occurrence. The two other predicates—*planować* and *rozważać*—also have the effect of de-focusing the agents' involvement in the process described in the complement, albeit they do so in a more subtle way. Consider (22) and (23):

(22) Założyciel firmy Vook, Brad Inman *planuje*
founder company Vook Brad Inman plan.3SG.PRES
wydanie w 2010 dwustu dostępnych jedynie
publish.GER.ACC in 2010 two.hundred available only
w internecie książek.
in internet books
'The founder of the company Vook, Brad Inman, plans to publish two hundred books in 2010 that will be available exclusively online.'

(23) Komitet strajkowy *rozważa* *zakończenie* strajku.
committee strike consider.3SG.PRES end.GER.ACC strike
'The strike committee is considering ending the strike.'

In (22) the subject referent—as the owner of the publishing company—is not likely to be directly involved in the process of publishing the books. That is, his role is more of a manager or controller of the whole process than its direct participant. In (23), in turn, the strike committee is not necessarily (and strictly) identical with the complement clause agents, i.e., the workers taking part in the strike. Thus, also here the matrix agents have a "supervising" or "controlling" role to play rather than being the ones directly involved in the complement process.

5. *Żeby*-Complement and Its Collexemes

This section presents the results of collostructional analysis, as performed on the *żeby*-complement construction, which corresponds to what English-language literature tends to label as the subjunctive. The Polish subjunctive is a highly polysemous construction, with many different syntactic and semantic functions (cf. Kaleta 2021). Given the focus of this paper, the present analysis is restricted only to the post-verbal forms functioning as object complements. Table 4 on the following page presents the top 30 collexemes of the subjunctive complement.

The single most strongly attracted collexeme is *chcieć* 'want'. Upon inspection of the relevant concordance, it has become obvious that this use is restricted to situations where the matrix subject is non-coreferent with the subject of the complement clause. The same applies to other volition verbs

Table 4. The 30 most strongly attracted collexemes of the subjunctive

Collexemes	English	Raw freq.	z-score
chcieć/zechcieć	want	1,676	211.29
prosić/poprosić	ask	452	119.06
sądzić	judge, suppose	248	112.50
pilnować/dopilnować	see to	134	110.30
wątpić/zwątpić	doubt	79	72.95
ważne	it is important	172	71.65
życzyć/zażyczyć	wish	156	69.73
namawiać/namówić	talk into, persuade	71	61.49
upierać się/uprzeć się	insist on	21	60.77
błagać	beg	57	59.57
żądać/zażądać	demand	81	59.27
modlić się	pray	81	57.74
wyobrażać/wyobrazić (sobie)	imagine	76	55.11
marzyć	dream	72	49.41
możliwe	it is possible	98	47.95
proponować/zaproponować	propose, suggest	110	47.29
naciskać	urge, insist	33	46.01
mówić/powiedzieć	say, tell	510	45.48
pozwalać/pozwolić	allow, let	119	43.30
woleć	prefer	83	41.86
uważać	be careful not to	165	40.39
sprawiać/sprawić	cause, make	76	39.95
przekonywać/przekonać	persuade	84	34.64
starać się/postarać się	try, aim	98	34.42
zależeć	be intent on	81	32.98
zmuszać/zmusić	force, coerce	67	31.45
nalegać	insist	13	29.15
kusić/skusić	tempt	26	28.11
wymagać	demand, require	65	24.86
radzić/doradzić	advise	65	23.99

strongly associated with the *żeby*-complement, such as *życzyć* 'wish' and *woleć* 'prefer'. This, of course, distinguishes the subjunctive uses of these predicates from the corresponding infinitival uses, which require coreferential subjects. Apart from these three prototypical verbs of volition, there are other collexemes that may not be volitional in and of themselves yet acquire volitional meanings when complemented by the *żeby*-clause. They include *modlić się* 'pray', *marzyć* 'dream', *upierać się* 'insist on', *kusić* 'tempt', and *zależeć* 'be intent on'. All of these verbs can be used both in same-subject and non-coreferent constructions. Note that *marzyć* and *modlić się* indicate a strong wish for something that is impossible or unlikely to happen, whether they come in coreferent or non-coreferent constructions. Verbs *upierać się* and *kusić*, on the other hand, denote a strong volition or desire experienced by the subject referent when used in same-subject constructions. However, in non-coreferential constructions, these two verbs acquire causative meaning, denoting pressure imposed on the complement agent by the main agent to get him/her to perform an act. Also, the impersonal construction—*jest ważne* 'it is important'—is a part of this cluster as it combines with the subjunctive clause to express the speaker's wishes or desires concerning a particular outcome. However, it can also express recommendations and suggestions as to a course of action to be followed by others.

These non-coreferent uses of volition verbs appear to be related to another cluster discernible among the significant collexemes listed in Table 4, namely, causation verbs (or manipulation verbs in Givón's 2001 terminology). Most of them are speech act verbs: *prosić* 'ask, request'; *namawiać* 'persuade, talk into'; *błagać* 'beg'; *żądać* 'demand'; *naciskać* 'insist'; *proponować* 'propose'; *pozwalać* 'allow'; *przekonywać* 'persuade'; and *radzić* 'advise'. All these verbs express directive acts in which the main-clause subject uses speech to get the complement subject to perform the action described in the complement clause.

