



The interaction of idioms and aspect in Polish

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Abstract

This study contributes to a longstanding discussion on the status of aspectual morphology and the aspectual architecture in Slavic by investigating aspectual properties of perfective and imperfective VP idioms in Polish. The investigation reveals that only lexical prefixes which can result in idiosyncratic meanings are part of basic perfective VP idioms. Building on the idea that little *v* is a demarcation line for idiomatic meanings, it is concluded that lexical prefixes are *v*P-internal. It is also shown that basic imperfective VP idioms are compatible with some superlexical prefixes and basic perfective VP idioms are compatible with secondary imperfective morphology, which suggests that such morphology is *v*P-external. Further semantic analysis of the interaction of basic imperfective VP idioms with different classes of superlexical prefixes shows that the compatible ones measure over some scale associated with *v*P-external material or the temporal trace of an (idiomatic) event. In contrast, the incompatible ones measure over a scale encoded by a verbal predicate or impose semantic restrictions on its argument and hence they intervene in the semantics of a VP idiom. Based on stacking facts and the interaction of different classes of superlexical prefixes with secondary imperfective morphology, two classes of superlexical prefixes are distinguished: *high* (projected above secondary imperfective) and *low* (projected below it). These observations are compatible with the view that aspectual morphology is separated from PFV and IPFV operators. The former may merge lower in the hierarchy, and the latter act at the level of AspP as phonologically null operators.

Keywords Idioms · Polish aspect · Lexical prefixes · Superlexical prefixes · Secondary imperfective

1 Introduction

One of the most intensively discussed topics in Slavic linguistics is aspect. This is so because aspectual morphology is pervasive in Slavic languages. For example, in Pol-

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ish almost all verbs¹ (including infinitives) are either perfective or imperfective and most verbs in Polish have both perfective and imperfective variants; see the examples in (1a) and (1b) for illustration.²

- (1) a. *pisać*_{IPFV} – *napisać*_{PFV} ‘to write’
 b. *błyskać*_{IPFV} – *błysnąć*_{PFV} ‘to flash’

Additionally, as can be seen in (1), Polish perfective verbs are usually morphologically marked by means of a prefix or a suffix. However, there is no single dedicated perfective marker in Polish. For this reason, in Bogusławski (1963a,b), Piernikarski (1969), Grzegorzczkova (1997), Willim (2006), and Filip (2017, and her earlier works), among others, Slavic verbal prefixes or suffixes are not treated as markers of perfectivity. Moreover, the choice of aspectual morphology for the expression of the perfective aspect is in most cases not predictable. For example, one verbal stem can co-occur with many different aspectual prefixes, e.g., *podpisać*_{PFV} ‘to sign,’ *napisać*_{PFV} ‘to write down,’ *przepisać*_{PFV} ‘to copy something in writing,’ *wypisać*_{PFV} ‘to prescribe,’ and one prefix can be attached to many verbal stems, e.g., *odskoczyć*_{PFV} ‘to jump away,’ *odstawić*_{PFV} ‘to put away,’ *odnieść*_{PFV} ‘to bring back,’ *oddać*_{PFV} ‘to give back,’ *odtworzyć*_{PFV} ‘to recreate.’ In both cases, it is evident from the English translations that the stem of the verb *pisać*_{IPFV} ‘to write’ can acquire different, sometimes remotely related readings depending on the prefix it co-occurs with, and the prefix *od-* expresses different meanings depending on the verbal predicate it is attached to. For this reason, many Polish aspectologists, for example, Bogusławski (1963a,b), Piernikarski (1969), Grzegorzczkova (1997), Willim (2006) (see Filip 1993/1999, 2003, 2005, 2017 for a related discussion in other Slavic languages), assume that aspectual meanings are conveyed not by aspectual affixes alone, but by the entire perfective or imperfective stems. One may be tempted to conclude from this that all aspectual morphology is part of verbal lexical entries. This conclusion is controversial because of the observation that aspectual morphemes do not form a uniform class, and different scholars provide evidence for the distinction between lexical prefixes (also referred to as qualifying, resultative, internal) and superlexical prefixes (modifying, external) (as postulated by, among others, Isačenko 1962; Petr 1986; Babko-Malaya 1999; Dickey 2000; Ramchand 2004, 2008a,b; Romanova 2004, 2006; Slabakova 1997, 2003, 2005; Svenonius 2004; Di Sciullo and Slabakova 2005; Arsenijević 2006; Biskup 2007, 2012, 2019; Richardson 2007; Szucsich 2007, 2014; Gehrke 2008; Tatevosov 2008; Lehmann 2009; Žaucer 2009, 2012; Markova 2011; Biały 2012; Gvozdanović 2012; Wiland 2012; Biskup and Zybatow 2015). This distinction is motivated by a number of criteria, but the most crucial argument is that

¹With the exception of bispectual verbs such as, for example, *anulować* ‘to cancel’ and *aresztować* ‘to arrest.’

²Abbreviations used in this paper: AGR – agreement, AspP – Aspect Phrase, ATT – attenuative, CUM/CUML – cumulative, DIST/DISTR – distributive, EP – event phrase, EXC – Excessive, INFL – inflection, InitP – Initiation Phrase, IPFV – imperfective, LP – lexical prefix, P/I – perfective/imperfective, PERD – perdurative, PFV – perfective, ProcP – Process Phrase, PST – past, Refl – reflexive, REP – Repetitive, ResP – Result Phrase, Sat – saturative, sb – somebody, SC – Small Clause, SI – secondary imperfective, SL – superlexical, SP_{high} – high superlexical prefix, SP_{low} – low superlexical prefix, TERM – terminative, ThV – Theme Vowel.

only lexical prefixes can change the meaning and the argument structure of the base verb in unpredictable ways, while superlexical prefixes have a predictable meaning and distribution.

However, it is debatable which prefixes are lexical and which are superlexical, and whether the division into these two classes can be maintained. Opinions are divided as to whether all the classes of superlexical prefixes are vP/VP-external and whether some of them may function as both vP/VP-internal and vP/VP-external (Schoorlemmer 1995; Babko-Malaya 1999; Milićević 2004; Svenonius 2004; Arsenijević 2006; Romanova 2006; Ramchand 2008a,b; Tatevosov 2008; Žaucer 2009, 2010; Markova 2011; Biskup 2019). Equally controversial is the status of secondary imperfective morphology in Slavic and its position in the syntactic structure (Milićević 2004; Filip 2005; Arsenijević 2006; Ramchand 2008a,b; Rothstein 2020; Tatevosov 2020 and earlier work; Antonyuk-Yudina et al. 2022).

Another relevant question is whether the meaning of perfective and imperfective aspect is computed as soon as perfective and imperfective stems are built (in the lexicon or syntax) or, as recently proposed by Tatevosov (2011, 2015, 2020), one should separate morphological derivation of perfective and imperfective verbs from their aspectual interpretation with the former happening earlier during the derivation and the latter taking place later at the level of AspP. This view is plausible since aspectual morphology differs from inflectional categories in that the exponents of inflectional categories normally occur once per clause and are in complementary distribution with other members of the same category. This is not so in the case of aspectual morphology in Slavic where there can be more than one exponent of aspect within a single verb. For example, a prefixed verb can be imperfectivized by means of a secondary imperfectivizing suffix *yw(a)-*, as in *[[pod- √pis]-yw(a)]* ‘LP-root of write-SI’ and even such a secondary imperfectivized stem can be further perfectivized by adding a superlexical prefix, e.g., *[po- [[pod- √pis]-yw(a)]]* ‘DIST-LP-root of write-SI’ (see Sect. 2.1 for more detail). Regarding the question how the aspectual interpretation takes place, Tatevosov (2020) assumes that there is a certain selectional relation in that a higher aspectual operator imposes restrictions on a lower configuration generated at earlier stages of the derivation. Unlike Tatevosov (2011, 2015, 2020), Filip (2005) assumes that the secondary imperfective suffix in Slavic, which serves a purely aspectual function as it derives imperfective stems from perfective ones, is a morphological exponent of an imperfective aspectual operator. However, like Tatevosov (2011, 2015, 2020), Filip (2005) also argues that aspectual prefixes are not the morphological exponents of a perfective aspectual operator.

In this paper, we intend to contribute to this heated discussion on the status of aspectual prefixes and suffixes by examining the constraints on the use of aspectual morphology in VP idioms in Polish. Studying idioms and their possible aspectual morphological modifications can shed more light on this controversy (see Leivada 2017; McNally 2018 for related discussions). As is widely acknowledged, idioms are formulaic expressions whose figurative meaning is conventionalized and which cannot be derived by means of purely semantic composition. As a consequence, it is usually assumed that they must be part of our lexicon/encyclopedic knowledge. For example, it is argued by Siloni et al. (2018: 193) that “the knowledge of idioms involves form–meaning associations, which is linguistic in nature, and distinct

from knowledge of facts of history and other language-independent knowledge. As such, it should a priori be stored with linguistic knowledge.” In fact, there is evidence from psycholinguistic studies (Cutting and Bock 1997; Sprenger et al. 2006) that the VP syntactic frame is part of the lexical representation of idioms. Additionally, Marantz (1997: 208) claims that “[t]he syntactic head that projects agents [little *v*] defines a locality domain for special meanings.”³ In other words, “the syntactic head introducing the external argument (Agent) is the boundary delimiting the domain of special idiomatic meanings.” Likewise, Ramchand (2008a: 1694), following Marantz (1997), takes “the lexical-syntactic level,” her first-phase syntax—“*vP*” (see Ramchand 2008b), to be “a phase for the assignment of idiosyncratic encyclopedic information.”⁴ Given this logic, we can use VP idioms to test which aspects of our linguistic knowledge are internal to this assumed domain of special idiomatic meanings (referred to in the following text as “*vP*-internal”) and which are external to this domain (henceforth “*vP*-external”). VP idioms in Polish constitute a perfect testing ground for this set of questions because they are themselves aspectually heterogeneous; namely, some of them are by default perfective, e.g., *rozprostować kości* ‘to relax by stretching one’s body’ (lit. ‘to stretch one’s bones’) and some are by default imperfective, e.g., *klepać biedę* ‘to be poor’ (lit. ‘pat poverty’).

Assuming the view proposed by Marantz (1997) (and followed by Ramchand 2008a; see Sect. 3 for more discussion) that *vP* is a domain of idiosyncratic meanings, we hypothesize that only lexical prefixes which can result in idiosyncratic (unpredictable) meanings should be part of basic perfective VP idioms in Polish.⁵ We also think we can test the compatibility of secondary imperfective morphology whose function is to undo the basic perfective VP idioms to decide if it is *vP*-external. Our preliminary prediction is that since secondary imperfective morphology has a predictable meaning it should be compatible with perfective VP idioms. Regarding basic imperfective VP idioms, we expect that they should be compatible with *vP*-external prefixes. However, unlike secondary imperfective morphology, which plays a purely aspectual function (see Filip 2005: 145), superlexical prefixes, due to their modifying function, may impose their own semantic restrictions on imperfective VP idioms leading to the loss of their figurative meaning. Hence, we expect that it should be easier to secondarily imperfectivize basic perfective VP idioms than to attach *vP*-external prefixes to basic imperfective VP idioms.

By testing these predictions we intend to answer the following questions:

- 1) What are the structural differences between the two groups of prefixes that have been identified in the existing literature, lexical/internal and superlexical/external ones?

³Some VP-idioms include an open slot. By an open slot we mean an obligatory constituent of an idiom which can be filled in with non-idiomatic lexical material in the course of the derivation (see Mishani-Uval and Siloni 2016). A careful examination of their properties is needed but it is beyond the scope of this paper and none of the argument in the presented analysis hinges on this fact.

⁴As suggested by an anonymous reviewer, any attempt to define idioms in terms of VP/*vP* or agenthood does not extend to other idioms (adjectival, e.g., *dog-tired*; PP idioms, e.g., *by leaps and bounds*; nominals, e.g., *a cool cat*; conjunction, e.g., *in as much as*).

⁵By basic perfective VP idioms, we mean that they are not derived but stored as chunks in the Encyclopedia. Their secondary imperfective counterparts are derived from them.

- 2) How does the so-called secondary imperfectivization interact with lexical and superlexical prefixation?

We also hope to contribute to a better understanding of some major (still unresolved) issues concerning the aspectual architecture in Polish including:

- 3) Where do aspectual operators enter the derivation, and is (im)perfectivity a semantic characteristic lexically specified for every verb stem?
- 4) What is the role of prefixation in the computation of aspectual meaning?

Altogether, the goal of this paper is to show that the aspectual behavior of VP idioms can constitute an important basis for developing a better theory that accounts for the aspectual architecture of Polish and potentially other Slavic languages.

The remainder of the paper is structured in the following way. Section 2 presents relevant background on aspectual morphology in Polish (Sect. 2.1), the division into lexical and superlexical prefixes (Sects. 2.2 and 2.3) and different views on the status of secondary imperfective morphology (Sect. 2.4). Section 3 summarizes different morphosyntactic views on the domain of idiomatic meanings. Section 4 presents the results of our study on aspectual modification of perfective and imperfective VP idioms in Polish. Section 5 examines relevant semantic constraints underlying the possible and impossible combinations of different classes of superlexical prefixes with basic imperfective VP idioms and secondary imperfective morphology. Section 6 concludes the paper by summarizing the most important insights of the reported study and discussing them against the existing theories related to the aspectual architecture in Polish (and potentially other Slavic languages).

2 Relevant background on aspectual morphology

2.1 Some facts about aspectual morphology in Polish

Most verbs (even infinitives) in Polish are either perfective or imperfective. This distinction is usually morphologically marked by means of a prefix or a suffix (see (1)). Łazarczyk (2010) proposes the morphological structure of a Polish verb presented in (2).

- (2) PREFIX(ES) + ROOT + SECONDARY IMPERFECTIVE/HABITUAL/SEMELFACTIVE + THEME VOWEL + TENSE + AGR

The least morphologically complex aspectual forms are primary imperfectives (bare, i.e., “unprefixed” verbs), as exemplified in (3).

- (3) *писа́ть*¹ ‘to write’
ROOT + THEME VOWEL + INFINITIVE

Primary imperfective forms can be perfectivized by means of a prefix, as shown in (4).

- (4) *напи́сать*^P ‘to write down’
PREFIX + ROOT + THEME VOWEL + INFINITIVE

Some prefixed verbs can be secondarily imperfectivized by means of an *-yw(a)* suffix and its allomorphs or by stem alternation (5a–b).

- (5) a. *podpisywać*^I ‘to sign (imperfective)’
 b. *wbijac*^I ‘to hammer’

PREFIX + ROOT + SECONDARY IMPF + THEME VOWEL + INFINITIVE

The secondary imperfective morphology is used to undo the perfectivizing contribution of a prefix (this issue will be discussed in more detail in later sections).

There is also a semelfactive morpheme which perfectivizes iterative verbs (6).

- (6) *piszczeć*^I ‘to squeal repeatedly’ — *pis-nać*^P ‘to squeal once’

PREFIX + ROOT + SEMELFACTIVE + THEME VOWEL + INFINITIVE

Polish imperfective verbs with an iterative meaning (e.g., *błyszczeć*^I ‘to flash repeatedly’) describe activities which refer to a series of iterated atomic events happening by default on a single occasion. As such they can co-occur with a prefix *za-* as in *zabłyszczeć*^P ‘to start flashing repeatedly’ (cf. Willim 2006: 223). Willim (2006: 223) suggests that “whether an activity has a derived semelfactive verb depends on whether it conceptually specifies the minimal part or a unit of the process it denotes.” Moreover, she suggests that such atomic subevents in the denotation of iterative verbs have to be individuated linguistically in the lexical entry of a verbal predicate.

There is a habitual suffix *-yw* which is homophonous with the secondary imperfective suffix *-yw* but unlike secondary imperfective *-yw* the habitual one attaches only to a restricted class of imperfective verbs, as shown in (7) (see Łazarczyk 2010; Filip and Carlson 1997).

- (7) *czytać* ‘to read’ — *czytywać* ‘to read from time to time’

In addition, there are some bare perfective verbs in Polish, suggesting that perfectivity does not require the presence of a prefix. An exhaustive list of bare perfective verbs is provided in Łazarczyk (2010: 16–17) and it includes *kupić*^P ‘to buy,’ *dać*^P ‘to give,’ *chwycić*^P ‘to grab,’ *chybić*^P ‘to miss,’ *czepić się* ‘to cling to,’ *leć*^P ‘to lie down,’ *paść*^P ‘to fall down,’ *puścić*^P ‘to let go,’ *rzec*^P ‘to say,’ *ruszyć*^P ‘to set in motion,’ *rzucić*^P ‘to throw,’ *skoczyć*^P ‘to jump,’ *stawić się* ‘to show up,’ *strzelić*^P ‘to shoot,’ *trafić*^P ‘to reach.’

Finally, there are bi-aspectual bare forms in Polish which can alternate between perfective and imperfective uses, e.g., *aresztować*^{P/I} ‘to arrest,’ *kanonizować*^{P/I} ‘to canonize,’ *koronować*^{P/I} ‘to crown,’ *mianować*^{P/I} ‘to name (to an office).’

The choice of aspectual morphology for the expression of perfective and imperfective aspect is in most cases not predictable. For example, one verbal stem can co-occur with many different aspectual prefixes (8) and one prefix can be attached to many verbal stems (9).

