In [14]:
```python
!pip install -q condacolab
import condacolab
condacolab.install()
```

⬇ Downloading https://github.com/jaimergp/miniforge/releases/download/24.11.2
-1_colab/Miniforge3-colab-24.11.2-1_colab-Linux-x86_64.sh...
📦 Installing...
📌 Adjusting configuration...
🖊 Patching environment...
☺ Done in 0:00:14
🔄 Restarting kernel...

In [1]:
```python
!wget https://cs.stanford.edu/~minalee/zip/chi2022-coauthor-v1.0.zip
!unzip -q chi2022-coauthor-v1.0.zip
!rm chi2022-coauthor-v1.0.zip
!unzip -q creativity_index-main.zip
```

--2025-02-25 20:17:19-- https://cs.stanford.edu/~minalee/zip/chi2022-coauthor
-v1.0.zip
Resolving cs.stanford.edu (cs.stanford.edu)... 171.64.64.64
Connecting to cs.stanford.edu (cs.stanford.edu)|171.64.64.64|:443... connecte
d.
HTTP request sent, awaiting response... 200 OK
Length: 49956179 (48M) [application/zip]
Saving to: 'chi2022-coauthor-v1.0.zip'

chi2022-coauthor-v1 100%[===================>] 47.64M 2.22MB/s   in 17s

2025-02-25 20:17:36 (2.88 MB/s) - 'chi2022-coauthor-v1.0.zip' saved [49956179/
49956179]

replace coauthor-v1.0/e0435f4cf6fc435c872ffc5b66b66b0c.jsonl? [y]es, [n]o, [A]
ll, [N]one, [r]ename:

In [3]:
```python
!unzip -q creativity_index-main.zip
```

Coauthor cleanup

In [4]:
```python
import os

dataset_dir = './coauthor-v1.0'
paths = [
    os.path.join(dataset_dir, path)
    for path in os.listdir(dataset_dir)
    if path.endswith('jsonl')
]

print(f'Successfully downloaded {len(paths)} writing sessions in CoAuthor!')
```

Successfully downloaded 1447 writing sessions in CoAuthor!

In [5]:
```python
import json

def read_writing_session(path):
    events = []
    with open(path, 'r') as f:
        for event in f:
```

```
            events.append(json.loads(event))
        print(f'Successfully read {len(events)} events in a writing session from {|
        return events
```

In [6]:
```
events = read_writing_session(paths[0])
```

Successfully read 1238 events in a writing session from ./coauthor-v1.0/9614fb
65fa5146549e303e13586a947b.jsonl

In [7]:
```python
from collections import defaultdict

def reconstruct_user_text(events):
    user_texts = []
    current_text = ""

    # Sort events by eventNum
    sorted_events = sorted(events, key=lambda e: e["eventNum"])

    for event in sorted_events:
        event_type = event["eventName"]
        text_delta = event["textDelta"]

        if event_type == "text-insert" and text_delta:
            extracted_text = ""
            for op in text_delta['ops']:
                if 'insert' in op:
                    extracted_text += op['insert']
            current_text += extracted_text

        elif event_type == "text-delete" and text_delta:
            delete_len = 0
            for op in text_delta['ops']:
                if 'delete' in op:
                    delete_len += op['delete']
                elif 'retain' in op:
                    pass
            current_text = current_text[:-delete_len]


        # Store finalized text if user completes a thought
        if event_type == "suggestion-get" or event_type == "suggestion-select"
            if current_text.strip():
                user_texts.append(current_text.strip())
                current_text = ""

    return user_texts

# Process all valid events
user_texts = reconstruct_user_text(events)

print(f"Total reconstructed user-written sentences: {len(user_texts)}")
print("Example user-written sentence:", user_texts)  # Show first 3 examples
```

Total reconstructed user-written sentences: 3
Example user-written sentence: ['college athletes should be paid over and abov
e their scholorships.aThey should be paid a percentage of ticket sales. I do n
ot agree that the broader community would be harmed. This is real life. Times
change. It is fair that if the college makes a great sum of income, that some
of it go to the players. Colleges in bidding wars? They do that anyway, but wi
thout money. They bid for the best. The athletes would receive no compensation
until they graduate, again, which would be a percentage of tickets sold. \n\nI
f colleges did not profit on their athletes, then no, they should not be paid.
I think this is the best solution of all. This way, anyone can go to a game th
at they might not have otherwise been able to afford.', 'Having good sports is
a boon to the colleges. They get televised or broadcasted which increases bran
d awareness. There are some thin, creating good will in the community.s that a
re hard to measure, like how much exposure they get and what it is worth.', 'e
s']

```python
In [8]: def extract_selected_ai_suggestions(events):
            ai_suggestions = []   # Stores accepted AI-generated suggestions
            last_suggestion_open = None   # Store the most recent `suggestion-open` even

            for event in events:
                if event["eventName"] == "suggestion-open" and event.get("currentSugges
                    last_suggestion_open = event   # Save latest `suggestion-open` even

                elif event["eventName"] == "suggestion-select":
                    if last_suggestion_open and last_suggestion_open.get("currentSugges
                        selected_index = event.get("currentSuggestionIndex", -1)

                        # Ensure selected index is valid
                        if 0 <= selected_index < len(last_suggestion_open["currentSugge
                            selected_suggestion = last_suggestion_open["currentSuggesti
                            ai_suggestions.append(selected_suggestion)

            return ai_suggestions

        # Process all valid events
        ai_suggestions = extract_selected_ai_suggestions(events)

        print(f"Total AI Suggestions Accepted: {len(ai_suggestions)}")
        print("Example AI Suggestion:", ai_suggestions[:3])   # Show first 3 examples
```

Total AI Suggestions Accepted: 1
Example AI Suggestion: ['college athletes should be paid.']

```python
In [9]: def extract_acceptance_status(events):
            """Track if a suggestion was accepted or rejected."""
            acceptance_status = []   # Stores 'accepted' or 'rejected'
            last_suggestion_open = None   # Store the most recent `suggestion-open`

            for event in events:
                if event["eventName"] == "suggestion-open" and event.get("currentSugges
                    last_suggestion_open = event   # Save the latest `suggestion-open`

                elif event["eventName"] == "suggestion-select" and last_suggestion_open
                    # Suggestion selected
                    acceptance_status.append('accepted')
                    last_suggestion_open = None   # Reset, since we handled the acceptan

                elif event["eventName"] == "suggestion-close" and last_suggestion_open
                    # Suggestion closed without selection (rejected)
```

```
                acceptance_status.append('rejected')
                last_suggestion_open = None  # Reset, since we handled the rejecti

        return acceptance_status
```

In [10]:
```python
import pandas as pd

jsd_results = []
small = paths[100:110]

def extract_acceptance_status(events):
    """Track if a suggestion was accepted or rejected."""
    acceptance_status = []  # Stores 'accepted' or 'rejected'
    last_suggestion_open = None  # Store the most recent `suggestion-open`

    for event in events:
        if event["eventName"] == "suggestion-open" and event.get("currentSugges
            last_suggestion_open = event  # Save the latest `suggestion-open`

        elif event["eventName"] == "suggestion-select" and last_suggestion_ope
            # Suggestion selected
            acceptance_status.append('accepted')
            last_suggestion_open = None  # Reset, since we handled the acceptai

        elif event["eventName"] == "suggestion-close" and last_suggestion_open
            # Suggestion closed without selection (rejected)
            acceptance_status.append('rejected')
            last_suggestion_open = None  # Reset, since we handled the rejecti

    return acceptance_status
```

In [ ]:
```
!conda env create -f environment_infini.yml
!conda env create -f environment_vllm.yml
```

Anil R. Doshi, Oliver P. Hauser ,Generative AI enhances individual creativity but reduces the collective diversity of novel content.Sci. Adv.10,eadn5290(2024).DOI:10.1126/sciadv.adn5290

Doshi and Hauser didn't present a single "magic-formula" but rather defined creativity as a combination of two dimensions—novelty and usefulness—each measured by averaging three constituent ratings. In their study:

- The **novelty index** is computed as the mean of ratings on:

  - **Novelty**
  - **Originality**
  - **Rarity**
- The **usefulness index** is computed as the mean of ratings on:

  - **Appropriateness** (for the target audience)
  - **Feasibility** (of further development)
  - **Publishability** (likelihood a publisher would take it on)

Usefulness is fully captured in the other features of helpfulness.

Inputs and Data: AI-Suggested Text (Candidate)

x: The newly generated text from the AI model.

Context Text

c: The preceding user text, conversation history, or story background. Used to measure appropriateness and novelty relative to context.

Reference Corpus

A large dataset representing "generic" writing or domain-specific text. Used to measure how common or rare certain phrases, syntactic patterns, or ideas are.

