

**“SCORE: From Image Schemas to  
Cognitive Robotics: A formal  
framework and computational  
models for embodied simulations”**

Cooperation: Uni Bremen + Uni Bozen/Bolzano

DAAD/MIUR: Mobility Funding: 2018-2020

# Motivation

- Ongoing work in Bozen/Bolzano on ontology specifications, image schemas, and their formalization as ontologies
- Ongoing work in Bremen on embodied semantics, relating linguistic specifications to ontologies for robotics and the performance of everyday tasks
- SCORE:
  - bringing these together synergistically
  - forming connections to other related areas

# Goals

- constructing an implemented computational system capable of relating:
  - **linguistic descriptions** of actions and movements (e.g., 'break the eggs into the bowl', 'put the juice into the fridge', 'go into the kitchen', 'stack the plates in the cupboard', 'move up the stairs', 'blow up the balloon'), as well as classic movement cases such as the well-known source-path-goal journey metaphor,
  - to **formal image schema specifications**,

# Goals

- building an implemented connection of abstract image schemas with processes for **embodied simulation**

# Goals

- establishing a formal communication mechanism for reading out the consequences of simulations for semantic interpretation
- e.g., if an object A is contained in an object B, then moving B will move A with it, or if an object A is placed on an object B, then moving B will move A as long as a sufficiently stable support for A is maintained, i.e., a plate should not be moved too fast, etc.

# Goals

- constructing a formal specification characterising **image schemas** within a specially designed logic instantiated as a node extending the existing lattice of logics available within the Distributed Ontology Language (DOL) framework for ontological specification

# Goals

- establishing an initial open-access repository containing formal specifications of a selected set of commonly occurring image schemes that can be re-used for both theoretical and practical further development.

# Structure

- Bi-directional visits:  
research stays, workshops
- 9-10 visits / year
- 2018-2020



# FIRST SCORE MEETING: JULY 24-25, BREMEN

<http://www.inf.unibz.it/%7Eokutz/score/score1/>





