

Guideline for Essay Revision Annotation

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1 Overview

Thank you for participating in our discourse annotation study. You will be given a set of argumentative essays on two different topics. The topic is given to the writers (students) in the form of a “prompt”; i.e., a sentence giving a statement to be discussed, for instance “*smoking should be banned at all restaurants in the country.*” Students are told to produce a stand-alone text that can be read without knowing the prompt. We would like you to perform the following three tasks:

1. Annotating relations or dropping sentences.

For each sentence in the text, determine another sentence that is most closely related to it and indicate what their relationship is. Alternatively, remove the sentence if it does not contribute to the entire argument.

2. Reordering sentences.

If necessary, reorder the sentences to improve the overall logical flow. The reordered text should be a more well-structured argument than the original one.

3. Text repair.

If it is necessary for understanding the reordered text and only then, you may change the way how people and things are described or conjoined in the text.

2 Relation Annotation

Sentences in a well-formed discourse are related to each other. Your task is the following. Read through the whole essay at least once to understand its content. Then, find the main claim (as explained in Section 2.1). Then, for each other sentence (source), determine another sentence (target) that is strongly related to it. Then, assign one of four relation labels to their relation. Table. 1 shows the relation labels you can choose from. They are explained in more detail in Section 2.2-2.5.

Label	Name	Description
sup	support	The source sentence asserts or justifies reasons and ideas for supporting the target sentence; it contains evidence or examples for the target sentence.
det	detail	The source sentence further explains, describes, elaborates or provides background for the concept(s) mentioned in the target sentence.
att	attack	The source sentence considers counter-arguments that argue for the opposite opinion.
=	restatement	Two sentences are connected with “=” label if they are restatements of each other.

Table 1: Relation labels

2.1 Finding Main Claim

The first step of the relation annotation is to find the statement that expresses the author’s opinion on the highest level of abstraction, i.e., the main claim. After determining the main claim, you can proceed to identifying all remaining relations existing in the text. Consider the following example.

(Prompt) Smoking should be banned at all the restaurants in the country.

- (1) Supported by the utilitarian perspective, I believe smoking should be completely banned at all restaurants.
 - (2) This is because there is overall harm if smoking is not prohibited.

In this example, sentence (1) is the author’s opinion at the highest level of abstraction denoting the author’s stance in response to the discussion topic. Sentence (1) is the main claim, and other sentences will be connected according to their stance towards it.

2.2 Support

A statement in an argumentative essay can be supported by several reasons/ideas. They assert why readers of the essay should believe the statement. Consider the following example.

- (1) From my point of view, banning smoking in all restaurants is necessary.
 - (2) First, I think it is essential to protect the citizens’ health.
 - (3) Second, banning smoking also allows all diners to eat in peace.

Sentence (1) is a statement about banning smoking in restaurants. It is further reinforced by sentences (2) and (3), which present different ideas from each other. Both are in favour of sentence (1), i.e., making the opinion in sentence (1) becomes more convincing. Therefore, both sentence (2) and (3) point at sentence (1) via the **sup** label.

2.3 Detail

The **det** relation label is applied to those sentences which present additional details (further explanations, descriptions or elaborations) about a particular sentence in question, but without providing new argumentative material. Consider the following example.

- (1) It is difficult to balance studying and working.
 - (2) Especially if the students cannot manage their time well, because it only breaks the focus of their studying.

By reading sentence (1) on its own, we can infer that “*difficult to balance*” is talking about the time management between studying and working. When we read sentence (2) afterwards, we understand that sentence (2) elaborates the information which we inferred from sentence (1). Sentence (2) explains what the phrase “*difficult to balance*” means. Because no new argumentative material is introduced, and because sentence (2) provides additional detail (in this case, an explanation) to sentence (1), you should annotate sentence (2) pointing at sentence (1) via the **det** label.

There is another usage of the **det** label. If you find a statement that introduces the topic of the discussion in a neutral way by providing general background but without any argumentative material, please mark it as being in the **det** relation to the target sentence. Consider the following example.

- (1) Today, more and more college students are taking part-time jobs.
 - (2) I think having a part-time job is a good thing for them.

