

CzeSL-SGT – a corpus of non-native speakers’ Czech with automatic annotation

The CzeSL-SGT corpus (*Czech as a Second Language with Spelling, Grammar and Tags*) includes transcriptions of essays written by non-native speakers of Czech, extending the “foreign” (ciz) part of the CzeSL-plain corpus (<http://ucnk.ff.cuni.cz/english/czesl-plain.php>) by texts collected in 2013. For more details see §1.

Word forms are tagged by word class, morphological categories and base forms (lemmas). Some forms are corrected and the resulting texts are tagged again. Original and corrected forms are compared and error labels are assigned. The annotation is assigned automatically, which necessarily results in some inaccuracy and error rate. For details see §2.

Most texts are equipped with metadata about the author and the text. See §3 for details.

The corpus is available either for on-line searching using the search interface of the Czech National Corpus (<https://kontext.korpus.cz/run.cgi/first?corpname=czesl-sgt>), see §3.3, or for download as a whole from the LINDAT data repository (<http://hdl.handle.net/11234/1-162>), see §3.4. The corpus is currently in Release 2. Some bugs present in the original release have been fixed and the version downloadable from LINDAT differs also in the format – the whole corpus is now a single XML document, where all annotation is represented as XML attributes.

For more about the *CzeSL* learner corpus and *AKCES*, the more general project of acquisition corpora, see <http://utkl.ff.cuni.cz/learncorp/> and <http://akces.ff.cuni.cz/>. The sites include bibliography lists. For more recent papers, see, e.g., Rosen et al. (2014), Štindlová et al. (2013), Jelínek et al. (2012).

1 Choice of texts

- Transcripts of essays of non-native speakers of Czech, written in 2009–2013
- Extends the **ciz** part of the CzeSL-plain corpus (<http://ucnk.ff.cuni.cz/czesl-plain.php>) by texts written in 2013
- 8,617 texts by 1,965 different authors with 54 different first languages
- 111 thousand sentences, 958 thousand words, 1 148 thousand tokens
- Without transcription markup, with the final author’s version restored

2 Annotation

Each token is labelled by the following attributes:

- `word` – original word form
- `lemma` – lemma of `word`; same as `word` if the form is not recognized
- `tag` – morphological tag of `word`; if the form is not recognized: X@-----
- `word1` – corrected form; same as `word` if determined as correct
- `lemma1` – lemma of `word1`
- `tag1` – morphological tag of `word1`
- `gs` – information on whether the error was determined as a spelling (S) or grammar (G) error; for grammar errors, `word` is mostly recognized
- `err` – error type, determined by comparing `word` and `word1` http://utkl.ff.cuni.cz/~rosen/public/SeznamAutoChybROR1_en.html.

word	lemma	tag	word1	lemmal	tag1	gs	err
Tén	Tén	X@-----	Ten	ten	PDYS1-----	S	Quant1
pes	pes	NNMS1-----A----	pes	pes	NNMS1-----A----		
míluje	míluje	X@-----	miluje	milovat	VB-S---3P-AA---	S	Quant1
svécho	svécho	X@-----	svého	svůj	P8MS4-----	S	Voiced
kamarada	kamarada	X@-----	kamaráda	kamarád	NNMS4-----A----	S	Quant0
-	-	Z:-----	-	-	Z:-----		
člověka	člověk	NNMS2-----A----	člověka	člověk	NNMS4-----A----		
.	.	Z:-----	.	.	Z:-----		

Table 1: Annotation of a sample sentence

In addition to the attributes listed above, the search interface of the Czech National Corpus offers “dynamic” attributes, derived from some positions of `tag` and `tag1`. They can be used in queries to specify values of morphological categories without regular expressions, to stipulate identity of these values in two or more forms to require grammatical concord or to compare values of a category for `word` and `word1`. These attributes are available for the following categories of the original and the corrected form:

- `k`, `k1` – word class (position 1 of the tag)
- `s`, `s1` – detailed word class (position 2 of the tag)
- `g`, `g1` – gender (position 3 of the tag)
- `n`, `n1` – number (position 4 of the tag)
- `c`, `c1` – case (position 5 of the tag)
- `p`, `p1` – person (position 8 of the tag)

The Czech morphological tagset is described at http://ufal.mff.cuni.cz/pdt/Morphology_and_Tagging/Doc/hmptagqr.html or http://ufal.mff.cuni.cz/pdt/Morphology_and_Tagging/Doc/doccc0pos.pdf.

The texts are anonymized by replacing personal names with appropriate forms of *Adam* and *Eva*. Names of smaller places (streets, villages, small towns) and other potentially sensitive data are replaced by `QQQ`. Unreadable characters or words are transcribed as `XXX`.

