

Adp-LAF Initial Results

The *main propose of this case of study* is to obtain the necessary elements to implement the AdP-LAF: concepts and their attributes presented in a specific text, and the arguments expressed in a convenient form. As we can note hereafter, we use the opinions offer in <https://www.procon.org>. In this case, we chose the archived debate about *homework* containing three pro and con opinions concerning to the topic. To document the obtained results, we chose a *pro-opinion* and a *con-opinion* about the mentioned topic presented bellow, but the behaviour of each tool was carefully checked to reach a generalization.

Pro 1

Homework improves student achievement.

Studies have shown that homework improved student achievement in terms of improved grades, test results, and the likelihood to attend college.

Research published in the High School Journal indicated that students who spent between 31 and 90 minutes each day on homework "scored about 40 points higher on the SAT-Mathematics subtest than their peers, who reported spending no time on homework each day, on average." [6]

Students in classes that were assigned homework outperformed 69% of students who didn't have homework on both **standardized tests** and grades. A majority of studies on homework's impact – 64% in one meta-study and 72% in another – showed that take-home assignments were effective at improving academic achievement. [7] [8]

Research by the Institute for the Study of Labor (IZA) concluded that increased homework led to better GPAs and higher probability of college attendance for high school boys. In fact, boys who attended college did more than three hours of additional homework per week in high school. [10]

Con 1

Too much homework can be harmful.

A poll of California high school students found that 59% thought they had too much homework. 82% of respondents said that they were "often or always stressed by schoolwork." High-achieving high school students said too much homework leads to sleep deprivation and other health problems such as headaches, exhaustion, weight loss, and stomach problems. [24] [28] [29]

Alfie Kohn, an education and parenting expert, said, "Kids should have a chance to just be kids... it's absurd to insist that children must be engaged in constructive activities right up until their heads hit the pillow." [27]

Emmy Kang, a mental health counselor, explained, "More than half of students say that homework is their primary source of stress, and we know what stress can do on our bodies." [48]

Excessive homework can also lead to cheating: 90% of middle school students and 67% of high school students admit to copying someone else's homework, and 43% of college students engaged in "unauthorized collaboration" on out-of-class assignments. Even parents take shortcuts on homework: 43% of those surveyed admitted to having completed a child's assignment for them. [30] [31] [32]

The first step was to select de LLMs. We use [Poe](#), a platform that give us the chance to chose different LLMs to work. The criterion chosen to select the LLMs was that they were open source. In the next, we detail the answers given by the selected tools to specific *prompts*. We will use the following acronym during the text:

- **C**: representing ChatGPT 3.5 answers.
- **B**: indicating Bard answers.
- **Cl**: denoting Claude 2.1 answers.
- **F**: representing Falcon 180B answers.
- **G**: indicating Gemini answers.
- **LI**: denoting LLaMa 2 answers.

We carried out the test in accordance with the requirements outlined by the framework, with a view to subsequent implementation work. The steps followed are detailed in the next.

In each case, we enter prompts plausible of being improved in other experiments. We present the complete answer given by each LLM for each query.

The development of the case study took several weeks during which some tools stopped working or underwent updates. However, the recorded results were not modified and remained as the LLM delivered them.

Step 1: Finding the main concepts and their attributes in the text.

Prompt: Could you find keywords or the main concepts and their attributes in the following text?

Answers for the Pro-Opinion:

C answer:

Certainly! Here are the main concepts and their attributes in the provided text:

1. Concept: Homework
 - Attributes:
 - Improves student achievement.
 - Studied for a duration of 31 to 90 minutes per day.
 - Assigned in classes.
 - Take-home assignments.
2. Concept: Student Achievement
 - Attributes:
 - Improved grades.
 - Improved test results.
 - Likelihood to attend college.
3. Concept: SAT-Mathematics Scores
 - Attributes:
 - Positive correlation with homework duration.
4. Concept: Standardized Tests and Grades
 - Attributes:
 - Outperformed by students with assigned homework.
5. Concept: Effectiveness of Take-home Assignments
 - Attributes:
 - Majority of studies (64% and 72% in different meta-studies) support their effectiveness.
6. Concept: High School Boys
 - Attributes:
 - Increased homework leads to better GPAs.
 - Higher probability of college attendance.
 - Those attending college do more than three hours of additional homework per week.
7. Concept: Research and Studies
 - Attributes:
 - Published in the High School Journal.
 - Meta-studies indicating the effectiveness of homework.
8. Concept: Institute for the Study of Labor (IZA) Research
 - Attributes:
 - Concludes that increased homework leads to better GPAs and higher college attendance for high school boys.

