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Recent Advancements on the New Online Proofreader of Czech

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Let's state the facts

1. The best proofreader of Czech is part of proprietary system
2. There is no alternative (free of proprietary) providing similarly good results

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The project

In 2018 a new project was submitted to and accepted by the Technology Agency of the Czech Republic (TA ČR).

- Goal: New web-based proofreading software
- Started in February 2019, ending in 2022

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Used tools

- Tools developed in the NLP Center, FI MU
- Rulesets made by students
  (bachellor/master theses, doctoral studies)
- Additional external datasets or tools

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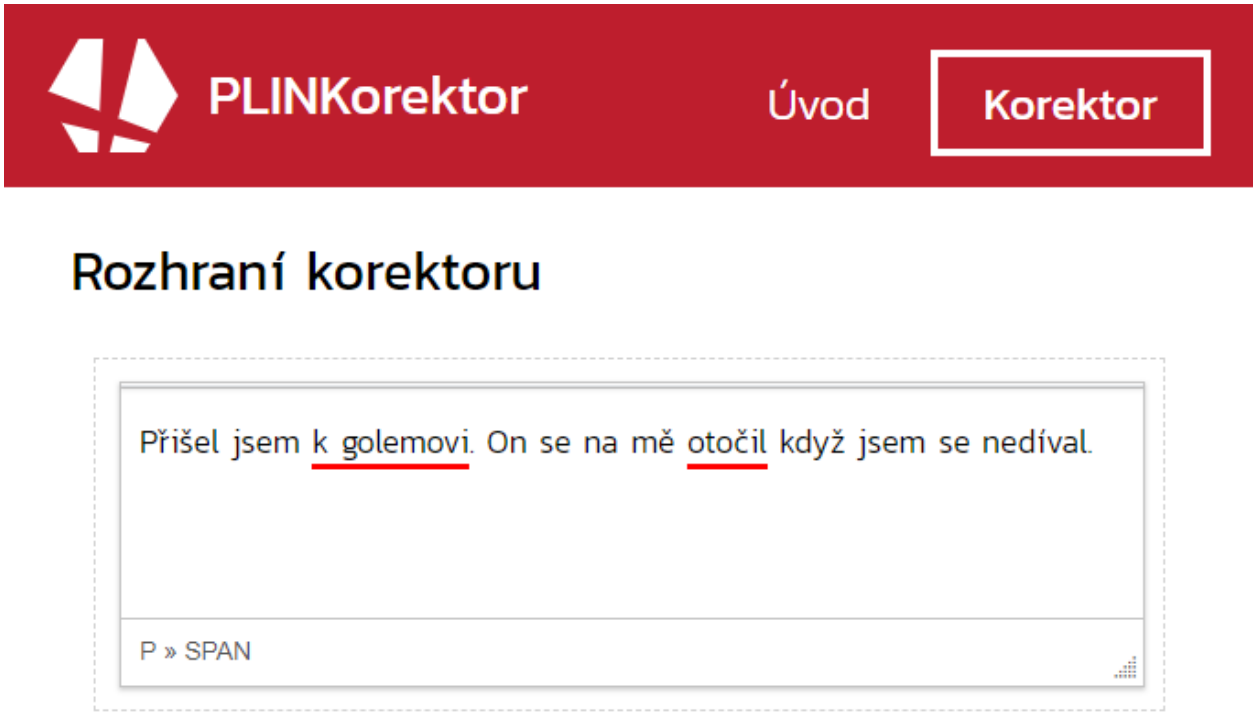
The current interface



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The first version

- Based on on-line text processor TinyMCE
- Series of separate modules
- Javascript & AJAX connection to backend (usually in Python) if necessary

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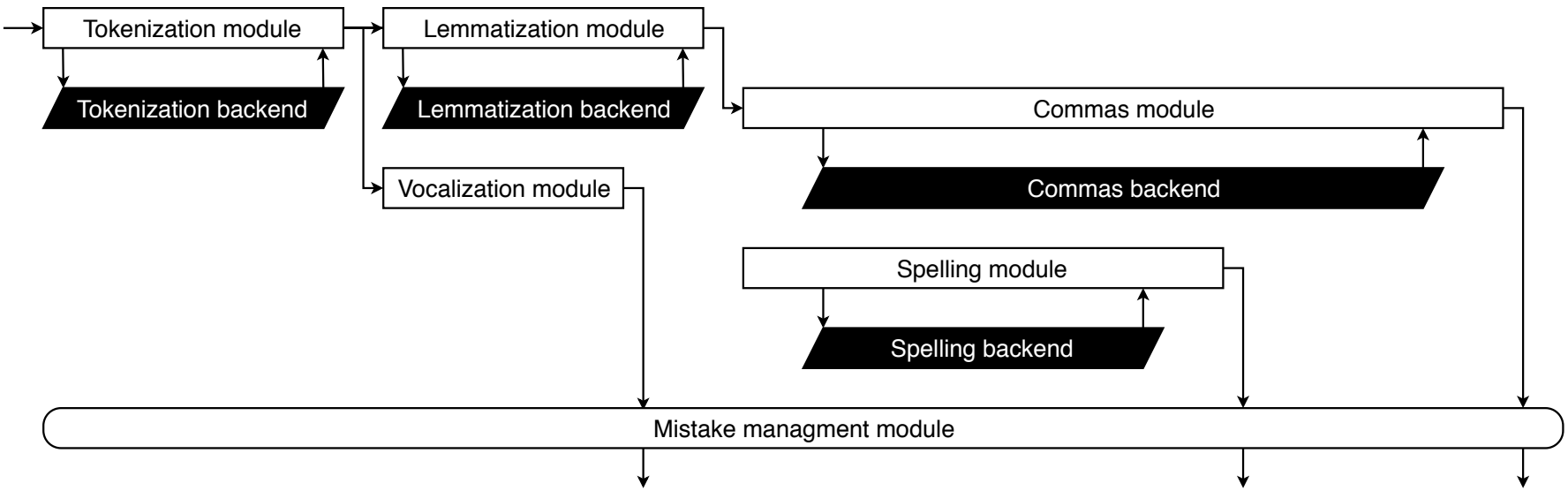
The first version



