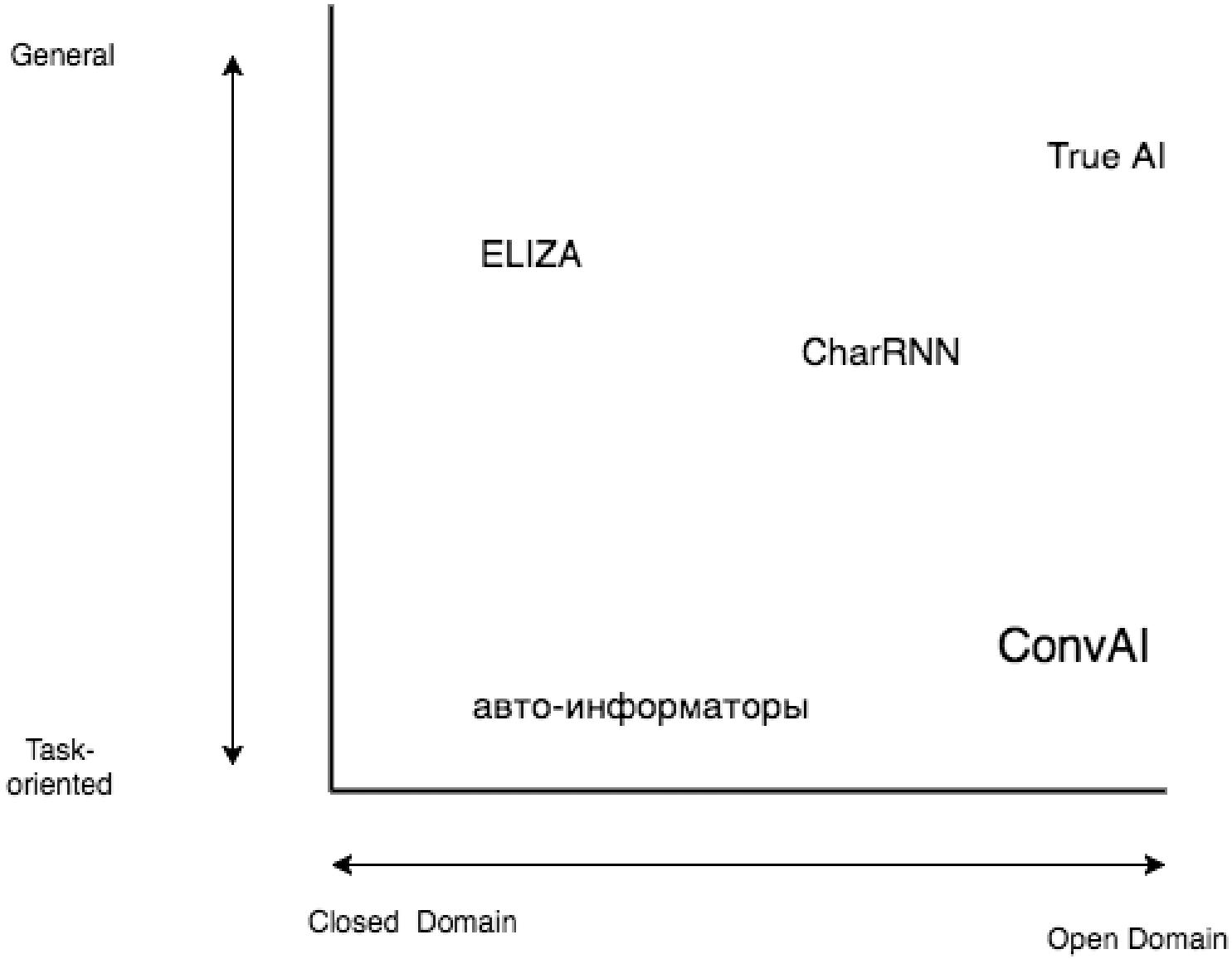
Чат-боты
постановка задачи

Смирнов Евгений Александрович,
