Constructionist learning by computing for construal

Meurig Beynon and Antony Harfield, *wmb@dcs.warwick.ac.uk*
Dept of Computer Science, University of Warwick, UK and Tessella plc, Abingdon, Oxford, UK

Introductory description and overall goals

A *construal* is a physical object that supports sense-making through exploratory interaction and interpretation. We introduce a prototype environment for creating construals by computer in which developers, teachers and learners all interact in essentially the same way, blending their activities in a way that is exceptionally well-aligned to the constructionist ideal. We shall illustrate the use of such an environment with reference to construing human solving of Sudoku puzzles.

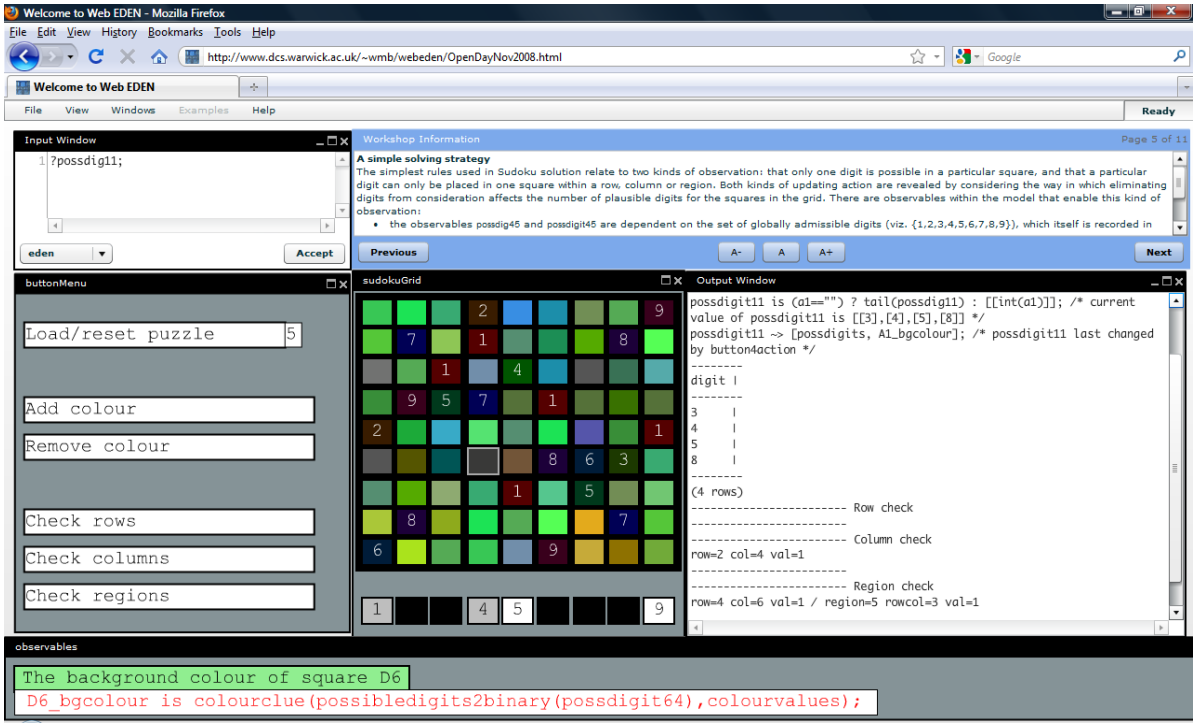

Figure 1. The Sudoku Experience – construing human solving of Sudoku puzzles

Method

The principles of computing for construal will be introduced through a series of demonstrations and exercises designed to give experience of acting and collaborating in the roles of developers, teachers and learners. A key feature of the tools we shall exploit is model-building with dependency such as is represented in spreadsheets and dynamic geometry environments.

Expected outcomes

Attendees will gain practical experience of computing for construal, and of the potential benefits for learning in a constructionist idiom. We shall highlight the unusual potential for new kinds of empirical study and evaluation that computing for construal affords, and hope to gain critical and constructive feedback from educational experts to guide future design and development.

Keywords

Constructionism, construal, spreadsheets, dynamic geometry, Empirical Modelling