- (8) a. *podpisać*^P ‘to sign’
 b. *napisać*^P ‘to write down’
 c. *przepisać*^P ‘to copy sth in writing’
 d. *wypisać*^P ‘to prescribe’

- (9) a. *odskoczyć*^P ‘to jump away’
 b. *odstawić*^P ‘to put away’
 c. *odnieść*^P ‘to bring back’
 d. *oddać*^P ‘to give back’
 e. *odtworzyć*^P ‘to recreate’

As is clear from the translations, in (8) the verbal stem of *писаć*^I ‘to write’ can acquire different, sometimes remotely related, readings depending on the aspectual prefix it co-occurs with and in (9) the prefix *od-* acquires different meanings depending on the verbal predicate it is attached to. In fact, many prefixes used to derive perfective verbs modify the selectional restrictions related to the semantics of the selected object and/or the argument structure of the basic verb (10) (from Willim 2006: 184, 188).

- (10) a. *kupić*^P ‘to buy something’ — *przekupić*^P ‘to bribe someone’
 b. *gotować*^I ‘to cook’ — *przygotować*^P ‘to prepare’
 c. *plakać*^I ‘to cry’ — *wyplakać*^P *awans* ‘to cry out a promotion’

In view of the facts mentioned above, the usual assumption among Polish aspectologists (see, for example, Bogusławski 1963a, 1963b; Piernikarski 1969; Grzegorzczak 1997; Willim 2006), is that aspectual meanings are conveyed not by aspectual affixes alone, but by the entire perfective or imperfective stems. This view would imply that aspectual morphemes are lexically encoded as part of the verbal lexical entry. This approach is not uncontroversial though. Not all aspectual prefixes are alike. There are claims that some aspectual morphemes are lexical (also referred to as qualifying, resultative, internal) and some are superlexical (also referred to as modifying, external) (see the references mentioned in Sect. 1).

2.2 Lexical vs. superlexical prefixes

In the relevant literature, the following criteria are usually used to classify aspectual morphemes into lexical and superlexical. Lexical aspectual morphemes can: (i) alter the argument structure a verbal predicate (see (11)); (ii) cause idiosyncratic changes in the lexical meaning of a verbal predicate (see (12a)); (iii) impose idiosyncratic restrictions on the choice of arguments of a verbal predicate (see (12b)); and (iv) have secondary (derived) imperfective counterparts (see (13)).

- (11) *plakać*^I ‘to cry’ — *wyplakać*^P *awans* ‘to cry out a promotion’
 (12) a. *gotować*^I ‘to cook’ — *przygotować*^P ‘to prepare’
 b. *kupić*^P *coś* ‘to buy something’ — *przekupić*^P *kogoś* ‘to bribe someone’
 (13) *przygotować*^P ‘to prepare’ — *przygotowywać*^I ‘to be preparing’

By contrast, superlexical aspectual morphemes do not change the argument structure; see (14) (but see Sects. 5.1 and 5.2 for qualification). Rather they cause predictable

changes in the meaning of a verbal predicate; see (15)–(18). In addition, they have primary imperfective but no secondary imperfective counterparts, as illustrated in (16) (but see Sect. 5.3 for qualification).

- (14) a. *czytać^I książkę* ‘to read a book’ — *po^Pczytać^P książkę* ‘to read a book for a while’
 b. *gotować^I makaron* ‘to cook pasta’ — *na^Pgotować^P makaronu* ‘to cook a lot of pasta’
- (15) delimitative *po-*
po^Pczytać^P ‘to read for a while’
po^Pleżeć^P ‘to lie for a while’
- (16) distributive *po-*
po^Potwierać^P okna ‘to open the windows, each in turn’
po^Pzamykać^P drzwi ‘to close the doors, each in turn’
- (17) cumulative *na-*
na^Pgotować^P ‘to cook a lot’
na^Psmażyc^P ‘to fry a lot’
- (18) saturative *na-*
na^Pjeść^P się ‘to eat to the full’
na^Pczytać^P się ‘to read to the full’

Additionally, in Polish several aspectual prefixes can cooccur but there are some constraints on this; namely, superlexical prefixes can precede the lexical ones, but lexical prefixes cannot precede the superlexical ones, as shown in (19) (cf. Wiland 2012).⁶

- (19) a. *po^{superlexical} (distributive)-przy^{lexical}-gotowywać* (różne zadania na test)
 ‘to prepare (different tasks for a test)’
 b. **przy^{lexical}-po^{superlexical} (distributive)-gotowywać*

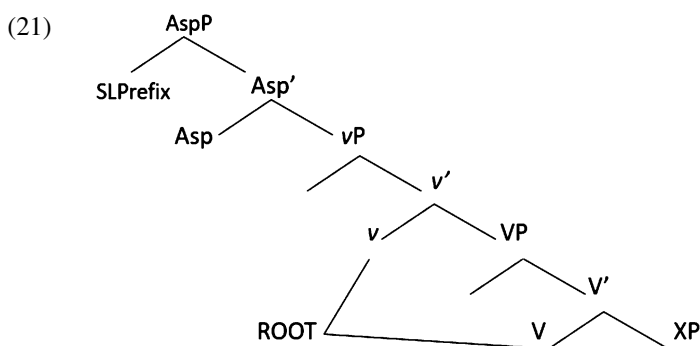
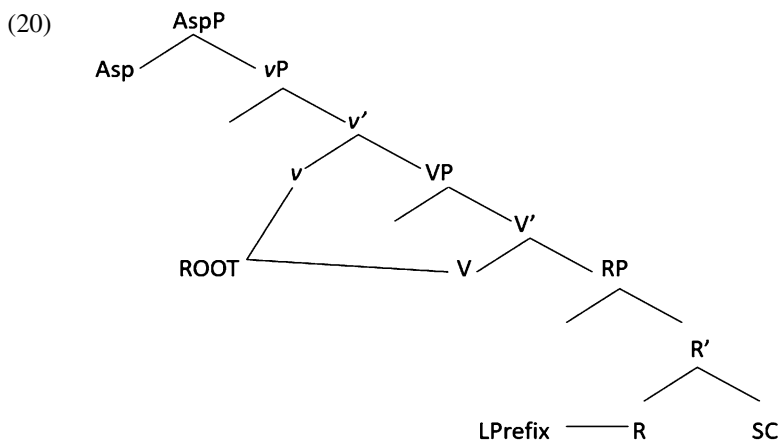
According to Romanova (2004) and Svenonius (2004), among others, these facts suggest that lexical and superlexical prefixes occupy different syntactic positions with respect to vP: lexical prefixes are vP-internal and superlexical prefixes are vP-external. The criteria they provide as distinguishing between lexical and superlexical prefixes are provided in Table 1.

According to Ramchand (2008a: 1705), lexical prefixes create an extra predication structure, where the result subevent is projected in a Result Phrase in the first phase syntax, as shown in (20). By contrast, superlexical prefixes are assumed by Ramchand to “occur directly in the aspectual projection as specifiers of the null aspectual head,” as shown in (21) (2008a: 1707).

⁶Superlexical prefixes can co-occur but they have to respect a certain hierarchy (see Wiland 2012 for a discussion). We will return to this issue in Sect. 5.

Table 1 Standard diagnostics for lexical vs. superlexical prefixes

Lexical prefixes	Superlexical prefixes
<ul style="list-style-type: none"> alter the argument structure of a verbal predicate cause idiosyncratic changes in the lexical meaning of a verbal predicate impose idiosyncratic restrictions on the choice of arguments of a verbal predicate have secondary (derived) imperfective counterparts do not stack 	<ul style="list-style-type: none"> do not change the argument structure cause predictable changes in the meaning of a verbal predicate precede the lexical prefixes but lexical prefixes do not precede the superlexical ones usually disallow secondary imperfectivization allow for stacking



This clear-cut division into lexical and superlexical prefixes is not unproblematic as many scholars pointed out that a more fine-grained classification of superlexical prefixes is necessary. Different views on various classes of superlexical prefixes in Slavic are presented in the next section.

2.3 Controversy around the division into lexical and superlexical prefixes

An extreme view is that not only lexical prefixes but also most superlexical prefixes are VP-internal (lexical). For example, Žaucer (2009, 2010, 2012) argues that perdurative and cumulative/saturative prefixes are VP-internal (see also Arsenijević 2006). He builds on Babko-Malaya (1999), Svenonius (2004), Romanova (2006), and Ramchand (2008a,b) by assuming that lexical prefixes have a resultative meaning and they should be analyzed as originating as a resultative secondary predicate in a small-clause-like complement to the VP. Žaucer (2010) proposes that perdurative and cumulative prefixes also have a resultative origin and their measure expression functions as a direct object. In his account the VP structure of cumulative prefixes is more complex and it contains two VPs. In a similar vein, Biskup (2019) proposes an analysis of prefixes in terms of incorporated prepositions. Under this approach a prefix projects a prepositional phrase with its argument in the complement position of the verbal root. This analysis is used to account for all lexical prefixes and some superlexical prefixes. According to Biskup (2019), cumulative and distributive prefixes are amenable to this analysis.

Another view is that some prefixes can be both lexical and superlexical. For example, Schoorlemmer (1995) has advocated a split approach to Russian perduratives, whereby some of them would be internal and some external. Similarly, Miličević (2004) argues for the existence of both lexical and superlexical *iz-*, *na-* and *po-*.

Furthermore, some scholars say that the division into lexical and superlexical prefixes is insufficient because there are also intermediate prefixes. For example, Tatevosov (2008) argues for a more articulated hierarchical structure, whereby there is a separate projection for *intermediate prefixes*, distinct from lexical and superlexical prefixes. He argues that Russian completive *do-*, repetitive *pere-* should be classified as intermediate since their distribution is different from that of lexical (VP-internal) and superlexical (vP-external) prefixes. He proposes that intermediate prefixes originate within a separate intermediate projection located above VP but below vP. Unlike lexical prefixes, intermediate prefixes are for him fully compositional. However, they are also different from superlexical prefixes in that they allow for nominalizations in Russian and merge below *-yva*. Similarly, Markova (2011) assumes that superlexical prefixes do not form a uniform class and they should be subdivided into inner and outer. More precisely, she distinguishes between three types of prefixes: lexical (semantically idiosyncratic and affecting argument structure), inner (semantically compositional and affecting argument structure) and outer (semantically compositional and modifiers of events). Lexical prefixes are merged below VP, inner prefixes are merged in between vP and VP and outer above vP. At first glance, her inner prefixes are similar to Tatevosov's (2008) intermediate prefixes but unlike him she does not assume a dedicated position hosting all prefixes but rather she assumes that each prefix projects its own projection. In fact, Tatevosov's (2008) intermediate prefixes are analyzed as outer by Markova (2011). Among inner aspectual prefixes, there are: (i) spatial prefixes (e.g., *nad-*, *pod-*, *iz-*, *do-*), (ii) causative (e.g., *raz-*, *pri-*), and (iii) quantificational, which can be further subdivided into cumulative (*na-*), distributive (*po-*), and purely perfectivizing (*iz-*). Among outer aspectual prefixes, there are: (i) inceptive (*za-*), (ii) durative (*po-*), (iii) attenuative (*po-*), (iv) terminative (*do-*), and (v) repetitive (*pre-*).

2.4 Some remarks on secondary imperfective -yw(a)

All these studies related to lexical and superlexical aspectual distinctions usually focus on prefixes only. An interesting question concerns the status of secondary imperfectivizing morphology (typically in the form of a suffix -yw(a)). It is not clear whether it should be analyzed as ν P-internal or ν P-external morphology. For example, the imperfectivizing -yw(a) is attached to perfective verbs with lexical prefixes, as shown in (22). However, as will be shown in Sect. 5.3, perfective verbs with some superlexical prefixes can in fact be secondarily imperfectivized as well, which additionally complicates the picture.

- (22) a. *pisac*^I 'to write'
 napisac^P 'to write (to complete writing)'
 **napisywac*^I Intended: 'to complete writing repeatedly, to be in progress of completing writing'
- b. *pisac*^I 'to write'
 podpisac^P 'to sign'
 podpisywac^I 'to sign repeatedly, to be in progress in signing'

In the literature, there is little agreement as to the status of secondary imperfective -yw(a) in Slavic. The views vary as to where -yw(a) is merged in the structure. Rothstein (2020) argues that since the secondary imperfective is realized lower than perfectivizing prefixes which are assumed to be V operators, secondary imperfective must be a V operator too. Arsenijević (2006) takes the Serbian/Croatian imperfective suffix -va to be the head of a structure with a light predicate (*sum/intersect*) and eventualities in the argument positions. Hence, the position of imperfective suffix -va is low in the structure in the part describing the eventuality description. Similarly, Antonyuk-Yudina et al. (2022) in their analysis couched in Distributed Morphology (Halle and Marantz 1993) assume early linearization (Embick and Noyer 2001) and analyze imperfective suffixes to be verbalized roots in Slavic. Antonyuk-Yudina et al. (2022) propose the following morphological structure of Slavic verbs on the basis of the verb form *naugradivala* in B/C/M/S (23).⁷

- (23) prefix*- root -ThV -suffix -ThV -T - ϕ PersNumGen
 na-u- *grad* -i -iv -a -l -a
 on-in build ThV IPFV ThV PST 3SGF
 '(S)he had her/his fill of building (sth) in.'

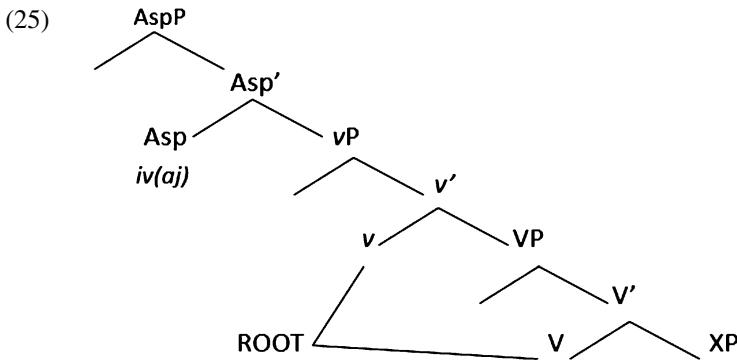
Their analysis is embedded in the framework of Distributed Morphology and they focus on the interaction of core syntactic operations and the PF interface. Following Embick and Noyer (2001) they assume that heads are linearized in a bottom-up fashion and they respect their syntactic position. They argue that all verbal prefixes are Ps and they are base-generated in the head position of a voice projection because they cause changes to argument structure. In the spirit of Lowenstamm (2014), who treats all derivational affixes as transitive roots, they argue that suffixes should be treated as light roots selecting their own theme vowels. They posit that Slavic theme

⁷B/C/M/S stands for Bosnian, Croatian, Montenegrin and Serbian.

vowels serve as verbalizers which change a given category-free root \sqrt{P} into a verbal projection. They claim that all secondary imperfectivizers in Slovenian and B/C/M/S contain a theme vowel and they act as “mini verbs.” They rely on the assumption that theme vowels can undergo Vocabulary Insertion only when they are adjacent with a root. On the basis of these claims they argue that the Slavic verbs instantiate the following syntactic structure (see 24).

- (24) [Infl [voice [v [✓ [voice [v [✓ (XP)]]]]]]]]
 inflection prefix ThV IPFVSuffix prefix ThV Root

A different position is taken by Ramchand (2008a: 1704), who takes secondary imperfective in Russian to be the head of AspP, which is a projection above little vP , as shown in (25).



A somewhat similar view can be found in Filip (2005), according to whom the Slavic imperfective suffix is an inflectional morpheme which serves as a morphological exponent of the aspectual imperfective operator IPFV. She argues that the imperfective operator must be located above the level of event semantics at which telicity of verbs and predicates is defined.

Unlike Ramchand (2008a) and Filip (2005), Tatevosov (2015, 2020) separates imperfective morphology from the imperfective operator IPFV and claims that $-yv(a)$ in Russian merges in a position internal to vP but it is not interpreted as IPFV in the position where it is merged. IPFV and YV(A) are located at a distance, v being structurally higher than the secondary imperfective morphology, as in (26).

- (26) [... IPFV ... [... v ... [... $yv(a)$...]]]

Tatevosov (2020) based this claim on the fact that $yw(a)$ - occurs below a distributive superlexical prefix in Russian, which is assumed to be projected below little v , because—according to Tatevosov (2020)—only the object but not the subject falls within the scope of the distributive prefix. However, this argument cannot be maintained for Polish, where the distributive prefix can scope over an external argument as well (see Sect. 5.1.1).

There is also a position represented, for example, by Milićević (2004) who argues that the use of secondary imperfective is semantically motivated and depends on the idiosyncratic semantic restrictions of individual prefixes.

Despite this disagreement, it should be noticed that the semantics of the secondary imperfectivizing suffix *-yw(a)* is predictable. When used in an episodic context with pseudoverbs (with pseudonouns in the complement position), they are incompatible with time-span adverbials; see (27) and (28).

- (27) a. *Wczoraj on podpisywał^l dokumenty dwie godziny.* ✓ X-time
 ‘Yesterday he was signing documents for two hours.’
 b. **Wczoraj on podpisywał^l dokumenty w dwie godziny.* *in X-time
 ‘Yesterday he was signing documents in two hours.’
- (28) a. *Wczoraj on podgalbywał^l knubę dwie godziny.* ✓ X-time
 ‘Yesterday he was PSEUDOVERB PSEUDONOUN for two hours.’
 b. **Wczoraj on podgalbywał^l knubę w dwie godziny.* *in X-time
 ‘Yesterday he was PSEUDOVERB PSEUDONOUN in two hours.’