МФТИ ФУПМ, 274

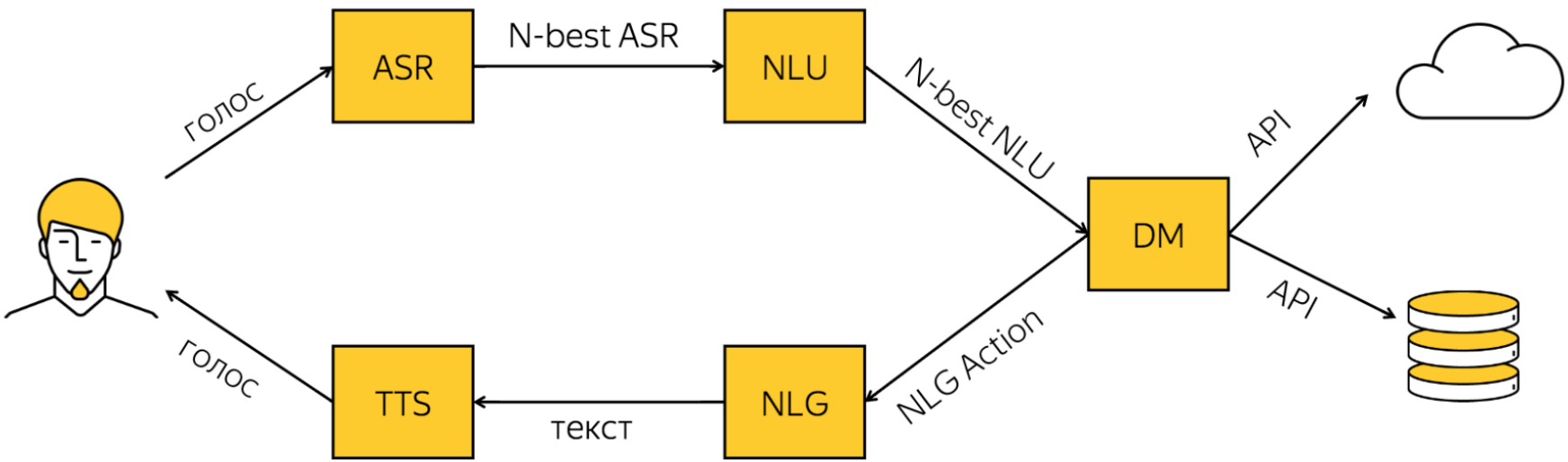
30 ноября 2017 г.