It should be noted here that the directives most strongly attracted by the *żeby*-complement are generally weaker than those that take the infinitive. For example, *błagać*, which is apparently the weakest of all these predicates in terms of the degree of influence exerted on the complement subject by the main-clause subject, is not to be found among the collexemes of the infinitival construction. The same relates to *namawiać*, which does not accept the infinitival complement, or *radzić*, which is repelled rather than attracted by the infinitival complement. The stronger or more authoritative directives, like *kazać* 'tell, order' and *zabraniać* 'forbid', on the other hand, are either repelled by the subjunctive construction or do not figure at all on the list of its collexemes.

Somewhat puzzling in this context are directives such as *nalegać* 'insist' and *naciskać* 'put pressure on', which, despite expressing rather forceful acts, take the subjunctive, not the infinitival complement. Yet the specific semantics of these verbs provides potential clues to this usage. That is, *naciskać* and *nalegać* imply that the directive is met with some resistance on the part of

the complement agent, who is apparently unwilling to engage in the action described in the complement clause. This, in turn, suggests that the influence exerted over the complement agent by the main agent might not be as strong as in the case of other directives. In other words, given that the complement subject is construed as being capable of acting independently, the role of the main agent as the only or the main decision-maker (or "controller") is clearly diminished in this case.

Complementation of *żądać* also appears to be puzzling at first sight, especially given that the semantically related *kazać* preferentially co-occurs with the infinitival complement. Yet, it needs to be recognized that these two predicates are distinct in terms of the degree of emotional charge that they encode—while the latter is rather neutral, the former implies some degree of the subject's emotional involvement, i.e., it conveys a very strong, firm request. Given that emotional charge is only necessary when some opposition is encountered or expected, the subjunctive complement appears to have here the same motivation as in the case of the two insistence verbs (i.e., *nalegać*, *naciskać*). That is, the implication of the resistance on the part of the complement agent coincides with a greater likelihood of the main agent's authority being challenged in one way or another (cf. Givón 1980: 368).

Note that the notion of insistence or imposing one's will on another (usually resistant) agent in order to get them to perform an act can also be conveyed by manipulation predicates, which do not necessarily involve speech. The most significant of them are *pilnować* 'see to', *zmuszać* 'force', and *wymagać* 'demand, require'. Two other verbs which appear to cluster with these predicates are causatives *starać się* 'try' and *sprawiać* 'cause'. They are, however, distinct in that they profile the result achieved by means of the action performed by the main agent rather than acts of verbal or other coercion. This is illustrated with the following examples:

(24) *Staram* *się,* *żeby* moje lekcje *były* naprawdę
try.1SG.PRES REFL so.that my lessons be.3PL.PST really
ciekawe.
interesting
'I try to make my lessons really interesting.'

(25) Ty wiesz jak *sprawić* *żeby* kobieta *czuła* się
you know how make.INF so.that woman feel.3SG.PST REFL
ważna.
important
'You know how to make a woman feel important.'

Another distinct cluster that can be distinguished among the collexemes of the subjunctive construction consists of predicates describing mental states: *sądzić* 'think', *uważać* 'think, believe', *wątpić* 'doubt', *wyobrażać sobie* 'imagine', *możliwe* 'it is possible'. The main function of these constructions is to express the subject's opinions concerning the truth of the complement proposition. Note that all these verbs, except *wątpić*, must be negated in order to be compatible with the subjunctive complement. What all these constructions have in common is that the speaker does not present the facts but merely evaluates them, expressing a certain degree of uncertainty or disbelief concerning the veracity of the proposition being presented in the complement clause. Consider (26) and (27) as examples:

(26) *Nie* *wyobrażam* sobie, *żebyśmy* kiedykolwiek *mieli*
not imagine.1SG.PRES REFL so.that ever have.3PL.PST
się rozstać.
REFL split.up
'I cannot imagine that we will ever split up.'

(27) *Nie* *uważam,* *żeby* *był* jakimś strasznym
not think.1SG.PRES so.that be.3SG.PST some terrible
alkoholikiem.
alcoholic
'I don't think that he is a heavy drinker.'