In [7]:
```
!pip install transformers
!pip install sacremoses
!pip install numpy
!pip install --upgrade pytorch
!pip install --upgrade tensorflow
!pip install nltk
```

```
Collecting transformers
  Downloading transformers-4.49.0-py3-none-any.whl.metadata (44 kB)
Collecting filelock (from transformers)
  Downloading filelock-3.17.0-py3-none-any.whl.metadata (2.9 kB)
Collecting huggingface-hub<1.0,>=0.26.0 (from transformers)
  Downloading huggingface_hub-0.29.1-py3-none-any.whl.metadata (13 kB)
Collecting numpy>=1.17 (from transformers)
  Downloading numpy-2.2.3-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (62 kB)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/si
te-packages (from transformers) (24.2)
Collecting pyyaml>=5.1 (from transformers)
  Downloading PyYAML-6.0.2-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86
_64.whl.metadata (2.1 kB)
Collecting regex!=2019.12.17 (from transformers)
  Downloading regex-2024.11.6-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl.metadata (40 kB)
Requirement already satisfied: requests in /usr/local/lib/python3.11/site-pack
ages (from transformers) (2.32.3)
Collecting tokenizers<0.22,>=0.21 (from transformers)
  Downloading tokenizers-0.21.0-cp39-abi3-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl.metadata (6.7 kB)
Collecting safetensors>=0.4.1 (from transformers)
  Downloading safetensors-0.5.2-cp38-abi3-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl.metadata (3.8 kB)
Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.11/site-pa
ckages (from transformers) (4.67.1)
Collecting fsspec>=2023.5.0 (from huggingface-hub<1.0,>=0.26.0->transformers)
  Downloading fsspec-2025.2.0-py3-none-any.whl.metadata (11 kB)
Collecting typing-extensions>=3.7.4.3 (from huggingface-hub<1.0,>=0.26.0->tran
sformers)
  Using cached typing_extensions-4.12.2-py3-none-any.whl.metadata (3.0 kB)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/pyth
on3.11/site-packages (from requests->transformers) (3.4.1)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/site-
packages (from requests->transformers) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.1
1/site-packages (from requests->transformers) (2.3.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.1
1/site-packages (from requests->transformers) (2024.12.14)
Downloading transformers-4.49.0-py3-none-any.whl (10.0 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 10.0/10.0 MB 62.4 MB/s eta 0:00:00
Downloading huggingface_hub-0.29.1-py3-none-any.whl (468 kB)
Downloading numpy-2.2.3-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl (16.4 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 16.4/16.4 MB 89.7 MB/s eta 0:00:00
Downloading PyYAML-6.0.2-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl (762 kB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 763.0/763.0 kB 32.2 MB/s eta 0:00:
00
Downloading regex-2024.11.6-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x8
6_64.whl (792 kB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 792.7/792.7 kB 38.3 MB/s eta 0:00:
00
Downloading safetensors-0.5.2-cp38-abi3-manylinux_2_17_x86_64.manylinux2014_x8
6_64.whl (461 kB)
Downloading tokenizers-0.21.0-cp39-abi3-manylinux_2_17_x86_64.manylinux2014_x8
6_64.whl (3.0 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 3.0/3.0 MB 83.9 MB/s eta 0:00:00
Downloading filelock-3.17.0-py3-none-any.whl (16 kB)
```

```
Downloading fsspec-2025.2.0-py3-none-any.whl (184 kB)
Downloading typing_extensions-4.12.2-py3-none-any.whl (37 kB)
Installing collected packages: typing-extensions, safetensors, regex, pyyaml,
numpy, fsspec, filelock, huggingface-hub, tokenizers, transformers
Successfully installed filelock-3.17.0 fsspec-2025.2.0 huggingface-hub-0.29.1
numpy-2.2.3 pyyaml-6.0.2 regex-2024.11.6 safetensors-0.5.2 tokenizers-0.21.0 t
ransformers-4.49.0 typing-extensions-4.12.2
Collecting sacremoses
  Downloading sacremoses-0.1.1-py3-none-any.whl.metadata (8.3 kB)
Requirement already satisfied: regex in /usr/local/lib/python3.11/site-package
s (from sacremoses) (2024.11.6)
Collecting click (from sacremoses)
  Downloading click-8.1.8-py3-none-any.whl.metadata (2.3 kB)
Collecting joblib (from sacremoses)
  Using cached joblib-1.4.2-py3-none-any.whl.metadata (5.4 kB)
Requirement already satisfied: tqdm in /usr/local/lib/python3.11/site-packages
(from sacremoses) (4.67.1)
Downloading sacremoses-0.1.1-py3-none-any.whl (897 kB)
  ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 897.5/897.5 kB 34.8 MB/s eta 0:00:
00
Downloading click-8.1.8-py3-none-any.whl (98 kB)
Downloading joblib-1.4.2-py3-none-any.whl (301 kB)
Installing collected packages: joblib, click, sacremoses
Successfully installed click-8.1.8 joblib-1.4.2 sacremoses-0.1.1
Requirement already satisfied: numpy in /usr/local/lib/python3.11/site-package
s (2.2.3)
Collecting pytorch
  Downloading pytorch-1.0.2.tar.gz (689 bytes)
  Preparing metadata (setup.py) ... done
Building wheels for collected packages: pytorch
  error: subprocess-exited-with-error

  × python setup.py bdist_wheel did not run successfully.
  │ exit code: 1
  ╰─> See above for output.

  note: This error originates from a subprocess, and is likely not a problem w
ith pip.
  Building wheel for pytorch (setup.py) ... error
  ERROR: Failed building wheel for pytorch
  Running setup.py clean for pytorch
Failed to build pytorch
ERROR: ERROR: Failed to build installable wheels for some pyproject.toml based
projects (pytorch)
Collecting tensorflow
  Downloading tensorflow-2.18.0-cp311-cp311-manylinux_2_17_x86_64.manylinux201
4_x86_64.whl.metadata (4.1 kB)
Collecting absl-py>=1.0.0 (from tensorflow)
  Downloading absl_py-2.1.0-py3-none-any.whl.metadata (2.3 kB)
Collecting astunparse>=1.6.0 (from tensorflow)
  Downloading astunparse-1.6.3-py2.py3-none-any.whl.metadata (4.4 kB)
Collecting flatbuffers>=24.3.25 (from tensorflow)
  Downloading flatbuffers-25.2.10-py2.py3-none-any.whl.metadata (875 bytes)
Collecting gast!=0.5.0,!=0.5.1,!=0.5.2,>=0.2.1 (from tensorflow)
  Downloading gast-0.6.0-py3-none-any.whl.metadata (1.3 kB)
Collecting google-pasta>=0.1.1 (from tensorflow)
  Downloading google_pasta-0.2.0-py3-none-any.whl.metadata (814 bytes)
Collecting libclang>=13.0.0 (from tensorflow)
  Downloading libclang-18.1.1-py2.py3-none-manylinux2010_x86_64.whl.metadata
(5.2 kB)
```

```
Collecting opt-einsum>=2.3.2 (from tensorflow)
  Downloading opt_einsum-3.4.0-py3-none-any.whl.metadata (6.3 kB)
Requirement already satisfied: packaging in /usr/local/lib/python3.11/site-pac
kages (from tensorflow) (24.2)
Collecting protobuf!=4.21.0,!=4.21.1,!=4.21.2,!=4.21.3,!=4.21.4,!=4.21.5,<6.0.
0dev,>=3.20.3 (from tensorflow)
  Downloading protobuf-5.29.3-cp38-abi3-manylinux2014_x86_64.whl.metadata (592
bytes)
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.1
1/site-packages (from tensorflow) (2.32.3)
Requirement already satisfied: setuptools in /usr/local/lib/python3.11/site-pa
ckages (from tensorflow) (65.6.3)
Collecting six>=1.12.0 (from tensorflow)
  Downloading six-1.17.0-py2.py3-none-any.whl.metadata (1.7 kB)
Collecting termcolor>=1.1.0 (from tensorflow)
  Using cached termcolor-2.5.0-py3-none-any.whl.metadata (6.1 kB)
Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/pyth
on3.11/site-packages (from tensorflow) (4.12.2)
Collecting wrapt>=1.11.0 (from tensorflow)
  Downloading wrapt-1.17.2-cp311-cp311-manylinux_2_5_x86_64.manylinux1_x86_64.
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (6.4 kB)
Collecting grpcio<2.0,>=1.24.3 (from tensorflow)
  Downloading grpcio-1.70.0-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x8
6_64.whl.metadata (3.9 kB)
Collecting tensorboard<2.19,>=2.18 (from tensorflow)
  Downloading tensorboard-2.18.0-py3-none-any.whl.metadata (1.6 kB)
Collecting keras>=3.5.0 (from tensorflow)
  Downloading keras-3.8.0-py3-none-any.whl.metadata (5.8 kB)
Collecting numpy<2.1.0,>=1.26.0 (from tensorflow)
  Downloading numpy-2.0.2-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (60 kB)
Collecting h5py>=3.11.0 (from tensorflow)
  Downloading h5py-3.13.0-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (2.5 kB)
Collecting ml-dtypes<0.5.0,>=0.4.0 (from tensorflow)
  Downloading ml_dtypes-0.4.1-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl.metadata (20 kB)
Collecting tensorflow-io-gcs-filesystem>=0.23.1 (from tensorflow)
  Downloading tensorflow_io_gcs_filesystem-0.37.1-cp311-cp311-manylinux_2_17_x
86_64.manylinux2014_x86_64.whl.metadata (14 kB)
Requirement already satisfied: wheel<1.0,>=0.23.0 in /usr/local/lib/python3.1
1/site-packages (from astunparse>=1.6.0->tensorflow) (0.45.1)
Collecting rich (from keras>=3.5.0->tensorflow)
  Using cached rich-13.9.4-py3-none-any.whl.metadata (18 kB)
Collecting namex (from keras>=3.5.0->tensorflow)
  Downloading namex-0.0.8-py3-none-any.whl.metadata (246 bytes)
Collecting optree (from keras>=3.5.0->tensorflow)
  Downloading optree-0.14.0-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x8
6_64.whl.metadata (47 kB)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/pyth
on3.11/site-packages (from requests<3,>=2.21.0->tensorflow) (3.4.1)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/site-
packages (from requests<3,>=2.21.0->tensorflow) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.1
1/site-packages (from requests<3,>=2.21.0->tensorflow) (2.3.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.1
1/site-packages (from requests<3,>=2.21.0->tensorflow) (2024.12.14)
Collecting markdown>=2.6.8 (from tensorboard<2.19,>=2.18->tensorflow)
  Downloading Markdown-3.7-py3-none-any.whl.metadata (7.0 kB)
Collecting tensorboard-data-server<0.8.0,>=0.7.0 (from tensorboard<2.19,>=2.18
```

```
->tensorflow)
  Downloading tensorboard_data_server-0.7.2-py3-none-manylinux_2_31_x86_64.wh
l.metadata (1.1 kB)
Collecting werkzeug>=1.0.1 (from tensorboard<2.19,>=2.18->tensorflow)
  Downloading werkzeug-3.1.3-py3-none-any.whl.metadata (3.7 kB)
Collecting MarkupSafe>=2.1.1 (from werkzeug>=1.0.1->tensorboard<2.19,>=2.18->t
ensorflow)
  Downloading MarkupSafe-3.0.2-cp311-cp311-manylinux_2_17_x86_64.manylinux2014
_x86_64.whl.metadata (4.0 kB)
Collecting markdown-it-py>=2.2.0 (from rich->keras>=3.5.0->tensorflow)
  Using cached markdown_it_py-3.0.0-py3-none-any.whl.metadata (6.9 kB)
Collecting pygments<3.0.0,>=2.13.0 (from rich->keras>=3.5.0->tensorflow)
  Downloading pygments-2.19.1-py3-none-any.whl.metadata (2.5 kB)
Collecting mdurl~=0.1 (from markdown-it-py>=2.2.0->rich->keras>=3.5.0->tensorf
low)
  Using cached mdurl-0.1.2-py3-none-any.whl.metadata (1.6 kB)
Downloading tensorflow-2.18.0-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_
x86_64.whl (615.4 MB)
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Downloading gast-0.6.0-py3-none-any.whl (21 kB)
Downloading google_pasta-0.2.0-py3-none-any.whl (57 kB)
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Downloading six-1.17.0-py2.py3-none-any.whl (11 kB)
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nylinux_2_17_x86_64.manylinux2014_x86_64.whl (83 kB)
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Downloading tensorboard_data_server-0.7.2-py3-none-manylinux_2_31_x86_64.whl
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Downloading namex-0.0.8-py3-none-any.whl (5.8 kB)
```

```
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64.whl (405 kB)
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Downloading MarkupSafe-3.0.2-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x
86_64.whl (23 kB)
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f, optree, opt-einsum, numpy, mdurl, MarkupSafe, markdown, grpcio, gast, absl-
py, werkzeug, ml-dtypes, markdown-it-py, h5py, google-pasta, astunparse, tenso
rboard, rich, keras, tensorflow
  Attempting uninstall: numpy
    Found existing installation: numpy 2.2.3
    Uninstalling numpy-2.2.3:
      Successfully uninstalled numpy-2.2.3
Successfully installed MarkupSafe-3.0.2 absl-py-2.1.0 astunparse-1.6.3 flatbuf
fers-25.2.10 gast-0.6.0 google-pasta-0.2.0 grpcio-1.70.0 h5py-3.13.0 keras-3.
8.0 libclang-18.1.1 markdown-3.7 markdown-it-py-3.0.0 mdurl-0.1.2 ml-dtypes-0.
4.1 namex-0.0.8 numpy-2.0.2 opt-einsum-3.4.0 optree-0.14.0 protobuf-5.29.3 pyg
ments-2.19.1 rich-13.9.4 six-1.17.0 tensorboard-2.18.0 tensorboard-data-server
-0.7.2 tensorflow-2.18.0 tensorflow-io-gcs-filesystem-0.37.1 termcolor-2.5.0 w
erkzeug-3.1.3 wrapt-1.17.2
```

