Irrealis and Sequence of TAM

Atle Grønn
University of Oslo

Abstract

In this paper[1], I will discuss an irrealis-construction in Russian, which poses non-trivial problems for a compositional analysis of tense, aspect and mood (the categories subsumed under the abbreviation TAM). The past tense morphology on the verb – in absence of a semantic PAST operator – is argued to be licensed by an IRREALIS operator. This concord phenomenon will be accounted for in terms agreement/checking as in Minimalist feature theory. The choice of imperfective aspect in this construction can possibly be explained from the perspective of competition between optimal form-meaning pairs.

1 In mood for chess

A linguistic puzzle frequently pops up in Russian chess annotations:

(1) Posle 9.e4 belye vyigryvali^{ind,past,ipf} pešku,
čego vpolne khvatalo^{ind,past,ipf} dlja pobedy. (Internet)
After [the hypothetical chess move] 9.e4 white would have won a pawn, which would have been more than sufficient for victory.

This intriguing modal/counterfactual flavour in absence of overt markers of modality is, of course, not an invention of strong Russian chess players. On request, my Russian informants produce discourses like the following:

(2) K sčast'ju ja ne provalilsja^{ind,past,pf} na ėkzamene. Posle provala menja vygonjali^{ind,past,ipf} iz universiteta.
Luckily, I did not fail the exam. In case of failure [lit.: 'After failure'] I would have been kicked out of the university.

Compositional semantics alone cannot explain all there is to these data. But first, in order for the reader to appreciate the puzzle, a few words on the inventory of TAM-categories in Russian.

[1]I would like to thank Kjell Johan Sæbø, Arne Martinus Lindstad, my Russian consultants Maria Filiouchkina Krave and Dmitrij Ostanin, and the anonymous referees of the workshop for valuable feedback at various stages of this work.

Following recent work by von Stechow, we distinguish between morphological and semantic TAM-categories. Grammatical aspect, that is perfectivity (Pf) and imperfectivity (Ipf), is morphologically encoded on the verb through prefixes and suffixes. A corresponding semantic operator PF or IPF transforms the verb stem – denoting a set of events – into a set of times. At the next stage at the (morpho-)syntax-semantics interface, a semantic TENSE, e.g. the semantic counterpart of the past tense suffix *l*, applies to this set of times, producing a truth value. Mood is not marked morphologically on the verb in Russian, but is expressed by a subjunctive particle *by*, cf. the examples below:

(3) Keres vyigral^{past,pf} by^{subj} u Alekhina matč. (Internet)

Keres would have won a match against Alechine.

(4) Ja byl^{past,ipf} by^{subj} rad esli by^{subj} Kramnik dejstvitel'no byl^{past,ipf} silen, vyigryval^{past,ipf} by^{subj} turniry. (Internet)

I would have been happy if Kramnik really showed his class and won tournaments.

Note that for each verb occurring in a non-indicative setting, there is a corresponding *by*.[2] Furthermore, *by* cooccurs only with past tense morphology, even when the hypothetical situation concerns the utterance time. On the other hand, aspectual choice is independent of the presence of the modal particle.[3]

2 Modal Ipf, modal past, both, or neither?

Now, let's return to the peculiar mixture of TAM morphology and semantics in our original example (1), characteristic of comments on hypothetical possibilities in a chess game. How can an indicative imperfective past trigger this counterfactual interpretation?

These data have largely been overlooked in the literature on TAM in Russian, with the exception of (Restan 1989), who presents the phenomenon without any explicit analysis. Restan simply claims that Ipf has an additional modal meaning. Note in this respect that the use of Pf in contexts like (1) would completely alter the truth conditions of the construction, but *not*, as one might expect, with respect to the aspectual viewpoint distinction (in)complete events. Perfective aspect would rather produce a purely temporal and *indicative* reading: "After 9.e4 (which was *actually* played), white *won* a pawn...".

[2] Cf. example (4) with 3 verbs and 3 occurrences of *by*. This is a case of Sequence of mood or multiple agree, since each token of *by* merely agrees with the highest SUBJUNCTIVE operator, without shifting the world-parameter relative to the preceding *by*.

[3] In (3), the perfective sentence refers to a (hypothetical) single event described by a telic predicate ("to win a match"). This is to be contrasted with the use of Ipf in (4) reporting an iteration of hypothetical events (cf. the atelic VP: "to win tournaments"). This is in accordance with the accepted view that Ipf encodes either progressivity or habitual-iterative readings. Importantly, however, Ipf is the unmarked/default aspect in Russian which, given the right circumstances, also may refer to singular complete events (Grønn 2004).

