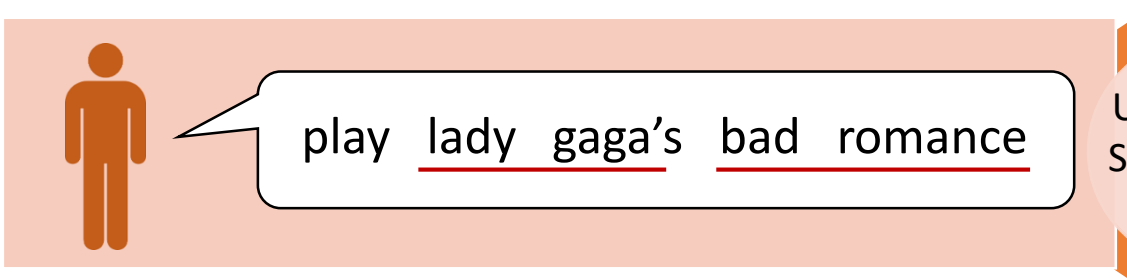
Matrix Factorization with Domain Knowledge and Behavioral Patterns for Intent Modeling

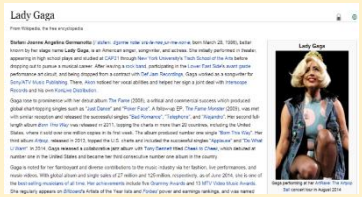
Yun-Nung (Vivian) Chen, Ming Sun, Alexander I. Rudnicky, and Anatole Gershman

Can a dialogue system automatically learn user intents from unlabelled dialogues?



Unlabelled Single-Turn Request

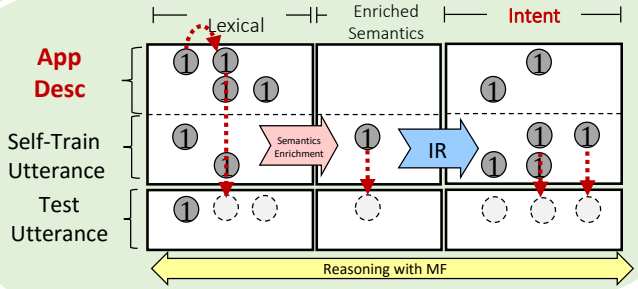
Domain Knowledge



… is an American *singer*, *songwriter*, and *actress*.

… is a *song* by …

Spoken Dialogue System / Intelligent Assistant



Intent Prediction

Carnegie Mellon

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Can a dialogue system automatically learn user intents from unlabelled dialogues?

take a photo

send a photo

Communication

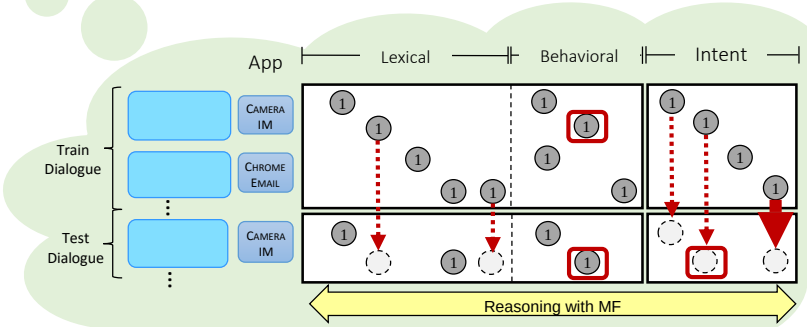
Multi-Turn Interactions

+

Behavior Patterns

1) User preference
2) App-level contexts

Spoken Dialogue System / Intelligent Assistant



Intent Prediction

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