6. *Że* 'That'-Clauses and Their Collexemes

Finite *że*-clauses have been found to combine with as many as 261 different verb types, out of which 207 have a positive association with this complement type. Despite the high productivity of this construction, its collexemes form a rather consistent group, comprising a few distinct, yet related, sub-clusters centered around the most strongly attracted verbs. Table 5 on the following page lists the top 30 collexemes. The most common use of *że*-clauses is to report what somebody said. This use is represented by the most strongly attracted *twierdzić/stwierdzać* 'claim', but also by a range of other verbs of speech, which include *mówić* 'say, tell', *przyznawać* 'admit', *dodawać* 'add', *podkreślać* 'emphasize', *oświadczać* 'announce', *wmawiać* 'convince', *sugerować* 'suggest', and *przekonywać* 'convince, persuade'. Note that some of these verbs can also occur with the subjunctive complement. This, however, most often entails a change in meaning. Let us consider, for example, *sugerować*, as exemplified below:

Table 5. The 30 most strongly attracted collexemes of *że*-construction

Collexemes	English	Raw freq.	z-score
twierdzić/stwierdzać/stwierdzić	claim	11,322	474.47
uważać	believe, think	9,332	391.76
mówić/powiedzieć	say, tell	7,574	362.59
okazywać się/okazać się	appear, turn out	23,479	361.76
wiedzieć/dowiedzieć się	know, learn, find out	19,663	361.61
sprawiać/sprawić	cause, make	6,066	343.30
myśleć/pomyśleć	think	6,626	288.28
przyznawać/przyznać	admit	5,082	255.91
znaczyć/oznaczać	mean, entail	6,250	252.72
sądzić	think	2,958	217.51
wierzyć/uwierzyć	believe	5,234	209.17
wydawać się	seem	969	152.12
przypuszczać	suppose	3,240	151.78
pamiętać/zapamiętać	remember	2,280	148.55
zauważać/zauważyć	notice	3,932	148.30
podejrzewać	suspect	1,148	147.64
udowadniać/udowodnić	prove	1,465	144.16
dodawać/dodać	add, mention	3,215	140.16
podkreślać/podkreślić	emphasize	1,810	138.72
cieszyć się/ucieszyć się	be happy	2,823	138.48
oświadczać/oświadczyć	announce	1,160	134.93
wmawiać/wmówić	convince	900	131.99
pokazywać/pokazać	show	1,136	124.66
sugerować/zasugerować	suggest, imply	3,166	124.40
obawiać się	fear	1,189	123.09
przekonywać/przekonać	convince, persuade	1,870	121.62
wynikać/wyniknąć	it follows that	1,986	120.79
rozumieć/zrozumieć	understand	3,634	119.21
powodować/spowodować	cause	2,200	118.74
uznawać/uznać	acknowledge	2,269	114.88

(28) Naukowcy *sugerują,* *że* zakupoholizm często
scientists suggest.3PL.PRES that shopaholism often
związany jest z syndromem wyprzedaży.
connected is with syndrome sales
'Scientists suggest that shopaholism is often related to the sales syndrome.'

(29) Minister obrony Amir Peretz *zasugerował,* *żeby* Izrael
minister defense Amir Peretz suggest.3SG.PST so.that Israel
rozpoczął negocjacje z Syrią.
start.3SG.PST negotiations with Syria
'The defense minister Amir Peretz suggested that Israel should start negotiations with Syria.'

The contrast between these two uses is rather obvious: (29) conveys a mild directive, while (28) expresses the subject's standpoint on a particular issue. Semantic shifts of this type clearly show that complement clauses are constructions in their own right, that is, they make their own contributions to the meaning of the whole utterance.

There are approximately 90 different speech verbs among the collexemes of the indicative complement, which accounts for nearly half of all the verbs attracted by this complement. All these verbs express acts of conveying information or knowledge through speech, although they do so in different ways and for different purposes. Among these verbs one can find verbs reporting pure utterance acts, e.g., *informować* 'inform', *oznajmiać* 'state', *zapowiadać* 'announce'; various assertives, e.g., *zapewniać* 'assure', *argumentować* 'argue', *wyjaśniać* 'explain'; or verbs which convey commissive acts such as promises or threats, e.g., *obiecywać* 'promise', *przyrzekać* 'swear', *ostrzegać* 'warn', and *grozić* 'threaten'.

Another common use of *że*-clauses is to report people's mental states and processes. The predicates that belong to this category fall into two distinct, yet related, sets. One of them is that of having or acquiring knowledge in the broad sense, including verbs of memory, learning, and perception: *wiedzieć/dowiadywać się* 'know, find out', *rozumieć* 'understand', *zauważyć* 'notice'. Another set comprises predicates referring to opinions and beliefs, e.g., *myśleć* 'think'; *sądzić* 'think', *uważać* 'think, believe', *wierzyć* 'believe', *przypuszczać* 'suppose', and *podejrzewać* 'suspect'. Note that mental verbs with *że*-clauses are an important device used to express stance. They encode different degrees of the subject's commitment to the truth of the proposition expressed by the embedded clause. The claims they make vary from full commitment to partial commitment to denial. For example, verbs such as *sądzić* or *uważać* convey a

sense of possibility combined with uncertainty, while verbs such as *wiedzieć* or *dowiedzieć się* convey a definite sense of certainty.

The two verb classes, as presented above—i.e., verbs of speech, on the one hand, and verbs of mental states, on the other—appear to be related in that speech is typically a manifestation of states or processes of thought. Simply put, what one says is what one knows or thinks to be the case. Seen from this perspective, knowing something is conceptually more basic than saying it in that 'saying' presupposes 'knowing' something, not vice versa (cf. Wierzbicka 1988: 133).

