STYLECHECK

HARMONISING ACCURATE NEWS COVERAGE THROUGH AI

AFP ● 𝕰 **Irish Examiner**

WHAT IS
STYLECHECK?
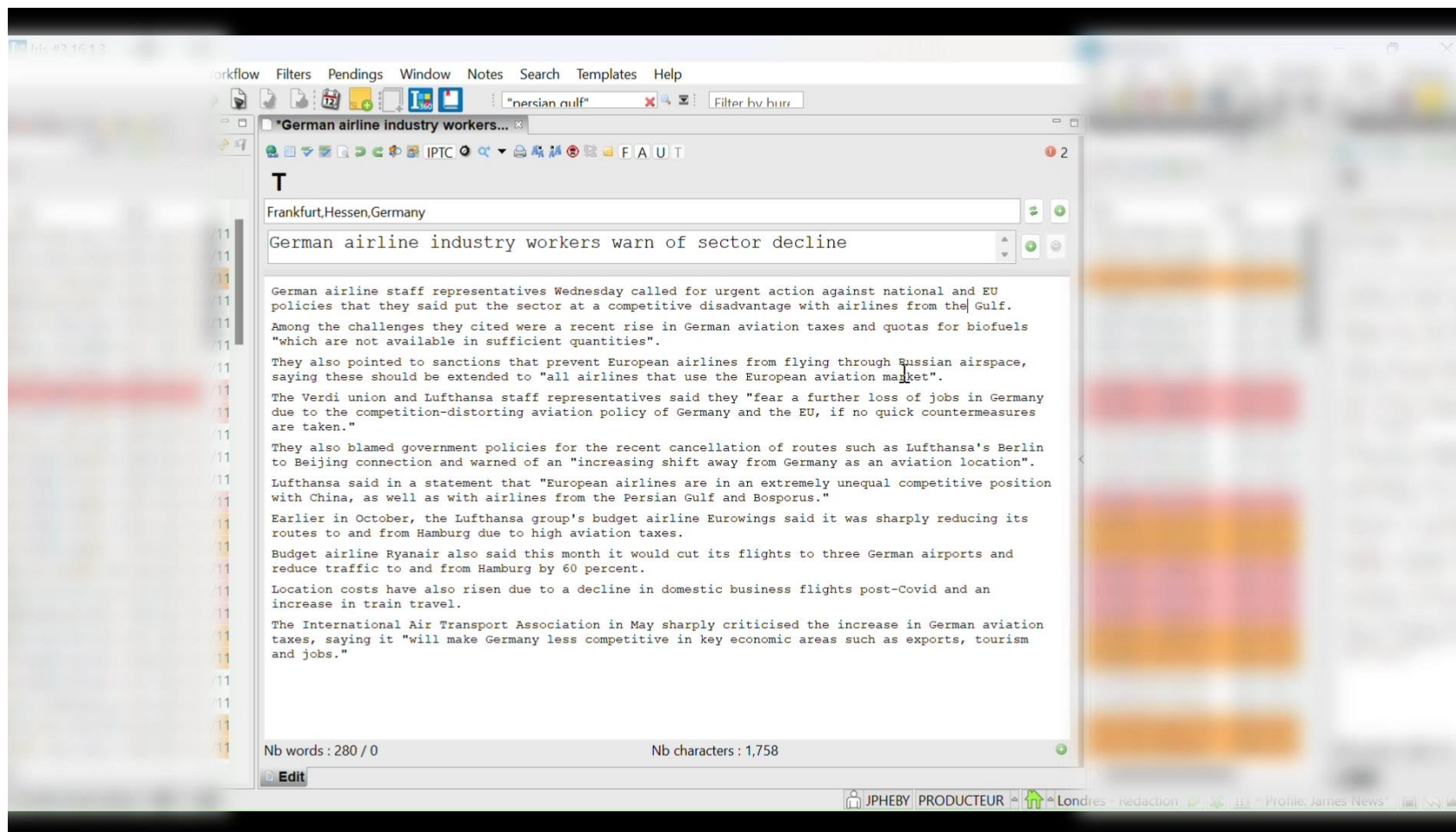
01

CHALLENGES

CHALLENGES
THE STYLE GUIDE

Name	Description	This is correct usage	This is incorrect usage
Astrologer / astronomer	An astrologer claims to predict the future by analysing the stars. An astronomer is a scientist who studies the stars. Do not confuse the two	The astronomer published her research on star formations in the latest science journal	Jane, an astronomer, provides horoscopes for her clients