Sentence (1) is an introduction to a discussion topic in a neutral way. It enables the readers to comprehend sentence (2) by giving some contextual information. In this case, the correct annotation is to relate sentence (1) to sentence (2) via the **det** label; i.e., sentence (1) is now pointing at sentence (2).

2.4 Attack

The **att** relation label denotes sentences arguing for the opposite opinion. Consider the following example.

- (1) From my point of view, banning smoking in all restaurants is necessary.
...
(2) On the other hand, I admit that some restaurants are popular because men are allowed to smoke.

Sentence (1) is an example of a main claim in a smoking-themed essay. It states that smoking should be banned. However, sentence (2) argues against banning smoking because smoking makes restaurants popular. In this example, the correct annotation is sentence (2) pointing at sentence (1) via the **att** label.

2.5 Restatement

Two sentences are connected with “=” label if they are restatements of each other. Consider the following example.

- (1) I agree that college students should have a part-time job.
...
(4) Second, having a part-time job is a valuable way to pick up communication skills that will be needed in the workforce.
...
(8) Therefore, it is better for college students to have a part-time job to exercise communication skills.

Sentence (1) is an example of the author’s opinion on the highest level of abstraction which is in favour of a part-time job. Sentence (4) states one of the reasons why students need a part-time job, i.e., to acquire communication skills. After further elaborating, the entire meaning of sentence (4) is restated as sentence (8). Notice that sentence (4) does not say anything about agreement or disagreement towards the question of part-time jobs while sentence (8) explicitly states it. However, we understand from reading sentence (1) that sentence (4) is implicitly in favour of a part-time job. This means that sentence (4) is basically restated as sentence (8). You should therefore connect sentence (4) and (8) with the “=” label. Such restatements often happen in a situation such as the one above, where large parts of an argument are summarised for the second time. The two restatement sentences are treated as an equivalence class with respect to all outgoing and incoming relations they participate in.

2.6 Relation Selection

A sentence can relate to many sentences at once. For example, a sentence might elaborate on two ideas at once. But in this task, you have to choose which sentence it relates to the most. There are several factors to consider:

1. Closeness in position.
A sentence tends to more relate to closer sentences.
2. Directness of relation.
A direct relation is preferred over an indirect relation. For example, consider three sentences (1), (2), and (3). Sentence (3) attacks sentence (2), and sentence (2) attacks sentence (1). In this case, sentence (3) also indirectly supports sentence (1) by attacking sentence (2). However, since we prefer a direct relation, you should annotate the relation between sentences (3) and (2), not the one between sentences (3) and (1).
3. Preferential ordering.
You should choose the **sup** relation over **det** when a sentence both explains another sentence further and contains a new idea. This is because the new idea is more informative.

Sometimes, a relation can hold between the parts of a long sentence. But relationships inside a sentence cannot be expressed in our system, so do not worry about them. In this case, please annotate only the function of the entire sentence as a whole.

Consider the following passage.

(Prompt) Smoking should be banned at all restaurants in the country.

- (1) In recent months, the government has been trying to introduce a new law to ban smoking in all restaurants.
 (2) From my point of view, banning smoking in all restaurants is necessary.
 (3) First, I think it is essential to protect the citizens' health.
 (4) Second, banning smoking also allows all diners to eat in peace.
 (5) On the other hand, I admit that some restaurants are popular because men are allowed to smoke.
 (6) However, we should more focused on general health instead of short-term profit.

Sentence (2) is the highest level abstraction of its author's opinion. Sentence (1) is an introduction of the discussion topic, so it points at sentence (2) via **det** label. Both sentence (3) and (4) point at sentence (2) as they provide more reasons to believe the opinion expressed in that sentence. Sentence (5) attacks sentence (2) by presenting a counter-argument. Sentence (6) attacks sentence (5) by saying we should prioritise general health over popularity. In a sense, sentence (6) indirectly supports sentence (2) by attacking sentence (5). However, as we prefer the more direct relation, you should annotate sentence (6) as being related to sentence (5) (cf. factor 2 about "directness" above). A graph representation of this text is given in Fig. 1, in which squares represent sentences and arrows represent relations.

