

Lecture 9: Problem Solving (pt.2)

*Lecturer: Anderson Todd**Scribes: Ousmane Amadou*

Note: *LaTeX template courtesy of UC Berkeley EECS dept.*

Disclaimer: *These notes have not been subjected to the usual scrutiny reserved for formal publications. They may be distributed outside this class only with the permission of the Instructor.*

9.0.1 Problem Solving as Search

- Motivation: Given that problem spaces are extremely large. How are humans intelligently navigating this search space?
- Chess is a *wellformed problem*... alas most of the problems we encounter in the real world are *ill-formed problems*. These problems don't have explicit path constraints.
- When you consider the similarities between the two types of problems, you will begin to notice that *problem formulation plays a big role*.
- The Mutliated Chess Board
 - When people encounter this problem the immediate response is to try and mentally count every chess tile. This strategy requires a LARGE amount of human computation.
 - A reformulation of the problem in this case leads to a trivial solution.

9.0.2 The Interconnection Problem

- There are two schools of thought that are concerned with solving the Interconnection Problem.
- Gestalt School Of Thought
 - They were terrible experimental designers
 - They were doing their seminal work in the 30s, 40s and 50s... and they were German.. basically, no American touched Gestalt psychology because of the Nazis
 - They believed that solving an insight problem is less like an action, and more of a facet of perception.. they posited that problem solving involved perceptual **restructuring**
 - Todd likes this school of thought because it is highly intuitive to him... Introspectively, he notices a restructuring of perception when he gains insight or has some sort of eureka moment
 - Necker Cube
 - Fixation is the whole shabang... it's the problem

9.0.3 Insight Problem Solving

- Weisberg = the hero insight psychology needs.. and Alba
- The 9 dot problem is an insight problem. The 9 dot problem is a classic example of how problem formulation affects...