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The DiAsPol database of aspect triplets

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Roadmap

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1. The *DiAsPol*-database of potential aspect triplets

Triplets as the intersection of the two main patterns of stem derivation in the creation of opposite members of the PFV:IPFV opposition

(2a) simplex^{IPFV} — prefixed stem^{PFV} (e.g., Pol. *gotować* — ***u**-gotować* 'cook')
(2b) prefixed stem^{PFV} — [[prefixed stem]+SUFFIX]^{IPFV}
(e.g., Pol. *przekazać* — *przekaz-**ywa**-ć* 'convey')

	IPFV1		**PFV**		**IPFV2**	
(3) Pol.	*tworz-y-ć*	⇒	***s**-tworz-y-ć*	⇒	*s-twarz-**a**-ć*	'create, produce'
	szac-owa-ć	⇒	***o**-szac-owa-ć*	⇒	*o-szac-ow-**ywa**-ć*	'estimate'
(4) Cz.	*děl-i-t*	⇒	***roz**-děl-i-t*	⇒	*roz-děl-**ova**-t*	'divide, separate'
	bud-i-t	⇒	***vz**-bud-i-t*	⇒	*vz-bouz-**e**-t*	'make awake, raise'
(5) Russ.	*gotov-i-t'*	⇒	***pri**-gotov-i-t'*	⇒	*pri-gotavl-**iva**-t'* *pri-gotovlj-**a**-t'*	'cook, prepare (meal)'
	množ-i-t'	⇒	***u**-množ-i-t'*	⇒	*u-množ-**a**-t'*	'multiply'

A precondition for „biimperfective" triplets (Zaliznjak et al. 2015) is the occurrence of **Natural Perfectives**: a simplex stem (> ipfv.) is extended by a prefix (> pfv.), and the meaning of this prefix overlaps with a meaning component of the simplex (Janda 2007, Janda et al. 2013, among others).

categories	variables	example
List of the triplets	IPFV1	*winić* ‘accuse, blame‘
	PFV	*obwinić*
	IPFV2	*obwiniać*
Morphological properties of IPFV2	Prefix	o(b)-
	Suffix	i-a
Frequency of IPFV2	1750-1800	3
	1801-1850	11
	1851-1917	55
	1918-1945	0
	1946-1989	24
	1990-2020	1122
Frequency of IPFV1	1750-1800	10
	1801-1850	0
	1851-1917	51
	1918-1945	8
	1946-1989	31
	1990-2020	827
Attestation of IPFV2 in the dictionaries	attestation in contemporary dictionaries	y
	attestation in historical dictionaries	y
"Lifetime of the triplet"	first attestation of IPFV1	Common Slavic
	last attestation of IPFV1	2020, NKJP, WSJP dictionary
	first attestation of IPFV2	KorBa (1606)
	last attestation of IPFV2	2020, NKJP, WSJP dictionary

1.1. Design of the database

- list of triplets
- morphological properties of IPFV2
- frequency of IPFV2 and IPFV1
- attestation of IPFV2 in the dictionaries
- first and last attestation of IPFV1 and IPFV2

PFV stems are not considered separately, since they are presupposed as the necessary “link“ between IPFV1 and IPFV2.

The triplet relation applies to meanings (lexemes), not to stems as such. However, (so far) the database does not account for polysemy, nor have lexical meanings been checked systematically.

