

RESULT ANALYSIS:

Oris called primality.

$$^{\wedge}\{<DT>?<JJ.?\>*<NN.?\>+<VBZ>+\}$$

P1: {<DT.?*><JJ.?*><NN.?*>+<RB.?*><VB.?*>+<NN.?*>}

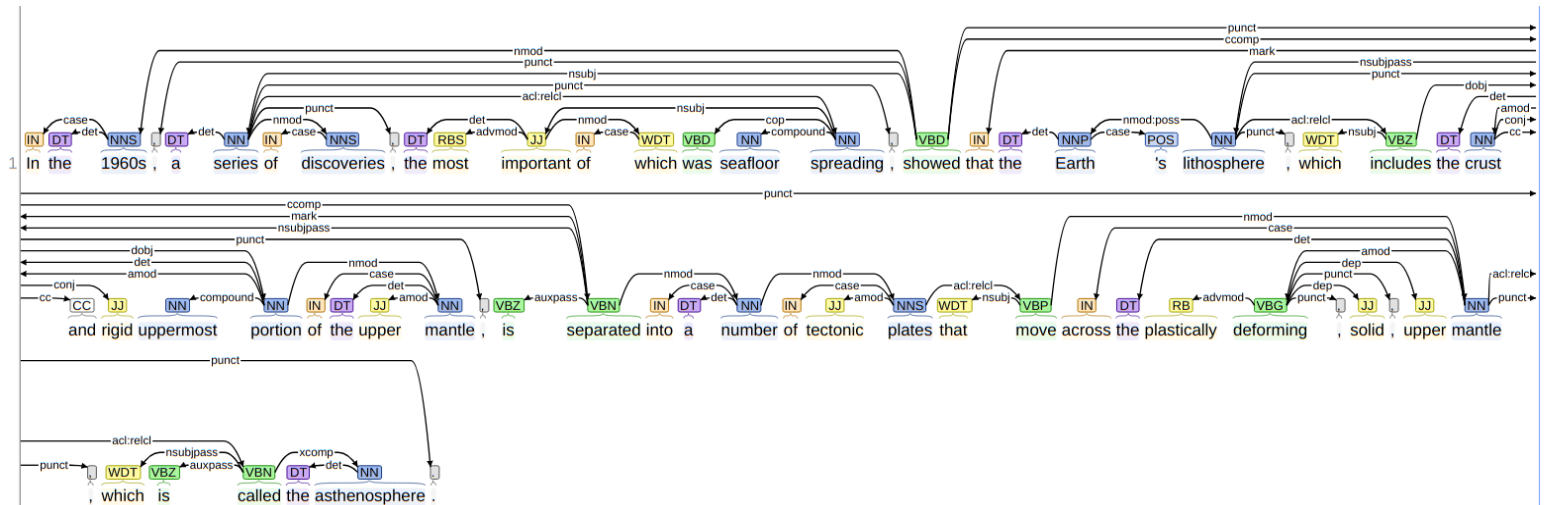
P2: {<VB.?>+<DT.?>*<JJ.?>*<NN.?>+}

1.RULE 1: ACL/ADVCL-->DOBJ-->NMOD-->CONJ

2.#RULE 2: (NO ACL/ADVCL/DOBJ) THEN NMOD-->CONJ

3.IF NN IS PRECEDED BY COMPOUND OR DET, EXTRACT THEM

In the 1960s, a series of discoveries, the most important of which was seafloor spreading, showed that the Earth's lithosphere, which includes the crust and rigid uppermost portion of the upper mantle, is separated into a number of tectonic plates that move across the plastically deforming, solid, upper mantle, which is called the asthenosphere.



