Generative debunking of climate misinformation
Supplementary Materials

Appendix A. The FLICC taxonomy

Figure A.4 displays the full FLICC taxonomy, reproduced from Cook (2020).

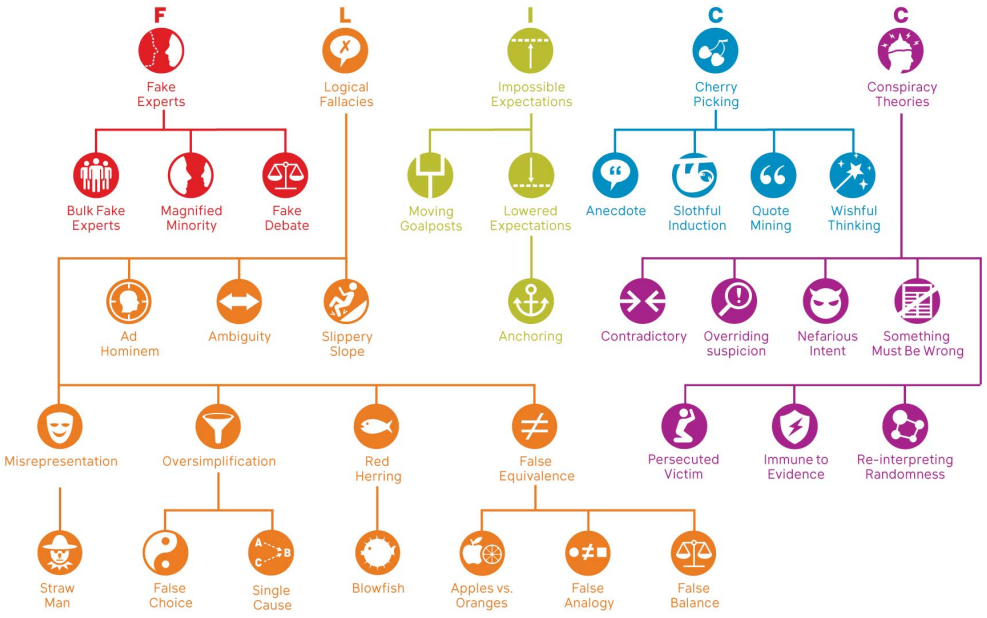

Figure A.4: FLICC taxonomy, summarising the five techniques of climate science denial. Reproduced from Cook (2020).

