

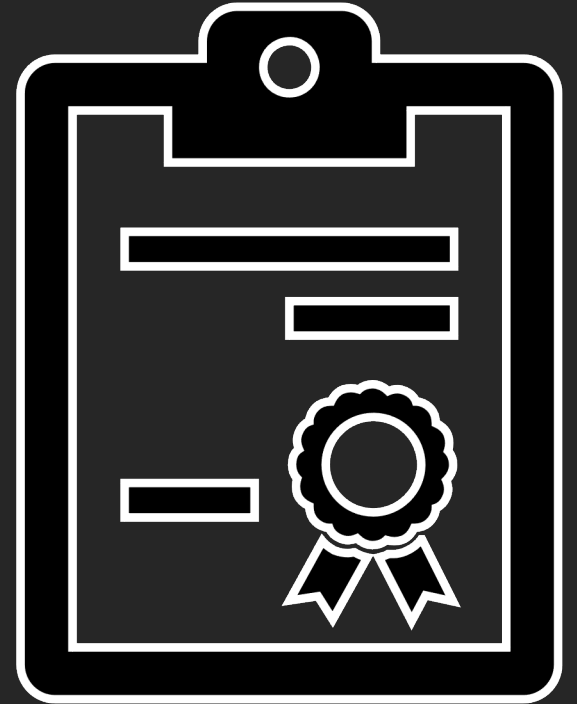
Automatically Labeling Low Quality Content on Wikipedia by Leveraging Patterns in Editing Behavior

Sumit Asthana, Sabrina Tobar Thommel, Dr. Aaron Halfaker, Dr. Nikola Banovic

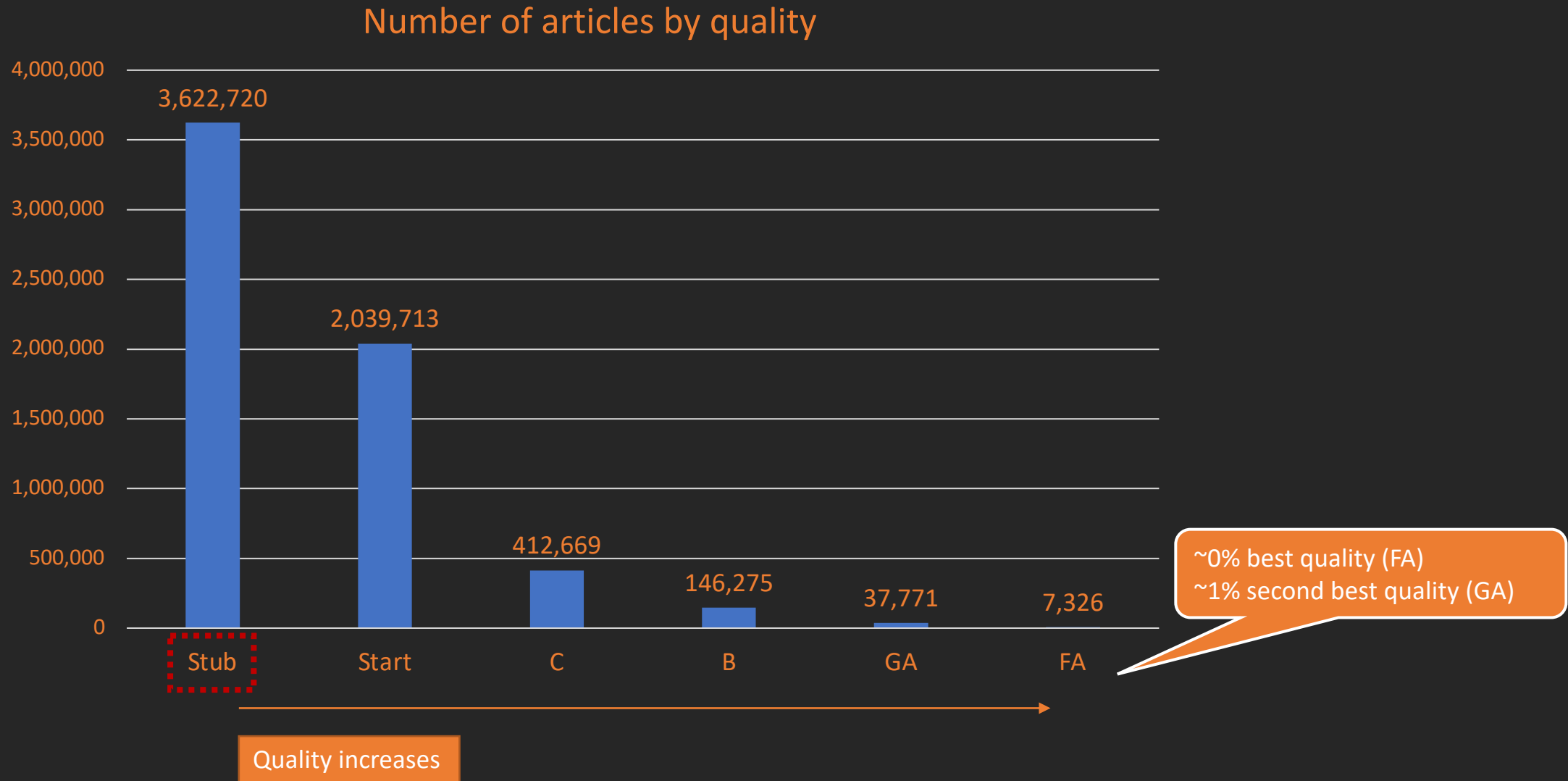
WMF research showcase, March 2022

Wikipedia's Goal as an encyclopedia

Wikipedia aims to be an encyclopedia of high quality with well written, grammatically correct and neutral articles



English Wikipedia article quality statistics



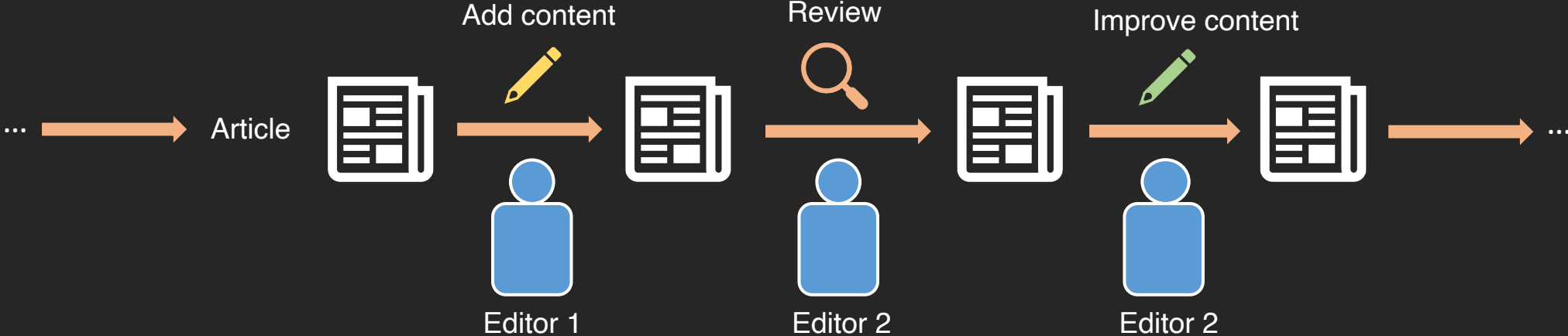
Challenges to Wikipedia's quality

Too many articles and too few editors has made article improvement a challenging task



