

There is no common ground in human-robot interaction

Geert-Jan M. Kruijff

Language Technology Lab
DFKI GmbH
Campus D3_2
Stuhlsatzenhausweg 3
D-66123 Saarbruecken, Germany
gj@dfki.de
<http://www.dfki.de/~gj>

Common ground is one of the key constructs in (spoken) dialogue. It embodies the notion that interlocutors build up, maintain, align their understandings of what is being talked about such that they have a “shared” or (at least) “mutual” understanding. What I understand is how you understand is what you understand. Leaving issues aside whether such a symmetry actually does exist between humans, it should be clear to anyone that it certainly does not hold between humans and robots. Robots and humans experience reality differently, they understand reality differently. There is an inherent asymmetry between them. And that creates a bit of a problem for building up shared understanding, especially since that is what we are particularly interested in, at least in the kinds of task-oriented dialogues we are often dealing with in human-robot interaction (HRI).

The talk starts by looking at what makes situated dialogue in human-robot interaction an interesting and often amusing field of research. Videos from a wide variety of projects illustrate typical problems, issues, and possibilities encountered in lab settings, as well as “out-in-the-field” (hospitals, rescue missions). From there the talk then moves deeper into the issue of common ground, looking at how it does (or where it actually does *not*) affect communication between humans and robots, and to what extent existing theories can actually really deal with the issue. The talk ends with outlining ongoing work on formulating a new approach to modeling common ground in a constructive way, and setting these efforts in practical experience with collaborative dialogue in human-robot teams.