01. TRAINING AN LLM

- Create and label millions of incorrect and correct examples of usage

- Training resources

- Cost and time

- Data privacy

- Not agnostic

Model: Dilbert-base-uncased
Library: Hugging Face
Type: Sequence classification

```
{
    "text": "Jane, an astronomer, provides horoscopes for her clients.",
    "label": 0 // Incorrect usage
}
{

    "text": "The astronomer published her research on star formations in the latest science journal.",
    "label": 1 // Correct usage
}
```

DESIGN APPROACHES

02. ONE BIG PROMPT

- Generally accurate results on smaller prompts

- Advanced models gave best results

- Temperature = 0

- Standardized JSON output
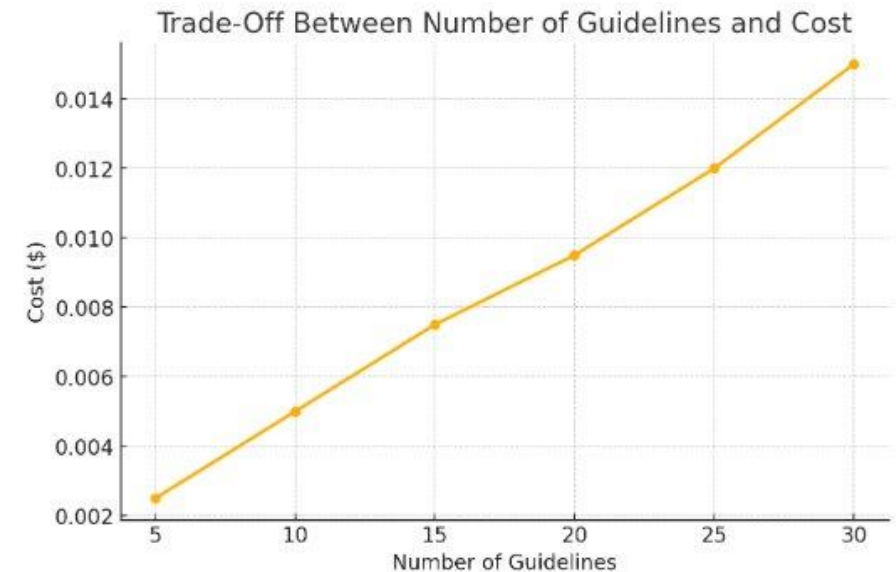
CHALLENGES
DESIGN APPROACHES

02. ONE BIG PROMPT

- Prompt takes too long to run

- The more guidelines in the prompt, the higher the cost in AI tokens

- The longer the prompt, the more inaccuracies crept in

- Checking a 515-word article against 20 rules cost 0.0095 dollars and took 5 seconds to run

```
Article Statistics:
-------------------
- Number of words in article: 515
- Number of guidelines run: 20
- Speed: 5 seconds
- Cost: $0.0095
```