This suggests that the meaning of imperfectivizing *-yw(a)* is predictable and its use is productive. Being predictable in terms of its meaning and productive in terms of its distribution, secondary imperfectivizing suffix *-yw(a)* is more similar to external prefixes, which may indicate that the morpheme *-yw(a)* is projected in a vP-external syntactic position; see (29) and Sect. 6.

- (29) [external prefixes [secondary imperfectivizing *-yw(a)* [_{vP} [_{VP} internal prefixes V]]]]
- $\xleftarrow{\hspace{10em}} \hspace{10em} \xrightarrow{\hspace{10em}}$
 $\Downarrow \hspace{10em} \Downarrow$
 SUPERLEXICAL LEXICAL

The aim of the present paper is to examine the constraints on the use of aspectual prefixes and suffixes in VP idioms in Polish and by doing so to contribute to the discussion on the disputable aspectual architecture of Polish (see also Klimek-Jankowska and Błaszczak 2022). Before presenting our study, the next section overviews relevant morphosyntactic and psycholinguistic theories taking a specific stand on the issue of what counts as the domain of idiomatic meanings.

3 Morphosyntactic views on the domain of idiomatic meanings

As is widely acknowledged, idioms are formulaic expressions whose figurative meaning is conventionalized and cannot be derived by means of purely semantic composition. The conservative view is that all idiosyncratic information about a given expression is kept in the lexicon. A modification of this view was proposed by Hale and Keyser (1993) who “introduce a new level to the grammar by suggesting that syntax may be divided between S-syntax (syntactic syntax) and L-syntax (lexical syntax)” (Travis 2000: 167). The latter component encompasses idiosyncratic information while allowing for purely syntactic operations. According to Travis (2000), the demarcation line between L-syntax and S-syntax is EP (event phrase). The lexical and the computational components are allowed to overlap up to EP. Under this view, lexical prefixes would still be part of the L-syntax and superlexical prefixes would be part of the S-syntax.

In the spirit of Hale and Keyser (1993) and Travis (2000), Ramchand (2004, 2008a,b) postulates the existence of the first-phase syntax, which corresponds to the event building phase of the derivation. This means that the information classically seen to be part of lexical items including event structure and argument structure information is decomposed into specific syntactic and semantic categories. The event structure syntax is assumed to consist of three subevents: an initiational subevent, a process denoting subevent and a subevent corresponding to the result state. Each of them has its own projection ordered hierarchically $\text{InitP} \gg \text{ProcP} \gg \text{ResP}$ and each of them has a corresponding event participant projected in the specifier position (Initiator, Undergoer and Resultee). In Ramchand (2008a,b), she argues that lexical prefixes, which interact with the basic lexical meaning of the root and thus create a new event description, in fact originate in the Result subevental projection. She contrasts lexical prefixes with the superlexical ones by arguing that they originate in a higher projection outside the first phase. Ramchand (2008a) assumes that her first-phase syntax can be the place for the assignment of idiosyncratic encyclopedic information, which is compatible with the observation that the lexical prefixes, which are generated in the first-phase syntax can change the meaning of the verb in an idiosyncratic way (see Sect. 2).

Ramchand (2008b: 7) explores “a view of the architecture of grammar whereby the Lexicon is eliminated as a module with its own special primitives and modes of combination.” In fact, this is the central idea of the Distributed Morphology (DM) framework, originally proposed by Halle and Marantz (1993), who depart from the traditional generative lexicon view with its lexicon-internal operations preceding the syntactic computation. DM can be characterized as a theory of the architecture of grammar which unifies morphological and syntactic operations and which assumes the same combinatoric and interpretive mechanisms for both word-formation and phrase-formation. In other words, there is only one generative engine in the theory. More importantly, the combinatoric system operates on abstract bundles of syntactico-semantic features with denotations being the input to semantic composition and interpretation at the level of Logical Form (LF), that is, after syntactic computation is complete. These abstract bundles of features form the first list (List 1) which comprises two categories of items: roots (l-morphemes) (e.g., [$\sqrt{\text{CAT}}$]) and abstract morphemes (f-morphemes) such as [PL]. In the former case the final interpretation includes Encyclopedic information (List 3) determining idiosyncratic aspects of the final semantic representation and in the latter case, f-morphemes provide the functional structure and their semantic contributions are deterministic. Note that it is assumed that the information about a lexical category is not encoded as part of an l-morpheme. What is referred to as an l-morpheme is actually a root and its category is determined in a local relation with a category-defining f-morpheme (a sort of licenser) like *v*, *n*, *a*.

Harley (2012) notes that these bundles of features are combined into larger hierarchical structures by employing Minimalist syntactic operations (Merge, Agree, and Move) and constraints (locality conditions). Importantly, the elements of List 1 have no phonological content. Phonological realizations associated with particular feature bundles are provided on the PF branch during spellout (Late Insertion). The phonological realizations are called Vocabulary Items and they are part of List 2. These

Vocabulary Items may be inserted without being fully specified for morphosyntactic features when no more specific form is available. Several Vocabulary Items may compete for insertion according to a “best fit” principle and the Vocabulary Item whose feature specification comes the closest to matching the features of the terminal node wins the competition. Spellout is typically understood to be cyclic, which means that what is more deeply embedded is spelled-out first.

To sum up, the morphosyntactic computation in DM proceeds in three steps: (i) selection of syntactico-semantic features from List 1; (ii) step 2: syntactic derivation; (iii) step 3: Spellout. As part of the third step, the representation is sent for interpretation to the LF and PF interfaces.⁸

At PF, the hierarchical structure of the syntactic tree is linearized according to linearization rules for a given language. Note that the linear order of terminal nodes is not relevant until PF. It is only the hierarchical structure that matters for the computation of syntactic and semantic relations. Importantly, there may be some PF-specific operations, e.g., Morphological Merger potentially resulting in local morpheme displacements. This operation ensures that specific terminal nodes form a complex segment within one head. The effects of this operation are not visible at LF. It is also an example of the kind of PF-specific operation whose effects are never seen in the LF representation. Harley (2012) points out that the scopally-motivated order of affixation (cf. Baker’s 1985 Mirror Principle), where morpheme order generally reflects syntactic hierarchies and the order of semantic composition, is entailed by the architecture of the DM theory.

At the LF branch, apart from the normal semantic composition, special idiosyncratic information of particular roots is supplied by consulting the Encyclopedia (List 3). This special information composed with the denotations of the f-morphemes produces the final interpretation of the structure. Importantly, only roots which have related entries in the Encyclopedia (List 3) can be interpreted as idiomatic.

The ideas of DM have been further developed in nanosyntax by Starke (2009, et seq.) and the most important change in nanosyntax is the view that the ingredients of syntactic structure (the terminal nodes) are submorphemic. This means that morphemes in nanosyntax may correspond to several terminals (an entire subtree). Another change is the view that the lexicon contains subtrees, i.e., lexical entries usually have the form of <phonological information, syntactic tree, conceptual information>.⁹ In that sense, the (syntactic) lexicon can be envisaged as “a museum of interesting syntactic structures” (Starke 2014). In the nanosyntactic framework, spellout is nothing but an operation of matching the constructed syntactic trees and the trees stored as part of lexical entries. The matching follows a Superset Principle, which means that the lexical tree must always be a proper or improper superset of

⁸Harley (2012) points out that DM is compatible with the classic psycholinguistic model of speech production proposed by Garrett (1975) and developed further in Levelt (1989). In this model two stages are assumed. In the first stage, the message to be articulated, is conceptualized and syntactically organized (at this stage only grammatical and semantic information is accessed). In the second stage, the phonological exponents of the lemmas are retrieved.

⁹As suggested by an anonymous reviewer, any of the three representations can be missing in e.g., the expletive and cranberry affixes in nanosyntax and in DM alike. For example, the automatic glide insertion between a sequence of two vowels, one of which is [i], and glide truncation before a consonant in Polish (see Rubach 2007).

the syntax it spells out. It is assumed that spellout is strictly cyclic and it can take place after each merger operation. It follows from this architecture that each successful spellout overrides previous successful spellouts. As Starke (2009) emphasizes, the phrasal spellout allows for an account of idioms. In nanosyntax the entire constituent (e.g., [VP = kick the bucket]) is simply stored in a lexical entry. Starke (2014) proposes that idioms such as *kick the bucket* can be analyzed analogously to irregular forms such as *mice*. The difference between the regular forms and the irregular ones is the size of the syntactic trees stored in the lexicon. For example, the regular form expressing ‘mouse + plural’ would be *mouse* + *s* and the irregular one *mice*. In the regular form, the noun and the number features are mapped onto two separate trees stored as part of two lexical entries: *mouse* [countP] + *s* [pluralP], while in the case of irregular *mice*, the noun and the number features are mapped onto a single tree: *mice*: [countP+pluralP]. In analogy to the irregular form *mice*, an idiomatic expression such as *kick the bucket* is a higher level constituent being stored in the lexicon together with its prior lexical choices, at the case at hand: *kick* and *bucket*.

Even though all these views reject the existence of a pre-syntactic lexicon and assume that all composition is syntactic, still it is assumed that there are items such as idioms which need to be listed/memorized. Importantly, most of these approaches agree that idiosyncratic meanings are part of a specific domain whose demarcation line is *little v* in Marantz (1997), *vP* (first phase) in Ramchand (2008a,b), Event Phrase in Travis (2000) (corresponding to a boundary between Hale and Keyser’s 1993 L-syntax and S-syntax). Also in nanosyntax a VP idiom would be stored in the lexicon as a higher level constituent together with its prior lexical choices.

Interestingly, these morphosyntactic views are compatible with psycholinguistic evidence coming from an error elicitation (“idiom blends”) study by Cutting and Bock (1997) and a syntactic priming study by Peterson et al. (2001) which show that we have access to the information about the syntactic category of the idioms’ constituents and this is not influenced by the degree of the idiom’s syntactic frozenness and/or its decomposability. Based on these findings, Cutting and Bock (1997) and Sprenger et al. (2006) suggested that all idioms have a hybrid lexical representation, which means that all idioms are compositional and non-compositional at the same time. At one level, idioms have unitary entries corresponding to their non-literal meanings, but at another level, they are represented by simple lemmas of their single constituents. Importantly, both in Cutting and Bock’s (1997) and Sprenger et al.’s (2006) accounts it is assumed that syntactic information about a given idiomatic phrase is lexically encoded.

Assuming that *vP* is a domain of idiosyncratic meanings, we predict that only lexical prefixes which can result in idiosyncratic (unpredictable) meanings should be part of basic perfective VP idioms. We also expect secondary imperfective morphology to be easily compatible with perfective VP idioms, as its meaning is predictable and its use is productive. Concerning basic imperfective VP idioms, we expect that they should be compatible with *vP*-external prefixes. However, given that unlike superlexical prefixes, secondary imperfective morphology plays a purely aspectual function (see Filip 2005: 145), it should be easier to secondarily imperfectivize basic perfective VP idioms than to attach *vP*-external prefixes to basic imperfective VP idioms.

Some support for these predictions comes from the study on the syntactic flexibility of Polish VP idioms by Kędzierska et al. (2018). They showed that it is relatively

easy to change the tense or add modal verbs and negation to VP idioms because these modifications concern higher functional projections—external to vP. On the other hand, it is very difficult to change the number of the NP object or modify it by using adjectival or relative clause modification because these modifications concern VP-internal elements. Their study revealed that aspectual modification creates a much less clear picture as some aspectual morphemes are more easily acceptable with VP idioms in Polish and others are completely out. For this reason, we decided to use Polish VP idioms as a testing ground to verify our predictions and to investigate which aspectual morphemes are projected vP-internally and which are projected vP-externally. To this goal, we conducted several online acceptability rating questionnaires. The details regarding the methodology of the reported study are provided in the respective subsections related to the aspectual behavior of perfective and imperfective VP idioms.

4 Aspectual morphology in Polish VP idioms: our study

We extended the list of VP idioms used in Kędzierska et al. (2018)¹⁰ and added new VP idioms (selected from The PWN Dictionary of Polish idioms; Drabik et al. 2006). Altogether, our initial list of idioms consisted of 80 Polish VP idioms. While selecting idioms, we included only those whose figurative paraphrases are eventive to make sure that the selected idioms are truly VP and not DP idioms. For example, the idiomatic phrase *wsadzić kij w mrowisko* literally means ‘to put a stick into an anthill’ and its figurative interpretation is to make somebody angry by bringing up some controversial or unpleasant issue.

4.1 Division into basic perfective and basic imperfective VP idioms: pretests

Since idioms in Polish can contain perfective and imperfective verbs, we wanted to make sure that in our materials we have VP idioms whose basic variant is perfective and those whose basic variant is imperfective. We used a number of criteria to determine the basic aspectual variant of an idiom. First, we divided the VP idioms found in the dictionary into those whose basic variant was perfective (henceforth referred to as *perfective VP idioms*) and those whose basic variant was imperfective (henceforth referred to as *imperfective VP idioms*). To make sure that the forms classified in the dictionary of Polish idioms are really the basic aspectual forms of the VP idioms to be used in our study, we conducted two pretests. In the first pretest, which was an online questionnaire, the participants (native speakers of Polish, $n = 28$) were asked to complete a missing verb in a VP idiom. The meaning of the idiom was described by providing its context of use. The aspectual forms suggested by less than 60% of the participants were excluded from the list. In the second pretest, a different group of participants (native speakers of Polish, $n = 23$) saw two aspectual variants of each VP idiom and they were asked to decide which variant is the basic one and which one is derived. For the last pretest to be possible, we had to first determine the most natural perfective counterparts of imperfective VP idioms. To this aim, we asked another

¹⁰ Acknowledgements for making the list available.

group of participants (native speakers of Polish, $n = 28$) in an online questionnaire to add possible prefixes to the imperfective idioms without losing their idiomatic interpretation. Only the forms which were provided by most ($> 90\%$) participants were included in our study as the potential perfective counterparts of the basic imperfective VP idioms. Finally, we checked the lemma frequencies (per million words) of all the forms: basic perfective, secondary imperfective, basic imperfective, potential perfective forms of the basic imperfective forms, using the PELCRA search engine for the National Corpus of Polish (NKJP) (Przepiórkowski et al. 2012), the balanced version (Pęzik 2012). The forms with a higher frequency were included in the final list. On the basis of the results of all these tests mentioned above in combination with the frequency data, we narrowed down the original list of perfective and imperfective VP idioms to the ones whose default form was unquestionably perfective or imperfective. The final list consisted of 25 perfective and 33 imperfective VP idioms, which we tested in two online acceptability rating studies taking frequency data into account. Our prediction was that adding external aspectual morphology to VP idioms should be judged as acceptable or minimally (but not significantly) less acceptable than the basic forms just because they are less frequent. As mentioned earlier, the second expectation was that adding secondary imperfective morphology to basic perfective VP idioms might be easier (leading to greater acceptability) than adding external (superlexical) prefixes to basic imperfective idioms.

4.2 Perfective VP idioms: an online acceptability rating study and frequency

4.2.1 Material

Among the selected 25 perfective VP idioms there were mainly prefixed verbs but there was also one bare perfective verb, i.e., *dać komuś w kość* ‘to give someone in a bone.’¹¹ In a series of our online acceptability rating questionnaires, we tested the status of the prefix in the perfective VP idioms (whether the idiom maintains its idiomatic meaning when the prefix is removed). In addition, we also checked whether it is possible to form the secondary imperfective forms of perfective VP idioms (by means of a secondary imperfectivizing suffix *-yw(a)* and its allomorphs or by means of vowel alternation) without altering their idiomatic meaning. Examples of the tested forms are given in (30). The full list of perfective VP idioms used in the present study is provided in Appendix A.

- (30)
- a. *nabrać wody w usta* ‘to keep secret’ (lit. ‘to take water in the mouth’)
 - b. *rozprostować kości* ‘to relax by stretching one’s body’ (lit. ‘to stretch one’s bones’)
 - c. *odkryć Amerykę* ‘to discover America’ (lit. ‘to discover America’)
 - d. *zaciśnąć pasa* ‘to tighten one’s belt’ (lit. ‘to tighten belt’)
 - e. *wyłożyć karty na stół* ‘to make things explicit’ (lit. ‘put cards on table’)

¹¹ Adding a prefix is the most frequent strategy of forming perfective verbs (see Sect. 2).

The acceptability of all the forms of the idioms, including 25 perfective VP idioms, 24 prefixless counterparts of perfective VP idioms, and 25 secondary imperfective counterparts, was tested in an online questionnaire. Altogether, the material consisted of 74 items, which were distributed across three lists using Latin square design. This was done to alleviate the participants' fatigue and in order not to show the three variants of the same VP idiom to the same participant. As a result, we created three lists and each of them contained only one item from each of the tested idiom triples. We obtained responses from 33 participants. All of the tested participants were the native speakers of Polish and they were the students of [removed for anonymization]. (None of them took part in any of the pretests discussed in the preceding section and none of them participated in the acceptability study involving basic imperfective VP idioms described in the next section.) The participants rated the acceptability of the tested idioms on a scale from 1 to 3, where 1 equals unacceptable, 2 equals medium acceptability and 3 means acceptable. They were instructed to evaluate the tested forms under their intended idiomatic meaning.

