Annotation of Claims in the Vaccination Corpus Guidelines

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April 30, 2018

1 Introduction

Argument recognition is a task that touches on the fields of philosophy, linguistics, psychology and computer science. It aims at establishing argumentation models and methods to identify arguments in written texts. This task finds multiple applications in information retrieval platforms, automated assessment tools, writing assistance tools, etc.

Traditionally, an argument is composed at least of two components: a claim and a premise (Palau and Moens, 2009; Peldszus and Stede, 2013). Premises are the reasons provided to persuade the audience into accepting the truthfulness of a refutable statement: the claim (Britt and Larson, 2003). The claim itself, often called conclusion (Palau and Moens, 2009), is a controversial proposition.

By annotating the vaccination corpus with claims we aim at identifying the main stances, opinions, and attitude of sources in relation to the vaccination debate. It is not our goal to apply strict argumentation models, among other reasons because the Vaccination Corpus is an heterogeneous collection of texts of different nature, not necessarily argumentative. This is why we do not adopt a strict definition of claim. Our aim is to annotate all claim-like statements. Since premises are frequently claim-like statements and express the stance of the author, we do not exclude them from the annotation task. Thus, the our goal is to annotate all claim-like statements, regardless of whether they act as claims or premises in the argumentation structure.

These guidelines are structured as follows. Section 2 presents the steps to take in order to carry out the task. Section 3 contains helpful information on how to identify claims. It includes definitions and common linguistic indicators associated to claims. It describes the different kinds of claims that can be found in the corpus, as well as what sections of text do not qualify as a claim. Section 5 contains examples of text annotated with claims.

2 Overview of the annotation process

The annotation task consists of annotating three markables, <CLAIM>, <SOURCE_OF_CLAIM>, and a link between <CLAIM> and <SOURCE_OF_CLAIM>, namely <HAS_SOURCE>.

<CLAIM> will be used to mark claim-like statements. Most documents will contain more than one claim, although some files might not contain any claims.

<SOURCE_OF_CLAIM> will be used to mark sources different than the author if they introduce a claim. It is not necessary to mark all the sources, only those that introduce a claim.

<HAS_SOURCE> is a relation used to link a <CLAIM> with its <SOURCE_OF_CLAIM> when the <SOURCE_OF_CLAIM> is different than the author of the text. The direction of the relation is from <CLAIM> to <SOURCE_OF_CLAIM>.

- Annotators should first read the whole document.

- Then they should identify the main claims made by the author or by sources introduced by the author.
- For those claims whose source is not the author, annotators should label them as <SOURCE_OF_CLAIM> and create the relation between <CLAIM> and <SOURCE_OF_CLAIM>.

The following sections provide details on how to identify claims in text.

3 Identifying claims

3.1 Unit of annotation

Annotation will be carried out at the token-level. Annotators should cover as many tokens as they believe belong to the claim. Ending punctuation should not be included in the annotation. Titles and subtitles shall also be annotated if they contain claims. Example 1 presents a claim spanning over two tokens (marked in bold). Example 2 demonstrates a claim spanning over a clause. Example 3 shows a claim spanning over a whole sentence.

Claims can span over multiple clauses. It is often the case that a claim is introduced by a conditional statement expressing a hypothetical situation. The claim would then be the consequence of the hypothetical statement. Since the hypothetical statement contains information that is essential to the understating of the claim, it should be included in the section of text tagged as <CLAIM>. An example of this is given in 4.

1. Please, **stop vaccinating**!
2. I believe that **children should not be vaccinated**.
3. **MSM outlets are fear mongering the public into getting the MMR shot which they claim will protect you from the disease.**
4. **If reported cases are not eequired to be lab-confirmed, the this scientist's dicovery would lead us to believe that there has been gross over-reporting of measles cases.**

3.2 Definition

The claim is the central component of an argument. Claims are sections of text that express the stance of the author. Sometimes, claims are introduced by an explicit source in the text (different from the author). Since they are opinionated statements with respect to the topic, claims are often introduced by stance expressions, such as "In my opinion", "I am against", etc (Stab and Gurevych, 2014). A list of claim indicators is provided in Appendix A. An example follows:

5. In my opinion **children should not be vaccinated.**
6. Researchers claim that **vaccines are safe and beneficial**.

Habernal (2014) provide several definitions of *claim* from different studies on argumentation. Freeley and Steinberg (2008) wrote that a claim is "the conclusion we seek to establish by out arguments". From Toulmin et al. (1984) the definition of claim is "assertion put forward publicly for general acceptance." Schiappa and Nordin (2013) give the following definition: "Assertion (which has to be supported), you want to be accepted by some audience, and therefore, you have to make it public."

