

# Deal-or-No-Deal Negotiation Dataset

## Overview

A comprehensive negotiation dataset consisting of 12,234 multi-turn dialogues between buyers and sellers negotiating over three item types (books, hats, and balls). The dataset has been reformatted for training specialized negotiation agents.

## Original Dataset Structure

### Format

- Each dialogue contains:
  - Input state (item counts and values for each agent)
  - Natural language negotiation turns
  - Final outcome (deal or no deal)
  - Partner information for validation

### Statistics

- Total dialogues: 12,234
- Average turns per dialogue: 5.98
- Total turns: 73,191
- Success rate: 78.49%

### Splits

- Train: 10,095 dialogues
- Test: 1,052 dialogues
- Validation: 1,087 dialogues

## Reformatted Training Data

### Structure

Three specialized CSV datasets created for model finetuning:

1. `buyer_training.csv` (36,596 examples)
  - Role-specific buyer turns with full dialogue context
  - Complete value state tracking
  - Outcome information
2. `seller_training.csv` (36,595 examples)
  - Role-specific seller turns with full dialogue context
  - Complete value state tracking
  - Outcome information
3. `generalist_training.csv` (73,191 examples)

- Combined buyer/seller examples
- Preserves full dialogue context
- Complete negotiation state information

## CSV Fields

- `role`: "buyer" or "seller"
- `context`: Previous dialogue history
- `utterance`: Current turn text
- `values`: Agent's item values/counts (JSON)
- `partner_values`: Partner's item values/counts (JSON)
- `outcome`: Final negotiation result (JSON)

## Data Characteristics

### Dialogue Metrics

- Turn lengths: 1-70 tokens (mean: 7.54)
- Utterance lengths: 1-267 chars (mean: 31.59)
- Median dialogue length: 5 turns

### Negotiation Statistics

- Buyer turns: 36,596
  - Average length: 31.67 chars
- Seller turns: 36,595
  - Average length: 31.52 chars

### Value Distributions

- Books: 0-10 (mean: 2.21)
- Hats: 0-10 (mean: 2.23)
- Balls: 0-10 (mean: 2.20)

## Dataset Evolution

### Original format example:

```
<input> 1 4 4 1 1 2 </input>
<dialogue> THEM: i would like 4 hats and you can have the rest . <eos>
          YOU: deal <eos>
          THEM: <selection> </dialogue>
<output> item0=1 item1=0 item2=1 item0=0 item1=4 item2=0 </output>
<partner_input> 1 0 4 2 1 2 </partner_input>
```

### Reformatted example:

```

{
  "role": "buyer",
  "context": "i would like 4 hats and you can have the rest .",
  "utterance": "deal",
  "values": {
    "book": {"count": 1, "value": 4},
    "hat": {"count": 4, "value": 1},
    "ball": {"count": 1, "value": 2}
  },
  "partner_values": {
    "book": {"count": 1, "value": 0},
    "hat": {"count": 4, "value": 2},
    "ball": {"count": 1, "value": 2}
  },
  "outcome": {
    "success": true,
    "distribution": "item0=1 item1=0 item2=1 item0=0 item1=4 item2=0"
  }
}

```