B answer:

Main Concepts and Attributes:

Concept: Homework

* Attributes:

* Quantity (e.g., 31-90 minutes daily, 3+ hours more weekly for boys)

* Type (e.g., unspecified, take-home assignments)

* Subject area (e.g., math, overall grades)

Concept: Student Achievement

* Attributes:

* Grades

- * Standardized test scores (e.g., SAT-Math)
- * College attendance

Concept: Correlation

- * Attributes:
 - * Strength (e.g., 69% higher, majority of studies)
 - * Direction (positive association between homework and achievement)
 - * Specificity (boys, math scores)

Concept: Research

- * Attributes:
 - * Type (e.g., meta-analysis, specific studies)
 - * Focus (e.g., homework impact, high school boys)

Bonus:

- * Age/Grade Level (studies suggest stronger impact on older students)

These are the main concepts and attributes highlighted in the text. Keep in mind that the level of detail can be adjusted depending on your specific needs.

CI answer:

Here are the main concepts I identified in the text along with their key attributes:

Concept 1: Homework

- Attributes:
 - Improves student achievement
 - In terms of better grades, test results, likelihood to attend college
 - More homework time leads to better test scores
 - Being assigned homework leads to better grades and test results

Concept 2: Students

- Attributes:
 - Spending 31-90 minutes per day on homework leads to higher SAT math scores
 - Assigned homework outperforms 69% of unassigned students on standardized tests and grades
 - More homework improves their academic achievement
 - High school boys doing over 3 additional homework hours per week have higher college attendance

Concept 3: Studies/Research

- Attributes:
 - Show homework improves achievement
 - 64-72% show homework is effective for academic achievement
 - IZA research concludes more homework leads to better GPAs and college attendance

F answer:

Sure, here are the keywords or main concepts and their attributes from the given text:

- Keywords/Main Concepts:

Homework
 Student Achievement
 Grades
 Test Results
 College Attendance

- Attributes:

Improved grades, test results, and college attendance
Spend between 31 and 90 minutes on homework daily for better SAT scores
More homework leads to better GPAs and higher probability of college attendance.

G answer:

Keywords:

- * Homework
- * Student achievement
- * Standardized test scores
- * Grades
- * College attendance
- * GPA

Main concepts and their attributes:

.Homework:

- * Amount of time spent on homework
- * Type of homework assignments
- * Difficulty of homework assignments

.Student achievement:

- * Standardized test scores
- * Grades
- * College attendance
- * GPA

.Relationship between homework and student achievement:

- * Positive correlation between homework and standardized test scores
- * Positive correlation between homework and grades
- * Positive correlation between homework and college attendance
- * Positive correlation between homework and GPA

The text also mentions the following attributes of the relationship between homework and student achievement:

.The relationship is stronger for high school students than for elementary school students.

.The relationship is stronger for boys than for girls.

.The relationship is stronger for students from higher-income families than for students from lower-income families.

However, it is important to note that these relationships are complex and there are many other factors that can influence student achievement, such as student motivation, teacher quality, and family support.

LI answer:

Here are the main concepts and their attributes that I identified in the text:

1. Homework:

- * Improves student achievement
- * Increases grades
- * Improves test results
- * Increases likelihood of attending college

2. Student achievement:

- * Improved grades
- * Improved test results
- * Increased likelihood of attending college

3. Research:

- * Published in the High School Journal
 - * Indicated that homework improves math test scores
 - * Showed that homework is effective in improving academic achievement
 - * Concluded that increased homework leads to better GPAs and higher probability of college attendance for high school boys
4. Students:
- * Spent between 31 and 90 minutes on homework per day
 - * Scored higher on math tests
 - * Outperformed peers who didn't have homework
 - * Attended college
5. Homework assignments:
- * Take-home assignments
 - * Effective in improving academic achievement
 - * Increased homework led to better GPAs and higher probability of college attendance for high school boys
6. Institute for the Study of Labor (IZA):
- * Conducted research on homework's impact
 - * Found that increased homework leads to better GPAs and higher probability of college attendance for high school boys
7. Boys:
- * Attended college
 - * Did more than three hours of additional homework per week in high school

Answers for the Con-Opinion:

C answer:

Certainly! Here are the main concepts and their attributes from the provided text:

1. **Concept: Homework**
 - Attributes: Quantity (too much), Stress-inducing, Sleep-depriving, Health problems (headaches, exhaustion, weight loss, stomach problems)
2. **Concept: Student Perspective**
 - Attributes: 59% of California high school students, 82% stressed by schoolwork, High-achieving students' perspective on health issues.
3. **Concept: Expert Perspectives**
 - Attributes: Alfie Kohn's viewpoint on the need for children to have leisure time, Emmy Kang's perspective on stress and its effects on the body.
4. **Concept: Stress and Health**
 - Attributes: Homework as the primary source of stress, Stress-related health problems.
5. **Concept: Cheating and Academic Dishonesty**
 - Attributes: Copying homework, Unauthorized collaboration, Percentage of students engaging in cheating.
6. **Concept: Parental Involvement**
 - Attributes: Parents completing children's assignments, Percentage of parents admitting to completing homework.