In some cases, the stance of the author is not expressed explicitly in the text; those will be instances of implicit claims. Implicit claims are out of the scope of this exploration, thus they will not have to be annotated.

3.3 Types of claims

The term "claim" is an overarching expression that includes different types of stance-expressing statements. From the work of Habernal (2014), three types of claims can be drawn: *fact claims*, *value claims*, and *policy claims* , which are elaborated below. More types of claims have been added in order to aid the annotation process. However, annotators are not required to indicate the type of claim.

3.3.1 Fact claims

Fact claims are assertions that indicate whether something is (or was, or will be) true or false according to a source. An example of a *fact claim* is provided below. If annotators do not agree with the author's statement and do not see it as a "fact", the statement still qualifies as a *fact claim*. Indeed, *fact claims* are not "things that everyone accepts as a fact" (Habernal, 2014); they are comments presented as "facts" by the author.

7. **Global warming does not exist**.

3.3.2 Value claims

Another type of claim are *value claims*. They are propositions in which the author evaluates something. An example of a *value claim* is provided below. They are often a dispute about ethics, justice, meaning, or aesthetics.

8. **Vaccination is good**.

3.3.3 Policy claims

Another type of claim is called *policy claims*. Through *policy claims* authors advocate for a certain course of action. These can be about external issues, such as national and political topics, or internal ones, such as personal health choices. Imperative constructions such as *"Go to school!"* qualify as *policy claims*, thus they should be marked as claims.

9. **You should not vaccinate your children**.

3.3.4 Prediction claims

A type of claim that can often be found in the Vaccination Corpus is the one characterized by forecasts about the effect of vaccines. This type of claim can be referred to as *prediction claim*. These claims express strongly the stance of the author in regards to the topic of vaccination because they provide a prediction of the impact of vaccination (or lack thereof) on the population. Therefore, according to the polarity and the subject of the forecast, the reader can understand the stance of the author.

10. **The vaccine will be highly successful**.

3.3.5 Pathos dimension

In user-generated Web data, it is common to find authors that appeal to the readers' emotions in order to strengthen their argument. Claims that aim at having impact on the receiver's cognition through appealing to emotions are said to belong to the *pathos dimension* (Micheli, 2008). Statements containing sarcasm, figurative language, fallacies, and exaggerations are part of this dimension (Habernal, 2014). An example of a claim in the *pathos dimension* is provided below. Although it depends on the interpretation of the reader whether this statement contains an exaggeration or not, it is clearly meant to appeal to emotions. Claims in the *pathos dimension* should me marked as claims.

11. **Vaccinating children is a form of child abuse**.

3.3.6 Premise claims

In order to support their claims, authors may give a reason or a justification. These often have similar characteristics to *value claims*, as they include evaluative language. In some cases, they share similarities with *fact claims*, as they can be presented with the aim of informing the public about the topic. In the literature claims and premises are generally separated, however premises often express the stance of the author as well as claims. Since the aim of this project is to identify the author's stance about the topic, this distinction is not useful. When the author or other sources provide a justification containing evaluative language or revealing the intention to persuade the audience, this qualifies as a *premise claim* and should be marked as <CLAIM>. They are often introduced by connectors such as "since","because", "assuming that", etc. The connectors should not be annotated as part of the claim. An example of *premise claim* is given in the first clause of Example 12. It is also common to find *premise claims* that are not introduced by an indicator, like in the first clause of Example 13.