Credits: <https://sciencenordic.com>

Article improvement – add, assess, improve



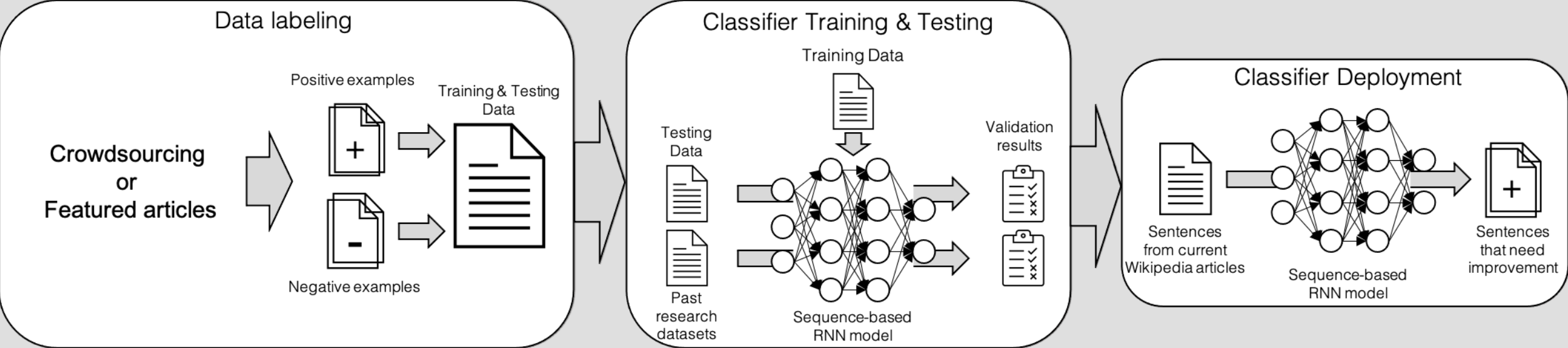
We need automation

The screenshot shows a Wikipedia citation tool interface. At the top, there is a toolbar with icons for bold (B), italic (I), link, image, video, audio, and edit. Below the toolbar is a breadcrumb trail: > Advanced > Special characters > Help > Cite. The main text area contains a paragraph about the 'Gala' potato, with several citation markers like `[[potato]]`, `<ref>`, and `</ref>`. A blue callout box with a white border and a blue arrow pointing to a citation marker contains the text: "Consider adding a citation here as per citation guidelines". Below the text area is a toolbar with various symbols and a "Cite" button. A green callout box with a white border and a green arrow pointing to a citation marker contains the text: "Consider checking neutrality here." Below the toolbar is a section labeled "your sources:" with a text input field containing `<ref></ref>`. At the bottom, there is a section labeled "Edit summary (Briefly describe your changes)" with a text input field.

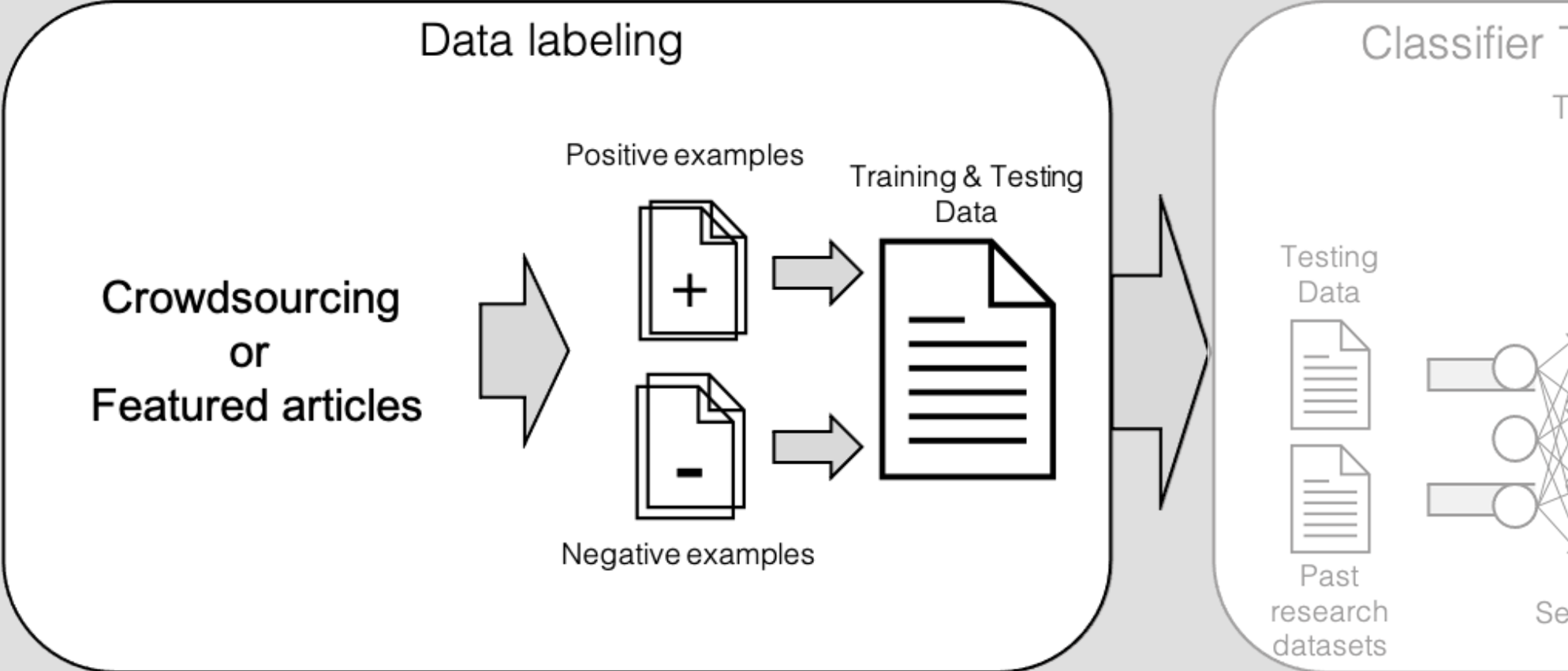
Consider adding a citation here as per citation guidelines

Consider checking neutrality here.

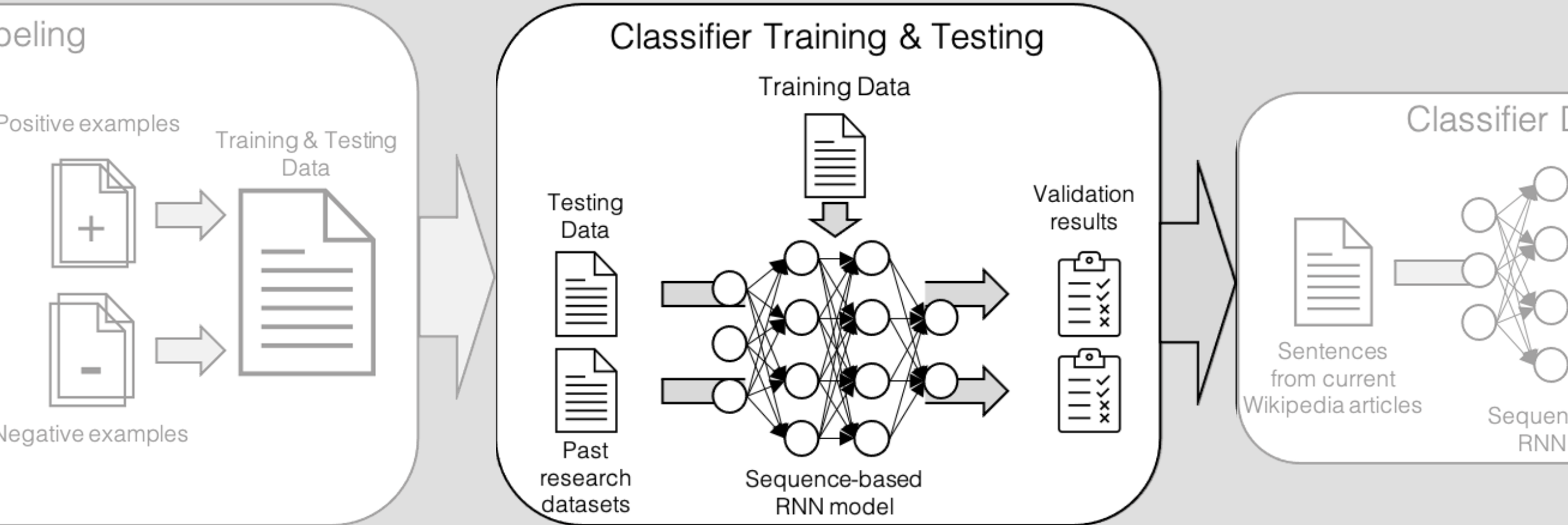
Automating article improvements using ML



