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RESEARCH

Aspectual choice in Russian perception verbs: An experimental study on videt'–uvidet' and slyšat'–uslyšat'

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Abstract
Through a usage-based approach, this study examines aspectual choice in two pairs of Russian perception verbs: *videt'.IPF–uvidet'.PF* ('to see') and *slyšat'.IPF–uslyšat'.PF* ('to hear'). It is postulated that the imperfective (IPF) forms *videt'* and *slyšat'*, being atelic, represent the unmarked and default option for expressing past actions including single, completed events. The corresponding perfective (PF) forms have been described as adding an ingressive value and therefore as marked. This study aims to establish 1) in what contexts the perfective aspect is preferred over the imperfective, and 2) whether the IPF/PF contrast in these verbs represents aspectual opposition or competition. 487 Russian native speakers were asked to complete 12 sentences by providing the missing verb in any of three possible forms: PF, IPF, or both. The sentences were annotated for the presence and aspect of a contiguous verb, the context from which the sentence was extracted (dialogue or narration), and the sense (direct/extended) in which the verb was used. Aspectual choices were determined by the complex interaction of all predictors, with the presence of another PF verb being the single strongest predictor of PF use. The conspicuous variability of inter-subject agreement rates suggests that the two verbs considered may span a large portion of the continuum between opposition and competition.

1 Introduction and theoretical premises

This study analyses Russian native speakers' preferences for the imperfective (IPF) or perfective (PF) aspect of two perception verbs: *videt'.IPF vs. uvidet'.PF* 'to see' and *slyšat'.IPF vs. uslyšat'.PF* 'to hear'. This work falls within a research strand devoted to two different but related phenomena, aspectual 'competition' and aspectual 'opposition', with the aim of shedding light on the differences in the use of aspect in the expression of single and completed events in the past (Bernasconi & Noseda, 2021; Noseda, 2022; Maiko & Noseda, 2024; Noseda, 2025).

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At least in the domain of the past tense, the distribution of functions between Russian IPF and PF is quite asymmetrical; while the PF can express only one type of action or "eventuality" (Janda & Fábregas, 2019), i.e., completed events, the IPF can express three: states, activities, and completed events (Zaliznjak & Šmelev, 2000). When used to express completed events, the IPF is commonly described as having a 'factual' (or 'general-factual') meaning, as in (1b), which is equally acceptable alongside (1a) for referring to the same event.

(1) a. *On pokazal.PF mne ee fotografiju.*
b. *On pokazyval.IPF mne ee fotografiju.* (Padučeva, 1996, p. 10)
'He showed.PF/IPF me her picture.'[1]

This reading is often associated with aspectual competition (Janda et al., 2019a), as the PF and IPF compete to express the same completed past event.

By contrast, opposition arises when the IPF exhibits its prototypical functions, for instance when it carries a durative (2)[2] or a progressive meaning (*nakryvala* in 3):

(2) *No zatem ves' den' polučal.IPF kakie-to poluosoznannye predostereženija ètogo ne delat'*. (RNC)[3]
'But then all day long he kept receiving some kind of half-conscious warnings not to do it.'

(3) *Kogda ja vošel, moja žena nakryvala.IPF na stol*. (Zaliznjak & Šmelev, 2000, p. 21)
'When I walked in, my wife was laying the table.'

However, according to the view adopted here (Gebert 1991, 2014b, 2014a), the presence of a factual meaning alone does not suffice to define competition, as the exact difference between opposition and competition is motivated by lexical aspect and, more specifically, by telicity.[4] By lexical aspect, most scholars traditionally refer to Vendler's (1957) classification into states, activities, accomplishments, and achievements, with the first two being atelic and the latter two being telic. However, this study adds a fifth category, proposed in Bertinetto (1986), namely 'punctual verbs', which share the trait of punctuality with achievements, yet cannot qualify as telic, e.g., 'to explode', 'to cry out'. The rationale for this addition will be explained later in Sect. 1.1.

On this basis, it can be argued that true aspectual competition arises only when the PF contrasts with the peripheral use of the IPF, i.e., when an imperfective telic verb is used to convey a single and completed event, as in (1b), or again with *pokupat'* 'to buy' in (4).

(4) *Ėto kievskie konfety. My v Kieve pokupali.IPF s Galiej*. (RNC)
'These are candies from Kiev. Galja and I bought.IPF (them) in Kiev.'

[1] Unless otherwise specified, translations are ours.

[2] Although some perfective verbs can convey a durative meaning and could occur with temporal expressions like the one in (2) (see, for example, *poguljat'*, *porabotat'* with delimitative *po-*, or *prosidet'* with perdurative *pro-*), as we will see shortly, these forms in principle do not compete with the imperfective base forms *guljat'*, *rabotat'*, *sidet'*.

[3] Russian National Corpus (www.ruscorpora.ru). If not specified otherwise, examples are extracted from the RNC.

[4] With telic actions tending towards a goal, while atelic ones "do not have to wait for a goal for their realization, but they are realized as soon as they begin" (Garey, 1957, p. 106).

Following Gebert (1991, 2014b, 2014a), this claim holds because in examples like (1b) and (4), replacing IPF with PF could indeed produce some pragmatic differences, though leaving the verb semantics unchanged. Hence, IPF telic verbs form authentic (also called 'trivial') aspectual pairs with their PF counterparts, with which they share an identical lexical meaning.

As far as atelic predicates are concerned, the prototypical and unmarked form to express past actions is the IPF, even for single and completed events. Although atelic IPF may have a PF derivative, these express additional semantic traits (delimitation, as in *porabotat'* 'to work for a while', inchoativity, as in *zakričat'* 'to start screaming', and so forth) that within the theoretical framework adopted here prevent us from considering them part of trivial aspectual pairs.[5] Therefore, forms such as *rabotat'.IPF* 'to work' and *porabotat'.PF* or *kričat'.IPF* 'to scream' and *zakričat'.PF* do not compete in a strict sense: IPF and PF forms differ not only from an aspectual point of view, but also in terms of lexical meaning. For all these reasons, these verbs represent instances of opposition, rather than competition, even when the IPF has a factual reading and denotes a single and completed event.

1.1 The case of perception verbs

The verbs considered here have features that make them particularly interesting to analyse. Padučeva (1996, pp. 95–96) labels both *videt'.IPF–uvidet'.PF* and *slyšat'.IPF–uslyšat'.PF* "perfektnye pary" 'perfect pairs', i.e., pairs in which the PF denotes the onset of a state and the IPF designates the state itself (Zaliznjak & Šmelev, 2000, p. 57). Zaliznjak and Šmelev (2000, p. 110) classify *uvidet'.PF* and *uslyšat'.PF* among the *ingressivnye sposoby dejstvija* (ingressive Aktionsart).