4.2.2 Results

To determine the existence of the difference between corpus frequency (per 1 million words) of perfective idioms and their secondary imperfective counterparts, a Welch two sample t-test was conducted.¹² The results of the test showed that perfective idioms (mean = 0.2025) are significantly more frequent than their secondary imperfective counterparts (mean = 0.0612); ($t(16.898) = 2.6948$; $p = 0.0154$).

To determine the existence of the differences in acceptability of perfective, prefixed perfective and secondary imperfective idioms, a generalized linear model analysis using the *lmer* function from *lme4* (Bates et al. 2015) package was fitted. The best model fit was obtained with participants and items (idioms) set as random intercepts. Significance of the main effect (imperfective vs. perfective) was based on comparing the model with no effect to the model with the main effect of interest. Outlying cases (2.5% of data) were removed based on their residual values.

Statistical analysis of idioms acceptability revealed a significant main effect ($\chi^2(1) = 92.449$; $p < 0.0001$). The examination of planned contrasts showed that perfective idioms are rated significantly better than their unprefixed counterparts ($\beta = -1.05598$; $t(71.18735) = -11.971$; $p < 0.0001$). However the acceptability of perfective idioms and their secondary imperfective counterparts did not show significant differences ($\beta = 0.02354$; $t(71.48677) = 0.273$; $p < 0.786$). See Table 2 for descriptive statistics and Fig. 1 for the graphical representation of the results.

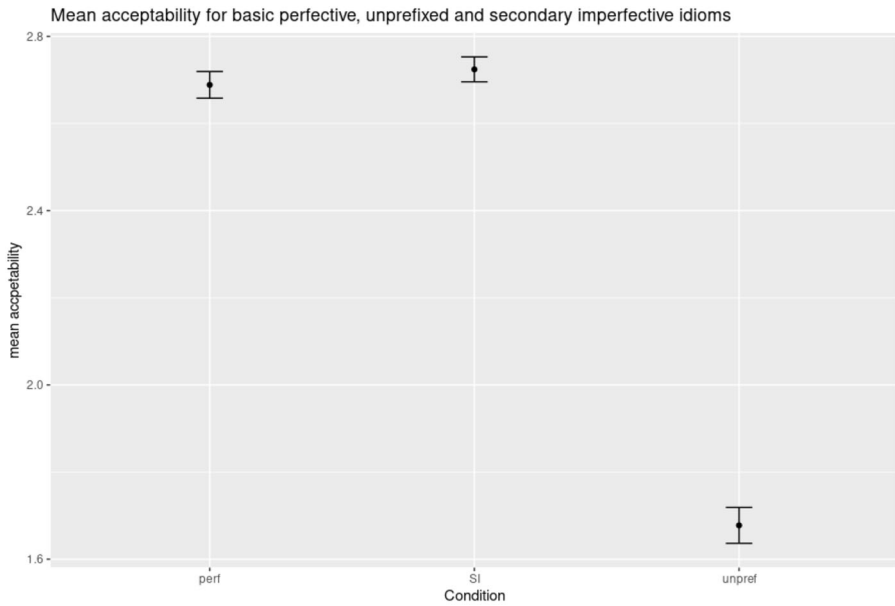
To determine the existence of the dependency of the acceptability of perfective idioms on their corpus frequency, a simple regression model was fitted using *lm* function from *lme4* (Bates et al. 2015). The results of the analysis showed that corpus frequency is not a significant predictor of perfective idioms' acceptability ($\beta = 0.06757$; $t = 0.198$; $p < 0.8460$).

To determine the existence of the dependency of the acceptability of secondary imperfective idioms on their corpus frequency, a simple regression model was fitted

¹²Since unprefixed variants of basic perfective VP idioms had only zero frequency values nothing could be computed statistically for them.

Table 2 Descriptive statistics

cond	N	Mean rating	sd	se	ci
perf	408	2.688725	0.6180498	0.03059803	0.06014990
SI	399	2.724311	0.5708017	0.02857583	0.05617842
unpref	366	1.677596	0.7868026	0.04112683	0.08087528

**Fig. 1** Basic perfective VP idioms and their secondary imperfective and unprefixed variants—mean acceptability

using *lm* function from *lme4* (Bates et al. 2015). The results of the analysis showed that corpus frequency is not a significant predictor of secondary imperfective idioms' acceptability ($\beta = 0.86135$; $t = 0.802$; $p < 0.4350$).

4.3 Imperfective VP idioms: an online acceptability rating study and frequency

4.3.1 Materials

Concerning the 33 imperfective VP idioms used in our study, they all contain primary imperfective forms. As mentioned in Sect. 4.1, we conducted a pretest in which the participants were asked to provide examples of perfective counterparts of the imperfective VP idioms and they were instructed that the created forms should maintain the idiomatic meaning of the initial imperfective idiom. Only the ones which were provided by most participants ($> 90\%$) were selected.

Examples of the tested forms are given in (31). The full list of imperfective VP idioms used in the present study is provided in Appendix B.

- (31) a. *bujać w obłokach* ‘to dream’ (lit. rock in the clouds)
 b. *klepać biedę* ‘to be poor’ (lit. pat poverty)
 c. *trzymać język za zębami* ‘to keep secret’ (lit. to hold tongue behind teeth)
 d. *czuć miętę do kogoś* ‘to be infatuated with sb’ (lit. to feel mint to someone)
 e. *pluć sobie w brodę* ‘to regret’ (lit. to spit oneself in chin)

Both imperfective VP idioms and their possible counterparts were tested in an online acceptability rating questionnaire, in which we asked 57 native speakers of Polish, students of the University of Wrocław, to rate the acceptability of the tested imperfective VP idioms and their perfective counterparts used in sentential contexts on the scale from 1 to 3, where 1 equals unacceptable, 2 equals medium acceptability and 3 means acceptable. Altogether, the materials consisted of 66 items (33 imperfective VP idioms and their 33 perfective counterparts), which were distributed across two lists using Latin square design. This was done to alleviate the participants’ fatigue and in order not to show the two variants of the same VP idiom to the same participant. As a result, we created two lists and each of them contained only one item from each of the idiom pairs.

4.3.2 Results

To determine the existence of the difference between corpus frequency (per 1 million words) of imperfective idioms and perfective counterparts, a Welch two sample t-test was conducted. The analysis was conducted on square-rooted values, as those met normality assumptions. The results of the test showed that imperfective idioms (mean = 0.38630407) are significantly more frequent than their perfective (mean = 0.06163458) counterparts ($t(37.259) = 7.0604$; $p < 0.0001$).

To determine the existence of the differences in acceptability of imperfective and perfective idioms, a generalized linear model analysis using the *lmer* function from *lme4* (Bates et al. 2015) package was fitted. Best model fit was obtained with participants and items (idioms) set as random intercepts. The significance of the main effect (imperfective vs. perfective) was based on comparing the model with no effect to the model with the main effect of interest. Outlying cases (3% of data) were removed based on their residual values.

The statistical analysis of idiom acceptability revealed a significant main effect ($\chi^2(1) = 24.273$; $p < 0.0001$). The examination of planned contrast showed that imperfective idioms are rated significantly better than their perfective counterparts ($\beta = -0.54828$; $t(67.81715) = -5.424$; $p < 0.0001$). See Table 3 for the descriptive statistics and Fig. 2 for the graphical representation of the results.

To determine the existence of the dependency of the acceptability of imperfective idioms on their corpus frequency, a simple regression model was fitted using *lm* function from *lme4* (Bates et al. 2015). The results of the analysis showed that corpus frequency is a significant predictor of imperfective idioms’ acceptability ($\beta = 0.72407$; $t = 3.647$; $p = 0.0009$).

To determine the existence of the dependency of the acceptability of perfective counterparts of basic imperfective idioms on their corpus frequency, a simple regression model was fitted using *lm* function from *lme4* (Bates et al. 2015). The results

Table 3 Descriptive statistics

cond	N	Mean rating	sd	se	ci
imp	987	2.554205	0.7005142	0.02229761	0.04375623
perf_c	985	1.996954	0.8416199	0.02681624	0.05262359

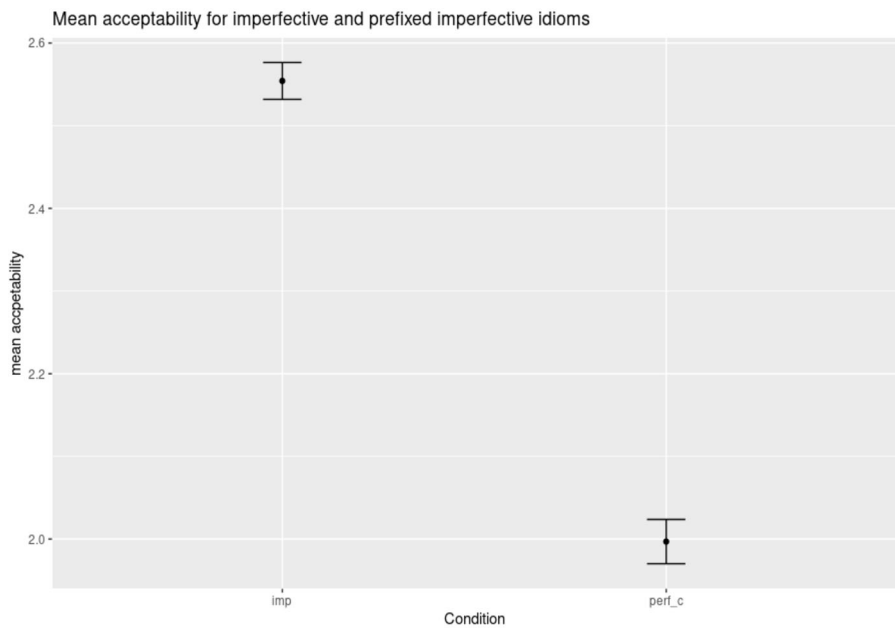


Fig. 2 Basic imperfective VP idioms and their perfective variants—mean acceptability

of the analysis showed that corpus frequency is a significant predictor of perfective idioms’ acceptability ($\beta = 3.28909$; $t = 3.137$; $p = 0.0037$).

4.4 Discussion

Even though basic perfective VP idioms turned out to be statistically significantly more frequent than their secondary imperfective counterparts, there was no significant difference in their acceptability rating scores. This indicates that our perfective VP idioms are the basic forms and that their secondary imperfective counterparts are derived but they are perceived as very natural. This is additionally confirmed by the lack of mutual dependency between corpus frequency and acceptability of the tested forms suggesting that they are so natural that increasing their frequency would not result in their greater acceptability. We take it to indicate that secondary imperfectivization is a productive ν P-external morphological operation. Additionally, dropping the prefix in perfective VP idioms resulted in their significantly lower acceptability as compared to the basic perfective forms, which lends credence to our claim that these prefixes are part of basic perfective VP idioms and hence they are ν P-internal.

Regarding basic imperfective idioms, they turned out to be significantly more frequent and significantly more acceptable than their perfective counterparts. Furthermore, secondary imperfective variants of basic perfective VP idioms turned out to be much more acceptable (2.72 out of 3) than perfective variants of basic imperfective VP idioms (1.99 out of 3). This does not mean that the tested perfective variants of our basic imperfective VP idioms are unacceptable but they are perceived as less natural than the basic variants (and less natural than the secondary imperfective variants of basic perfective VP idioms). Since the correlation test showed that there is a stronger mutual dependency between corpus frequency and acceptability for perfective idioms than for their basic imperfective variants, we may interpret their lower acceptability as resulting from their lower frequency or we may interpret their lower frequency as resulting from their lower acceptability. The latter option seems to be more plausible. A stronger mutual dependency of acceptability rating and corpus frequency for perfective idioms might suggest that they are felt less natural than their imperfective counterparts since prefixes always cause some extra change in the meaning of verbal predicates (in contrast to secondary imperfectivization) and as such they interfere in the VP-internal semantics of idioms making them less acceptable and hence less frequent.

4.5 Some remarks on aspectual morphology compatible with imperfective VP idioms

In the previous section, it was noticed that even though it was possible to add vP-external prefixes to our basic imperfective VP idioms, their acceptability did not turn out to be very high. As was pointed out in Sect. 1, the status of some classes of superlexical prefixes is disputable. For this reason we decided to take a closer look at the prefixed counterparts of imperfective VP idioms which were judged as acceptable and unacceptable and to test the compatibility of different classes of apparent superlexical prefixes with our imperfective VP idioms. On closer inspection, it turned out that some of the acceptable prefixes are of the kind referred to in the literature as purely perfectivizing prefixes, which according to Młynarczyk (2004) affect the aspectual value of the verb without changing its lexical meaning; see (32) (see Łaziński 2020 for a recent discussion).

- (32) a. *schować głowę w piasek*
 ‘to hide_{PFV} the head in the sand’
 b. *umoczyć w czymś palce*
 ‘to dip_{PFV} one’s fingers in sth’
 c. *utrzymać język za zębami*
 ‘to hold_{PFV} the tongue behind one’s teeth’
 d. *urobić ręce po łokcie/pachy*
 ‘to mould_{PFV} one’s hands up to the elbows’

Similarly, Ramchand (2008a: 1709, footnote 11) pointed out that purely perfectivizing prefixes do not affect the argument structure and they only impose a final temporal boundary on the event and in that sense they are semantically bleached and abstract (see Markova 2011 for a different view). Ramchand (2008a) assumes that

such prefixes should be treated as a subtype of the superlexical class. More precisely, she assumes that purely perfectivizing prefixes are generated in the aspectual head projection outside the first phase (the event decomposition phase).

In addition to purely perfectivizing prefixes, our study revealed that our imperfective VP idioms co-occur with selected classes of superlexical prefixes (mainly delimitative and inceptive ones), as illustrated in (33).

- (33) a. delimitative
pobujać w obłokach
 rock_{INF.PFV} in clouds
 'to dream for some time'
- b. inceptive
zagrać na zwłokę
 play_{INF.PFV} on procrastination
 'to start to procrastinate'

This may suggest that purely perfectivizing, delimitative, inceptive prefixes are vP-external and therefore compatible with imperfective VP idioms.¹³ Note that VP idioms with these prefixes can be easily found in the corpus (NKJP, Przepiórkowski et al. 2012). In (34)–(36) some corpus examples are provided for illustration.

(34) PURELY PERFECTIVIZING PREFIXES

s-chować 'PFV-hide'

W ciszy, która zapadła, miałam ochotę schować głowę w piasek, [...]

'In the silence that fell I felt like **hiding my head in the sand**, (hiding myself from the others) [...]

<http://nkjp.pl/poliqarp/nkjp300/query/2/>

(35) DELIMITATIVE

po-pluć 'PFV-spit'

W ten sposób wielu widzów nacięło się na paskudnie zrealizowane i zwyczajnie głupie produkcje

The Asylum, aczkolwiek mogli sobie z tego powodu co najwyżej popluć w brodę, [...]

'In this way many spectators have been hoaxed by horridly badly made and simply stupid productions The Asylum, although they could do nothing about that but **spit at their own chins** (to regret this) [...]

<http://nkjp.pl/poliqarp/nkjp300/query/0/>

(36) INCEPTIVE

za-grać 'PFV-play'

Kiedy przegrywaliśmy 0-2, Finowie przetrzymywaniem piłki zagrali nam na nerwach [...]

'When we were losing 0-2, the Finns with their detention of the ball **played on our nerves** (got on our nerves). [...]

¹³The existence of purely perfectivizing prefixes has been assumed by for example Bogusławski (1963a,b); Grzegorzczkowska et al. (1984); Śmiech (1986), Babko-Malaya (1999); but see also Filip (1993/1999) and Janda and Lyashevskaya (2012) for the opposite point of view.

http://nkjp.uni.lodz.pl/ParagraphMetadata?pid=ebc5405711d4dcf45676e0404f205fe3&match_start=445&match_end=455&wynik=16#the_match

5 Testing the constraints on the use of different classes of the so called superlexical prefixes with imperfective VP idioms

Since the set of superlexical prefixes attested in the corpus with our imperfective VP idioms is rather restricted, we decided to further investigate this issue by testing whether other classes of superlexical prefixes will be compatible with basic imperfective VP idioms. To this goal, we used Wiland's (2012) classification of Polish superlexical prefixes provided in Table 4 below and constructed relevant examples, which we consulted with native speakers of Polish. The question was whether the constructed examples of imperfective VP idioms with the tested classes of superlexical prefixes are acceptable under the original figurative meaning.

Our prediction was that it should be possible to use imperfective VP idioms with superlexical prefixes to the extent that the eventuality expressed by a tested VP idiom satisfies their individual selectional restrictions.

Based on our native speaker intuitions further confirmed with other native speakers of Polish, we observed that it is possible to add distributive, delimitative, saturative and perdurative prefixes to some of the imperfective VP idioms used in our study. The remaining superlexical prefixes included in Wiland's (2012) classification, namely the cumulative, attenuative, completive (additive) ones, turned out to be impossible with imperfective VP idioms used in our study. Concerning the completive (additive) prefix *do-*, we found out that it can be used in a very popular basic perfective VP idiom in Polish *dolać oliwy do ognia* 'to add-pour oil to fire.' This indicates that it should be treated as a lexical prefix.

Concerning terminative, repetitive and excessive prefixes, there were no verbs inside our tested imperfective VP idioms which naturally combine with these prefixes making it impossible to take a definite stand on the issue of their compatibility with VP idioms in Polish.