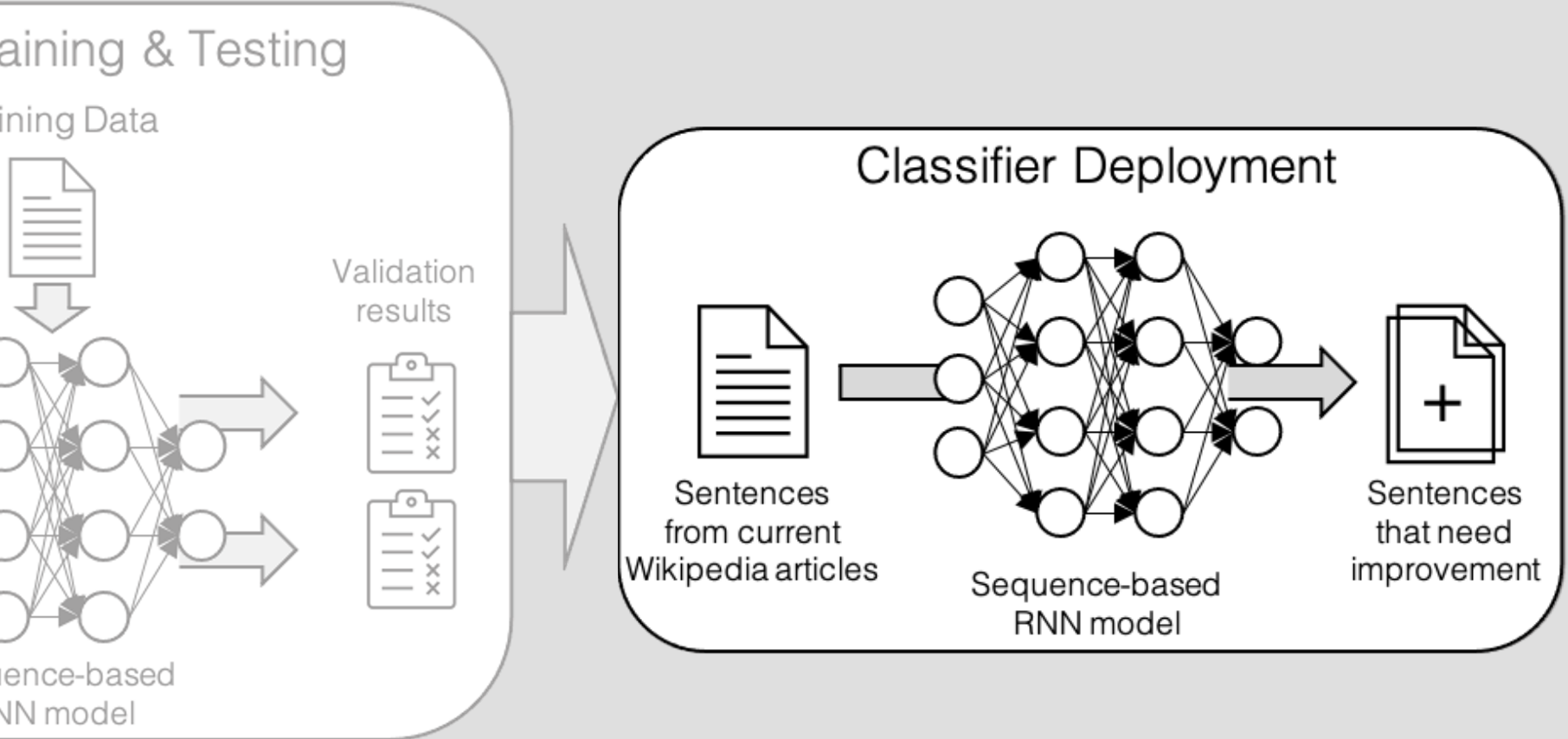
Automating article improvements using ML



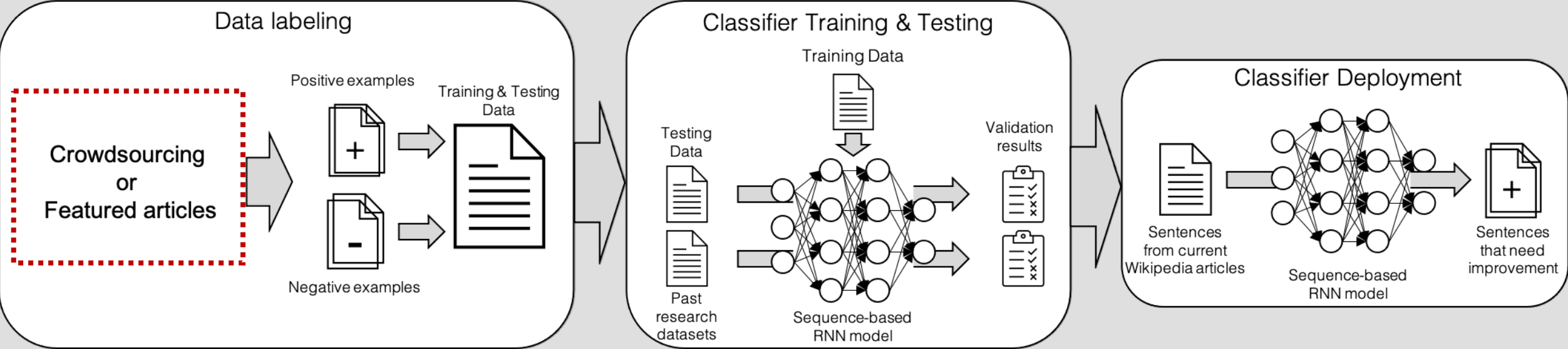
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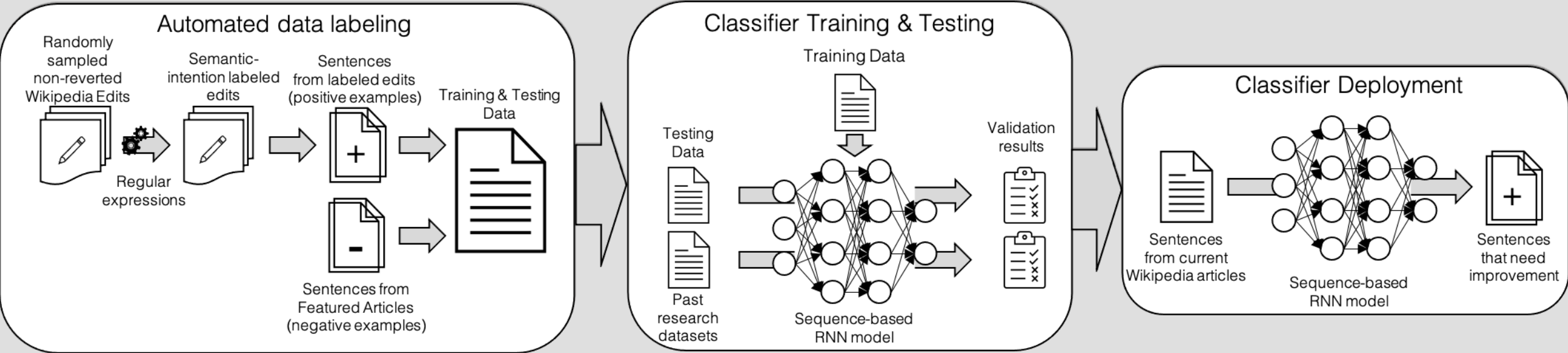
Challenges to automating article improvement using ML



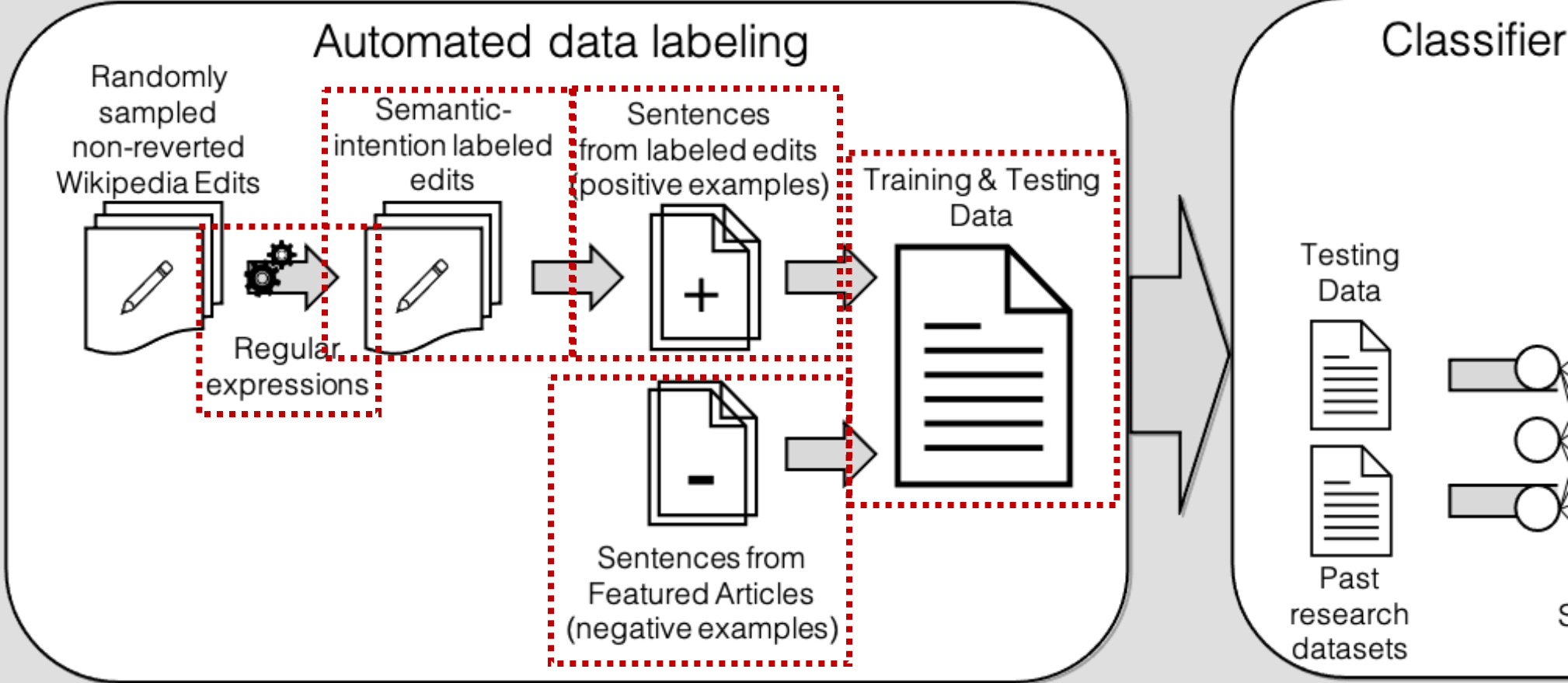
A new data quality labeling approach

A labeling approach that leverages implicit editing behavior to automatically label the quality of Wikipedia sentences

Automated labeling of sentence quality



Automated labeling of sentence quality



Regular expressions

..was born on July 27th, 1948 into the suburbs of...