In terms of Aktionsart (lexical aspect), IPF *videt'* and *slyšat'* belong to the group of stative verbs; however, the classification of their PF forms remains debated. Like Vendler (1957, p. 154), who considered the action of seeing (and, by analogy, of hearing) both stative and achievement, many scholars classify *uvidet'.PF* and *uslyšat'.PF* as telic (see once again Zaliznjak & Šmelev, 2000, p. 57, who define these forms as "achievement po Vendleru" 'achievement according to Vendler's classification'). However, it is argued here that these PF forms are very close to the class of punctual verbs proposed by Bertinetto (1986), as they denote punctual, yet atelic, events. Syntactic and semantic telicity tests corroborate this hypothesis: on the one hand, *uvidet'.PF* and *uslyšat'.PF* do not combine with one of the main "rivelatori di telicità" ('indicators of telicity') identified by Bertinetto (1986, p. 275), namely the temporal prepositional phrase (PP) 'in X time' (in Russian '*za kakoe-to vremja*'). On the other hand, applying Klein's (1969) test, based on a semantic rather than a syntactic criterion, the actions of seeing and hearing can be said to have occurred even if interrupted. This consideration applies to both IPF and PF forms.

In Russian, this punctual value often predominates even with the IPF. A contrastive study conducted on a Russian-Italian parallel corpus[6] (Noseda, 2024) shows that *videt'* was used 76 times out of 129 (59%) with a factual value, designating single and completed events,

[5] Establishing which verbs form trivial aspectual pairs has always been a matter of debate. Therefore, some scholars may not share the view presented here (Gorbova, 2011). Moreover, it is worth noting that for the sake of simplification, this perspective is often overlooked in the teaching of Russian as a foreign language, where verbs such as *rabotat'.IPF vs. porabotat'.PF* or *kričat'.IPF vs. zakričat'.PF* are typically presented as aspectual pairs (Noseda & Saturno, 2025).

[6] https://ruscorpora.ru/en/search?search=CiUqFwoICAAQChgyIAogADIFZ3JzdGRACngBMgcIBRIDaXRhOgEB.

while *slyšat'* counted 70 times out of 103 (68%) with this same value. In all these cases, Italian displays a 'perfective realisation', translating these Russian imperfectives with a perfect form, namely *passato prossimo* (PP), as in (6):

(5) Rus. *Da, čert voz'mi, ja že tebja na kserokse videl.IPF!*
It. *Ma sì, che il diavolo mi porti, ti ho visto.PP in una foto segnaletica!*
'Right, damn it, I saw you in a mugshot!'

This cross-linguistic comparison shows that the claim that, for atelic verbs, the IPF represents the most natural way to convey single and completed events in the past, applies perfectly to the verbs analysed here. It also motivates a closer look at the cases where the marked PF form is preferred over the unmarked IPF, considering that the semantic trait of inchoativity is less evident here than in other perfective verbs such as, for instance, *zabolet'.PF* 'to *get* sick'. Compared to IPF *bolet'* 'to be sick', PF *zabolet'* 'to get sick' displays a clear lexical contrast that makes the two forms non-interchangeable and in evident opposition. In contrast, in some contexts, *videt'.IPF* and *slyšat'.IPF* seem to compete with *uvidet'.PF* and *uslyšat'.PF*, although, being atelic, they should qualify as instances of aspectual opposition rather than competition.

2 Research Questions

Against this background, the following research questions can be formulated.

RQ1: In what contexts is the perfective aspect preferred over the imperfective?

HY1: A major conclusion of previous research on telic predicates is that the presence of a contiguous verb and its aspect are the most significant factors influencing the aspect of the target verb. More specifically, the PF more frequently occurs with a PF contiguous verb, whereas when the contiguous verb is either imperfective or absent, IPF forms are preferred (Bernasconi & Noseda, 2021; Noseda, 2022, 2025). This confirms that perfective verbs are preferred to express chains of events, indicating narrative progression, while IPF usually occurs when it is not possible or relevant to situate the action on the temporal axis (Dickey, 2018; Plungjan, 2004). Assuming that the presence of a contiguous verb remains a significant predictor when atelic verbs are considered, we further hypothesise a role for other predictors (see Sect. 3), most notably discourse context (dialogic vs. narrative) and verb semantics (direct vs. extended meaning).

RQ2: If aspectual opposition and competition are not discrete (Janda et al., 2019a), where do (*u*)*videt'* and (*u*)*slyšat'* fall on a continuum ranging from maximum opposition (e.g. *bolet'.IPF* 'to be sick' *vs. zabolet'.PF* 'to become sick') to maximum competition (e.g. *pokupat'.IPF vs. kupit'*.PF 'to buy')?

HY2: RQ2 was partially addressed in Noseda (2025) through the analysis of approximately 200 corpus examples. The present study expands the dataset and examines native speakers' responses to a structured questionnaire. The position of (*u*)*videt'* and (*u*)*slyšat'* on the opposition-competition continuum is operationalised as native speakers' agreement rate. A comparable study by Bernasconi and Noseda (2021) showed a high degree of variability in the telic pair *pokupat'.IPF–kupit'.PF* 'to buy', with total agreement among participants observed in only 2 out of 28 cases. In light of the lexical aspect of (*u*)*videt'* and (*u*)*slyšat'* and the theoretical background presented in Sect. 1, it is hypothesised that (*u*)*videt'* and (*u*)*slyšat'* occupy an intermediate position between opposition and competition.

Table 1 Distribution of variables

contiguous verb	context	meaning	n.
ipf	narration	direct	1
no	dialogue	direct	9
no	dialogue	extended	15
no	narration	direct	28
no	narration	extended	17
pf	dialogue	direct	2
pf	dialogue	extended	2
pf	narration	direct	44
pf	narration	extended	2

3 Methodology

A total of 487 native speakers of Russian[7] completed a sentence-completion task consisting of 12 sentences extracted from the RNC, from which the verb *(u)videt'* or *(u)slyšat'* had been removed. The stimuli were constructed by extracting the sentence (or clause) containing the target verb as returned by the corpus. In some cases, the surrounding context was slightly expanded to ensure that the communicative situation and the relevant referents were clear to the participants. To fill the gap, participants were offered three options: PF, IPF, or both (6).

(6) *Tut mužčina* _____ *za spinoj šagi i obernulsja* (*slyšal* / *uslyšal*).
'At this point the man _____ some footsteps behind his back and turned around (heard.IPF / heard.PF)

Five versions of the survey were prepared for each verb pair, resulting in a total of 120 sentences (Table 5, Appendix). The 120 stimuli (30 per verb) were randomly selected from a dataset of 276 sentences extracted from a subsection of the RNC. The dataset, previously analyzed in Noseda (2025), was obtained by querying the four target verb lexemes in the past tense and in affirmative contexts. For the imperfective verbs *videt'* and *slyšat'*, only concordances in which the verbs referred to a completed, non-habitual event were retained.[8] This filtering was carried out manually. No fillers were included in the stimuli. Their use was not deemed necessary as participants were not asked to supply the correct option, but simply the aspectual value that they would find more natural (with the possibility of indicating both PF and IPF). Each sentence was annotated for one dependent variable – the aspect supplied by the participant – and three independent variables, namely:

1. the presence of a contiguous verb and, if present, its aspect;
2. the discourse context of the sentence (dialogic vs. narrative);
3. the semantic interpretation of the target verb (direct/perceptual vs. extended).