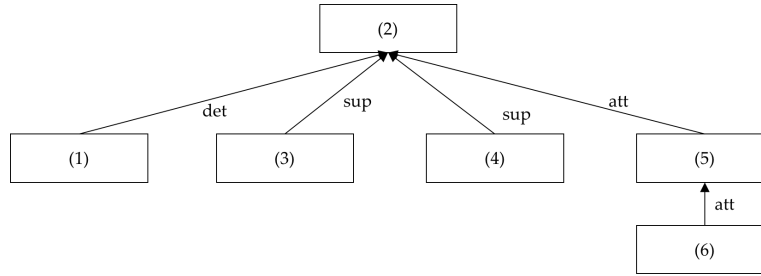


Figure 1: Relation example 2 (graph)

2.7 Dropping Criteria

You may find it hard to connect some sentences. In this case, you can also consider dropping them. We list the criteria to judge whether a sentence should be dropped:

1. Metainformation. You should drop sentences which only make statements about other sentences, without adding any real material. For example, “*I have two reasons for supporting this opinion.*” Unlike details, this kind of sentences contributes nothing substantial toward the argument.
2. Redundant material. For example, a student may state twice that smoking is dangerous as it causes lung cancer. Please note the difference to restatements, which contain the same information, but typically at a higher level of argumentation (claims, not facts) and with a real function in the overall discourse. Unlike redundant material, dropping a restatement might affect the discourse and flow of argumentation. The material considered as redundant here typically consist of mere facts, rather than real argumentative materials such as claims or conclusions.
3. Truly disconnected sentences with no proper connection to the argument. Sometimes a sentence is logically isolated; i.e., it does not really relate to any other sentence. In this case, you should drop it.

The remaining sentences after dropping should be connected to each other.

3 Order of Sentences

A good text usually places semantically related sentences close to each other, forming semantically consistent segments. If the sentences in the current text are not already in the best order they could be, please arrange them into a logically well-structured argument; i.e., the best arrangement of sentences that you can think of. Remember that you can also drop sentences. Please make sure that you keep the original meaning of the text intact while doing so. Consider the following example.

- (1) If people smoke in the restaurant, other people may think the food isn't delicious.
 - (2) At restaurants, people enjoy eating and talking.
 - (3) They might have a sore throat and be unable to enjoy talking.

This text talks about the effect of smoking in restaurants, then talks about how dining should be an enjoyable experience while moving back again to the effect of smoking in restaurants. A better order is to place sentence (2) before sentence (1) as below:

- (2) At restaurants, people enjoy eating and talking.
 - (1) If people smoke in the restaurant, other people may think the food isn't delicious.
 - (3) They might have a sore throat and be unable to enjoy talking.

4 Text Repair

After reordering the sentences in the previous step, you might have made the text itself harder to understand in certain superficial ways. In order to revert these negative changes, you are allowed to:

1. Change the text material used to connect two sentences or sentence parts.
Examples of what we mean are “*however*”, “*therefore*”, “*but*” or “*eventhough*”.
2. Change the text material used to identify people or things.
Examples of what we mean are “*she*”, “*the woman*”, “*Maria*” or “*Sister of Kim*”.

Please only make minimal repairs necessary for keeping the meaning the same. You should edit, i.e., add, delete, substitute, parts of the text (cf. material 1 and 2 above) only if it is needed for understanding the reordered text correctly.

Please consider the following example.

- (1) I think it is okay when poor students have part-time jobs.
 - (2) Generally speaking, there are challenges in part-time jobs.
 - (3) For instance, my girlfriend cannot focus on her studies.
 - (4) I don't think she needs part-time jobs as she is not in a dire state for money.

After reordering the sentences in a more natural way, you might have the following text.

- (2) Generally speaking, there are challenges in part-time jobs.
 - (3) For instance, my girlfriend cannot focus on her studies.
 - (4) I don't think she needs part-time jobs as she is not in a dire state for money.
 - (1) **However**, I think it is okay when poor students have part-time jobs.

After moving sentence (1) at the end of the text, it becomes more coherent. In this case, it might be useful to use the expression “*however*” at the beginning of sentence (1) as well.

Consider another example.