Trade-Off Between Number Of Guidelines And Cost

03. RETRIEVAL AUGMENTED GENERATION
RAG
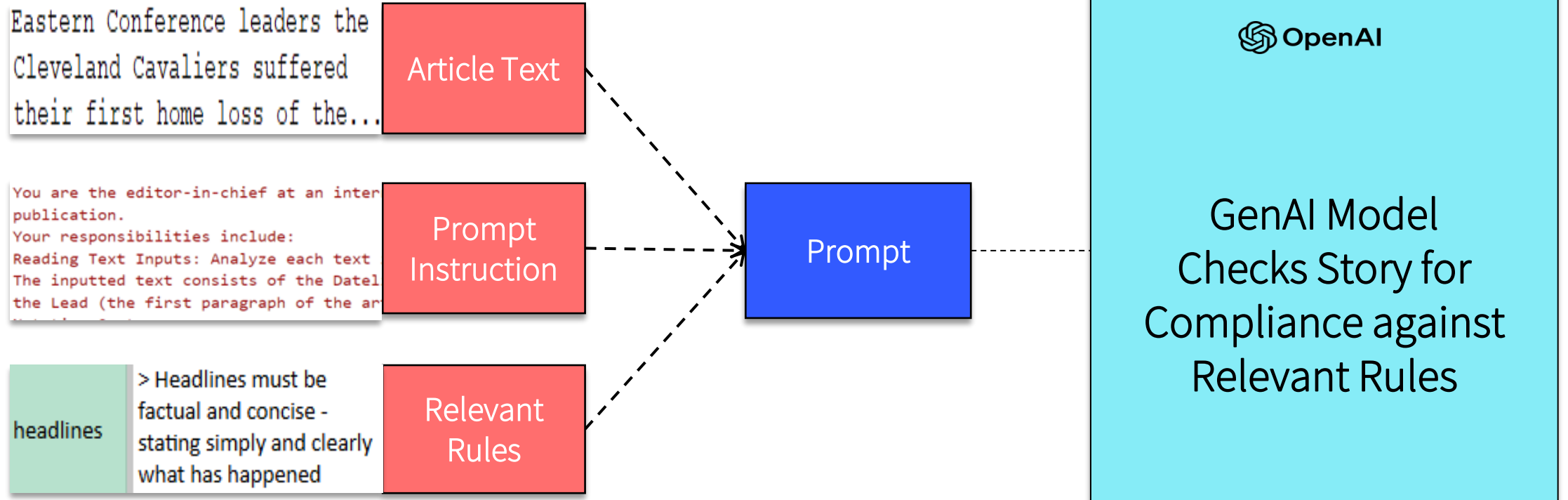
CHALLENGES
DESIGN APPROACHES

03. RAG

No costly and time-consuming training

Laser focus on style guide

Eliminates key data protection issues

Quick and easy to update the rules
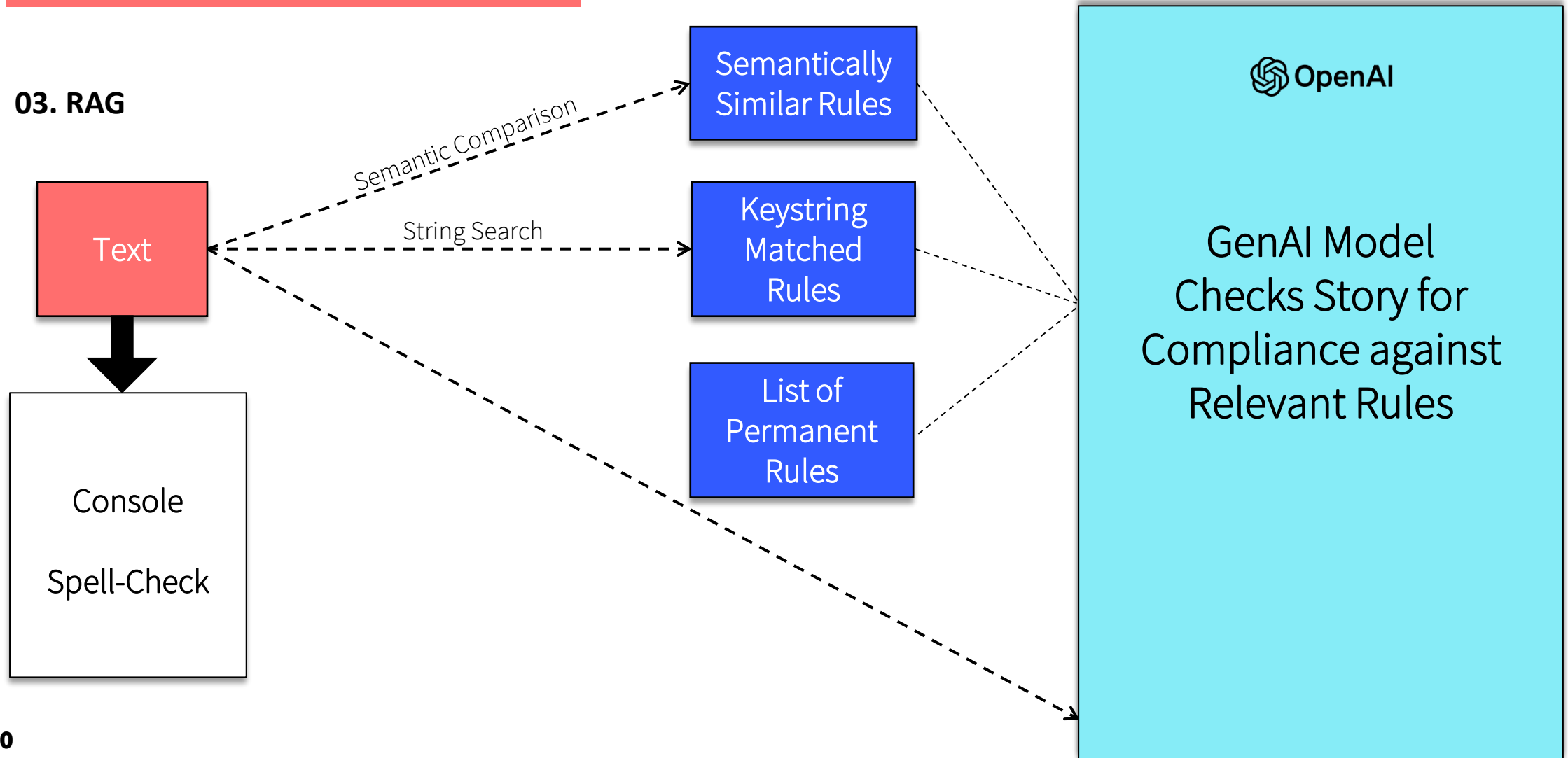
Allows app to be style guide and platform agnostic

