





ChatGPT on Russian constructions: Insights or hallucinations?

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# Tromsø Constructicon Lab (ConLab): projects







The Persian







In this talk we will focus on cxns collected in RusCon

## The Russian Constructicon: current state



Browse

Advanced search

Daily dose

Statistics

Instructions

About

### Search in names and illustrations

не говоря о

### Results

- 3. (a) как же NP-Nom? | А как же мама?
- 4. (a) при чём здесь/тут Cop NP-Nom? | При чём здесь наши отн
- 5. (a) Noun-Nom/кто (же) (PronPers-3.Acc) знает, Cl | Кто его зна
- 6. (а/так) что насчёт ХР? | Что насчёт пятницы? Какие у тебя пл
- 7. NP-Nom Cop похожий-Short на NP-Acc (NP-Ins/по NP-Dat) | Ва
- 8. (вот) то-то и оно, что CI/XP | То-то и оно, что от меня ничего н
- 9. (всё) никак не VP-lpfv | Задача всё никак не решалась.
- 10. (единственное) (Prep) что (не) VP, так это (не) XP/Cl | Чего д
- 11. (как) по мне, (так) Cl | Как по мне, это ещё не беда.
- 12. (не/самое) время Сор VP-Inf | Самое время вершить большие дела.

Currently two interfaces (UiT and HSE) exist, but they are sourced from a single database that contains **4001 cxns** 

2277 + newly added 1724 cxns

We work with UiT's version: <a href="https://constructicon.github.io/russian/">https://constructicon.github.io/russian/</a>

Number of matching constructions: 4001

## ChatGPT >>> ChatUiT

### ChatUiT is "an Al-driven chatbot"

- powered by GPT-40 model
- developed by AI-team at UiT
- launched on Oct 2, 2023
- free and recommended for UiT's students and empoyees
- https://chat.uit.no/
- CRUCIALLY FOR OUR PURPOSES: "an Al-driven chatbot where you have control over your own data. What you enter will not be shared with others or be used to train the model.

### Alltid beredt med ChatUiT

Nå er ChatUiT klar på våre nettsider for å hjelpe til med studier og arbeid. Tjenesten er gratis og sikker med tanke på personvern.



LANSERT 2. OKTOBER: Samtaleroboten ChatUiT ble tilgjengelig på uit.no for

ChatUiT does not have access to the content of RusCon. We can use it to test its "knowledge" of constructions

### generalized representation

short recognizable illustration

# Methodology

- Human knowledge of a construction is multifaceted and comprehensive.
- How can we fully examine constructional "knowledge" of LLMs?
- Our approach: "deep testing"
- As opposed to examining only the interpretation of a single illustration,...
- ...we examined output on a variety of prompts, both in English and Russian, with a focus on
  - 1) semantic interpretation of 3-5 contexts,
  - 2) contextual appropriateness, and
  - 3) syntactic flexibility of constructions.

### NAME

(это Cop) Noun-Nom как ~Noun-Nom

Хлеб как хлеб.

### GLOSSES:

(это Cop) Noun-Nom как ~Noun-Nom

(this COP) Noun-NOM as ~Noun-NOM

### **DEFINITION** (English)

This construction indicates that a certain [participant]<sub>Participant</sub> or [object]<sub>Theme</sub> is perceived as a [typical representative]<sub>Standard</sub> of its class and does not possess any special properties uncharacteristic of members of that class.

### **EXAMPLES**

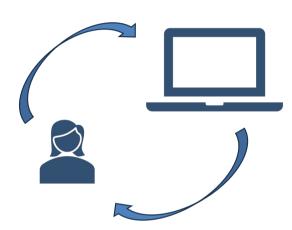
- 1. [Вода]<sub>Theme</sub> как [вода]<sub>Standard</sub>, холодная.
- 2. Ну что ж, с виду [дом]<sub>Theme</sub> как [дом]<sub>Standard</sub> шесть этажей.
- 3. [Кошка]<sub>Participant</sub> как [кошка]<sub>Standard</sub>: мышей ловит, молоко лакает.
- 4. [Собака] Participant как [собака] Standard, большая только.
- [Машина]<sub>Theme</sub> как [машина]<sub>Standard</sub> с четырьмя колесами и двигателем.

