

Artificial Intelligence and Logic Programming: Results vs. Challenges and Trends



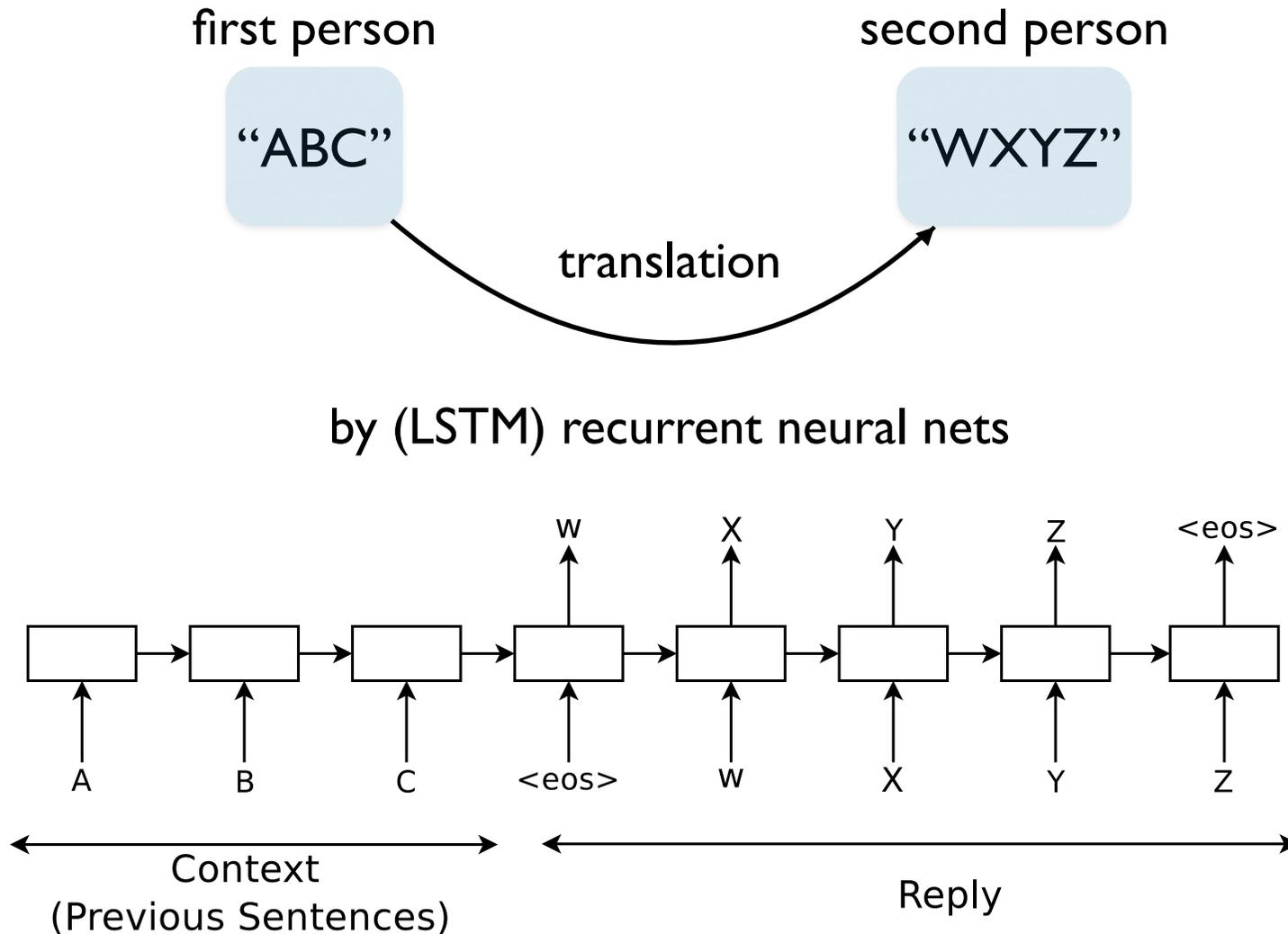
Marco Gori
University of Siena

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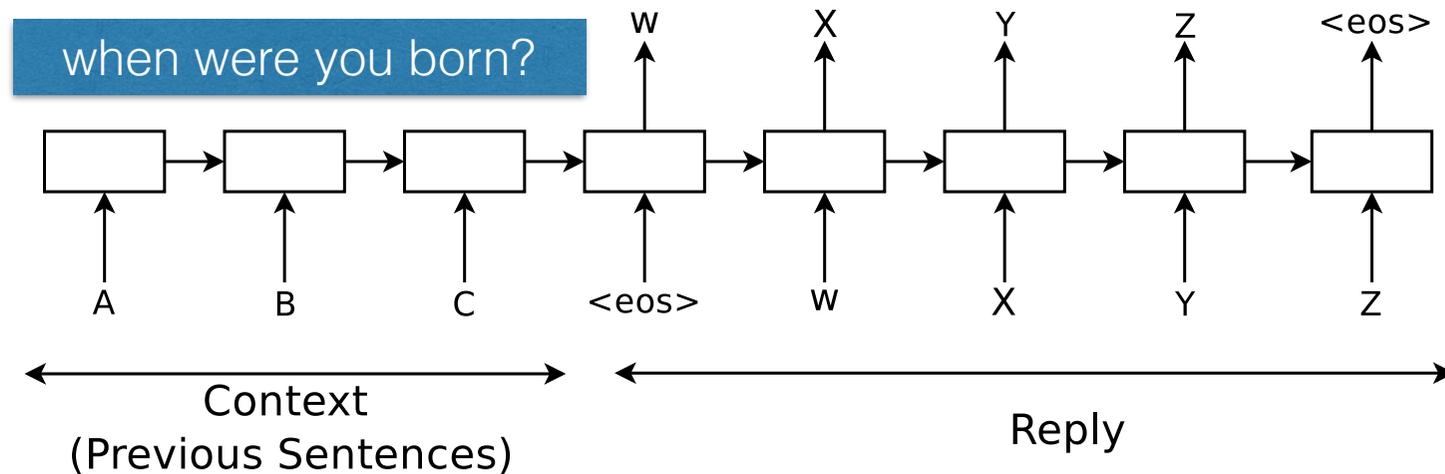
Neural Conversational Agent

O.Vinyals and Q.V. Lee, Google

ICML Deep Learning Workshop 2015



Is Human Conversation a Matter of Translation?



where is the knowledge?

We need to be supported by the faith that everything is an-unstructured pattern of connections weights!

Progress in Conversational Agents

Is it only a matter of Big Data and Deep Learning?

Thomas Kuhn, 1962 ,The structure of Scientific Revolution

Under normal conditions the research scientist is not an innovator but a solver of puzzles, and the puzzles upon which he concentrates are just those which he believes can be both stated and solved within the existing scientific tradition.

Most of nowadays claims on novelty in AI approaches for natural language on are based on existing scientific tradition!

Big Data, Big Computers, Deep Learning: fantastic progresses in the last few years. Aren't we already close to saturation? Aren't we using an existing scientific tradition?

The “Puzzle” of Conversational Agents



Data bases, search engines, machine learning, ...

continuous path

integrate this stuff as
much as you can!

begin with a truly AI view!

beyond a peaceful interlude:
re-think from scratch!

Five Questions

for scientists, research agencies and investors

- How can we integrate huge knowledge bases (e.g. freebase) naturally and effectively with learning processes? How to break the barriers of machine learning / (inductive) logic programming communities?
- How to come up with a computational model capable of dealing with learning and reasoning both in the symbolic and sub-symbolic domains?
- How to instruct agents on specific purposes and transmit them human-like curiosity? How can agents play a truly active role? (think of teenage nerds escaping the AI-lab trap ...)
- How to acquire latent semantics? So far, linguistic-based knowledge acquisition is the only concrete, yet unsatisfactory, scenario
- How to construct agents capable of “living in their own environment” on the Web? A truly Life-Long-Learning is still missing