Easy to switch in new versions of the LLM

DESIGN APPROACHES

03. RAG

Text

Semantic Comparison

String Search

Semantically
Similar Rules

Keystring
Matched
Rules

List of
Permanent
Rules

OpenAI

GenAI Model
Checks Story for
Compliance against
Relevant Rules

Console

Spell-Check

DESIGN APPROACHES

04. SEMANTIC SEARCH

1) Create embedding vectors for guidelines

| Guidelines | → | Embeddings | → | Storage (Pinecone) |

2) Create embedding vector for article text

| Article Text | → | Embeddings |

PINECONE COMPUTES SIMILARITY SCORES

Result

Most Relevant Rules for this Article

PROMPT ENGINEERING

```python
prompt = f""" You are the editor-in-chief at an international news agency, tasked with revising and verifying all copy before
             publication.
             Your responsibilities include:
             Reading Text Inputs: Analyze each text input against established guidelines.
             The inputted text consists of the Dateline in the first sentence, the Headline in the second sentence,
             the Lead (the first paragraph of the article itself) in the third sentence and the rest of the article body thereafter.
             Notation System:
             [>] is used to denote a main rule.
             [~] is used for background information or definitions.
             Compliance Check: Assess compliance only against the main rules ([>]) and the background or definitions ([~]),
             which also serve as context.
             Key Guidelines:
             Output Requirements:
             Return a JSON array with:
             A single overall value of 'isArticleCompliantWithAllRules' (true/false).
             a separate array for each non-compliant rule with the key issuesOfNonCompliance.
             Each non-compliant rule description with key 'ruleName'.
             Each non-compliant rule description with key 'ruleDescription'. If the rules description contains the '>' symbol,
             replace it with a line break and and indent the new line five spaces
             The non-compliant piece of text with key 'textWithProblem'.
             The suggested alternative with key 'suggestedAlternative'.
             The explanation of the issue with key 'explanation'
             """
```

CHALLENGES
PERFORMANCE

Hallucinations/False positives

Suggestion 3:
  Text with potential issue:
   'Iranian President Masoud Pezeshkian'
  Rule Title:
   'iran'