Tasks comparison



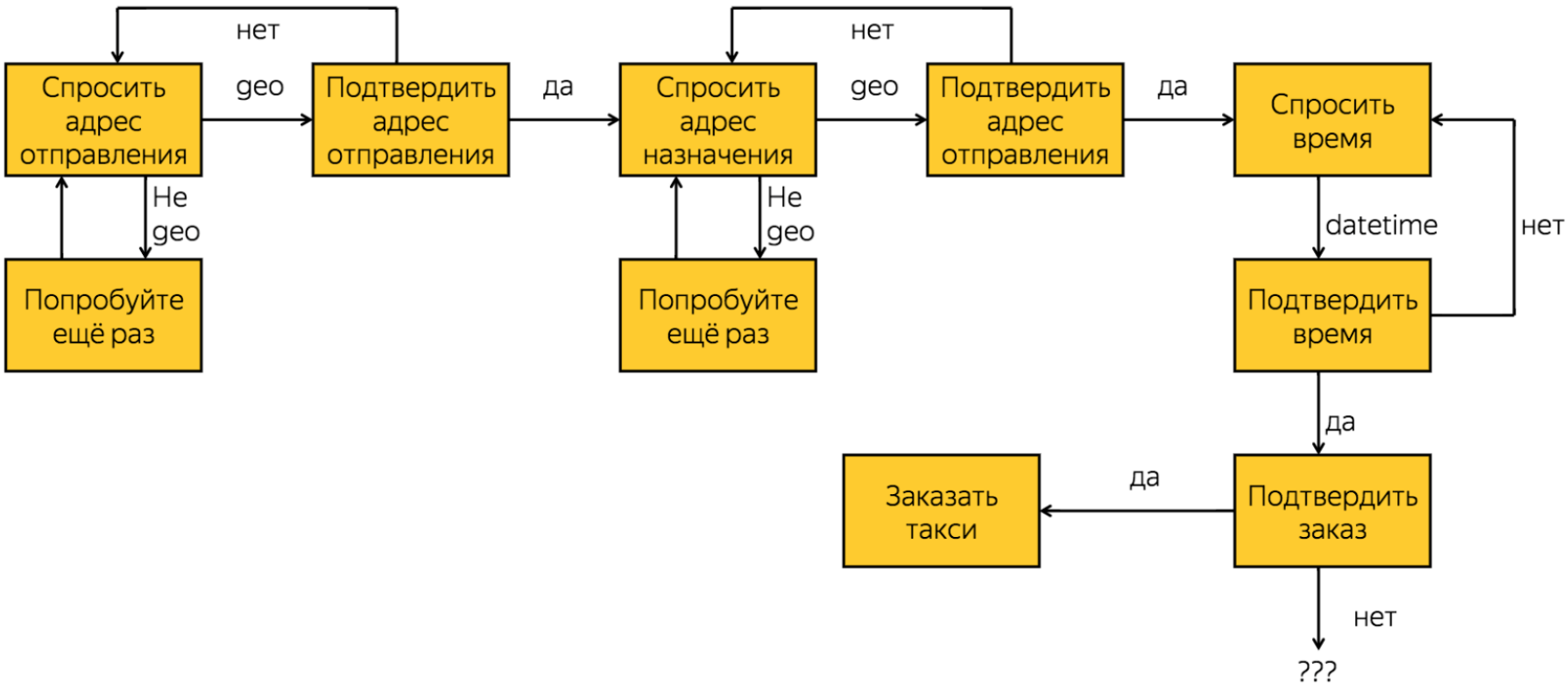
https://habrahabr.ru/company/mipt/blog/330228/

Goal-oriented



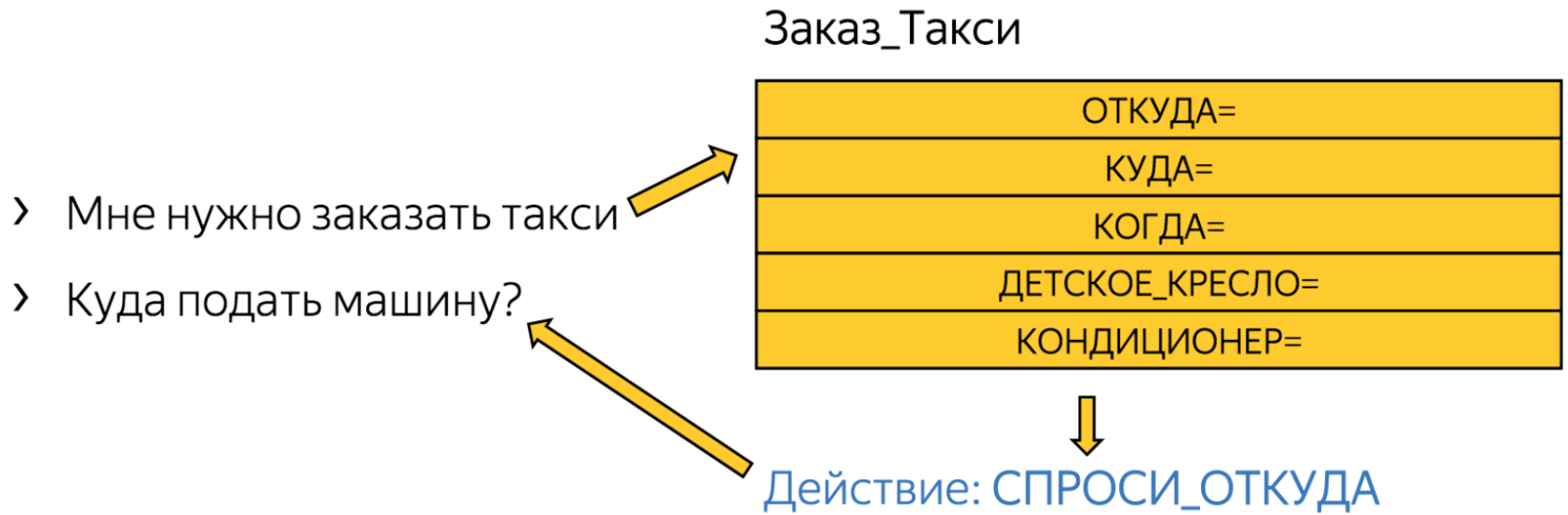
https://github.com/vkantor/MIPT_Data_Mining_In_Action_2016/