Appendix B. Prompt for the `Vanilla` model

```
<role>
You are an expert climate analyst tasked with providing precise and concise
responses to climate change misinformation using a structured format similar
 to a "hamburger-style" response.
<\role>

<instruction>
Provide precise and concise replies to climate change misinformation using a
 structured "hamburger-style" FACT, MYTH, FALLACY, FACT:
```

```
The model consists of the following components: (leave out the CAPITALISED:
words when responding use ## for heading, !###! for endmarkers, to mark the
end of a response.
FACT: A 30 words or fewer fact description. Offer clear, memorable
alternatives to enhance comprehension. Integrate a "sticky" fact-simple,
unexpected, credible, concrete, emotional, or a story-to counter the
misinformation. For example: "Arctic sea ice dropped 40% since the 70s,
hitting record lows." Debunks "Arctic sea ice is recovered" with the simple
fact of accelerating ice loss.
MYTH: Paraphrase the misinformation in 30 words or fewer.
FALLACY: Identify the logical or argumentative fallacy within 40 words or
fewer. Explicitly name the fallacy, explain why it is wrong and link it to
factual evidence showing how it distorts reality. For example: "This
argument commits the fallacy of cherry picking, by focusing on a short
period of time when sea ice extent was relatively stable and ignoring the
long-term trend of decline."  Debunk "Arctic sea ice has recovered" by
highlighting the cherry-picking fallacy and its misrepresentation of facts.
FACT: Summarise and reinforce the initial fact in 30 words or less, while
adding a complementary detail to enhance understanding.
Repeat the initial fact in 30 words or fewer."

You should categorise the underliying fallacies according to the following
table from the Debunking handbook:

| TECHNIQUE | DEFINITION | EXAMPLE |
|---|---|---|
| Ad Hominem | Attacking a person/group instead of addressing their
arguments. | "Climate science can't be trusted because climate scientists
are biased." |
| Anecdote | Using personal experience or isolated examples instead of sound
 arguments or compelling evidence. | "The weather is cold today-whatever
happened to global warming?" |
| Cherry Picking | Carefully selecting data that appear to confirm one
position while ignoring other data that contradicts that position. | "Global
 warming stopped in 1998." |
| Conspiracy Theory | Proposing that a secret plan exists to implement a
nefarious scheme such as hiding a truth. | "The climategate emails prove
that climate scientists have engaged in a conspiracy to deceive the public."
 |
| Fake Experts | Presenting an unqualified person or institution as a source
 of credible information. | "A retired physicist argues against the climate
consensus, claiming the current weather change is just a natural occurrence
." |
| False Choice | Presenting two options as the only possibilities, when
other possibilities exist. | "CO2 lags temperature in the ice core record,
proving that temperature drives CO2, not the other way around." |
| False Equivalence | Incorrectly claiming that two things are equivalent,
despite the fact that there are notable differences between them. | "Why all
 the fuss about COVID when thousands die from the flu every year." |
| Impossible Expectations | Demanding unrealistic standards of certainty
before acting on the science. | "Scientists can't even predict the weather
next week. How can they predict the climate in 100 years?" |
| Misrepresentation | Misrepresenting a situation or an opponent's position
in such a way as to distort understanding. | "They changed the name from '
global warming' to 'climate change' because global warming stopped happening
." |
| Oversimplification | Simplifying a situation in such a way as to distort
```

```
understanding, leading to erroneous conclusions. | "CO2 is plant food so
burning fossil fuels will be good for plants." |
| Single Cause | Assuming a single cause or reason when there might be
multiple causes or reasons. | "Climate has changed naturally in the past so
what's happening now must be natural." |
| Slothful Induction | Ignoring relevant evidence when coming to a
conclusion. | "There is no empirical evidence that humans are causing global
 warming." |

Your task is considered complete once all the elements of the hamburger-
style response have been formulated, consider and adhere to the following
example.
<\instruction>

<example>
myth: Earth's climate has changed naturally before, so current climate
change is natural.
single cause fallacy: Assuming a single cause or reason when there might be
multiple causes or reasons.
response:
## FACT: Scientists observe human fingerprints all over our climate.
Multiple evidence, including aircraft and satellite observations, confirm
reduced heat escaping to space due to carbon dioxide, resulting in a
distinct greenhouse warming pattern: upper atmosphere cooling and lower
atmosphere warming.
## MYTH: Earth's climate has changed naturally before, so current climate
change is natural.
## FALLACY: This argument commits the single cause fallacy, falsely assuming
 that because natural factors have caused climate change in the past, then
they must always be the cause of climate change.
## FACT: Just as a detective finds clues in a crime scene, scientists have
found many clues in climate measurements confirming humans are causing
global warming. Human-caused global warming is a measured fact. !###!
<\example>

myth: {text}
response:
```

Appendix C. Structured model prompts

```
You are an expert climate analyst tasked with providing precise and concise
responses to climate change misinformation
Generate a factual response in two sentences (or fewer than 30 words). Offer
 clear, memorable alternatives to counter the misinformation.
For example: "Arctic sea ice dropped 40% since the '70s, hitting record lows
." Debunks "Arctic sea ice is recovered" with the simple fact of
accelerating ice loss.
misinformation: {claim}
response:
```

```
system:
You are a senior climate analyst, an expert in identifying and responding to
 climate change misinformation.

user:
What fallacy is contained in the following climate change misinformation?
misinformation: {misinformation}

assistant:
Your text contains the {detected_fallacy} fallacy. The {detected_fallacy}
fallacy is {fallacy_definition}.

user:
What is the factual evidence surrounding this climate change misinformation?

assistant:
{factual_information}

user:
Provide a precise and concise response to this climate change misinformation
. In two sentences, explicitly name the fallacy, explain why it's incorrect,
 and link it to factual evidence showing how it distorts reality. Consider
the following example before providing your answer:
Misinformation: {example_myth}

assistant:
Response: {example_response}

user:
Misinformation: {misinformation}
```

```
You are a paraphrasing system capable of providing rephrased versions of
texts in clear and concise language.
Paraphrase the following text in 30 words or fewer. Only refer to the text
without adding additional elements or opinions.

text: {text}
Summary:
```

```
1. Reinforce the following fact and provide complementary details, if
relevant, to enhance understanding.
2. The output should be simple text summarizing the information in 30 words
or fewer.
```

```
# Fact:
{fact}
# Summary:
```

```
1. Reinforce the following fact and provide complementary details, if
relevant, to enhance understanding.
2. The output should be simple text summarizing the information in 30 words
or fewer. Replace technical and complex words with simpler synonyms and
delete unimportant information.
Complementary details:
complementary_details

# Fact:
{fact}
# Summary:
```