These concepts and their attributes form the basis for the arguments presented in the text.

B answer:

Sure, here are the keywords and main concepts I found in the text, along with some of their attributes:

Keyword	Attributes
homework	Can be harmful, leads to sleep deprivation and other health problems, is a major source of stress, can lead to cheating
students	Think they have too much homework, report feeling stressed by homework, engage in cheating
health	Problems such as headaches, exhaustion, weight loss, and stomach problems
children	Should have a chance to just be kids
stress	Can be harmful to the body
cheating	Is common among students, even parents do it sometimes

I hope this helps! Let me know if you have any other questions.

CI answer:

Here are the main concepts I identified in the text along with their key attributes or properties:

Concept 1: Homework

- Attributes: amount (too much, excessive), source of stress, leads to health issues (sleep deprivation, headaches, exhaustion, weight loss, stomach problems), causes cheating

Concept 2: Students

- Attributes: stressed from schoolwork, engaged in constructive activities until bedtime, don't have a chance to just be kids, primary source of stress is homework, admit to cheating/copying homework

Concept 3: Stress

- Attributes: impacts health negatively, physical effects (headaches, exhaustion, weight loss, stomach issues)

Concept 4: Cheating/Academic dishonesty

- Attributes: copying homework from others, unauthorized collaboration on assignments, common in middle school, high school and college students

Concept 5: Parents

- Attributes: take shortcuts on homework, complete assignments for children instead of children doing own homework

The main relationships shown are:

- Excessive homework leads to increased stress and negative health impacts for students
- High homework load causes students to cheat more frequently
- Parents doing homework for kids enables academic dishonesty

F answer:

We could not obtain the answer in this case at the moment of this

experimental part. The LLM never fulfilled the requirement.

G answer:

****Keywords:****

- * Homework
- * Stress
- * Health problems
- * Cheating
- * Parental involvement

****Main concepts and their attributes:****

* ****Homework:****

- * Amount: too much, excessive
- * Effects: stress, health problems, cheating

* ****Stress:****

- * Causes: too much homework
- * Effects: health problems, cheating

* ****Health problems:****

- * Caused by too much homework: sleep deprivation, headaches, exhaustion, weight loss, stomach problems
- * Caused by stress: various physical and mental health problems

* ****Cheating:****

- * Caused by too much homework: students feel overwhelmed and pressured to complete assignments
- * Facilitated by too much homework: students have less time to learn the material and may resort to copying others' work

* ****Parental involvement:****

- * Negative: parents completing their child's homework for them
- * Positive: parents providing support and guidance to their child with homework

Overall, the main concepts and their attributes highlight the negative consequences of too much homework, including stress, health problems, and cheating. They also suggest that parental involvement in homework should be supportive and not involve completing the assignments for the child.

LI answer:

Sure, here are some keywords, main concepts, and their attributes from the provided text:

Keywords:

1. Homework
2. Students
3. Stress
4. Health
5. Learning

6. Parents
7. Teachers
8. Education

Main Concepts:

1. Homework and its impact on students
 - * Negative effects on health and well-being
 - * Increased stress levels
 - * Lack of time for relaxation and play
 - * Potential for cheating
2. Parents' involvement in homework
 - * Completing assignments for their children
 - * Undermining the learning process
3. Teachers' role in homework assignment
 - * Assigning excessive homework
 - * Failing to provide adequate support
4. Education system's emphasis on homework
 - * Prioritizing homework over other aspects of education
 - * Ignoring the negative effects of homework

Attributes:

1. Homework
 - * Excessive
 - * Stressful
 - * Time-consuming
 - * Potentially harmful
2. Students
 - * Stressed
 - * Overwhelmed
 - * Lacking time for relaxation
 - * Potentially cheating
3. Parents
 - * Involved
 - * Enabling
 - * Undermining the learning process
4. Teachers
 - * Assigning homework
 - * Failing to provide adequate support
 - * Prioritizing homework over other aspects of education
5. Education system
 - * Focused on homework
 - * Ignoring the negative effects of homework
 - * Prioritizing academic achievement over student well-being

Answers Evaluation:

The LLMs explored give their answers presenting few common concepts. We can note that:

- (i) **F** is the less precise answer according to our representational necessities based in their answer inherent to the pro-opinion. We could not obtain a response about the con-opinion because the LLM leaving in an infinite loop after the request.
- (ii) Both **C** and **B** extract concepts that we would not have considered as such in a manual extraction, e.g., for the Pro-Opinion: SAT-Mathematics Scores (**C**), Standardized Test and Grades (**C**), Correlation (**B**), and Research (**B**); w.r.t the Con-Opinion Cheating and Academic Dishonesty (**C**), Stress and Health (**C**), stress (**B**), cheating (**B**), among others.
- (iii) About **G**, the founded results are more convenient for our representational

necessities w.r.t. the pro-opinion, and the tool give useful extra information about the relation between the concepts, for this specific case, a relation tagged as *positive correlation*. Regarding the con-opinion, the answer is not as precise as we need. However, the tool gives us explanations.