- (1) I don't like when my girlfriend is smoking.
 - (2) She doesn't look cute while doing so.
 - (3) But I think my grandmother have lived long enough.
 - (4) It is okay if she smokes.

When you reorder the text, you might have the following text.

- (1) I don't like when my girlfriend is smoking.
 - (2) She doesn't look cute while doing so.
 - (4) It is okay if she smokes.
 - (3) But I think my grandmother have lived long enough.

In this example, sentences (3) and (4) are swapped in position to make a better text; the sentences are now arranged in the form of opinions followed by reasons. But after reordering, the expression “*she*” in sentence (4) wrongly identifies “*girlfriend*” instead of “*grandmother*”. To preserve the meaning of the statement, it is therefore necessary to replace “*she*” with “*my grandmother*” in sentence (4), as in the following text.

- (1) I don't like when my girlfriend is smoking.
 - (2) She doesn't look cute while doing so.
 - (4) It is okay if my grandmother smokes.
 - (3) But I think my grandmother have lived long enough.

Note that in sentence (3), the repetition of “*my grandmother*” now sounds a bit unnatural while the meaning of the text is not affected. As we ask you to make only minimal changes, please leave “*my grandmother*” in sentence (3) as it is. However, the way of connecting sentences is unnatural in a different way too. To make the structure of “opinions followed by reasons” apparent, we can modify the text as follows.

- (1) I don't like when my girlfriend is smoking.
 - (2) She doesn't look cute while doing so.
 - (4) ~~But~~, It is okay if my grandmother smokes.
 - (3) ~~But~~ I think my grandmother have lived long enough.

By introducing “*but*” at the beginning of sentence (4) and deleting the expression “*but*” from sentence (3), the text now expresses the contrast relationship better.

You may also have to fix the main claim if the author makes the error of assuming that the prompt is read alongside the text. Remember that according to our treatment of the prompt described in Section 1, the prompt is not considered as part of the text. For example, he/she may write the following main claims:

1. I think *so*.
2. I *agree* that ...
3. *But*, I do not think ...
4. ... is bad *indeed*.

The italicised parts above imply discourse connection to the prompt. As the students need to produce stand-alone texts, we should assume that readers do not read the prompt. You should repair this by including some information from the prompt and/or editing phrases indicating discourse connection to the prompt. Some possible repairs for sentences above are as follows:

1. I think *smoking should be banned at all restaurants in the country*.
2. I *strongly believe* that ...
3. I do not think ...
4. ... is bad, *I think*.

Editing should be done by placing the edited part inside a bracket “[*before* | *after*]”. The “*before*” part denotes the expression before edit while the “*after*” part denotes the expression after edit. We will now give a formatting example of each operation:

1. **Addition.** Suppose you want to add an expression “*therefore*,” before the phrase “*the old man*”. You rewrite this phrase as “[| *therefore*,] *the old man*”, leaving the “*before*” part as blank (space).

2. **Deletion.** Suppose you want to delete the word “*old*” from the phrase “*the old man*”. You rewrite this phrase as “*the [old |] man*”, leaving the “*after*” part as blank (space).
3. **Substitution.** Suppose you want to substitute the word “*instead*” with “*but*” in the phrase “*I don’t have a pen. Instead, I have a pencil.*” You rewrite this phrase as “*I don’t have a pen. [Instead | But], I have a pencil.*” You put the original phrase in the “*before*” part and the new phrase in the “*after*” part.

5 General Comment

The above instruction assumes that the texts written by students are argumentative. Sometimes, students go off topic and write anecdotal episodes. If you feel more than a half of particular text is non-argumentative, stop annotating this text as soon as you notice and send an email to us mentioning the text in question. If the anecdotal material is less than a half of the text, please continue and try to make the best analysis possible. Remember that you also have the option of dropping irrelevant sentences.

We appreciate your work and patience. After you annotate the essays, we would like to hear about your experience with and observations about the texts, the tool (Appendix), and the task, e.g., by email.

Appendix

Important Note:

1. **No midway saving.** While annotating, we do not allow midway saving.
2. **Error checking.** Our annotation tool will check the presence of errors in real time. For instance, we do not allow circular links. Whenever an error occurs, a message box will appear.
3. **Refresh is necessary.** After you have finished working on a file, please refresh the page before working on another file.