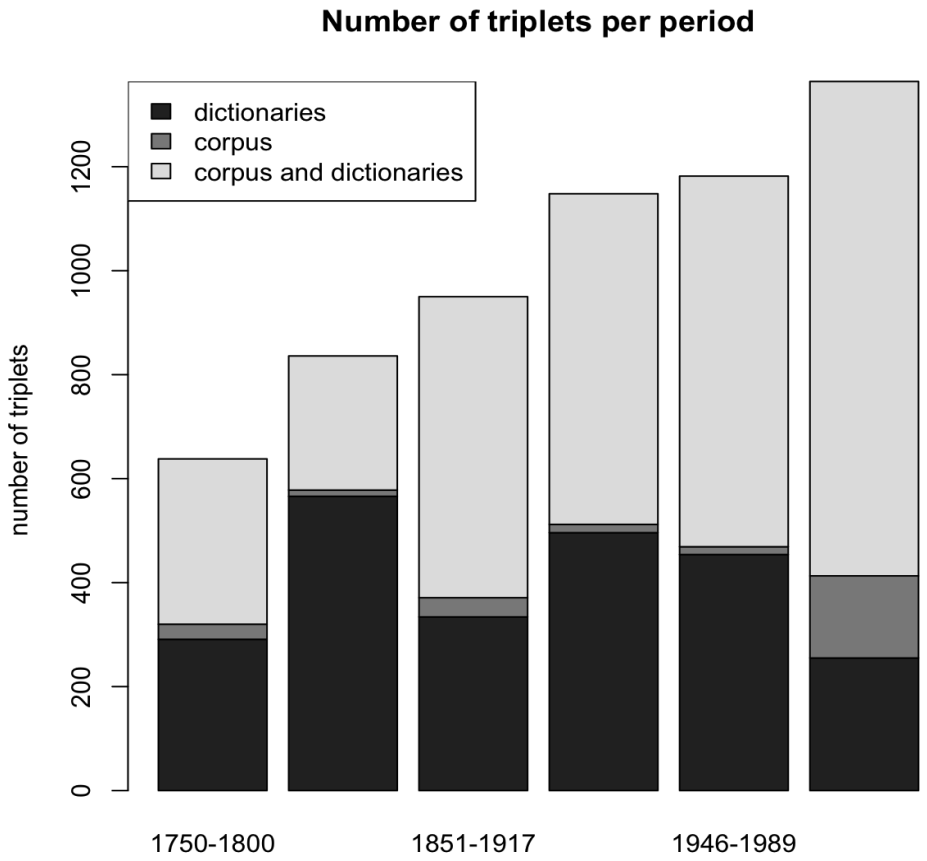
→ **potential triplets**

1.2. Data sources

	1750-1800	1801-1850	1851-1917	1918-1945	1946-1989	1990-2020
Polish	KorBa	Corpus of 19th century	Corpus of 19th century	NKJP	NKJP	NKJP
	dictionaries: Linde's dictionary	dictionaries: Linde's dictionary, Wileński dictionary	dictionaries: Wileński dictionary, Warszawski dictionary	dictionaries: Doroszewski's dictionary	dictionaries: Doroszewski's dictionary; Dunaj's dictionary, etc.	dictionaries: ISJP, WSJP
	-	-	-	Google	Google	Google
Russian	NKRJa	NKRJa	NKRJa	NKRJa	NKRJa	NKRJa
	dictionaries: SRJAXVIII, SAR	dictionaries: Dal‘, Ušakov	dictionaries: Dal‘, Ušakov	dictionaries: Ušakov	dictionaries: MAS	-
	Exploring Emptiness database					
Czech	Diakorp	Diakorp	Diakorp	syn v7 (ČNK)	syn v7 (ČNK)	syn v7 (ČNK)
	dictionaries: Jungmann's dictionary, NLA	dictionaries: Jungmann's dictionary, NLA	dictionaries: Kott's dictionary, PSJČ, NLA	dictionaries: PSJČ, SSJČ, NLA	dictionaries: PSJČ, SSJČ, Vallex	dictionaries: SSČ, Vallex

1.3. Present stage

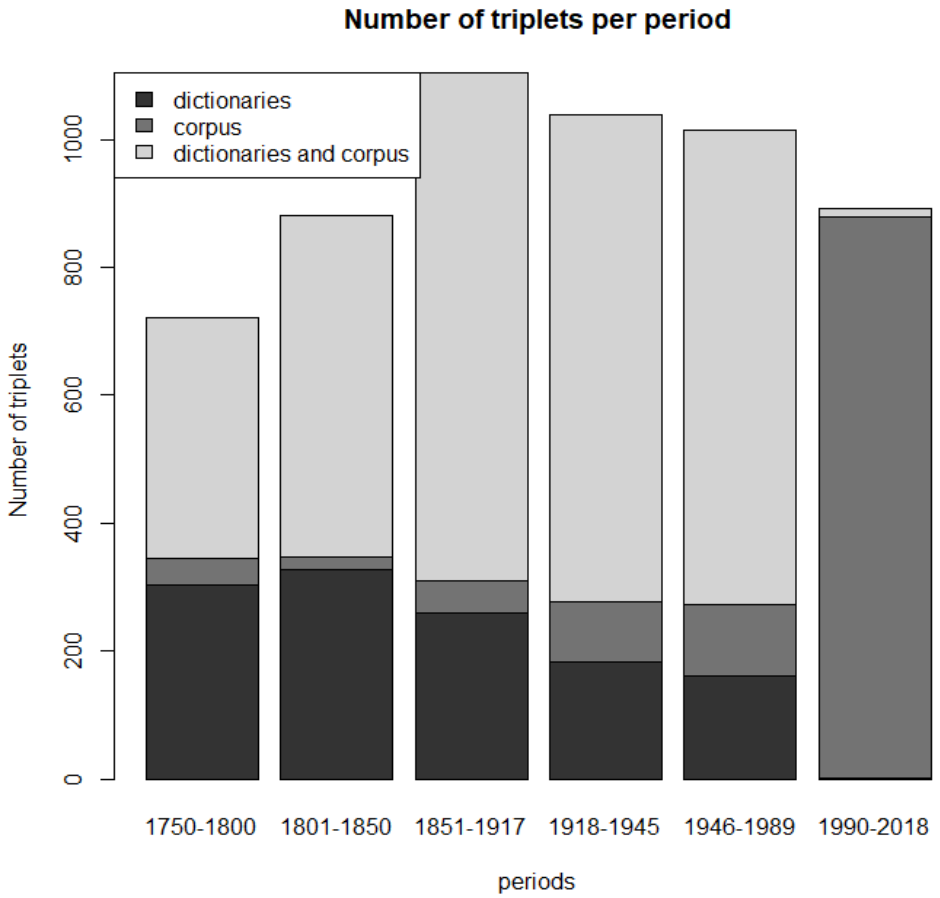
1.3.1. The number of triplets per period - Polish



	before 1750	1750-1800	1801-1850	1851-1917	1918-1945	1946-1989	1990-2017
attested only in dictionaries		291	566	334	496	454	255
attested only in a corpus		29	12	37	16	15	158
attested in both a corpus and in dictionaries	474	318	258	579	636	713	951
not attested in either type of source	1023	859	661	547	349	315	133
sum total in triplet database	1,497	1,497	1,497	1,497	1,497	1,497	1,497

Our general triplets database contains more triplets (1,816), but triplets attested only in Google or suffix variants (e.g., *skruszać - skruszywać* ‘crumble, repent’) were excluded.