Ground answer: asthenosphere

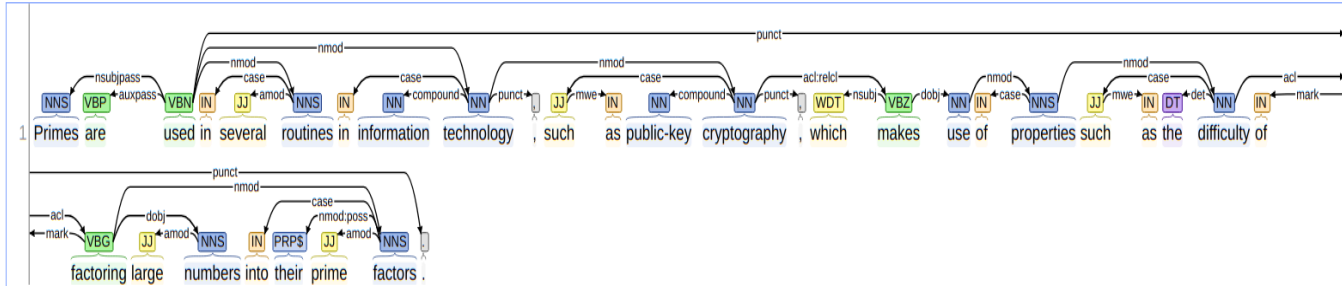
Predicted answer : None

Possible reason:

The model used the dependency parsing method instead of chunkers. Dependency parsing is not completely advisable for big sentences

SENTENCE:

Primes are used in several routines in information technology, such as public-key cryptography, which makes use of properties such as the difficulty of factoring large numbers into their prime factors.



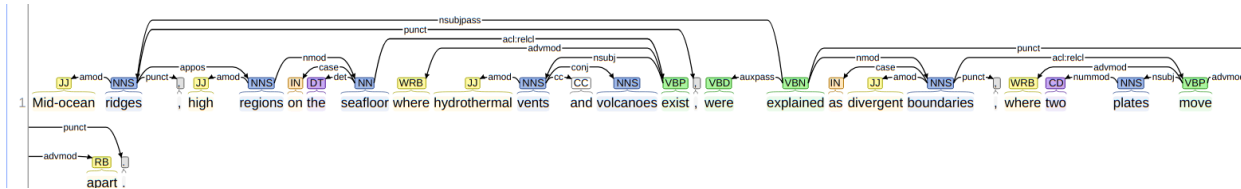
What is the application of prime numbers used in information technology which utilizes the fact that factoring very large prime numbers is very challenging?

Ground answer: public-key cryptography

Answer: public-key cryptography

SENTENCE:

Mid-ocean ridges, high regions on the seafloor where hydrothermal vents and volcanoes exist, were explained as divergent boundaries, where two plates move apart.



question: What is the area called where two plates move apart?

Ground answer: divergent boundaries

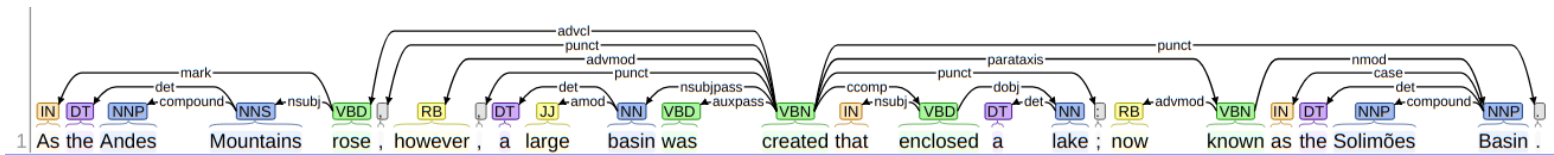
Answer: apart.

Possible reason:

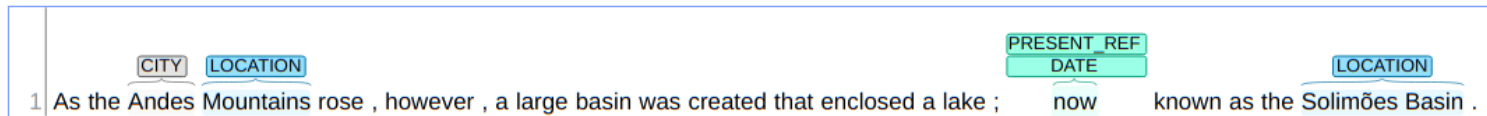
The answer extracted by the chunker is wrong and there is no provision to verify if the answer extracted are correct. Since the chunker returns an output, the model does not perform dependency parsing. Need to include conditions to decide whether to use chunkers or dependency parsing.

SENTENCE:

As the Andes Mountains rose, however, a large basin was created that enclosed a lake; now known as the Solimões Basin.



Named Entity Recognition:



question: What is the lake known as which was created by the rise of the Andes Mountains?

