CrAg - Critical Agent Dialogue (Arguing About Movies)

Amy Isard, Carsten Brockmann, Jon Oberlander, Mike White

The CrAg Project

Project Aims

The aim of this project is to build and evaluate a simple, adaptable natural language generation system which can generate dialogue incorporating relatively subtle linguistic features which reflect dimensions of personality such as extraversion and neuroticism. The system will then be evaluated to investigate the impact on user impressions of altering personality parameters.

Statler and Waldorf

Ebert and Roeper

Personalizing Dialogue

The CrAg system will generate dialogues about movies. The dialogues will vary according to the personality type assigned to each character, based on recent research by Gill and Oberlander into different vocabulary, syntax and dialogue strategies exhibited according to personality type. This research uses Eysenck's three factor model in which personality is described in terms of the three dimensions Psychoticism, Extraversion, and Neuroticism, each of which can separately influence language production.

Each character's utterances will also vary in reaction to the utterances of the other participant in the dialogue. Garrod and Pickering's Interactive Alignment Model argues that common ground (as defined by Clark) need not be explicitly computed during dialogue, but that it arises as a by-product of intra- and inter-personal priming processes, by which dialogue participants align their representations at every level, including lexical, semantic, and syntactic.

Hypotheses about Personality Effects on Dialogue Behaviour

Psychoticism

- High psychotics have higher lexical diversity
- High psychotics display less alignment in dialogue

Extraversion

- High extraverts have more phrasal elements in their lexicon
- High extraverts display more alignment because they use discourse history as a short-cut source

Neuroticism

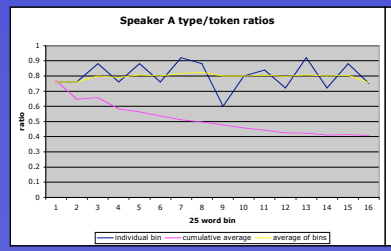
- High neurotics use more negative affect material
- High neurotics have less lexical diversity
- High neurotics express opinions rather than information

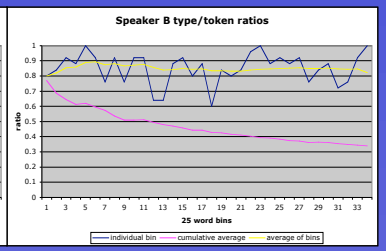
Data Gathering

We are going to build a corpus of dialogues about movies and use analyses of this corpus to inform the parameters which we use to generate dialogues. Each dialogue participant will complete a personality questionnaire, and just before the conversation takes place, the participants will be asked to make notes on a number of topics appropriate to the movie they have seen, and to order the 6 topics most important to them.
The dialogues will later be annotated with information about which topic was under discussion, and what sort of opinions the participants were expressing. We will study the turn-taking and interruption behaviour, and perform lexical analyses. These will include type/token ratios, and an alternative method of repetition analysis, inter-word/speaker repetition distance.

Pilot Experiment

We have recorded an eight-minute dialogue where the participants discuss the recent film «Matrix Reloaded».





B: [character development, dialogue] in the first movie i mean all the characters are very two-dimensional kind of like Star Wars they're not really meant to be real people they're just... (right) um but they let them talk a lot more in this movie (right) you know and it kind of breaks down a little bit (<laughs>) uh especially Morpheus he just kind of gives these ... these uh ... long pompous speeches all the time (right) and uh ... yeah ... so

A: [dialogue] right so you didn't enjoy the dialogue then so much

B: [dialogue] no no, in the first movie everything was very short and... cryptic and you think oh cool but (right) but if th- now they go on a bit longer it... it... you start to see oh this is just a bunch of nonsense (<laughs>) it's not uh ... yeah

A: [ending] so one of my i guess my ... biggest criticism is ... the t- uh the ending (yes yes) to be continued (oh well) i hate that i just <laughs> to be left hanging in the middle of a story when you know like

Some Raw Data

	Speaker A	Speaker B
utterances	78	59
backchannels	33	6
words	378	849
interruptions	1	1
w/utt	4.85	14.39
w/utt excluding backchannels	7.38	16.86

Dialogue Topics

A chosen topic order
- story
- special effects
- ending
- fight sequences
- cinematography style

Actual Dialogue Topic Order
plot holes 3
4 fight sequences 4
2 special effects 5
music 7
1 story 1
plot holes 3
character development 2
dialogue
3 ending
plot holes 3
5 cinematography style 6

B chosen topic order
- story
- character development
- plot holes
- fight sequences
- special effects
- cinematography style
- music

Some Remarks

- The participants in our pilot study did not know eachother, and this had discernible effects on their dialogue behaviour. For the main experiment, we will ask participants to come along in pairs because we would like to generate dialogues which resemble those between friends.
- The simple type/token ratio does not take into account the differences in length of the participants' contributions; Therefore we must normalize for length, and preferably also use another measure such as repetition distance.
- Personality traits can interact with one another in unanticipated complex ways. For instance, in our study Speaker B is lower extravert so would be expected to speak less, but is also very low psychotic, so seems to be more likely to fill embarrassing silences.

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