

# Enhancing State-Space Tree Diagrams for Collaborative Problem Solving

Steven L. Tanimoto

University of Washington, Seattle WA 98195, USA,  
tanimoto@cs.washington.edu

WWW home page: <http://www.cs.washington.edu/homes/tanimoto/>

**Abstract.** State-space search methods in problem solving have often been illustrated using tree diagrams. We explore a set of issues related to coordination in collaborative problem solving and design, and we present a variety of interactive features for state-space search trees intended to facilitate such activity. Issues include how to show provenance of decisions, how to combine work and views produced separately, and how to represent work performed by computer agents. Some of the features have been implemented in a kit called TStar and a design tool called PRIME Designer.

## 1 Introduction

### 1.1 Motivation

Problem solving and design processes tend to confront more and more complex challenges each year. A solution to a single problem often requires expertise in several domains. For example, Boston's "Big Dig" req