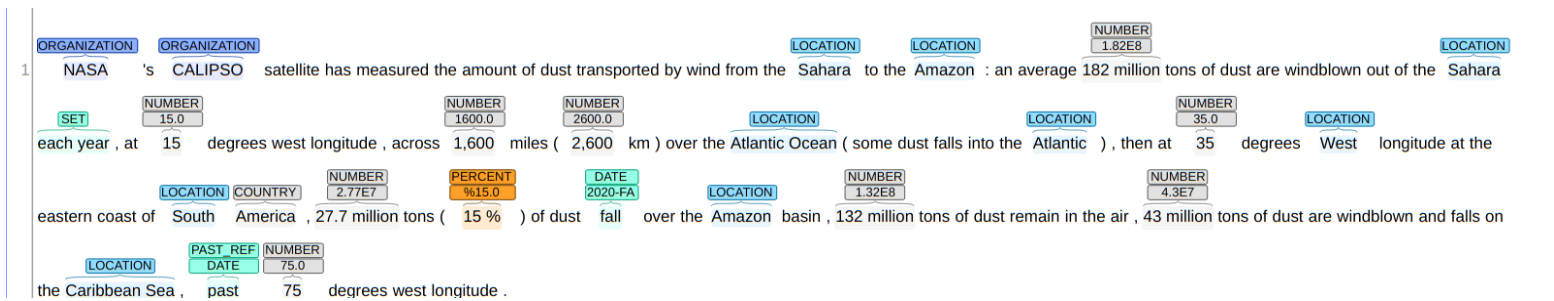
Ground answer: Solimões Basin

Answer: None

Possible reason: A new dependency rule to be followed (VERB-->PARATAXIS-->NMOD) or Named entity recognition has to be implemented. But the ambiguity of LOCATION(Mountains) and LOCATION(Solimoes Basin) arises.

SENTENCE:

NASA's CALIPSO satellite has measured the amount of dust transported by wind from the Sahara to the Amazon: an average 182 million tons of dust are windblown out of the Sahara each year, at 15 degrees west longitude, across 1,600 miles (2,600 km) over the Atlantic Ocean (some dust falls into the Atlantic), then at 35 degrees West longitude at the eastern coast of South America, 27.7 million tons (15%) of dust fall over the Amazon basin, 132 million tons of dust remain in the air, 43 million tons of dust are windblown and falls on the Caribbean Sea, past 75 degrees west longitude.



question: What is the name of the satellite that measured the amount of dust?

Ground answer: CALIPSO

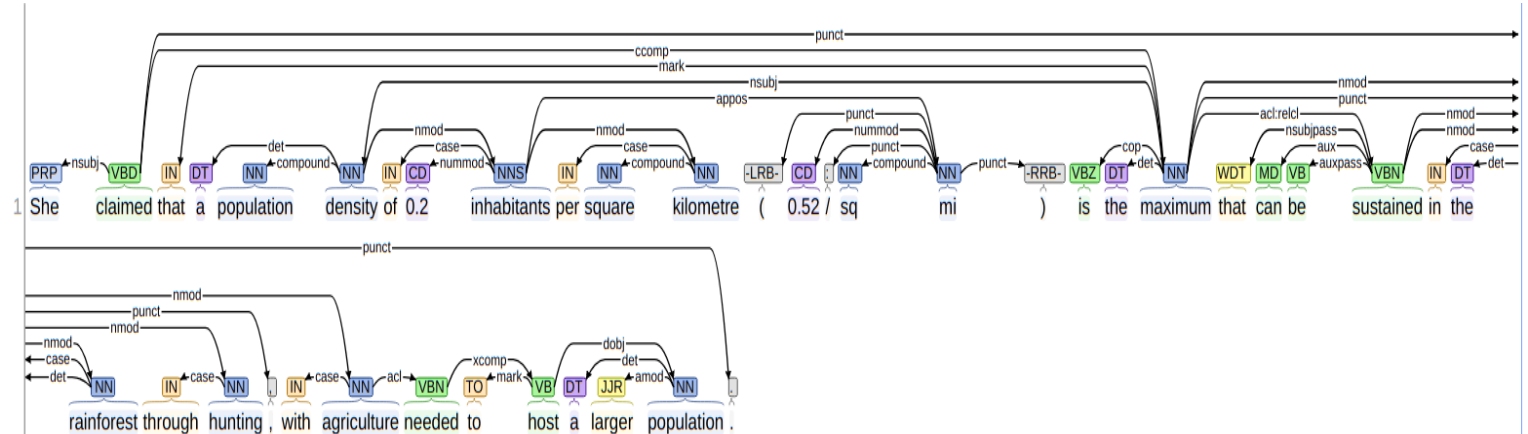
Predicted Answer: longitude.

