

Aspectual competition in Russian as bidirectional optimisation

One of the main puzzles of the Russian aspectual system is the competition between the perfective (Pf) and the imperfective (Ipf) in denoting complete events in past tense:

- (1) A: Krasivo ukrasili_{perfective-past} elku.
B: Kto ukrashal_{imperfective-past}?
A: They decorated the Christmas tree beautifully.
B: Who decorated it?

In Grønn (2004), it is argued that the imperfective verb in speaker B's utterance – a subcase of the so-called *obshchefakticheskoe znachenie* ("general-factual Ipf") – should be analysed as event anaphora. Speaker A *asserts* the existence of a complete event through a perfective verb, and speaker B refers anaphorically to this very same event by *presupposing* its existence.

Another instance of this puzzling competition is illustrated in (2), where the use of Ipf receives a so-called *dvunapravlennoe znachenie* ("two-ways Ipf"):

- (2) Minut na pjat' prosypalsja_{imperfective-past}
He woke up for five minutes or so (*implicature*: he fell asleep again)

The use of Pf with telic predicates, e.g. *prosnut'sja*_{perfective} – *to wake up*, gets a default interpretation saying that the result state of the predicate holds at the evaluation time (typically the utterance time). On the other hand, if the result state is cancelled or reversed, Ipf is preferred, as in (2).

In this paper, I propose an analysis of different cases of aspectual competition, such as (1) and (2), in the framework of bidirectional optimality theory (BOT). OT respects the generative legacy with its strong emphasis on formal precision, and BOT provides the necessary tools for a formalisation of the semantics-pragmatics interface. However, as will become clear below, a straightforward BOT-approach is not able to fully explain the relevant data. The solution is to add a third dimension – a contextual parameter – to the two-dimensional BOT-architecture.

OT always includes a function GEN, which in the area of semantics/pragmatics generates a set of form-meaning pairs. In our case, we have two forms, $F = \{Pf, Ipf\}$, and I assume the following inventory of M: $\{e \subseteq t, t \subseteq e\}$. This is to say that the interpretation of the aspects is here reduced to two opposite inclusion relations: a complete event interpretation, represented by the configuration $e \subseteq t$ (the event e is temporally included in the reference time/assertion time t), and the incomplete/processual/progressive event interpretation $t \subseteq e$. Following the standard view on Russian aspect, Pf grammatically encodes the complete event interpretation, while the meaning of Ipf is *underspecified* and compatible with both inclusion relations above. This gives us the following set of form-meaning pairs:

$$\text{GEN} = F \times M - \{Pf, t \subseteq e\}$$

Another crucial feature of OT is the use of ranked and violable *constraints*. In the bidirectional formulation to be given in this paper I will focus on the constraint Economy, which will be interpreted in terms of *conditional informativity* (Blutner 1998). This allows for a formally precise implementation of the Gricean idea that the speaker and hearer are

cooperative agents, such that the best form-meaning pairs are the ones which *minimize* both the speaker's and hearer's effort.

A straightforward application of so-called *weak bidirectionality* (Blutner 2000) and (Jäger 2002) – which unlike strong BOT allows for additional super-optimal solutions – shows us why the processual/progressive reading is considered the Hauptbedeutung of Ipf, cf. table 1:

Conditional informativity	Pf	Ipf
$e \subseteq t$	$\Rightarrow 0$ (Grammaticalised)	1
$t \subseteq e$	∞	$\Rightarrow 1$ (strong convention)

Table 1: Weak BOT, first round

based on the assumption that complete and incomplete event interpretations are equally probable for Ipf, the numbers in the table follow from the function: $\mathbf{inf}(m|f) = -\log_2 P(m|f)$

Table 1 represents the phenomenon of *partial blocking*, which is OT-terminology for Horn's *division of pragmatic labor*. The underspecified semantics of Ipf, say, the vague overlap relation eOt , is equally compatible with both the specific inclusion relations, but the complete event interpretation is blocked by the less costly pair $\langle \text{Pf}, e \subseteq t \rangle$ (the "surprise" that $e \subseteq t$ holds given the form "Pf" is zero).

It is difficult to see how the pair $\langle \text{Ipf}, e \subseteq t \rangle$ can survive in this system. Nevertheless, in specific contexts we get what is known as *deblocking*. I propose to capture this phenomenon, which is at the heart of aspectual competition, by incorporating *context sensitivity* – the speaker and hearer's *common ground* (CG) – into the OT-reasoning. The preference for Ipf in example (1) is thereby based on the following tableau:

CG entails	Pf	Ipf
$e \subseteq t$		
$e \subseteq t$	0	$(\Rightarrow) 0$
$t \subseteq e$		

Table 2: Second round optimisation

In the paper, I will also show how a contex-sensitive OT-analysis can explain the phenomenon of deblocking in examples like (2) above. Furthermore, I will propose the following generalisation, which comes out as a theorem in weakly bidirectional optimisation, and will be further motivated in the paper:

- (3) A complete event interpretation $e \subseteq t$ is never available for Ipf in contexts where a progressive/processual $t \subseteq e$ interpretation is possible.

Selected references:

- Reinhard Blutner, "Lexical pragmatics", *Journal of Semantics*, 15, 1998, pp. 115-162.
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 Gerhard Jäger, "Some notes on the formal properties of bidirectional optimality theory", *Journal of Logic, Language and Information*, 11(4), 2002, pp. 427-451.