To measure creativity, we'll break this down into two components.

1. Through `DJ_search_exact` by Lu et al. 2024 to find exact matches against a large corpus. We can get how much of the generated suggestions are directly "non-creative." The output is a score from 0-1, 0 if no spans are found, 1 if all tokens up to the last relevant index are matched.

2. We introduce our self-made `Stylescore` to measure how stylistiscally "creative" the text really is. To achieve this, we will measure

- Syntactic complexity.
- Figurative or Descriptive Language use.

In [5]:
```
!pip install nltk
!conda init
!conda activate infini-gram
!python DJ_search_exact.py --task Human-book --data data/book/Human_book.json
```

```
        no change     /usr/local/condabin/conda
        no change     /usr/local/bin/conda
        no change     /usr/local/bin/conda-env
        no change     /usr/local/bin/activate
        no change     /usr/local/bin/deactivate
        no change     /usr/local/etc/profile.d/conda.sh
        no change     /usr/local/etc/fish/conf.d/conda.fish
        no change     /usr/local/shell/condabin/Conda.psm1
        no change     /usr/local/shell/condabin/conda-hook.ps1
        no change     /usr/local/lib/python3.11/site-packages/xontrib/conda.xsh
        no change     /usr/local/etc/profile.d/conda.csh
        modified      /root/.bashrc

        ==> For changes to take effect, close and re-open your current shell. <==


        CondaError: Run 'conda init' before 'conda activate'

        Traceback (most recent call last):
          File "/content/DJ_search_exact.py", line 2, in <module>
            import nltk
        ModuleNotFoundError: No module named 'nltk'
```

In [12]:
```
!pip install spacy
!python -m spacy download en_core_web_sm
```

```
Collecting spacy
  Downloading spacy-3.8.4-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (27 kB)
Collecting spacy-legacy<3.1.0,>=3.0.11 (from spacy)
  Downloading spacy_legacy-3.0.12-py2.py3-none-any.whl.metadata (2.8 kB)
Collecting spacy-loggers<2.0.0,>=1.0.0 (from spacy)
  Downloading spacy_loggers-1.0.5-py3-none-any.whl.metadata (23 kB)
Collecting murmurhash<1.1.0,>=0.28.0 (from spacy)
  Downloading murmurhash-1.0.12-cp311-cp311-manylinux_2_5_x86_64.manylinux1_x8
6_64.manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (2.1 kB)
Collecting cymem<2.1.0,>=2.0.2 (from spacy)
  Downloading cymem-2.0.11-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86
_64.whl.metadata (8.5 kB)
Collecting preshed<3.1.0,>=3.0.2 (from spacy)
  Downloading preshed-3.0.9-cp311-cp311-manylinux_2_5_x86_64.manylinux1_x86_6
4.manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (2.2 kB)
Collecting thinc<8.4.0,>=8.3.4 (from spacy)
  Downloading thinc-8.3.4-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (15 kB)
Collecting wasabi<1.2.0,>=0.9.1 (from spacy)
  Downloading wasabi-1.1.3-py3-none-any.whl.metadata (28 kB)
Collecting srsly<3.0.0,>=2.4.3 (from spacy)
  Downloading srsly-2.5.1-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_
64.whl.metadata (19 kB)
Collecting catalogue<2.1.0,>=2.0.6 (from spacy)
  Downloading catalogue-2.0.10-py3-none-any.whl.metadata (14 kB)
Collecting weasel<0.5.0,>=0.1.0 (from spacy)
  Downloading weasel-0.4.1-py3-none-any.whl.metadata (4.6 kB)
Collecting typer<1.0.0,>=0.3.0 (from spacy)
  Downloading typer-0.15.1-py3-none-any.whl.metadata (15 kB)
Requirement already satisfied: tqdm<5.0.0,>=4.38.0 in /usr/local/lib/python3.1
1/site-packages (from spacy) (4.67.1)
Requirement already satisfied: numpy>=1.19.0 in /usr/local/lib/python3.11/site
-packages (from spacy) (2.0.2)
Requirement already satisfied: requests<3.0.0,>=2.13.0 in /usr/local/lib/pytho
n3.11/site-packages (from spacy) (2.32.3)
Collecting pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4 (from spacy)
  Downloading pydantic-2.10.6-py3-none-any.whl.metadata (30 kB)
Collecting jinja2 (from spacy)
  Downloading jinja2-3.1.5-py3-none-any.whl.metadata (2.6 kB)
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ckages (from spacy) (65.6.3)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/si
te-packages (from spacy) (24.2)
Collecting langcodes<4.0.0,>=3.2.0 (from spacy)
  Downloading langcodes-3.5.0-py3-none-any.whl.metadata (29 kB)
Collecting language-data>=1.2 (from langcodes<4.0.0,>=3.2.0->spacy)
  Downloading language_data-1.3.0-py3-none-any.whl.metadata (4.3 kB)
Collecting annotated-types>=0.6.0 (from pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4->
spacy)
  Using cached annotated_types-0.7.0-py3-none-any.whl.metadata (15 kB)
Collecting pydantic-core==2.27.2 (from pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4->s
pacy)
  Downloading pydantic_core-2.27.2-cp311-cp311-manylinux_2_17_x86_64.manylinux
2014_x86_64.whl.metadata (6.6 kB)
Requirement already satisfied: typing-extensions>=4.12.2 in /usr/local/lib/pyt
hon3.11/site-packages (from pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4->spacy) (4.1
2.2)
Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/pyth
on3.11/site-packages (from requests<3.0.0,>=2.13.0->spacy) (3.4.1)
```

```
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/site-
packages (from requests<3.0.0,>=2.13.0->spacy) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.1
1/site-packages (from requests<3.0.0,>=2.13.0->spacy) (2.3.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.1
1/site-packages (from requests<3.0.0,>=2.13.0->spacy) (2024.12.14)
Collecting blis<1.3.0,>=1.2.0 (from thinc<8.4.0,>=8.3.4->spacy)
  Downloading blis-1.2.0-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_6
4.whl.metadata (7.7 kB)
Collecting confection<1.0.0,>=0.0.1 (from thinc<8.4.0,>=8.3.4->spacy)
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Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.11/site-
packages (from typer<1.0.0,>=0.3.0->spacy) (8.1.8)
Collecting shellingham>=1.3.0 (from typer<1.0.0,>=0.3.0->spacy)
  Downloading shellingham-1.5.4-py2.py3-none-any.whl.metadata (3.5 kB)
Requirement already satisfied: rich>=10.11.0 in /usr/local/lib/python3.11/site
-packages (from typer<1.0.0,>=0.3.0->spacy) (13.9.4)
Collecting cloudpathlib<1.0.0,>=0.7.0 (from weasel<0.5.0,>=0.1.0->spacy)
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Collecting smart-open<8.0.0,>=5.2.1 (from weasel<0.5.0,>=0.1.0->spacy)
  Downloading smart_open-7.1.0-py3-none-any.whl.metadata (24 kB)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.11/si
te-packages (from jinja2->spacy) (3.0.2)
Collecting marisa-trie>=1.1.0 (from language-data>=1.2->langcodes<4.0.0,>=3.2.
0->spacy)
  Downloading marisa_trie-1.2.1-cp311-cp311-manylinux_2_17_x86_64.manylinux201
4_x86_64.whl.metadata (9.0 kB)
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python
3.11/site-packages (from rich>=10.11.0->typer<1.0.0,>=0.3.0->spacy) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/pytho
n3.11/site-packages (from rich>=10.11.0->typer<1.0.0,>=0.3.0->spacy) (2.19.1)
Requirement already satisfied: wrapt in /usr/local/lib/python3.11/site-package
s (from smart-open<8.0.0,>=5.2.1->weasel<0.5.0,>=0.1.0->spacy) (1.17.2)
Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.11/site-pa
ckages (from markdown-it-py>=2.2.0->rich>=10.11.0->typer<1.0.0,>=0.3.0->spacy)
(0.1.2)
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4.whl (218 kB)
Downloading langcodes-3.5.0-py3-none-any.whl (182 kB)
Downloading murmurhash-1.0.12-cp311-cp311-manylinux_2_5_x86_64.manylinux1_x86_
64.manylinux_2_17_x86_64.manylinux2014_x86_64.whl (134 kB)
Downloading preshed-3.0.9-cp311-cp311-manylinux_2_5_x86_64.manylinux1_x86_64.m
anylinux_2_17_x86_64.manylinux2014_x86_64.whl (157 kB)
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14_x86_64.whl (2.0 MB)
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Downloading spacy_legacy-3.0.12-py2.py3-none-any.whl (29 kB)
Downloading spacy_loggers-1.0.5-py3-none-any.whl (22 kB)
Downloading srsly-2.5.1-cp311-cp311-manylinux_2_17_x86_64.manylinux2014_x86_6
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```

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Downloading weasel-0.4.1-py3-none-any.whl (50 kB)
Downloading jinja2-3.1.5-py3-none-any.whl (134 kB)
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x86_64.whl (1.4 MB)
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Installing collected packages: cymem, wasabi, spacy-loggers, spacy-legacy, sma
rt-open, shellingham, pydantic-core, murmurhash, marisa-trie, jinja2, cloudpat
hlib, catalogue, blis, annotated-types, srsly, pydantic, preshed, language-dat
a, typer, langcodes, confection, weasel, thinc, spacy
Successfully installed annotated-types-0.7.0 blis-1.2.0 catalogue-2.0.10 cloud
pathlib-0.20.0 confection-0.1.5 cymem-2.0.11 jinja2-3.1.5 langcodes-3.5.0 lang
uage-data-1.3.0 marisa-trie-1.2.1 murmurhash-1.0.12 preshed-3.0.9 pydantic-2.1
0.6 pydantic-core-2.27.2 shellingham-1.5.4 smart-open-7.1.0 spacy-3.8.4 spacy-
legacy-3.0.12 spacy-loggers-1.0.5 srsly-2.5.1 thinc-8.3.4 typer-0.15.1 wasabi-
1.1.3 weasel-0.4.1
Collecting en-core-web-sm==3.8.0
  Downloading https://github.com/explosion/spacy-models/releases/download/en_c
ore_web_sm-3.8.0/en_core_web_sm-3.8.0-py3-none-any.whl (12.8 MB)
                                    ─────────────── 12.8/12.8 MB 121.5 MB/s eta 0:0
0:00
Installing collected packages: en-core-web-sm
Successfully installed en-core-web-sm-3.8.0
✔ Download and installation successful
You can now load the package via spacy.load('en_core_web_sm')
```