3 Metadata

Metadata are available for the new and for most of the old texts: 15 items about the author of the text and 15 items about the text itself. For a list of all attributes and values in Czech and English see http://utkl.ff.cuni.cz/~rosen/public/meta_attr_vals.html. The numbers of documents, listed according to specific attribute values, are given here: http://utkl.ff.cuni.cz/~rosen/public/sgt_counts_by_meta_en.html. The content of the individual items is explained below in §3.1 and §3.2.

Some or even all items may be missing for some texts: identification of the author is present in 96.7% texts, the first language in 96.3% texts. Missing items are represented as empty values. Some attributes may include multiple values, delimited by vertical bar (“|”).

Metadata are available in Czech and English. The Czech National Corpus site offers the Czech version, while the LINDAT data repository offers the entire corpus using their English version.

All the items are attributes of the `doc` element.

3.1 Data about the author of the text (the student)

- `s_id` – identification; a single value: character string, e.g. `TOU_H305`
- `s_sex` – sex; one of the values:
 - `m` – male
 - `f` – female
- `s_age` – age; a single value: integer

- `s_age_cat` – age category; one of the values:
 - 6-11; 12-15; 16-
- `s_L1` – first language; one of the values: two-character code according to the standard ISO 639-1, e.g. `sq` (Albanian); or three-character code ISO 639-3 if necessary, e.g. `xal` (Kalmyk) or `bem` (Bemba), see http://en.wikipedia.org/wiki/List_of_ISO_639-1_codes and http://en.wikipedia.org/wiki/ISO_639-3.
- `s_L1_group` – language group according to the first language; one of the values:
 - IE – Indo-European non-Slavic
 - nIE – non-Indo-European
 - S – Slavic
- `s_other_langs` – knowledge of other languages; one or more of the values: ISO code (see `s_L1`)
- `s_cz_CEF` – proficiency in Czech at the time of writing; one of the values:
 - A1; A1+; A2; A2+; B1; B2; C1; C2
- `s_cz_in_family` – knowledge of Czech in the family; one or more of the values:
 - mother; father; partner; sibling; 3 (3 family members); other; nobody
- `s_years_in_CzR` – length of stay in the Czech Republic in years; one of the values:
 - -1; 1; -2; 2-
- `s_study_cz` – past or present study; one or more of the values:
 - 1to1 – individual tutoring
 - paid
 - TY – self-study
 - university
 - foreign
 - primary-secondary
 - other
- `s_study_cz_months` – length of study of Czech in months; one of the values:
 - -3; 3-6; 6-12; 12-24; 24-36; 36-48; 48-60; 60-
- `s_study_cz_hrs_week` – intensity of study of Czech in hours per week; one of the values:
 - -3; 5-15; 15-
- `s_textbook` – textbook used in the past or present by the student; one or more of the values:
 - BC – Basic Czech
 - CC – Communicative Czech
 - CE – Čeština pro ekonomy
 - CMC – Chcete mluvit česky?
 - CpC – Čeština pro cizince
 - ECE – Easy Czech Elementary
 - NCSS – New Czech Step by Step
 - other
- `s_bilingual` – bilingual; one of the values:
 - yes; no

3.2 Data about the text

- `t_id` – identification; a single value: character string, e.g. `TOU_H305_442`
- `t_date` – date of the text collection; a single value: date in the format `YYYY-MM-DD`
- `t_medium` – medium of the text; one of the values:
 - `manuscript`; `pc`
- `t_limit_minutes` – time limit for writing the text in minutes; one of the values:
 - `10`; `15`; `20`; `30`; `40`; `45`; `60`; `other`; `none`
- `t_aid` – permitted aid; one or more of the values:
 - `ano`; `dictionary`; `textbook`; `other`; `none`
- `t_exam` – was the text written as a part of an exam?; one or more of the values:
 - `yes`; `interim`; `final`; `n/a`
- `t_limit_words` – size limit in the assignment; one of the values:
 - `20`; `20-`; `25`; `30`; `35-`; `40`; `40-`; `50`; `50-`; `60`; `60-`; `70`; `70-`; `80`; `80-`; `90`; `90-`; `100`; `100-`; `120`; `120-`; `150`; `150-`; `170`; `180`; `200`; `200-`
- `t_title` – title of the essay; one or more values: character string, e.g. `Událost, která změnila můj život`
- `t_topic_type` – type of the topic; one of the values:
 - `general`; `specific`
- `t_activity` – activity before writing the text; one of the values:
 - `exercise`; `discussion`; `visual`; `vocabulary`; `other`; `none`
- `t_topic_assigned` – topic specified in the assignment; one of the values:
 - `multiple choice`; `specified`; `free`; `other`
- `t_genre_assigned` – genre specified in the assignment; one of the values:
 - `free`; `specified`
- `t_genre_predominant` – genre predominant in the resulting text; one of the values:
 - `informative`; `descriptive`; `argumentative`; `narrative`
- `t_words_count` – actual number of words; a single value: integer
- `t_words_range` – range of the actual number of words; one of the values:
 - `-50`; `100-149`; `150-199`; `200-`; `50-99`