CallFlow



https://github.com/vkantor/MIPT_Data_Mining_In_Action_2016/

Form-Filling



https://github.com/vkantor/MIPT_Data_Mining_In_Action_2016/

Reinforcement Learning

Мне нужны билеты в Бостон

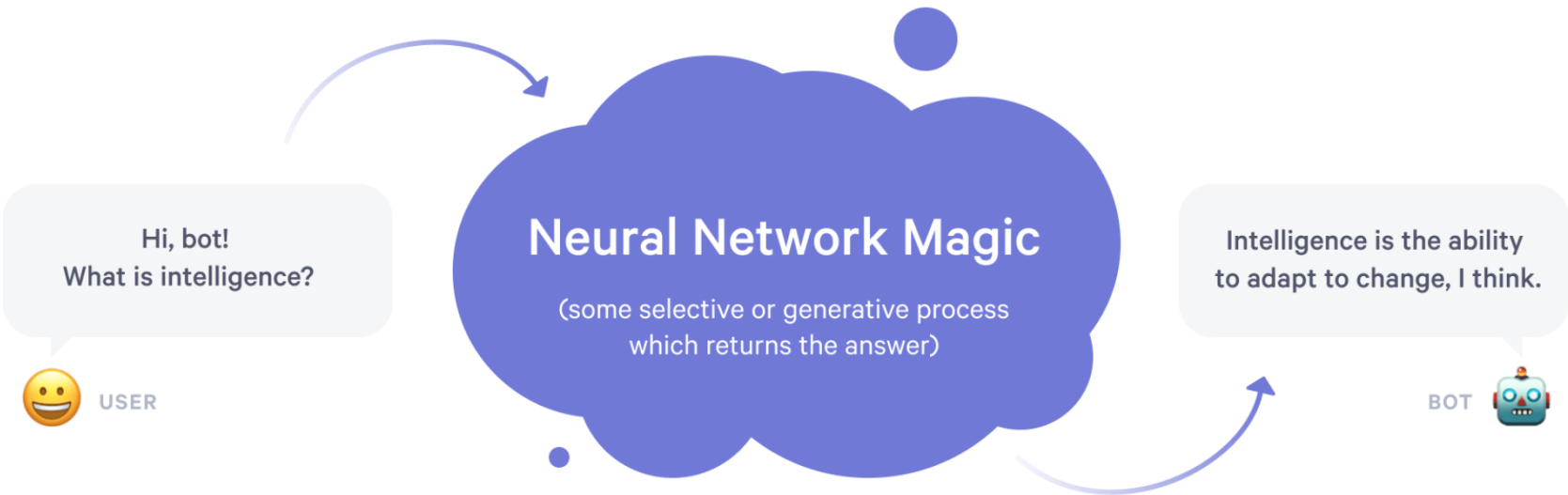
- Бостон (0.5)
- Остин (0.4)
- Лондон (0.1)

Какое действие выбрать?

- В слот -> Бостон
- Спросить Бостон?
- Спросить Бостон или Остин?
- и т.д. ...