In [15]:
```python
import spacy
from collections import deque

# Load spaCy model
nlp = spacy.load("en_core_web_sm")

def get_parse_tree_depth(sent):
    """
    Calculate parse tree depth for a sentence using a breadth-first search (BFS
    starting from the root token.
    """
    roots = [token for token in sent if token.head == token]
    if not roots:
        return 0
    root = roots[0]
    max_depth = 0
    depths = {root: 0}
    queue = deque([root])

    while queue:
        node = queue.popleft()
        for child in node.children:
            depths[child] = depths[node] + 1
```

2/26/25, 10:29 AM

```python
            max_depth = max(max_depth, depths[child])
            queue.append(child)
    return max_depth

def count_subordinate_clauses(doc):
    """
    Count subordinate clauses by looking for tokens with dependency labels
    typically marking clause boundaries:
      - 'mark' (subordinating conjunctions),
      - 'advcl' (adverbial clauses), and
      - 'ccomp' (clausal complements).
    """
    count = 0
    for token in doc:
        if token.dep_ in {"mark", "advcl", "ccomp"}:
            count += 1
    return count

def count_passive_sentences(doc):
    """
    Identify and count passive sentences. A sentence is considered passive
    if it contains any token with the dependency 'nsubjpass'.
    """
    passive_count = 0
    for sent in doc.sents:
        if any(token.dep_ == "nsubjpass" for token in sent):
            passive_count += 1
    return passive_count

def syntactic_complexity(text, d_max=10, max_subordinate_per_sentence=2):
    """
    Calculate a normalized syntactic complexity score in the range [0,1].
    It is very knowledge-based.
    This function computes three components:
      1. Depth Component: Average parse tree depth normalized by d_max.
         The average is capped at d_max to avoid outlier effects.
      2. Subordinate Clause Component: The average number of subordinate clause
         per sentence normalized by an assumed maximum (default=2).
      3. Passive Voice Component: The fraction of sentences exhibiting passive

    The final score is the average of these three components.
    """
    doc = nlp(text)
    sentences = list(doc.sents)
    num_sentences = len(sentences)

    if num_sentences == 0:
        return 0.0

    # Depth Component
    total_depth = sum(get_parse_tree_depth(sent) for sent in sentences)
    avg_depth = total_depth / num_sentences
    depth_component = min(avg_depth, d_max) / d_max  # normalize to [0,1]

    # Subordinate Clause Component
    num_subordinate = count_subordinate_clauses(doc)
    subordinate_component = (num_subordinate / num_sentences) / max_subordinate
    subordinate_component = min(subordinate_component, 1.0)

    # Passive Voice Component
```

```python
        passive_sentences = count_passive_sentences(doc)
        passive_component = passive_sentences / num_sentences  # already in [0,1]

        # Combine components equally to yield a final score between 0 and 1
        normalized_score = (depth_component + subordinate_component + passive_comp
        return normalized_score

text = (
    "The old mansion, which had been abandoned for years, stood silent. "
    "Its walls, marked by time and neglect, told stories as if they were whispe
    "The garden was overgrown, and nature had reclaimed it, making it look like
)

score = syntactic_complexity(text)
print("Normalized Syntactic Complexity Score:", score)
```

Normalized Syntactic Complexity Score: 0.5777777777777777

In [21]:

Successfully read 2215 events in a writing session from ./coauthor-v1.0/bac237
f54fe449e18334a685c6381657.jsonl
User-written sentences: ['dating apps and technology in general have paved the
way to bridge closer connections together than', 'ever before. Because of dati
ng apps such as Tinder, Facebook', ', Instagram, Snapchat, and other social me
dia platforms, people are able to connect with each other in ways that were no
t possible before. Imagine before where two strangers could only meet by chanc
e on a particular instance, nowadays we are', "able to connect with people fro
m all over the world. It's almost as if it's cheating to find the one and what
most people call,", 'your soulmate.\n\nOf course being too distracted and negl
ecting to spend time with your loved ones if you use these dating apps too oft
en can be a negative. But so is', 'anything else that you do in excess. So the
usage of technology must come with a great', 'balance and moderation. This wa
y,', 'you can still enjoy the benefits of technology while still being able to
maintain a healthy relationship with your significant other.\n\nW remember bei
ng a kid and having no internet in the house, in order for me to contact a lov
ed one that is far away is to', 'write a letter and send it through snail mai
l. It was a slow, expensive, and', 'a time consuming process. We almost take i
t for granted today that', 'we can send a message to someone in another countr
y in a matter of seconds that is also free of cost, considering you already ha
ve the equipment to do so. I feel like in the future, it would just be improve
d and we would all feel very connected more than less.\n\nBeing in a video cal
l or a phone call, something may seem missing.', "It's not the same as being i
n person. Being intimate and feeling the touch of someone is still something t
hat the technology can give. That's why", 'I am optimistic that in the future,
this can be', 'improved and we can have a more intimate connection with each o
ther. Having a device that lets you', "feel the touch of someone is something
that I would like to see in the future. That way, there's no need for", 'you t
o be in the same room as someone in order to feel their touch. This eliminates
the issue of', 'having to travel long distances just to see someone.\n\nSo jus
t to clarify my stance with technology and dating apps, I feel like they are a
bridge instead of', 'a barrier. Using it in moderation, I feel like the tools
the dating apps and social media provide is very', 'useful and can help people
connect with each other in ways that were not possible before. It is also acti
vely trying to fulfill the further needs of humanity and making me optimistic
that in the future,', "we will be able to have a more intimate connection with
each other. Have you contacted a loved one recently? If not, I do urge you to
go ahead and make sure they're"]
AI-generated suggestions: ['ever before.', ', Instagram, Snapchat, and other s
ocial media platforms, people are able to connect with each other in ways that
were not possible before.', 'able to connect with people from all over the wor
ld.', 'balance and moderation.', 'you can still enjoy the benefits of technolo
gy while still being able to maintain a healthy relationship with your signifi
cant other.', 'write a letter and send it through snail mail.', 'a time consum
ing process.', 'we can send a message to someone in another country in a matte
r of seconds.', "It's not the same as being in person.", 'improved and we can
have a more intimate connection with each other.', 'feel the touch of someone
is something that I would like to see in the future.', 'you to be in the same
room as someone in order to feel their touch.', 'having to travel long distanc
es just to see someone.', 'a barrier.', 'useful and can help people connect wi
th each other in ways that were not possible before.', 'we will be able to hav
e a more intimate connection with each other.', 'doing well.']
Successfully read 2355 events in a writing session from ./coauthor-v1.0/8393a8
ed335f438c9ad5ca3d25a947b6.jsonl
User-written sentences: ['And the pig was like "That\'s right, dude. I saw the
shaped charges you used on the 91st pig\'s steel reinforced concrete house, an
d that\'s not gonna cut it with mine."', 'The wolf was like, "Whatever, dude.
I\'m tired of this game anyway, you build the craziest most reinforced house y
ou like, because I\'m not huffing, or puffing, or shooting. or dynamiting, or
anything else to try to get in there." Then,', 'the wolf went off to fhe fores