CEFR LEVEL: B1

Show additional information

# Can ChatGPT/ChatUiT correctly ...?

- identify constructions in example sentences?
- identify a correct definition?
- write a definition?
- suggest common fillers?
- identify register (informal, formal)?
- generate example sentences?
- assign semantic tags according to RusCon semantic annotation?
- assign language proficiency level (CEFR)?
- find corresponding constructions in other languages (RUS-NOR-ENG)?



# Yes, but it is never perfect

# 1. ChatUiT can correctly identify constructions in example sentences

I am working on Russian grammatical constructions. Constructions are...

Use the following Abbreviations and symbols...

Here are five sentences that contain a common construction. Can you identify this construction and write it in a notation format that I have shown you?

**NP-Dat Cop pora VP-Inf** - Mne pora idti v školu. RusCon:

NP.Dat pora VP.Inf ChatUiT:

'I need [for-me it's-time] to go to school.'

Works best for cxns with lexical anchors Occasional errors with morphological categories

VP-Inf(-to) ~VP, a/no Cl - Sprosit' sprošu, no on možet ne znat'.
'I will ask [lit. to-ask I-will-ask], but there is no guarantee that he knows.' RusCon:

Verb-Inf (to) Verb-Pst, a/no Cl ChatUiT:

No reduplication

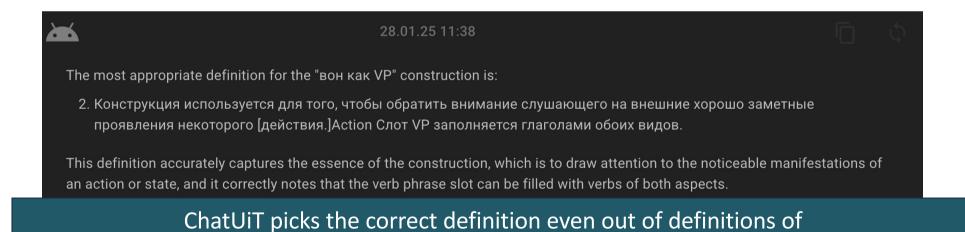
Error in tense assignment

# 2. ChatUiT can identify a correct definition

I will now provide three definitions for this construction explaining its meaning. Please pick the most appropriate definition for this construction.

### a. Actual definition

- b. Definition of a cxn with the same combination of semantic tags
- c. Definition of a cxn with partially overlapping tags



semantically close constructions!

### 3. ChatUiT can write definitions

Here are three definitions for constructions explaining their meaning.

Can you write a definition for construction ... using the suggested format?

NP-Dat Cop pora VP-Inf - Mne pora idti v školu.

'I need [for-me it's-time] to go to school.'

### **English Definition:**

The "NP.Dat πopa VP.Inf" construction is used to express the necessity or strong suggestion that [a participant] Participant (in the dative case) should perform [an action] Action (in the infinitive). The construction emphasizes that it is time to carry out the specified action.

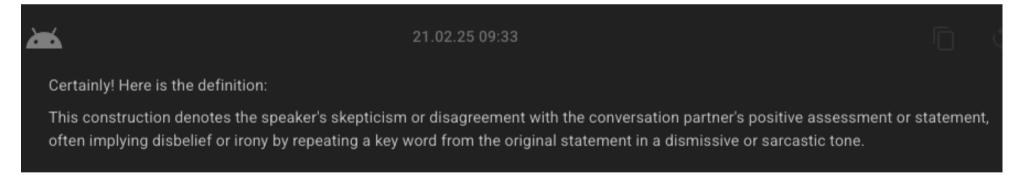
ChatUiT provides meaningful and well written definitions in both English and Russian including properly assigned semantic roles for the open slots.

