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: [...]
Challenge 2: Abstract rules

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

Detection of violations of this rule:

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

2️⃣ 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