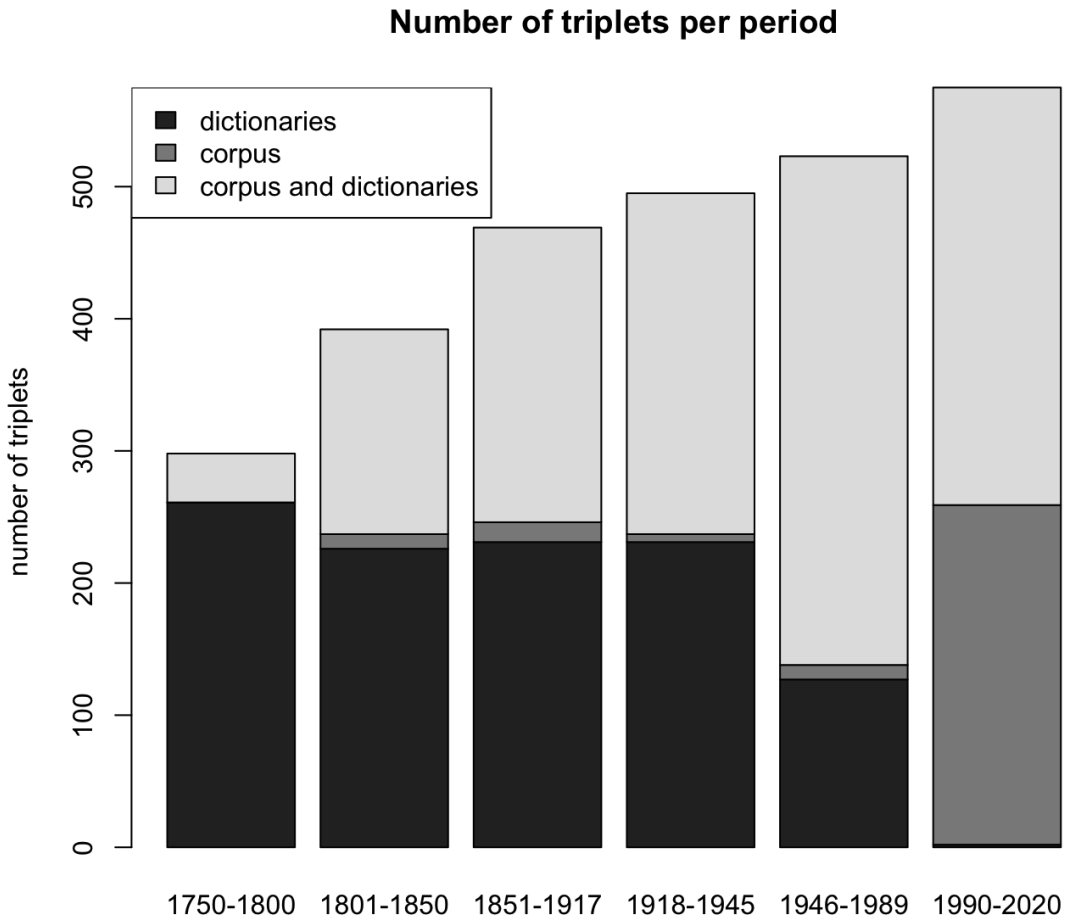
1.3.2. The number of triplets per period - Russian



	1750-1800	1801-1850	1851-1917	1918-1945	1946-1989	1990-2018
attested only in dictionaries	303	328	260	183	160	1
attested only in the NKRJa	42	20	49	95	112	879
attested in both the NKRJa and in dictionaries	376	534	795	761	743	12
not attested in either type of source	556	395	173	238	262	385
sum total in triplet database	1,277	1,277	1,277	1,277	1,277	1,277

Our general triplets database contains more triplets (1,495), but suffix variants (e.g., *probuždat' - probuživat'* 'awake') were excluded.

1.3.3. The number of triplets per period - Czech



	before 1750	1750-1800	1801-1850	1851-1917	1918-1945	1946-1989	1990-2017
attested only in dictionaries		261	226	231	231	127	2
attested only in the ČNK		0	11	15	6	11	257
attested in both the ČNK and in dictionaries	185	37	155	223	258	385	316
not attested in either type of source	469	356	262	185	159	131	79
sum total in triplet database	654	654	654	654	654	654	654

Our general triplets database contains more triplets (728), but triplets with *se* and suffix variants (e.g., *namazávat-namazovat* 'rub, spread') were excluded.

For example, there are two triplets *budit-probudit-probouzet* and *budit se-probudit se-probouzet se*; the triplet with *se* has been excluded because it was impossible to count its corpus frequency separately.