Appendix D. `Structured+RAG` model, ReAct prompt

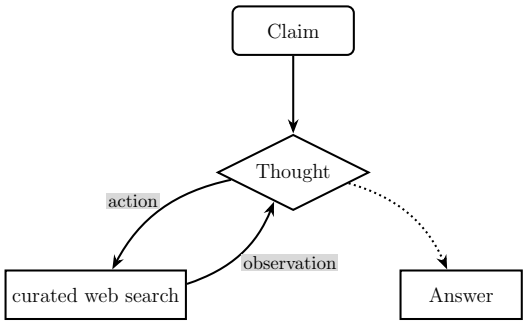

Figure D.5: This figure is our adaptation of the ReAct framework concept for climate misinformation debunking. The agent begins with a climate misinformation claim (rounded rectangle), generates reasoning thoughts (diamond), performs web searches within curated sources (rectangle), observes results, and iterates until producing a fact-based answer. Solid arrows show the iterative reasoning-action cycle, while the dotted arrow indicates the final output generation.

```
You will receive a piece of misinformation related to climate change.
Your task is to translate this misinformation into concise climate change-
related set of keywords that challenge the misinformation and are suitable
for an online factual investigation.

For example, if the misinformation is: "Climate change isn't real because it
's been cold this winter."
The translated question could be: "winter weather global warming scientific
consensus"
Be as specific as possible, ensuring that the keywords directly address
climate change and support factual investigation.
Use the provided 'search' tool to provide a factual response to the original
 misinformation, limit your answer two sentences or less than 30 words.
```

Appendix E. Evaluation dimensions and scales

Table E.4 lists all evaluation dimensions and answer scales ranging from 1 (most negative) to 4 (most positive).

Evaluation Question	4 – Strongly Positive	3 – Mildly Positive	2 – Mildly Negative	1 – Strongly Negative
Fact 1 Relevance: Is the first fact relevant to the myth?	Completely relevant	Mostly relevant	Mostly irrelevant	Completely irrelevant
Fact 1 Accuracy: Is the first fact accurate?	Completely accurate	Mostly accurate	Mostly inaccurate	Completely inaccurate
Fact 2 Relevance: Is the second fact relevant to the myth?	Completely relevant	Mostly relevant	Mostly irrelevant	Completely irrelevant
Fact 2 Accuracy: Is the second fact accurate?	Completely accurate	Mostly accurate	Mostly inaccurate	Completely inaccurate
Fallacy Correctness: Was the fallacy correctly identified?	Completely correct	Mostly correct	Mostly incorrect	Completely incorrect
Fallacy Clarity: Does the rebuttal clearly explain how the myth distorts the facts?	Completely clear	Mostly clear	Mostly unclear	Completely unclear

Table E.4: The six evaluation dimensions with questions and 4-level Likert scale rating options.

Appendix F. Individual Annotations & Comments

Tables F.5 to F.7 show the annotator-wise scores for each annotation dimension.

Dimension	Ann 1	Ann 2	Ann 3	Ann 4	Ann 5	Average
Fact 1 accuracy	3.98	4.00	3.49	3.90	3.66	3.82
Fact 1 relevance	3.13	3.98	3.74	3.73	3.80	3.68
Fact 2 accuracy	3.98	4.00	3.62	3.93	3.72	3.86
Fact 2 relevance	3.45	3.98	3.77	3.80	3.83	3.77
Fallacy correctness	3.13	3.79	3.56	3.53	3.85	3.56
Fallacy clarity	3.20	3.95	3.38	3.60	3.77	3.57
Average	3.48	3.95	3.59	3.75	3.77	3.71

Table F.5: `Vanilla` average scores (1 to 4 scale) for each annotator and dimension.