The distribution of these variables is illustrated in Table 1. As can be seen, the distribution of the variables under investigation is not entirely balanced: the most notable asymmetry is that PF contiguous verbs tend to occur more frequently in narrative than dialogic contexts. It was decided not to modify this distribution as it resulted from the random extraction of stimuli

[7] Participants were recruited through the dissemination of the survey link on selected social networks. Participation was voluntary, and the only requirement was that respondents be native speakers of Russian.

[8] Note, however, that sometimes a durative interpretation is also possible (see Sect. 4.2.1).

from the corpus, and thus could be thought to reflect the actual distribution of contiguous verbs across contexts and verbal semantic values.

The selection of predictors was partly theory-driven (1 and 2) and partly data-informed (3).

As mentioned in Sect. 2, the presence of a contiguous verb was included on the basis of previous theoretical (Plungjan, 2004; Dickey, 2018) and empirical research demonstrating its relevance for aspectual choice (Bernasconi & Noseda, 2021; Noseda, 2022, 2025). By 'contiguous verb' we refer to a verbal predicate denoting a past action that either preceded or followed the action conveyed by the target verb, as in (7).

(7) *Uvidel.PF — razozlilsja.PF.*
'He saw it and got mad.'

Given the results of previous research, this predictor was treated primarily as a control variable.

Context was included as a predictor because it is well-known that the general-factual meaning of the IPF is much more frequent in spoken language than in narrative discourse (Padučeva, 1996; Sičinava, 2013). This factor has also shown to be significant for some aspectual pairs of telic verbs during an empirical study conducted by Maiko and Noseda (2024).

In earlier studies (Bernasconi & Noseda, 2021; Noseda, 2022), additional predictors were tested but did not reach statistical significance and were therefore not retained in the present design. Finally, the semantic interpretation of the target verb was included following a preliminary qualitative inspection of the data, which suggested a possible distributional tendency that we wanted to verify statistically.

In fact, as attested in dictionaries (Evgen'evna, 1999; Ožegov, 2016), the verbs under analysis may have different semantic interpretations depending on the context. *(U)videt'*, for example, can have a literal and direct meaning, related to mere visual perception, as in (8), or an extended meaning, as in (9), where it additionally conveys the sense of 'to encounter' or 'to experience something':[9]

(8) *Tut on uvidel čto v sumerkach kto-to bežit po-sobač'i k dveri.*
'Here he saw that, in the twilight, someone was running dog-like toward the door.'

(9) *Tam Viktor uvidel svoich pervych v Antarktide pingvinov.*
'There Viktor saw his first penguins in Antarctica.'

On the other hand, *slyšat'* can occur with a direct meaning, 'to hear', as in (10), or an extended meaning ('to hear about'), as in (11).[10]

(10) *My uslyšali šum v zadnich rjadach.*
'We heard a noise in the back rows.'

(11) *Slovom, eta… eta devuška, pro kotoruju ty, verojatno, uže slyšal…*
'In short, this… this girl, the one you've probably already heard about.'

[9] See, for example, in Evgen'evna (1999) "vosprinimat' zreniem" 'to perceive by sight' vs "ispytyvat', perežitvat', a takže vstrečat' čto-l., stalkivat'sja s čem-l." 'to experience, to undergo, as well as to encounter something, to come into contact with something'.

[10] In Evgen'evna (1999), for *(u)slyšat'*: "različat', vosprinimat' sluchom" 'to distinguish, to perceive by hearing' vs. "imet' kakie-l. svedenija, znat' (po razgovoram, slucham i t.p.)" 'to have some information, to know [from conversations, rumors, etc.]'.

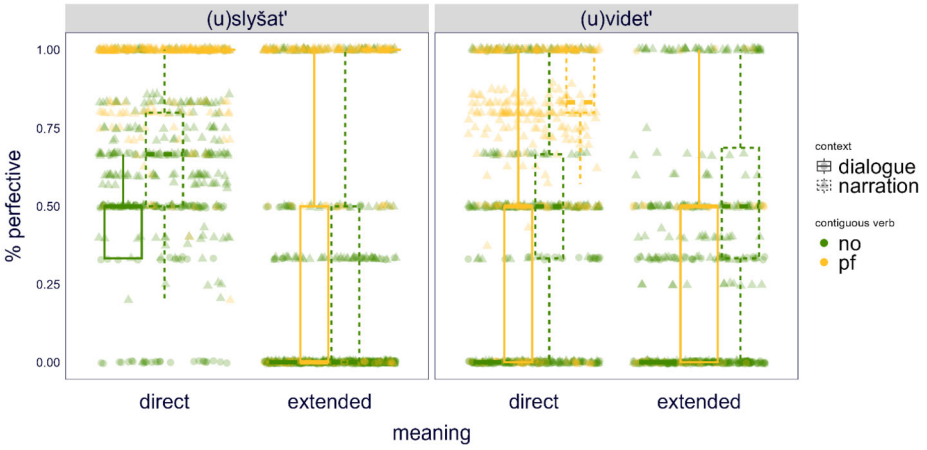

Fig. 1 PF use, all contexts

In both cases, in the annotation phase, occurrences were classified as 'direct' when the verb denoted direct sensory perception of an immediately present stimulus (visual or auditory). They were classified as 'extended' when the verb expressed a contextually broader meaning not reducible to immediate perception proper, such as 'encounter', 'experience', or 'hear about'. It is worth noting that this type of annotation is necessarily based on the authors' interpretative judgement (on this particular issue, see Čuikova & Gorbova, 2025, p. 17). To mitigate subjectivity, ambiguous cases were discussed among the authors and, where necessary, with L1 Russian colleagues.

4 Results

4.1 Use of perfective

4.1.1 Use of perfective: descriptive statistics

Figure 1 depicts the participants' use of the PF in the target sentences. In addition to the standard elements of a boxplot, data points represent the mean use of the PF by an individual participant and each combination of verb (facets), meaning (x-axis), context (data point shape [circles = dialogue, triangles = narration], boxplot line type [solid = dialogue, dotted = narration]), and contiguous verb (colour: green = no contiguous verb, yellow = PF contiguous verb). The same data are presented in Table 2.

The highest proportion of PF use is associated with the presence of a contiguous PF verb (yellow data points and boxplots). Additional factors that seem to favour the selection of PF are narrative contexts (dotted boxplots) and the direct meaning (x axis), albeit more marginally and limitedly to *(u)slyšat'*.

Since the effect of contiguous verbs is part of a more general tendency than the phenomenon investigated here, it seems useful to focus on stimuli containing no contiguous verbs (Fig. 2). Here, in addition to data point size and boxplot line type, context is additionally encoded by colour (green = dialogue, yellow = narration). The data points again represent the mean PF use of individual participants.