1.4. Comparison with the *Exploring Emptiness Database* (Tromsø)

http://emptyprefixes.uit.no/triplets_eng.htm: NKRJa/RNC vs Google

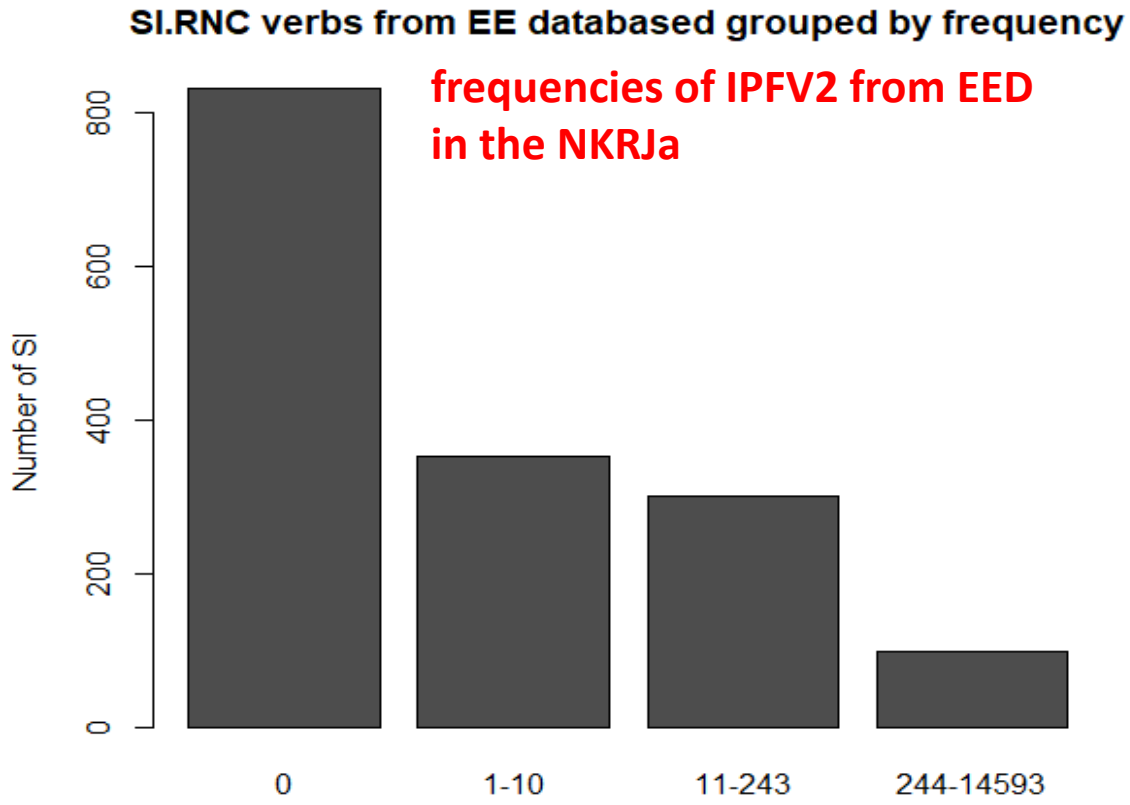
Between 752 and 1,583 triplets in modern Russian; the enormous difference in the counts of type frequency depends on how we account for the data sources, token frequency and some other factors.

Representation and frequency of triplets: *Exploring Emptiness Database* (EED) vs NKRJa

1. 1,583 triplets in the EED
   - 752 triplets also attested in the NKRJa
   - 831 triplets attested only via Google

2. enormous differences of token frequencies both in the NKRJa (0-14.593) and in Google (1-10.700.000, *provodit'* 'perform, hold (seminar)')