[0-9]+

...the compound is harmful {{citation-needed}}...

{[a-z]+}

What needs improvement?

Does it need fact updates?

Does it have a point-of-view

“It was during 1996 season that Ricketson was first picked for City Origin due to his outstanding defence.”

Does it need to be simplified?

Does it need clarifications?

- Many Wikipedia edits are performed with a **specific intention**
 - e.g. adding citation, removing bias, clarifying content.
- Sentences modified in Wikipedia edits can be used as **positive examples** of sentence improvement.

Semantic categories demonstrated

- Citations: adding a citation
- Point-of-view: rewrite using encyclopedic, neutral tone; remove bias; apply due weight.
- Clarification: specify or explain an existing fact or meaning by example or discussion without adding new information.

Semantic category rules on Wikipedia edits

Lateral flow test: Difference between revisions

From Wikipedia, the free encyclopedia

Browse history interactively

Revision as of 02:55, 9 June 2013 (edit)

Hipal (talk | contribs)

m (Reverted edits by 131.111.184.97 (talk) to last version by 128.243.253.112)

← Previous edit

Revision as of 14:47, 13 August 2013 (edit) (undo)

Yetisen (talk | contribs)

m (A reference was added.)

Next edit →

Line 1:

```
{{Context|date=October 2009}}
```

```
'''Lateral flow tests'''<ref>
[http://www.devicelink.com/ivdt/archive/99/11/009.html Concurrent
Engineering for Lateral-Flow Diagnostics (IVDT archive, Nov 99)<!--
- Bot generated title -->]</ref> also known as Lateral Flow
[[Immunochromatographic]] Assays are simple devices intended to
detect the presence (or absence) of a target analyte in sample
(matrix) without the need for specialized and costly equipment,
though many lab based applications exist that are supported by
- reading equipment. Typically, these tests are used for medical
diagnostics either for home testing, [[point of care]] testing, or
laboratory use. A widely spread and well known application is the
home pregnancy test.
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= Yetisen A. K. | year = 2013 | title = Paper-based microfluidic
point-of-care diagnostic devices | url =
http://pubs.rsc.org/en/content/articlelanding/2013/lc/c3lc50169h |
journal = Lab on a Chip | volume= 13 | issue= 12 | pages= 2210–2251
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[Next edit →](#)

Intent: Citation

Inserted contains
“<ref>”

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journal = Lab on a Chip | volume= 13 | issue= 12 | pages= 2210–2251  
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for medical diagnostics either for home testing, [[point of care]]  
testing, or laboratory use. A widely spread and well known  
application is the home pregnancy test.
```

Semantic category rules – citations

| Rule | Description |
|--------------------------------------|---|
| Inserted contains “<ref>” | Presence of citation tag in added content |
| NOT is_citation_inserted_or_deleted | No <ref> tag inserted or removed |
| NOT is_template_inserted_or_deleted | No templates inserted or removed |
| NOT is_wikilink_inserted_or_deleted | No wikilinks inserted or removed |
| NOT is_infobox_inserted_or_deleted | No infoboxes inserted or removed |
| NOT is_multiline_inserted_or_deleted | Multiple lines not changed |

Semantic intent to sentence quality label

Lateral flow test: Difference between revisions

From Wikipedia, the free encyclopedia

Browse history interactively

Revision as of 02:55, 9 June 2013 (edit)

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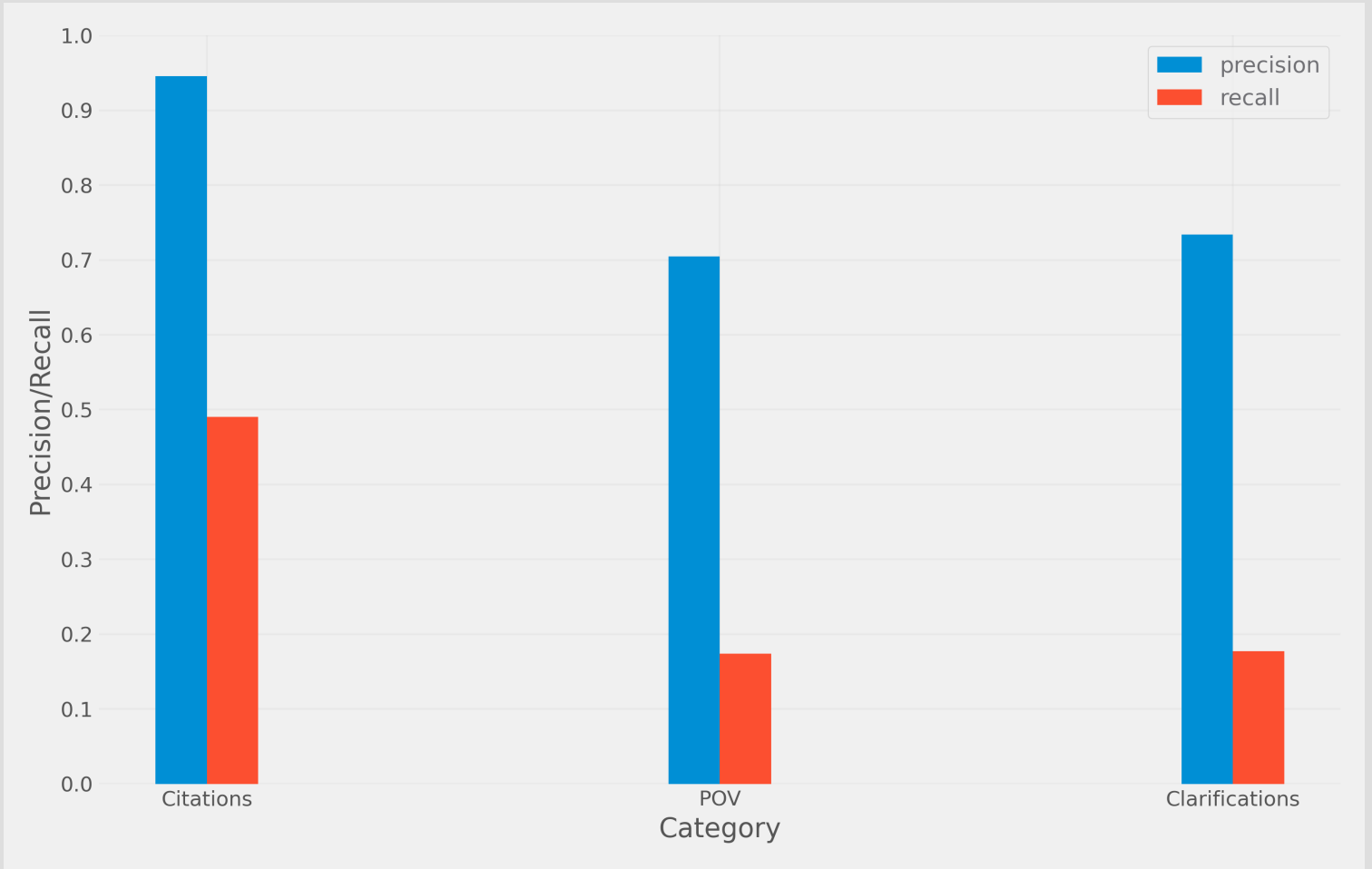
“needs citations”: 1

Line 1:

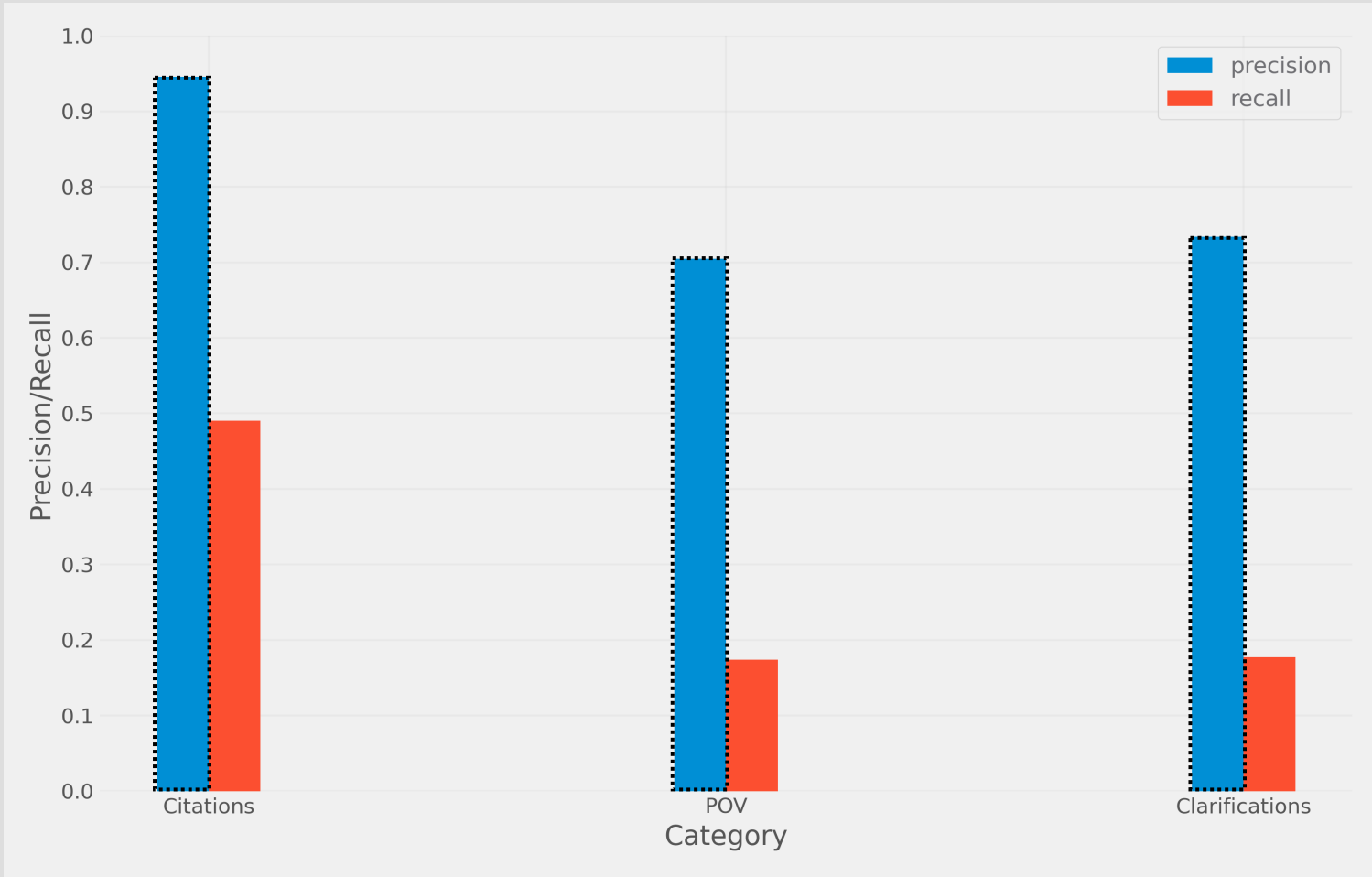
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Evaluation of semantic edit intention labels