t to live a normal wolf life, he joined a pack,', 'and became a normal wolf.', 'He met a lady wolf, they had cubs, and', 'ate deer, and rabbits, and it was', 'a very happy, normal wolf life.\n\nMeanwhile, the pig', 'sat around his depleted uranium house, and worried. He', 'was like, "What if the wolf hadn\'t given up?" He was constantly waiting for the attack which never came.', 'He lived in fear for seven years. Over those seven years, he', 'ate his food without savoring it, he never laughed, he had no friends or family. He searched his house for', "hidden ways in, and when he couldn't find any, he searched for hidden ways out. That was a bust. He checked the yard for signs", 'of the wolf, he installed motion sensing cameras around his house, he bought a wolf-call for the phone. He did constant Google searches related to home security, and incidentally found out that depleted uranium', "was a little dangerous, and known to raise the incidence of cancer in human tank operators.\n\nHe told himself that that didn't apply to pigs, and in any event, it was worth it to be wolf-free. So, he", 'sat, and he waited, and he ate. He got fat as a pig, which in this case, him already being fat as a pig, meant he was as fat as', 'a pig that had gotten fatter than a normal pig. In other words, as fat as two', 'norma After seven years of this, he realized he was', 'wasting his life, and he decided he would leave home for the first time in seven years to see what was going on outside. slowly killing himself, and \n\nHe left his depleted uranium home, and ventured out to the forest, where', 'he saw the normal wolf pack which had been living there, completely oblivious to his existence. He spoke to the wolf. "Hey, you look pretty happy, I guess not eating me was a pretty good deal after all?" The wolf was silent, because now he was a normal wolf who couldn\'t talk.\n\nThe pig continued "So, would it be okay if I moved out here, and lived a normal life you like you have?" The wolf moved his head a bit, which the pig took as an assent, and the pig began rooting among the shrubs for stuff to eat.\n\nThe wolf pack paused for a moment, surprised by thehesitatedis strange creature that talked, and seemed to have no fear of them. After that moment, of course, they']

AI-generated suggestions: ['And the wolf was like "dude."', 'a few hours later when he went to go huff the house, he was like, "What is this stuff?', 'and got some other wolves to do his dirty work for him.', 'all good.', 'was like, "What if the wolf hadn\'t given up?"', 'Until one day, the wolf came back.', 'ate his food without savoring it, he never laughed, he had no friends or family.', 'radiation leaks constantly.', "of tunneling, and when he couldn't find any there either, he checked the moon for signs of wolves.", "is worse than he had thought, it's not just a little bad for you, but a lot bad for you.", 'sat, and he waited, and he ate.', 'a pig could be.', 'normal pigs.', 'just as fat and miserable as he would have been if the wolf had come and eaten him, so one day he got up, ate his breakfast without', 'he saw the normal wolf pack which had been living there, completely oblivious to his existence.', 'tore him to pieces.']

Successfully read 2150 events in a writing session from ./coauthor-v1.0/994c929ac0db414cbb96423bb245eb7c.jsonl

User-written sentences: ['Scientists realize that this drug actually causes', 'people to become particularly voracious about their sexuality.', 'The drug is recalled, and the government is forced to pay for the cost of the drugabout satiating basic human needs and desires like food, shelter, clothing, and sex.\n\n But already an entire human population has been impacted by the drug. The only people saved are those who are your age or older since you were the only ones that did not receive the drug.', "You are one of the few people who are not affected by the drug.\n But you have seen how this drug has totally decimated others. For example, a good friend of yours who is younger than you is obese because she cannot stop stuffing food into her face. Another one of your friends has gone bankrupt buying herself 100 houses since she feels extreme anxiety about not having enough housing to live in. And another one of your friends has also become a hoarder since she has so many clothes bursting at the seams of her house. Finally, one of your friends is in a constant state of postpartum depression since she's now been through forty-three pregnancies. Her sexual ap

petite is just unending.", 'You have decided to take action.', 'You want to sa
ve humanity from itself.', 'You want to stop this drug from ever being used ag
ain.', 'You have decided to create a new drug that will counteract the effects
of the immortality drug.', 'You call it the "Anti-Immortality Drug."', 'You sp
end many nights and days working in your lab trying to perfect the drug. When
it has finally been perfected you', "decide to test it out on yourself. You do
n't see any short-term side effects or reactions so you feel good about your c
reation. You then administer the drug to your friends. The friend of yours who
has the high libido instantly feels that her sexual urges are quelled. The fri
end who is bankrupt from all her houses starts selling them off like crazy, th
us vastly improving her net worth. The friend who is a hoarder gives all her c
lothes to the homeless. And the friend who is obese learns moderation when it
comes to her diet.\n\nEveryone in society who takes your drug", 'is now living
a normal life. They all cheer for you as their personal hero.']
AI-generated suggestions: ['The drug is recalled, and the government is forced
to pay for the cost of the drug and the side effects.', 'You are one of the fe
w people who are not affected by the drug.', 'You have decided to take actio
n.', 'You want to save humanity from itself.', 'You want to stop this drug fro
m ever being used again.', 'You have decided to create a new drug that will co
unteract the effects of the immortality drug.', 'You call it the "Anti-Immorta
lity Drug."', 'decide to test it out on yourself.', 'is now living a normal li
fe.', 'You are hailed as the savior of humanity.']
Successfully read 3792 events in a writing session from ./coauthor-v1.0/b6acb3
7208be4f3e96965f989fd6f9fb.jsonl
User-written sentences: ['I was 28 when English scientists discovered a miracl
e drug that stopped humanity from aging. Humanity had finally discovered the k
ey to living forever and avoiding the one debt that every human being owes upo
n birth, death. Scientists had warned that the drug was only meant for citize
ns under 26, which left billions of people, including myself, without any hope
of taking the drug. People around the world were furious and saddened to hear
the news that they would not live forever. Meanwhile, the younger generations
were divided on whether or not they wanted to live forever. Taking the drug me
ant living forever or outliving loved ones and watching them pass on.', 'The r
est of the world was not as hesitant to take the drug, and many saw immortalit
y as a chance for humanity to expand and achieve incredible things. Taking the
drug would allow people to study whatever they wanted and help to improve soci
ety for the better. No longer did people have to settle for boring desk jobs,
they could pursue any field of study they wanted.', 'Doctors no longer had to
worry about sicknesses and disease, they could now devote their time towards h
elping people. among a large portion of society who could not take the drugTh
e "Lost Generation" continued to age, while the young took the drug and became
immortal. Families were torn apart, knowing that they would leave loved ones b
ehind. They feared that their loved ones would forget about them as the centur
ies carried on.', 'While the young celebrated their immortality, the old feare
d that they would be forgotten. As time passed, I grew older, finally reaching
the ripe old age of 85,. Society had definitely improved through the efforts o
f an immortal, optimistic generation of people with all the time in the world
on their shoulders.,', 'They set their sights on new frontiers that would be i
mpossible for a normal human lifetime.had Technology had improved by leaps an
d bounds, providing comfort beyond imagination for people from all walks of li
fe. Medicinal advances provided the "Lost Generation" with cures for ailments
that only affected an aging body. I began to wonder if taking the drug was wor
th it. At a certain point, the "Lost Generation" would be no more, ceasing to
exist in time, leaving the immortals behind.', 'Was living forever worth it? W
ere all of the human advances worth it in the end?', 'The immortals were only
prolonging the inevitable.', 'I was concerned with how the immortals would fee
l after living for hundreds of years, or even thousands. Finally, in a shockin
g turn of events, scientists discovered that the drug resulted in tragic side
effects. The immortals began to lose their sight, hearing, taste, sense of sme
ll, aspects of human life. all No longer could they enjoy what made life so p

