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We're interested in adding another dataset to the evaluation – Russian PropBank.

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Introduction

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- How can we improve its precision?

Russian PropBank

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Includes sentence-level alignment between the texts, and gold English SRL annotations.

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- Frames were constructed for a **subset** of verbs and adjudicated
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Russian PropBank 2023:

- Smaller subset that is currently **in-progress**
- All **verbs and participles** in the sentences are adjudicated
- No nouns/adjectives
- Some roleset changes relating to auxiliary and modal verbs

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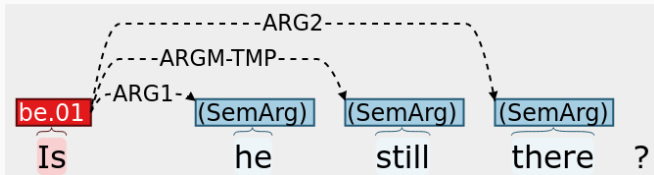   - Innate differences between source/target languages

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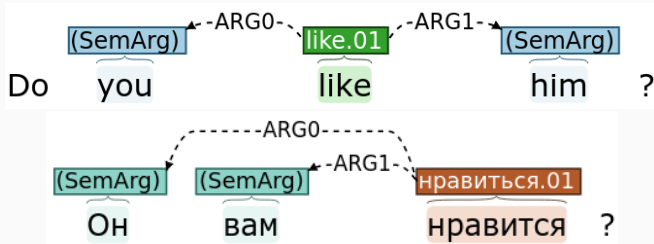Some of the innate language differences between English and Russian which could impact projection:

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Even if the projection is perfect, is English SRL the right representation for Russian?

- Splitting or merging of senses
- Difference in treatment of modal verbs and adverbs
- Verbal prefixes in Russian

We use UPB 2.0 to predict PropBank labels on the parallel Russian *newswire* and *phrasebook* sentences.

UPB's re-labeling can correct translation shifts

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"*Could you **spell** that please?*"

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UPB's re-labeling can correct translation shifts

*"Could you **spell** that please?"*

*"Вы можете **продиктовать** по буквам?"*

The UPB span projection successfully identifies the Russian verb as the sense dictate.01 and "по буквам" (by letters) as the manner.

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Projecting to RuPB with UPB 2.0

Some of the errors made are not particular to the target language

- Adding multiple core arguments
- Labeling things like pronouns as an ARGM-MOD
- Labeling punctuation as arguments

Filtering UPB 2.0

Language-independent filters

- Remove candidate arguments if the target is a PUNCT or ADP.
- PART can only be an ARGM-NEG, ARGM-DIS, ARGM-ADV, or ARGM-MOD
- PRON should never have the following ARGM labels: ARGM-MOD, ARGM-NEG, ARGM-MNR, ARGM-EXT, ARGM-ADV, ARGM-ADJ, ARGM-PRR
- ARGM-COM can only be a PRON, PROPN, or NOUN.
- Only use the most likely target for core arguments, rather than duplicating them.

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- Caused by alignment errors where Russian is dropping present tense *быть*/*to be*, or using a predicate-less construction for *to have, possess* (have.03).
- Caused by English PB's use of ARGM-MOD for specific words, which don't map identically into Russian

Language-specific filters

- Change ARGM-ADV to ARGM-MOD if it's a form of the following: *Мочь/смочь, можно, бы, должен, нельзя, надо, нужно, возможно*. This list is incomplete, but covers the most frequent cases.

- The only token that is allowed to be ARGM-REC are forms of *себя* (*himself, herself, itself, yourself*).

- *нет*, *не*, and *никогда* can only be labeled as ARGM-NEG, never as any other argument. No other tokens can be labeled as ARGM-NEG other than these.