# 3.1. Even for complex discourse "Echo" cxns

(meaning is contextually determined and co-created in discourse)



'[lit. you will say also] you call this "good"! No way!



ChatUiT can successfully process implicit modal and evaluative meanings that unfold in human interaction.

## 3.2. Even for reduplicative constructions

(cxns with lexical repetitions - a structural anchor and no lexical anchor!)

CONSTRUCTION id:491

NP-Dat Noun-Nom Cop не (в) ~Noun (без NP-Gen) - Девочкам радость не в радость.

### GLOSSES:

NP-Dat Noun-Nom Cop не (в) ~Noun (без NP-Gen)

NP-DAT Noun-Nom COP NEG (in) ~Noun (without NP-GEN)

Here, ChatUiT can write a definition relying only on the structure despite the lack of a lexical cue



21.02.25 09:13

Provide a short definition of the meaning of this construction that we see in the examples we discussed, including Праздник не в праздник. Девочкам радость не в радость. Отдых не в отдых. Start with the words: This construction indicates that ... And use the words speaker and conversation partner



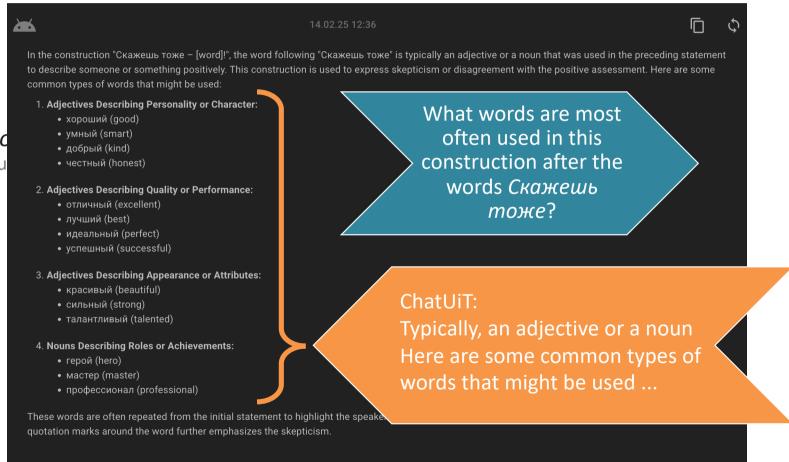
21.02.25 09:13

This construction indicates that the speaker is expressing a sense of dissatisfaction or disconnection, where something that is typically positive or fulfilling is not perceived as such. It highlights a mismatch between expectation and reality, conveying to the conversation partner that the usual joy, satisfaction, or meaning is absent in the given context.

# 4. ChatUiT can suggest common fillers

### Skažeš' tože – XP

- On takoj xorošij! 'He is so good!'
- Skažeš' tože "xoro '[lit. you will say also] you

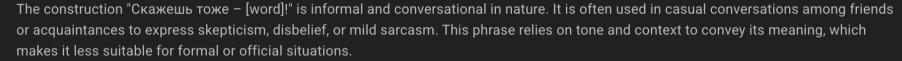


# 5. ChatUiT can correctly identify register

How can you describe register of this construction Скажешь тоже – [word]! ? Can I use it in formal official situations at work?



14.02.25 12:39



In a professional or formal setting, using such a construction might be considered too casual or even disrespectful, as it can imply a dismissive or sarcastic attitude. In formal situations, it's generally better to express disagreement or skepticism in a more polite and structured manner. For example, instead of using "Скажешь тоже – [word]!", you might say:

- "Я не совсем согласен с этим утверждением." (I don't quite agree with that statement.)
- "Мне кажется, это преувеличение." (It seems to me that this is an exaggeration.)

These alternatives maintain a respectful tone while still conveying disagreement or doubt.

# ChatUiT can perform surprisingly well on semantic interpretation



How well can it generate proper instances of cxns?