Restan's 'modal Ipf' is not without support from cross-linguistic investigations such as (Iatridou 2000), where it is shown that imperfective aspect and past tense can have a modal interpretation in various languages. Still, I will argue that there is nothing inherently modal in the imperfective occurring in (1). The use of Ipf is due to its unmarked status in the aspectual opposition. It is well-known that Ipf in Russian can refer to singular complete events when focus is not on the temporal anchoring of the event (Grønn 2004).

On the other hand, I will pursue the idea that the *past tense* marking in Russian is correlated with modality.

3 Checking of uninterpretable past

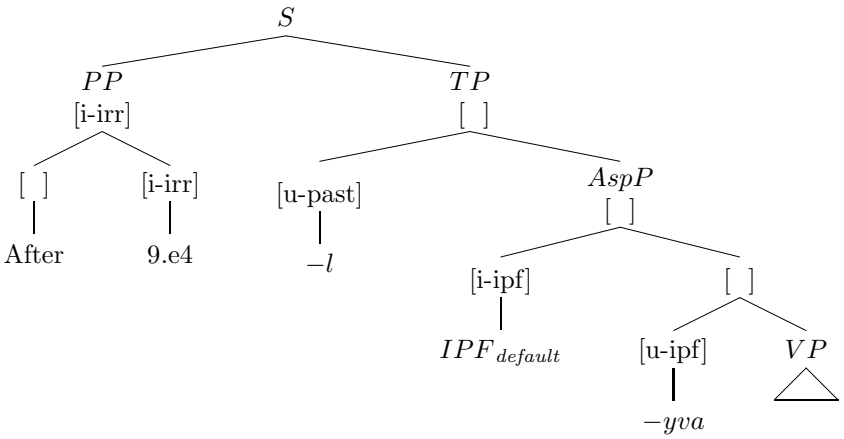
In order to capture the relationship between past tense morphology and irrealis, I turn to the feature theory of Minimalism advocated by von Stechow in his discussions of phenomena such as Sequence of tense in Germanic:

(5) PAST[i-past] Mary said [u-past] that she was in the opera [u-past].

The embedded past tense carries the feature [u-past] which is checked by the PAST operator in the matrix [i-past]. The embedded past is pronounced at PF, but is deleted at LF. This is according to the feature system which requires that every uninterpretable feature be checked by an interpretable feature. Note also that interpretable features of overt material can check more than one uninterpretable feature (under c-command).

My claim is that the past tense morphology in (1) carries the feature [u-past] which is licensed/checked by an IRREALIS operator associated with the PP. Before the derivation splits into PF and LF, our key example may be represented as in figure 1.

Figure 1: Feature analysis of (1)



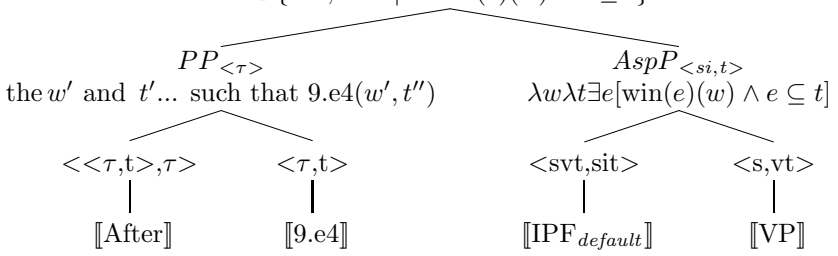
The checking of [u-past] by [i-irr] is presumably possible because of some deeper affinities between past tense and irrealis/counterfactuality, what has been referred to in the literature as *distancing* or *remoteness*. The idea can be made precise by an ordering relation on times or worlds, expressing distance from the evaluation time/world, see (Iatridou 2000) for references and some discussion.

4 Compositional semantics

At LF, we do not get a semantic PAST above [u-past], but there is a default IMPERFECTIVE operator which produces a complete event interpretation of the telic predicate and, furthermore, checks [u-ipf]. The logical form of (1) is given in figure 2.[4]

Figure 2: Compositional semantics for (1)

$[\![(1)]\!]^{w0,t0} = 1$ iff
the closest$_{w0,t0}$ $w' \neq w0$ and the max $t' > t''$ such that 9.e4(w', t'')
$\in \{< t, w > | \exists e \, \text{win}(e)(w) \wedge e \subseteq t\}$



The preposition 'posle – after' clearly has a temporal meaning. It is normally considered to be factual as opposed to the possibly non-factual 'before' (Beaver and Condoravdi 2003). However, in our particular cases, 'after' combines with a hypothetical chess move and is thus counterfactual. At the same time, expressions such as 'pri – by', 'v slučae – in case of', which are less clearly temporal, occur interchangeably in our contexts of hypothetical chess moves (*posle 9.e4* ≈ *pri 9.e4* ≈ *v slučae 9.e4*). The compositional procedure outlined above allows us to manipulate both the temporal and modal dimensions of the PP by letting the complement of the preposition, the hypothetical chess move, denote sets of world-time pairs.

