

Appendix

This appendix accompanies “Navigating the Noisy Crowd: Finding Key Information for Claim Verification.” Appendix A contains the complete prompts for EACon along with in-context examples. Appendix B contains the prompts for the baseline models used in our study.

A Prompts for EACon

All the in-context examples used in EACon are derived from the in-context examples used in ProgramFC. Based on the differences in the functional modules of EACon, we selected and utilized some of these examples and provided manual demonstrations of their output formats and content, as shown below.

A.1 Prompt for Keyword Extraction

Task Description: Extract key components such as important verbs, nouns, and phrases from the provided sentence. Focus on identifying and highlighting the most relevant elements.

Instructions: Carefully read the input sentence. Identify and list the significant verbs, nouns, and pertinent phrases. Ensure the output succinctly encapsulates the essence of the input by focusing on these key components.

Examples:

Input: Howard University Hospital and Providence Hospital are both located in Washington, D.C.

Output: Howard University Hospital, Providence Hospital, located, Washington, D.C.

Input: WWE Super Tuesday took place at an arena that currently goes by the name TD Garden.

Output: WWE Super Tuesday, took place, name, TD Garden.

Input: Talking Heads, an American rock band that was “one of the most critically acclaimed bands of the 80’s,” is featured in KSPN’s AAA format.

Output: Talking Heads, bands of the 80’s, KSPN’s AAA format.

Input: Don Ashley Turlington graduated from Saint Joseph’s College, a private Catholic liberal arts college in Standish.

Output: Don Ashley Turlington, graduate, Saint Joseph’s College, private Catholic liberal arts college, Standish.

Input: Gael and Fitness are not published in the same country. Output: Gael, Fitness, publish, country.

Input: Blackstar is the name of the album released by David Bowie that was recorded in secret.

Output: Blackstar, album, David Bowie, secret.

Input: In the 2004 Hockey film produced by a former major league baseball pitcher, Kurt Russell played the USA coach. Output: 2004 Hockey film, former major league baseball pitcher, Kurt Russell, USA coach.

Input: Along with the New York Islanders and the New York Rangers, the New Jersey Devils NFL franchise is popular in the New York metropolitan area.

Output: New York Islanders, New York Rangers, New Jersey Devils NFL franchise, popular, New York metropolitan area.

Input: Jack McFarland is the best known role of the host of the 64th Annual Tony Awards.

Output: Jack McFarland, host, 64th Annual Tony Awards.

Input: The song recorded by Fergie that was produced by Polow da Don and was followed by Life Goes On was M.I.L.F. \$.

Output: song, produced, Fergie, Polow da Don, followed, Life Goes On, M.I.L.F. \$.

Input: Gregg Rolie and Rob Tyner, are not a keyboardist. Output: Gregg Rolie, Rob Tyner, keyboardist.

Input: Maria Esther Andion Bueno, not Jimmy Connors, is the player that is from Brazil.

Output: Maria Esther Andion Bueno, player, Brazil,

Jimmy Connors.

Input: Vladimir Igoevich Arnold died after Georg Cantor.

Output: Vladimir Igoevich Arnold, died, Georg Cantor.

Input: Barton Mine was halted by a natural disaster, not Camlaren Mine.

Output: Barton Mine, halted, natural disaster, Camlaren Mine.

Input: John O'Hara and Rabindranath Tagore are not the same nationality.

Output: John O'Hara, Rabindranath Tagore, nationality.

Input: Thomas Loren Friedman has won more Pulitzer Prizes than Colson Whitehead.

Output: Thomas Loren Friedman, won, Pulitzer Prizes, Colson Whitehead.

Input: The model of car Trevor Bayne drives was introduced for model year 2006. The Rookie of The Year in the 1997 CART season drives it in the NASCAR Sprint Cup.

Output: The model of car, Trevor Bayne, drives, introduced, model year 2006, NASCAR Sprint Cup, Rookie of The Year, 1997 CART season.

Based on the following input, identify and list the key components as demonstrated in the examples.

Input: [Claim] (c)

Output:

A.2 Prompt for Evidence Summarization

Task Description: Extract and summarize key information from sentences based on specified keywords. The output should be concise, directly related to the keywords, and devoid of extraneous details.

Instructions: Carefully read the provided input sentence. Use the specified keywords to guide your extraction of information. Generate a summary that includes only the facts directly associated with the keywords.

Examples:

Input: Providence Hospital is a 408 bed hospital located in the District of Columbia. Founded in 1861, it is the longest continuously operating hospital in the District. Providence Hospital is a member of Ascension Health, the largest non-profit health care organization in the United States.

Keywords: Providence Hospital, located, Washington, D.C.

Output: Providence Hospital is located in Washington, D.C.

Input: TD Garden, often called Boston Garden and "The Garden", is a multi-purpose arena in Boston,

Massachusetts. It is named after its sponsor, TD Bank, a subsidiary of Canada's Toronto-Dominion Bank. It opened in 1995 as a replacement for the original Boston Garden and has been known as Shawmut Center, FleetCenter, and TD Banknorth Garden. The arena is located directly above the MBTA's North Station.