Table 2 Use of perfective, descriptive statistics. Shaded rows indicate the conditions characterised by the presence of a contiguous PF verb

verb	contiguous verb	reading	context	mean	sd	median	q25	q75
(u)slyšat'	no	extended	dialogue	0.07	0.20	0.00	0.00	0.00
(u)videt'	no	extended	dialogue	0.09	0.18	0.00	0.00	0.00
(u)videt'	no	direct	dialogue	0.11	0.21	0.00	0.00	0.00
(u)slyšat'	pf	extended	dialogue	0.28	0.39	0.00	0.00	0.50
(u)slyšat'	no	extended	narration	0.30	0.40	0.00	0.00	0.50
(u)videt'	pf	extended	dialogue	0.35	0.35	0.50	0.00	0.50
(u)videt'	pf	direct	dialogue	0.36	0.35	0.50	0.00	0.50
(u)slyšat'	no	direct	dialogue	0.43	0.30	0.50	0.33	0.50
(u)videt'	no	extended	narration	0.50	0.34	0.50	0.33	0.69
(u)videt'	no	direct	narration	0.51	0.36	0.50	0.33	0.67
(u)slyšat'	no	direct	narration	0.66	0.19	0.67	0.50	0.80
(u)videt'	pf	direct	narration	0.86	0.12	0.83	0.80	1.00
(u)slyšat'	pf	extended	narration	0.93	0.25	1.00	1.00	1.00
(u)slyšat'	pf	direct	narration	0.94	0.13	1.00	1.00	1.00

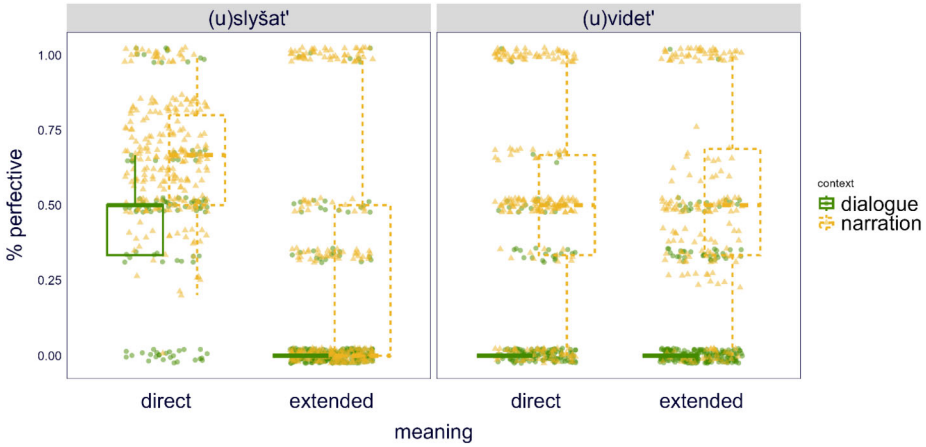

Fig. 2 PF use, stimuli with no contiguous verb

While it can be argued that narrative contexts stimulate the production of verb chains, and that the two variables are therefore correlated, the experimental design of this study makes it possible to tease them apart. More specifically, the two variables do not overlap in the case of a) narrative stimuli not comprising verb chains, and b) non-narrative stimuli comprising verb chains. Moreover, for the purposes of the statistical analysis, the model aims to describe and predict the probability that a PF form will be produced in response to specific combinations of variables. While it is well known that PF contiguous verbs tend to call for other PF forms, the present study aims to verify to what extent a narrative context exerts the same effect, regardless of the presence of verb chains. For this reason, in the statistical model described below, the effect of contiguous verbs is hypothesized to hold constant across conditions,

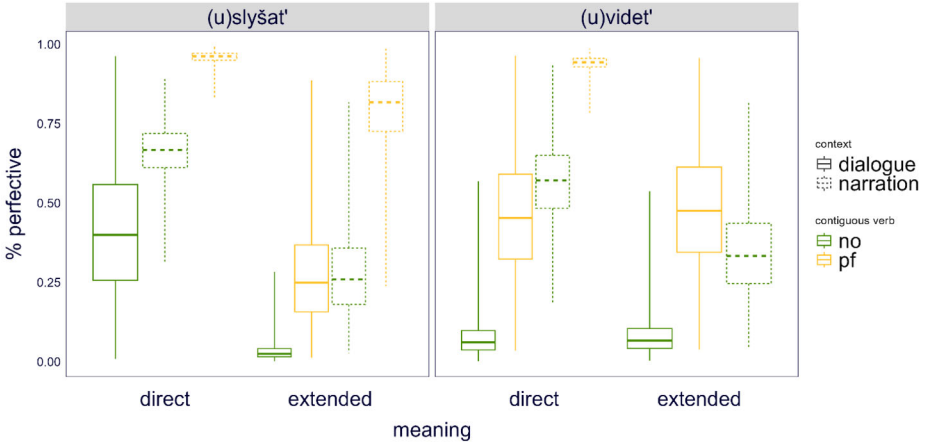

Fig. 3 PF use, model predictions

while context (narrative or dialogic) engages in a three-way interaction with the remaining variables.

When no contiguous verb is present, the PF is hardly used in dialogic contexts, with the only exception of *(u)slyšat'* in its direct sense. No additional tendencies can be discerned with respect to *(u)videt'*. Concerning *(u)slyšat'*, narrative contexts seem to favour the PF form when the verb is used in its direct sense (yellow dotted boxplots).

4.1.2 Use of perfective: inferential statistics

A Bayesian multilevel logistic regression model was fitted using the *brms* package (Bürkner, 2017) for *R* (R Core team, 2021), with PF use as the binary dependent variable. The model included the following predictors:

- Contiguous verb (none vs. PF), target verb (*(u)slyšat'* vs. *(u)videt'*), meaning (direct vs. extended), context (dialogue vs. narration).
- Three-way interaction between target verb, meaning, and context. The rationale for this interaction is that the effect of meaning is hypothesised to vary depending on the specific target verb, and this difference is in turn hypothesised to vary depending on context. In contrast, the effect of contiguous verbs was considered constant across all conditions.
- By-participant and by-item random intercepts.
- By-participant random slopes for contiguous verb, verb meaning, and context.

The model predictions are reported in Fig. 3 and Table 3.

Pairwise contrasts showed that the probability that a PF form is supplied is consistently lower in the absence of contiguous verbs than in the presence of another PF (on the logit scale: mean = 2.54, 95% CI = 1.64–3.45; Fig. 7, Appendix). In view of this strong – albeit expected – effect of contiguous verbs, the following analysis focuses only on contrast concerning targets with no contiguous verbs.

All other factors being equal, all contrasts between *(u)videt'* and *(u)slyšat'* comprise 0, which suggests that the two verbs behave similarly under the same conditions (Fig. 8, Appendix), even though this similarity seems weaker when the verbs are used in their direct meaning in dialogic contexts.