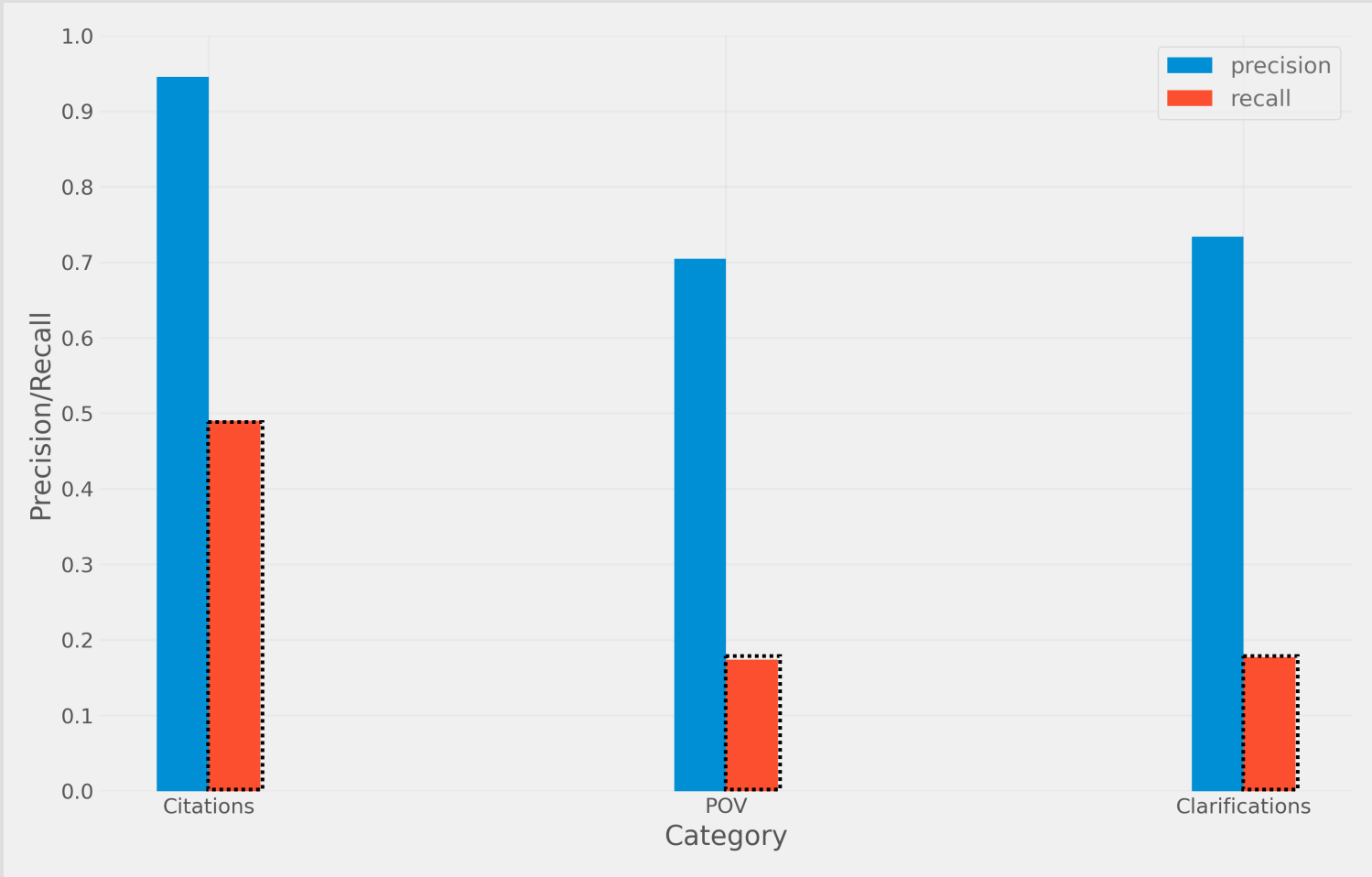


Evaluation of semantic edit intention labels



High precision

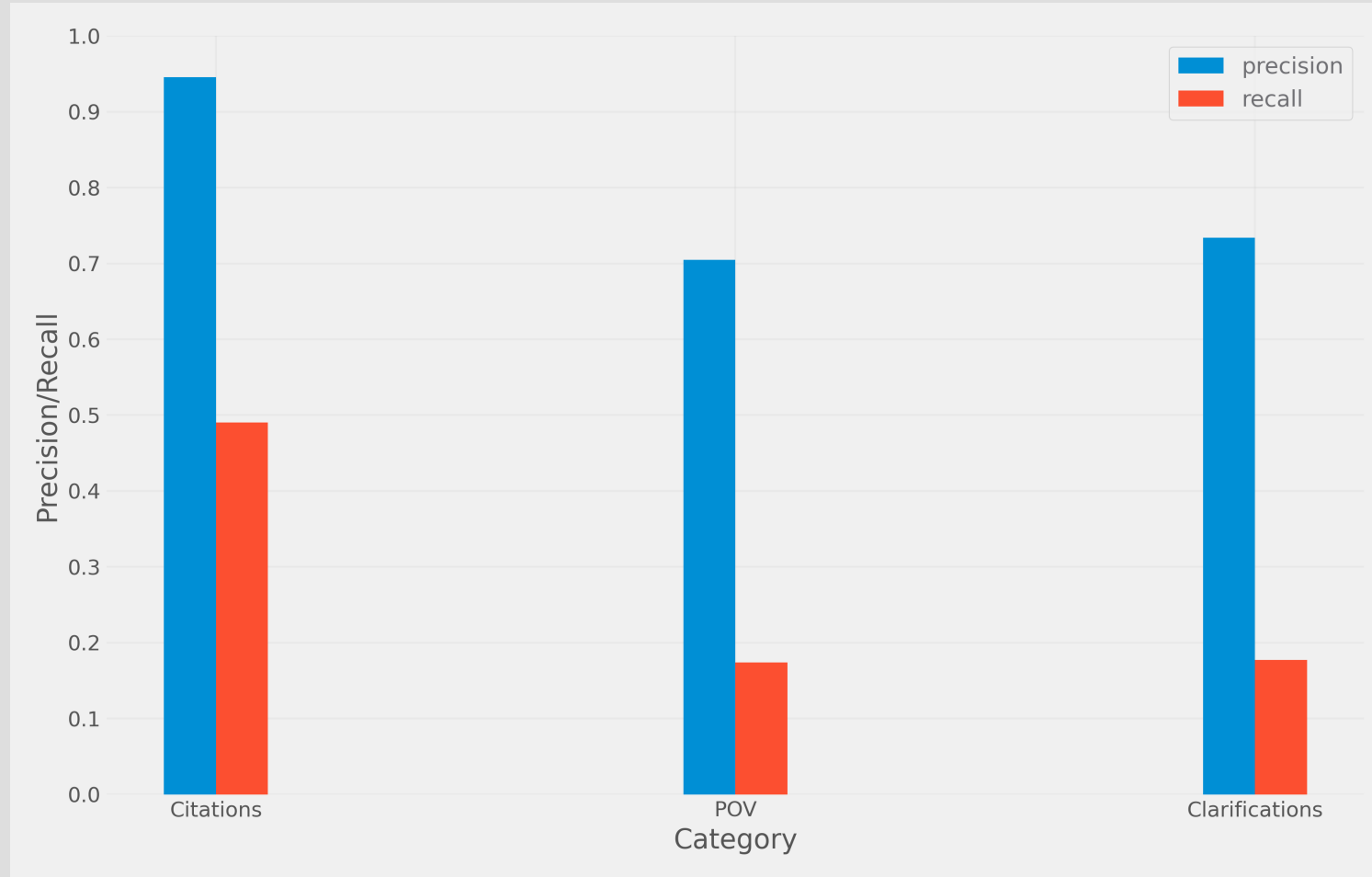
Evaluation of semantic edit intention labels



High precision

Low recall

Evaluation of semantic edit intention labels



High precision

Low recall

Considerable disagreements

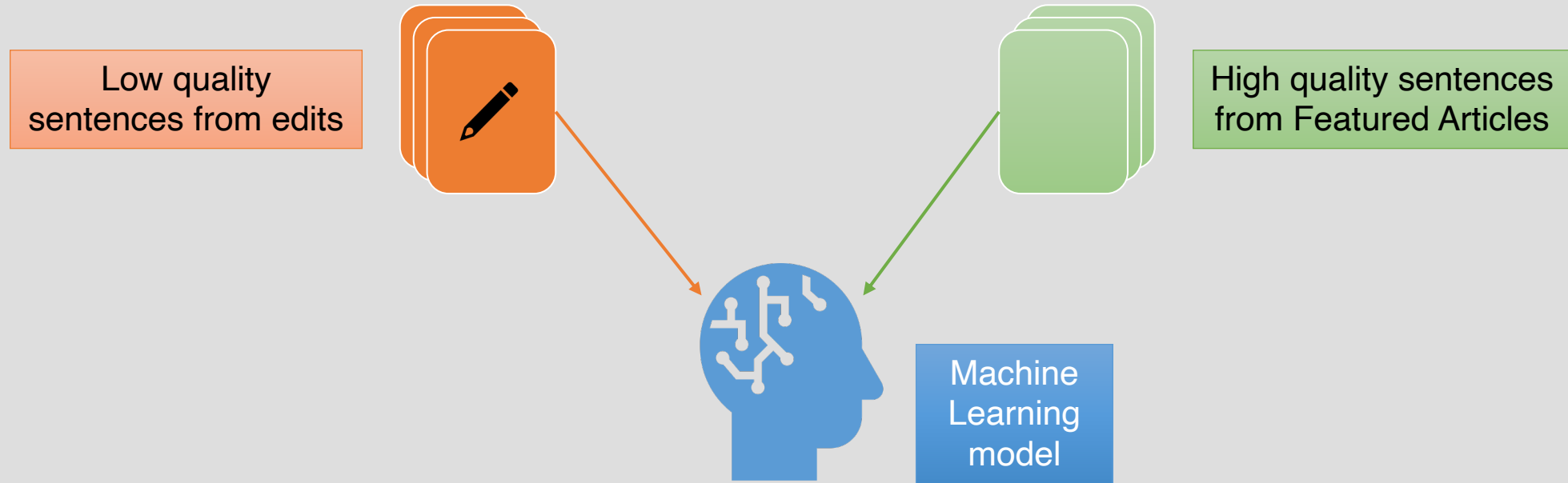
Inter-annotator agreement:

0.62

0.02

0.17

Evaluation of sentence quality labels



Needs Citations

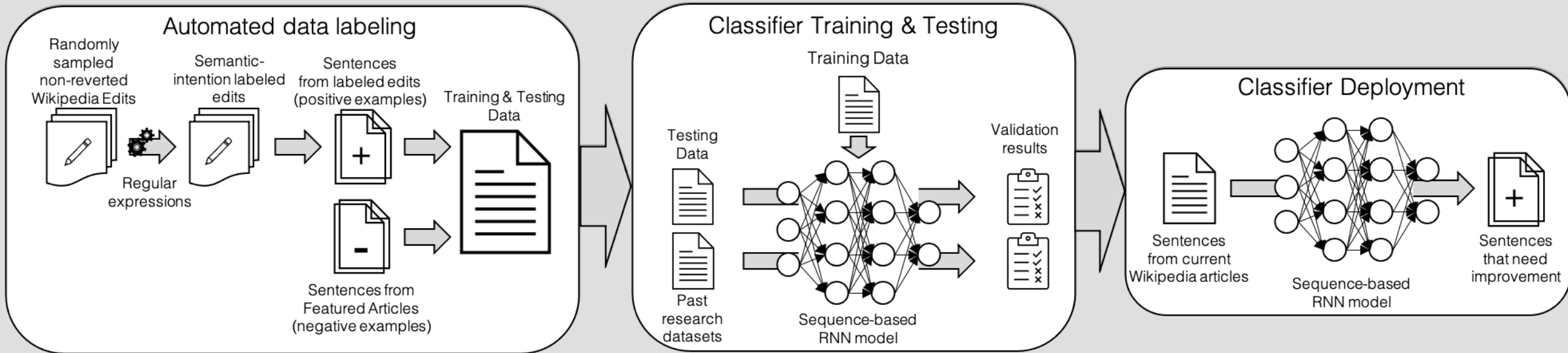
1946 : ford sues the allies for damages done to his factories in dresden during the infamous bombing and wins compensation

Has point-of-view

sharky and george was a very popular humorous show about two fish private detective.