Possible reason:

The model used the dependency parsing method. Due to the large size of the sentence, it did not perform well. Named Entity recognition has to be implemented.

SENTENCE:

She claimed that a population density of 0.2 inhabitants per square kilometre (0.52/sq mi) is the maximum that can be sustained in the rainforest through hunting, with agriculture needed to host a larger population.



question: What is the maximum square miles did Betty Meggers claim that can be sustained in the rainforest?

Ground answer: 0.52/sq mi

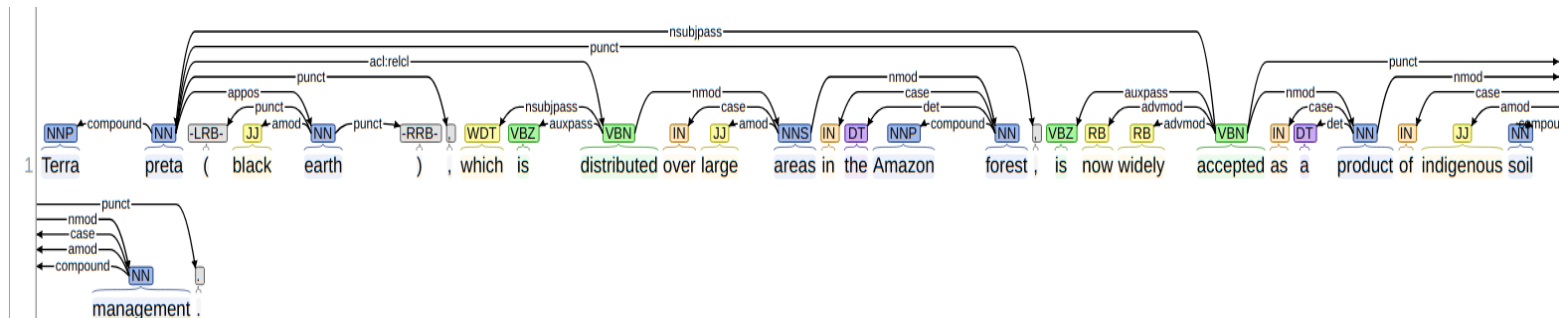
Answer: None

Possible reason:

A new dependency rule to be considered. NN-->NUMMOD

SENTENCE:

Terra preta (black earth), which is distributed over large areas in the Amazon forest, is now widely accepted as a product of indigenous soil management.



question: What is terra preta called?

Ground answer: (black earth

Answer: None

Possible Reason:

A new dependency rule to be followed. APPOS. Used to extract the word in the brackets.

SENTENCE: The property of being prime (or not) is called primality.

question: What is the name of the property that designates a number as being prime or not?

Ground answer: primality

Answer: primality.

SENTENCE: A simple but slow method of verifying the primality of a given number n is known as trial division.

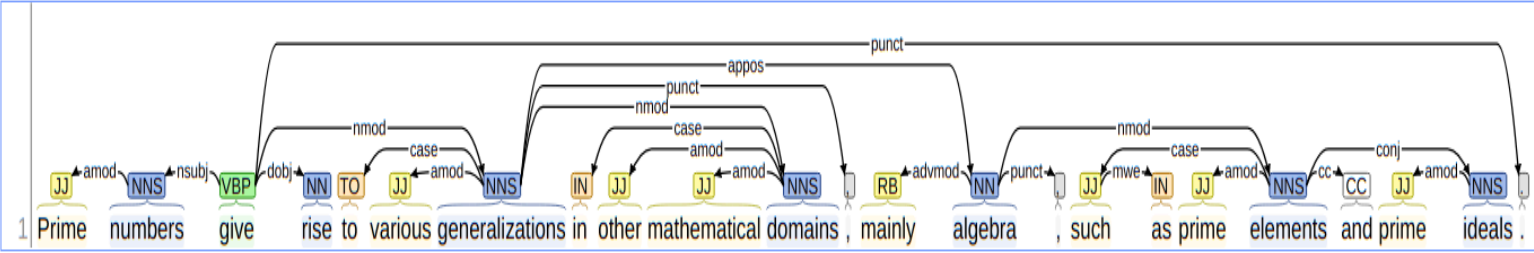
question: What is the name of the process which confirms the primality of a number n?