Another cluster consists of verbs expressing emotional states, which, like all the other *że*-taking verbs discussed thus far, are verbs of mental processes rather than action. The top 30 collexemes include only two verbs that can be classified as verbs of emotion—*cieszyć się* 'be happy' and *obawiać się* 'fear'—yet more verbs of this type can be found lower on the list. The emotional states denoted by these verbs can be regarded as having an epistemic component in that they arise as the experiencer's (mental) response to certain situations rather than being purely bodily reactions to a physical stimulus. To illustrate, in example (30) below, the feeling of joy experienced by the subject referent is a result of their being aware (having knowledge) of the situation described in the complement clause ('I know that you like it, and this makes me feel happy'). By the same token, (31) refers to predicting a future occurrence, which arguably is an epistemic process involving one's knowledge of the way things are or will be, usually derived from earlier experience ('I know that she might not like it, and this causes my fear').

(30) *Cieszę* *się*, *że* ci się podoba.
be.happy.1SG.PRES REFL that you REFL like
'I am happy that you like it.'

(31) *Obawiam* *się*, *że* może się jej to nie spodobać.
fear.1SG.PRES REFL that may REFL her it not like
'I fear that she might not like it.'

Yet another cluster comprises verbs such as *udowadniać* 'prove', *pokazywać* 'show', *okazywać się* 'turn out', *wynikać* 'follow', and *oznaczać* 'entail'. All these predicates communicate some knowledge, though they usually do so in ways that do not involve speech. Given that most of these predicates indicate the source of the knowledge, they may be considered to have evidential function. Note that they often indicate the degree of certainty associated with the reported information. For example, *pokazywać* 'show', *udowadniać* 'prove', and *dowieść* 'prove' mark a high degree of certainty, while a lesser degree of cer-

tainty is expressed by, for example, *sugerować* 'suggest' and *wskazywać* 'indicate'. Example (32) illustrates these uses:

(32) Przegląd literatury naukowej dotyczącej agresji
review literature scientific about aggression
pokazuje, że można ją definiować, opisywać i
show.3SG.PRES that one.can it define describe and
wyjaśniać na wiele sposobów.
explain in many ways
'The review of the scientific literature shows that aggression may be defined, described, and explained in many different ways.'

Thus far, we have seen that the indicative complement consistently combines with verbs denoting different types of knowledge. Yet, this uniformity is clearly disturbed by *sprawiać* 'cause, make happen' and *powodować* 'cause'—periphrastic causatives, which encode indirect causation. Consider the example in (33):

(33) Twój urok osobisty i pogoda ducha *sprawiają,*
your charm personal and cheerfulness spirit cause.3PL.PRES
że inni czują się przy tobie dobrze i bezpiecznie.
that others feel REFL with you good and safe
'Your personal charm and optimism make others feel good and safe in your company.'

In this case, the *że*-complement codes a resultant state or situation brought about by the causing event, as described in the main clause. As noted above, the causal link between these two events is indirect in that the causer does not act immediately and physically on the causee. Significantly, the interpretation of (33) is necessarily based on inference, i.e., cause-effect reasoning, which is arguably an epistemic activity. Note that if the focus is on intentional action ('I want you do something') rather than the resultant state and cause-effect relationship, *sprawiać* combines with the subjunctive complement, not the indicative one. This is illustrated in (34) below.

(34) *Spraw, żebym poczuła* się szczęśliwa.
cause.IMP so.that feel.1SG.PST REFL happy
'Make me feel happy.'

Thus, in cases like this, it is the role of the complement construction to indicate which construal is more relevant. This, in turn, clearly shows that com-

plement clauses have meanings of their own, which are independent of (albeit compatible with) the lexical meanings of matrix predicates.

7. Discussion

The analyses conducted in this study shed new light on the distributional properties of the four main types of complement constructions and hence provide new insights into their semantic structure. A very general distinction can be made between two types of meanings, which represent two general domains, i.e., the deontic (effective) and the epistemic one (cf. Langacker 2010). The former generally refers to actions and events that involve causation of events and thus have an effect on the outside world. The latter involves mental activity, which does not have such an effect. In other words, epistemic predicates describe events, "which can be assessed for validity, but not caused in the way that any causal theory of action will endorse" (Langacker 2010: 166). As we have seen, the deontic (effective) domain is typically represented by non-finite constructions, whereas the epistemic domain tends to be expressed with the finite *że*-complements. The *żeby*-complement, on the other hand, has both deontic and epistemic uses, which means that the Polish subjunctive is a truly linking mood, providing a connection between these two broad domains.