Implications of learning from Wikipedia editing behaviors

Implications of automated labeling of sentence quality

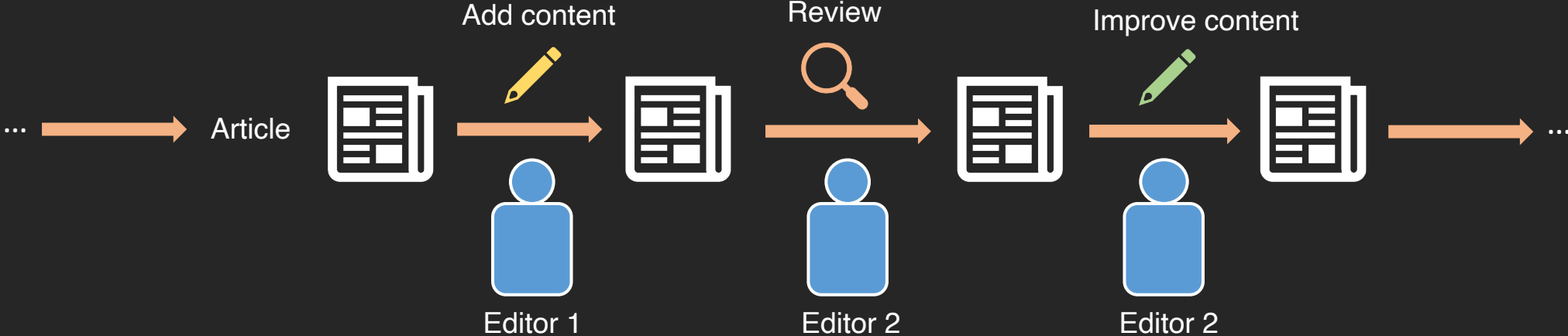


Fast

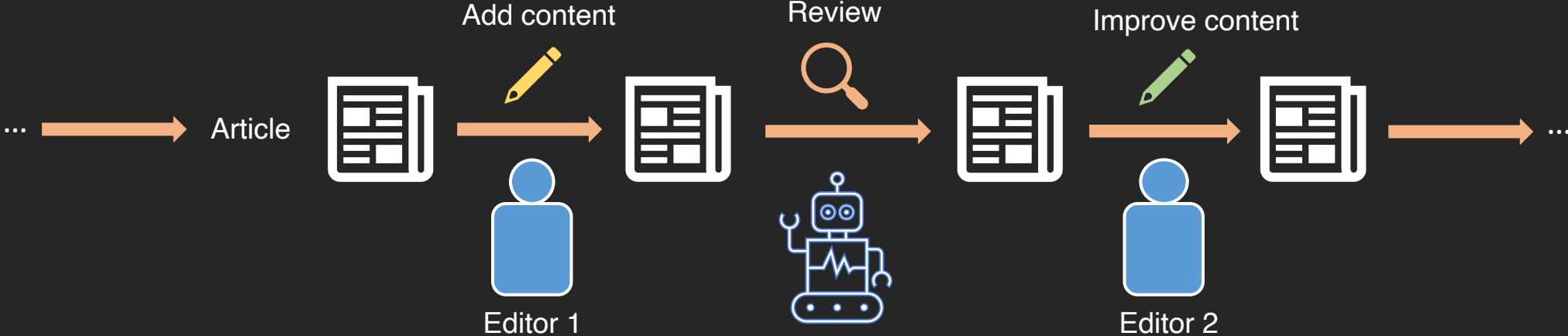
Flexible

Language independent

Article improvement – add, assess, improve



Article improvement – add, assess, improve



Assisting new editors on common practices

- Recommending best practice changes to new editors.
- Can prevent follow-up edits and save other editor's valuable time!

The screenshot shows a Wikipedia edit interface. At the top, there is a navigation bar with links for 'Advanced', 'Special characters', 'Help', and 'Cite'. Below this is a text area containing a paragraph about the 'Gala' potato variety. The text includes several citations in the form of `<ref>` tags. A blue callout box with a white border and a blue arrow points to the first citation tag, containing the text 'Consider adding a citation here as per citation guidelines'. Below the text area is a toolbar with various icons for editing, including 'Insert', 'Undo', 'Redo', 'Bold', 'Italic', 'Link', 'Unlink', 'Table', 'List', 'Section', 'Section 2', 'Section 3', 'Section 4', 'Section 5', 'Section 6', 'Section 7', 'Section 8', 'Section 9', 'Section 10', 'Section 11', 'Section 12', 'Section 13', 'Section 14', 'Section 15', 'Section 16', 'Section 17', 'Section 18', 'Section 19', 'Section 20', 'Section 21', 'Section 22', 'Section 23', 'Section 24', 'Section 25', 'Section 26', 'Section 27', 'Section 28', 'Section 29', 'Section 30', 'Section 31', 'Section 32', 'Section 33', 'Section 34', 'Section 35', 'Section 36', 'Section 37', 'Section 38', 'Section 39', 'Section 40', 'Section 41', 'Section 42', 'Section 43', 'Section 44', 'Section 45', 'Section 46', 'Section 47', 'Section 48', 'Section 49', 'Section 50', 'Section 51', 'Section 52', 'Section 53', 'Section 54', 'Section 55', 'Section 56', 'Section 57', 'Section 58', 'Section 59', 'Section 60', 'Section 61', 'Section 62', 'Section 63', 'Section 64', 'Section 65', 'Section 66', 'Section 67', 'Section 68', 'Section 69', 'Section 70', 'Section 71', 'Section 72', 'Section 73', 'Section 74', 'Section 75', 'Section 76', 'Section 77', 'Section 78', 'Section 79', 'Section 80', 'Section 81', 'Section 82', 'Section 83', 'Section 84', 'Section 85', 'Section 86', 'Section 87', 'Section 88', 'Section 89', 'Section 90', 'Section 91', 'Section 92', 'Section 93', 'Section 94', 'Section 95', 'Section 96', 'Section 97', 'Section 98', 'Section 99', 'Section 100'. A green callout box with a white border and a green arrow points to the first citation tag, containing the text 'Consider checking for neutrality here'. Below the toolbar is a section for 'your sources:' with a text input field containing `<ref>/ref>`. At the bottom, there is an 'Edit summary' section with a text input field and the instruction '(Briefly describe your changes)'. The overall interface is clean and professional, with a light gray background and clear text.

Assisting new editors on common practices

Phabricator 11 Search

Maniphest > T265163 Create Task

! Create a system to encode best practices into editing experiences

Open, Needs Triage Public

Description

*In the forest that is Phabricator, this ticket is very much a seedling on the forest floor.
Read: this task is a gathering place/work in progress.*

This parent task is intended to help gather and advance the thinking around how the visual editor might be enhanced to help people learn the social conventions (read: [policies and guidelines](#)) and exercise the judgement necessary to become productive and constructive Wikipedia editors.

Background

Visual editor's growing popularity among people new to editing Wikipedia [i] suggests it has been reasonably successful at helping people to learn the technical skills [ii] necessary to edit Wikipedia.

Trouble is, the edits these new people make often break/defy [Wikipedia policies and guidelines](#).

This task is about exploring how the visual editor could be augmented/enhanced to help people learn these [policies and guidelines](#) and exercise the judgement necessary to become productive and constructive Wikipedia editors.

Edit Task

Edit Related Tasks...

Edit Related Objects...

Unsubscribe

Mute Notifications

Protect as security issue


Award Token

Flag For Later

Assigned To

None

Authored By

 **ppelberg**
Oct 9 2020, 2:01 PM

Tags

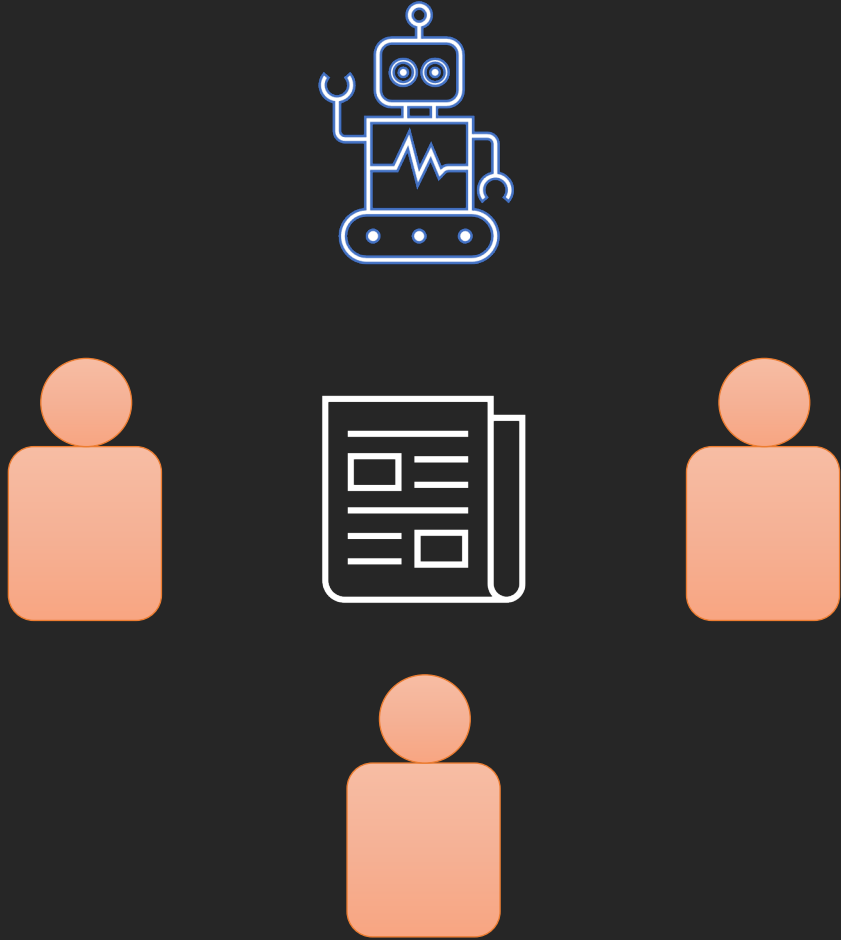
VisualEditor (Triaged)

Editing-team (Larger Strategic Things)

Inherent Ambiguity

- Some semantic categories can have multiple viewpoints.
- E.g., Neutral point-of-view is a highly debatable policy
- Models need to incorporate such ambiguity.

How can AI and humans work together in a task? Whose voice matters?