Ground answer: trial division

Answer: trial division

SENTENCE:

Prime numbers give rise to various generalizations in other mathematical domains, mainly algebra, such as prime elements and prime ideals.



What is the name of one algebraic generalization prime numbers have inspired?

Ground answer: prime elements

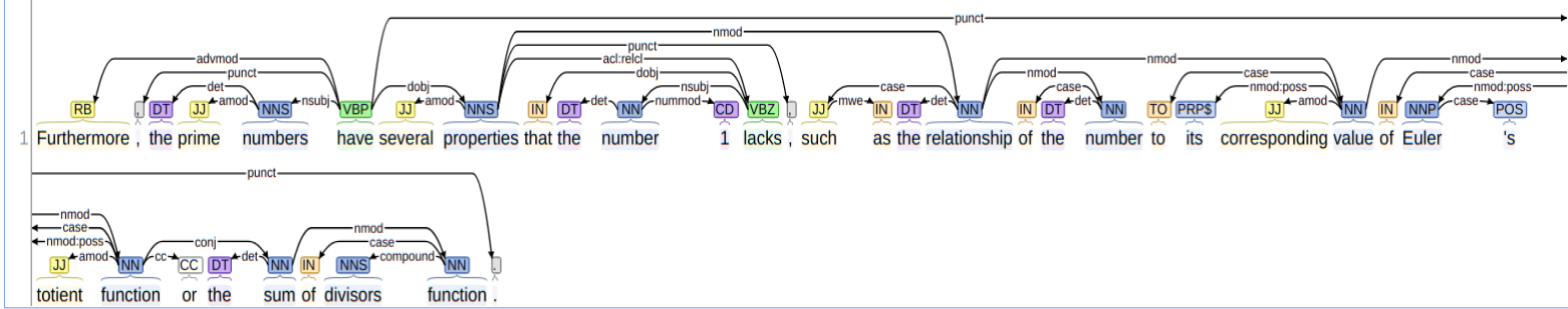
Answer: generalizations

Possible explanation:

It follows a different dependency. NMOD-->APPOS-->NMOD.

SENTENCE:

Furthermore, the prime numbers have several properties that the number 1 lacks, such as the relationship of the number to its corresponding value of Euler's totient function or the sum of divisors function.



1.question: What is one function that prime numbers have that 1 does not?

Ground answer: relationship of the number to its corresponding value of Euler's totient function or the sum of divisors function.

Answer: None

Possible explanation:

Follows a different dependency rule.DOBJ-->NMOD-->NMOD-->NMOD-->CONJ-->NMOD.

2.What is another function that primes have that the number 1 does not?

Ground answer: the sum of divisors function.

Answer: None

SENTENCE: Construction is the process of constructing a building or infrastructure.

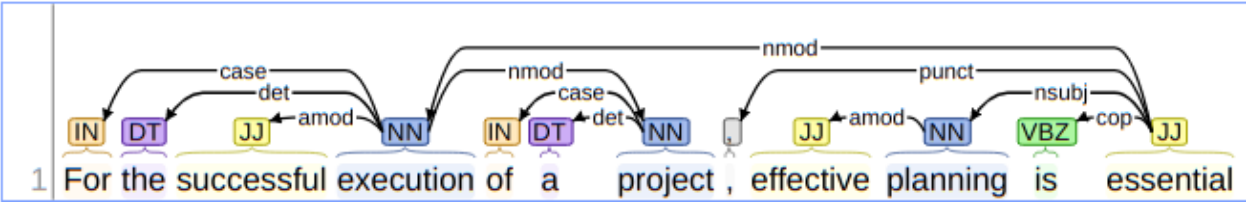
question: What is the process of constructing a building or infrastructure?

Ground answer: Construction

Answer: Construction

SENTENCE:

For the successful execution of a project, effective planning is essential.



question: What is essential for the successful execution of a project?