Table 3 Predictions of the statistical model (on the probability scale)

verb	contiguous verb	reading	context	estimate	est.error	q2.5	q97.5
(u)slyšat'	no	extended	dialogue	0.03	0.03	0.01	0.10
(u)videt'	no	direct	dialogue	0.08	0.06	0.01	0.23
(u)videt'	no	extended	dialogue	0.08	0.06	0.02	0.23
(u)slyšat'	pf	extended	dialogue	0.27	0.15	0.06	0.63
(u)slyšat'	no	extended	narration	0.28	0.13	0.08	0.58
(u)videt'	no	extended	narration	0.35	0.14	0.12	0.64
(u)slyšat'	no	direct	dialogue	0.42	0.20	0.09	0.83
(u)videt'	pf	direct	dialogue	0.46	0.18	0.14	0.81
(u)videt'	pf	extended	dialogue	0.48	0.18	0.15	0.82
(u)videt'	no	direct	narration	0.57	0.12	0.33	0.79
(u)slyšat'	no	direct	narration	0.66	0.08	0.48	0.81
(u)slyšat'	pf	extended	narration	0.79	0.12	0.49	0.95
(u)videt'	pf	direct	narration	0.94	0.02	0.89	0.97
(u)slyšat'	pf	direct	narration	0.96	0.02	0.92	0.98

In the case of *(u)slyšat'* (Fig. 9, Appendix), no contrasts comprise 0 except that involving dialogic and narration contexts when the verb is used in its direct meaning. In the case of *(u)videt'* (Fig. 10, Appendix), the contrasts between the direct and extended meanings of the verb comprise 0 in both dialogic and narrative contexts. In contrast, dialogic and narrative contexts produce significantly different predictions.

4.2 Inter-subject agreement

The focus now shifts to inter-subject agreement, which can be interpreted as a measure of the strength of the association of a given aspectual value with a particular combination of variables. In Table 5 (Appendix), column 'aspect' indicates the aspectual value on which most respondents converged, while column '%' indicates the relative frequency of the most common response.

4.2.1 Inter-subject agreement: qualitative analysis

As far as *(u)videt'* is concerned, 11 out of 60 sentences (1 with IPF and 10 with PF) produced a 100% agreement rate. The sentence with the IPF (example 12, target *(u)videt'*) instantiates an existential factual imperfective (Padučeva, 1996), introduced by *uže* 'already', which can, in such a context, serve as an aspectual cue, even though it does not totally exclude the PF. Indeed, the RNC provides as many as 2241 examples of *uže* plus *videt'.IPF* and only 153 with *uže* and *uvidet'.PF* (but in the case of some verbs, *uže* may actually favour the PF form: Janda et al., 2019b). In (12), the focus is on the component 'to take place', meaning that the result of the action is not relevant, with the speaker highlighting the fact that the action occurred at least once in the past.

(12) *Eti nočnye s povolokoj glaza, etot egipetskij oval, etot kapriznyj izgib gub on uže _____, a takoe lico, raz vzgljanuv, ne zabudeš' nikogda*. (*videl / uvidel*)
'These languid eyes, this Egyptian oval, this capricious curve of the lips he already

_____, and such a face, once seen, you will never forget.' (saw.IPF / saw.PF)

In the ten stimuli where total agreement was observed with the PF, a perfective contiguous verb was always present. When an object occurs, it is consistently post-verbal (six sentences out of eight). All sentences were extracted from a narrative context, with the verb used in its direct meaning (13, target (*u*)*videt'*).

(13) *Snova pripodnjal.PF on s usiliem veki i _____ puchlogubuju devušku v belom chalate i šapočke*. (*videl* / *uvidel*)
'He effortfully raised his eyelids again and saw a thick-lipped girl wearing a gown and a hat.' (saw.IPF / saw.PF)

Another 12 cases produced agreement rates ranging from 80% to 99% with the PF, while 11 sentences converged on the IPF. Sentences showing high agreement with the IPF predominantly belonged to dialogues (9 out of 11). They never presented a contiguous verb, and in seven cases, the verb carried an extended meaning. In example (14), 93% of the respondents selected the IPF, while 7% considered both aspects possible.

(14) *Družili.IPF, igrali.IPF vmeste. Ja ego poslednij raz v Rostove pered vojnoj _____. Sanja kak raz universitet končal.IPF*. (*videl* / *uvidel*)
'[We] were friends, [we] played together. The last time I _____ him was in Rostov before the war. Sanja was just finishing university.' (saw.IPF / saw.PF)

Sentences with high PF agreement mainly come from narrative contexts (10 out of 12), in which, most often (9 out of 10), a series of PF verbs contribute to expressing narrative progression. In 10 cases, *uvidet'* had a direct meaning (15).

(15) *Erast Petrovič ogljanulsja.PF i _____, čto k vychodu napravljaetsja nekij student*. (*videl* / *uvidel*)
'Erast Petrovich glanced around and _____ that a certain student was heading for the exit.' (saw.IPF / saw.PF)

Moderate variability was observed in 26 sentences. In 18 cases, the verb carried a direct meaning, and in eight cases, it carried an extended meaning. The sentence in (16) produced the following responses: 59% IPF, 23% PF, 18% both. Despite the two PF verbs *otmetil* 'I noted' and *zapomnil* 'I memorised', the action of seeing (originally in the IPF) was evidently interpreted by 60% of the respondents as a background scene rather than a punctual event preceding noting and memorising. However, a punctual interpretation was also deemed possible.

(16) *– Vojdite, – govorju, – kam in! Obratnym zreniem ja _____ každuju meloč'. Otmetil.PF i zapomnil.PF desjatki krasnorečivych simptomov buduščego proisšestvija*. (*videl* / *uvidel*)
'«Come in», I say, «come in!» With peripheral vision I _____ every detail. I noted and memorised dozens of eloquent symptoms of the incident to come.' (saw.IPF / saw.PF)

In example (17), most responses did not correspond to the original IPF. In the RNC, the IPF is indeed more frequent when *videt'* is followed by *kak*, with 28.48 IPM (instances per million words) compared to 10.98 IPM of the PF. That is especially true if the verb of the subordinate clause is also an IPF. However, 60% of the respondents seem to have focused

on the chain of events introduced by the PF *otvernulsja* 'he turned away', while only 8% chose IPF and 32% deemed both options possible. Again, the IPF provides a broader view of the action, seen as a background scene, while the PF denotes a punctual action, similar to 'notice'.

(17) *Sam naročno otvernulsja v storonu, no kraeškom glaza _____, kak u oprjatnogo kamennogo osobnjačka lilovuju damu, klanjajas', vstrečaet kakoj-to livrejnyj nemalogo rosta*.(*videl* / *uvidel*)
'He deliberately turned aside, but out of the corner of his eye he _____ how, at a neat stone mansion, a lilac lady was being greeted with a bow by some tall man in livery.' (saw.IPF / saw.PF)

Finally, in example (18), 11% of the respondents selected the PF, while 16% considered both variants to be possible. The context is similar to that in example (12), which comprises an existential IPF. In that case, however, the presence of *uže* potentially suggested the iterativity of the action, whereas here it is more likely that the event occurred only once. The PF suggests that the event has just taken place, while the IPF situates the action in an unspecified past.