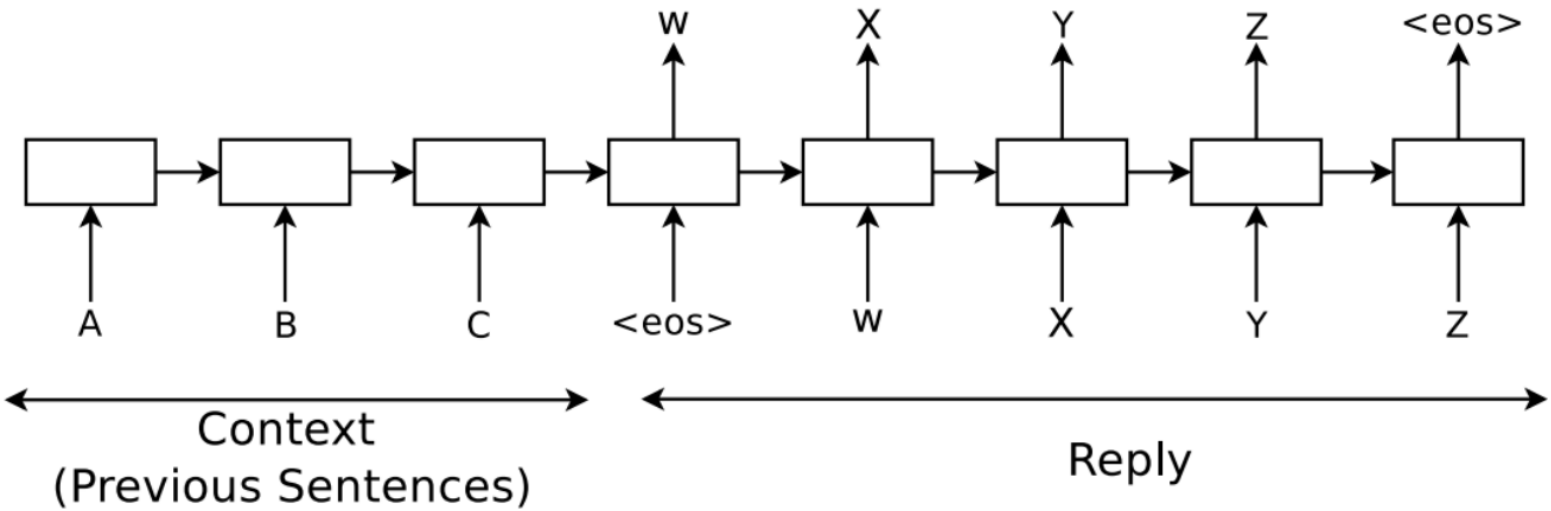
https://github.com/vkantor/MIPT_Data_Mining_In_Action_2016/