Suggested Alternative:
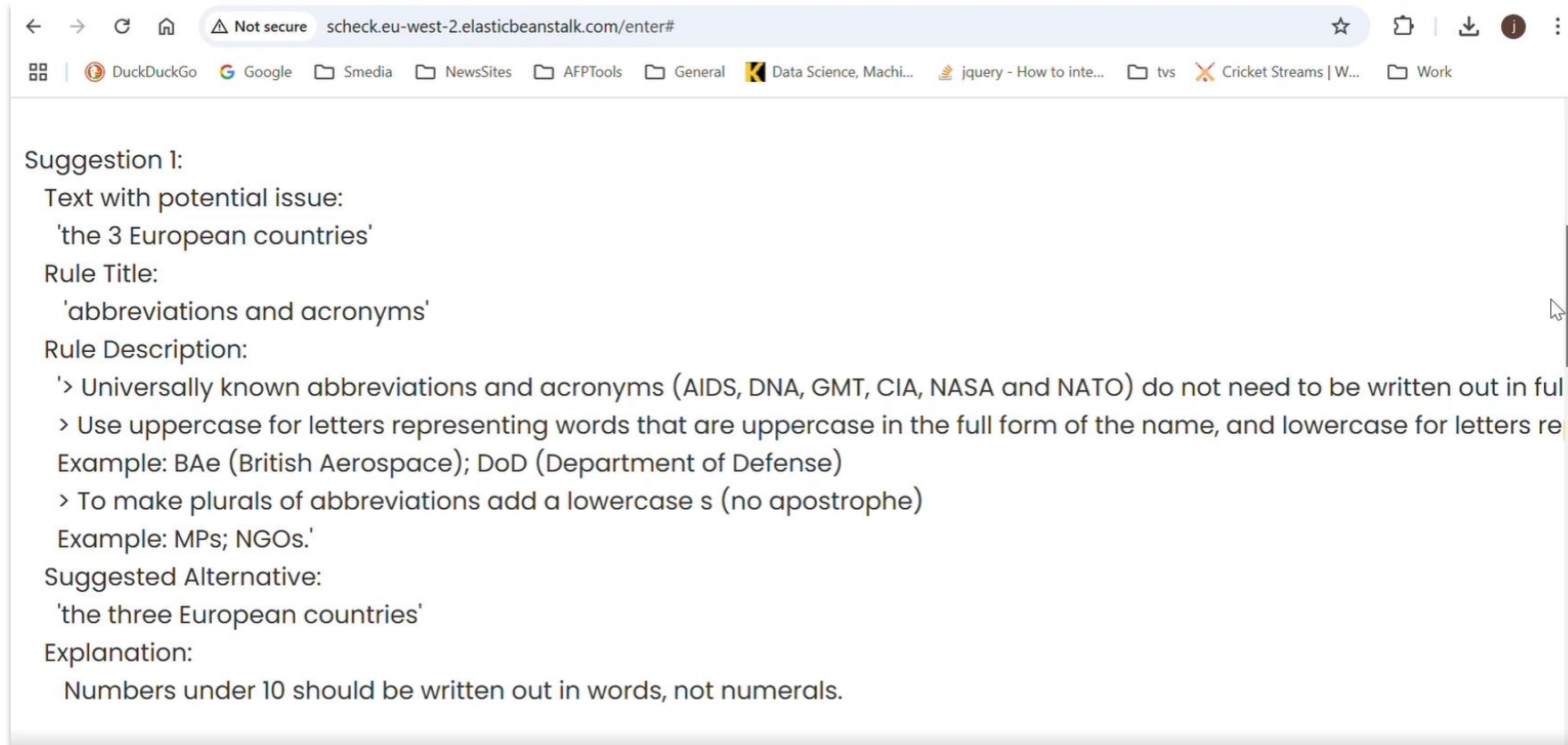   'Iranian President Ebrahim Raisi'
Explanation:
   The article incorrectly names Masoud Pezeshkian as the Iranian President. The current president is Ebrahim Raisi.

CHALLENGES
PERFORMANCE

Returning the right suggestion but the wrong rule

Suggestion 1:
 Text with potential issue:
  'the 3 European countries'
 Rule Title:
  'abbreviations and acronyms'
 Rule Description:
  '> Universally known abbreviations and acronyms (AIDS, DNA, GMT, CIA, NASA and NATO) do not need to be written out in full
  > Use uppercase for letters representing words that are uppercase in the full form of the name, and lowercase for letters re
  Example: BAe (British Aerospace); DoD (Department of Defense)
  > To make plurals of abbreviations add a lowercase s (no apostrophe)
  Example: MPs; NGOs.'
 Suggested Alternative:
  'the three European countries'
 Explanation:
  Numbers under 10 should be written out in words, not numerals.