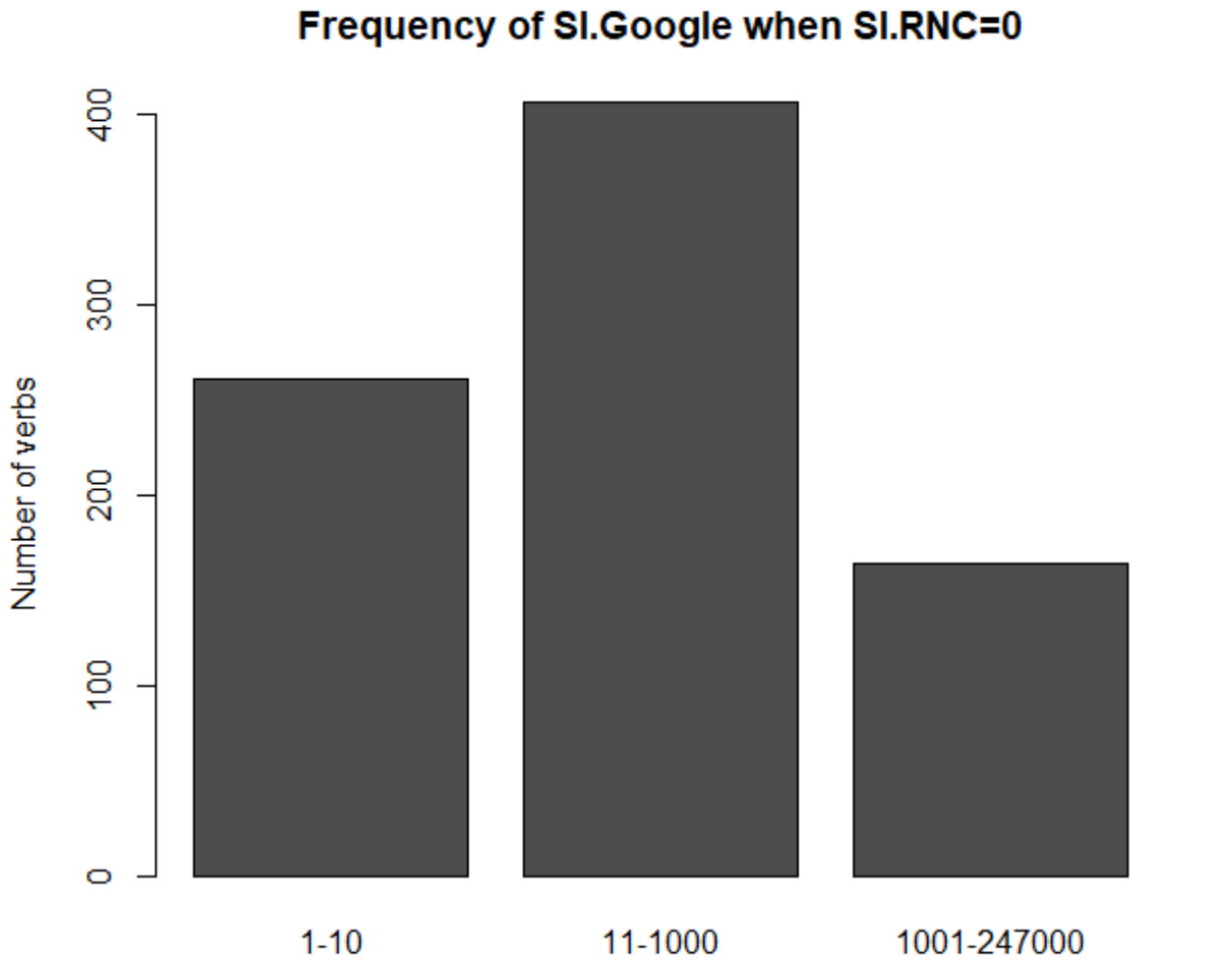
3. frequency counts cannot be compared, since the size of Google (= general amount of tokens) is unknown



token frequency in NKRJa	0	1-10	11-243	244-14,593
number of verb stems	831 (53%)	352 (22%)	302 (19%)	98 (6%)

In particular, those 831 IPFV2 stems which are lacking in the NRKJa, show an extreme range of token frequency:

1 – 247.000 (*svoračivat‘* ‘fold‘)



token frequency in Google	1-10	11-1,000	1,001-247,000
number of IPFV2 stems	261	406	164

Compare further, **Polish:**

- 4,630 Polish aspect pairs (Great Polish-English Dictionary, PWN—Oxford 2004);
- from these 1,670 (= 36%) are based on Natural Perfectives (IPFV1 – PFV); cf. Łaziński (2020).
- In turn, for these 1,670 pairs only 565 relevant IPFV2 stems are attested in contemporary dictionaries;
- however, even this makes 34% of all IPFV1-PFV pairs and 12% in comparison to all aspect pairs „acknowledged“ by authoritative lexicography;
- we may find more on the internet (and in real life).
  (See further §2.3.)
- For today‘s Polish, our database contains 1,364 (= 1,497-133) potential triplets (without Google!). This would make almost 30% in comparison to „acknowledged“ aspect pairs.

Issues

- validity of the information in databases and dictionaries;
- even conservative counts (e.g., 753 triplets for modern Russian, 565 for modern Polish) show that triplets are no marginal phenomenon;
- there seems to be a huge difference between entrenchment and productivity;
- triplets are an integral part of the aspect system, whose dynamics is pretty unknown.

2. Methodological issues
2.1. Attestation rate

The plots and tables on the previous slides do not tell us how many triplets ceased to exist nor how many of them have interrupted histories of attestation. At present, this cannot be figured out. However, we can specify how many triplets have been attested in how many periods.

	0 periods	1 period	2 periods	3 periods	4 periods	5 periods	6 periods	Σ (= 100%)
Polish	28*	199	117	234	154	223	548 (37%)	1,469**
Russian	4*	90	141	155	173	160	554 (44%)	1,273***
Czech	0	128	30	45	72	133	246 (38%)	654

* annotation errors (included in 100%)
** 1,497 – 28 (annotation errors excluded)
*** 1,277 – 4 (annotation errors excluded)

For instance, *gryźć-ugryźć-ugryzać* ‘(take a) bite’ is attested in the first (1750-1800) and the second (1801-1850) period. Then, in the third period (1851-1917), IPFV2 is not attested in any of the sources, then in the fourth (1918-1945) it appears again. In the fifth period (1946-1990), it again disappears from the sources, but reappears in the corpus in the last period (1990-2018).

2.2. Triplet types, case studies

Quality: in “good triplets”

- IPFV1 and IPFV2 are attested through all periods since 1750, i.e. they show a high persistence rate (this usually correlates with “old age”).
- both IPFV1 and IPFV2 are more or less equally frequent, and they are comparatively more frequent than other potential triplets.
- IPFV1 and IPFV2 share more than one meaning (polysemy pattern), and one can easily find contexts where all parts of the triplet have the same meaning(s).