As has been shown in sections 3 and 4, the infinitival and gerundive complements construe the effective domain in two different ways. The collostructional analysis of the infinitival construction has revealed a few distinct, yet related clusters of senses, which evidences the polysemous character of this construction. One of these meanings is the notion of potentiality for an action, as conveyed by the high-ranking modals, with *móc* 'can' at the very top of the list. In cognitive linguistic research, modal verbs are described as force-dynamic categories, which involve some conception of potency, that is, "a physical or mental force that, when unleashed, tends to bring about an occurrence of that process" (Langacker 1991: 270). Apart from the modal and semi-modal verbs, the notion of "potency" can be traced in the second major cluster of senses, i.e., the one referring to the concept of volitionality ('wanting something to happen'), which appears to constitute the semantic prototype of the infinitival construction. As has been established, the volition-related notions such as wishes, desires, hopes, plans, and intentions figure prominently in the semantic network of the construction in question. This means that the actions expressed in the infinitival clause tend to be non-realized, i.e., located in the future with respect to the time of the main-clause event. The other uses appear to represent elaborations or extensions from this prototype, as indicated by their lower frequency in the corpus data. Hence, the predicates designating successfully completed, usually effortful actions (e.g., *zdołać* 'succeed, manage', *udać się* 'manage') are further examples of volitive behavior.

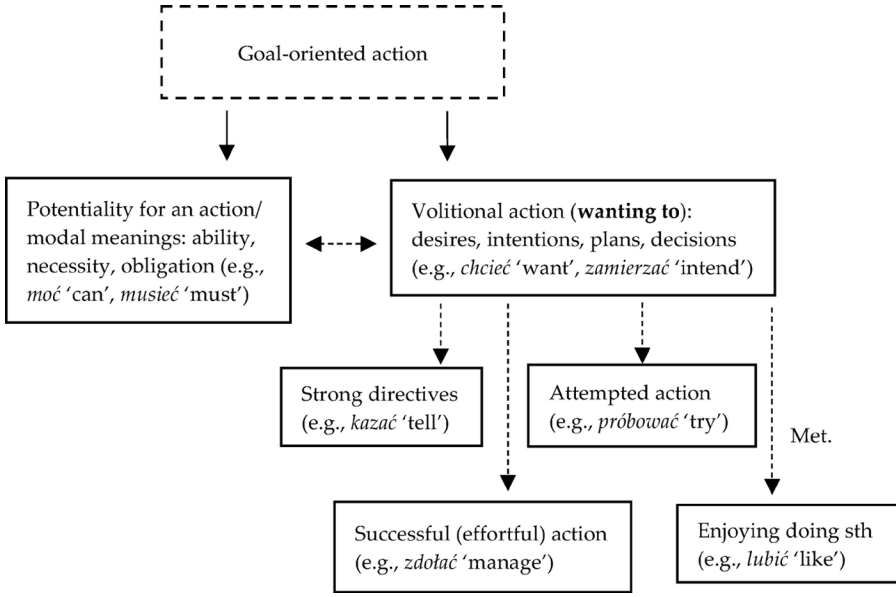

Figure 1. The semantic structure of verb + infinitive construction

However, they express posteriority or subsequence rather than futurity in the strict sense of the word. Also, the strong directives (e.g., *kazać* 'tell', *rozkazać* 'order') convey desiderative meaning, albeit in a different form. While in the basic uses we have to do with self-induced actions (X wants to do Z), in the directive constructions the matrix agent expresses volition aimed at getting someone else to perform an act (X wants Y to do Z).

Finally, there are constructions with verbs of liking (*lubić* 'like'), which, at first sight, might appear to be unrelated to the volitional uses. Yet, as has been convincingly argued by de Smet and Cuyckens (2005) in their study of English complement constructions, the notion of desire and that of enjoyment are closely intertwined in experience in that the things we want are very often the things that we like or love, or vice versa. Hence, it can be postulated that the 'liking' sense is metonymically related to the desiderative meanings.

The diagram in Figure 1 depicts the polysemous structure of the infinitival construction. The dashed box indicates a schema which is represented in all the uses of the infinitival construction, without necessarily "surfacing". That is, this "overarching" schema appears to be that of a very general notion of a goal-oriented action. It is instantiated by the two major (interrelated) clusters of senses, i.e., modal and volitional meanings, both of which represent force-dynamic categories in the sense of Talmy 1988. The other volition-related meanings have been represented as extensions or elaborations of the

prototypical concept of volitionality (the dashed arrows represent extensions, while the solid ones denote instantiations).

Turning now to the gerund, we can see a significant shift in perspective in that the subject's volitionality or the notion of goal-orientedness have no role to play here. On the contrary, the gerundive constructions show a strong tendency to leave the identities of complement agents unspecified or implicit. This, together with the rather diverse range of meanings it conveys (e.g., enabling or causing events, producing particular effects, expressing requirements/suggestions, planning/predicting future events), leads to the conclusion that the gerund has no special semantic significance, apart from highlighting the very general notion of occurrence of an action or event. Another major function of the gerundive complement is to denote the non-occurrence of actions or events, as seen in the uses that refer to preventing events and negative volition. Also, here the identities of the agents may and often do remain unspecified and the constructions tend to have a rather formal and impersonal character. Yet, even if the subject is definite or specific, the mere fact that the gerund codes the non-occurrence of an action or event (refusing, avoiding doing something) entails that the subject referent is not to be construed as an active participant of the complement scene. This conclusion extends to the less obvious uses in which the subject of the main clause is not strictly coreferential with the complement agents and hence not directly or personally involved in the action being described. What seems to follow from all these considerations is that the main function of the gerundive construction is that of de-focusing the role of agents in bringing about a given state of affairs and turning the spotlight on the occurrence or non-occurrence of the complement event as such. The diagram in Figure 2 schematizes the semantic structure of the verb + gerund construction.

