Challenges in Automating Style Checking for Legislative Texts

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Motivation

Current Situation:

① Legislative texts should meet linguistic quality requirements.

② Authorities have published style guidelines for legislative drafting.

③ Language experts review and edit the drafts.

Problem:

① Manual assessment is time-consuming.

② Authors and editors are prone to overlook some of the violations.

Aim:

To develop methods for an automated detection of
violations of existing style guidelines in legislative drafts.

Overview

- Introduction

- Types of rules
- Approach
- Challenges

- Conclusion

Rule types in style guidelines

Terminology:

① Abbreviations of titles should be less than 5 characters.

② Word “*beziehungsweise*” (respectively) should not be abbreviated as *bzw.*

Syntax:

① The main verb of a sentence should be introduced as early as possible.

② In general, avoid passive.

Discourse:

① Only include normative content; do not include explanations, justifications and descriptions.

② Put conditions before their consequences.

Approach

Step 1: Pre-processing

- Text segmentation: chapters, sections, articles, …
- Part-of-speech tagging (TreeTagger)
- Morphological analysis (Gertwol)
- Parsing (ParZu)
- Context recognition: legal definitions, statements of purpose, …

Step 2: Error detection

- Searching the preprocessed text for violations of style guidelines

Challenges

Pre-processing

- ➢ Peculiarities of legislative language
  - ➔ Domain-specific pre-processing required

Error detection

- ➢ Peculiarities of legislative style guidelines
  - ➔ Domain-specific error detection required

Challenges for error detection

① **Context-dependent rules**
The application of individual rules is dependent on their context.

② **Abstract rules**
Many rules are too abstract for an automatic detection of violations.

③ **Conflicting rules**
Rules do not constitute absolute constraints and may conflict with other rules.

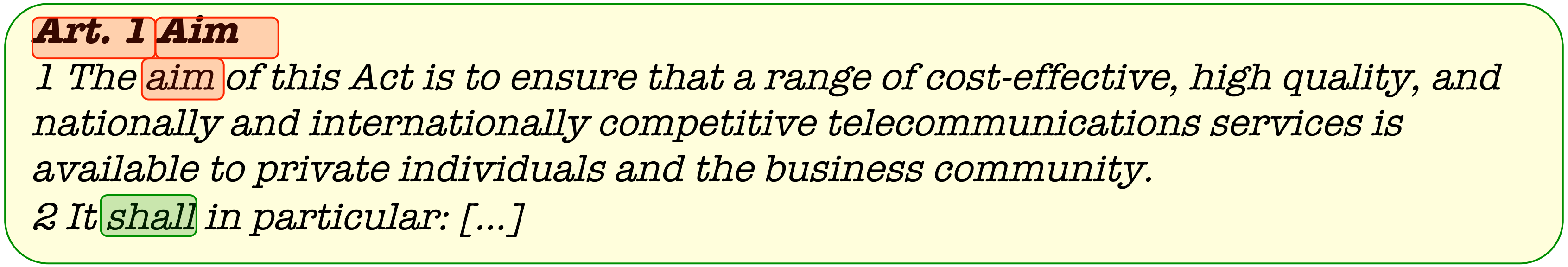
Challenge 1: Context-dependent rules

Don‘t use the modal verb „sollen“ (should/shall)
– unless it is in the statement of purpose.

Detection of violations of this rule:

① Detect statements of purpose (search for linguistic cues).

② Detect „sollen“ in provisions other than statements of purpose.



Art. 1 Aim

1 The aim of this Act is to ensure that a range of cost-effective, high quality, and nationally and internationally competitive telecommunications services is available to private individuals and the business community.

2 It shall in particular: […]

➔ Domain-specific pre-processing for context recognition needed.

Challenge 2: Abstract rules

Only include normative content;
do not include explanations, justifications and descriptions.

Detection of violations of this rule:

① Determine linguistic cues (e.g. discourse markers) for explanations, justification, descriptions, ...

② Search for these discourse markers.

Private household aids who give birth to a child during the processing of their permit may remain in Switzerland until their employment contract expires […]. Therefore, they have to leave the country after their contract has expired.

(Art. 16 Abs. 1 VPH, Version 12, 11 June 2010, emphasis added)

➔ **The domain-specific concretisation of the rules needed.**

Challenge 3: Conflicting rules

- Put conditions before their consequences. ➔ not violated
- The main verb of a sentence should be introduced as early as possible ➔ violated

Detection of violations of this rule:

- Determine linguistic cues for conditions and consequences and search for them.
- Determine the main verb of a sentence and search for it.

As far as the offender fails to pay the monetary penalty despite being granted an extended deadline for payment or a reduced daily penalty unit or fails to perform the community service despite being warned of the consequences,

the alternative custodial sentence is executed.

Judgment of these rules:

➔ Weighting of conflicting rules needed.

➔ In-depth corpus-based studies

Corpus for linguistic studies

The Swiss Legislation Corpus (SLC):

① comprises the whole body of contemporary legislative texts of the Swiss Confederation.

② is a parallel corpus (German, French and Italian).

- ➢ **1,915 texts** per language, currently.
- ➢ **800 to 1.3 million words** per text

③ is a corpus with inter- and intra-textual time depth.

- ➢ Inter-textual time depth: ca. **150 years**
- ➢ Inter-textual time depth: up to **122 years**

④ is an annotated corpus:

- ➢ **textual meta information** (text title, type of law…)
- ➢ **text segmentation** (article, paragraph, sentence boundaries)
- ➢ **date stamping** (date of origin of each individual text segment)
- ➢ **part-of-speech tagging** (TreeTagger)
- ➢ …

Conclusion

Aim of the project:

To develop methods for an automated detection of violations of guidelines for legislative drafting

Challenges for error detection:

① Context-dependent rules

➔ Domain-specific pre-processing for context recognition needed

② Abstract rules

➔ Domain-specific concretization of the rules needed

③ Conflicting rules

➔ Weighting of rules needed

In-depth **corpus-based research into legislative language** is a prerequisite for the development of automated style checking methods for the domain.

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Homepage of our project:
http://www.cl.uzh.ch/research/maschinellestilpruefung/gesetzestextanalyse_en.html