BAD NEWS: the generated examples match the structural pattern but are very unnatural.

GOOD NEWS: Unnatural examples can trigger additional analysis of restrictions on fillers and contexts that we (might) have overlooked.

something which is epetition of the noun

bring joy to the girls veen expectation and

CONSTRUC

NP-Dat Noun-Nom Cop не (в) ~Noun (без NP-Gen) - Девочкам ра

### GLOSSES:

NP-Dat Noun-Nom Cop NP-Ge ~Noun (без

(without NP-GE NP-DAT Noun-Nom COP NEG

> Can you provide several examples of this construction?

Mistakes made by ChatUiT are similar to those of L2-learners of Russian

reality regarding enjoyment or benefit. Here's a breakdown of the meaning for each example 1. Маль 2. Студ 3. Кошк 4. Ребён Соба **6. Учен** 7. Пти

- 8. Рыбам вода не в воду.
  - · The water is not suitable or comfortable to the fish.

These sentences convey a sense of disappointment or lack of fulfillment in what is typically expected to be a positive experience.

# Moving from the interpretations of individual constructions to managing a whole system of annotation

### 7. ChatUiT can correct

Here is the semantic classification that we use to describe constructions. Each construction can have multiple tags.

(eto Cop) Noun-Nom kak ~Noun-Nom -

1.1. Situation structure 1.2. Major roles 1.4. Logical relations 1.6. Sets and elements Timeline + Addressee + Additive Taxis + Instrument Purnose Inclusive Actionality + Possession Consequence Exceptive Pluractionality + Comitative Condition Exclusive Phase of action + Caritive Concession + Subset Result + Non-standard subject + Ontions Actuality Quantification + 1.3. Situation modifiers 1.5. Properties 1.7. Magnitude Spatial expressions + Salient property + Non-existence + Temporary characteristics + Temporal expressions + Measure + Manner Comparison + Calculation + 2. Modality and its neighborhood 3. Subjectivity 4. Discourse 5. Parameters 2.1. Core modal meanings Assessment + 4.1. Discourse organization Degree of intensity + Attitude + Degree of accuracy + Root modality + Discourse structure + Polarity value + Epistemic modality + Intersubjectivity Source of opinion + Objectivity 2.2. Neighborhood Mirative Source of information Volition 4.2. Discourse clauses Causation + Reaction to the previous discourse -Prohibition + Routine + Threat Apprehension +

'[lit. pread like pread] This pread is just normal.

tions



Paragon

Assessment

Assessment in relationships

Polarity value

Both Negative and

cover major semantics

cover semantic nuances

### offered:

- Comparison
  - Equality



# ChatUiT usually captures the semantic core

- ChatUiT can correctly identify the core semantic tag and suggest semantic tags that are less central for a given cxn.
- But it tends to miss some additional, non-core semantic tags included in our annotation for the same cxn.



GOOD NEWS: Our semantic annotation is learnable for ChatUiT and works well on unseen data (contra other studies on automatic semantic annotation like Imamovic et al. 2024).