CHALLENGES
PERFORMANCE

Same input different results

Suggestion 1:
  Text with potential issue:
    'Uruguayans head to polls with left hoping for comeback.'
  Rule Title:
    'headlines'

Suggestion 1:
  Text with potential issue:
    'won't stagnate'
  Rule Title:
    'apostrophes and possesives'
  Rule Description:
    '> The word it's as a contraction of it is should be used only when quoting someone'
  Suggested Alternative:
    'will not stagnate'
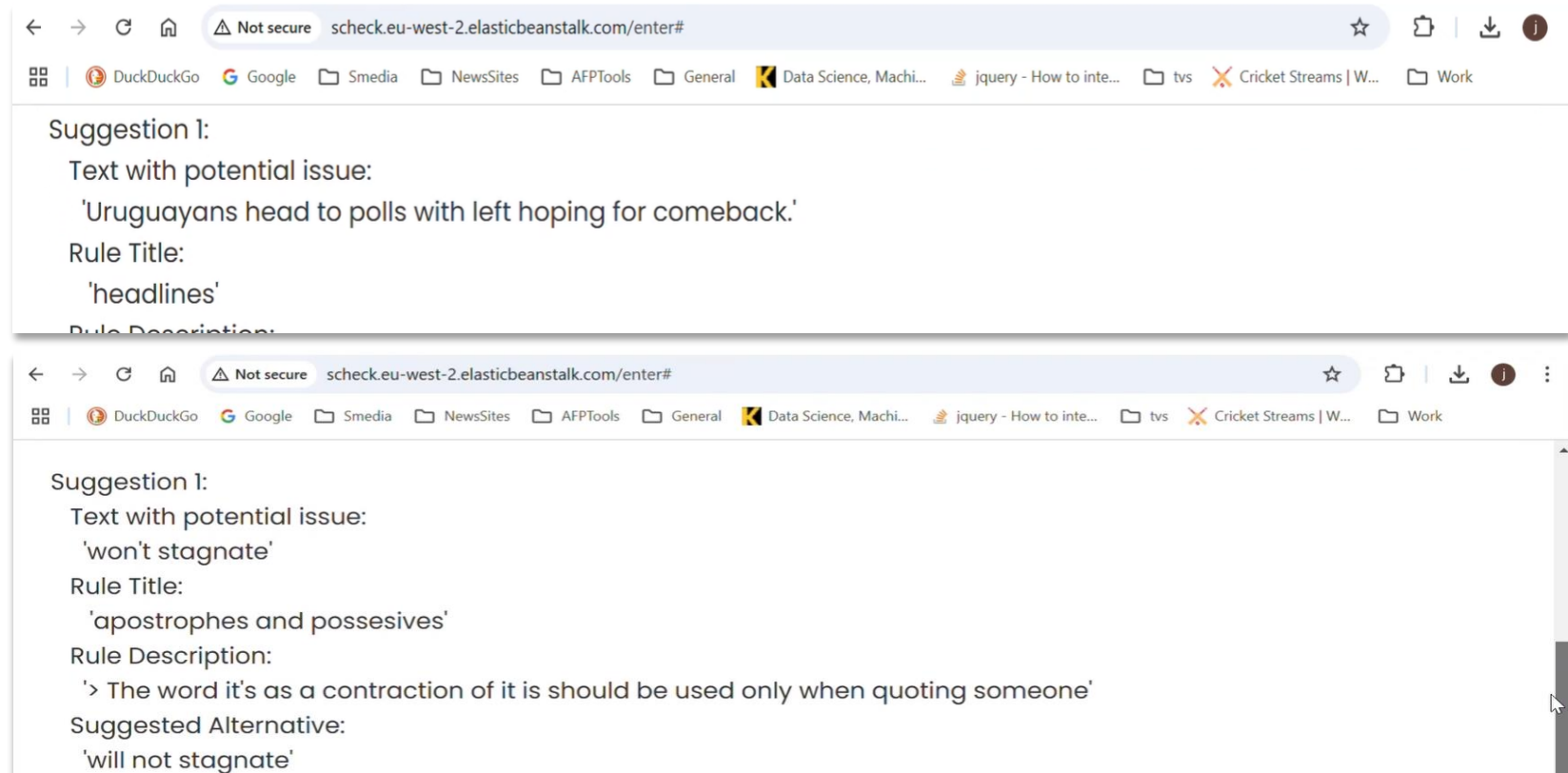
CHALLENGES
COMPLIANCE CHECKS