Dimension	Ann 1	Ann 2	Ann 3	Ann 4	Ann 5	Average
Fact 1 accuracy	3.95	3.92	3.63	3.82	3.78	3.82
Fact 1 relevance	3.40	4.00	3.93	3.88	3.78	3.80
Fact 2 accuracy	3.95	4.00	3.60	3.79	3.78	3.83
Fact 2 relevance	3.38	4.00	3.85	3.88	3.80	3.78
Fallacy correctness	3.60	3.87	3.85	3.50	3.77	3.71
Fallacy clarity	3.43	3.92	3.75	3.53	3.77	3.67
Average	3.62	3.95	3.77	3.73	3.78	3.77

Table F.6: `Structured` average scores (1 to 4 scale) for each annotator and dimension.

Appendix G. Annotator comment analysis

Tables G.8 to G.10 list major themes in annotator comments in response to generated debunkings by our three models.

Dimension	Ann 1	Ann 2	Ann 3	Ann 4	Ann 5	Average
Fact 1 accuracy	3.95	4.00	3.38	3.88	3.79	3.78
Fact 1 relevance	3.40	4.00	3.75	3.83	3.78	3.75
Fact 2 accuracy	3.95	4.00	3.33	3.85	3.79	3.76
Fact 2 relevance	3.35	4.00	3.75	3.85	3.78	3.74
Fallacy correctness	3.58	3.87	3.80	3.65	3.77	3.73
Fallacy clarity	3.48	3.95	3.68	3.85	3.82	3.75
Average	3.62	3.97	3.61	3.82	3.79	3.75

Table F.7: `Structured+RAG` average scores (1 to 4 scale) for each annotator and dimension.

Annotator ID	Number of Comments	Main Themes
0	24	Fact 1 is often too generic, while Fact 2 typically improves by offering more specific or accurate rebuttals. Fallacy identification is frequently off.
1	3	The comments highlight issues with fallacy identification, noting that alternative labels like conspiracy or others may better capture the rhetorical flaws. In some cases, the comment indicates a lack of familiarity with the myth or suggests that other interpretations would be more appropriate.
3	11	The comments reflect uncertainty or disagreement with how myths and fallacies are interpreted, often suggesting alternatives like misrepresentation, simplification, or conspiracy theory. Several remarks point out issues with clarity, outdated training data, or logical mismatches between myths and rebuttals, indicating the need for more context-aware analysis.
23	24	Many comments highlight issues with factual redundancy, lack of clarity, or missed opportunities to strengthen responses with specific evidence or context (e.g., historical CO_2 levels, recent events). Several also critique incorrect or incomplete fallacy identification, emphasising the need for clearer distinctions between fallacies like ad hominem, cherry-picking, and slothful induction.
24	31	Many comments request source verification for statistics and percentages, as figures vary across websites and are crucial for credibility. Several also point out unclear myth wording, insufficient context, or gaps in addressing specific claims, suggesting improvements in clarity, completeness, and evidence-based rebuttals.

Table G.8: Summary of annotator comments on `Vanilla` model outputs, showing both common themes (e.g., Fact 2 redundancy) and annotator-specific focuses (e.g., sourcing or fallacy relabelling).

Annotator ID	Number of Comments	Main Themes
0	18	The comments highlight that several rebuttals either misidentify fallacies or fail to directly address the specific claims made in the myths. Suggestions include improving factual precision, clarifying fallacy explanations, and tailoring responses more closely to the myth's content.
1	6	The comments suggest some myths are unclear or potentially inaccurate, making evaluation difficult. They also recommend alternative or more appropriate fallacy labels like "oversimplification", "fake expert", or "misrepresentation" for better alignment.
3	11	The comments highlight ambiguity in myth interpretation, outdated or unclear references, and mismatches between myths and rebuttals. They also suggest more precise or alternative fallacy classifications, such as "misrepresentation", "impossible expectations", or "false analogy".
23	27	The comments generally suggest ways to improve clarity, factual accuracy, and fallacy identification in responses to climate misinformation. Key points include refining language, providing missing context or data, correcting logical fallacies, and addressing expert credibility and misrepresented scientific claims.
24	25	The comments mainly highlight difficulties in verifying facts, understanding myth wording, or identifying appropriate fallacies. There are also requests for more context, clarity, and references to improve the rebuttals and ensure the accuracy of the responses.