From the diachronic point of view, changes in the relation between IPV1 and IPFV2 stems allow for the following scale of types

Type I: Both imperfectives are fully interchangeable, however each stem has its preference regarding specific context parameters (e.g., Cz. *blížit se—přibližovat se* ‘approach’: temporal vs spatial contexts).

Type II: IPFV1 is part of more than one triplet. Both IPFV1 and IPFV2 are polysemous and intersect in one meaning, for which however they have different preferences in coding their arguments (e.g., Cz. *plnit—naplňovat* ‘fill, fulfil’).

Type III: IPFV1 is part of three triplets, but the IPFV2 stems show meaning shifts, which may lead to the destruction of triplets (e.g., Cz. *rušit—zrušovat* ‘cancel, call off’ vs *porušovat* ‘damage, violate’ and *vyrušovat* ‘interrupt, disturb’).

Type IV: e.g., *konat—vykonávat* ‘do, perform’: data from the diachronic and synchronic corpus demonstrates a slow decay of the triplet. In the 19th century both imperfective stems were interchangeable, but synchronic data suggests that IPFV2 has been taking over the functions of IPFV1.

(cf. Wiemer, Wrzesień-Kwiatkowska & Wrzesień-Kwiatkowski 2021)

winić-obwiniać ‘blame; accuse’

Synchronic case study (1918-2018)		
	IPFV1 *winić* (100)	IPFV2 *obwiniać* (100)
direct object only	44 *Trudno było zresztą Fiodora **winić**, był tak pijany, że musiałam go zaprowadzić do namiotu, bo mu się pomyliły kierunki.* ‘It was hard to **blame** Fyodor, he was so drunk that I had to take him to the tent because he had got the directions wrong.’	41 *Dzieci otwarcie **obwiniają** tylko tych rodziców, których miłości nie są pewni.* ‘Children only openly **blame** parents whose love they are not sure of.’
za +ACC	53 *Fani **winili** za to zagraniczne gwiazdy.* ‘Fans **blamed** for that foreign celebrities.’	22 ***Nie obwiniaj** mnie za to, że miałem rację.* ‘**Don’t blame** me for being right.’
o +ACC	3 *Ale nie można o to **winić** telewizji.* ‘But television cannot be *blamed* for that.’	37 *Nie mogę uwierzyć, że właśnie ty **obwiniasz** Marię o śmierć jej dziecka.* ‘I cannot believe that you are the one blaming Maria for the death of her child.’

- *winić-obwinić-obwiniać* ‘blame; accuse‘ is a good triplet
- comparison of 100 random contexts for IPFV1 and IPFV2 each
- difference in argument coding: IPFV1 prefers contexts with PP headed by *za*, whereas IPFV2 appears with both *o* and *za*

X-squared = 41.819, df = 2, p-value = 8.3e-10
Fisher’s Exact Test: p-value = 1.01e-10
Cramer's V: 0.457

winić-obwiniać 'blame; accuse'

Diachronic case study (1750-1917)		
	IPFV1 *winić* (30 = 100%)	IPFV2 *obwiniać* (66 = 100%)
direct object only	24 (80%) *Nie mam kogo z was **winić** w tej intrydze.* 'I don't have anyone to **blame** in this intrigue.'	42 (64%) *Juljo - wszystko ci powiem - **obwiniaj** mnie, lecz jam nic nie winna.* 'Julja - I'll tell you everything - **blame** me, but I am not guilty.'
za	3 (10%) *A dla innych sztuka nie istnieje i **winić** ich za to nie można.* 'But art does not exist for them and one cannot **blame** them for that.'	0
o	3 (10%) *Teodora nie wzniosła się wcale do tego poglądu, nie miała o nim pojęcia i o to **winić** ją nie podobna.* 'Teodora does not reflect this view, she didn't know anything about it and one cannot **blame** her for that.'	24 (36%) ***Obwiniasz** mnie o obojętność i nieuczciwość, a ciebie czyż obchodzi dom?* 'You **blame** me for indifference, dishonesty, but do you care about the house?'

- case study based on all of the contexts with IPFV1 and IPFV2 found in the diachronic corpora
- diachronic data shows that IPFV1 more often appears in contexts without a PP
- IPFV2 does not appear in contexts with a PP headed by *za*

Although *winić-obwinić-obwiniać* is a good triplet, even this small case study suggests that there are differences between two imperfectives.

X-squared = 12.5, df = 2, p-value = 0.00193
Fisher's Exact Test: p-value = 0.001647
Cramer's V: 0.361

znaczyć vs *oznaczać-zaznaczać-naznaczać* 'mark'

synchronic case study (1918-2018)				
meaning	*znaczyć* 100	*naznaczać* 100	*oznaczać* 100	*zaznaczać* 100
MEAN	45	0	100	0
MARK	0	90	0	32
APPOINT, ASSIGNATE, DETERMINE	0	10	0	0
EMPHASIZE	0	0	0	68
other (CZYLI)	54	0	0	0

diachronic case study (1750-1917)				
meaning	*znaczyć* 100	*naznaczać* 73	*oznaczać* 90	*zaznaczać* 71
MEAN	59	0	85	0
MARK	9	7	5	26
APPOINT, ASSIGNATE, DETERMINE	0	66	0	1
EMPHASIZE	0	0	0	50
other (CZYLI)	32	0	0	0

Synchronic case study:

- 100 randomly selected contexts of all imperfectives
- According to the dictionaries, all imperfectives overlap in the meaning 'mark', however IPFV1 *znaczyć* hardly ever appears in this meaning.
- This case study shows that IPFV2 *naznaczać* and IPFV2 *zaznaczać* are used in different meanings as well, and it seems that each imperfective has a more specialized meaning.
- IPFV1 *znaczyć* and IPFV2 *oznaczać* overlap in the meaning 'mean', but PFV *oznaczyć* does not appear in such a meaning. Ist meaning is much more limited.
- Consequently, the triplet *znaczyć – oznaczyć – oznaczać* applies only for one meaning: 'mark'.