(18) *Tak ty… ty tot paren', kotorogo vse iskali?... – Kogda iskali? – V mae, kažetsja, iskali… vsech sprašivali, prosili čut' čto – zvonit'… Da, čert voz'mi, ja že tebja na kserokse _____!* (*videl* / *uvidel*)
'So you… you're the guy everyone was looking for?... – When were they looking? – In May, it seems, they were looking… they asked everyone, begged: if anything came up, call… Yes, damn it, I _____ you on a mugshot!.' (saw.IPF / saw.PF)

Turning to (*u*)*slyšat'*, the overall percentage of complete inter-subject agreement was slightly higher in the case of the IPF (six cases compared to four). There were six cases of high agreement (80%–99%) with the IPF and 22 with the PF. Out of the 26 cases in which the PF form was highly preferred, only in two does *uslyšat'* occur with an extended meaning. Nineteen sentences contained a contiguous PF verb. When no contiguous verb is present, other cues can be identified, such as the adverbials *nakonec* 'finally' in (19) and *vdrug* 'suddenly' in (20).

(19) *Nakonec_____ prokurator i dolgoždannye šagi, i šlepan'e na lestnice, veduščej k verchnej ploščadke sada pered samym balkonom*. (*slyšal* / *uslyšal*)
'Finally, the procurator _____ the long-awaited footsteps and the slapping sound on the staircase leading to the upper landing of the garden just in front of the balcony.' (heard.IPF / heard.PF)

(20) *Na etom dvore Sambikin_____ vdrug žalkuju muzyku, tronuvšuju ego serdce ne stol'ko melodie* […].
'In this courtyard Sambikin _____ suddenly a plaintive music, which touched his heart not so much with the melody […]' (heard.IPF / heard.PF)

In four cases, *uslyšat'* follows direct speech (21).

(21) *«Ezžajte, horošaja budet doroga», — _____ my naposledok.*
'«Go, the road will be good», we _____ at parting.' (heard.IPF / heard.PF)

When the IPF is preferred, *slyšat'* always encodes the extended meaning of 'learn/hear about'. In (20), all the respondents converged on the IPF.

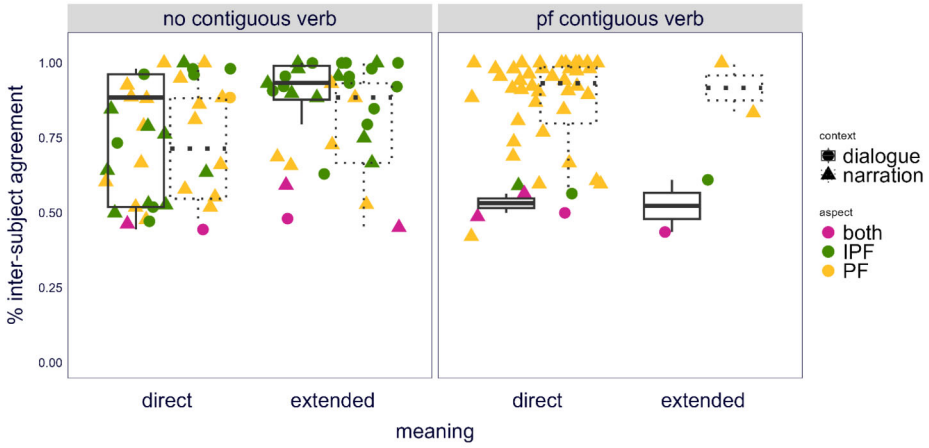

Fig. 4 Inter-subject agreement

(22) *Pročitala mne dva stichotvorenija: odno o mogučej niščete, kotoroe ja _____ ____ ran'še, a drugoe, neizvestnoe mne, o Kieve-Vie*. (*slyšala* / *uslyšala*)
'She read me two poems: one about mighty poverty, which I _____ before, and another, unknown to me, about Kiev-Viy.' (heard.IPF / heard.PF)

Overall, the competition between the two aspectual forms was minimal in 65% of the cases, while the remaining items showed a greater degree of variability in the responses. In five cases, the most common response did not match the original, since participants preferred the PF, whereas the original presented the IPF form. An example is provided in (23), where *nemnogo pogodja* 'after a while' suggests a narrative progression.

(23) *Nemnogo pogodja Egoruška skvoz' poluson_____, kak Solomon golosom gluchim i siplym ot dušivšeĭ ego nenavisti, kartavja i speša, zagovoril ob evrejach*. (*slyšal* / *uslyšal*)
'A little later Egoruška, half-asleep, _____ how Solomon, with a voice hoarse and husky from the hatred that had choked him, lisping and hurrying, began to speak of the Jews.' (heard.IPF / heard.PF)

In the remaining cases, although most answers matched the original, both aspectual forms were deemed possible, depending on how the speaker perceived the action, either as punctual or rather as a background scene (24).

(24) *Gosti_____, kak on zakazyval povaru obed; soobraziv eto, Čičikov, načinavšij uže neskol'ko čuvstvovat' appetit, uvidel, čto ran'še pjati časov oni ne sjadut za stol*.
'The guests _____him order lunch to the cook; realizing this, Čičikov, who had already begun to feel a bit hungry, understood that they would not sit down to eat before five o'clock.'

4.2.2 Inter-subject agreement: descriptive statistics

Figure 4 depicts inter-subject agreement as a function of the predictors considered in this study. The agreement rate is considered independently of the response provided (data point

Table 4 Inter-subject agreement

verb	contiguous verb	context	meaning	most frequent aspect	agreement rate
(u)slyšat'	no	narration	extended	ipf	0.93
(u)slyšat'	pf	narration	extended	pf	0.92
(u)videt'	no	dialogue	extended	ipf	0.92
(u)slyšat'	no	dialogue	extended	ipf	0.91
(u)videt'	no	dialogue	direct	ipf	0.91
(u)slyšat'	pf	narration	direct	pf	0.89
(u)videt'	pf	narration	direct	pf	0.89
(u)slyšat'	no	dialogue	direct	pf	0.88
(u)videt'	no	narration	extended	ipf	0.87
(u)videt'	no	narration	extended	pf	0.81
(u)slyšat'	no	narration	direct	pf	0.79
(u)videt'	no	narration	direct	ipf	0.72
(u)slyšat'	no	narration	direct	ipf	0.68
(u)slyšat'	no	dialogue	direct	ipf	0.65
(u)videt'	no	narration	direct	pf	0.63
(u)slyšat'	pf	dialogue	extended	ipf	0.61
(u)slyšat'	no	narration	extended	pf	0.59
(u)slyšat'	no	narration	extended	both	0.59
(u)videt'	pf	narration	direct	ipf	0.59
(u)videt'	pf	dialogue	direct	ipf	0.56
(u)videt'	pf	narration	direct	both	0.53
(u)videt'	pf	dialogue	direct	both	0.50
(u)videt'	no	dialogue	extended	both	0.48
(u)slyšat'	no	narration	direct	both	0.46
(u)videt'	no	narration	extended	both	0.45
(u)videt'	no	dialogue	direct	both	0.44
(u)videt'	pf	dialogue	extended	both	0.44

colour). Each data point indicates the agreement rate observed for an individual target sentence. The data point shape and boxplot line type encode the variable 'context'. Boxplots were computed for the four combinations of the variables 'context' and 'meaning' (in addition to the presence of a PF contiguous verb). The same information is presented in Table 4.

