Global-Locally Self-Attentive Dialogue State Tracker
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Overview
Motivation
- Dialogue state tracking, which estimates user goals and requests given the dialogue context, is an essential part of goal-oriented dialogue systems
- Existing methods do not address the extraction of rare states (e.g., slot-value pairs), which are prominent in problems with large ontology.

Proposal
- We propose GLAD, which uses global modules to share parameters between estimators for each slot and local modules to learn slot-specific feature representations.

Result
- We obtain state-of-the-art results on the WoZ and DSTC2 state tracking tasks.

Example Dialogue
User
Where would you go to eat in the south part of town?

System
I just want to eat at a cheap restaurant in the south part of town. What food types are available, can you also provide some phone numbers?

User
Either is fine, can I have the phone number please?

System
The lucky start is at 01223 244277 and Nandos is at 01223 327908. Do you still need help with that?

User
Thank you very much.

Global-Locally Self-Attentive Encoder
- Slot-specific modules emphasize relevant key words and phrases to that slot
- Global module attends to all relevant key words

GLAD
- Global-local modules outperform on rare states

Example Predictions
System actions in previous turn
request(phone)
request(food)
request(price range)
request(price range=cheap)
request(area=south)

User utterance
I just want to eat at a cheap restaurant in the south part of town. What food types are available, can you also provide some phone numbers?

Slot value under consideration
price range = cheap

Test accuracies. We run 10 randomly seeded models and report the mean and std.