The subjunctive is used to structure the effective (deontic) domain, along with the two non-finite complements, as discussed in the previous sections. Like the infinitival construction, it tends to express desiderative meanings (wanting to do sth), the main difference being that the subjunctive preferentially selects constructions with non-coreferent subjects, whereas the infinitive tends to be constrained by the sameness-of-subjects restriction. The exception to this are predicates such as *marzyć* 'dream' or *modlić się* 'pray', which can be complemented by the subjunctive despite having co-referent subjects. Yet, this distribution is not necessarily random or contradictory. In fact, it appears to coincide with the patterns observed cross-linguistically and discussed in some detail in typological literature on clausal complementation. For example, Givón (1980, 2001) argues that there exists an iconic relation between the degree of semantic integration between the main-clause event and the complement event, on the one hand, and the degree of morphosyntactic integration between the matrix and the complement clause, on the other. The relation between the semantic and syntactic structure is such that "the stronger is the

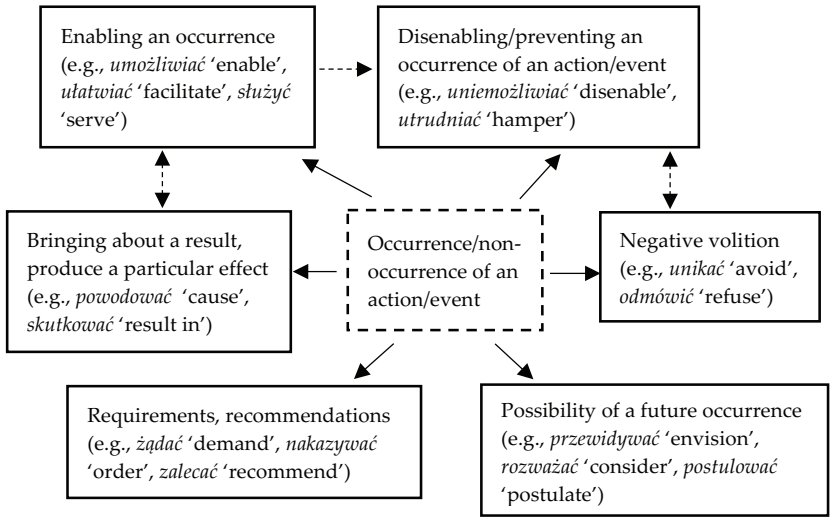

Figure 2. The semantic structure of verb + gerund construction

semantic bond between two events, the more extensive will be the syntactic integration of the clauses into a single though complex clause" (Givón 1980: 337). Within Givón's theory, the binding strength of complement-taking predicates is determined, among others, by the degree of control (causative influence) that the main-clause agent can rightfully expect to exert over the complement agent. Seen from this perspective, the non-coreferent constructions suggest less influence than same-subject constructions, for the simple reason that we tend to have more control over our own actions than over the actions of others. Consequently, the former tend to exhibit less syntactic integration than the latter. Same-subject volitives, i.e., *marzyć żeby* and *modlić się żeby*, are no exceptions in the light of this theory, given that they both indicate that the complement proposition is rather unrealistic and hence beyond the subject's direct control. The same idea seems to extend to directive speech act verbs. As we have seen, the subjunctive tends to occur with weaker directives—the ones with less deontic force and hence less causal influence on the complement agent (cf. *prosić* 'ask, request' and *błagać* 'beg'). Emotionally charged or insistent directives or causatives (e.g., *nalegać* 'insist', *zmuszać* 'force') appear to represent the other side of the same coin in that emotional charge is needed only when some opposition is expected and when one's authority is at stake. Hence, the general pattern that emerges from these data is that the subjunctive codes weak manipulation, in the sense that the causative influence exerted by the main-clause subject over the complement event is restricted in one way or another.

The subjunctive construction extends beyond the deontic (effective) domain of willful action and causation to the epistemic domain, conveying notions such as disbelief or uncertainty. When considered at a higher level of abstraction, these two uses, i.e., weak causation and uncertainty, appear to be (metonymically) related in that the degree of causal influence that one has over an event translates itself into the degree of certainty with which one can predict the occurrence of this event. Given this duality of its semantic structure, the Polish subjunctive proves to be a truly linking mood, allowing a smooth transition between the deontic domain of actions and/or events and the domain of knowledge, as represented by the finite *że*-constructions. The diagram in Figure 3 below presents the conceptual structure of the subjunctive.

