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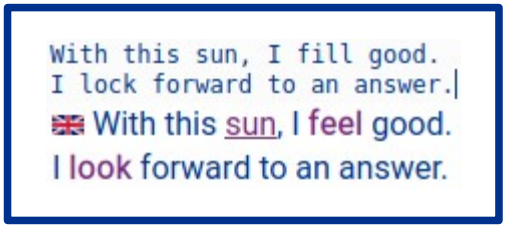
NeuroSpell

The only fully automatic corrector for spelling and grammar, based on neural technology (Deep Learning)

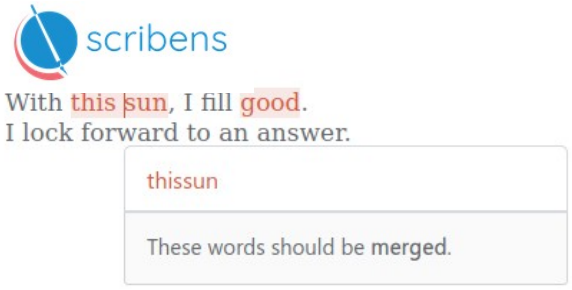
http://neurospell.com

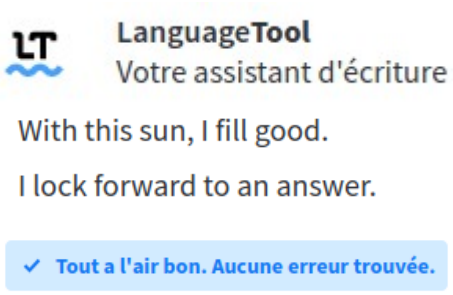
NeuroSpell

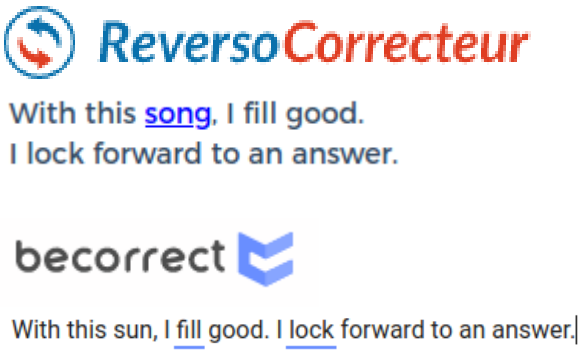
- Designed for automatic correction decisions
  - ➲ Tunable decision threshold
- Based on a neural statistical model
  - ➲ Trainable on specific in-domain data
  - ➲ Trainable on any language
- Speech-To-Text or OCR errors may be very different from human errors
  - ➲ Adaptable for specific error types
  - ➲ Can produce corrections on grammatically correct sentences
- Rewrites all words of a sentence taking each sentence as a whole
  - ➲ Can correct errors with far dependencies in a sentence
  - ➲ Unchanged words are validated

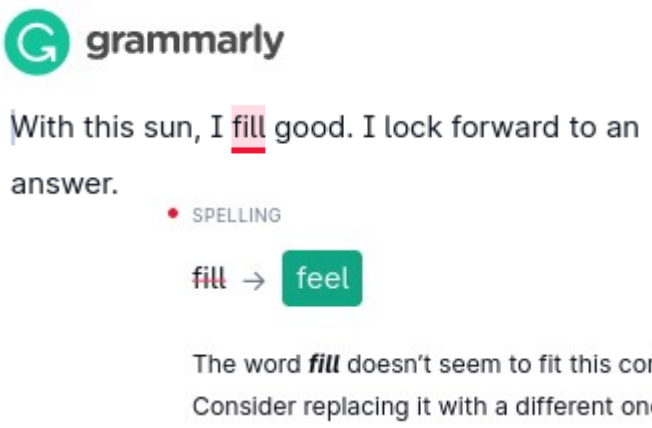


Checking is not correcting









Rule-base systems are designed to find doubtful words.
They may provide with suggestions to be decided on manually.