Two tendencies can be observed. First, the stimuli for which the most common response was 'both options possible' (purple data points) consistently produced inter-subject agreement scores of approximately 50%, suggesting that responses may be rather dispersed. Second, a PF contiguous verb consistently calls for another PF in the participants' responses, although there are a few stimuli characterised by greater variability.

4.2.3 Inter-subject agreement: inferential statistics

A Bayesian multilevel logistic regression was fitted using the *brms* package (Bürkner, 2017) for *R* (R Core team, 2021) with the number of agreeing responses (out of the total number of stimuli) as the dependent variable. The model included the following predictors:

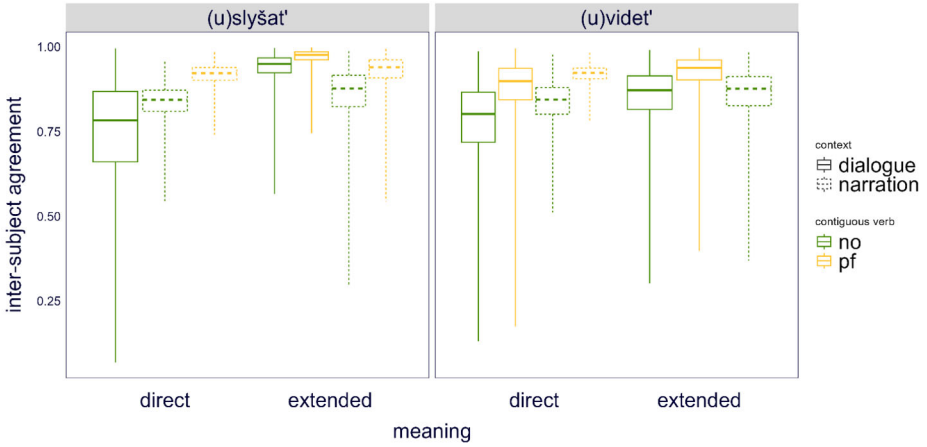

Fig. 5 Inter-subject agreement, model predictions

Table 5 Inter-subject agreement, model predictions

verb	contiguous verb	meaning	context	Estimate	Est.Error	Q2.5	Q97.5
(u)slyšat'	no	extended	dialogue	0.94	0.04	0.84	0.99
(u)slyšat'	no	extended	narration	0.86	0.07	0.67	0.96
(u)slyšat'	no	direct	dialogue	0.75	0.15	0.39	0.95
(u)slyšat'	no	direct	narration	0.84	0.05	0.73	0.92
(u)videt'	no	extended	dialogue	0.86	0.08	0.66	0.96
(u)videt'	no	extended	narration	0.86	0.07	0.70	0.96
(u)videt'	no	direct	dialogue	0.78	0.11	0.51	0.94
(u)videt'	no	direct	narration	0.84	0.06	0.70	0.93
(u)slyšat'	pf	extended	dialogue	0.97	0.02	0.91	0.99
(u)slyšat'	pf	extended	narration	0.93	0.05	0.80	0.98
(u)slyšat'	pf	direct	narration	0.92	0.03	0.85	0.96
(u)videt'	pf	extended	dialogue	0.92	0.05	0.78	0.99
(u)videt'	pf	direct	dialogue	0.88	0.08	0.67	0.98
(u)videt'	pf	direct	narration	0.92	0.02	0.86	0.96

- Contiguous verb (none, pf), target verb ((*u*)*slyšat'* vs. (*u*)*videt'*), meaning (direct vs. extended), context (dialogue vs. narration).
- Three-way interaction between target verb, meaning, and context. The rationale for this interaction is that the effect of meaning is hypothesised to vary depending on the specific target verb. In turn, this difference is hypothesised to vary as a function of context. In contrast, the effect of contiguous verbs was considered constant across all conditions.
- Random intercepts for the target items.

The model produced the predictions shown in Fig. 5 and Table 5.

No contrast between the absence and presence of a contiguous PF verb comprised 0 (mean = 0.79, 95% CI = 0.00–1.61). Again, since this systematic difference can be at-

tributed to a general tendency that goes beyond the scope of the present study, the following analysis will only focus on contrasts among conditions without contiguous verbs.

All contrasts involving the interaction of verb, meaning, and context comprised 0 (Figs. 11, 12, and 13, Appendix). Based on the available data, it can be concluded that these variables do not significantly impact inter-subject agreement.

5 Discussion

5.1 Use of perfective

RQ1 aimed to determine the contexts in which the PF is preferred over the IPF. Consistent with the research hypotheses, the frequency of PF use is influenced by the interaction of all the predictors considered in the study, i.e., the verb required – (*u*)*slyšat'* or (*u*)*videt'* – the presence of other PF verbs in the sentence, the context from which the sentence is extracted (narrative or dialogic), and whether the verb is used in its direct or extended meaning. Only two sets of contexts produced similar probabilities of observing PF forms:

- Dialogic and narration contexts with (*u*)*slyšat'* in the direct sense.
- Direct and extended use of (*u*)*videt'* in both narrative and dialogic contexts.

This difference suggests that the two verbs may exhibit slightly different sensitivities with respect to the variables. In particular, (*u*)*slyšat'* seems more sensitive to the type of meaning it expresses (direct or extended), while (*u*)*videt'* reacts more promptly depending on whether it is used in narrative or dialogic contexts. No statistically relevant differences were detected when the two verbs were compared using the same combination of predictors.

Based on these insights, it can be concluded that all the variables considered in the study are potentially relevant, but they interact with each other and with the target verb in complex ways. This complexity seems particularly problematic from a language teaching perspective, as students of L2 Russian notoriously struggle with aspect selection and wish for a simple, clear-cut rule. Indeed, Noseda and Saturno (2025) demonstrated that learners are rarely at ease or familiar with the possibility of using a past IPF verb to refer to a single completed event. Instead, they favoured a dichotomy in which the IPF is reserved for iterative or continuous contexts, while the PF is used for completed and punctual events. This behaviour is partly a consequence of language teaching methods, which tend to emphasise the role of aspectual cues such as PF verb chains and time adverbials. This study provides useful material for integrating this picture with native speaker use. Compared to L2 learners, native speakers are more prone to using the IPF to convey single and completed events, but exhibit a similarly strong preference for the PF when other PF verbs are present. These insights suggest that greater exposure to native language use – for example, through corpus-based didactics (Noseda, 2020) – may be useful for reinforcing target-like tendencies (such as PF verb chains) and developing greater awareness of uncommon options such as aspectual competition.