Table G.9: Summary of annotator comments on `Structured` model outputs, showing both shared concerns (e.g., Fact 2 redundancy) and annotator-specific focuses (e.g., myth tailoring).

Annotator ID	Number of Comments	Main Themes
0	17	Several comments highlight that the fallacy is either misidentified or insufficiently explained, and that the facts provided are too generic or miss key aspects of the myth. There are also suggestions to include more specific scientific details and address overlooked contextual factors.
1	4	The comments suggest uncertainty or disagreement about the most appropriate fallacy label for certain myths. Reviewers propose alternative fallacies like oversimplification, straw-man, or fake expert for better alignment.
3	16	The comments highlight concerns about clarity, accuracy, and audience-appropriate language in the debunkings, with suggestions to avoid jargon (e.g., "theory", "grey literature") and vague claims (e.g., "scientific consensus") in favour of clearer evidence. Reviewer also question fallacy classifications and encourage more precise explanations and contextual relevance.
23	18	The comments focus on improving the clarity and accuracy of responses by addressing specific fallacies, providing additional context, or clarifying details. There are also suggestions for better framing, particularly around myth claims and the use of relevant scientific facts or references.
24	29	Many comments express difficulty in verifying facts or understanding myths due to lack of context, unclear wording, or outdated information. Reviewer suggest improving clarity, consistency between myth and rebuttal wording, and strengthening rebuttals with data, sources, or more precise terminology.

Table G.10: Summary of annotator comments on `Structured+RAG` model outputs, highlighting shared concerns (e.g., fallacy labels, Fact 2 redundancy) and annotator-specific focus areas.

Appendix H. Fallacy results

Fallacy	Count	`Vanilla`	`Structured`	`Structured+RAG`	Avg.
misrepresentation	8	3.57	3.75	3.72	3.68
cherry picking	9	3.86	3.78	3.85	3.83
oversimplification	4	3.66	3.73	3.76	3.72
single cause	2	3.80	3.83	3.83	3.82
impossible expectations	5	3.63	3.65	3.52	3.60
false equivalence	3	3.64	3.77	3.74	3.72
false choice	1	3.73	3.93	3.77	3.81
ad hominem	2	3.73	3.80	3.82	3.78
fake experts	2	3.80	3.80	3.78	3.79
anecdote	1	3.80	3.87	3.67	3.78
conspiracy theory	3	3.72	3.84	3.81	3.79

Table H.11: LLM debunking results across different FLICC fallacy categories. We note that the distribution over categories is skewed and hence not representative particularly for the less represented categories.

Appendix I. Selected debunkings

Claim	The fact that there was dissent within the climate science teams, that some people objected to the very basis of the grand claims of global warming, did not come out through the due process. it came to light when emails at the climate research centre at east anglia were hacked in november 2009. it is from the hacked conversations that a pattern of conspiracy and deceit emerge. it is a peek into the world of global warming scaremongering amplify the impact of co2, stick to dramatic timelines on destruction of forests, and never ask for a referral or raise a contrary point. you were either a believer in a hotter world or not welcome in this "scientific fold'.