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The pros & cons of the first version

Pros

- Easy developement of separate modules
- Little to no bottlenecking due to asynchronous processing

Cons

- Too tightly bound to the single piece of software (TinyMCE)
- No control over potential extensions
- User-unfriendly installation process

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The second version

- Proofreader code independent on TinyMCE
- TinyMCE edition contained single module
- Javascript & AJAX connection to backend (usually in Python) if necessary
- Unfinished due to change of the assignment

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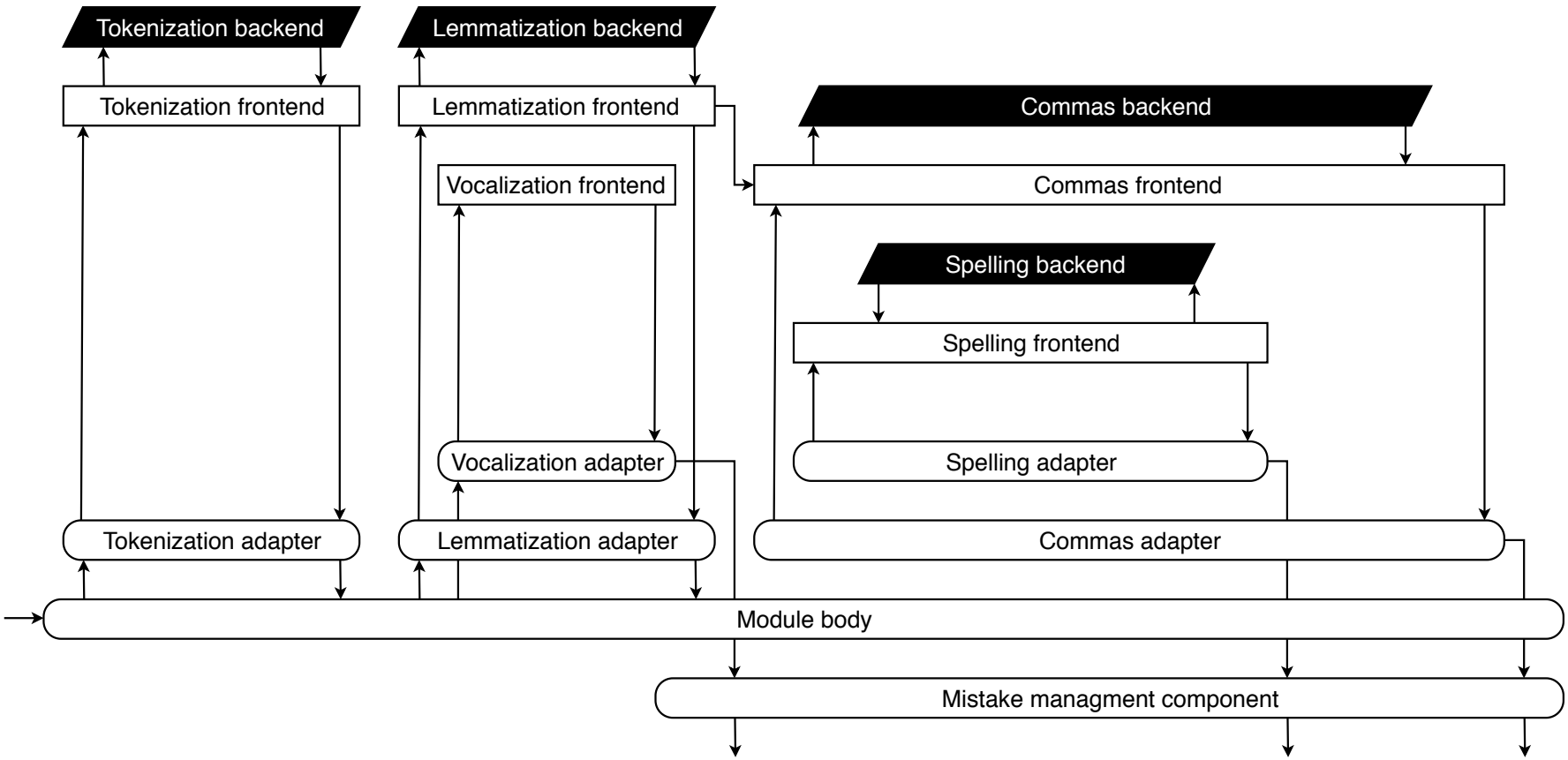
The second version