[4] In addition to basic types for events <v>, times <i>, worlds <s> and truth-values <t>, I define a type $<\tau>$ as the basic type for world-time pairs, which is used when the latter is not considered as a function from worlds to times. The distinguished variables $w0, t0$ denote the world of evaluation and the time of evaluation, respectively, whenever free. Below, I give the semantics for the lexical entries in figure 2:
$[\![\text{After}]\!] = \lambda P.$ the closest$_{w0,t0}$ w' and the max t' s.t. $t' > t''$ s.t. $P(w', t'')$
$[\![\text{9.e4}]\!] = \lambda w \lambda t[\text{9.e4}(w, t) \wedge w \neq w0]$ (the irrealis condition should perhaps be formulated as a presupposition on hypothetical chess moves in chess annotations.)
$[\![\text{Ipf}_{default}]\!] = \lambda P \lambda w \lambda t \exists e[P(e)(w) \wedge e \subseteq t]$
$[\![\text{win}]\!] = \lambda w \lambda e[\text{win}(e)(w)]$

Consider for instance 'v slučae – in case of', where a counterfactual interpretation comes as no surprise, but the temporal dimension is less obvious. In order to avoid a semantic representation according to which the winning event is simultaneous with the hypothetical move, we must either let 'v slučae – in case of' itself carry the future meaning – as in figure 2 – or we would have to insert a covert FUTURE operator above AspP. In fact, I suggest that the schema in figure 2 can be applied more generally:

(6) Esli^{if} by^{subj} belaja lad'ja stojala^{past,ipf} na d1, belye srazu vyigryvali^{ind,past,ipf} putem 40.Ld8. (Restan 1989, 204).

If the white rook had been on d1, white would have won immediately with 40.Rd8.

Note that 'esli – if', which combines with a sentence, cooccurs with the subjunctive particle 'by' and past tense on the verb 'stojala – stood'. Still, the winning-event in the matrix has exactly the same form as in our previous examples.[5] I propose to treat the if-clause in examples like (6) in analogy with the semantics accorded to the PP in figure 2. This implies that in the Stalnaker-Lewis-Kratzer discussion on counterfactuals, our treatment of if-clauses comes closer to the original paper (Stalnaker 1968). The if-clause is not analysed as the restrictor of a universal quantifier over possible worlds, but as a definite description on possible worlds, cf. also (Schlenker 2004) for a recent implementation of this idea.

5 Competition

There is nothing in the account given above which explains why (1) must have a counterfactual/modal interpretation while the same sentence with perfective aspect would receive a factual/temporal interpretation. It appears that the tools available so far (feature checking and compositional semantics) must further be supplemented by something like bidirectional Optimality theory. Consider the following <form, meaning>-pairs:

a < { ind, past, pf }, {indicative, temporal, complete event interpretation}>

Presumably, the perfective aspect is somehow specified for temporal anchoring (Grønn 2004). In absence of the modal marker *by*, the optimal interpretation is a purely temporal one where [u-past] is checked by a PAST operator.

On the other hand, our initial example can be represented as follows:

b < { ind, past, ipf }, {counterfactual, complete event interpretation}>

The interpretation in **b** is suboptimal and arises at a later stage of optimisation. It emerges partly due to incompatibility of a purely temporal incomplete

[5] This can be seen as a case of multiple agree: both past tense forms in (6) agree with the semantic IRREALIS-operator, which here presumably is identified with the particle 'by'.

event interpretation (≈ progressive) with the meaning of the temporal preposition. But, of course, the form-meaning pair in **b** also competes with the more straightforward one in **c**:

c < {subj, past, pf }, {counterfactual, complete event interpretation}>

From a competition perspective it is unlikely that **b** could arise in a system where **c** is available. This point has to be investigated further. Here, we can merely suggest some more fine-grained possible differences in the interpretation component of **b** and **c**: A subjunctive perfective sentence retains its 'strong' temporal meaning in the counterfactual setting, due to the temporal anchoring of Pf; the counterfactual interpretation in **b** is more specific and corresponds to a 'would-conditional' with the antecedent being untrue in the world of evaluation (i.e. the chess move under consideration necessarily results in the consequent being true, but it is never instantiated in the actual position in the game.), while **c** is also compatible with a 'could-conditional' and the possibility of the antecedent holding in the actual world.

Thus, it appears that both past tense and imperfective aspect mark counterfactuality in a rather indirect way. The former is licensed by a checking relation with an IRREALIS operator, while the latter is used as the default, unmarked aspect in competition with more marked form-meaning pairs.

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