Keywords: name, TD Garden.

Output: TD Garden, also known as Boston Garden, is named after TD Bank.

Input: "Life Goes On" is a song recorded by American singer Fergie for her second studio album, "Double Dutchess" (2017). It was released as a single on November 11, 2016, by Interscope and will.i.am Music Group. The song serves as the third single from Fergie's second studio album, following "M.I.L.F. \$". "Life Goes On" was written by Fergie, Tristan Prettyman, Keith Harris and Toby Gad.

Keywords: song, Fergie, followed, Life Goes on, M.I.L.F. \$.

Output: "Life Goes On" is a song by Fergie following "M.I.L.F. \$".

Input: KSPN-FM is an adult album alternative radio station owned by Patricia MacDonald Garber and Peter Benedetti, through licensee AlwaysMountainTime, LLC, and broadcasts at 103.1 MHz FM in the Aspen, Colorado area. The station airs an adult album alternative format and uses the slogan "The Valley's Quality Rock". With over 30 years of Quality Rock experience, this heritage station is the Roaring Fork Valley's favorite among both locals and tourists. KSPN covers all community and national events in the area: World Cup Championships, the 24 Hours of Aspen, Winterskol and Blitzenbanger. KSPN features the AAA format, which combines the classic rock hits from Tom Petty, Van Morrison and Talking Heads with today's newer musicians like Ben Harper, Blues Traveler, Sonia Dada and Widespread Panic.

Keywords: Talking Heads, KSPN's AAA format.

Output: KSPN features Talking Heads in its AAA format.

Input: Gina Bramhill was born in Eastoft, where she grew up on a farm. As a child, she appeared in several school plays. She was trained at the Royal Academy of Dramatic Art. Shortly after graduating she appeared as Bella in the movie Lotus Eaters. 2012 she got a role as the recurring character Eve Sands in the TV series Being Human. In the same year Bramhill played one of the main roles in the drama pilot The Frontier. In Coronation Street she portrayed the character Jodie Woodward. She got a main role in the movie Pleasure Island, which was shown at the Cannes Film Festival in 2014.

Keywords: Gina Bramhill, born.

Output: Gina Bramhill was born in Eastoft.

Given the following input and keywords, provide a concise and factual summary based on the examples above. Exclude any information not directly related to the keywords.

Input: [Raw Evidence] (e_i)

Keywords: [Selected Keywords] (S_i)

Output:

A.3 Prompt for Claim Deconstruction

Task Description: Dissect a given claim into multiple atomic statements. These statements should be complete in meaning, devoid of uncertain pronouns, and retain all original details. Each atomic statement should stand alone and be independently verifiable.

Examples:

Claim: Howard University Hospital and Providence Hospital are both located in Washington, D.C.

Output: \n #1 Howard University Hospital is located in Washington, D.C. \n #2 Providence Hospital is located in Washington, D.C.

Claim: WWE Super Tuesday took place at Fleet Center. Fleet Center currently goes by the name TD Garden.

Output: \n #1 WWE Super Tuesday took place at Fleet Center. \n #2 Fleet Center currently goes by the name TD Garden.

Claim: An IndyCar race driver drove the Super Aguri F1 SA07 during the 2007 Formula One season. The Super Aguri F1 SA07 was designed by Peter McCool.

Output: \n #1 An IndyCar race driver drove the Super Aguri F1 SA07 during the 2007 Formula One season. \n #2 The Super Aguri F1 SA07 was designed by Peter McCool.

Claim: Gina Bramhill was born in Eastoft. The 2011 population of the area that includes Eastoft was 167,446.

Output: \n #1 Gina Bramhill was born in Eastoft. \n #2 The 2011 population of the area that includes Eastoft was 167,446.

Claim: Colson Whitehead has won less than three Pulitzer Prizes.

Output: \n #1 Colson Whitehead has won less than three Pulitzer Prizes.

Claim: Don Ashley Turlington graduated from Saint Joseph's College, a private Catholic liberal arts college in Standish.

Output: \n #1 Saint Joseph's College is a private Catholic liberal arts college located in Standish. \n #2 Don Ashley Turlington graduated from Saint Joseph's College.

Claim: Fitness is not published in Belgium.

Output: \n #1 Fitness is not published in Belgium.

Claim: Blackstar is the name of the album released by David Bowie that was recorded in secret.

Output: \n #1 David Bowie released an album called Blackstar. \n #2 David Bowie released an album called Blackstar.

Claim: In the 2004 Hockey film named Miracle produced by a former major league baseball pitcher Kurt Russell played the USA coach.

Output: \n #1 Miracle is a 2004 Hockey film produced by a former major league baseball pitcher. \n #2 Kurt Russell played the USA coach in the film Miracle.

Claim: Along with the New York Islanders and the New York Rangers, the New Jersey Devils NFL franchise is popular in the New York metropolitan area.