- (iv) With respect to **LI**, the granularity in the answer causes that certain attributes founded by manual extraction are presented as concepts by the tool, e.g. *Boys* or *IZA*. Besides, **LI** finds overlapping concepts as *Boys* and *Students* in the case of pro-opinion. Regarding to the con-opinion, the provided answer is acceptable w.r.t. identifying concepts, but it is insufficient in relation to the attributes of these concepts.

Thus, according to our necessities, none of the tools explored fit our representational requirements perfectly, but **G** allows us to save time on a task that, if done manually, is time-consuming. This is mainly justified in the additional explanations given by the tool.

Step 2: Asking for if...then rules using the same inputs.

Prompt: I need the arguments present in the following text, expressed as if ... then rules:

Answers for the Pro-Opinion:

C answer:

Sure, let's express the arguments present in the text as "if... then" rules:

1. If students spend between 31 and 90 minutes each day on homework, then they are likely to score about 40 points higher on the SAT-Mathematics subtest compared to their peers who reported spending no time on homework each day, on average.
2. If students are assigned homework in their classes, then they are likely to outperform 69% of students who don't have homework on both standardized tests and grades.
3. If students engage in take-home assignments, then there is a likelihood, as indicated by the majority of studies (64% and 72% in different meta-studies), that these assignments are effective at improving academic achievement.
4. If high school boys increase their homework, then they are likely to achieve better GPAs and have a higher probability of attending college, according to research by the Institute for the Study of Labor (IZA).
5. If boys attend college, then they tend to do more than three hours of additional homework per week in high school, as suggested by the research findings from the Institute for the Study of Labor (IZA).

B answer:

If-Then Rules on Homework and Achievement:

1. If students do 31-90 minutes of homework daily, then their SAT-Math scores may be about 40 points higher than those who do no homework.
2. If students have homework, then they are 69% more likely to outperform students without homework on tests and grades.
3. If there are take-home assignments, then a majority of studies (64%-

72%) show improved student achievement.

4. If high school boys do more homework, then they are more likely to have higher GPAs and attend college. (Specifically, attending college correlates with 3+ hours more weekly homework in high school.)

Bonus Rule: This evidence suggests a link between homework and improved academic outcomes, especially for older students and in specific subjects like math.

Note: These are generalizations based on the provided text. Individual results may vary, and other factors can also influence student achievement.

CI answer:

Here are the if-then rule arguments I identified in the text:

If students spend 31-90 minutes per day on homework, then they score about 40 points higher on the SAT-Mathematics subtest than students who spend no time on homework.

If students are assigned homework, then they outperform 69% of students without homework on standardized tests and grades.

If students do more homework, then academic achievement improves (as shown by 64-72% of studies).

If high school boys do over 3 additional hours of homework per week, then they have a higher probability of attending college.

So in summary:

- More homework time -> better test scores
- Homework assigned -> better grades and test results
- More homework -> better academic achievement
- More homework for high school boys -> higher chance of college

F answer:

If students spend time on homework each day, then they are likely to score higher on the SAT-Mathematics subtest compared to those who do not.

If students are assigned homework, then they are more likely to outperform those who are not assigned homework in terms of standardized test scores and grades.

If increased homework leads to better GPAs and higher probability of college attendance for high school boys, then it is possible that similar effects could be seen for other students as well.

G answer:

1. If students spend between 31 and 90 minutes on homework each day, then they will score higher on standardized tests.
2. If students are assigned homework, then they will outperform students who are not assigned homework on standardized tests and grades.
3. If students do more homework, then they will have higher GPAs and a higher probability of attending college.

LI answer:

Here are the if...then rules that can be inferred from the text:

1. If homework is assigned, then student achievement will improve.
2. If students spend between 31 and 90 minutes on homework per day, then they will score higher on math tests.
3. If homework is assigned, then students will outperform their peers who do not have homework on standardized tests and grades.
4. If a majority of studies on homework's impact show that take-home assignments are effective, then homework will improve academic achievement.
5. If homework is increased, then high school boys will have better GPAs and a higher probability of attending college.

These rules are not necessarily absolute or universal, but they are supported by the evidence presented in the text.