Rule-base checkers

1) Grammar analysis (verb, noun, adjective, etc.)
2) Lexical and grammar inconsistencies detection (dictionaries, hand-written rules, statistic models)

- PRO:
  - Often explainable
- CONS:
  - Hard to use for automatic correction (checking is not correcting / doubt vs choice)
  - May be confused by errors or unknown words
    The grammar analysis my be wrong even on good sentences
  - Hardly handle far dependencies in a sentence
  - Hardly find errors providing with a grammatically correct sentence
  - Untagged/unchanged words are not validated
  - Best ones are not available in a lot of languages
  - Hard to adapt to domain-specific vocabulary and phrases
  - Not intended to handle machine-specific speech to text errors (built for human errors)

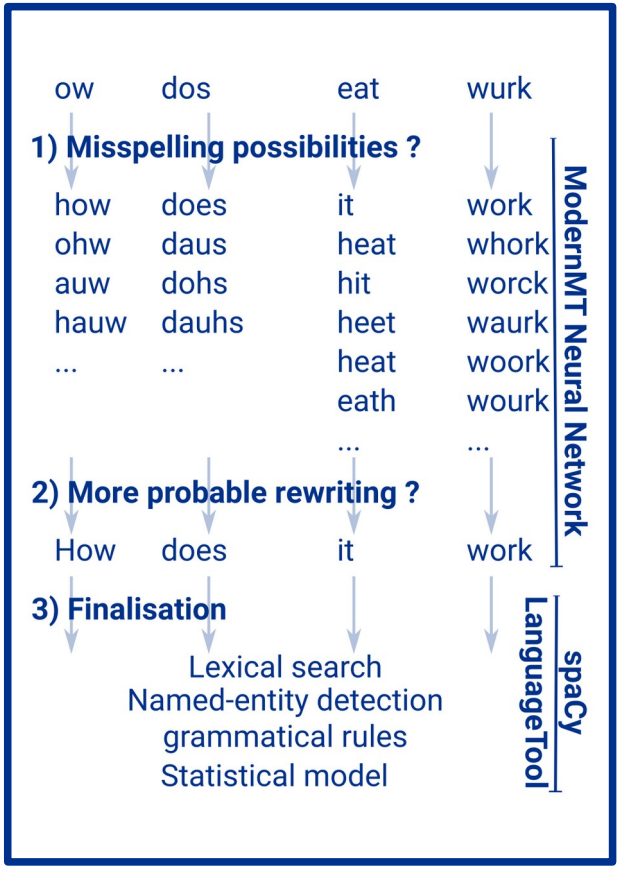
Take a free tour
to free your mind.

Take (VERB)
a (DET)
free (ADJ)
tour (NOUN)
to (PART)
free (VB)
your (PRON)
mind (NOUN)
. (PUNCT)

NeuroSpell

1) Evaluates all ways to re-write each word or set of words of a sentence (possible variations need to be defined or collected)
2) Produces the most statistically probable written form taking into account the statistical plausibility of the sentence to be corrected (tunable balance threshold)

- PROS:
  - Designed to really perform automatic corrections
  - Produced quality is (nearly) insensitive to pre-defined errors (writing variations) whatever their nature and their number in a sentence
  - Can handle far dependencies in a sentence (sentence analysed as a whole)
  - Can correct errors producing grammatically correct sentences (statistical effect)
  - Unchanged words are validated (according to possible writing variants)
  - Can be built for any new language at a reasonable cost (currently 20 languages available)
  - Trainable on domain-specific vocabulary or phrases (large training data needed)
  - Can be trained to correct very machine-specific speech to text errors
  - Is combined with a rule-base checker (hybrid system)
- CON:
  - Often not explainable



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Etienne Monneret

- 10 years: multi-lingual document industry (Jouve)
- 14 years: translation software edition (Lingua et Machina)
- 3 years: Linguistic AI expert / software developer (cubAIx founder)
  - Unique neural-based automatic spell and grammar corrector
  - Automatic terminology extraction
  - Semantic pairing / indexing
  - Domain-adapted Neural Machine Translation (NMT)
  - Translation workflow / CAT tool / Translation Memory
  - … multi-lingual document comparison, stereoscopic video editor, etc.

http://cubaix.com