Ground answer: effective planning

Answer: None

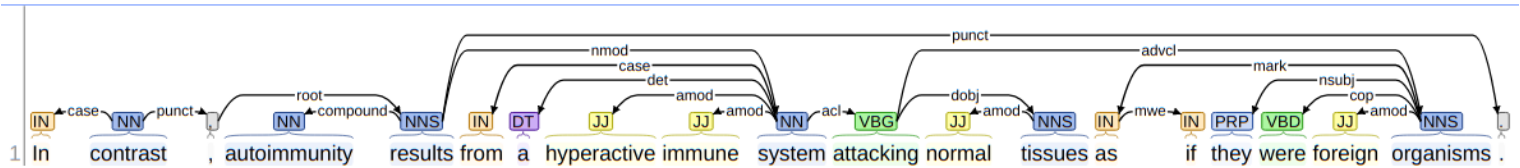
Possible reason:

The model identified "essential" as the main keyword (present in both question and answer).

Reverse parsing NSUBJ-->AMOD is required in this case

SENTENCE:

In contrast, autoimmunity results from a hyperactive immune system attacking normal tissues as if they were foreign organisms.



question: What is the term for a hyperactive immune system that attacks normal tissues?

Ground answer: autoimmunity

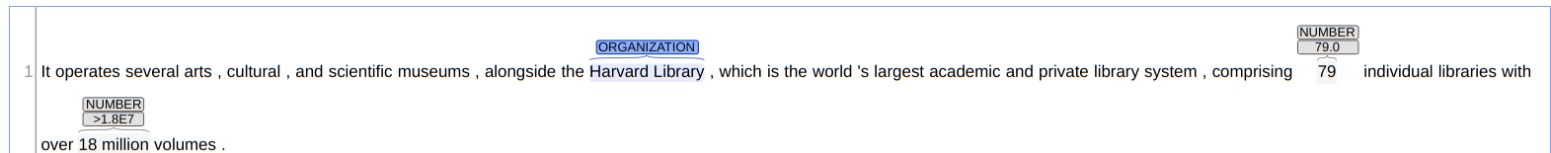
Answer: organisms.

Possible reason:

The answer extracted by the chunker is wrong and there is no provision to verify if the answer extracted is correct. Since the chunker returns an output, the model does not perform dependency parsing. Need to include conditions to decide whether to use chunkers or dependency parsing.
Cannot find a definite rule for dependency parsing.

SENTENCE:

It operates several arts, cultural, and scientific museums, alongside the Harvard Library, which is the world's largest academic and private library system, comprising 79 individual libraries with over 18 million volumes.



question: What is the worlds largest academic and private library system?

Ground answer: Harvard Library

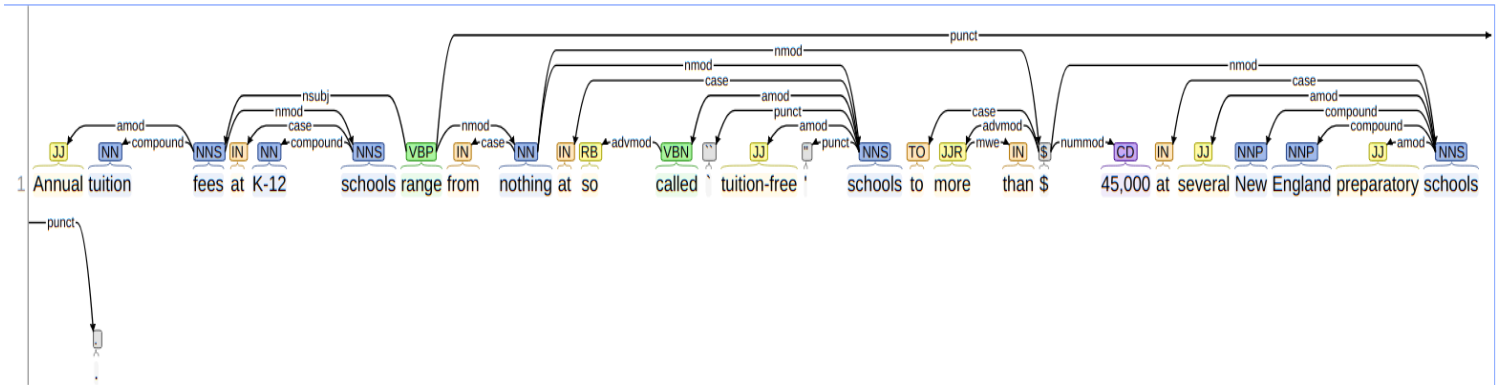
Answer: None

Possible explanation:

Need to implement named entity recognition

SENTENCE:

Annual tuition fees at K-12 schools range from nothing at so called 'tuition-free' schools to more than \$45,000 at several New England preparatory schools.



question: What is the yearly cost of some notable prep schools in New England?

