

# IAT annotation guidelines for US2016

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## Preface

These annotation guidelines are based on Inference Anchoring Theory (IAT). The guidelines are specifically intended to be used as a reference document by the previously trained annotators of the US2016 corpus. If an annotator has questions about the guidelines, please contact Chris Reed, Kasia Budzynska or Jacky Visser (via e-mail at [first name]@arg.tech).

## 1 Locutions

Text (or transcribed speech) is segmented into locutions consisting of an *argumentative discourse unit* (ADU), a speaker designation, and possibly a timestamp. An ADU is any text span which (a) has a propositional content anchored in either the locution (ADU) itself or a transition targeting this locution, regardless of whether or not that content is atomic; and (b) has discrete argumentative function, typically meaning that the propositional content stands in relation to one or more other propositions via a relation of inference, conflict or rephrase (described in Sections 5, 6, 7). ADUs may overlap and need not be minimal.

- Particularly in analysis of dialogues, speakers of particular utterances are identified as part of text of locutions by a convention: “SPEAKER: ADU”.
- Punctuation, delimitation, discourse indicators and other extraneous material that occurs at the boundaries of ADUs are always excluded from the ADU proper.
- Ellipsis, pronominalisation, etc., should not be reconstructed in the ADU (which should be simply a span of the original discourse material as uttered).
- In many cases, a text span will combine clauses that could be identified as separate ADUs. Examples include conjunctions (“A and B”), conditional clauses (“If A then B”), epistemic modalities (“I think that A”) and reported speech (“Bob said that A”). In every case, each span with discrete argumentative function should be analysed separately.
  - Conjunctions are typically analysed as the two constituent conjunct ADUs because the conjunction itself rarely has discrete argumentative function (except in cases such as ‘and’-introduction).
  - The analysis of conditionals varies: any combination of the three spans “If A then B”, “A”, and “B” might have discrete argumentative function.
  - Epistemically qualified statements are typically analysed as a single segment that drops the epistemic modality – e.g. “I think that A” is typically analysed as just “A”.
  - Reported speech is almost always analysed as two ADUs; the first corresponding to the complete span and the second to what was reported to have been said.
  - Text spans such as “Yes, but A” (or “No, A”) have two segments: “Yes” and “A” (“No” and “A” resp.)
  - Interposed text can present a problem, e.g., “the liquid, because it is so dangerous, is not allowed into the building”. In such cases, the text that is interrupted should be identified as one segment, and the interposed text as the other – i.e., in this example, there are two segments: “the liquid is not allowed into the building”, and “it is so dangerous”.

- In the case of interposed word order that interacts with reported speech such as “Bob, who is an expert, said A”, the same rules are applied, allowing three segments to be identified: “Bob, who is an expert”, “A”, “Bob said A”, (the last one is obtained by selecting the whole span of text and then editing the node to delete “who is an expert”).

## 2 Transitions

A transition connects locutions, embodying the functional relationship between predecessor locution and successor locution. Transitions can be thought of as representing dialogical responses or replies.

Transitions are of many types, although there are not many good names for these types – our example is *substantiating*, used in responding to a challenge. The types of transitions available in a given dialogue type (or communicative context, or activity type) is governed by the protocol in use in that context. A protocol (or dialogue game) is a high level specification of the set of transition types that are available in the given communicative activity. Usually in practical analysis, transitions are left untyped, and therefore default to “Default Transition”.

Transitions often hold between adjacent locutions, but not always – some transitions capture long-distance relationships in cases where, for example, a claim is returned to and given additional support, or an earlier question is refined or answered, and so on. On the other hand, because transitions capture a functional response relation, they never hold in opposition to temporal flow. That is, the directionality of transitions is the same as the temporal ordering. Because the transition structure is branching, however, it is not necessarily possible to reconstruct an absolute ordering over all locutions from the transitions alone.

## 3 Illocutions

An illocutionary connection links locutions with propositions and propositional relations (i.e. illocutionary connections connect the right-hand side of the IAT diagram with its corresponding left-hand side). Each locution will typically anchor a single illocutionary connection, but may anchor more than one or none.

Relations between propositional contents are about a speaker’s (intended) use of linguistic material. It is important that as analysts, we allow arguers to express not just good arguments, but poor, weak, incoherent and fallacious ones. We ask ourselves if a speaker intended the content of an utterance to be understood to be related to previous material in a given way.