3.3 Searching the corpus

The corpus can be searched from the unified search interface of the Czech National Corpus (<https://kontext.korpus.cz/run.cgi/first?corpname=cze-sl-sgt>). The `cze-sl-sgt` corpus is in the category **learner**, **synchronic**, **written** and **Czech**. With the **Query Type** set to **Basic** and no other specifications, a string entered in the **Query** field returns sentences where the form occurs in the original, uncorrected text. For more advanced queries, including references to tags, lemmas, error types, corrected forms and metalanguage attributes, the **Query Type** should be set to **CQL** and/or the settings in **Specify query according to the meta-information** modified. For general help on using CQL see <http://www.sketchengine.co.uk/documentation/wiki/SkE/CorpusQuerying>.

3.4 Format of the texts

This part is relevant for whole texts, available from the LINDAT repository.

Data about the text and sentences are represented as XML elements with corresponding attributes. In Release 1 (<http://hdl.handle.net/11858/00-097C-0000-0023-95B1-E>) the text itself is represented in tab-delimited columns, in the order shown in Table 1. A sample text is shown below.

```
<doc t_id="UJA2_PH_003" t_date="2010-12-21" t_medium="manuscript" t_limit_minutes="45" t_aid="none"
t_exam="yes|interim" t_limit_words="25" t_title="E-mail kamarádce/kamarádovi" t_topic_type="general"
t_activity="" t_topic_assigned="specified" t_genre_assigned="specified"
t_genre_predominant="informative" t_words_count="30" t_words_range="-50" s_id="UJA2_PH" s_sex="m"
s_age="17" s_age_cat="16-" s_L1="vi" s_L1_group="nIE" s_other_langs="" s_cz_SER="A1"
s_cz_in_family="" s_years_in_CzR="" s_study_cz="university" s_study_cz_mesice="" s_study_cz_hrs_week="15-"
s_textbook="NCSS" s_bilingual="no">
<s id="1">
mám mít VB-S---1P-AA--- mám mít VB-S---1P-AA---
dobře dobře Dg-----1A---- dobře dobře Dg-----1A----
. . Z:----- . . Z:-----
</s>
<s id="2">
V v RR--4----- V v RR--4-----
neděli neděle NNFS4-----A---- neděli neděle NNFS4-----A----
dival dival X@----- dival dívat VpYS---XR-AA--- S Quant0
jsem být VB-S---1P-AA--- jsem být VB-S---1P-AA---
se se P7-X4----- se se P7-X4-----
na na RR--6----- na na RR--6-----
televizi televize NNFS6-----A---- televizi televize NNFS6-----A----
a a J^----- a a J^-----
uklízěl uklízěl X@----- uklízet uklízet VpYS---XR-AA--- S Quant0|Caron1
jsem být VB-S---1P-AA--- jsem být VB-S---1P-AA---
. . Z:----- . . Z:-----
</s>
<s id="3">
Ano ano TT----- Ano ano TT-----
přijdu přijít VB-S---1P-AA--- přijdu přijít VB-S---1P-AA---
se se P7-X4----- se se P7-X4-----
tebe ty PP-S2--2----- tebe ty PP-S2--2-----
do do RR--2----- do do RR--2-----
kina kino NNNS2-----A---- kina kino NNNS2-----A----
a a J^----- a a J^-----
taky taky Db----- taky taky Db-----
mám mít VB-S---1P-AA--- mám mít VB-S---1P-AA---
čas čas NNIS4-----A---- čas čas NNIS4-----A----
jen jen TT----- jen jen TT-----
večer večer Db----- večer večer Db-----
, , Z:----- , , Z:-----
večer večer Db----- večer večer Db-----
půjdeme jít VB-P---1F-AA--- půjdeme jít VB-P---1F-AA---
do do RR--2----- do do RR--2-----
kina kino NNNS2-----A---- kina kino NNNS2-----A----
. . Z:----- . . Z:-----
</s>
<s id="4">
Tvoje tvůj PSHS1-S2----- Tvoje tvůj PSHS1-S2-----
kamarád kamarád NNMS1-----A---- kamarád kamarád NNMS1-----A----
. . Z:----- . . Z:-----
</s>
</doc>
```

In Release 2 (<http://hdl.handle.net/11234/1-162>) the whole corpus is an XML document with each text as a `div` element. Annotation of each word is represented as XML attributes of a `word` element:

```
<word lemma="dival" tag="X@-----" word1="díval" lemma1="dívat"
tag1="VpYS---XR-AA---" gs="S" err="Quant0">dival</word>
```

4 Acknowledgment

There would not be any corpus like this without the efforts of many students of Czech, and, indeed, without the devoted collectors and transcribers of texts. Collection and transcription of new data and metadata, including

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