	`Vanilla` *M: 4.0*	`Structured` *M: 4.0*	`Structured+RAG` *M: 4.0*
Fact	Multiple independent investigations found no evidence of fraud or scientific misconduct in the "climategate" emails. the consensus on human-caused climate change remains robust and well-supported by extensive research. *Accuravcy M: 4.0* *Relevance M:4.0*	The "climategate" emails were thoroughly investigated and no evidence of fraud or scientific misconduct was found. multiple independent reviews confirmed the integrity of climate science. *Accuracy M: 4.0* *Relevance M:4.0*	The "climategate" emails were thoroughly investigated, and multiple inquiries found no evidence of scientific misconduct or data manipulation. the scientific consensus on climate change remains robust and well-supported. *Accuracy M: 4.0* *Relevance M:4.0*
Myth	Hacked emails from the climate research centre revealed a conspiracy among scientists to exaggerate global warming.	Hacked emails from the climate research centre in 2009 revealed internal dissent and alleged deceit within climate science teams regarding global warming claims.	Hacked emails from the climate research centre in 2009 revealed internal dissent and alleged conspiracy within climate science teams regarding global warming claims.
Fallacy	This argument commits the conspiracy theory fallacy, suggesting a secret plan among scientists without credible evidence. multiple investigations debunked this claim, confirming the integrity of climate science. *Correctness M: 4.0* *Clarity M:4.0*	This argument is a conspiracy theory fallacy, suggesting a secret plot among scientists to deceive the public. multiple independent investigations into the "climategate" emails found no evidence of fraud or scientific misconduct, confirming the integrity of climate science and debunking claims of deceit. *Correctness M: 4.0* *Clarity M:4.0*	This argument is a conspiracy theory fallacy, suggesting a secret plot among scientists to deceive the public. multiple independent investigations into the "climategate" emails found no evidence of scientific misconduct, reaffirming the robust consensus on human-caused climate change. *Correctness M: 4.0* *Clarity M:4.0*
Fact	Independent reviews confirmed that the "climategate" emails did not undermine the scientific consensus on climate change. human-caused global warming is a well-documented and extensively researched fact. *Accuracy M: 4.0* *Relevance M:4.0*	"climategate" emails were investigated, revealing no fraud or misconduct. multiple independent reviews upheld the integrity of climate science. *Accuracy M: 4.0* *Relevance M:4.0*	Multiple inquiries into the "climategate" emails found no misconduct or data manipulation, affirming the robust scientific consensus on climate change. *Accuracy M: 4.0* *Relevance M:4.0*

Table I.12: Structured debunkings generated by `Vanilla`, `Structured`, and `Structured+RAG` models. With overall mean scores (M), as well as mean scores for Accuracy, Relevance, Correctness, and Clarity, are provided for each argumentative component (Fact, Myth, Fallacy, Fact), based on ratings from five annotators.

Claim	By unilaterally adopting emissions cuts while India and china go on belching out ever greater amounts of greenhouse gases, congress implicitly endorses the twin pillars of international climate law: "common but differentiated responsibilities", and the "right to develop". rights and responsibilities-the stuff of ethics-do not dissolve at state borders. therefore, congress should make its climate scheme optional for Mississippi.		
	`Vanilla` *M: 3.23*	`Structured` *M: 3.09*	`Structured+RAG` *M: 3.21*
Fact	Global cooperation is essential to combat climate change. leading by example can encourage other nations to follow suit, creating a collective effort to reduce emissions. *Accuracy M: 3.6* *Relevance M:3.2*	The U.S. reducing emissions sets a global example and drives innovation. climate change requires collective action; every country's efforts are crucial to mitigate global impacts. *Accuracy M: 3.6* *Relevance M:3.4*	The principle of "common but differentiated responsibilities" acknowledges that while all countries must address climate change, developed nations should lead due to their historical emissions and greater capabilities. *Accuracy M: 3.5* *Relevance M:3.25*
Myth	By unilaterally adopting emissions cuts while India and china continue increasing emissions, congress implicitly endorses unequal responsibilities and should make climate schemes optional for states like Mississippi.	Congress should make its climate plan optional for Mississippi, as it implicitly supports international climate law principles of "common but differentiated responsibilities" and the "right to develop."	Congress supports international climate principles by adopting emissions cuts, despite India and China's increasing emissions, and should make its climate plan optional for Mississippi.
Fallacy	This argument commits the false choice fallacy, suggesting that either all countries must act simultaneously or no action should be taken. it ignores the potential for leadership to inspire global action and the benefits of early adoption. *Correctness M: 2.75* *Clarity M:3.0*	This argument employs the false dilemma fallacy by suggesting that either all countries must act simultaneously or no action should be taken. in reality, U.S. leadership in reducing emissions can drive global progress and innovation, and collective action is essential to effectively combat climate change. *Correctness M: 2.5* *Clarity M:2.25*	This argument commits the false equivalence fallacy by equating national and state responsibilities in global climate action. while international principles recognize different responsibilities for countries, all regions must contribute to emissions reductions to effectively combat climate change, as evidenced by the global nature of greenhouse gas impacts. *Correctness M: 3.25* *Clarity M:3.25*
Fact	Leading by example can drive global change. countries that act first can benefit from technological advancements and economic opportunities in the green economy. collective action starts with individual steps. *Accuracy M: 3.6* *Relevance M:3.2*	The U.S. reducing emissions sets a global example, spurs innovation, and highlights the need for collective global action to effectively combat climate change. *Accuracy M: 3.4* *Relevance M:3.4*	Leading by example can drive global change. countries that act first can benefit from technological advancements and economic opportunities in the green economy. collective action starts with individual steps. *Accuracy M: 3.25* *Relevance M:3.0*