Answers for the Con-Opinion:

C answer:

- If there is too much homework, then it can be harmful.
- If 59% of California high school students think they have too much homework, then it may be causing stress.
- If 82% of respondents are "often or always stressed by schoolwork," then there is a correlation between homework and stress.
- If high-achieving high school students claim that too much homework leads to sleep deprivation and health problems such as headaches, exhaustion, weight loss, and stomach problems, then excessive homework may have negative health effects.
- If Alfie Kohn, an education and parenting expert, suggests that kids should have a chance to just be kids and that insisting on constructive activities until bedtime is absurd, then there is a perspective against excessive homework.
- If Emmy Kang, a mental health counselor, states that more than half of students consider homework as their primary source of stress, and stress can have negative effects on our bodies, then there is a potential link between homework and stress-related health issues.
- If excessive homework can lead to cheating, as evidenced by 90% of middle school students and 67% of high school students admitting to copying someone else's homework, then there is a risk associated with the quantity of homework.
- If 43% of college students engaged in "unauthorized collaboration" on out-of-class assignments, then excessive homework may contribute to academic dishonesty at higher education levels.
- If 43% of surveyed parents admit to having completed a child's assignment for them, then there is parental involvement in completing homework, potentially indicating a burden on students.

B answer:

Sure, here are the arguments present in the text, expressed as if-then rules:

Argument

- If students have too much homework, then they may experience stress, sleep deprivation, and health problems.
- If students are stressed by homework, then it may be harmful.
- If homework is a major source of stress, then it may lead to negative

consequences like cheating.

- If parents complete their children's homework, then it undermines the learning process.

CI answer:

Here are the if-then rules extracted from the text:

- If students have too much homework, then they experience stress from schoolwork.
- If students have excessive homework, then they experience sleep deprivation and other health problems like headaches, exhaustion, weight loss, and stomach problems.
- If students are engaged in constructive activities right up until bedtime, then they don't have a chance to just be kids.
- If homework is a primary source of stress for students, then we know stress can negatively impact their bodies.
- If students have excessive homework, then they are more likely to cheat by copying someone else's homework or collaborating with others on out-of-class assignments.
- If parents take shortcuts and complete assignments for their children, then the children are not doing their own homework.

F answer:

We could not obtain the answer in this case at the moment of this experimental part. The LLM never fulfilled the requirement.

G answer:

1. If students have too much homework, then they are more likely to be stressed.
2. If students are stressed by homework, then they are more likely to experience health problems such as sleep deprivation, headaches, exhaustion, weight loss, and stomach problems.
3. If students have too much homework, then they are more likely to cheat.
4. If parents are stressed about their child's homework, then they are more likely to complete the assignment for them.

LI answer:

Here are the arguments present in the text, expressed as if ... then rules:

1. If excessive homework is assigned, then it can lead to negative effects on students' health and well-being.
 - * 59% of California high school students thought they had too much homework.
 - * 82% of respondents said they were "often or always stressed by schoolwork."
 - * High-achieving high school students reported sleep deprivation, headaches, exhaustion, weight loss, and stomach problems due to excessive homework.
2. If students are overwhelmed with homework, then they may engage in cheating.
 - * 90% of middle school students and 67% of high school students admit to copying someone else's homework.
 - * 43% of college students engaged in "unauthorized collaboration" on

out-of-class assignments.

3. If parents are involved in completing homework assignments, then it undermines the learning process.

- * 43% of parents surveyed admitted to having completed a child's assignment for them.

4. If homework is the primary source of stress for students, then it can have long-term effects on their mental health.

- * More than half of students say that homework is their primary source of stress.

- * Stress can have negative effects on the body, such as headaches, exhaustion, weight loss, and stomach problems.

5. If students are not given the opportunity to relax and play, then it can negatively impact their development.

- * Alfie Kohn, an education and parenting expert, believes that kids should have a chance to just be kids and that it's absurd to insist that children must be engaged in constructive activities right up until their heads hit the pillow.

Answers Evaluation:

With respect to the Pro-Opinion, the most of the LLMs extracts four (4) rules that are very similar. However, **CI** has the peculiarity of presents rules summarizing the general rules which is important to construct the argumentation graph, and **G** extracts the if... then structures in a more simplified and useful form. However, we would need to train the LLMs to extract the rules using the concepts and their attributes to adhere to our formalism, but the result of this step and the following are important for future implementation work because contribute to the construction of argumentation graph in a semi-automatic form.

Respecting to the answers about the Con-Opinion, the answers are very varied. For our purposes, the answers provided by **B**, **G**, and **CI** are more convenient and consistent with the manual results given that the rules are more concise. In the case of **LI**, the tool provides similar rules to the tools just mentioned, adding certain ones that appear to be evidence rules supporting the if...then synthesis.

Step 3: Asking for arguments in the same pieces of text.

Prompt: Could you give me the arguments and their premises?

Answers for the Pro-Opinion:

C answer:

Certainly! Here are the arguments and their premises from the provided text:

Argument 1: Homework improves student achievement.

