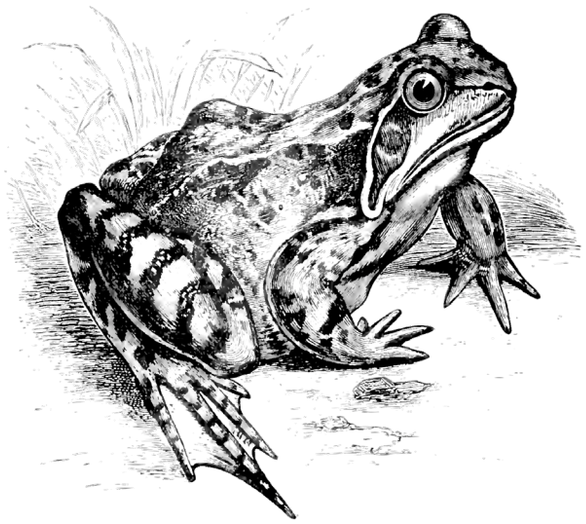
DOCTORAL THESIS
IN COMPUTATIONAL LINGUISTICS

WHY THE POND IS NOT *OUTSIDE* THE FROG?

Grounding in contextual representations by neural language models

Mehdi Ghanimifard



Why the pond is not *outside* the frog? • Mehdi Ghanimifard

When we describe the location of objects in an image, we relate them by their physical location and by the nature of their interaction. This thesis examines how artificial neural networks learn what information is relevant to spatial descriptions. Favouring "the frog is outside the pond" rather than "the pond is outside the frog" is possible by considering the knowledge about the world and human interactions in language models. The findings of this thesis benefit the design of systems that automatically generate image descriptions and search engines and lead to a more natural human-robot interaction.

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