Table 4 Wiland's (2012) classes of superlexical prefixes

Superlexical prefix	Example
Distributive	<i>porozkładać</i> 'to distribute'
Attenuative	<i>podduścić</i> 'to stew a bit'
Delimitative	<i>poczytać</i> 'to read for a while'
Saturative	<i>najeść się</i> 'to eat to the full'
Cumulative	<i>naścinać</i> 'to cut a lot of sth'
Excessive	<i>przekrzyczeć</i> 'to shout louder than sb'
Repetitive	<i>przepisać</i> 'to write sth again'
Perdurative	<i>przesiedzieć</i> 'to sit through the length of some event'
Completive (additive)	<i>dokroić</i> 'to slice more of sth'
Terminative	<i>odśpiewać</i> 'to sing a song from the beginning to the end'

The goal of our further investigation is now to establish whether the division into superlexical prefixes co-occurring and not co-occurring with imperfective VP idioms can be attributed to some specific semantic properties of the investigated prefixes. In accounting for the semantics of the tested prefixes, we will mainly rely on Kagan's (2013: 488–489) Scale Hypothesis under which a verbal prefix involves a relation between two degrees on a scale, one of which is associated with the event denoted by the verbal predicate, and the other is the standard of comparison.¹⁴ The standard of comparison can be contributed either by a linguistic expression that appears in the sentence or by the context. Kagan (2013: 490, footnote 8) also noticed an interesting tendency holding across prefixes: “if the verbal stem lexicalizes a scale, the prefix will apply to this scale. If the stem does not lexicalize a scale but the object does, the prefix will apply to the scale contributed by the object. Finally, if neither the stem nor the object contributes a scale, the prefix applies to a time scale.” A modified version of Kagan's (2013: 489) Scale Hypothesis is formally represented in (37).

(37) **The Scale Hypothesis**

If Π is a verbal prefix, then $[[\Pi]]$ instantiates the following template:

$$\lambda P \lambda d_s \lambda d. \exists e. [P(d)(e) \wedge dRd_s]$$

In this formula, R stands for a relation between the two degrees, d and d_s (standard of comparison), which may be different depending on the prefix. P stands for the event property denoted by the verbal predicate to which the prefix applies. In our account vP -external prefixes act on VP predicates (with a saturated individual variable). As will be shown in the following sections, Kagan's Scale Hypothesis can be used to account for the semantics of all the tested classes of prefixes except for the distributive one for which we will rely on Piñon (2003).

5.1 Semantic properties of prefixes compatible with imperfective VP idioms

As pointed out above, imperfective VP idioms can be used with *distributive*, *saturation*, *perdurative*, *delimitative* superlexical prefixes. In what follows, we will overview relevant literature dealing with the respective prefixes in order to be able to identify the relevant properties shared by these prefixes, which make them compatible with imperfective VP idioms.

5.1.1 Distributive *po-*

An example of a VP idiom with a distributive *po-* is provided in (38).

- (38) a. *chować głowę w piasek*
 ‘to hide one's head in the sand’
 b. *Wszyscy po-chowali głowę w piasek.*
 all_{NOM} DIST-hide_{PST.3PL} head_{ACC} in sand_{ACC}
 ‘Everyone hid his/her head in the sand.’

¹⁴A *scale* is a set of degrees (abstract representations of measurement) that are ordered along a certain dimension (e.g., height, duration, temperature, etc.). A degree may be linked to an event in several different ways; for instance, it may constitute its degree-of-change argument.

Piñon (2003) defines the semantics of *po-* as a relation between events e , physical objects x , and two-place relations R between events and physical objects, as shown in (39).

- (39) Distributivity as a partition (Piñon 2003, here quoted after Tatevosov 2007, example (33))
 $\text{DISTR}(R)(x)(e) \leftrightarrow \exists P \exists Q [\text{PROP-MPART}(P)(x) \wedge$
 $\text{TDSCR-PROP-MPART}(Q)(e) \wedge \text{BIJECT}(R)(P)(Q)]$

More specifically, distributivity is defined here through the notion of partition. In other words, a relation R between an individual x and event e is defined as distributive iff there is a partition P of x and a partition Q of y . R stands for a bijection relation (one to one relation) between P and Q .

(39) states that the partition P of x must be a proper mereological partition (PROP-MPART) defined following Tatevosov (2007) in (40):

- (40) $\text{PROP-MPART}(P)(x) \leftrightarrow \forall x' [P(x') \rightarrow x' \leq x] \wedge \forall x' [x' \leq x \rightarrow \exists x'' [P(x'') \wedge$
 $x' \otimes x'']] \wedge \forall x' \forall x'' [P(x') \wedge P(x'') \wedge x' \otimes x'' \rightarrow x' = x'']$

(40) means that every element in this partition is a part of x and every element of x overlaps with some element of this partition. In other words, the partition covers the whole x and distinct elements in the partition do not overlap. Moreover, (40) states also that Q must be a temporally discrete mereological partition (TDSCR-PROP-MPART) of e , as follows from Tatevosov's (2007) definition in (41).

- (41) $\text{TDSCR-PROP-MPART}(P)(e) \leftrightarrow \text{PROP-MPART}(P)(e) \wedge \forall e' \forall e'' [P(e') \wedge$
 $P(e'') \rightarrow \neg \tau(e') \otimes \tau(e'')]$

(41) states that P is a temporally discrete mereological partition of e iff P is a proper mereological partition of e and any two events that fall under P do not overlap.

What is relevant in our discussion is that *po-*'s distributive argument can be both an internal and an external argument, as shown in (42) (Piñon 2000; but see Tatevosov 2007 for a different view).

- (42) a. *Basia po-otwierała okna.*
 Basia DIST-open_{PST.3SG.F} window_{ACC.PL}
 'Basia opened each window.'
 b. *Ptaki po-na-wlatywały do pokoju jeden za drugim.*
 Birds_{NOM.PL} DIST-CUM-fly_{PST.3PL} to room one after another
 'Birds flew into the room one after another.'

Now, notice that in our *po-* + VP idiom (see example (38)), *po-*'s distributive argument, i.e., *wszyscy* 'all_{NOM}' is not part of the idiomatic VP configuration, as schematically represented in (43).

- (43) *X chowa głowę w piasek*
 'X hides head in sand'

This means that the prefix does not intervene in the VP-internal semantics of an imperfective VP idiom.

5.1.2 Saturative *na-*

Examples of imperfective VP idioms with a saturative *na-* are provided in (44) and (45).

- (44) a. *szukać dziury w całym*
 ‘to pick holes’
 b. *Na-szukał się dziur w całym.*
 SAT-look_for_{PST.3SG.M} REFL hole_{GEN.PL} in whole
 ‘He looked for holes in the whole (to the full).’
- (45) a. *dzielić włosy na czworo*
 ‘to split hairs’
 b. *Na-dzielił się włosów na czworo.*
 SAT-split_{PST.3SG.M} REFL hair_{GEN.PL} in four
 ‘He split hairs into four parts (to the full).’

Žaucer (2010) does not terminologically distinguish between saturative *na-* and cumulative *na-* and treats them both as cumulative. However, Wiland (2012) treats saturative *na-* and cumulative *na-* as two separate classes of superlexical prefixes. We are more inclined to follow Wiland (2012) for the following reasons. First, verbs with a cumulative *na-* prefix need an internal argument. By contrast, verbs with a saturative *na-* prefix do not need an internal argument, as exemplified in (46) and (47).

- (46) CUMULATIVE
 *Janek na-gotował *(ziemniaków).*
 Janek CUM-cook_{PST.3SG.M} potato_{GEN.PL}
 ‘Janek cooked a lot of potatoes.’
- (47) SATURATIVE
 Janek na-gotował się (ziemniaków).
 Janek SAT-cook_{PST.3SG.M} REFL potato_{GEN.PL}
 ‘Janek cooked potatoes to the limits of his possibilities.’

Second, verbs with a saturative *na-* are compatible only with an agent-oriented result phrase. By contrast, verbs with a cumulative *na-* are naturally compatible with object-oriented result phrases, as shown in (48) and (49).

- (48) CUMULATIVE
 Strażnik na-biczował więźniów_i [do nieprzytomności]_i.
 the guard CUM-flog_{PST.3SG.M} prisoner_{GEN.PL} till unconsciousness
 ‘The guard flogged the prisoners till they were unconscious.’
- (49) SATURATIVE
 Strażnik_i na-biczował się więźniów [do nieprzytomności]_i.
 the guard SAT-flog_{PST.3SG.M} REFL prisoner_{GEN.PL} till unconsciousness
 ‘The guard flogged the prisoners till he was unconscious.’

Third, only verbs with a saturative prefix *na-* are compatible with imperfective VP idioms while the cumulative ones are not. See examples (50) and (51).

(50) CUMULATIVE

#*Na-dzielił* *włosów* *na* *czworo*.
 CUM-split_{PST.3SG.M} hair_{GEN.PL} in four
 Lit. ‘He split a lot of hairs into four parts.’
 (intended figurative: *dzielił włos na czworo* ‘(he) split hairs’)

(51) SATURATIVE

Na-dzielił *się* *włosów* *na* *czworo*.
 SAT-split_{PST.3SG.M} REFL hair_{GEN.PL} in four
 Lit. ‘He split a lot of hairs into four parts.’
 (intended figurative: *dzielił włos na czworo* ‘(he) split hairs’)

To conclude, the above examples demonstrate that saturative *na-* and cumulative *na-* should be treated separately.

With this background in mind, we can describe saturative *na-* prefix as involving a relation between the degree on a scale associated with an event and a degree associated with some agent-oriented contextually relevant standard of comparison (e.g., the level of exhaustion, satisfaction of the agent). More precisely, saturative *na-* prefix imposes a saturation requirement in that the action must reach the upper-bound of the contextually relevant scale (the state of satisfaction, exhaustion of the agent); see (52).

- (52) $[[na-]] = \lambda P \lambda d_s \lambda d \exists e [P(d)(e) \wedge d \geq d_s]$
 where d = the degree of change (Kennedy and Levin 2008; a modified version of Kagan 2015: Chap. 2, Sect. 3, example (17))

For this reason, verbs with saturative *na-* are compatible with a result phrase *to the full*, as illustrated in (53).

- (53) *Jan na-pracował się do utraty sił.*¹⁵
 Jan SAT-work_{PST.3SG.M} REFL till loss strength_{GEN.PL}
 ‘Jan worked a lot till the loss of strength.’

In (53), the saturation requirement of the prefix *na-* is related to the scale associated with the agent (VP-external element), so it is possible to use it with an imperfective idiomatic VP without losing its intended figurative meaning. In other words, we can conclude that the saturative *na-* prefix is compatible with an imperfective VP idiom since it does not intervene with its semantics.

¹⁵As pointed out in Tatevosov (2010) and Antonyuk-Yudina et al. (2022), in traditional literature the morphological elements *na-* *-refl* are treated as a “circumfix.” We would like to suggest that *się* in this construction is not a reflexive element because the agent is not doing something to himself/herself but to the object. Reaching the result state of the agent’s V-ing the object is measured along a scale of the agent’s satisfaction or exhaustion. In other words, it seems that *się* here is a kind of autobenefactive element. A careful examination of this phenomenon requires further research.

5.1.3 Perdurative *prze-*¹⁶

An example of an imperfective VP idiom with a perdurative *prze-* is provided in (54).

- (54) a. *lecieć na opinii*
 ‘to live on one’s reputation’
 b. *Prze-leciał na opinii cały ten rok.*
 PERD-flyPST.3SG.M on opinionLOC.SG whole this yearACC
 ‘He flew on the opinion throughout the whole year.’

Perdurative *prze-* combines with intransitive verbs (lexically atelic—processes such as *live, sit, sleep*) and it requires an argument which introduces a delimiting temporal interval, as illustrated in the contrast between (55b) and (55c).

- (55) a. *Jan siedział.*
 Jan sitPST.IPFV.3SG.M
 ‘John was sitting.’
 b. **Jan prze-siedział.*
 Jan PERD-sitPST.3SG.M
 ‘John sat through.’
 c. *Jan prze-siedział wykład.*
 Jan PERD-sitPST.3SG.M lectureACC
 ‘John was sitting throughout the lecture.’

One may say that because *prze-* changes the argument structure of a verb, it is in fact lexical and not superlexical. In fact, Žaucer (2012) argues that perdurative *pre-* in Slovenian is internal, i.e., with a resultative origin; see (56).

- (56) *Juš je v arestu pre-sedel *(dve leti).*
 Juš is in jail PERD-sat two years
 ‘Juš was in jail for two years / Juš spent two years sitting in jail.’

He provides three arguments that the measure expression in (56) functions as a direct object, which he takes as evidence in favor of *pre-* being a resultative prefix.¹⁷ First, he claims that given that the measure expression can act as the antecedent of ordinary relativization and given that the latter requires a direct object, the measure expression must be a direct object; see (57).

- (57) *Štiri leta, katera je Juš pre-sedel v arestu, so minila en dva tri.*
 four years which is Juš PERD-sat in jail are passed one two three
 ‘The 4 years which Juš spent in jail went by like a flash.’

¹⁶Since spatial prefixes can be found in basic perfective VP idioms we are inclined to say that spatial *prze-* and perdurative *prze-* are two kinds of prefixes in Polish. For example one can say *przeszedł samego siebie* ‘he surpassed himself,’ which is idiomatic, but not **szedł samego siebie* ‘he walked himself.’ This basic perfective VP idiom can be secondary imperfectivized *Czasami przechodził samego siebie* ‘Sometimes he surpassed himself’ without losing its idiomatic meaning

¹⁷Žaucer (2012) also mentions a fourth argument based on a ‘do so’ VP pro-form, which is not applicable in Polish.

However, this argument is not convincing since the measure expression can also be relativized in a construction in which it does not necessarily function as a direct object but rather as a temporal adverbial, as shown in the Polish example (58).

- (58) *Kosiłem trawnik trzy godziny, które trwały wieki.*
 mowPST.1SG.M lawn three hours which lastPST.3PL ages
 ‘I mowed the lawn for three hours which took ages.’

Secondly, Žaucer (2012) points out that an unmodified noun such as ‘morning’ cannot function as an adjunct and for that reason it is impossible with the unprefixated verb ‘sit’ in (59). By contrast, the measure expression in a perdurative construction can be realized by an unmodified noun such as ‘morning,’ as shown in (60). Based on this observation, Žaucer (2012) concludes that the measure expression in (60) must be acting as a direct object.

- (59) *Juš je *(celo) jutro sedel na tleh.*
 Juš is all morning sat on floor
 ‘Juš sat on the floor all morning.’

- (60) *Juš je (celo) jutro pre-sedel na tleh.*
 Juš is all morning PERD-sat on floor
 ‘Juš sat on the floor all morning/spent the whole morning sitting on the floor.’

We would like to suggest that the facts in (59) and (60) show that the perdurative prefix needs an additional argument introducing a delimiting temporal interval (see our discussion related to the semantics of this prefix proposed below) but it does not necessarily mean that this argument must be introduced VP-internally.

The third argument is based on the genitive of negation facts. More precisely, in Slovenian only direct objects are subject to the genitive of negation. The fact that the measure expression in perdurative constructions undergoes the genitive of negation, as shown in (61), is taken by Žaucer (2012) to indicate that it is a direct object. Moreover, he points out that in constructions without this prefix, the optional measure expression does not undergo the genitive of negation, as shown in (62).

- (61) a. *Juš je v ječi pre-sedel 3 leta.*
 Juš is in jail PERD-sat 3 years_{ACC}
 ‘Juš spent 3 years in jail.’
 b. *Juš v ječi ni pre-sedel 3 let.*
 Juš in jail is.not PERD-sat 3 years_{GEN}
 ‘Juš did not spend 3 years in jail.’
 (62) a. *Juš je v ječi sedel 3 leta.*
 Juš is in jail sat 3 years_{ACC}
 ‘Juš spent 3 years in jail.’
 b. *Juš v ječi ni sedel {3 leta / *3 let}.*
 Juš in jail is.not sat 3 years_{ACC} / 3 years_{GEN}
 ‘Juš did not spend 3 years in jail.’

However, in Polish the temporal expression (functioning as an adjunct) can undergo genitive of negation also in an unprefixated construction, as shown in (63) and (64).

- (63) a. *Jan **prze**-siedział w ogrodzie 3 godziny / cały poranek.*
 Jan PERD-sit_{PST.3SG.M} in garden 3 hours_{ACC} / whole morning_{ACC}
 Lit. ‘John was sitting throughout 3 hours/the whole morning in the garden.’
- b. *Jan **nie prze**-siedział w ogrodzie trzech godzin*
 Jan NEG PERD-sit_{PST.3SG.M} in garden 3 hours_{GEN}
/ całego poranka.
/ whole morning_{GEN}
 Lit. ‘John was not sitting for 3 hours/the whole morning in the garden.’
- (64) a. *Jan **siedział** w ogrodzie 3 godziny / cały poranek.*
 Jan sit_{PST.IPFV.3SG.M} in garden 3 hours_{ACC} / whole morning_{ACC}
 Lit. ‘John was sitting throughout 3 hours/the whole morning in the garden.’
- b. *Jan **nie** **siedział** w ogrodzie trzech godzin*
 Jan NEG sit_{PST.IPFV.3SG.M} in garden 3 hours_{GEN}
/ całego poranka.
/ whole morning_{GEN}
 Lit. ‘John was not sitting for 3 hours/the whole morning in the garden.’