In the annotation of the US2016 corpus, the following subset of illocutionary connections is used. In the descriptions of the types of illocutionary connections, we use ‘S’ for speakers (or the senders in written or spoken communication) and ‘H’ for hearers (or the receivers).

- **Agreeing** is used for expressing a positive reaction, i.e. when S declares to share the opinion of the interlocutor. This can take basic form of signalling such as “Yes”, “Indeed”, “Most definitely”, “Sure”, but may as well be a complete sentence. Note that it is not “Yes” on its own that is a bearer of agreement: this is “Yes” as a *reaction to (in relation to)* e.g. an assertive question, that is conveying agreement. Thus this type of illocutionary connection is anchored in the transition between, in our example above, the locution which anchors the assertive question and the locution “Yes”. Agreeing takes as a content a proposition earlier uttered with which the agreement has been expressed (in the example, with the propositional content of the assertive question).
- **Arguing** is used to defend a standpoint. This illocutionary connection is signalled by linguistic cues such as “therefore” and “because”. Arguing takes as a content an inference relation (see Section 5). In other words, the *inference relation* between two propositional contents – a premise and a conclusion (the left hand side of the IAT diagram) is anchored in the *transition* between two matching locutions (the right hand side of the diagram) by means of an illocutionary connection called *Arguing*.
- **Asserting** is used when S communicates his opinion about some proposition, say  $p$ . It does not imply that S really believes  $p$ : it is rather a public declaration to which the speaker can be held. The propositional content  $p$  should be reconstructed, see Section 4.
- **Challenging** is used when S is seeking (asking about) the grounds for H’s opinion on some proposition  $p$ . Challenges are a dialogical mechanism for triggering argumentation. Similarly to questions, challenges form a continuum from **Pure Challenging** through **Assertive Challenging** to

**Rhetorical Challenging.** The distinction between Assertive Challenging and Rhetorical Challenging is analogous to the distinction between Assertive Questioning and Rhetorical Questioning, i.e. it is not discursively possible for the hearer to directly respond to Rhetorical Challenging.

- **Default Illocuting** is used if an illocutionary connection does not match the guidelines for any other illocutionary connection. This illocutionary connection is also currently used to connect a rephrase relation to its transition anchor when the rephrase is being used to answer a question.
- **Disagreeing** is used for expressing a negative reaction, i.e. when S declares not to share H’s opinion. This can take the form of utterances which have similar meaning to “No” (e.g. “I’m not saying that”, “Actually, that’s not correct”, “Definitely not”, “No, it’s not”) or it can be an utterance with a complete propositional content. In the same way as agreeing, the illocutionary connection of disagreeing being anchored in a transition captures the idea that the full reconstruction of this illocutionary connection structure requires knowing not only that the disagreement has been expressed, but also at what the disagreement was targeted. This illocutionary connection takes as its content a conflict relation (see Section 6).
- **Restating** is used for expressing the relation of rephrase between propositional contents, i.e. it anchors a rephrase relation between two propositions in the transition between two locutions which take the respective propositions as their contents. This can take the form of an utterance that slightly modifies the original content of the locution being restated. When Clinton says: “I want to invest in you. I want to invest in your family.”, the latter sentence is a rephrase of the former. The rephrase relation differs from repeating: “I want to invest in your family” is not a pure repetition of “I want to invest in you”, as the propositional content is a specification of what sort of investing is meant by S.
- **Questioning** is used when S formulates  $p$  as an interrogative sentence using a Yes/No question or a Wh-question. In both cases, the propositional content is treated as underspecified – as a disjunction for a yes/no question (so, “Is it the case that  $p$ ?” has the content, “It is or is not the case that  $p$ ”) or as a lambda sentence for a Wh-question: (so, “What time is it?” has content, “The time is  $xxx$ ”). We distinguish three categories of questioning: **Pure Questioning**, **Assertive Questioning**, and **Rhetorical Questioning**. In the case of Pure Questioning, S is asking for H’s opinion on  $p$ : whether H accepts  $p$ , or not, or has no opinion. Assertive Questioning and Rhetorical Questioning, in contrast, carry some degree of assertive force. For Assertive Questioning, S not only seeks H’s opinion on  $p$ , but also indirectly publicly declares his own opinion on  $p$ . This illocutionary connection is typically linguistically strongly signalled by cues such as “Isn’t it the case that...”, “Can we agree that...”, “Doesn’t...”. Finally for Rhetorical Questioning, S is grammatically stating a question, but in fact is only conveying that he does (or does not) accept  $p$ . A good test for deciding between Rhetorical Questioning and Assertive Questioning is to check whether it is discursively possible for H to reply to a given question, e.g., whether the response “Yes” to the question “Does the pope wear a funny hat?” would be treated as irrational (or humorous or naive) discursive behaviour.