# ChatUiT sometimes erroneously offers semantic tags that do not match a given construction

### VP iz pokolenija v pokolenie

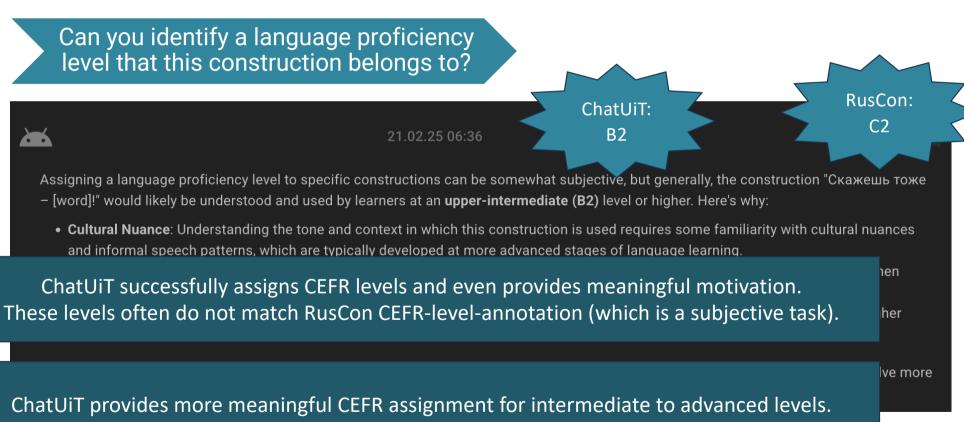
Iz pokolenija v pokolenie u nas peredaetsja tradicija nazyvať pervenca Andreem.

'From generation to generation, we pass down the tradition of naming the firstborn Andrei.'

- Temporal expression
  - Time period
- Manner
  - Salient property
- Temporal characteristics



# 8. ChatUiT can assign proficiency level (CEFR) & meaningful motivation



ChatUiT errors gave us a lot of a-ha insights.

# 8. Corresponding constructions across languages

- Focus on 57 discourse cxns included in the resource Construxercise!
- Russian cxns and corresponding cxns in English and Norwegian
- examined ChatUiT-generated translations
- ChatUiT misses some semantic nuances

### Pljus ko vsemu, Cl

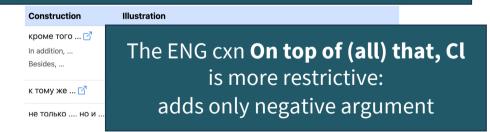
Pljus ko vsemu, ja ljublju putešestvovat'.

'[lit. plus to everything] In addition, I love to travel'

ChatUiT: The translation can be phrased as: "On top of that, I love to travel."



The Russian cxn can introduce either negative or positive information.



It was cold and raining outside. On top of that, I forgot my umbrella at home.

# Conclusions: "is SO GOOD, but...!"

For Russian data

### ChatGPT can

- interpret semantic nuances of constructions, including rare, advanced, and highly language specific cxns
- identify an abstract pattern on the basis of several individual examples
- write morphosyntactic representation according to learned system of abbreviations and symbols
- provide **fillers**, sorted in groups
- explain register nuances and provide guidelines for using a construction in an appropriate social context
- can assign constructions to proper **levels of language proficiency**, with correct

ChatUiT is definitely a useful tool for constructicographers and can be employed for a variety of tasks (writing definitions, verification of semantic and stylistic annotation, etc.)

## Conclusions: BUT! ...

- Examples generated by ChatGPT are often unnatural.
- Mistakes made by ChatUiT are similar to those of L2-learners of Russian.
- ChatUiT makes it possible to annotate newly added constructions semiautomatically, but should be checked by human annotators.

We can never completely rely on the output of ChatUiT. It has to be taken with caution, checked and sometimes corrected.

- Unnatural examples can help us **identify additional properties of constructions** that might be overlooked when analyzing only real corpus examples.
- It seems that "negative" data serves to refine and detail constructional definitions.