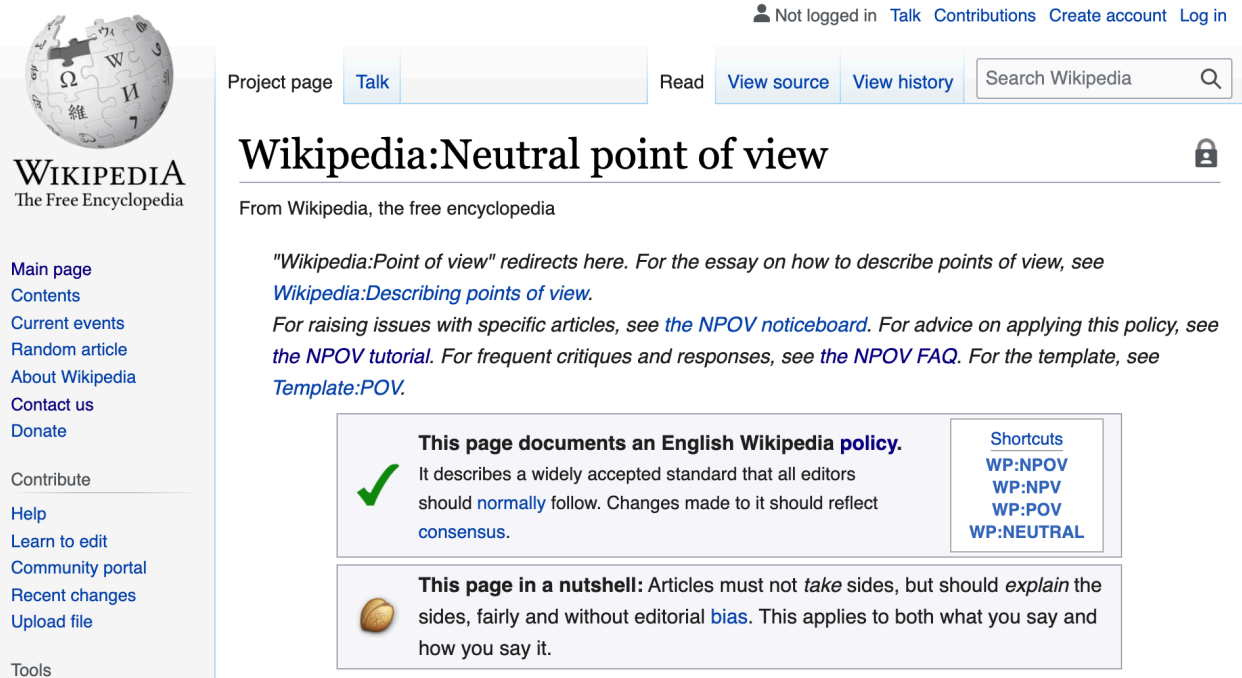


Technical probe of Wikipedia norms

- Models trained on implicit editing behaviors capture descriptive behaviors (how editors interpret and operationalize Wikipedia norms and practices).
- Thus, these models can be used to understand the application of a policy in context (e.g., looking at the prediction of new sentences to understand the policy better)



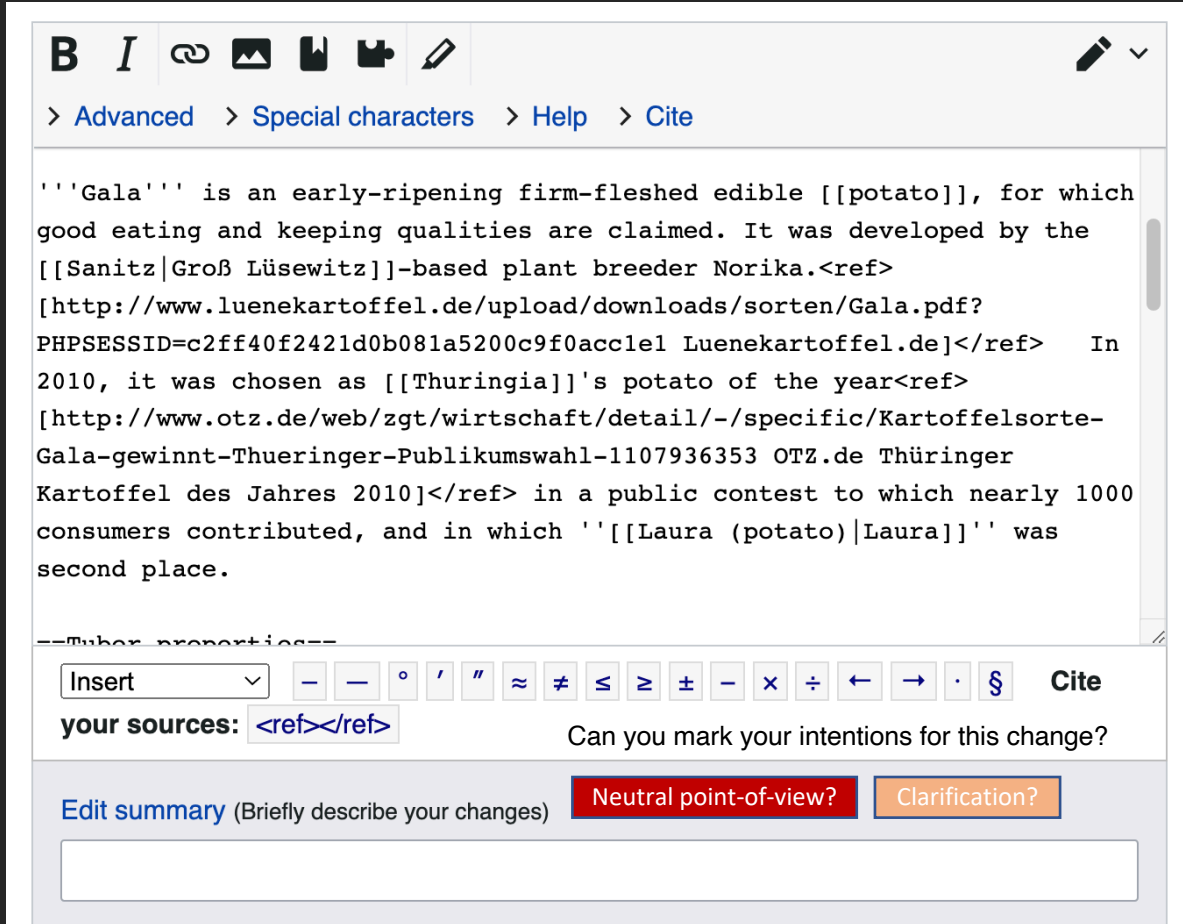
Technical probe of Wikipedia norms



The screenshot shows the Wikipedia page for "Neutral point of view". At the top left is the Wikipedia logo and the text "WIKIPEDIA The Free Encyclopedia". Below it is a sidebar with navigation links: Main page, Contents, Current events, Random article, About Wikipedia, Contact us, Donate, Contribute, Help, Learn to edit, Community portal, Recent changes, Upload file, and Tools. The main content area has a header "Wikipedia:Neutral point of view" with a lock icon. Below the header is the text "From Wikipedia, the free encyclopedia". The main body of the page contains a paragraph: "Wikipedia:Point of view" redirects here. For the essay on how to describe points of view, see Wikipedia:Describing points of view. For raising issues with specific articles, see the NPOV noticeboard. For advice on applying this policy, see the NPOV tutorial. For frequent critiques and responses, see the NPOV FAQ. For the template, see Template:POV. Below this paragraph is a box with a green checkmark icon and the text: "This page documents an English Wikipedia policy. It describes a widely accepted standard that all editors should normally follow. Changes made to it should reflect consensus." To the right of this box is a "Shortcuts" section with links: WP:NPOV, WP:NPV, WP:POV, and WP:NEUTRAL. Below this is another box with a nut icon and the text: "This page in a nutshell: Articles must not take sides, but should explain the sides, fairly and without editorial bias. This applies to both what you say and how you say it."

“He had a **very jovial personality**”
Prediction: “biased” (91%)

What do we need for better AI?



The screenshot shows a Wikipedia edit interface. At the top, there's a toolbar with icons for bold, italic, undo, redo, link, unlink, and edit. Below the toolbar is a breadcrumb trail: > Advanced > Special characters > Help > Cite. The main text area contains a paragraph about the 'Gala' potato, with several references in wikitext format. Below the text is another toolbar with an 'Insert' dropdown, various symbols (minus, plus, degree, apostrophe, double quote, tilde, not equal, less than or equal to, greater than or equal to, plus-minus, multiplication, division, left arrow, right arrow, dot, section symbol), and a 'Cite' button. Below this toolbar is a section for 'your sources:' with a '<ref>/ref>' template and a question 'Can you mark your intentions for this change?'. There are two buttons: 'Neutral point-of-view?' (highlighted in red) and 'Clarification?'. At the bottom, there's an 'Edit summary' field with the prompt '(Briefly describe your changes)' and an empty text box.



Better data



Better AI

More expressive UI

Thank You!

Sumit Asthana

asumit@umich.edu

<http://sumitasthana.xyz>