The fact that genitive of negation affects at least certain types of adjuncts has been reported in the literature (see Franks and Dziwirek 1993; Dziwirek 1994; Witkoś 1998; Przepiórkowski 1999) and it weakens Žaucer’s (2012) claim.

To sum up, we have seen that the three arguments proposed by Žaucer (2012) do not necessarily show that the temporal measure argument must be a direct object in the VP. This observation, together with the fact that perdurative *prze-* is compatible with imperfective VP idioms, lets us argue that it is a superlexical (vP-external) prefix.

To analyze the semantics of perdurative *prze-*, we adopt Kagan’s (2013) view that this prefix imposes a relation between two degrees on a scale: (i) one associated with the temporal trace of a process and (ii) one associated with an additional argument introducing a delimiting temporal interval. That is, the argument of *prze-* must be event-denoting and the temporal duration of the denoted event functions as the standard of comparison. More precisely, the prefix *prze-* specifies that the temporal trace of an event is included and reaches the upper bound of the interval provided by a delimiting temporal argument. The latter interval is understood to be temporally “crossed” by the former eventuality. In other words, the temporal duration of some eventuality, which can be represented as an interval on a time scale, is entailed to include another interval on this scale; see Kagan (2015: Sect. 2.3.2). This can be formally represented as in (65) which is a modified version of Kagan (2015).

- (65) $[[prze-]] = \lambda P \lambda d_s \lambda d \exists e [P(d)(e) \wedge d \subseteq_U d_s]$ (a modified version of Kagan 2015: Chap. 4, Sect. 2.2.2, example (29))

More formally speaking, perdurative prefix *prze-* requires for the degree *d* to either upper include the standard *d_s* or to be identical to it. In the latter case, crucially, the maximal point of *d_s* is still included in *d*. This requirement is represented as $d \subseteq_U d_s$. This means that either the two intervals are identical or the former properly includes the latter, crucially, in the sense of upper inclusion. We will return to the

question of the syntactic representation of perdurative *prze-* later. For the time being, the conclusion is that perdurative *prze-* is added vP-externally and it measures over a scale introduced by its own temporal argument. In this sense, it does not intervene in the semantics of an imperfective VP idiom.

5.1.4 Delimitative *po-*

An example of a delimitative *po-* with an imperfective VP idiom is provided in (66):

- (66) a. *grać na nerwach*
‘to get on sb’s nerves’
- b. *Po-grał* *nam* *na* *nerwach* *cały wieczór*
DELIM-play_{PST.3SG.M} us_{DAT} on nerves_{LOC} [whole evening]_{ACC}
i *wyszedł* *zadowolony*.
and leave_{PST.3SG.M} satisfied
‘He played on our nerves the whole evening and then left satisfied.’

According to Piñón (1994), the delimitative prefix *po-* of the so-called “pofective verbs” is a marker of temporal delimitation. It describes eventualities which last only a relatively short time and do not make reference to their beginning or endpoint and thus can be translated with a temporal phrase ‘for a while.’ Pofective verbs are morphologically perfective but semantically they denote a temporally bounded but not culminating eventuality.

Similarly, Filip (2000: 62) analyzes the Russian *po-* as an extensive measure function, which “[carves] out a chunk of a certain size out of the extension of a base process verb” (see also Filip 2005). In other words, *po-* delimits the temporal trace of an event and specifies that it is short relative to some expectation value, as shown in (67).

$$(67) \quad [[po-]] = \lambda P \lambda x [P(x) \wedge m_c(x) \leq s_c]$$

In (67), m_c is a free variable over measure functions that are linguistically or contextually specified, and s_c stands for a contextually determined expectation value.

Součková (2004a,b) and Kagan (2015) analyze different readings of *po-* and they propose that, under all its uses, *po-* measures an event by virtue of measuring the degree of change. However, when a predicate does not belong to the class of verbs of gradual change, the prefix applies to a time scale. By delimiting an interval on this scale (specifying that it is relatively short), the prefix delimits the event.

We assume that delimitative *po-* in Polish is a temporal delimitator in the sense that it delimits a temporal trace of an (idiomatic) event relative to a contextually provided expectation value (specifying that it is relatively short).

The semantics of this prefix can be represented as in (68) (a modified version of Kagan (2015: Chap. 2, Sect. 2, example (7)):

$$(68) \quad [[po-]] = \lambda P \lambda d_s \lambda d \exists e [P(d)(e) \wedge d \leq d_s]$$

where d corresponds the temporal trace of the event and d_s is the contextually supplied expectation value.

In this formula, *po-* looks for a predicate that takes an event argument and imposes the \leq relation between a degree *d* which corresponds to a temporal trace of an event and the contextually provided expectation value *d_s*. The location of the temporal trace of an event $\tau(e)$, which maps an event to the timeline it occupies, is *vP*, the event building phase of the derivation (see Hale and Keyser 1993; Travis 2000; Ramchand 2004, 2008a,b). Since it occupies a *vP* (the event building phase of the derivation, which is also the domain of special idiomatic meanings), the picture that emerges is that the delimitative prefix *po-* acts on the temporal trace of an idiomatic event. It explains why it is compatible with imperfective VP idioms. It does not intervene with their intended idiomatic semantics.

5.1.5 Interim conclusion

The discussion in this section has shown that superlexical prefixes are compatible with imperfective VP idioms as long as they (i) measure over the temporal trace of an idiomatic event or over some scale associated with the VP-external material, or (ii) distribute over an argument which is not lexically encoded inside an imperfective VP idiom.

5.2 Semantic properties of prefixes incompatible with imperfective VP idioms

In this section, we will discuss prefixes incompatible with imperfective VP idioms, which include cumulative and attenuative ones. As in the preceding section, we will overview relevant literature dealing with the respective prefixes in order to be able to identify the relevant properties shared by these prefixes, which make them incompatible with imperfective VP idioms.

5.2.1 Cumulative *na-*

Examples of a cumulative *na-* with imperfective VP idioms are provided in (69–72):

- (69) a. *budować zamki na piasku*
 ‘to build castles in the air’
 b. #*Na-budował zamków na piasku.*
 CUM-build_{PST.3SG.M} castle_{GEN.PL} on sand
 Lit. ‘He built a lot of castles on the sand.’
- (70) a. *lizać rany*
 ‘to spend time getting back your strength’
 b. #*Jan na-lizał ran.*
 John CUM-lick_{PST.3SG.M} wounds_{GEN.PL}
 Lit. ‘John licked a lot of wounds.’
- (71) a. *połykać książki*
 ‘to read a lot of books’
 b. #*Jan na-połykał książek.*
 John CUM-swallow_{PST.3SG.M} books_{GEN.PL}
 Lit. ‘John swallowed a lot of books.’

- (72) a. *dusić pieniądze*
 ‘to save money’
- b. #*Jan na-dusił pieniędzy.*
 John CUM-pinch_{PST.3SG.M} money_{GEN.PL}
 Lit. ‘John pinched a lot of money.’

Cumulative *na-* combines with transitive verbs or with intransitive verbs but then it adds its own argument, which serves as a unit of measure; see (73a) and (73b).

- (73) a. Jan *na-gotował zupy.*
 Jan CUM-cook_{PST.3SG.M} soup_{GEN.SG}
 ‘John cooked a lot of soup.’
- b. Jan *na-latał *(mil).*
 Jan CUM-fly_{PST.3SG.M} mile_{GEN.PL}
 ‘John fled *(a lot of miles).’

The prefix imposes semantic restrictions on its argument in that it cooccurs only with mass and plural nouns but excludes singular count nominal arguments, as shown in (74).

- (74) Jan *na-gotował zupy/ziemniaków/*ziemniaka.*
 Jan CUM-cook_{PST.3SG.M} soup_{GEN./potatoesGEN./potatoGEN}
 ‘John cooked a lot of soup/potatoes/*a potato.’

Filip (2005) claims that *na-* serves as an extensive measure function in that it directly affects the referential and quantitative interpretation of the bare nominal argument by directly measuring the quantity of the involved argument that has a non-specific indefinite meaning.

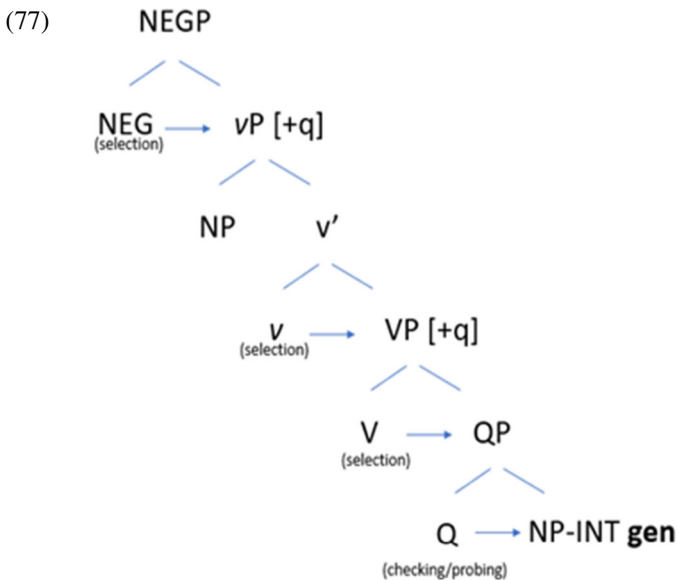
Tatevosov (2007) develops Filip’s (2000, 2003, 2005) insights concerning the semantics of cumulative *na-* and combines them with Pereltsvaig’s (2006) small nominal analysis. The insight he adopts from Filip (2000, 2003, 2005) is that the prefix *na-* contains an extensive measure function over individuals. The insight he adopts from Pereltsvaig (2006) is that the internal argument of a verb with the cumulative *na-* is not a DP but a QP. Both Pereltsvaig (2006) and Tatevosov (2007) treat cumulative *na-* as a *vP*-external element. What is unclear in this account is how the cumulative prefix hosting its own *vP*-external project assigns genitive case to the nominal complement of *V* in its scope across the phase boundary. To solve this problem, we would like to draw an analogy between the *vP*-external *na-P* and the genitive of negation in Polish. In Polish, the genitive of negation is obligatory on the direct object of transitive verbs, as shown in (75).

- (75) Jan nie czytał książek.
 Jan NEG read.pst books_{GEN.PL}
 ‘Boris didn’t read books.’

Additionally, as was shown in Błaszczak (2001), Polish genitive of negation is also obligatory in an embedded clause in the presence of sentential negation in the main clause, as shown in (76):

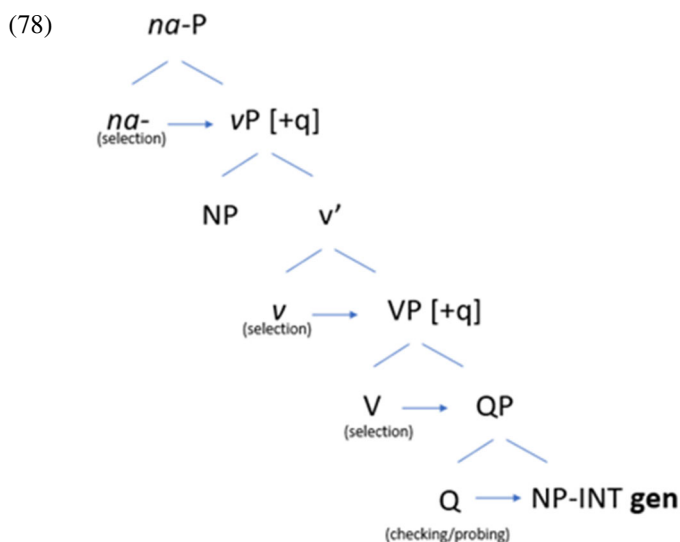
- (76) Polak nie ma obowiązku znać języka francuskiego
 Pole NEG have obligation know language French_{GEN}
 ‘A Pole has no duty to know the French language.’

The genitive of negation constitutes a problem for the Phase Impenetrability Condition (PIC), according to which elements inside a phase are not accessible to elements outside a phase. To circumvent this problem, Bailyn (2004) claims that the genitive case is the uninterpretable spell-out of Q (quantification).¹⁸ Under Bailyn’s (2004) account, the high NEG head in the structure allows the selection of a ν P with an associated [q] feature. The ν P complex with the [q] feature selects a QP object and not an NP object. Importantly, it is the head of QP that provides for the genitive case on its NP complement, as is shown in (77).



When there is no negation, the ν P lacks the [q] feature and no genitive is spelled out on the object nominal (except for the verbs which themselves have an associated [q], e.g. *chcieć wody* ‘to want water-GEN’). This feature is transferred to the verb from the head of NegP by the process of “chain of selection.” The chain of selection links NegP (generated high in the tree) and the genitive marking of internal arguments of verbs in the selection domain of NegP. We would like to propose the same mechanism for ν P-external cumulative *na*-P. The *na*- head selects a ν P with a [q] feature. The ν P with the [q] feature selects a QP object and the head of QP probes for the genitive case on its NP complement, as is shown in (78).

¹⁸Baylin (2004) builds on Pesetsky and Torrego (2001) who claim that each (non-lexical) morphological case is the (uninterpretable) spell-out of some core functional category.



Let us combine these insights with Kagan's (2015) scalar approach to cumulative *na-*. She claims that cumulative *na-* measures the amount of objects that undergo a change in the course of the event. The semantics of *na-* can be represented as in (79) (a modified version of Kagan 2015: Chap. 2, Sect. 3, example (17)).

- (79) $[[na-]] = \lambda P \lambda d_s \lambda d \exists e. [P(d)(e) \wedge d \geq d_s]$
 where d = the degree of change (Kennedy and Levin 2008)

According to (79), *na-* looks for a predicate that takes a degree d and an event argument and imposes the \geq relation between the degree d argument and the contextually provided expectation value d_s associated with the QP. The degree of change is entailed to be no lower than the standard.

Given the above insights about the semantic properties of cumulative *na-*, it seems to be the case that the cumulative prefix is incompatible with basic imperfective VP idioms because it involves a relation between the degree on a scale associated with an event and a degree associated with the QP, which leads to a *vP*-internal intervention.

5.2.2 Attenuative *pod-*

An example of an attenuative *pod-* with an imperfective VP idiom is provided in (80):

- (80) a. *dusić każdy grosz*
 'to pinch every penny'
 b. #*Jest chytrusem i pod-dusza każdy grosz.*
 bePRS.3SG cunning.personINS and ATT-pinchPRS.3SG every penny
 Lit. 'He is very cunning and pinches slightly every penny.'

Attenuative *pod-* is associated with the 'low amount'/'low degree' meaning and it is often translated by means of *a little*, *a few*. Attenuative *pod-* delimits the degree of change of an event by requiring that it does not exceed some contextually specified

expectation value. With verbs of gradual change, the prefix will apply to the scale that is contributed by the predicate.

Formally, the meaning of attenuative *pod-* can be represented as in (81) which is a modified version of Kagan (2016: example (13)):

- (81) $[[pod-]] = \lambda P \lambda d_s \lambda d \exists e.[P(d)(e) \wedge d \leq d_s]$
 where d is the degree of change argument of the event, in the sense of Kennedy and Levin (2008) and d_s is the contextually supplied expectation value.

Importantly, attenuative *pod-* measures an event by virtue of measuring the degree of change. Attenuative *pod-* takes a predicate that takes a degree and an event argument and imposes the \leq relation between the degree argument and the contextually provided expectation value d_s .

Coming back to the question why attenuative *pod-* is incompatible with imperfective VP idioms, it should be noticed that it measures over a scale which is encoded by a verbal predicate. This constitutes a VP-internal intervention.

5.2.3 Interim conclusion

The discussion in this section has shown that superlexical prefixes which are not compatible with imperfective VP idioms measure over a scale which is encoded by a verbal predicate (as is the case with the attenuative prefix *pod-*) or by a vP-internal element e.g., a QP (as is the case of cumulative *na-*). The facts discussed so far indicate that even though cumulative, attenuative prefixes are incompatible with imperfective VP idioms, we can still maintain the view that they are vP-external and their incompatibility with basic imperfective VP idioms appears to follow from semantic restrictions and is conditioned by whether or not the prefix intervenes in the VP-internal semantics of an idiom leading to the loss of its figurative meaning. However, there is one more issue to be clarified. Namely, if all the tested prefixes are superlexical, as we claim above, then one would predict that they should behave uniformly with regard to the secondary imperfectivization test standardly assumed in the literature to be a test for distinguishing between superlexical and lexical prefixes. This prediction will be discussed in the next section.

5.3 Superlexical prefixes and secondary imperfectivization

Recall from Sect. 2.2 that superlexical prefixes are usually assumed not to be subject to secondary imperfectivization rules. In the following examples (see Table 5), this generalization is tested for all the classes of superlexical prefixes in Wiland's (2012) hierarchy.