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Tested on both the smaller, but more complete RuPB 2023 as well as the larger, but partially annotated RuPB 2020

RuPB 2020 Phrasebook			
Balanced			
	P	R	F
Predicates	100.00	76.87	86.92
Arguments	76.09	64.14	69.60
Arguments (filtered)	**77.85** (+1.76)	**64.40** (+0.26)	**70.49** (+0.89)
Precise			
Predicates	100.00	76.87	86.92
Arguments	77.27	66.75	71.63
Arguments (filtered)	**78.46** (+1.19)	-	**72.14** (+0.51)

RuPB 2023 Phrasebook			
Balanced			
	P	R	F
Predicates	94.62	89.13	91.79
Arguments	74.36	73.60	73.98
Arguments (filtered)	**75.92** (+1.56)	-	**74.74** (+0.76)
Precise			
Predicates	94.62	89.13	91.79
Arguments	75.92	73.60	74.74
Arguments (filtered)	**76.32** (+0.4)	-	**74.94** (+0.2)

RuPB 2020 Newswire			
Balanced			
	P	R	F
Predicates	100.00	57.06	72.66
Arguments	47.52	28.27	35.45
Arguments (filtered)	**49.63** (+2.11)	**28.39** (+0.12)	**36.12** (+0.67)
Precise			
Predicates	100.00	57.06	72.66
Arguments	51.80	30.38	38.30
Arguments (filtered)	**52.55** (+0.75)	**30.51** (+0.13)	**38.61** (+0.31)

| RuPB 2023 Newswire			
Balanced			
	P	R	F
Predicates	94.74	64.29	76.60
Arguments	86.36	48.72	62.30
Arguments (filtered)	-	-	-
Precise			
Predicates	94.74	64.29	76.60
Arguments	77.27	43.59	55.74
Arguments (filtered)	-	-	-

UPB 2.0 was evaluated on small datasets in four languages, manually labeled with English PB

- We plan to test the language-independent filters as well as obtain word lists for these languages to use the language-specific filters
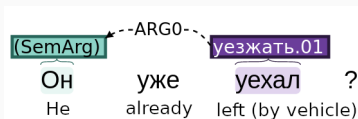
Questions?

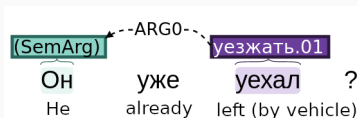English PB may miss semantic distinctions present in Russian.
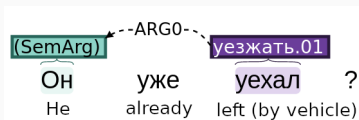
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    - Пить - to drink (imperfect)
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- Russian PB may capture less information than English in this case, since English may include ARGMs here.

A significant difference between English and Russian is the treatment of modals.

In English, modal verbs (*can*, *may*, *would*, etc.) are uninflected and simply attached to the main predicate as ARGM-MOD.
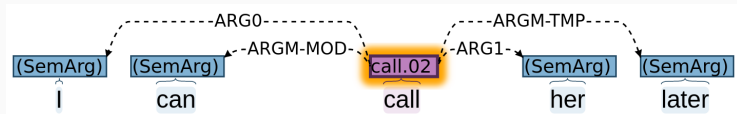
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For ability/capability, we use the roleset мочь.01, which is based on able.01:

Example

Я **могу** бежать очень быстро
I can (am able to) run really fast

If *мочь* is instead conveying permission or possibility, we treat it as simply an ARGM-MOD, **not** a predicate.

Example

Он так **может** упасть!
He might fall like that!

We removed the roleset давай(те).09 in this update. This usage of the verb *давать* is typically translated as "*let's*".

Example

Давайте попробуем снова.
Let's try again.

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Let's try again.

Just marking the main verb as hortative mood – annotated as ARGM-MOD. The English PropBank treats *let* in this sense as a predicate with the roleset let.01 (*to allow*).

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Russian PB is trying to avoid using ARGM-ADV when ARGM-MOD is applicable. We continue to use other ARGMs for other words that relate to modality.