leasurable, the biological features that made life worth living.', 'The drug h
ad robbed them of all senses, leaving them to a life where they were no longer
huma They could not rely on "The Lost Generatthe", for they too needed help. O
ne generation was dying naturally, the other were becoming walking husks, devo
id of humanity.', 'The immortals were now a burden, and the "Lost Generation"
was stuck in between.', 'The immortals were now at the mercy of the "Lost Gene
ration", for they needed help. The "Lost Generation" could not help, they coul
d only provide wisdom to ease the pain of living without their senses.', 'The
immortals were not the picture of humanity, they were a nightmare. Zombies wal
king amongst the living and the aging.', 'The immortals were not living, they
were merely existing in the world. Their hope and dreams of living forevers da
shed against the stones by the grim reaper. The "Lost Generation" died out one
by one, I was one of the remaining few a bygone era. of']
AI-generated suggestions: ['The rest of the world was not as hesitant to take
the drug, and many saw immortality as a chance for humanity to expand and achi
eve incredible things.', 'Doctors no longer had to worry about sicknesses and
disease, they could now devote their time towards helping people.', 'While the
young celebrated their immortality, the old feared that they would be forgotte
n.', 'They set their sights on new frontiers that would be impossible for a no
rmal human lifetime.', 'Was living forever worth it?', 'The immortals were onl
y prolonging the inevitable.', 'I was concerned with how the immortals would f
eel after living for hundreds of years, or even thousands.', 'The drug had rob
bed them of all senses, leaving them to a life where they were no longer huma
n.', 'The immortals were now a burden, and the "Lost Generation" was stuck in
between.', 'The immortals were now at the mercy of the "Lost Generation", for
they needed help.', 'The immortals were not the picture of humanity, they were
a nightmare.', 'The immortals were not living, they were merely existing in th
e world.', 'I had witnessed the downfall of humanity, and luckily for me, I wa
s spared from the pain of loss.']
Successfully read 1748 events in a writing session from ./coauthor-v1.0/12c027
3868a84564a5f001c3c086f69f.jsonl
User-written sentences: ["I can't blow that down. That's not fair. Where did y
ou even get the uranium from?", "I have no idea how to blow that down.\n\nThe
92nd little pig was ecstatic because he had solved the issue that the wolf cou
ldn't fix. All of his brethren before had their houses blown down. He outsmart
ed the wolf."]
AI-generated suggestions: ['So the wolf went and he built a house out of deple
ted uranium.', 'He had a house of super strength.']
Successfully read 1402 events in a writing session from ./coauthor-v1.0/63ab89
c6ca594ea0a80519442ac4c27b.jsonl
User-written sentences: ["Now, it's too late. It is rumored that a new drug ha
s been created.", "But the government isn't giving it away for free. It is too
expensive for most citizens so people are going great lengths to obtain it ill
egally.", 'To get the drug, you and your friends decide to find a way into the
headquarters of the government facility where it is supposedly being held.\n T
he risks are high, but the group is going for it anyway.', 'They planned caref
ully and the big night had finally arrived.', 'They began their journey and su
ccessfully make it into the facility. They follow the map to the vault where t
he drugs are being stored.', "But it turns out there is an alarm. They hadn't
planned for this. They had to either turn around and leave now, or find a way
to bypass the alarm.", 'They chose to continue and discover an elevator that l
eads to a secret floor deep within the building. The elevator descended to the
floor below, and then kept going and going.', "It was not to the lower floor,
but to another section of the facility. It went down so far they couldn't fath
om how far underground they had gone.", 'Then, the elevator stopped and the do
ors opened.', 'They were in a strange laboratory. "This must be where they mak
e the drug."', 'you thought. The team searched on. "We shouldn\'t be down her
e. We should just find the product and go. We shouldn\'t mess with this stuf
f."', 'your best friend said. Suddenly, the elevator doors closed and the elev
ator lifted up away, leaving them in the deep basement.', "They were stuck. Th

ey went to press the elevator buttons, but there weren't any.", 'A few moments later, the doors opened and a mysterious figure walked in.', 'He was the leader of the facility. "I understand you want access to our product. I have a better offer."', 'he said.', '"I will give you access, but you must agree to my terms." They agreed.', '"You will bring me an item every week for the rest of your lives, and I will give you your drug.']

AI-generated suggestions: ["Now, it's too late.", "But the government isn't giving it away for free.", "When you're 28, you have a normal life.", "The night is still young, and with any luck, they'll all be strong enough to live through the night.", 'But it turns out there is an alarm.', 'They chose to continue and discover an elevator that leads to a secret floor deep within the building.', 'As the elevator finally stopped, they discovered the secret floor was covered in discarded prototypes.', 'Then, the elevator stopped and the doors opened.', 'They stepped out to find themselves in a totally different part of the facility.', 'They thought.', '"Yeah, but it could be our only chance to live forever."', 'They were stuck.', 'A few moments later, the doors opened and a mysterious figure walked in.', 'He was the leader of the facility.', 'he said.', 'He was an older man, but he appeared stronger and more powerful than you.', '"You will bring me an item every week for the rest of your lives, and I will give you your drug.', 'If you fail, I will use your friends as my new test subjects."']

Successfully read 1445 events in a writing session from ./coauthor-v1.0/3b6e7a4c9d65411f9342254120abcde7.jsonl

User-written sentences: ["Choosing depleted uranium wasn't 92's first choice of building material,", 'nor his second, or even his third. But, after realizing that this was a material that none of his other sibling would use, he accepted this as a challenge. \n\nFor generations, Wolf has been the enemy to the pigs and their mother. But after meeting 60 or 70 pigs, Wolf realized he could learn from their determination. Maybe he could even help them from the past mistakes of their elders.', 'He could use his knowledge to meet their needs, and make a mutually beneficial deal.', "The wolf started to teach the pigs how to be shrewd business people. and one of those lessons came in the form of a town who had shut down its nuclear power plant decades ago, but left the uranium on site. \n\nTo be fair, the house itself isn't built out of the uranium itself, but the steel containers that hold the product.", "The 92nd pig found out that steel containers were either thrown away, bur. These were stackable barrels that exuded a faint glow. Pigs being pigs, housekeeping wasn't always the best, yet bugs never entered 92's property."]

AI-generated suggestions: ['nor his second, or even his third.', 'He could use his knowledge to meet their needs, and make a mutually beneficial deal.', 'The wolf started to teach the pigs how to be shrewd business people.', 'The 92nd pig found out that steel containers were either thrown away, buried, or sold for scrap.', 'Choosing this material also helped 92 make a profit.']

Successfully read 1080 events in a writing session from ./coauthor-v1.0/3778eebfc9df42429aa1f23db1934a9d.jsonl

User-written sentences: ['the most important things students should learn in school is social skills academic knowledge as well as .', 'Academic knowledge is important because it helps students to learn how to solve problems and think critically.', 'This will help students to cope with their future jobs and daily problems they encounter.', 'Academic knowledge learnt at school is fundamental to everything. The knowledge will also help students to distinguibetween the truth and what is true and what is untrue.', ', which is very important when the students make decisions on their owncertain . Besides, getting along with their classmates at school also helps the students develop social skills, which are necessary for their survival in the society.']

AI-generated suggestions: ['Academic knowledge is important because it helps students to learn how to solve problems and think critically.', 'The most important thing I have learned in school is the importance of being honest.']

Successfully read 1929 events in a writing session from ./coauthor-v1.0/8b3585b594e24e0dbfd53eae933d2f4a.jsonl

User-written sentences: ['technology has greatly improved dating.', "I've foun
d that dating apps in particular increase the odds of finding a relationship,
at least for me. Just having the ability to use Tinder or Bumble takes away th
e nerves from introducing yourself to someone in person. Breaking that ice is
what I find the most difficult. Being able to talk to someone via a messaging
app gives me a good indication on whether or not we are compatible.\n\nObvious
ly there is still stress when it comes to dating even with the advancement of
technology. Ultimately, no matter how well you know someone via the internet o
r via messaging apps, that first meeting is person is very nerve wracking.",
"I think technology does a really good job in helping alleviate anxiety, but i
t never fully prepares you for a first impression.\n I may be extremely comfor
table speaking to someone via text or messenger but may be too nervous in pers
on and those nerves could show.\n\nPersonally, I have had a ton of experience
as I am now 30 years old. I felt that over time I got less nervous. It's kind
of like anything. The more you do something the more confident you get. I reme
mber my first date I actually spoke to a girl online a ton. Meeting her I was
so nervous because I really liked her and felt she liked me as well. We finall
y met and things went pretty smoothly, much better than I was expecting consid
ering how nervous I was. I look back at that first date and laugh because I wa
s putting so much pressure on myself for no reason.\n\nTechnology lets us brea
k the ice and then ultimately when you're on the date you just have to be your
self. The other person is probably just as nervous as you are. After all, nobo
dy wants to embarrass themselves or come across negatively on a first date. Of
course there are first dates that just don't go well. That's a part of life."]
AI-generated suggestions: ['technology enables us to connect in ways that we o
therwise wouldn't be able to.', 'Its availability in cities, and ease of use h
as increased the pool of potential romantic partners, makes finding people fro
m different backgrounds and interests much easier.', 'I think technology does
a really good job in helping alleviate anxiety, but it never fully prepares yo
u for a first impression.', 'And believe me, most of the time I wish I had jus
t remained friends with the person we went out with rather than actually going
on a date and']
Successfully read 2474 events in a writing session from ./coauthor-v1.0/bf03f1
84f45441258d7e0658a1742332.jsonl
User-written sentences: ['This, after all, is not the first time that Matt Dam
on has gone missing.', 'The first time Matt Damon went missing, humanity had p
ractically stopped in its tracks to try to find him.', 'The alien is not aware
that Matt Damon is a very important person to the human race.\n This is becaus
e Matt Damon has incredible talents. He is funny, personable and can even cast
magical spells.', 'He is also a master of disguise and can be anyone he wants
to be. For example, Matt Damon can morph into a clown, or a doctor, or a lawye
r, or a schoolteacher, or anyone else depending on his mood.', 'With all these
talents, skills and abilities, Matt Damon is arguably the most powerful human
on planet Earth.\n\nSo when the alien kidnaps Matt Damon, he really has no ide
a what he is up against.', "He is unaware that the human race will stop at not
hing to retrieve Matt Damon. In fact, a group of humans based on Switzerland i
s immediately notified of Matt Damon's disappearance.", 'They are called the
"Matt Damon Retrieval Team" and they are the most elite group of humans on the
planet. This Swiss team has a lot of powerful weapons at their disposal to try
to get Matt Damon back on planet Earth.', 'The alien is not aware of this, but
he is about to get a rude awakening.\n The Swiss team sets out to find the ali
en in a spaceship. They set their sights on the planet where they know the ali
en is: Planet Borg. Planet Borg is zillions of lightyears away from the Swiss,
but they are totally undeterred. They truly stop at nothing for Matt Damon. An
d so, as a result, the alien is not prepared for the blasts of rain and fire t
hat he is hit with all of a sudden on Planet Borg. The Swiss have arrived!',
'The Swiss team is not going to let the alien have his way with Matt Damon.',
'They are going to get Matt Damon back, no matter what.', 'They are going to g
et Matt Damon back, even if they have to destroy Planet Borg in the process. M
att Damon is relieved to see the Swiss. After all, the alien had been confinin

g him to a small isolation room, where he was only allowed to eat hot dogs and
watch the same Netflix show over and over again, on repeat.', "The alien had b
een very cruel to Matt Damon. So when the Swiss start blasting Planet Borg, Ma
tt Damon knows he's in good hands. He is promptly freed and gives the alien a
very sarcastic goodbye.", 'The alien is not happy.']
AI-generated suggestions: ['The alien is not aware that Matt Damon is a very i
mportant person to the human race.', 'He is also a master of disguise and can
be anyone he wants to be.', 'He is unaware that the human race will stop at no
thing to retrieve Matt Damon.', 'They are called the "Matt Damon Retrieval Tea
m" and they are the most elite group of humans on the planet.', 'The alien is
not aware of this, but he is about to get a rude awakening.', 'The Swiss team
is not going to let the alien have his way with Matt Damon.', 'They are going
to get Matt Damon back, no matter what.', 'They are going to get Matt Damon ba
ck, even if they have to destroy Planet Borg in the process.', 'The alien had
been very cruel to Matt Damon.', 'The alien is not happy.', 'He is not happy t
hat he has been defeated by the Swiss.']
Processed 1447 paths. Results saved to emotion_similarity_results.csv.

