Improvisation: Methods and Models

The assigned sections of Jeff Pressing's paper is primarily a survey and examination of methods used to understand, model and teach improvisation. Although at first glance this may seem like this a straightforward research agenda he points out that before you begin one must first tackle several other related concepts. As an example, most definitions of improvisation require some type of creativity or novel approach to creating new work. Before any meaningful study of improvisation one must first adequately define how a piece can be novel, how this relates to knowledge of a field, and how determine the expertise based on a set instances and how they are related to that knowledge. Pressing argues that to provide reasonable answers to these questions one must draw input from a variety of fields and in the rest of the paper describes his finding from several of these areas.

Knowledge and teaching improvisation are the first major topics covered by Pressing. An abundance of work has been done in prescriptive knowledge analysis about 20th century Western music. However, this type of top down, right or wrong, approach is not very useful in model building because it doesn't tell you why something is the way it is. A different approach that he is more enthusiastic about is viewing improvisation as a manifestation of deeper cognitive intuitions. In addition to the different views is describing the essence of improvisation, he also presents five different methods that have been used throughout history to teach improvisation. Until recently however he notes that little work had been done to empirically study how to teach improvisation most effectively and it has been shown that using aural and visual feedback can enhance the learning over traditional “scales” only teaching. Although not directly related to knowledge or teaching there is also a brief section relating traditions of story telling that serve as an example of how improvisation can also be seen as an alternative method for interpreting old texts.

The other major topic covered was on intuition and creativity. He starts with an overview of how these concepts have been viewed over time and then discusses their relation to Artificial Intelligence. In historical terms intuition is a much older concept than creativity. Early modern thought dating back to philosophers like Spinoza believe that intuition was a process of briefly tapping into the world of true knowledge. A second definition was, “the immediate apprehension of certain basic truths”, but this seems only a slight modification of the first. A third more contemporary definition was given that it is a rapid inference that produces a hypothesis, which finally gets rid of truths. In modern times creativity has become the study de jour. Most work stems from the work of Guilford in which he proposes a taxonomy of intelligence areas and six aptitudes for creative thinking, although the taxonomy is intuitive it has not been empirically verified.

AI represents an interesting way of viewing and modeling improvisation. A strong component of most AI work is devising heuristic search techniques and clever knowledge representation to search a problem space. Although there is generally no mention of improvisation in AI, improvisation could be thought of as a problem space to be searched. Two problems Pressing suggests are that the problem may be difficult to specify in a usable form and the goal of improvisation may not be to attain a particular goal but to simply explore a space. This second problem however does not seem entirely valid since there is no mandate that an AI system actually find the goal, have only one goal or even look for a goal. However, formulating the problem in usable form is quite a challenge particularly in the representation of the knowledge. Many ideas have surfaced from the Knowledge Representation community such as indexing, hierarchies and semantic nets. Having multiple representations of the data is another idea that has gained wide support and is nearly unanimously accepted as necessary, because some types of reasoning and search are better suited to one than another.