12. Since **vaccines contain toxic substances <CLAIM>**, **parents should not vaccinate their children <CLAIM>.**

13. **Vaccines contain toxic substances <CLAIM>**. **Parents should not vaccinate their children <CLAIM>.**

4 Identifying sources

Authors may introduce claims made by authority figures, experts, organizations, etc. to help convey his/her stance. These claims should be linked to the source they are attributable to. An example of this type of claim is given in 14. In this case, the source is "experts" and the claim is "side effects associated to vaccinations are very rare".

Occasionally, authors introduce claims made by other authors that support a view different from the author's. In fact, presenting counter claims and then disproving them is a common rhetorical technique. Counter claims, since they are claim-like, should also be annotated with <CLAIM> and should, of course, be related to the attributable source if present.

4.1 Span of sources

As mentioned above, when claims are introduced by a source different from the author, the latter should be marked as <SOURCE_OF_CLAIM> and linked to the appropriate claim. A source is an animate or inanimate agent that signals an ownership relation with the premise (VUA Perspectives Group, 2017). The span of the <SOURCE_OF_CLAIM> tag, should correspond to the maximal Noun Phrase realizing the source. Sources can, therefore, be people, organizations, newspapers, studies, etc. Sources can even be references cited by the author when reporting the claim, like in 15 where the source is "[5]".

4.2 Distance from claims

Furthermore, it is also possible to find sources that are far away in text from the claim attributable to them, like in 16. These should be annotated and linked to the claim as well.

4.3 Explicitness of sources

If the text provides both an explicit source, such as "The world Health Organization" and a reference for the claim, such as "[4]", the annotator should prefer the explicit source, as it provides more information about the entity being cited. An example of this is given in 17.

4.4 Multiple mentions of the same source

It is common to find multiple mentions of the same source. For example, the author might cite "Dr. Smith" and afterwards refer to the same person by citing simply "Smith". The annotator should mark as <SOURCE_OF_CLAIM> the source which is closest to the claim. A concrete example of this is given in 18. Here, the <SOURCE_OF_CLAIM> is the relative pronouns "who" and not " the people", even though they refer to the same group of individuals, because the pronouns is the closest to the claim.

14. **Experts <SOURCE_OF_CLAIM>** say that **side effects associated to vaccinations are very rare <CLAIM>.**
15. **High population immunity secondary to high measles vaccination coverage has maintained measles elimination in the United States since declaration of elimination in 2000 <CLAIM> [5]. <SOURCE_OF_CLAIM>**
16. The National Vaccine Information Center has published **an important document <SOURCE_OF_CLAIM>** relevant to this topic titled "The Emerging Risks of Live Virus & Virus Vectored Vaccines: Vaccine Strain Virus Infection, Shedding & Transmission." Pages 34-36 in the section on "Measles, Mumps, Rubella Viruses and Live Attenuated Measles, Mumps, Rubella Viruses" discuss evidence that **the MMR vaccine can lead to measles infection and transmission." <CLAIM>**
17. According to **the World Health Organization (WHO) <SOURCE_OF_CLAIM>**, **vaccines are safe and effective <CLAIM>** [4].
18. I wrote this letter as response to the people **who <SOURCE_OF_CLAIM>** say that **vaccines are ok<CLAIM>**.

4.5 What is not a claim

In an attempt to simplify the annotation task, annotators are provided with examples of argumentation components that should not be marked as claims.

4.5.1 Questions and rhetorical questions

Although rhetorical questions are often asked by the author in order to appeal the reader to agree with his/her view, questions and rhetorical questions generally do not qualify as claims. An example of this is given below.

19. *Why wouldn't you want you child to be protected from dangerous diseases?*

4.5.2 Backing

Authors often give evidence that is meant to validate their claims; this is called *backing* (Habernal, 2014). Backing is often expressed in statements aimed at establishing credibility where the author asserts his/her expertise in the field. An example of backing is given below.

20. *I am a nurse.*

4.5.3 Common ground

In some cases, authors present self-evident facts and accepted truths to establish common ground (Al Khatib et al., 2016). An example of common ground is given below. Common ground does not qualify as claim as it does not convey the author's stance.