In [2]:
```python
def extract_acceptance_status(events):
    """Track if a suggestion was accepted or rejected."""
    acceptance_status = []  # Stores 'accepted' or 'rejected'
    last_suggestion_open = None  # Store the most recent `suggestion-open`

    for event in events:
        if event["eventName"] == "suggestion-open" and event.get("currentSugge
            last_suggestion_open = event  # Save the latest `suggestion-open`

        elif event["eventName"] == "suggestion-select" and last_suggestion_ope
            # Suggestion selected
            acceptance_status.append('accepted')
            last_suggestion_open = None  # Reset, since we handled the accepta

        elif event["eventName"] == "suggestion-close" and last_suggestion_open
            # Suggestion closed without selection (rejected)
            acceptance_status.append('rejected')
            last_suggestion_open = None  # Reset, since we handled the rejecti

    return acceptance_status
```

In [11]:
```python
# Loop through each path (limited to paths 100-110)
for path in paths[:100]:
    events = read_writing_session(path)

    if len(events) < 3000:

        # Extract user-written text and AI-generated suggestions
        user_texts = reconstruct_user_text(events)
        ai_suggestions = extract_selected_ai_suggestions(events)
        acceptance_status = extract_acceptance_status(events)

        # Ensure we only compare matching pairs
        for user_text, ai_text, status in zip(user_texts, ai_suggestions, accept
            user_score = syntactic_complexity(user_text)
            ai_score = syntactic_complexity(ai_text)
            # Store results, including acceptance status
            jsd_results.append({
                "path": path,
                "user_text": user_text,
                "ai_suggestion": ai_text,
                "acceptance_status": status,
```

```
                    "user_score": user_score,
                    "ai_score": ai_score
            })
```

Successfully read 1238 events in a writing session from ./coauthor-v1.0/9614fb
65fa5146549e303e13586a947b.jsonl
Successfully read 2431 events in a writing session from ./coauthor-v1.0/6c16f9
72111c483a9d45114c12e381ff.jsonl
Successfully read 1202 events in a writing session from ./coauthor-v1.0/bd632b
8b53394b32a6dba18848f787a4.jsonl
Successfully read 946 events in a writing session from ./coauthor-v1.0/5d9be2d
ad6584ff4b2ab1c6f701f64cb.jsonl
Successfully read 1247 events in a writing session from ./coauthor-v1.0/08b1a2
012f4d4115b56cc8231449ff48.jsonl
Successfully read 1994 events in a writing session from ./coauthor-v1.0/b4bbf4
0667d64a6ebd248ebb87a3ce5f.jsonl
Successfully read 1830 events in a writing session from ./coauthor-v1.0/423daa
7fb2214d1093f73d4966240646.jsonl
Successfully read 1876 events in a writing session from ./coauthor-v1.0/54c597
f302a9404caab702a8499b8aa0.jsonl
Successfully read 1902 events in a writing session from ./coauthor-v1.0/b30082
b36e764dbd859c020b10fe78b5.jsonl
Successfully read 2593 events in a writing session from ./coauthor-v1.0/1b15da
4de55047cf85b1ca1adbb860a6.jsonl
Successfully read 2675 events in a writing session from ./coauthor-v1.0/02ef07
c642254b088b72486ce41e010c.jsonl
Successfully read 886 events in a writing session from ./coauthor-v1.0/17f65e1
4d6ab4f7596367a394daf3f82.jsonl
Successfully read 2254 events in a writing session from ./coauthor-v1.0/935086
9f0d24492c920c83e0a9507648.jsonl
Successfully read 700 events in a writing session from ./coauthor-v1.0/f11975f
ed1994467a041c56aab447dcb.jsonl
Successfully read 1268 events in a writing session from ./coauthor-v1.0/815f21
33a4634d7b88b1697b1f8a5d1e.jsonl
Successfully read 3366 events in a writing session from ./coauthor-v1.0/0a8329
7c1ce94d15b358d79e533396c7.jsonl
Successfully read 1610 events in a writing session from ./coauthor-v1.0/52c100
caa73b4d7ba9185287b8863362.jsonl
Successfully read 2754 events in a writing session from ./coauthor-v1.0/d70105
3d959a43399a0f3877dab22dd8.jsonl
Successfully read 628 events in a writing session from ./coauthor-v1.0/5233fde
72269427db4cd417546bfddf3.jsonl
Successfully read 2970 events in a writing session from ./coauthor-v1.0/81b309
67f40349e5b0e333f1e4851ce4.jsonl
Successfully read 1752 events in a writing session from ./coauthor-v1.0/98ec7d
fa3aa04e69b9eaf765d6134943.jsonl
Successfully read 1540 events in a writing session from ./coauthor-v1.0/484eba
21615341fab99300bfe20873fb.jsonl
Successfully read 1540 events in a writing session from ./coauthor-v1.0/34f5ea
d6ffce44cfbdbd9cd0ef47f0c5.jsonl
Successfully read 874 events in a writing session from ./coauthor-v1.0/2f923ab
a101d46dc9bfca5a6664342d7.jsonl
Successfully read 1531 events in a writing session from ./coauthor-v1.0/80624e
b1f1d241e8b1fa4cdc70d43f0a.jsonl
Successfully read 3220 events in a writing session from ./coauthor-v1.0/8fe4b8
a137ba4a7abe80e5c005f7490f.jsonl
Successfully read 3491 events in a writing session from ./coauthor-v1.0/5d9759
2b669a4155b2f8d7308d649c0d.jsonl
Successfully read 2416 events in a writing session from ./coauthor-v1.0/2f57e9
155477457aad589a7cc507cd68.jsonl
Successfully read 2660 events in a writing session from ./coauthor-v1.0/955a3f
8444e149f8a66045bb23420a4c.jsonl
Successfully read 2196 events in a writing session from ./coauthor-v1.0/0a08f7
fd748246c8ad4e353edb7e2394.jsonl

Successfully read 1421 events in a writing session from ./coauthor-v1.0/d33552
1141c84360aad24ece4e5760f7.jsonl
Successfully read 2994 events in a writing session from ./coauthor-v1.0/cb5036
e1f4494870bf96a478065d3269.jsonl
Successfully read 3119 events in a writing session from ./coauthor-v1.0/23b998
c76c784ff29f0ddedd78128722.jsonl
Successfully read 2855 events in a writing session from ./coauthor-v1.0/85e6bf
7f0f3844f3a9f88b7f3350e6f6.jsonl
Successfully read 2094 events in a writing session from ./coauthor-v1.0/87958a
503957482fa3a5b13de3fbb296.jsonl
Successfully read 2316 events in a writing session from ./coauthor-v1.0/ad3a61
d515cf456cbaa424c7b4ac0f13.jsonl
Successfully read 1136 events in a writing session from ./coauthor-v1.0/bb1c9d
77d4044d218d5adebb777b9bf0.jsonl
Successfully read 2094 events in a writing session from ./coauthor-v1.0/1763bf
2d3371474ab481253b7731c586.jsonl
Successfully read 3114 events in a writing session from ./coauthor-v1.0/c25b2c
082a184e678a841035032b5468.jsonl
Successfully read 1539 events in a writing session from ./coauthor-v1.0/029d01
4b392a4c41b711153a08cea400.jsonl
Successfully read 1882 events in a writing session from ./coauthor-v1.0/2848a7
99f11d4a41b15f5c91dd89eff2.jsonl
Successfully read 2145 events in a writing session from ./coauthor-v1.0/86a1c8
3126c749beb1159014d164c679.jsonl
Successfully read 1653 events in a writing session from ./coauthor-v1.0/a754ad
9eecca4d13954cf36eeda823b5.jsonl
Successfully read 1913 events in a writing session from ./coauthor-v1.0/c86ee4
fe34954bd7b183d8a5068255da.jsonl
Successfully read 1689 events in a writing session from ./coauthor-v1.0/185067
c797e34884b1408a69680fe28a.jsonl
Successfully read 2501 events in a writing session from ./coauthor-v1.0/83abfb
13942f491b9de32bfcc1c3dc47.jsonl
Successfully read 1863 events in a writing session from ./coauthor-v1.0/df6068
305d29453eb22a51d46085e197.jsonl
Successfully read 2517 events in a writing session from ./coauthor-v1.0/3d19d3
770396446bb568be0852f3bcd4.jsonl
Successfully read 2246 events in a writing session from ./coauthor-v1.0/77cae1
15ed8349dbad550de12e5858c1.jsonl
Successfully read 1668 events in a writing session from ./coauthor-v1.0/d2c712
12ed1446a79b5d404def4239a9.jsonl
Successfully read 1482 events in a writing session from ./coauthor-v1.0/89636f
e51d724f15a23f1cef4124191f.jsonl
Successfully read 2206 events in a writing session from ./coauthor-v1.0/f86e93
e1f9e8447baa49531e1fe80f04.jsonl
Successfully read 3743 events in a writing session from ./coauthor-v1.0/b25c76
c9dd3a406192b6e3b7b4638a2a.jsonl
Successfully read 950 events in a writing session from ./coauthor-v1.0/a59321f
59eeb459da6a427267afefb9b.jsonl
Successfully read 2929 events in a writing session from ./coauthor-v1.0/6363bd
9d985e41f79f3bfb8e04fa3b5e.jsonl
Successfully read 1691 events in a writing session from ./coauthor-v1.0/ada1c4
b3f99847d9907e77dd96200ed9.jsonl
Successfully read 1476 events in a writing session from ./coauthor-v1.0/409ea6
cd2f8347dbb41344d1243c7e17.jsonl
Successfully read 3045 events in a writing session from ./coauthor-v1.0/e0435f
4cf6fc435c872ffc5b66b66b0c.jsonl
Successfully read 1229 events in a writing session from ./coauthor-v1.0/7834de
c912b34643afb92b7c3648a3fe.jsonl
Successfully read 1222 events in a writing session from ./coauthor-v1.0/03f764
32a1e149e1887c28daf15807f0.jsonl