General conversation



https://blog.statsbot.co/chatbots-machine-learning-e83698b1a91e

Generative models



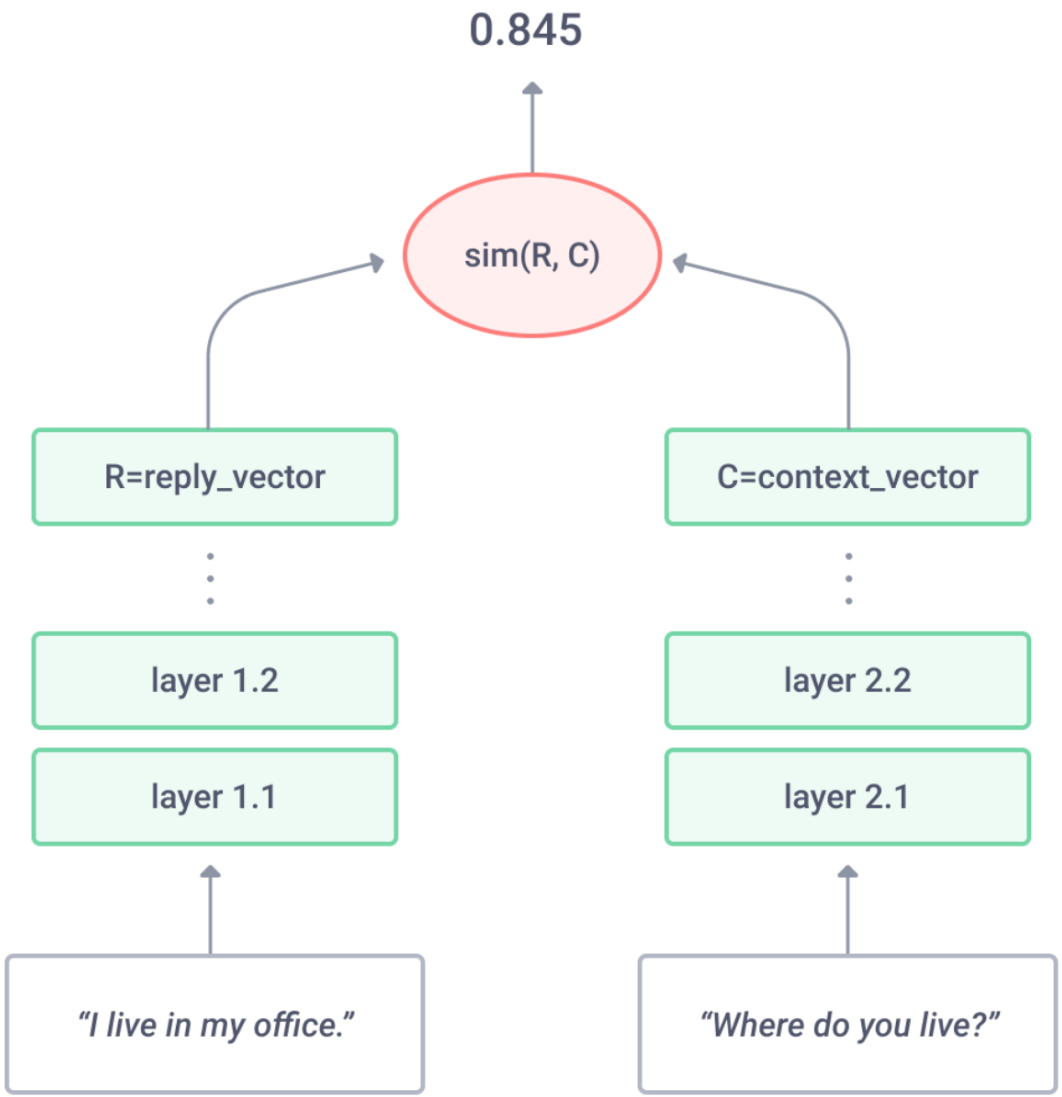
https://arxiv.org/abs/1506.05869

Modifications of generative models

1. Add more layers
2. Use a bidirectional encoder
3. Experiment with embeddings
4. Use a beamsearch
5. Use an attention mechanism
6. Use characters instead of words or byte pair encoding for vocabulary

https://blog.statsbot.co/chatbots-machine-learning-e83698b1a91e

Selective models



https://blog.statsbot.co/chatbots-machine-learning-e83698b1a91e

Generative vs selective: pros and cons

Generative models	Selective models
+ Can possibly generate arbitrary answer (more similar to general AI) + Can generate answer in correct grammar form (e.g. with correct speaker gender) - Can generate answer with incorrect grammar/syntax - Prone to “general answer” problem - Difficult to impose properties on model replies (e.g. no obscene words, speak like some specific person), but possible!	- Restricted pool of answers which can not cover all dialogue topics - For context “What is your name, girl?” can select “My name is Stephen.” (inconsistency) + Predefined answers have good grammar/syntax + Less prone to “general answer” problems + You can customize answers for your own needs (without obscenities, kind answers)

https://blog.statsbot.co/chatbots-machine-learning-e83698b1a91e