21. *Measles can spread by airborne transmission.*

4.5.4 Testimony

Authors often cite statements made by an expert, a witness, or other authority figures in order to support their argument (Al Khatib et al., 2016). When these statements contain established truths, self evident facts, or verifiable assertions, they qualify as *testimony* and should not be marked as <CLAIM>. These are usually characterized by neutral language. An example of *testimony* is provided in 22.

22. *The CDC claims to have tracked 644 cases of measles in 2014.*

4.5.5 Statistics

Authors might also cite the results of quantitative studies in order to support their claims (Al Khatib et al., 2016). These results qualify as statistical evidence, not as claims.

23. *80% of vaccinated children experience serious side effects.*

4.5.6 Anecdote

Another common choice made by authors in order to support their argument is to include anecdotes. Anecdotes can often be considered as belonging to the *pathos dimension*. Personal experiences, concrete examples, and specific events (Al Khatib et al., 2016) usually do not fall under the category of "claim".

24. *I experienced hearing loss after being given the MMR vaccine.*

5 Examples

To facilitate the annotation process, some examples of annotated text are given in this section. Claims ans sources are marked in bold and should be the only annotated sections in the text. Appendix B includes a whole annotated file as an example.

25. Please **do your own research and work your natural immune system which in the end is the only thing that will protect you <CLAIM>.**

The example above contains a *policy claim* and should, therefore, be marked as <CLAIM>.

26. The recent measles outbreak in Disneyland has caused quite a stir, as the disease was thought to be nearly eradicated in the US.

In the example above, the whole text qualifies as *common ground*, therefore it should be left unannotated.

27. The World Health Organization (WHO) underscored this fact in their report. **They <SOURCE_OF_CLAIM>** wrote that, **"Children under two years of age do not consistently develop immunity following vaccination."<CLAIM>**

In the example above, the text in quotation marks contains a claim about the effectiveness of vaccination administered to patients under two years of age, therefore it should be marked as <CLAIM>. Its source is 'They'.

28. **Vaccines Expose Kids To Toxins <CLAIM>.** According to the **FDA <SOURCE_OF_CLAIM>**, **"Excessive exposure to formaldehyde may cause cancer."<CLAIM>**

In the example above there are two claims. The first is presented by the author. The second expresses information about the potential negative effects of one of the ingredients of vaccines and it is introduced by the source "the FDA".

29. I personally think that **the vaccines were too much for him and that they "threw him over the edge" <CLAIM>.** My son was diagnosed with Hashimoto's disease when he was just 12. This was completely unexpected and probably fro about a year prior to this, I started seeing signs of autism in him.

The second and third sentences of the example above are left unmarked because they qualify as an anecdote, not a claim.

References

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Appendices

A Claim Indicators based on Stab and Gurevich (2014)

accordingly
- as a result
- consequently
- conclude that
- clearly
- demonstrates that
- entails
- follows that
- hence
- however
- implies
- in fact
- in my opinion
- in short
- in conclusion
- indicates that
- it follows that
- it is highly probable that
- it is my contention
- it should be clear that
- I believe
- I mean
- I think
- must be that
- on the contrary
- points to the conclusions
- proves that
- shows that
- so
- suggests that
- the most obvious explanation
- the point I'm trying to make
- therefore
- thus
- the truth of the matter
- to sum up
- we may deduce

B Example of annotated file

The recent measles outbreak in Disneyland has caused quite a stir, as the disease was thought to be nearly eradicated in the US. **MSM outlets are fear mongering the public into getting the MMR shot which they claim will protect you from the disease <CLAIM>. What they are not telling is that people who have received the CDC recommended doses of vaccine are still catching and passing on measles to others <CLAIM>.** And **the cat calls of safe and effective spewed out by the minions of big pharma are also a farce <CLAIM>.** Infowars.com reporter Rob Dew reads straight off the MMR vaccine insert which lists the following side effects: measles, measles like rash, diabetes, encephalitis, GuillainBarr syndrome, pneumonia and even death. On top of that, a whistleblower lawsuit came to light late last year that proves **MERK executives where hiding the fact that the vaccine was not 95% effective as they claim <CLAIM>.** Please **do your own research and work your natural immune system which in the end is the only thing that will protect you <CLAIM>.**