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The pros & cons of the second version

Pros

- Keeps most of the advantages of the first version
- Strict separation between proofreader and text processor code $\Rightarrow$ portability
- Improvement in user-friendliness as the proofreader (TinyMCE version) could have been distributed as a single package

Cons

- Not very suitable for non-web based applications

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The third and current version

- Brand new $\Rightarrow$ first preview available from November
- We were addressed by potential customer
  $\Rightarrow$ slight alteration of the assignment
- More suitable for non-web based applications
- Single API written in Python

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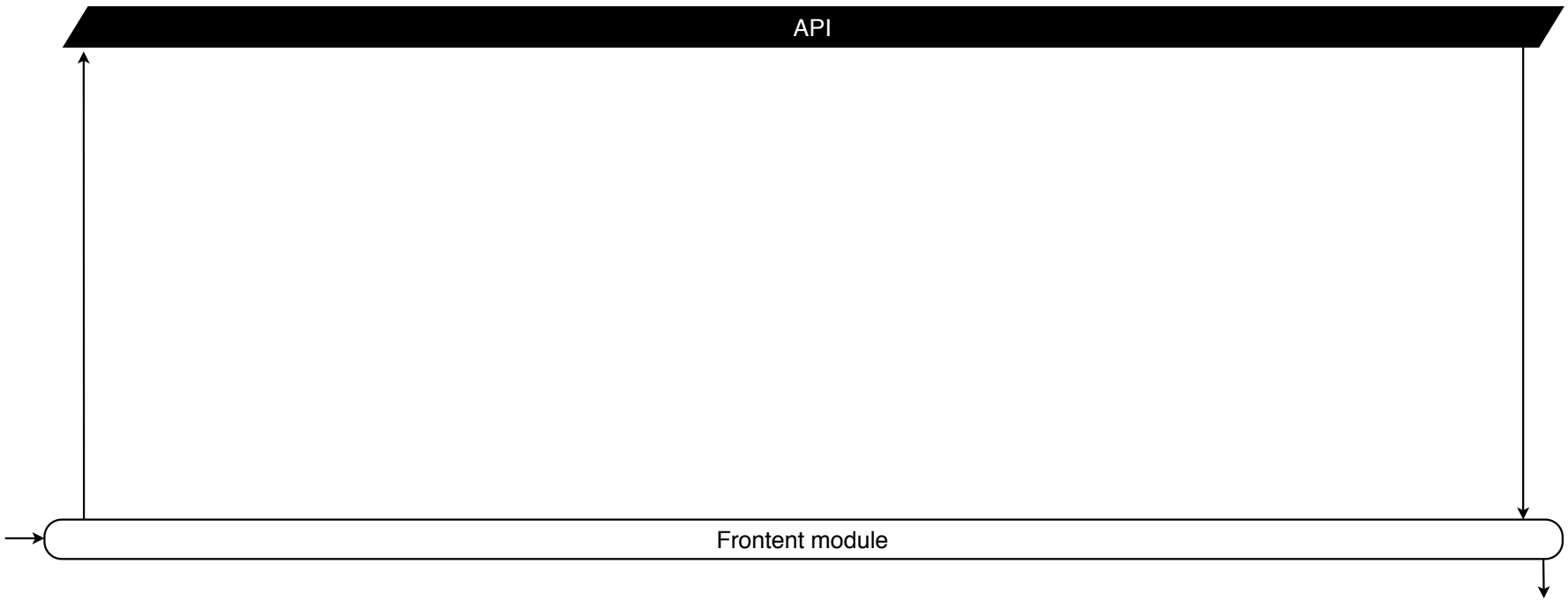
The third and current version



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The pros & cons of the third version

Pros

- Easy to use for web based apps and non-web based apps alike
- Portability improvements due to single input
- Better for collecting statistical data for future improvement
- Easy to be used for automatic testing

Cons

- Single output $\Rightarrow$ possibly lower performance

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Currently included and worked on modules

Current modules

- *commas*, *non-grammatical constructions*, *"other"*
  usage of SET parser for proofreading

Worked on modules

- *spellchecker*
  data from Internet Language Manual
  (Internetová jazyková příručka, IJP)
- *interpunction*
  regular expressions designed by Zbyněk Michálek

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Processing speed

- Optimatization of used data structures (named tuples instead of dictionaries)
- Asynchronous processing using `asyncio` module – already included
- Multiprocessing using `multiprocessing` module – to be included

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Big data testing & alternative tagger

- We are getting testing data from the cooperating news company
- Currently the normalized input is being made for the big data testing to be started
- Optional use of different morphological analysis tools to achieve the best performance
- MorphoDiTa is currently being implemented
- We will surely try the new neural tagger presented earlier by Marie Stará

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Thank you for your attention!

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