If the standard view that secondary imperfective morphology can be added only to verbs with lexical prefixes is true, a reasonable conclusion is that only distributive, delimitative, saturative and cumulative prefixes are superlexical. Notice that almost all the prefixes which allow secondary imperfectivization are incompatible with our VP idioms and almost all the prefixes which do not allow secondary imperfectivization are compatible with our imperfective VP idioms. At first glance, this could be

Table 5 Superlexical prefixes and secondary imperfectivization

Superlexical prefix	Perfective	Secondary imperfective
Distributive	<i>porozkładać</i> 'to distribute' <i>ponalewać</i> 'to pour' <i>pododawać</i> 'to add'	<i>*porozkładać</i> <i>*ponalewywać</i> <i>*podowawywać</i>
Delimitative	<i>poczytać</i> 'to read for a while' <i>poleżeć</i> 'to lie for a while' <i>pośpiewać</i> 'to sing for a while'	<i>*poczytywać</i> <i>*poleżywać</i> <i>*pośpiewywać</i>
Saturative	<i>nagotować się</i> 'to cook sth to the exhaustion' <i>naśpiewać się</i> 'to sing sth to the satisfaction' <i>nadrukować się</i> 'to print sth to the exhaustion'	<i>*nagotowywać się</i> <i>*naśpiewywać się</i> <i>*nadrukowywać się</i>
Cumulative	<i>nagotować pierogów</i> 'to cook a lot of pies' <i>naśpiewać piosenek</i> 'to sing a lot of songs' <i>nadrukować książek</i> 'to print a lot of books'	<i>*nagotowywać pierogów</i> <i>*naśpiewywać piosenek</i> <i>*nadrukowywać książek</i>
Attenuative	<i>podgrzać coś</i> 'heat sth a bit' <i>podpiec coś</i> 'to bake sth a bit' <i>podsmżyć coś</i> 'to fry a bit'	<i>podgrzewać</i> <i>podpiekać</i> <i>podsmażać</i>
Excessive	<i>przekrzyć kogoś</i> 'to shout louder than sb' <i>przegadać kogoś</i> 'to talk more than someone' <i>przesolić coś</i> 'to season sth with salt more than enough'	<i>przekrzykiwać</i> <i>przegadywać</i> <i>przesalać coś</i>
Repetitive	<i>przerobić</i> 'to redo sth' <i>przemalować</i> 'to repaint sth' <i>przeredagować</i> 'to re-edit sth'	<i>przerabiać</i> <i>przemalowywać</i> <i>przeredagowywać</i>
Perdurative	<i>przespać</i> 'to sleep through the length of some event' <i>przeczekać</i> 'to wait through the length of some event' <i>przeplakać</i> 'to cry through the length of some event'	<i>przesypiać</i> <i>przeczekiwać</i> <i>przeplakiwać</i>
Terminative	<i>odśpiewać piosenkę szybko</i> 'to sing a song from the beginning to the end' <i>odrecytować wiersz niestarannie</i> 'to recite a poem carelessly' <i>odtańczyć poloneza z obowiązku</i> 'to dance polonaise out of duty'	<i>odśpiewywać piosenkę szybko</i> <i>odrecytowywać wiersz niestarannie</i> <i>odtańczyć poloneza z obowiązku</i>

interpreted as evidence that the prefixes which are incompatible with imperfective VP idioms and allow secondary imperfectivization are lexical and, accordingly, those prefixes which are compatible with imperfective VP idioms and do not allow secondary imperfectivization are superlexical. However, there are some exceptions in this pattern. Note that cumulative *na-* does not allow secondary imperfectivization and thus it patterns with other clearly superlexical prefixes but, on the other hand, it is incompatible with imperfective VP idioms and in this respect it patterns with other apparently lexical prefixes. Given that our perfective VP idioms are all subject to secondary imperfectivization, we conclude that secondary imperfective morphology is ν P-external. Since cumulative *na-* stacks over secondarily imperfectivized verbs leading to their perfectivization (see 82), it must be higher than secondary imperfectivizing morphology (even more ν P-external).

- (82) *[na-[[podpis]-yw(a)-]_{IPFV}]_{PFV} dokumentów*
 ‘to sign a lot of documents’

If so, it does not necessarily mean that a prefix which is incompatible with imperfective VP idioms must be lexical. It also suggests that secondary imperfective morphology is not a reliable criterion distinguishing between lexical or superlexical prefixes (as earlier suggested by, for example, Žaucer 2010). The observed facts are also compatible with the view that all the prefixes in Table 5 are ν P-external but only distributive, delimitative, saturative and cumulative ones are realized higher than the secondary imperfective morphology. Another relevant observation is that there is a correlation between the height of superlexical prefixes in the hierarchy proposed by Wiland (2012) and their interference with the VP-internal semantics of idioms. Wiland’s (2012) original hierarchy of prefixes is presented in (83).

- (83) DIST » ATT » DELIM » SAT » CUMUL » EXC » REP » PERD » TERM

Note that an attenuative prefix is realized high in this hierarchy, but there are reasons to believe that it is realized lower. First, it can be secondarily imperfectivized; and second, distributive, delimitative, saturative and cumulative prefixes can stack over it, as shown in (84).

- (84) a. *po-pod-duszać/*pod-po-duszać* *wszystkie* *warzywa*
 DIST-ATT-stew_{INF}/ATT-DIST-stew_{INF} all vegetables
 (*po kolei*)
 (one after another)
 ‘to stew all vegetables one after another’
- b. *po-pod-duszać/*pod-po-duszać* *warzywa* *przez* *chwilę*
 DELIM-ATT-stew_{INF}/ATT-DELIM-stew_{INF} vegetables for while
 ‘to stew vegetables a little bit for a while’
- c. *Na-pod-duszałem/*pod-na-duszałem* *się* *wczoraj*
 SAT-ATT-stew_{PST.1SG.M}/ATT-SAT-stew_{PST.1SG.M} REFL yesterday
warzyw.
 vegetables
 ‘I was stewing vegetables a little bit excessively yesterday.’

- d. *Na-pod-duszał/*pod-na-duszał* *dużo roladek*
 CUM-ATT-stewPST.3SG.M/*ATT-CUM-stewPST.3SG.M a lot rolls_{GEN}
mięsnych
 meat_{ADJ.PL.GEN}
 ‘He was stewing a lot of meat rolls yesterday.’

Based on this, we propose a modified hierarchy of prefixes presented in (85).

- (85) **DIST** >> **DELIM** >> **SAT** >> **CUML** >> **SI** >> PERD, EXC, REP, ATT, TERM

We will refer to the prefixes which merge above secondary imperfective morphology as *high superlexical prefixes* and to those which merge below it as *low superlexical prefixes*.

Since the low superlexical prefixes never appear together, their ordering cannot be established, as shown in (86).

- (86) a. **[prze- [pod- [gotow(ać)]_{IPFV}]_{PFV}]_{PFV} mięso*
 ‘to PERD-ATT-cook meat’
 b. **[pod- [prze- [gotow(ać)]_{IPFV}]_{PFV}]_{PFV} mięso*
 ‘to ATT-PERD-cook meat’
 c. **[pod- [do- [smaż(yć)]_{IPFV}]_{PFV}]_{PFV} mięso*
 ‘to COMPL-ATT-cook meat’

It may be the case that there is a single position in the hierarchy for low superlexical prefixes, which means that they are mutually exclusive since they compete for the same position in the structure (see also Endo and Wiland 2014 for a similar observation).

Unlike low superlexical prefixes, high superlexical prefixes can stack over each other, which suggests that there is more than one position in the hierarchy for high superlexical prefixes (87).

- (87) *[po- [na- [[podpis]-yw(ać)]_{IPFV}]_{PFV}]_{PFV} dokumentów*
 ‘to DIST-CUM-sign a lot of documents’

Our analysis differs from the one proposed by Ramchand (2008a), who claims that the secondary imperfective morpheme does not co-occur with a superlexical prefix since both of them are inserted in the same syntactic context (AspP). Unlike Ramchand (2008a), we do not assume that superlexical prefixes and secondary morphology are merged in AspP. We argue that they head their own projections in the sequence of functional syntactic heads (à la Markova 2011; Endo and Wiland 2014; Wiland 2012). Additionally, we follow Tatevosov (2020) in assuming that aspectual morphology may merge lower than the aspectual operators IPFV or PFV, which are inserted and computed at the level of AspP on the basis of the information provided by the highest aspectual morpheme—“the topmost piece of structure spelled out as ‘verbal morphology’” (Tatevosov 2020: 19), “which can either be a derivational morpheme, or, in the absence of such, the verb root itself” (Tatevosov 2020: 27). This allows us to explain why some superlexical prefixes may co-occur with secondary imperfective morphology. It co-occurs with those superlexical prefixes which occupy a lower

projection (leading to secondary imperfectivization) and can itself serve as input for superlexical prefixes which occupy a higher position (leading to perfectivization).

An alternative account was proposed by Biskup (2019) who claims that the distinction between *vP/VP*-internal position of lexical prefixes and *vP/VP*-external position of superlexical prefixes is too rough and that a more fine-grained analysis is necessary. He argues instead that verbal prefixes are incorporated prepositions projecting their argument structure in the complement position of the verbal root. His stand on this issue is that superlexical prefixes could, in fact, also merge lower in the verbal structure—being an overt reflection of some higher operator—and later move. His main argument is that prefixes can affect selectional properties of the predicate to which they attach. Antonyuk-Yudina et al. (2022) claim that external prefixes can add arguments to the verb and affect argument structure in systematic ways. It is not immediately clear how Biskup's (2019) account would explain our observation that basic perfective *VP* idioms in our study contain only lexical prefixes which are part of an idiomatic meaning. It is also not easy to explain under Biskup's (2019) account why superlexical prefixes attach to basic imperfective *vP*-idioms without the loss of their figurative meaning.

Another problematic issue, which we would like to address, is related to the position of purely perfectivizing prefixes in the proposed hierarchy of superlexical prefixes. Recall from Sect. 4.5 that they freely combine with basic imperfective *VP* idioms, which we take to indicate that they are realized *vP*-externally.

5.4 The place of purely perfectivizing prefixes in the hierarchy

Concerning purely perfectivizing prefixes, we would like to suggest that they occupy the same position as low superlexical prefixes because like low superlexical prefixes, purely perfectivizing prefixes cannot stack over other prefixes. What seems to be problematic for this view is that verbs with purely perfectivizing prefixes do not undergo secondary imperfectivization, as shown in (88).

- (88) a. **[[na- [pis]]_{PFV} -ywać]_{IPFV}*
 'to PURELY PFV-write'
 b. **[[na- [malow]]_{PFV} -ywać]_{IPFV}*
 'to PURELY PFV-paint'
 c. **[[s- [kończ]]_{PFV} -ać]_{IPFV}*
 'to PURELY PERF-finish'
 d. **[[s- [chow]]_{PFV} -ywać]_{IPFV}*
 'to PURELY PFV-hide'
 e. **[[s- [krzyżow]]_{PFV} -ywać]_{IPFV}*
 'to PURELY PFV-cross'

One reason for this is that these prefixes do not contribute any lexical meaning to the verb and they play only an aspectual function. Therefore, they form aspectual pairs with their primary imperfective counterparts. There is no need to secondarily imperfectivize them if the same imperfective meaning can be expressed by means of a less morphologically marked primary imperfective form. Curiously, verbs with purely perfectivizing prefixes can be secondarily imperfectivized only when they serve as input to higher cumulative or distributive perfectivizing prefixes, as shown in (89).

- (89) a. $[po-[[na- [pis]]_{PFV} -ywać]_{IPFV}]_{PFV}$
 ‘to DIST-PURELY PERF-write’
 b. $[po-[[na- [malow]]_{PFV} -ywać]_{IPFV}]_{PFV}$
 ‘to DIST-PURELY PERF-paint’
 c. $[po-[[s- [kończ]]_{PFV} -ać]_{IPFV}]_{PFV}$
 ‘to DIST-PURELY PERF-finish’
 d. $[na-[[s- [chow]]_{PFV} -ywać]_{IPFV}]_{PFV}$
 ‘to PURELY PERF-hide’
 e. $[na-[[s- [krzyżow]]_{PFV} -ywać]_{IPFV}]_{PFV}$
 ‘to PURELY PERF-cross’

Even though these forms are not very productive and some of them sound marginally acceptable (e.g., *poskończywać* ‘to finish sth distributively’ when used out of context, we found examples of their use on the internet, as shown in (90).

- (90) a. Niektórzy chcieli, żeby im *po-na-pis-yw-ał^P*
 some wanted in order to them DIST-PURELY PFV-write-SI_{PST}
 po wierszu.
 DIST poem.
 ‘Some of them wanted him to write one poem for each of them.’
 b. Poprzedni właściciel *po-na-malow-yw-ał^P* na
 previous owner DIST-PURELY PFV-PAINT-SI_{PST} na
 nich różne kółeczka i wzorki.
 them various circles and patterns.
 ‘The previous owner painted various circles and patterns on them.’
 c. Tyle się *na-s-kończ-ał^P* szkół pan Kowalski,
 many REFL SAT-PURELY PFV-finish-SI_{PST} schools Mr Kowalski,
 ale kursów uczciwości i prawdomówności ani w domu,
 but courses honesty and truthfulness neither at home
 ani we wszechświecie nie udało mu się zaliczyć.
 nor in universe not manage him REFL pass.
 ‘Mr Kowalski finished so many schools but he did not complete any
 courses of honesty and truthfulness offered either in the universe or at
 home.’
 d. *Na-s-chow-yw-ał^P* był pieniędzy w ziemię.
 CUM-PURELY PFV-hide-SI_{PST} be_{PST} money in ground
 ‘He hid a lot of money in the ground.’
 e. W swoim bogatym doświadczeniu genetyka,
 in his rich career genetic engineer.gen
na-s-krzyżow-yw-ał^P się różnych gatunków zwierząt.
 SAT-PURELY-PFV.cross-SI_{PST} REFL various species animals_{GEN}
 ‘In my rich career of a genetic engineer I mutated so many different ani-
 mal species.’

In these examples verbal forms with purely perfectivizing prefixes are secondary im-
 perfectivized to be able to serve as input to high superlexical prefixes. These data

suggest that purely perfectivizing prefixes in Polish are realized in the same position as low superlexical prefixes. Our modified hierarchy including purely perfectivizing prefixes is presented in (91).

- (91) **DIST** >> **DELIM** >> **SAT** >> **CUML** >> **(SI)** >> PERD, EXC, REP, ATT, TERM.
PURELY PERFECTIVIZING

6 Concluding discussion

In this paper we examined the constraints on the use of aspectual morphology in VP idioms in Polish with the aim to contribute to a better understanding of the status of aspectual prefixes and suffixes. More precisely, the following research questions were formulated:

- 1) What are the structural differences between two groups of prefixes that have been identified in the existing literature, lexical/internal and superlexical/external ones?
- 2) How does the so-called secondary imperfectivization interact with lexical and superlexical prefixation?
- 3) Where do aspectual operators enter the derivation and is (im)perfectivity a semantic characteristic lexically specified for every verb stem?
- 4) What is the role of prefixation in the computation of aspectual meaning?

Our point of departure was the assumption that little *v* which projects agents defines the domain of idiosyncratic unpredictable meanings, as proposed by Marantz (1997). Building on this assumption we examined how aspectual morphology interacts with two types of VP idioms in Polish: (i) basic perfective VP idioms and (ii) basic imperfective VP idioms. We predicted that only lexical prefixes which can result in idiosyncratic (unpredictable) meanings should be part of basic perfective VP idioms in Polish. All the other aspectual morphemes (superlexical and secondary imperfective) were predicted to be *v*P-external. Accordingly, perfective VP idioms were expected to be compatible with secondary imperfective morphology while basic imperfective VP idioms were expected to be compatible with superlexical prefixes. However, secondary imperfective variants of basic perfective VP idioms were expected to receive higher acceptability rating scores than perfective counterparts of basic imperfective VP idioms due to the fact that secondary imperfective morphology plays a purely aspectual (“eventizing”) function as opposed to a modifying function of superlexical prefixes.

To verify these predictions, we conducted several online acceptability rating questionnaires. The predictions were confirmed. Since the perfective counterparts of basic imperfective VP idioms provided by the participants of our pretest were restricted to just a few classes of superlexical prefixes (purely perfectivizing, inceptive and delimitative ones), we decided to investigate the compatibility of other classes of superlexical prefixes (the ones from Wiland’s 2012 classification) with imperfective VP idioms. Our prediction was that it should be possible to use imperfective VP idioms with superlexical prefixes to the extent that the eventuality expressed by a tested

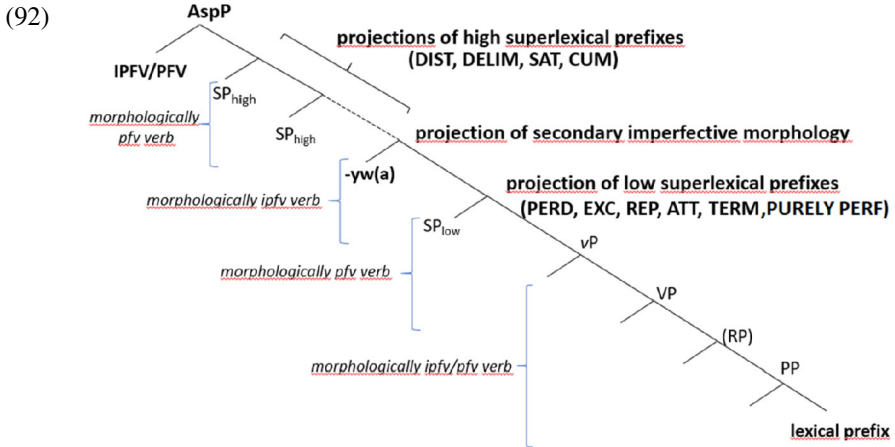
VP idiom satisfies their individual selectional restrictions. We showed that only *distributive*, *saturative*, *perdurative*, and *delimitative* superlexical prefixes are compatible with our basic imperfective VP idioms, whereas *cumulative* and *attenuative* are not. (Concerning *terminative*, *repetitive* and *excessive* prefixes, there were no verbs inside our tested imperfective VP idioms which naturally combine with these prefixes making it impossible to take a definite stand on the issue of their compatibility with VP idioms in Polish.) In order to account for this crucial observation, we relied on Kagan's (2013) Scale Hypothesis according to which a verbal prefix involves a relation between two degrees on a scale, one of which is associated with the event denoted by the verbal predicate, and the other is the standard of comparison. Her analysis accounts for the semantics of all the classes of superlexical prefixes used in our study except for the distributive prefix, for which we relied on Piñon's formal semantics (2003). Our investigation of the semantic properties of the tested prefixes showed that the superlexical prefixes which are compatible with imperfective VP idioms: (i) measure over the temporal trace of an idiomatic event or over some scale associated with the VP-external material or (ii) distribute over an argument which is not lexically encoded inside an imperfective VP idiom. By contrast, the superlexical prefixes which are not compatible with imperfective VP idioms in Polish measure over a scale which is encoded by a verbal predicate (as is the case with the attenuative prefix *pod-*) or a vP-internal element such as a QP (as is the case with and cumulative *na-*).