A Annotation Tutorial

You are given a zip file containing our annotation tool and essays pre-formatted in“.xml”. The extracted zip file contains files and folders as shown in Fig. 2. You only work with the selected file and folders; i.e., “**annotated**, **original** and **ver3.html**”. Open the “**ver3.html**” only using Google Chrome (ver 68.0.3440.106 or higher) or Safari (ver 11.1.2 or higher) web browser. Please refrain from using other web browsers as they may cause some errors. Fig. 3 shows the web interface. Click the “**Load**” button on top, and browse an essay you need to annotate in the “**original**” folder (Fig. 4). Each essay contains information of **Essay ID**, **Prompt** and the essay’s body. The texts given to you are segmented into their sentences. Fig. 5 shows an example. The following subsections explain the steps you should perform sequentially, as it has been explained in Section 1.



Figure 2: Directory



Figure 3: Annotation interface after you open “ver3.html” in web browser

A.1 Relations Labeling

First, you need to read through the whole text at least once to understand its content. Then, find the statement that expresses the author’s opinion on the highest level of abstraction. Afterwards, determine relations existing in the text. You establish a connection between two sentences by dragging an arrow from the source to the target sentence. An arrow is established by dragging your mouse from the rectangular endpoint of the source to the dot endpoint of the target sentence (Fig. 6). Fig. 7 shows an example of a relation.

For each remaining sentence, determine another sentence it strongly relates to. If you want to drop a sentence (i.e., it does not participate in the discourse); please drop it by checking the “Drop?” checkbox on your right-hand side. Fig. 8 shows the annotation result of the text in Fig. 7. You can modify an existing relation by clicking the arrow as illustrated in Fig. 9.

A.2 Reordering

If necessary, please reorder the sentences in such a way that a logically better-structured text results (Section 3). From now on, ignore the dropped sentences (if present). When selecting the sentence you want to move, grab the box containing the sentence number on your left-hand side. The whole box will be highlighted as illustrated in Fig. 10 when you do so. As an example, the sentences are reordered as in Fig. 11. In this reordering example, sentence (3) and (4) are swapped.

A.3 Editing Expressions Describing People or Things

As has been explained in Section 4, reordering may cause changes in how people and things are described or connected. You edit expressions describing people or things **strictly if it is needed**. Fig. 12 (red font) shows an example of edited text in Fig. 11. In the example, you read sentence (1) as “*I think smoking should be completely banned at all restaurants in the country*” and sentence (3) as “*When people do not follow the law, the government should give them sanctions.*”

A.4 Save

After performing the previous steps, click the “Save” button on top of the interface. An annotated file will be automatically downloaded (Fig. 13). Please locate it in your download folder, move it to the “annotated” folder and **append your initials** (Fig. 14). You can modify an annotated file by loading it into the annotation tool.

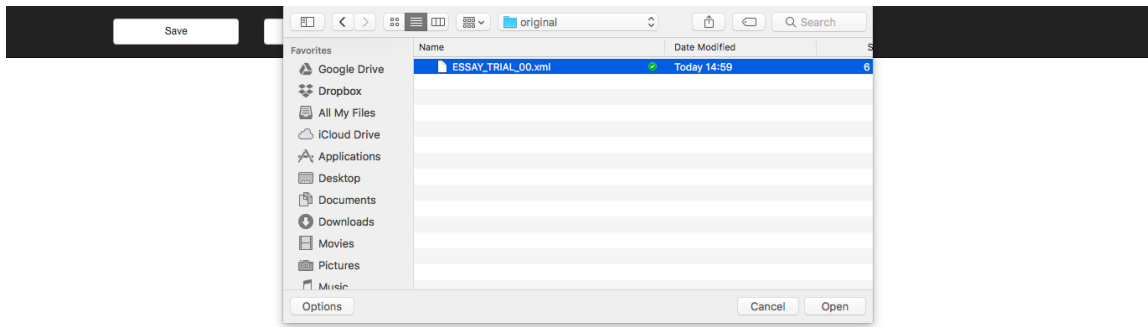


Figure 4: Select essays you need to annotate in the “original” folder

Figure 5: Essay example

dot endpoint: target

square endpoint: source

Figure 6: Drag an arrow from the source sentence endpoint (square) to the target sentence endpoint (dot). A dialog box appears when you want to establish a link

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
 = sup det att

1	I agree that smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
3	People do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Figure 7: Example of an established relation.