Diachronic case study:

- 100 randomly selected contexts of IPFV1 *znaczyć* and all available contexts of IPFV2 stems
- all imperfectives appear in the meaning 'mark'
- IPFV2 *naznaczać* – meaning shift?

2.3. Productivity (Polish database)

Our counts above (see table on slide 6) excluded IPFV2 stems found only on the internet (via Google), but the database contains 256 such units.
Moreover, from among 1,670 IPFV1 – PFV pairs accounted for by the Great Polish-English Dictionary (PWN—Oxford 2004) 565 pairs (= 34%) have IPFV2 stems attested in contemporary dictionaries (see slide 12).

What about the other 66% (= 1,105 units)?

For instance,

- *formować-uformować-**uformowywać*** '(give) shape'

- IPFV2: 122 records in Google search engine

(6) *Wykonana została z elastycznej stali nierdzewnej, dzięki czemu z łatwością ułożysz warstwy, **uformowujesz** odpowiedni kształt czy zaserwujesz posiłek.*
'It is made of flexible stainless steel, thanks to which you can easily arrange layers, **give** the right shape or serve a meal.'

- *prażyć-uprażyć-**uprażać*** 'roast'

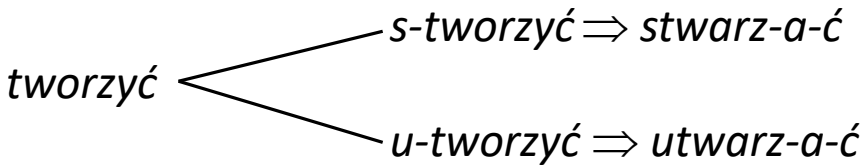
- IPFV2: more than 70 records in Google search engine

(7) *Pozostałe śliwki należy **uprażać** na osobnym arkuszu do pieczenia na przystawkę*.
'The remaining plums should be **roasted** on a separate baking sheet for a side dish.'

IPFV1 *tworzyć* ‘create‘ and its derivatives: attested, but extremely unevenly

token frequency IPFV2 sum

										after 1945	1990 -2020	1946 -1989
1655	tworzyć	stworzyć	stwarzać	s-	i-a	na	na	4243np	1470, c	9825	9398	427
1656	tworzyć się	stworzyć się	stwarzać się	s-	i-a	na	2REFL	[się]	[się]	178	175	3
1657	tworzyć	utworzyć	utwarzać	u-	i-a	na	na	1np	0, i 0, b 0,	3	3	0
1658	tworzyć się	utworzyć się	utwarzać się	u-	i-a	na	2REFL	[się]	[się]	0	0	0
1659	tworzyć	wytworzyć	wytwarzać	wy-	i-a	na	na	1477np	364, c 14, i	8091	7877	214
1660	tworzyć się	wytworzyć się	wytwarzać się	wy-	i-a	na	2REFL	[się]	0, i 0, b 0,	518	495	23



- IPFV2 *utwarzać* is extremely rare, but it has „shown up“ at least since the early 19th century in different genres (see below).
- Intuitively, only *stworzyć/stwarzać* can be combined with object NPs denoting abstract referents:
  *stwarzać / *utwarzać problemy*
- NKJP has only 2 tokens, per 1 for *utwarza* (PRS.3SG) and for *utwarzał* (PST.SG.M), but both have abstract objects

… … …

(8) *(…) "mniemał się być świadkiem stworzenia rzeczy w chwili, gdy Bóg chaos **utwarzał**". Podobne opisy znajdziemy w Pamiętnikach zza grobu Chateaubrianda (…).*
'(He) supposed himself to be a witness to the creation of things while God **was creating** chaos". Similar descriptions can be found in Diaries from Behind the Tomb of Chateaubriand.'
(M. Bieńczyk: Przezroczystość. 2007)

(9) *Ujęciu w myśli antropologicznej okresu romantyzmu relacji człowieka i Natury towarzyszyło przekonanie, iż natura jest "siłą bezprzestannie działającej", że dopiero jej przeżycie pozwala na jej poznanie, że dopiero poprzez ten przeżyciowy z nią kontakt można usłyszeć jej "głosu"* [sic!]*, że kontakt z nią **utwarza** możliwości lepszego rozpoznania siebie samego*.
'The anthropological approach to the romantic period of the relationship between man and nature was accompanied by the conviction that nature is "a force that never ceases to act", that it is only through experiencing it that it is possible to know it, that only through this experiential contact with it one can hear its "voice" it **creates** opportunities for better self-recognition.'
(I. Bittner: U podstaw antropologii filozoficznej polskiego romantyzmu. 1998)