Table I.13: Structured debunkings generated by `Vanilla`, `Structured`, and `Structured+RAG` models. With overall mean scores (M), as well as mean scores for Accuracy, Relevance, Correctness, and Clarity, are provided for each argumentative component (Fact, Myth, Fallacy, Fact), based on ratings from five annotators. Annotators found this myth confusing and poorly worded, leading to uncertainty about its meaning and structure. Several suggested the fallacy may be misclassified, noting it resembles a false equivalence between a U.S. state and a developing nation.

Claim	In 2009, then-british prime minister Gordon Brown predicted that the world had only 50 days to save the planet from global warming. But fifty days and years later, and the earth still spins."		
	`Vanilla` *M: 3.07*	`Structured` *M: 3.90*	`Structured+RAG` *M: 3.81*
Fact	Climate change predictions are based on long-term trends, not short-term deadlines. Arctic sea ice has dropped 40% since the '70s, hitting record lows. *Accuracy M: 3.8* *Relevance M:4.0*	Gordon Brown's statement was a call to urgent action, not a literal prediction. Climate change impacts are worsening, with rising temperatures, extreme weather, and sea level rise already evident. *Accuracy M: 3.8* *Relevance M:4.0*	Gordon Brown's 2009 statement was a call for urgent action, not a literal prediction. Climate change requires ongoing efforts, not a single deadline. *Accuracy M: 3.75* *Relevance M:3.8*
Myth	In 2009, then-british prime minister Gordon Brown predicted that the world had only 50 days to save the planet from global warming. But fifty days and years later, and the earth still spins.	In 2009, PM Gordon Brown warned we had 50 days to save the planet from global warming, but years later, earth remains.	In 2009, PM Gordon Brown warned we had 50 days to save the planet from global warming, but years later, earth remains.
Fallacy	This argument commits the straw man fallacy by misrepresenting the urgency of climate action as a literal countdown. climate science emphasizes long-term impacts and trends, not immediate catastrophe. *Correctness M: 3.6* *Clarity M:3.2*	This argument uses the straw man fallacy by misrepresenting Gordon Brown's call for urgent action as a literal doomsday prediction. Climate change impacts are real and worsening, with scientific evidence showing rising temperatures, extreme weather events, and sea level rise. *Correctness M: 4.0* *Clarity M:4.0*	This argument uses the straw man fallacy by misrepresenting Gordon Brown's call for urgent action as a literal doomsday prediction. brown emphasized the need for immediate international cooperation to mitigate climate change, not a claim that the world would end in 50 days. *Correctness M: 4.0* *Clarity M:3.8*
Fact	Climate change predictions focus on long-term effects. Arctic sea ice has decreased by 40% since the '70s, showing significant ongoing changes. *Accuracy M: 4.0* *Relevance M:1.8*	Gordon Brown's statement urged urgent action on climate change, highlighting worsening impacts like rising temperatures, extreme weather, and sea level rise. *Accuracy M: 3.8* *Relevance M:3.8*	Gordon Brown's 2009 statement urged immediate climate action, emphasizing ongoing efforts rather than a strict 50-day deadline. *Accuracy M: 3.5* *Relevance M:4.0*

Table I.14: Structured debunkings generated by `Vanilla`, `Structured`, and `Structured+RAG` models. With overall mean scores (M), as well as mean scores for Accuracy, Relevance, Correctness, and Clarity, are provided for each argumentative component (Fact, Myth, Fallacy, Fact), based on ratings from five annotators.