A note on reported speech: This is not a type of illocutionary connection, but it accompanies the occurrences of illocutionary connection in the discourse, when one speaker reports what another speaker said. In case of reported speech, the original locution contains the text as it was said, e.g. “TAPPER: Senator Rubio, last October, you said that you’re, quote, ‘generally very much in favor of free trade’”. This locution is connected to the locution being reported, “RUBIO: I’m generally very much in favor of free trade”, by means of *Asserting*. This second locution, in turn, is connected to the propositional content “RUBIO is generally very much in favor of free trade”, again through an illocutionary connection *Asserting*.

## 4 Propositions

Some illocutionary connections lead to the reconstruction of an associated propositional content. This represents that which is asserted, or questioned, or challenged, etc.

- Do as much reconstruction as possible so that you end up with a full sentence which will be understandable without any context, i.e. without knowing what has been said before. At the same time, do as little reconstruction of implicit material as possible so that you stay close to the original text which you annotate.
- Anaphoric references are typically reconstructed in the text associated with a proposition (i.e. the original text is edited to resolve, e.g., pronouns). The reconstructed proposition should have the

form of a full grammatical sentence (with subject, predicate, etc.) and should be understandable without the context of what was said previously. Bear in mind that you should stay as close as possible to what originally has been said, i.e. include as little implicit material as possible.

- A locution can have an illocutionary connection to a propositional content that already exists. For example, the exact same text can be asserted twice, and typically the illocutionary connection of ‘agreeing’ is directed at a proposition that has been expressed before. If the second locution repeats the propositional content of the first locution, then the propositional content of the second locution is the same as the propositional content of the first one. The content of the second locution is anchored in this locution via an appropriate illocutionary connection annotated according to the guidelines defined above. In implementation, identity conditions for propositions are currently effectively string matching (hence the need for anaphoric and deictic reconstruction).

## 5 Inferences

An inference relation holds between two propositions when one proposition is used in order to provide a reason to accept another proposition. Support may be of a specific kind, depending on the theoretical context an analyst is working in – Modus Ponens, Argument from Expert Opinion, and (the prima facie reasoning from) Perception are all examples of such kinds. If a support relation is not associated with a specific kind, it defaults to ‘Default Inference.’

## 6 Conflicts

A conflict relation holds between two propositions when one proposition is used in order to provide an incompatible alternative to another proposition. Conflict may also be of a given kind (e.g., Conflict from Bias, Conflict from Propositional Negation) and defaults to ‘Default Conflict.’ Note that conflict need not be symmetric. Some kinds (such as Conflict from Propositional Negation) typically are symmetric, which must be captured with two distinct Conflict relations, one in each direction. In contrast to inference relations, a conflict relation is structurally always the same – it has only one incoming and one outgoing edge.

## 7 Rephrases

A rephrase relation holds between two propositions when one proposition is used to rephrase, restate or reformulate another proposition. Rephrasing is not repeating: repetition involves multiple utterances with the *same* (i.e. just a single) propositional content. Rephrase involves different propositions connected through a variety of different relations, such as Specialisation, Generalisation, Instantiation, etc. Question answering often involves rephrasing because the propositional content of a question is stereotypically instantiated, resolved, or refined by its answer. In contrast to inference relations, a rephrase relation is structurally always the same – it has only one incoming and one outgoing edge.

## 8 Annotation software

### The OVA+ argument diagramming tool

OVA+ is an online tool for argument analysis facilitating the representation of the structure of argumentative discourse. You can start using OVA+ freely at the website [ova.arg.tech](http://ova.arg.tech). A manual for using OVA+ is available at [arg.tech/index.php/projects/ova-2/](http://arg.tech/index.php/projects/ova-2/).

### The AIFdb and AIFdb Corpora repositories

Analyses produced with OVA+ will be saved as ‘argument maps’ in AIFdb, an online searchable repository of analysed arguments freely available at [aifdb.org](http://aifdb.org). The argument maps will be collected in corpora at [corpora.aifdb.org](http://corpora.aifdb.org).