Finally, let us consider the semantic make-up of the indicative complement. As has been seen, *że*-clauses are most strongly associated with verbs of speech and verbs of knowledge. Given that speech is secondary to what one knows, the *że*-construction has been considered as having primarily epistemic function. Of course, knowledge is understood here broadly as any form of mental activity involving the storage, acquisition, or transfer of knowledge (including verbs of memory, perception, opinion/belief, and emotional predicates). The only "exceptions" to this overarching tendency are the causation predicates *sprawić/sprawiać* 'cause, make happen' and *powodować/spowodować* 'cause', which cross the boundary of the epistemic domain proper and extend into the domain of "cause-effect" relationships, which is a special case of 'knowing' something, as discussed in §6. This is represented in Figure 4.

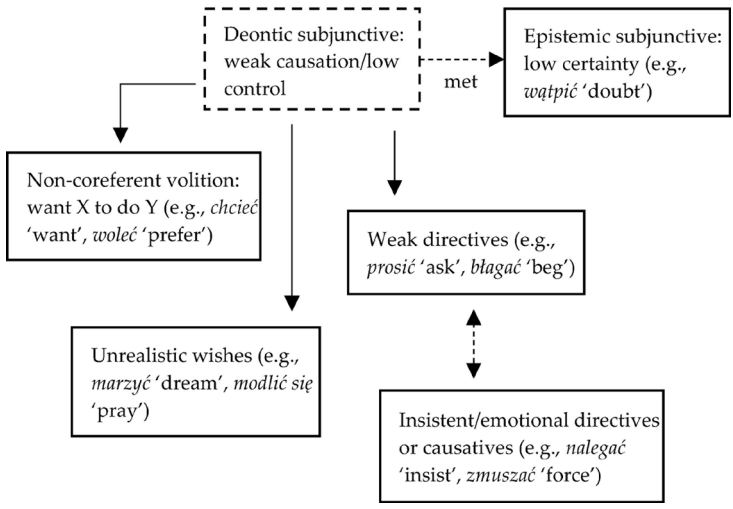

Figure 3. Semantic structure of verb + *żeby*-construction

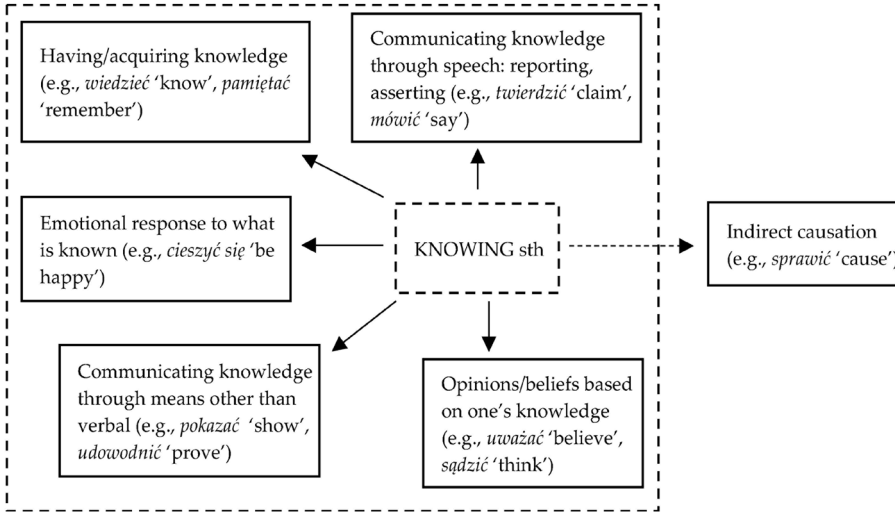

Figure 4. Conceptual structure of verb + *że*-construction

Apart from verbs that take either a non-finite or finite complement type, as discussed thus far, there are also predicates that accept both types. As is argued by Langacker (2010: 180), "[w]hen the same predicate occurs with different complements […], it has subtly different values which either permit or reflect this usage". With quite a few predicates, these alternations produce clear semantic contrasts of the sort predicted by our analysis. Compare, for example, (35) and (36):

(35) *Przekonałem* ich, *żeby* *wyjechali*.
persuade.1SG.PST them so.that left.3PL.PST
'I persuaded them to leave.'

(36) *Przekonałem* ich, *że* mam rację.
persuade.1SG.PST them that have right
'I convinced them that I am right.'

In (35) the result of persuasion is intention of the complement subject to perform an act at some time in the future, whereas in (36), the result is a belief that something is the case. However, apart from such clear semantic contrasts, a number of more subtle semantic shifts can be observed with regard to verbs taking both non-finite and finite complements.

For example, it has been seen that some directive speech act verbs such as *prosić* 'ask, request' and *pozwolić* 'allow' combine with both infinitive and

subjunctive complements, albeit with a different strength (cf. Tables 2 and 4). However, it is not only the strength of attraction between the matrix verb and the complement that distinguishes these constructions. To illustrate, even a cursory consideration of the concordance lines for *prosić* reveals that *prosić* + infinitive favors predicates in the first-person singular, present tense, active voice. The corresponding subjunctive construction (*prosić* + *żeby*), on the other hand, tends to express third-person reports. Compare (37) and (38):

(37) *Proszę* *powiedzieć* żonie, *że* zazdroszczę jej
request.1SG.PRES tell.INF wife that envy her
takiego faceta u boku.
such guy by side
'Please tell your wife that I envy her such a guy by her side.'