Compare also from real („analogous") life:

(10) *pani fryzjerka mówi mi, że chciała zdawać z czegoś tam maturę, a nauczyciel jej mówi „mam dla ciebie specjalnie **utwarzać** komisję?" Powtórzyła to dwa razy*.
'the hairdresser tells me that she wanted to pass high school diploma in something, and her teacher says "I have to **prepare** a commission just for you?" She repeated it twice.'
(Rafał Górski, 03/26/2021)

Early attestations (via Google books):

(11) *Umnictwo czyli kunszt w najobszerniejszem znaczeniu słowa, zależy w władzy tworzenia dzieł dla poglądu zmysłów albo wyobraźności. Ale i natura jest twórcza, i ona **utwarza** przedmioty dla poglądu (...)*.
‘Umnictwo, or craftsmanship in the broadest sense of the word, depends on the power to create works for the view of the senses. However, also nature is creative, and it **creates** objects to be looked at.’
(Rozmaitości. Pismo dodatkowe do Gazety Lwowskiej. 1832)

(12) *Pomięszaymy np. słodycz z goryczą, zawsze części pierwszéy będą słodkie, a części drugiéy zawsze gorzkie: lecz ponieważ smakiem, nie możemy już każdéy z osobna doznać, więc uczucie **utwarza** sobie smak inny, ani słodki ani gorzki*.
‘For example, we mix sweetness with bitterness, the first parts will always be sweet and the second parts will always be bitter: but because we cannot taste each one individually, the feeling **develops** a taste that is different, neither sweet nor bitter. ’
(M. Mendelsohn: Fedon czyli O nieśmiertelności duszy w trzech rozmowach. 1829.)

some poetry …

(13) *„W Pieninach.”* (1893)

A znasz ty ten jar,
Gdzie w złomach kamieni
Modry Dunajec groźnie burzy się i pieni?
Pił-żeś boski czar,
Gdy słońce w zieleni
Wód jego złotą gloryę ***utwarza*** *z promieni?*
(...)
(https://pl.wikisource.org/wiki/W_Pieninach_(1893))

… back into the 21st century:

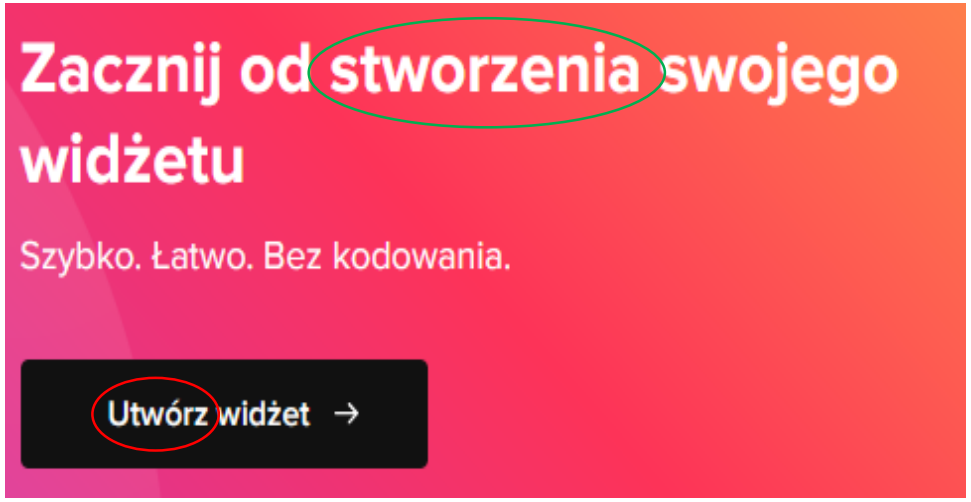
advertisement – how to use some fancy software:

Siatka

*Powiązanie układu siatki i szablonu Spotlight **utwarza** wspaniały, przejrzysty wygląd. Proste linie i wyśrodkowane teksty opinii przyciągają uwagę. Linearna geometria układu Grid może równie właściwie przystosować się do wszystkich innych szablonów referencji - elementy interfejsu zostały zaprojektowane tak, aby można je było w pełni dopasować.*
(https://elfsight.com/pl/facebook-reviews-widget/examples/)

'The combination of the grid layout and the Spotlight template **creates** a great clean look. The straight lines and centered text of the opinion attract attention. …'

Preceded by



Observations suggest the following

1. Often IPFV2 come and go. Theoretically, nothing prevents them from being created on the spot. The question is whether they remain and which factors favor their way into entrenchment, or cause them to drop out again.
2. As potential formations, IPFV2 stems are always possible, but which consequences for the aspect system follow from the consistency with which these potential formations are realized and become entrenched (or not)?
3. In general, can potential formations be made a gauge against which the system properties of the PFV:IPFV opposition in different Slavic languages are measured? Or do we have to ask for the degree at which productive patterns are realized?

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Спасибо за Ваше внимание!
Dziękuję za Państwa uwagę!
Děkuji Vám za pozornost!
Ďakujem za pozornosť!
Дякую за Вашу увагу!
Благодаря за вниманието!
Ви благодарам за вниманието!
Хвала на пажњи!
Hvala za Vašo pozornost!