Ground answer: \$45,000

Answer: nothing

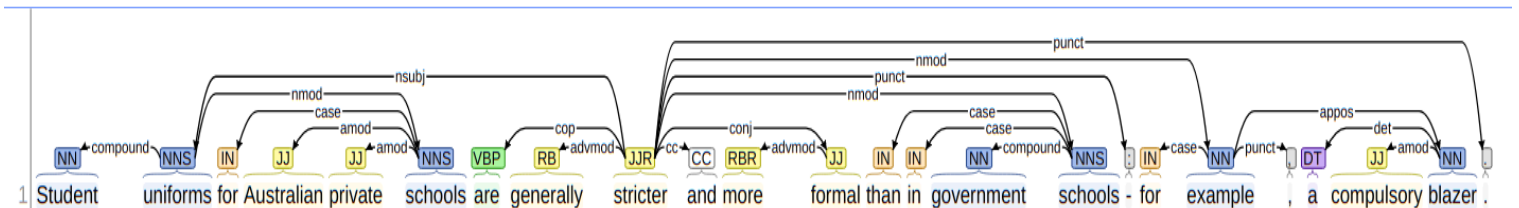
Possible explanation:

The model could not find the defined dependency rules. Here, "range" is the main keyword.

NMOD→>NMOD-->NUMMOD

SENTENCE:

Student uniforms for Australian private schools are generally stricter and more formal than in government schools - for example, a compulsory blazer.



question: What is an example of an article of uniform clothing typically present in Australian private schools?

Ground answer: blazer

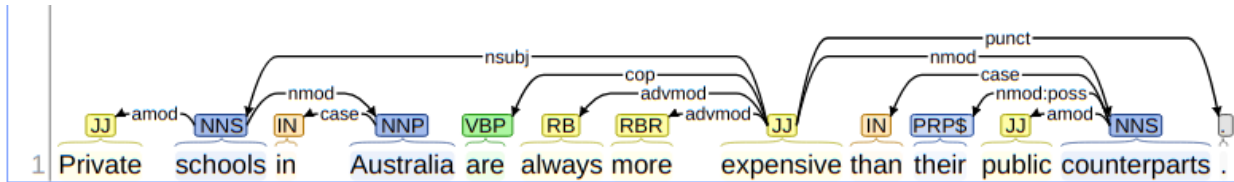
Answer: None

Possible explanation:

APPOS dependency was not defined in the rules. A new rule for questions referring to "example" should be formed.

SENTENCE:

Private schools in Australia are always more expensive than their public counterparts.



question: What is the comparison in price between Australian private schools versus public?

Ground answer: more expensive

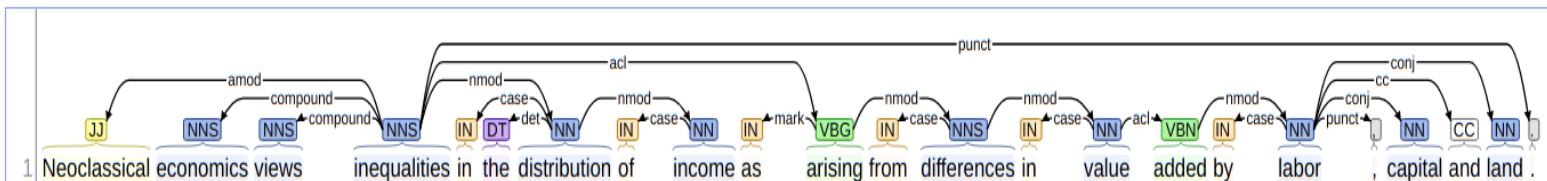
Answer: counterparts

Possible explanation:

The model extracted the NMOD dependency of main keyword “expensive”. The dependency rule to be followed is inconclusive

SENTENCE:

Neoclassical economics views inequalities in the distribution of income as arising from differences in value added by labor, capital and land.



question: What is income inequality attributed to?

Ground answer: differences in value added by labor, capital and land

Answer: distribution

Possible explanation: dependency rule not specified. New rule : ACL-->NMOD. Current rule specifies:

ACL-->DOBJ--->NMOD-->CONJ.