- Premise: Studies have shown that homework improves student achievement in terms of improved grades, test results, and the likelihood of attending college.

Argument 2: Homework duration is positively correlated with SAT-Mathematics scores.

- Premise: Research published in the High School Journal indicates that students who spend between 31 and 90 minutes each day on homework score about 40 points higher on the SAT-Mathematics subtest than their peers who report spending no time on homework each day, on average.

Argument 3: Students with assigned homework outperform peers on

standardized tests and grades.

- Premise: Students in classes that are assigned homework outperform 69% of students who don't have homework on both standardized tests and grades.

Argument 4: Take-home assignments are effective at improving academic achievement.

- Premise: A majority of studies (64% in one meta-study and 72% in another) show that take-home assignments are effective at improving academic achievement.

Argument 5: Increased homework leads to better GPAs and higher college attendance for high school boys.

- Premise: Research by the Institute for the Study of Labor (IZA) concludes that increased homework leads to better GPAs and a higher probability of college attendance for high school boys.

Argument 6: Boys attending college do more homework in high school.

- Premise: Boys who attend college do more than three hours of additional homework per week in high school, according to research by the Institute for the Study of Labor (IZA).

B answer:

Arguments, Premises, and Conclusions:

Argument 1: Higher math scores with moderate homework

- *Premise: Students spend 31-90 minutes on homework daily. (Empirical evidence from research)

- *Premise: These students score about 40 points higher on the SAT-Math subtest than students who do no homework. (Empirical evidence from research)

- *Conclusion: Moderate daily homework may be associated with higher math scores.

Argument 2: Higher overall achievement with homework

- *Premise: Students have homework assignments. (Unspecified type and amount)

- *Premise: These students outperform students without homework by 69% on tests and grades. (Empirical evidence from multiple studies)

- *Conclusion: Homework, in general, may be linked to higher overall academic achievement.

Argument 3: Improved achievement with take-home assignments

- *Premise: Classes have take-home assignments, including homework. (Uncertain about specific types)

- *Premise: A majority of studies (64%-72%) find that take-home assignments lead to improved student achievement. (Meta-analysis of research)

- *Conclusion: Take-home assignments, broadly speaking, may positively impact academic outcomes.

Argument 4: Correlation between homework and college attendance/GPA for boys

- *Premise: High school boys do more homework per week. (Specific amount: 3+ hours more for college attendees)

*Premise: These boys have higher GPAs and are more likely to attend college. (Empirical evidence from IZA research)

*Conclusion: Increased homework might be associated with higher GPAs and college attendance for boys.

Note: These arguments are based on the information provided and do not necessarily imply causation. It's important to consider alternative explanations and potential limitations of the studies cited.

Cl answer:

Sure, here are the arguments laid out with explicit premises and conclusions:

Argument 1:

Premise 1: Students who spend 31-90 minutes per day on homework score about 40 points higher on the SAT-Math subtest

Premise 2: Compared to students who spend no time on homework each day

Conclusion: If students spend 31-90 minutes per day on homework, then they score about 40 points higher on the SAT-Mathematics subtest than students who spend no time on homework.

Argument 2:

Premise 1: Students in classes assigned homework outperformed 69% of students without homework

Premise 2: On both standardized tests and grades

Conclusion: If students are assigned homework, then they outperform 69% of students without homework on standardized tests and grades.

Argument 3:

Premise 1: 64-72% of studies showed homework is effective at improving academic achievement

Conclusion: If students do more homework, then academic achievement improves.

Argument 4:

Premise 1: High school boys who attended college did over 3 additional hours of homework per week

Premise 2: Compared to those who did not attend college

Conclusion: If high school boys do over 3 additional hours of homework per week, then they have a higher probability of attending college.

F answer:

Sure! Here are the arguments and their premises based on the text provided:

Argument 1:

Premise 1: Studies have shown that homework improved student achievement in terms of improved grades, test results, and the likelihood to attend college.

Premise 2: Research published in the High School Journal indicated that students who spent between 31 and 90 minutes each day on homework scored about 40 points higher on the SAT-Mathematics subtest than their peers who reported spending no time on homework each day, on average.

Conclusion: If students spend time on homework each day, then they are likely to score higher on the SAT-Mathematics subtest compared to those who do not.

Argument 2:

Premise 1: Students in classes that were assigned homework outperformed 69% of students who didn't have homework on both standardized tests and grades.

Premise 2: A majority of studies on homework's impact - 64% in one meta-study and 72% in another - showed that take-home assignments were effective at improving academic achievement.

Conclusion: If students are assigned homework, then they are more likely to outperform those who are not assigned homework in terms of

G answer:

Argument 1

Premise: Students who spend between 31 and 90 minutes on homework each day score about 40 points higher on the SAT-Mathematics subtest than their peers who reported spending no time on homework each day, on average.