(38) Mama *poprosiła* ją, *żeby* *poszła* do psychologa.
mother ask.3SG.PST her so.that go.3SG.PST to psychologist
'Mother asked her to go to the psychologist.'

The verbs accepting two or more complement types arguably deserve a study of their own but could not be discussed here due to space constraints.

8. Concluding Remarks

A central assumption of functional-cognitive linguistics is that linguistic knowledge consists of the knowledge of constructions, i.e., symbolic units that connect form with meaning. Research in construction grammar has brought to light hundreds of different form-meaning pairings, elucidating the ways in which they function in language and in the minds of language users. The present paper constitutes a contribution to this large body of research by focusing on constructions which have been hitherto relatively poorly understood. Although constructionally oriented research takes it for granted that abstract syntactic templates such as the infinitival or gerundive complement are meaningful in and of themselves, the answers to the question of the semantic import of these constructions have not been clearly spelled out in the previous literature. Collostructional analysis has made it possible to remedy this unfortunate situation to a certain extent by providing an insight into the distributional/ semantic contrasts exhibited by the four main types of complement constructions, as used in present-day Polish. As has been demonstrated, the infinitival, gerundive, and two finite complements (the subjunctive and indicative clauses) represent constructions in their own right, that is, distinct form-meaning pairings, which entails that their distribution is semantically motivated rather than arbitrary. The type and amount of semantic patterning

that has been brought to light in this study appears to provide ample evidence for this thesis. In particular, collostructional analysis has proved fruitful in revealing the polysemous/radial nature of the constructional meanings. Given the high degree of schematicity exhibited by the meanings coded by syntactic categories (as compared to lexical meanings), it should be clear that such an analysis would not be feasible with purely introspective methods.

Complementation is a vast and complex area of study whose full treatment goes beyond the scope of a single paper. As I mentioned in the previous section, chief among the issues that warrant further examination are alternating complement constructions. When seen from a cognitive linguistic perspective, constructions are hierarchical structures, which can be characterized at progressively more specific levels of detail (cf. Langacker 1999). This paper has offered an insight into what can be referred to as "macro-constructions", i.e., the network representations associated with the schematic syntactic pattern [verb + complement]. The next essential step is to look at "micro-constructions"—the specific instantiations of these general structures, including the verbs that accept two (or more) complements, where a change in complement type produces more or less subtle differences in meaning. It should be clear that capturing those subtle semantic shifts requires a different methodological approach, i.e., one that takes into consideration a variety of specific morphosyntactic and semantic features that can potentially differentiate between two (or more), usually nearly synonymous constructions. I believe that the present study has paved the way for such fine-grained studies by providing a set of hypotheses that can be tested empirically. This approach is consistent with Dirk Geeraerts's (2010: 73) proposal that corpus-based research is best approached as a cyclical, helix-like process "in which several rounds of data gathering, testing of hypothesis, and interpretation of the results follow each other".

Finally, there is one caveat to the present analysis. Namely, the schematic semantic representations discussed in this paper cannot be expected to have the predictive or constraining power of the sort assumed in more traditional approaches to semantic analysis. A functional-cognitive linguistic solution to this problem is that general schemas coexist in the minds of language users with a large body of item-specific knowledge, which is stored redundantly (cf. usage-based theory). Hence, while general schemas do have an explanatory and sanctioning role to play, they do not need to be fully predictive, as there are other points of reference that the speakers of a language have at their disposal. As I have indicated throughout this paper, semantic prototypes of constructions provide such points of reference in that they are a crucial and rich source of information about constructional semantics. Thus, establishing which of the semantic representations associated with a polysemous construction is most central or the prototypical one remains an important goal of research in cognitive semantics. Yet, one must also recognize the inher-

ent difficulties involved in accurately defining constructional prototypes (cf. Lemmens 2015; Taylor 2019). While the present analysis has hinted at such representations based on the quantitative data, no systemic, empirical validation of these observations has been undertaken due to space limitations. Hence, another important empirical task is to verify the assumptions regarding the constructional prototypes on the basis of other sources of information, as recommended in cognitive linguistic research, i.e., diachronic data, language acquisition data, or lexicographical resources (cf. converging evidence hypothesis, Langacker 1999). The analysis of the diachronic development of constructional meanings appears to be of significance to research in constructional semantics, yet for another reason. That is, it is likely to shed some light on the direction of the semantic extensions within constructional networks and hence facilitate the task of identifying the different types of links holding between different senses of polysemous forms, another notoriously challenging task in constructional research. Hence, a considerable amount of work is needed before the goal of arriving at a cognitively plausible (and empirically verifiable) theory of post-verbal complement constructions can be regarded as fully accomplished. The present research is one step towards that end.

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