# Thank you!

### References

- Dunietz, Jesse, Lori S. Levin & Miriam R. L. Petruck. 2017. Construction detection in a conventional NLP pipeline. The papers from the 2017 AAAI Spring Symposium on Computational Construction Grammar and Natural Language Understanding. 178– 184.
- Imamovic, Mirela, Silvana Deilen, Dylan Glynn & Ekaterina Lapshinova-Koltunski. 2024. Using ChatGPT for annotation of attitude within the appraisal theory: Lessons learned. Proceedings of the 18th Linguistic Annotation Workshop (LAW–XVIII). 112– 123.
- Sag, Ivan A., Timothy Baldwin, Francis Bond, Ann Copestake & Dan Flickinger. 2002. Multi-word expressions: A pain in the neck for NLP. Proceedings of the 3<sup>rd</sup> International conference on intelligent text processing and computational linguistics (CICLing-2002). 1–15.
- Tayyar Madabushi, Harish, Laurence Romain, Dagmar Divjak & Petar Milin. 2020. CxGBERT: BERT meets Construction Grammar. Proceedings of the 28th International conference on computational linguistics. Barcelona, Spain: International Committee on Computational Linguistics (ICCL). 4020–4032.
- Tayyar Madabushi, Harish, Laurence Romain, Petar Milin & Dagmar Divjak. 2024. Construction Grammar and Language Models. In Fried, Mirjam & Kiki Nikiforidou (eds.), The Cambridge Handbook of Construction Grammar. <a href="https://doi.org/10.48550/arXiv.2308.13315">https://doi.org/10.48550/arXiv.2308.13315</a>
- Torrent, Tiago Torrent, Hoffmann, Thomas, Almeida, Arthur Lorenzi, and Turner, Mark. (2024). Copilots for Linguists: Al, Constructions, and Frames. Cambridge University Press. https://doi.org/10.1017/9781009439190

# extra slides

# Target groups of cxns expected to be problematic for LLMs

Constructions expressing assessment

Semantically distinct

Constructions expressing threats

Pragmatically distinct

Reduplicative constructions

Syntactically distinct > no lexical anchor

Discouse
"Echo"
constructions

Syntactically distinct > across two speakers

## BUT! in many cases it deviates from RusCon



The "NP.Dat nopa VP.Inf" construction is likely to be encountered at the **B1 (Intermediate)** level on the CEFR scale. Here's why:

- **Familiarity and Usage**: This construction is commonly used in everyday conversation to express that it is time for someone to do something, making it a practical and frequently encountered structure.
- **Complexity**: The construction involves basic grammatical structures such as the dative case and infinitive verbs, which are typically covered at the B1 level.
- Functionality: At the B1 level, learners are expected to handle a variety of routine tasks and express needs and obligations,

ChatUiT provides more meaningful CEFR assignment for intermediate to advanced levels.

# Rarely: erroneous assignment of polarity value

### večno VP

Ona večno opazdyvaet!

'She eternally arrives late'

Ona večno prixodit vovremja!

'She eternally arrives on time'

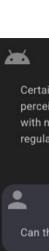
Can the sentence Она вечно приходит вовремя! be used with positive assessment?



23.02.25 21:31



While the construction "вечно V" typically carries a negative or ironic connotation, it is possible to use "Она вечно приходит вовремя!" with a positive assessment, but it would depend heavily on the context and the speaker's tone. If the speaker emphasizes the reliability and consistency of her punctuality in a genuinely appreciative manner, the sentence could be understood positively. However, because of the usual negative or sarcastic undertone associated with "вечно V," it might still be interpreted as ironic by some listeners. To clearly convey a positive assessment without ambiguity, using "Она всегда приходит вовремя" would be more straightforward.



23.02.25 21:27

Certainly! The construction "вечно V" in Russian is used to express the constancy or regularity of an action that the speaker perceives as habitual or annoying. The verb following "вечно" is typically in the present tense and describes an action that occurs with notable frequency. For example, "Она вечно опаздывает" translates to "She is always late," implying that she is consistently or regularly late, likely causing annoyance or frustration for the speaker.

Can this construction be used with positive polarity?



23.02.25 21:29



The construction "вечно V" in Russian is generally used with a negative connotation, often to express annoyance or frustration about a habitual action. It typically highlights actions that are perceived as undesirable or irritating. While it is grammatically possible to use "вечно V" with actions that are positive, it is less common and might sound unusual or sarcastic. For example, saying "Он вечно помогает" ("He is always helping") could be interpreted as genuine praise, but it might also come across as sarcastic, depending on the context and tone.

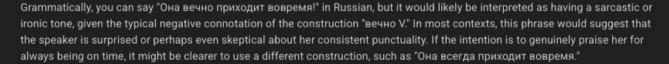


23.02.25 21:30

Can one say Она вечно приходит вовремя!