Conclusion: Homework improves student achievement in terms of standardized test scores.

Argument 2

Premise: Students in classes that were assigned homework outperformed 69% of students who didn't have homework on both standardized tests and grades.

Conclusion: Homework improves student achievement in terms of both standardized test scores and grades.

Argument 3

Premise: Research by the Institute for the Study of Labor (IZA) concluded that increased homework led to better GPAs and higher probability of college attendance for high school boys.

Conclusion: Homework improves student achievement in terms of college attendance and GPA.

Note that the premises in these arguments are supported by the evidence presented in the text, such as the studies published in the High School Journal and the meta-studies.

LI answer:

Certainly! Here are the arguments and their premises from the text:

Argument 1: Homework improves student achievement.

Premise 1: Studies have shown that homework improved student achievement in terms of improved grades, test results, and the likelihood to attend college.

Argument 2: Homework has a positive impact on math test scores.

Premise 1: Research published in the High School Journal indicated that students who spent between 31 and 90 minutes each day on homework "scored about 40 points higher on the SAT-Mathematics subtest than their peers, who reported spending no time on homework each day, on average."

Argument 3: Homework leads to better performance on standardized tests and grades.

Premise 1: Students in classes that were assigned homework outperformed 69% of students who didn't have homework on both standardized tests and grades.

Premise 2: A majority of studies on homework's impact - 64% in one meta-study and 72% in another - showed that take-home assignments were effective at improving academic achievement.

Argument 4: Increased homework leads to better GPAs and higher probability of college attendance for high school boys.

Premise 1: Research by the Institute for the Study of Labor (IZA) concluded that increased homework led to better GPAs and higher probability of college attendance for high school boys.

Premise 2: Boys who attended college did more than three hours of additional homework per week in high school.

Answers for the Con-Opinion:

C answer:

Certainly! Here are the arguments and their premises:

****Argument 1: Too much homework can be harmful.****

- Premise: A poll of California high school students found that 59% thought they had too much homework.

- Premise: 82% of respondents said that they were "often or always stressed by schoolwork."

- Premise: High-achieving high school students said too much homework leads to sleep deprivation and other health problems such as headaches, exhaustion, weight loss, and stomach problems.

****Argument 2: Excessive homework negatively affects students.****

- Premise: Alfie Kohn, an education and parenting expert, said, "Kids should have a chance to just be kids... it's absurd to insist that children must be engaged in constructive activities right up until their heads hit the pillow."

****Argument 3: Homework is a significant source of stress for students.****

- Premise: Emmy Kang, a mental health counselor, explained, "More than half of students say that homework is their primary source of stress, and we know what stress can do on our bodies."

****Argument 4: Excessive homework can lead to cheating.****

- Premise: 90% of middle school students and 67% of high school students admit to copying someone else's homework.

- Premise: 43% of college students engaged in "unauthorized collaboration" on out-of-class assignments.

****Argument 5: Parents engage in completing their children's homework.****

- Premise: 43% of surveyed parents admitted to having completed a child's assignment for them.

B answer:

Absolutely! Here's a breakdown of the arguments and their premises from the text, expressed as if-then statements with supporting evidence:

****Argument 1:**** Too much homework can be harmful to students' health and well-being.

****Premises:****

- * A poll showed that 59% of California high school students feel they have too much homework.
- * 82% of surveyed students reported frequently or always feeling stressed by schoolwork.
- * High-achieving students claimed excessive homework leads to sleep deprivation and health problems like headaches, exhaustion, weight loss, and stomach issues.
- * Expert Alfie Kohn argues that children need time to simply be kids and shouldn't be constantly engaged in "constructive activities."
- * Mental health counselor Emmy Kang states that over half of students identify homework as their main source of stress, which is known to be detrimental to physical health.

****Argument 2:**** Excessive homework can contribute to academic misconduct.

****Premises:****

- * 90% of middle schoolers and 67% of high schoolers admitted to copying homework.
- * 43% of college students engaged in unauthorized collaboration on out-of-class assignments.
- * Even parents are involved, with 43% confessing to completing their children's homework for them.

****Argument 3:**** Parents completing their children's homework hinders their learning and development.

****Premise:****

- * When parents finish homework for their children, it bypasses the crucial learning process, potentially hindering important skills and self-reliance.

These arguments highlight the potential drawbacks of excessive homework, suggesting that a balanced approach might be more beneficial for student well-being, academic integrity, and independent learning.

I hope this provides a clearer structure and understanding of the text's main points!

CI answer:

Here are the arguments extracted from the text, with their premises:

Argument 1:

- Premise 1: High school students in California report having too much homework (evidence from poll)
- Premise 2: Too much homework leads to stress, sleep deprivation, and other health issues (headaches, exhaustion, etc.) according to high-achieving students.
- Conclusion: Therefore, too much homework is harmful.