Concerning the status of secondary imperfective morphology¹⁹ in Polish, we analyze it as being merged in a specific position in a sequence of functional projections above vP (based on the fact that it is compatible with perfective VP idioms). Additionally, based on stacking facts we distinguish two groups of superlexical prefixes: high and low superlexical prefixes. High superlexical prefixes include *distributive*, *delimitative*, *saturative*, *cumulative*; low superlexical prefixes include *perdurative*, *excessive*, *repetitive*, *attenuative*, *terminative*, *purely perfectivizing* ones.²⁰ The former merge higher than secondary imperfective morphology and the latter merge below it, as shown in (91). While high superlexical prefixes perfectivize secondarily imperfectivized verbs, secondary imperfective morphology imperfectivizes verbs with low superlexical prefixes (in the case of purely perfectivizing ones only when they serve as input to high superlexical prefixes). Given that high superlexical prefixes can stack over each other (92), we assume that there is more than one position in the hierarchy in which high superlexical prefixes can be inserted. By contrast, since

¹⁹We use *-yw(a)* in a more general way to exemplify secondary imperfectivization because it is the most productive (standard) way of expressing secondary imperfectivization (and also because it is the most common cover term used in the literature on Slavic aspect to refer to secondary imperfective morphology). We do not deny that secondary imperfective forms may be realized in different ways.

²⁰Inceptive prefixes (not discussed in detail in this paper) sometimes pattern with low superlexical prefixes as they combine with secondary imperfective morphology as in *zakochiwać się* 'to fall in love on many occasions' and sometimes they pattern with high superlexical prefixes as they are not compatible with secondary imperfective morphology as in **zaśpiewywać* 'to start to sing on many occasions.' Similarly, purely perfectivizing prefixes sometimes pattern with high superlexical prefixes as evidenced by the fact that they are incompatible with secondary imperfective morphology as in **schowywać* 'to PFV.hide.SI' but in some case they behave more like low superlexical prefixes as evidenced by their compatibility with secondary imperfectivizing morphology, e.g., *utrzymywać* 'PFV.hold.SI.' The matters seem to be complex and require more research as the lexical semantics of the involved verbs seems to play a role.

low prefixes are mutually exclusive (92), we assume that there is probably just one position for them in the hierarchy.



Almost all low superlexical prefixes except for the perdurative one were shown to be incompatible with basic imperfective VP idioms, and almost all high superlexical prefixes with the exception of the cumulative one are compatible with the basic imperfective VP idioms. The emerging picture is that the lower a prefix is in the hierarchy, the more it can influence the VP semantics, and, accordingly, the higher a prefix is in the hierarchy, the less it interferes with the VP-internal semantics and the more flexibility it has in terms of its compatibility with other prefixes. Because of the existence of two exceptions, namely, the perdurative and cumulative prefixes, we cannot put an equation sign between the division into high and low superlexical prefixes, on the one hand, and the division into superlexical prefixes compatible and incompatible with imperfective VP idioms, on the other hand. The crucial criterion used to distinguish between low and high superlexical prefixes is their co-occurrence with secondary imperfective morphology. The discussed properties of the tested classes of superlexical prefixes in Polish are summarized in Table 6.

At first glance, it appears that our low superlexical prefixes correspond to what Tatevosov (2008) calls intermediate prefixes which differ from lexical and superlexical prefixes in Russian. He argues that intermediate prefixes encompassing completive *do-* and repetitive *pere-* merge within a separate projection. Notice that our class of low superlexical prefixes is richer than Tatevosov's (2008) class of intermediate prefixes. Moreover, there is another important difference between our view and Tatevosov's (2008) view; namely, he claims that his intermediate prefixes merge in a projection located above VP but below vP, while we think that low superlexical prefixes are projected in a single dedicated projection above vP.²¹

One could also try to draw a parallel between our division into high and low superlexical prefixes and Markova's (2011) proposal according to which a distinction should be made between two classes of superlexical prefixes (outer and inner)

²¹One of the criteria used by Tatevosov (2008) to distinguish intermediate prefixes is based on the compatibility of these prefixes with nominalizations in Russian. However, Polish nominalizations are much more productive than the Russian ones and as such cannot be used as a relevant criterion in this case.

Table 6 Polish superlexical prefixes and their properties

	HIGH SUPERLEXICAL PREFIXES					LOW SUPERLEXICAL PREFIXES					PURELY PFV
	DIST >>	DEL >>	SAT >>	CUM >>	SI >>	PERD/	EXC/	REP/	ATT/	TERM/	
Can affect argument structure	-	-	-	+		+	-	-	-	-	-
Is compatible with imperfective VP idioms	+	+	+	-		+	n.a.	n.a.	-	n.a.	+
Can serve as input to -yw(a)	-	-	-	-		+	+	+	+	+	+/-
Has predictable meaning	+	+	+	+		+	+	+	+	+	+
Can stack over other prefixes	+	+	+	+		-	-	-	-	-	-

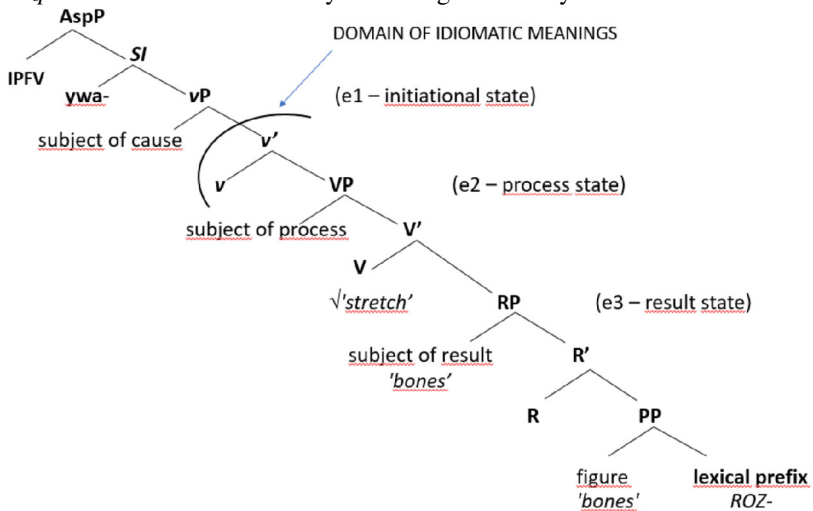
and lexical prefixes. The outer and inner ones are (according to Markova 2011) VP-external, and the lexical ones are VP-internal. In her account, the inner prefixes are projected between ν P and VP and they are semantically compositional and affect the argument structure whereas the outer ones are projected above ν P, are semantically compositional and they act as modifiers of events. It would appear that the superlexical prefixes which are incompatible with imperfective VP idioms would correspond to Markova's (2011) inner prefixes which occupy a position between ν P and VP. However, unlike Markova (2011) we propose that all superlexical prefixes are ν P-external. In this respect, we follow Ramchand (2008a,b), who points out (following Marantz 1997) that the domain of idiosyncratic meanings is her first-phase syntax corresponding to ν P. Under this view, only lexical prefixes are part of the first-phase syntax. Accordingly, all superlexical prefixes should be ν P-external including the cumulative and perdurative ones. Even if these two prefixes seem to affect the argument structure, as discussed in Sect. 5.2, we assume that they introduce their own measure or temporal arguments ν P-externally as specifiers of their own projections. The ν P-external status of the cumulative prefix can be further supported by the observation that it scopes over secondary imperfective, which, as argued in Sect. 2.4, is ν P-external. If this proposal is on the right track, two conclusions follow: (i) affecting argument structure is not an exclusive property of lexical prefixes, as there are certain kinds of arguments which are not event participants but rather some kind of measure arguments of functional superlexical prefixes; and (ii) the compatibility with secondary imperfectivizing morphology is not an exclusive property of lexical prefixes. That secondary imperfectivization is not a reliable criterion distinguishing between lexical and superlexical prefixes was also pointed out by Žaucer (2010), among others.

Regarding lexical prefixes, we adopt Ramchand's (2004, 2008a) analysis assuming an event structure decomposition, as explained in Sect. 2.2 (see also Sect. 3).²²

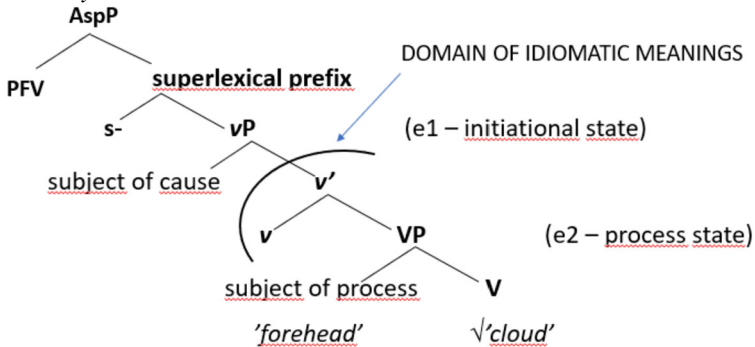
²²Potentially, the structure of the ν P can be more articulated along the lines proposed by Biskup (2019). The proposed analysis should also be compatible with the nanosyntactic approach. We adopt Ramchand

Ramchand (2004) observes that lexical prefixes resemble non-prefixal prepositional meanings. For this reason, she claims that a lexical prefix can be compositionally understood as bearing a predicational relation to the DP in the object position forming a PP small clause “predication which is integrated within the first phase syntax as the complement of the Result subevental head” (Ramchand 2004: 337). Following this analysis, the simplified structure of basic perfective and imperfective VP idioms is provided in (93) and (94) respectively. Recall that basic perfective VP idioms can be secondarily imperfectivized and basic imperfective VP idioms can co-occur with some superlexical prefixes. Both superlexical prefixes and secondary imperfective morphology are generated in *v*P-external positions.

- (93) An example of basic perfective VP idiom
rozprostować kości ‘to relax by stretching one’s body’



- (94) An example of basic imperfective VP idiom
chmurzyć czoło ‘to cloud one’s forehead’



(2008a,b) because her first phase syntax corresponds most closely to Marantz’s (1997) view on which we base our investigation. We also remain silent as to linearization (ordering) rules needed for aspectual prefixes and suffixes, which we think deserves to be addressed in an independent study. One recent proposal has been made by Antonyuk-Yudina et al. (2022).

Regarding the overall aspectual architecture in Polish, we follow Tatevosov (2011, 2015, 2020) in his claim that one should separate morphological derivation of perfective and imperfective verbs from their aspectual interpretation with the former happening earlier during the derivation and the latter taking place later at the level of AspP (see (94)). More precisely, it is assumed that there is a certain selectional relation in that a higher aspectual operator imposes restrictions on a lower configuration generated at earlier stages of derivation along the lines of Klein's (1995) time-relational theory of aspect.

By assuming that the IPFV or PFV semantic operators are phonologically null, we differ from Ramchand (2008a) for whom secondary imperfective morphology heads AspP and superlexical prefixes are in the specifier position of AspP. We also partly differ from Filip (2005) for whom the perfective aspectual operator does not have morphological exponents in contrast to the imperfective aspectual operator whose morphological exponent is a secondary imperfective suffix.

Altogether, we have shown that the aspectual behavior of VP idioms provides a fruitful testing ground for developing a theory about the aspectual architecture in a given language. The offered analysis was based on Polish facts but the study could be replicated in other Slavic languages which would be part of a larger future project. We are aware of the fact that there is variation in the aspectual architecture in different Slavic languages but it requires further comprehensive cross-Slavic research.

Appendix A: Perfective VP idioms

BASIC FORM	LITERAL MEANING	INTENDED MEANING
dać komuś w kość	to give someone in a bone	to make sb tired
dobić targu	to beat a deal	to hammer up a bargain
dopiąć celu	to zip a goal	to reach the goal
dostać obuchem w głowę	to stand with a warhammer in the head	to be severely criticized
doznać olśnienia	to know a revelation	to experience a revelation
nabrać wody w usta	to ontake water in the mouth	to keep secret
odkryć Amerykę	to awaycover America	to reinvent the wheel
połknąć bakcyła	to afterswallaw a bug	to become passionate about sth
przybić piątkę	to bybeat a five	to give high five
puścić parę z ust	to let the steam out of one's mouth	to reveal the secret
rozprostować kości	to relax by stretching one's body	to stretch one's bones
rozwinąć skrzydła	to overstretch wings	to spread wings
sprzedać coś na pniu	to offgive sth on the trunk	to sell something easily and quickly
wbić gwóźdź do trumny	to inhammer a nail into the coffin	to stick a nail into the coffin
wpuścić kogoś w kanał	to inlead sb into the canal	to lead sb astray or to confuse sb
wpuścić kogoś w maliny	to inlead sb into raspberries	to lead sb astray or to confuse sb
wrzucić coś na ruszt	to inthrow sth on the grate	to throw something on the grate
wsadzić kij w mrowisko	to input a stick in an anthill	to provoke an argument
wyłożyć karty na stół	to outlay cards on the table	to put one's cards on the table
wyłożyć kawę na ławę	to outlay coffee on the bench	to be completely honest about sth

wykuć na blachę	to inforge on the metal plate	to learn by heart
wylać dziecko z kąpielą	to outpour a child with the bathwater	to throw a baby out with the bathwater
wysadzić kogoś z siodła	to outseat sb from saddle	to deprive sb of their position
zadać cios poniżej pasa	to behindgive a blow below one's belt	to hit sb below the belt
zbić fortunę	to outbeat a fortune	to earn a fortune

Appendix B: Imperfective VP idioms

BASIC FORM

budować zamki na lodzie
 budować zamki na piasku
 bujać w obłokach
 chmurzyć czoło
 chodzić spać z kurami
 chować głowę w piasek
 czekać na kogoś z otwartymi ramionami
 czuć miętę do kogoś
 dusić pieniądze
 dzielić skórę na niedźwiedziu
 dzielić włos na czworo
 grać na zwłokę
 jechać na opinii
 klepać biedę
 kruszyć kopie o coś
 kuć żelazo póki gorące
 lecieć w kulki
 lizać rany
 maczać w czymś palce

 patrzeć na coś przez palce
 pluć sobie w brodę
 połykać książki
 prowadzić kogoś za rękę/rączkę
 rozstawiać kogoś po kątach

 rzucać grochem o ścianę
 rzucać perły przed wieprze
 siedzieć z założonymi rękami
 szukać dziury w całym
 trzymać język za zębami
 trzymać kogoś w garści
 trzymać rękę na pulsie
 walić głową w mur
 widzieć coś w ciemnych kolorach

LITERAL MEANING

to build castles on the ice
 to build castles on the sand
 to rock in the clouds
 to cloud one's forehead
 to go to sleep with chickens
 to hide your head in the sand
 to wait for sb with open arms
 to feel mint to someone
 to choke money
 to divide the skin on the bear
 to split a hair into four parts
 to play on procrastination
 to drive on the opinion
 to pat poverty
 to crush a copy for sth
 to strike iron while it is hot
 to fly into balls
 to lick one's wounds
 to dip your fingers in sth

 to look at sth through one's fingers
 to spit at one's own chin
 to swallow books
 to lead someone by the hand
 to set someone up in the corners

 to throw peas against the wall
 to throw pearls before the pigs
 to sit with one's arms folded
 to look for a hole in the whole
 to hold one's tongue behind teeth
 to keep someone in the fist
 to keep one's hand on the pulse
 to bang one's head against the wall
 to see something in dark colors

INTENDED MEANING

to plan something unrealistic
 to plan something unrealistic
 to dream
 to show dissatisfaction by frowning
 to go to bed early
 to be cowardly
 to expect visitors with joy

 to be in love with someone
 to pinch every penny
 to anticipate the success too early
 to be too meticulous
 to procrastinate
 to rely on one's good opinion
 to live in poverty
 to defeat someone
 to seek to achieve one's goal
 not to treat sb or sth seriously
 to recover
 to take part in some dishonest activity

 to ignore sth
 to regret
 to read lots of books
 to guide someone
 to dominate others using nasty methods

 to talk to a goldfish
 to help sb pointlessly
 not to take any action
 to look for a problem
 to keep secret
 to have power over sb
 to keep one's finger on the pulse
 to bang one's head against the wall
 to see a black picture of sth

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Declarations

Competing Interests The authors declare no competing interests.

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