23.02.25 21:30



# Conclusions (3)

- ChatGPT can correctly manage semantic interpretation, fillers, register
- BUT! generation isolated examples somehow sound very unnatural and even bad to native speakers and you need to make multiple requests correcting your promt to finally get "good" – appropriate examples of a construction.
- Frankly speaking not just about expression opinion in Russian but specifically in a situation when you opinion contradicts the popular or mainstream opinion expressed by conversation partner
- Can be side effect of ChatUiT.
- Chto kasaetsa .. to ... Could not manage that the first slot names a domain
- One way \_ it is very good when you feed it langage data it can provide good interpretation, capturing nuances and offer you a generalization and insingst that you might not have had before
- But the other way is challenging for it go from general ... to specific examples and generating natural language data and examples

# Conclusions (2)

- ChatGPT can correctly manage semantic annotation of constructions
- our system of semantic annotation is both multi-layered and detailed (we allow several semantic tags for the same constructions, overlaps, multiple sematic motivations and links to multiple semantic groups and constructional families) it is still learnable! and applicable to new items in the database! (contra earlier studies, see for example Glynn et al. 2023)
- Can write definitions according to the proposed format and style
- Examples generated by ChatGPT should be taken with caution.
- Can be an intermediate stage for finding good examples of a construction often corpora do not provide search possibilities for certain combinations of words and their forms, and have limited texts that feature colloquial discourse.



Advanced search

Daily dose

Statistics



Eng Rus

- 1. Explanation of tabs
  - 1.1. Browse
  - 1.2. Advanced Search
  - 1.3. Daily Dose
  - 1.4. Statistics
  - 1.5. Instructions
  - 1.6. About
- 2. Abbreviations and symbols
- 3. Explanation of conventions
- 4. Explanation of terms
  - 4.1. Stylistic terms (Usage labels)

### 3. Explanation of conventions

Each slot and morphological specifications are verified by data from the Russian National Corpus, and supplemented by internet searches where data is sparse.

In representing the syntactic structure of constructions, we adopt the following strategies.

- 1. If a construction contains a noun phrase (NP) that can be used not only in the predicative function marked with the nominative case but also in other roles (e.g. object, instrument, etc.) encoded with oblique cases, we do not specify the case in the construction name: e.g. NP на нуле [lit. NP on zero], as in *Иммунитет на нуле* 'Immunity is at the zero level' vs. *Выписали пациента с иммунитетом на нуле* 'They released a patient with immunity at the zero level'.
- 2. If a construction contains a noun phrase (NP) that is only used in the predicative function, we indicate its form as the default NP-Nom (= a noun phrase with the head noun in the Nominative case), as it appears with the present tense copula: e.g. NP-Nom Cop NP-Nom VP-Inf (as in *Oh мастер готовить* 'He is good at cooking [lit. expert cook]').
- 3. We assume that the Instrumental case marking of the predicative NP that may appear with the past and/or future tense copula is a general rule of Russian grammar and this is mentioned in the commentary field on each entry and illustrated in examples: e.g. Он был мастером готовить 'He was good at cooking [lit. expert cook]'.

# 7. ChatUiT can assign proficiency level (CEFR) & meaningful motivation



their ability to express nuanced emotions and reactions in Russian.

## Chat-GPT examples

- We never planned to provide generated examples in RusCon. Our strategy was to provide authentic language data.
- Generated examples can be based on real data, and can inform us about possible additional types of uses that were not taken into account earlier
- Unnatural examples can trigger additional analysis in order to identify restrictions on fillers and contexts that we overlooked.
- We analyzed corpus examples to formulate constructional meaning. But it seems that "negative" data (what is not correct) serves us to refine and detail our constructional definitions.

Additional examples were all found in the Google search engine in fiction texts. Even though they sounded very marginal, they inform us about additional types of uses that were not taken into account earlier.