Argument 2:

- Premise 1: Kids should have a chance to just be kids and not have constructive activities right until bedtime (quote from Alfie Kohn, education expert)
- Premise 2: Having excessive homework means kids have activities right

until bedtime.

Conclusion: Therefore, excessive homework denies kids the chance to just be kids.

Argument 3:

Premise 1: Over half of students report homework as their main source of stress (quote from mental health counselor Emmy Kang).

Premise 2: Stress negatively impacts health.

Conclusion: Therefore, excessive homework, as a key source of student stress, is bad for health.

Argument 4:

Premise 1: 90% of middle school and 67% of high school students admit to cheating on homework by copying.

Premise 2: 43% of college students collaborate on individual out-of-class assignments.

Conclusion: Therefore, excessive homework encourages academic dishonesty through cheating and unauthorized collaboration.

F answer:

We could not obtain the answer in this case at the moment of this experimental part. The LLM never fulfilled the requirement.

G answer:

Argument 1:

* **Premise 1:** A poll of California high school students found that 59% thought they had too much homework.

* **Premise 2:** 82% of respondents said that they were "often or always stressed by schoolwork."

* **Conclusion:** If students have too much homework, then they are more likely to be stressed.

Argument 2:

* **Premise 1:** High-achieving high school students said too much homework leads to sleep deprivation and other health problems such as headaches, exhaustion, weight loss, and stomach problems.

* **Premise 2:** Stress can lead to health problems.

* **Conclusion:** If students are stressed by homework, then they are more likely to experience health problems such as sleep deprivation, headaches, exhaustion, weight loss, and stomach problems.

Argument 3:

* **Premise 1:** 90% of middle school students and 67% of high school students admit to copying someone else's homework.

* **Premise 2:** 43% of college students engaged in "unauthorized collaboration" on out-of-class assignments.

* **Conclusion:** If students have too much homework, then they are more likely to cheat.

Argument 4:

* **Premise 1:** 43% of parents surveyed admitted to having completed a child's assignment for them.

* **Premise 2:** Parents are stressed about their child's homework.

* **Conclusion:** If parents are stressed about their child's homework,

then they are more likely to complete the assignment for them.

Please note that these arguments are based on the information provided in the text. The strength of the arguments depends on the validity of the premises and the soundness of the reasoning.

LI answer:

Certainly! Here are the arguments and their premises from the text:

Argument 1: Excessive homework can be harmful to students' health and well-being.

Premise 1: 59% of California high school students thought they had too much homework.

Premise 2: 82% of respondents said they were "often or always stressed by schoolwork."

Premise 3: High-achieving high school students reported sleep deprivation, headaches, exhaustion, weight loss, and stomach problems due to excessive homework.

Argument 2: Excessive homework can lead to cheating.

Premise 1: 90% of middle school students and 67% of high school students admit to copying someone else's homework.

Premise 2: 43% of college students engaged in "unauthorized collaboration" on out-of-class assignments.

Argument 3: Parents' involvement in completing homework assignments undermines the learning process.

Premise 1: 43% of parents surveyed admitted to having completed a child's assignment for them.

Argument 4: Homework can have negative effects on students' mental health.

Premise 1: More than half of students say that homework is their primary source of stress.

Premise 2: Stress can have negative effects on the body, such as headaches, exhaustion, weight loss, and stomach problems.

Argument 5: Students need time to relax and play to develop properly.

Premise 1: Alfie Kohn, an education and parenting expert, believes that kids should have a chance to just be kids and that it's absurd to insist that children must be engaged in constructive activities right up until their heads hit the pillow.

Answers Evaluation:

Regarding to **C**, the tool works different considering the pro-opinion and the con-opinion. In the first case, we note only a cause-effect relation, where the argument is the effect, and the single premise represents the causes of the argument. In the second case, the answer is closer to we expect, finding several premises supporting the argument. **LI** extract arguments and premises from the original text both in pro and con opinions, using the same complete expressions as the original text, and it refers the conclusion as argument. For pro-opinions, **B** finds a condensed argument characterized by a correlation between the two main

concepts in the conclusion; in addition, extract the premises and the conclusion in a convenient form according to our requirements. However, w. r. t. con-opinions, the tool has the same performance than LI, find arguments and premises, does not find a particular conclusion. **F** extracts some arguments in an incomplete manner for pro-opinions and does not work when we enter the con-opinions. Finally, **G** finds arguments, a premise, and a conclusion, working in a similar way with con-opinions. The expression in the elements is according to our requirements, but it does not find a logical chaining of premises as **B** does. For this task, **B** works better than the rest of the explored LLMs with pro-opinions, and **G** for the other ones .