5.2 The opposition-competition *continuum*

RQ2 aimed to determine where (*u*)*videt'* and (*u*)*slyšat'* fall on the continuum between aspectual opposition and competition. Rather than the specific aspectual form on which the participants converged, what matters for the purposes of the present research is the rate at which they do so. The rationale for this approach is that while aspectual opposition represents

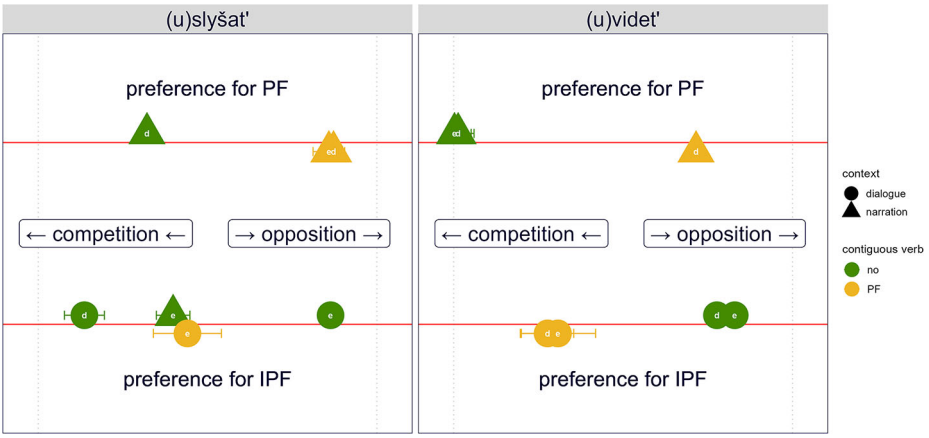

Fig. 6 The opposition-competition continuum

a situation in which the choice of verbal aspect is determined by the event being described, in cases of aspectual competition, the speaker is free to choose between two roughly equivalent options. Clearly, these two extreme cases represent the two ends of a *continuum* of intermediate situations, in which speakers' preferences may tend towards either one as a function of numerous variables, some of which were investigated in this study. Such a propensity towards opposition or competition was operationalised as the inter-speaker agreement rate.

The statistical analysis showed that when no contiguous verb was present, the interaction of verb, meaning, and context was not relevant. The inter-speaker agreement rate did not seem to be influenced by these variables, although they may be helpful in explaining and predicting the participants' preference for a specific aspectual value. In contrast, when a contiguous PF verb was present, higher convergence (on the PF) was typically obtained than in its absence. Such cases may be interpreted as instances of a 'rule', e.g., combinations of variables that almost obligatorily require a given aspectual value, just like a preposition requires a specific case. Clearly, such cases gravitate more decidedly towards opposition than competition. As a note of caution, it should be highlighted that even in the presence of a contiguous PF verb, several sentences produced decidedly lower agreement rates, while some even featured 'both options are possible' as the most frequent response.

However, sentences containing PF contiguous verbs are not the sole producers of high inter-speaker agreement rates: Fig. 4 shows that high rates are also observed in numerous contexts not involving contiguous verbs. Based on the rationale described above, these contexts should also be viewed as closer to the opposition pole of the *continuum*. Conversely, several combinations of predictors produced low inter-subject agreement rates, placing these contexts closer to the competition end. Overall, depending on the specific context in which they are used, the two perception verbs considered in this study may appear anywhere on the continuum.[11] In Fig. 6, the data point colour reflects the presence or absence of a contiguous verb, its shape indicates the context from which the sentence originates, and its meaning (direct or extended) is indicated by the white initial letter within the data point. The more to the left a data point is, the closer it is to the competition pole; conversely, the farther to the right it is, the more it gravitates towards aspectual opposition. The upper part of the plot presents

[11] Similar conclusions regarding aspectual opposition/competition are reached by Janda and Reynolds (2019), although the authors do not focus on a limited set of verbs.

the contexts in which participants' responses converged on the PF, and the lower part of the plot shows the responses converging on the IPF.

Taken individually, none of the variables considered in this study could explain this distribution. Future efforts should thus aim to identify the features that stimulate native speaker convergence on a specific aspectual value. The present study demonstrated that verb semantics and context engage in an interaction that seems to capture part of the variability of the data. Concerning semantics, Bernasconi and Noseda (2021) obtained a high degree of variability with the telic pair *pokupat'–kupit'* 'to buy', since total agreement was observed in only two out of 28 cases, in which a PF contiguous verb was present, and all the participants chose the PF form. This question was partially addressed in the present study through the categorisation of target items into instances of direct and extended meanings of the two perception verbs considered. Indeed, this variable proved relevant in various pairwise contrasts. However, as observed in Sect. 3, such a dichotomy is intrinsically coarse, as the differences between events involving mere perception and those involving learning or encountering (through perception) may be subtle. Accordingly, there are plans to expand the present experimental design to other verbs differing with respect to Aktionsart, with the goal of verifying the generalisability of the conclusions presented here, based on the hypothesis that semantics may subtly interact with Aktionsart and affect native speakers' aspect selection preferences.

On the other hand, context introduces additional variability related to text type: narration, for example, probably tends to elicit longer texts and a higher probability of encountering verb chains, and possible specific semantic nuances of the verbs considered.

5.3 Limitations

Not all combinations of the variables considered are represented in the data, as shown in Fig. 4. While this distribution of variables may be seen as a limitation of the statistical design, it seems justifiable for two reasons. First, because the target sentences were extracted from the RNC, they reflect the distribution of variables in native Russian. In native use, some combinations (e.g., IPF contiguous verb, or *(u)videt'*, PF contiguous verb, extended meaning, narration) are unattested or overly rare, which can be interpreted as an additional source of insights into the research questions of this study. On the methodological level, elaborating a perfectly balanced design would have implied using sentences not represented in the RNC, i.e., invented *ad hoc*, and most probably perceived as artificial and unnatural by native speakers.

6 Conclusion

Through a forced-choice survey addressed to native speakers of Russian, this paper aimed to determine a) what contexts favour the use of PF verbs, and b) where the verbs *(u)videt'* 'to see' and *(u)slyšat'* 'to hear' fall on the continuum between aspectual opposition and competition. The analysis has shown that the choice of verbal aspect is determined by the complex interaction of variables, including the verb requested, the sense in which it is used (direct or extended), and the context in which the sentence occurs (narration or dialogue). Consistent with previous research, the single strongest predictor of PF use was the presence of another PF verb in the sentence.

The conspicuous variability observed in the inter-subject agreement rate makes it difficult to respond unequivocally to the second research question. Nevertheless, a qualitative analysis

of the results and a comparison with previous research on other verbs hinted at various factors for future research, such as semantics and context.

It is also suggested that the insights of this study may find useful applications in language teaching, especially with respect to the need to expose learners to greater amounts of native input to consolidate target-like tendencies and develop sensitivity to unfamiliar patterns.

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Data Availability Summary data and illustrative examples are provided in the paper and its Appendix. The full dataset is available from the authors upon reasonable request.

Declarations

Competing interests The authors declare no competing interests.

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