Augmenting Task-Oriented Dialogues at the dataset level outperforms some learning-based methods on few-shot domain adaptation.

**Main Findings**

→ Augmenting TODs on a dataset level rather than on a datum level harbors better performance for n-shot fine-tuning.
→ Exploiting the organized structure in a TOD’s belief state is an effective way to assign functions to turns and thus break down dialogues into smaller pieces.
→ Augmentation is only one way to utilize this break-down and we hope to see further studies that apply it to other aspects of TODs such as intent recognition, response generation, etc.

**Introduction**

- Few-shot domain adaptation of DST models is a crucial problem because it is common that new business models prefer dialogue agents over static websites to serve customers.
- We propose a dataset-level augmentation for few-shot domain adaptation, unlike previous datum level methods.

**Intuition**

- We use belief states of task-oriented dialogues as blueprints and mingle turns between dialogues to construct new synthetic dialogues.

**Methodology**

1. Assign a dialogue function to each turn pair in the dialogue.
2. Break down each dialogue pair by pair into pieces storing with their dialogue functions.
3. Combine these pieces generating new dialogues while making sure consecutive pairs have complementary functions.

**Experiments**

- We use 5 domains from the MultiWOZ dataset.
- At each iteration we leave one domain out and:
  - Train on the other four domains.
  - Finetune and test on the left-out domain.
- We repeat experiments with both original and augmented samples.
- We use TRADE and TOD-BERT models for experiments.