**TODO:**

**# Add column of how previous work maps onto mine**

**# Send Kevin rationale for annotation**

**# multiple testing correction if comparing – more samples!**

**# Ask Karin Forte to look at guidelines + examples and CC Kevin!**

**# Think what a typical person would say! – most people would give most of time**

**# Write down a timeline for everything**

**# go through a few examples here and say why it is each one!**

1. **Task at hand**

**Scientific goals: Evidence and New Topic**

**Task:** Please annotate each sentence as evidence, new topic, or neither as defined below. Think about how most people would annotate these sentences (there are no tricks involved). Please also include the trigger word(s) that led you to the conclusion that the sentence was evidence or new topic, and the scientific goal that comes from that sentence specifically.

General caveat: Some lexical cues provided do not always connote the type of annotation.

1. **Definitions and Examples**

**Evidence annotation = needs more evidence**

* Sentences where the author provides a leaning towards a truth value but is not definitive on it. The truth value is not determined because more evidence is needed. Ask yourself if more evidence is needed or not. Hedges are included here, where authors are unwilling to make an explicit and complete commitment to the truth of their propositions (Hyland 1998).
  + Potential hedging lexical cues: suggests, may, might, should, suspect, suppose, seem, appear, likely, possible, probably, what if, speculate, propose, etc.
* We assume a statement annotated as “evidence” needs **more** **evidence** in order to fully determine the truth value of the statement.
* **Goal for knowledge: acquire evidence**
* **Examples:** See first tab in Annotation\_guidelines\_examples.xlsx (new topic annotation tab)

**New topic annotation = unexplored topic**

* Sentences that introduce a topic for future investigation, with no truth value involved. There is little known information about the topic presented except for the fact that it has not been studied. An idea for exploration may be given.
  + Potential lexical cues: unclear, little is known, unexplored, open question, not been determined, not been explored, not been studied, controversial, debated, further investigation, not assessed, not comprehensively, limitation, not designed to, did not allow for, etc.
* We assume a statement annotated as “new topic” could lead to another paper on the topic.
* **Goal for knowledge: topic in** **need of investigation**
* **Examples:** See second tab in Annotation\_guidelines\_examples.xlsx (evidence annotation tab)

**Neither annotation**

* Neither evidence nor new topic annotations. Neither involves a definitive truth value to a statement.
* **Examples:** See last tab in Annotation\_guidelines\_examples.xlsx (neither annotation tab)

1. **Confusing the annotations**

The main difference between evidence and new topic annotations is whether or not there is a truth value assigned to the sentence. Evidence annotations have a probabilistic truth value where the experiments provide some evidence for the conclusions but not enough to be definitive. One could almost say the truth value of an evidence annotation is almost true. For new topic annotations, there is no truth value involved because the author is stating future directions or unexplored topics in the area and not making any claim about its truth value.

**Similar tasks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Author** | **Task** | **Definition** | **In my terms** |
| Elizabeth White Thesis | Argumentation | Summarizing the paper = scientific methods, cognition, discourse, negation, causation, and modality | * Modality relates to **evidence annotation** * Negation is also rampant in the lexical cues used |
| Zerva/Ananiado (2017) | Uncertainty | Assessing the confidence of related information in terms of the certainty of a statement based on its textual context – hypotheses, speculated outcome, case under investigation, result attributed to an unclear external source (Medlock 2008)   * Uncertainty of events and particularly linking it with interactions in pathways and interaction networks | **Evidence annotation** but capturing how sure we are about it to use as evidence for mechanisms |
| Light (2004) - future work/applications:   * Speculation search engine * Knowledge discovery test set | Speculative language – distinguished between high and low but didn’t work | Expressions of levels of belief: the expressions of hypotheses, tentative conclusions, hedges, and speculations – (Affect) | **Evidence annotation** = levels of certainty – maybe how much more evidence we need |
| Vincze and Csirik (2008)   * Annotation guidelines includes keywords but cautions * Scientific texts harder than clinical stuff – not many articles annotated | Bioscope – uncertainty and negation corpus | Impressions, hypothesized explanations of experimental results or negative findings  Speculation = hedge/soft negation | **Evidence annotation** with hedging to speculate results so need more evidence because given a truth value here |
| Kilicoglu and Bergler (2008) | Speculative language = hedging | Nice review of previous work  Builds off of hyland | **Evidence annotation** with speculation |
| Hyland (1998) | Hedging | One part of epistemic modality, it indicates an unwillingness to make an explicit and complete commitment to the truth of propositions | **Evidence annotation** with hedging - no truth value commitment |
| Medlock (2007)   * Single terms as features, based on intuition that many hedge cues are single terms * Defined non-hedges as no cues for hedges = problematic   Future = | Hedging | Under the umbrella of subjectivity   * Authorial opinion   Hedge:   * an assertion relating to a result that does not necessarily follow from work presented but extrapolated from it (Light) * relay of hedge made in previous work * statement of knowledge paucity * speculative question * statement of speculative hypothesis * anaphoric hedge reference | **Evidence annotation** = hedging |
| Farkas - CoNLL (2010)   * application: information extraction, making sure everything is certain | Uncertainty cues and their linguistic scope | Hedges = indicating that authors do not or cannot back up their opinions/statements with facts | **Evidence annotations** = hedging |
| Ganter (2009) | Hedges by chasing weasels! – Wikipedia   * goal: to get rid of non-factual information | Offer an opinion without really backing it up and… are really used to express a non-neutral point of view | **Evidence annotations** = hedging |
| Ram and Hunter (1992) | Goals/desires for knowledge | A knowledge goal represents the need to fill in gaps in the reasoner’s knowledge base that are detected when a piece of information required for a task turns out to be missing, incorrect, or otherwise problematic   * gaps give rise to new questions, which in turn stimulate further interest in the topic * underlying goal: learn and improve one’s model of the world | Goals are:   * gather more evidence * investigate the topic in general |

**Ignorance identifying guidelines – SCIENTIFIC GOALS - old**

Determine if a sentence/passage given includes some ignorance. Ignorance is defined as a known unknown in the literature throughout all time that a goal can be created for to solve. Ignorance is a form of incompleteness that the goal aims to complete. For example, “consequently, an unknown proportion of the current plant diversity in this habitat type will go extinct if no new conservation actions aimed at large-scale habitat restoration are initiated.” The goal here is to initiate new conservation actions aimed at large-scale habitat restoration.

In contrast to an ignorance statement is a definite statement including observations, methods, and previous work usually (light2004language). If no scientific goal can come from the statement, then it is not ignorance

There is gradation in terms of (in)completeness: how complete is the question we are trying to answer. For example, “these results suggest that lipolytic enzymes could be regarded as potent targets for future drug development.” The goal is to find out if lipolytic enzymes can be used for drug development. The “suggests” shows that we have some knowledge to support this idea but need more before we conclude that we can use it.

**Task:** Mark each sentence with an I for ignorance, with a N for not ignorance, or a U for unclear. If the sentence is marked ignorance, please highlight the word(s) that indicated that and write out the goal that needs to be solved.