Successfully read 2337 events in a writing session from ./coauthor-v1.0/e03ef8
5aec8b445190e519003d884092.jsonl
Successfully read 1906 events in a writing session from ./coauthor-v1.0/9e0576
b5ce9945a5909edad67b3c3be8.jsonl
Successfully read 1247 events in a writing session from ./coauthor-v1.0/8f5fac
c84faa440aaab8b05968fbdf4a.jsonl
Successfully read 983 events in a writing session from ./coauthor-v1.0/a826862
0a9a74cd9a64bd82f90723729.jsonl
Successfully read 1824 events in a writing session from ./coauthor-v1.0/18de1e
1d4baf4aabaf525a1f5bae3432.jsonl
Successfully read 1211 events in a writing session from ./coauthor-v1.0/745644
f53bdc47409855cc751518e25b.jsonl
Successfully read 1606 events in a writing session from ./coauthor-v1.0/2f8c29
05bd764dd1a70ed96115e75edb.jsonl
Successfully read 934 events in a writing session from ./coauthor-v1.0/99dcceb
9d7394bd1986fbf3572b3efcd.jsonl
Successfully read 3934 events in a writing session from ./coauthor-v1.0/f23823
c7cb324ac580f3d051241c7fef.jsonl
Successfully read 1530 events in a writing session from ./coauthor-v1.0/b3a1b8
cfb7d94eb3a615600d440a0bc1.jsonl
Successfully read 2323 events in a writing session from ./coauthor-v1.0/8d4bdb
014d5f4a919735ff5a928176b5.jsonl
Successfully read 1751 events in a writing session from ./coauthor-v1.0/58e702
b7c7e249a0aaf762ea10f833b3.jsonl
Successfully read 2146 events in a writing session from ./coauthor-v1.0/6d7b66
caeb974603a770490a4a83c38a.jsonl
Successfully read 1455 events in a writing session from ./coauthor-v1.0/1049b0
4745b44e7fa2a50d98321c2026.jsonl
Successfully read 1992 events in a writing session from ./coauthor-v1.0/ed0280
fb0f114ead8a22516a8309f982.jsonl
Successfully read 1528 events in a writing session from ./coauthor-v1.0/47f1f3
cedf5e4a779470a1816fd625dc.jsonl
Successfully read 1562 events in a writing session from ./coauthor-v1.0/f44e4e
d0828e40abab5892a019e11dc0.jsonl
Successfully read 1429 events in a writing session from ./coauthor-v1.0/be2644
ed7bc34c438c36bf80db400c9c.jsonl
Successfully read 1696 events in a writing session from ./coauthor-v1.0/d30178
7ad1c14454943032e70f5f46f0.jsonl
Successfully read 1990 events in a writing session from ./coauthor-v1.0/007769
c9000e457eae8485221041802d.jsonl
Successfully read 1672 events in a writing session from ./coauthor-v1.0/200b5a
62bded44f6ba8320c117bee58a.jsonl
Successfully read 2967 events in a writing session from ./coauthor-v1.0/06209e
0aab79451d994d756ff3542754.jsonl
Successfully read 1671 events in a writing session from ./coauthor-v1.0/2d9bcb
435a994711829fe6b05f256fdb.jsonl
Successfully read 1431 events in a writing session from ./coauthor-v1.0/f3bd97
b3642443f0869190c50ad0b771.jsonl
Successfully read 875 events in a writing session from ./coauthor-v1.0/07dab80
e78f24a8bb09384e9067719d0.jsonl
Successfully read 1206 events in a writing session from ./coauthor-v1.0/2eec73
7efca444bc893bea2f5b791a00.jsonl
Successfully read 2989 events in a writing session from ./coauthor-v1.0/26ef51
3f441b4cff947d376a0fe1fb5c.jsonl
Successfully read 1399 events in a writing session from ./coauthor-v1.0/b75ef5
6faed74be0b4b59e15138e18f4.jsonl
Successfully read 1521 events in a writing session from ./coauthor-v1.0/c72d65
250b4f4c1193e2f089afe9429c.jsonl
Successfully read 1898 events in a writing session from ./coauthor-v1.0/138dd7
338a0f480584ca1deddb32f6b7.jsonl

```
Successfully read 1742 events in a writing session from ./coauthor-v1.0/b43804
135b264aaf84c129e2f6c5be48.jsonl
Successfully read 1209 events in a writing session from ./coauthor-v1.0/cf1721
0c31294194a0bf3e3a851a34ea.jsonl
Successfully read 1949 events in a writing session from ./coauthor-v1.0/65564e
291348443491a3701f80d2b99d.jsonl
Successfully read 1112 events in a writing session from ./coauthor-v1.0/38375f
5155704d2d8509843e56ec029d.jsonl
Successfully read 2008 events in a writing session from ./coauthor-v1.0/91e085
6327a04acb8f366faea281f072.jsonl
Successfully read 1798 events in a writing session from ./coauthor-v1.0/ee27a3
0ee83c4349b80fc05e81c00a82.jsonl
Successfully read 2453 events in a writing session from ./coauthor-v1.0/758b76
b82ccf413aa93fd4d74624d288.jsonl
Successfully read 1725 events in a writing session from ./coauthor-v1.0/4181c7
d35eff4eceb4aad545dd2a9273.jsonl
Successfully read 1951 events in a writing session from ./coauthor-v1.0/266f0d
f3fa994ce1b0b8b37da8169d62.jsonl
Successfully read 1648 events in a writing session from ./coauthor-v1.0/3ca200
7bfff344b0a3f1322866235137.jsonl
```

In [12]:
```python
df_results_with_acceptances = pd.DataFrame(jsd_results)
df_results_with_acceptances.to_csv("creativity1.csv", index=False)

print(f"Processed. Results saved to creativity1.csv.")
```

Processed. Results saved to creativity1.csv.

show 5 highest syntactical complexity.

In [13]:
```python
# highest and lowest 5 similarity scores and text
#highest five after similarity of 1
highest_5 = df_results_with_acceptances[df_results_with_acceptances['ai_score'
lowest_5 = df_results_with_acceptances.nsmallest(5, 'ai_score')
print("Highest 5 Similarity Scores:")
for index, row in highest_5.iterrows():
    print(f"Score: {row['ai_score']}")
    print(f"User Text: {row['user_text']}")
    print(f"AI Suggestion: {row['ai_suggestion']}")


print("\nLowest 5 Similarity Scores:")
for index, row in lowest_5.iterrows():
    print(f"Score: {row['ai_score']}")
    print(f"User Text: {row['user_text']}")
    print(f"AI Suggestion: {row['ai_suggestion']}")
```

```
Highest 5 Similarity Scores:
Score: 0.9666666666666667
User Text: I believe that one of the ultimate goals of any sport should be to
remain safe and injury-free, and not only while you are participating in the s
port, but also if you are teaching it to others.
AI Suggestion: This is why proper safety gear is required when participating i
n a sport, such as helmets, knee and elbow pads, wrist guards, and other suppo
rt gear
Score: 0.9666666666666667
User Text: Most importantly, listening to audiobooks doesn't strain your eyes.
AI Suggestion: I think that there are advantages to listening to audiobooks th
at cannot be gained by reading books.
Score: 0.9333333333333332
User Text: Then, there is the subject of intelligence.
AI Suggestion: I believe that since animals are not as intelligent as humans
(this is my opinion, based on the information I have been taught) that if they
suffer
Score: 0.9333333333333332
User Text: due to the defenses the U.S. built up over the last fifty years.
AI Suggestion: The U.S. has decided to use what was built solely for defense a
gainst it's attackers and put an end to this madness before it gets any
Score: 0.9333333333333332
User Text: She gets sent to a girls' home, where she meets a new friend named
Lucie. Lucie, however,
AI Suggestion: Soeurette gets punished badly for it, and she is so upset that
she runs away from the girls' home.

Lowest 5 Similarity Scores:
Score: 0.03333333333333333
User Text: He was tired of the long hours, the constant travel, the constant p
ressure, and the constant need to be liked.
AI Suggestion: He was free.
Score: 0.03333333333333333
User Text: the University of Nevada, Reno.
AI Suggestion: they're not invulnerable.
Score: 0.03333333333333333
User Text: "I don't know," you say. "After all, I'm deathly allergic to bees."
AI Suggestion: will be delicious.
Score: 0.03333333333333333
User Text: The bee says that he's been specially trained to be gentle and that
he'll be sure to keep his stinger tucked away. And he promises that the queen
doesn't want anything bad to happen to you either, so she'll be sure not to st
ing you too. He also promises that the picnic food
AI Suggestion: all your favorite foods.
Score: 0.03333333333333333
User Text: all your favorite foods with a special
AI Suggestion: all your favorites.
```

In [16]:
```python
# plot of complexity distribution by acceptance status
import matplotlib.pyplot as plt
plt.figure(figsize=(10, 6))
plt.hist(df_results_with_acceptances[df_results_with_acceptances['acceptance_s
plt.hist(df_results_with_acceptances[df_results_with_acceptances['acceptance_s
plt.title('Distribution of Syntacitical Complexity by Acceptance Status')
plt.xlabel('AI Complexity Score')
plt.legend()
```

Out[16]: `<matplotlib.legend.Legend at 0x78730e490450>`

Distribution of Syntacitical Complexity by Acceptance Status