Output: \n #1 The New York Islanders and the New York Rangers are popular in the New York metropolitan area. \n #2 The New Jersey Devils NFL franchise is popular in the New York metropolitan area.

Claim: The song recorded by Fergie that was produced by Polow da Don and was followed by Life Goes On was M.I.L.F.\$.

Output: \n #1 M.I.L.F.\$ was recorded by Fergie that was produced by Polow da Don. \n #2 M.I.L.F.\$ was followed by Life Goes On.

Claim: Jack McFarland is the best known role of Sean Patrick Hayes.

Output: \n #1 Jack McFarland is the best known role of Sean Patrick Hayes.

Claim: Gregg Rolie and Rob Tyner, are not a keyboardist.

Output: \n #1 Gregg Rolie is not a keyboardist. \n #2 Gregg Rolie is not a keyboardist.

Claim: Maria Esther Andion Bueno, not Jimmy Connors, is the player that is from Brazil.

Output: \n #1 Maria Esther Andion Bueno is from Brazil. \n #2 Maria Esther Andion Bueno is from Brazil.

Claim: Georg Cantor died before 3 June 2010.

Output: \n #1 Georg Cantor died before 3 June 2010.

Claim: Ford Fusion was introduced for model year 2006. Patrick Carpentier drives Ford Fusion in the NASCAR Sprint Cup.

Output: \n #1 Ford Fusion was introduced for model year 2006. \n #2 Patrick Carpentier drives Ford Fusion in the NASCAR Sprint Cup.

Claim: Barton Mine was halted by a natural disaster not Camlaren Mine.

Output: \n #1 Barton Mine was halted by a natural disaster. \n #2 Camlaren Mine was not halted by a natural disaster.

Here is the claim given to you. Your answer should follow the format of above demonstrations. Each atomic statement should stand alone and be independently verifiable with as least pronouns as possible. Give your answer only, no explanation.

Claim: [Claim] (*c*)

Output:

A.4 Prompt for Subclaim Verification

Given golden evidence:

[Abstracted Evidence & Raw Evidence] ($\mathcal{A} \cup \mathcal{E}$)

In the saying of [Claim] (*c*). Based on the golden evidence, is it true that [Subclaim] (*u_i*)? (Yes or No)

The segment of the prompt highlighted in **dark color** is optional, as explained in the main paper. The underlined part in parentheses should be replaced with *Answer in one word, you should be strict, if the saying is not matching golden evidence in any detail, you should deny it by saying no* when using the Vicuna model, as it has a strong bias toward answering “yes.”

B Prompts for baseline models

B.1 Prompt for ProgramFC

ProgramFC consists of two modules: program generation and code execution. The original authors implemented ProgramFC using the FlanT5 model for code execution. In our paper, to maintain the same experimental conditions, we used two chat language models, Mixtral and Vicuna, for the implementation. Since FlanT5 is not a chat model, we made slight modifications to the original prompt for question answering to adapt it for the chat language models.

Modified prompt for question answering in ProgramFC:

[Raw Evidence] (\mathcal{E})

Question: [Question]

The answer is: (*Answer it directly, no explanation*)

The *italicized* part is the modification we added to the original prompt. All other prompts remain consistent with the original.

B.2 Prompt for Zero-Shot

Given golden evidence:[Raw Evidence] (\mathcal{E})

Based on the golden evidence, is it true that [Claim] (*c*)? (Yes or No)

B.3 Prompt for Few-Shot

We omitted more in-context examples used because we are using the same samples as ProgramFC.

Decide a claim’s truthfulness based on the golden evidence provided. Following are some examples.

Given golden evidence: Eastoft is a village and civil parish in North Lincolnshire, England. It is situated within the Isle of Axholme, 3 mi north-east from Crowle, and on the A161 road. Gina Bramhill was born in Eastoft, where she grew up on a farm. North Lincolnshire is a unitary authority area in the region of Yorkshire and the Humber in England. The population of the Unitary Authority at the 2011 census was 167,446.

Based on the golden evidence, is it true that Gina Bramhill was born in a village. The 2011 population of the area that includes this village was 167,446.

Answer: Yes

Given golden evidence: The New York Islanders season was the third season for the franchise in the National Hockey League. During the regular season, the Islanders finished in third place in the Patrick Division with a 33-2522 record and qualified for the Stanley Cup playoffs for the first time in the franchise’s history. The New York Rangers are a professional ice hockey team based in New York City. The Rangers are one of three NHL franchises in the New York metropolitan area, along with the New Jersey Devils and New York Islanders. The Rangers were the first NHL franchise in the United States to win the Stanley Cup, which they have done four times.

Based on the golden evidence, is it true that Along with the New York Islanders and the New York Rangers, the New Jersey Devils NFL franchise is popular in the New York metropolitan area?

Answer: No

...[More Examples]...

Given golden evidence:[Raw Evidence] (\mathcal{E})

Based on the golden evidence, is it true that [Claim] (*c*)? (Yes or No)

Answer: