

General Description of the dataset:

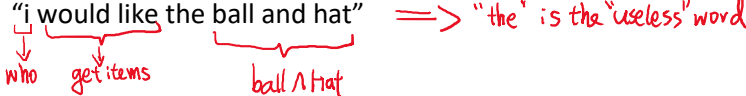
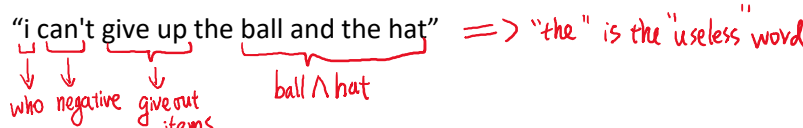
- It's a human-human dialogue. Each human agent is given some items from {ball, hat, book}.
- Each human agent values items differently from each other, so that both sides cannot maximize their profits at the same time (semi-cooperative).
- Human agents cannot choose "no agreement", until after 10 turns.

Basic Statistics (randomly sampled 100 dialogues):

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# of word-tokens	4096
# of word-types	335
# of sentences	473

Some higher-level Analysis:

- Formality of the sampled 20 dialogues:
 - I apply the definition of "deep" formality defined in [1]: "Avoidance of ambiguity".
 - After manually classified deixis in the text, I have $Formality = \frac{\# of\ deixis}{\# of\ words} = \frac{156}{801} = 19\%$
 - Baseline: I did the same thing to a small clip of Ted Talk by Bill Gates [2]: $Formality = \frac{43}{546} = 7\%$
- How did people start their conversations?
 - 8 people asked their partners to propose a plan first.
 - 1 person simply said "Hello!".
 - 91 people started with a specific proposal.
- How many people have made a deal?
 - 9 people did not have a deal.
 - 91 people had a deal.
- Within the randomly-sampled 20 dialogues, what is the percentage of "useless" word-tokens (word-tokens that do not specify actions)?
 - My way to classify "useless" words:
 - "i would like the ball and hat" \Rightarrow "the" is the "useless" word

 - "i can't give up the ball and the hat" \Rightarrow "the" is the "useless" word

 - "I am not on here to play you. I am on here to get the task done." \Rightarrow the whole sentence is "useless"
 - Result: 8% (57 "useless" word-tokens out of 644)

[1]. Heylighen, F. Dewaele, J. Formality of language: definition and measurement. Chapter I.

[2]. http://blog.ted.com/bill_gates_talk/

Analysis of Specific examples: [Tuple means: (Number of Items, Value of Items)]

- 1st dialogue
 - YOU: Book (1, 4), Hat (4, 1), Ball (1, 2)
 - THEM: Book (1, 0), Hat (4, 2), Ball (1, 2)
 - THEM: I would like 4 hats and you can have the rest.
 - YOU: deal.
 - THEM: <selection>
 - THEM's logic: propose a plan with positive but not maximum profits.
- 2nd dialogue
 - YOU: Book (1,8), Hat (2,1), Ball (4, 0)
 - THEM: Book (1,6), Hat (2,0), Ball (4,1)
 - YOU: Hello. I would like the book and one ball.
 - THEM: you can have one ball 1 hat.
 - YOU: I need the book or it's no deal.
 - THEM: no deal I am keeping the book.
 - YOU: ok no deal
 - THEM: okay sounds good
 - YOU: Alright.
 - THEM: Okay.
 - YOU: Alright no deal
 - THEM: okay, it's no deal
 - "YOU"'s Logic: Greedy Algorithm, which tries to get as many largest-value items as possible.
 - "THEM"'s Logic: "YOU"'s greedy algorithm leaves "THEM" with no choice.
- 3rd Dialogue
 - YOU: Book (1,3), Hat (3,1), Ball (1,4)
 - THEM: Book (1,0), Hat (3,2), Ball (1,4)
 - THEM: Hi, I would like the ball and 2 hats and you can have the book and 1 hat.
 - YOU: I rather like the ball also. you can have all three hats if I get the ball and book.
 - THEM: Ok, I can do that.
 - YOU: <selection>
 - "YOU"'s logic: like the first dialogue, "YOU" proposed a plan with positive but not maximum profits.
 - "THEM"'s logic: Based on "YOU"'s plan, "THEM" modified the plan so that "THEM" has a positive profit but not maximum.

[1]. Heylighen, F. Dewaele, J. Formality of language: definition and measurement. Chapter I.

[2]. http://blog.ted.com/bill_gates_talk/