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
 = sup det att

1	I agree that smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
3	People do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Figure 8: Essay annotated with relational information

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
 = sup det att

1	I agree that smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
3	People do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Relation option 4 -> 2
 Choose one out of the four relation labels or delete the connection
 = sup det att delete

Figure 9: Modify an existing relation by clicking the connection. The clicked connection is highlighted, and a dialog box showing the relational options appears

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
= sup det att

1	I agree that smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
3	People do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input checked="" type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Figure 10: Select the sentence you want to move by grabbing the sentence number box on your left-hand side. The whole sentence will be highlighted when you do so

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
= sup det att

1	I agree that smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input type="checkbox"/>
3	People do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Figure 11: Reordered essay

Save
Load

ESSAY_TRIAL_00

[PROMPT] Smoking should be banned at all restaurants in the country.

Legend
= sup det att

1	[agree think] [that] smoking should be completely banned in all restaurants in the country.	Drop? <input type="checkbox"/>
2	Smoking is dangerous to our health and the government should empower people all over the country to quit.	Drop? <input type="checkbox"/>
4	Vendors should not have any cigarettes in their stores to avoid smoking.	Drop? <input type="checkbox"/>
3	[[When] people] do not follow the law, the government should give them sanctions.	Drop? <input type="checkbox"/>
5	Therefore, we should impose no smoking campaign.	Drop? <input type="checkbox"/>

Figure 12: Editing referring and connective expressions

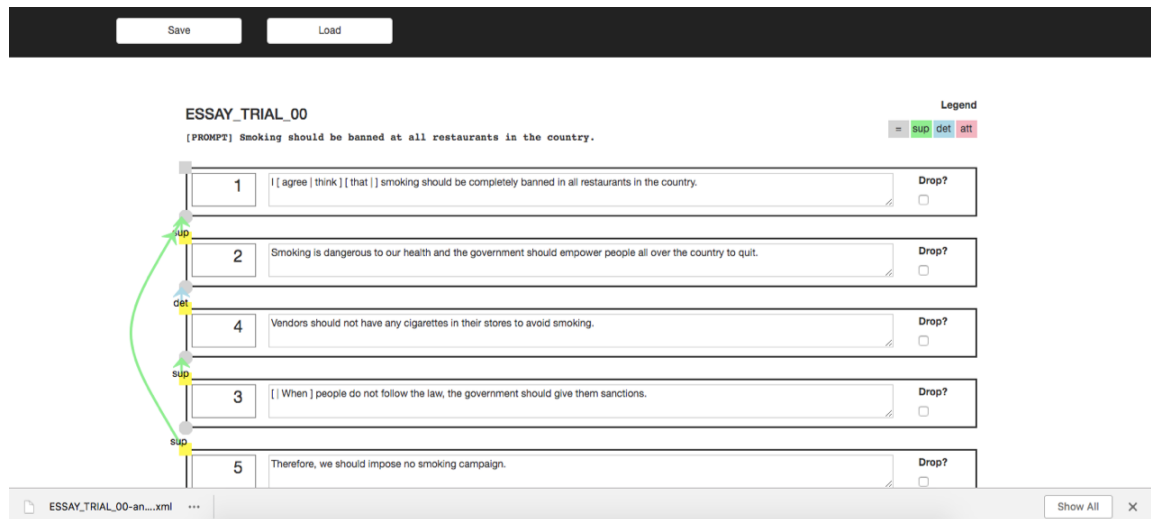


Figure 13: Saving file

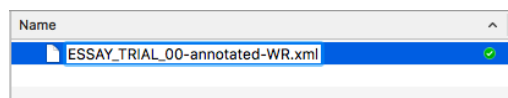


Figure 14: Appending initial