

Negotiation Coding Manual - Draft 6

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August 26, 2010

Abstract

This proposal is a fusion of adjacency pairs and the Negotiation framework from Systemic functional linguistics. Features of each are included in the coding scheme detailed below. A fair amount of complexity has been lost from each of the theories, but what remains is systematic enough to be utilized through machine learning while descriptive enough to tell us about the social behaviors observed in the data.

1 Summary of Codes

- **K1** - A verbal statement of knowledge or opinion, or elaboration and justification of a previous statement.

Alice K1 I want chocolate.

- **K2** - A question or request for information (verbal action).

Alice K2 Do you want chocolate?

- **A1** - A proposal for or narration of nonverbal action in the present or very near future.

Alice A1 I'm getting some chocolate.

- **A2** - An instruction for nonverbal action by others in the present or very near future.

Alice A2 Get me some chocolate.

- **d** - A social, attention-seeking, or floor-grabbing initial move.

Alice d hello

- **D** - A delay, setting up an opportunity to make a future content move.

Alice D Shall I get you some chocolate?

Bob A2 Yes, please do.

- **f** - A signal of attentiveness or responsiveness to a content move.

Alice K1 Chocolate is delicious.
 Bob f yeah.

- **tr** - A repair, correction, or restatement of previous content, or a request for such a repair.

Alice K1 Chocolate is delic -
 Alice tr err.. delicious.

- **ch** - A move which fails to respond to previous moves in a manner expected for fluent discourse.

Alice D Shall I get you some chocolate?
 Bob ch What time is it?

2 Exposition

Some of the terms and assumptions that are made in the coding schemes above may be non-intuitive. Below, I try and explain things one by one in a way that each question builds upon the last.

2.1 What is an utterance?

The task that we are performing requires exactly one (or two, as we shall see later, in some cases) annotation per segment of text. We refer to this basic unit as an utterance. This is, at most, one sentence long. However, sentence fragments, such as interrupted speech, may also be a single utterance, and speech acts which are not necessarily a full sentence, such as “oh.” may also be a single complete utterance. These can also be referred to as a “turn” in some contexts, though a single turn may have multiple utterances.

2.2 What is an adjacency pair?

An adjacency pair is the fundamental unit of conversation, according to the theories advanced by Schegloff. This pair consists of a single action being accomplished in discourse. Those utterances which can initiate an adjacency pair are the four base labels: **A1**, **A2**, **K1**, and **K2**. The most common of these adjacency pairs are of the form “statement-acknowledgement:”

Alice K1 He’s going up north for the day.
 Bob f Oh.

This type of statement is known as a “primary knower” move. Authority is assumed by the first speaker, who does not necessarily need validation of the statement. This means that the followup is not mandatory for the information to be communicated. Other examples of adjacency pairs include “question-answer” or “instruction-compliance:”

Alice K2 Did you go anywhere this weekend?
Bob K1 Yes, we went to Niagara Falls.

Note that the answer doesn't actually have to be complex in this example in order for it to be labelled as a **K1** action; in the example above, for instance, merely responding "Yeah." would still be a K1 action, even though it doesn't directly state the information it contains.

Alice A2 Could you refill my glass?
Bob A1 Yes, of course

Both of these are requests, one for knowledge and one for action. This makes them a "secondary knower/actor" move. Bob's response in the second example makes him a "primary actor." Note, however, the complication in the second example. While this instruction is phrased as a question, and thus a **K2** request for information, it is clearly an instruction for action (however polite).

This type of utterance must be recognized in order to understand the theory behind speech acts. An utterance is not merely a proposition which can be labeled with a value of "true" or "false." That covers but a small subset of acts - typically, those which are labelled as **K1** in our annotation scheme. The others all play a role in conversation but cannot be evaluated in that prescriptive manner.

So how do we label such acts? When is an act an **A2**, requesting action, and when is it a **K2**, requesting knowledge? The distinction that needs to be made is one of determining whether a purely verbal response would be satisfactory to fulfill the request. In the case of the two questions above, the first is a completed initiation and response - there's not necessarily any further expectation for more from the second speaker (though, of course, more elaboration would be perfectly salient, and labelled as an **K1** contribution). In the second, however, if one was to simply respond to the question with a verbal response, and then not perform a nonverbal action, it would be considered bizarre.

2.3 What is a sequence?

A sequence is a series of statements with at most one initiation of an adjacency pair. In the simplest case, as in those above, this means that a sequence consists of two utterances, an initiation and a response. However, there are numerous ways in which this can be broken, and there have been books written on the topic of ways that this model can be complicated. We shall see examples of different types of sequences - broken or completed - in the large example to come. But here are a few ways that a sequence might appear (this list is *not* comprehensive):

- An initiation followed by a response.
- An initiation followed by a clarification question, which would start a new sequence.
- Buildup moves leading up to an initiation, followed by a distraction which causes that initiation to never appear.
- An initiation which is ignored, intentionally or unintentionally, by the other participants in a discourse. These failures to respond are **ch** moves.

3 Clarifications for Coding

A delay move (**D**) should not be coded based on the context of the information surrounding it. If a statement is a complete assertion of new information to the discourse, then regardless of whether it is building up to a “big picture” or more important point, it should still be coded as a **K1** and not a **D**. Delay moves are for those moves which specifically contribute no assertion:

Alice D I have a question.
Alice K2 Can we use pencils on the exam?

Delay moves like this are particularly challenging at times because they may be cut off before the actual base move can be made, or they can trail off and never lead to a base move, or for any number of other reasons they may be “orphaned.” They should still be labelled as **D** moves.

On the other hand, **d** moves are those which do not even perform this setup move - they merely serve to attract attention or to begin a sequence. Compelling evidence must exist that they are in fact linked to the upcoming statement before they can be labelled as a **d** and not an **f** - if there is confusion and a backchannel-like utterance could function as either a **d** or an **f**, then the code should default to **f**.

This **d** behavior also extends to those cases where a speaker stutters or stammers to begin a sequence:

Bob d I think
Bob d ok
Bob d I mean
Bob K2 What color should they be?

Sequences may also look different due to *complexes* of information, which means that a single move can be spread over multiple utterances, through the use of elaborations, explanations, or justifications of statements. These elaborations should be labelled as **K1** moves, as they are imparting information on the listeners:

Alice K1 That plan might actually work
Alice K1 They won't be paying attention to the ventilation shafts.

The original base move does not need to be a **K1** move in order for this to be appropriate:

Alice A2 Bob, can you grab the salt and pepper for me?
Alice K1 They're in the cupboard.

There is some confusion that may exist between **A1** and **A2** moves in the case of the first person plural. In this case, the speaker is narrating or proposing a move on behalf of both themselves and those around them. In these cases, the label should default to **A1** unless there is strongly compelling evidence

Finally, it is worth elaborating on the purpose of a **tr** move. This is a move which ensures that the information that has been previously stated has been received.

Alice A2 Could you pass me the salt?
Bob tr the what?
Alice tr the salt.

Who	Round 1	Round 2	Text
Student1	K1	K1	I think a Styrofoam bowl would help.
Student2	A2	A2	can we see the size of the styrofoam and paper bowl?
Student2	-	f	ok
Student2	-	D	alright, so we've talked about putting some kind of parachute on.
Student2	K2	K2	is that something we can reasonably build?
Student3	K1	K1	I don't think there's anything here that's big enough and light enough.
Student2	-	D	well we've got a paper bag.
Student2	K1	K1	we might be able to build out of that.
Student1	-	f	umm, yeah
Student3	K1	K1	but the paper bag's going to be pretty heavy.
Student2	-	f	yeah
Student3	-	D	I think I
Student1	K2	K2	How about a ziploc bag?
Student2	-	f	hmm

Figure 1: An example dialog fragment labelled in two passes

Here, tracking is used to ask a question and repeat a phrase from a previous line, with no new information being added other than to confirm that the previous statement was heard correctly.

Alice	K1	My zip code is 15217.
Alice	tr	You got that?
Bob	f	yeah.

Here, tracking is used to explicitly request a followup move to confirm receipt of the information.

4 Suggested Practices for Annotation

We present the annotation scheme in its current form in order to facilitate a specific process for annotation. The structure of sequences is built around the base statements in the conversation - that is, the initiations and responses. These will be labelled as A1/A2/K1/K2 utterances (or complexes of utterances in a sequence). The statements that are made around these base statements may be difficult to code properly without context and an understanding of the structure around them. Therefore, we recommend a two-pass process for annotation, illustrated in Figure ???. In the first step, label those elements which belong to a base pair; do not give any marking to the delays, followups, attention-grabbing moves, etc. Then, once these labels are in place, fill in the gaps based on this contextual information. This allows the more ambiguous statements to be labelled with more confidence.

5 Conclusions

The beauty of the analysis above is that the exposition that I gave has almost no added information over the codes themselves. In this small set of labels, we can describe a great deal of the depth of that interaction. The questions that then arise are:

1. How consistently can these labels be applied by coders?
2. What can we do with this data once it is applied?
3. Can this annotation process be automated?

Before we can answer the second two questions, we must first satisfactorily answer the first. This comes down to two separate research problems, actually - first, the segmentation issue (When does a new sequence start?) and second, the annotation of each individual utterance. However, these questions cannot be answered separately, as they are too closely entwined. They must be solved in parallel, feeding off each other.

Answering these questions is the purpose of this manual. Once they have been satisfactorily resolved and annotation can be reliably produced, then the next phase of this project begins. That is the creation of a corpus of annotated conversations that is large enough to apply machine learning methods to the problem. To facilitate this goal, any questions, comments, or feedback would be greatly appreciated.