- Rules that require a knowledge of a term's position in the article
- Rules that refer to datelines, headlines and leads
- Rules that require background knowledge
- Highly subjective or intricate rules
- Errors that occur in quotes

CHALLENGES
TESTING

- Many variables affect performance
- Lack of resources to test each in isolation
- Compounded by changeable results
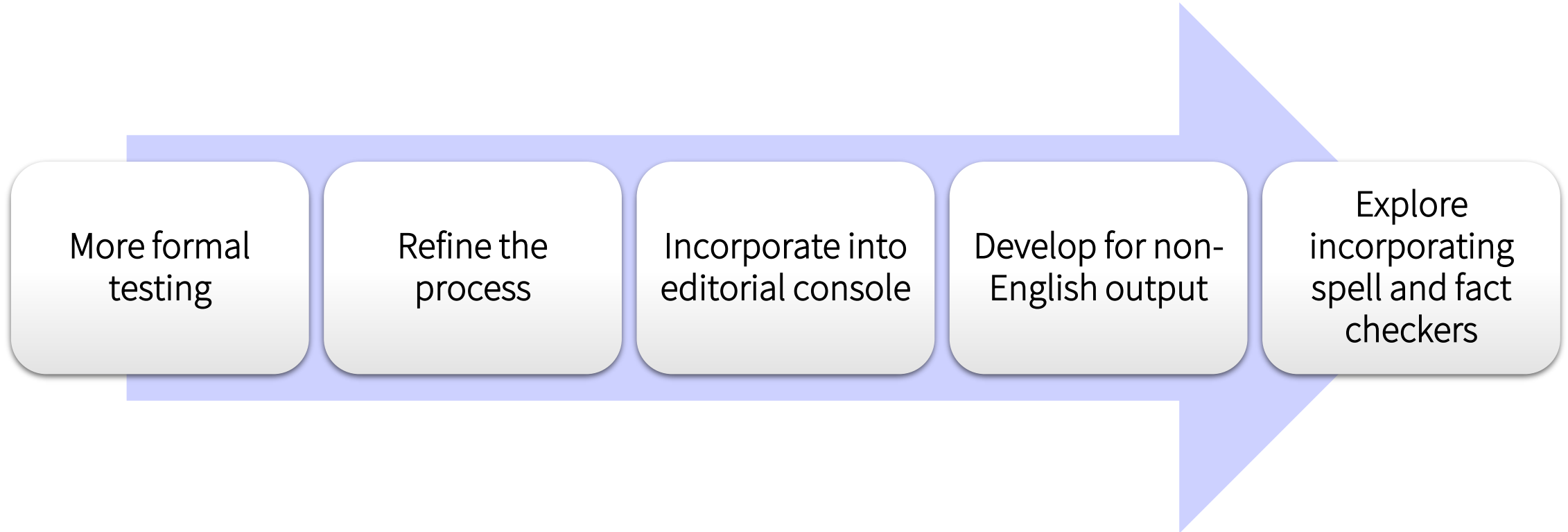- Very difficult to establish mathematical baseline

02

IMPACT &

NEXT STEPS

IMPACT

StyleCheck aligns with our vision of leveraging AI as an advanced assistant for journalists. We rely on a foundation of precise and clear editorial rules, as well as evolving editorial guidelines tailored to current events. StyleCheck could play a key role in reinforcing this. **– AFP**

What style check offers us is not only a more dynamic experience for quality control, one that not only burrows deep into the style document, but one that can be centrally updated and easily operated **– Irish Examiner**

NEXT STEPS

More formal testing

Refine the process

Incorporate into editorial console

Develop for non-English output

Explore incorporating spell and fact checkers

THANK YOU!

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