This section of the paper is, ostensibly, a history of improvisation across various fields. In reality it is the first part of a theory of everything; Pressing clearly came out with both guns blazing, attempting to give the definitive word on what improvisation actually is and how it works. Certainly the first part of the paper paints impressive credentials: I would not have believed that so much study on improvisation existed in all the world, let alone that one person could have read all of it. Yet Pressing appears to have done so.

In addition to whatever else he may have done, Pressing seems to have written a paper that is practically un-summarizeable. Certainly the first part cannot be reduced to anything shorter than its actual length without losing a lot of information, as it is principally a list of authors and their prior work. We learn that musical improvisation has been studied for a long time with respect to music from all over the world. We also learn that in the 20th century, teaching texts on improvisation have almost exclusively been drawn from the domain of Jazz, and that improvisation has been considered a vehicle for “consciousness expansion.” This is the first sign that Pressing has gone awry, but I’ll get to that later.

The first non-historical nugget is the discussion on the nature of improvisation. Pressing gives a number of formulations: the first is the view of improvisation as composition. The second is the view of improvisation as its own discipline subject to its own rules and pedagogy. The third is the view of improvisation as a voyage of discovery, whose exemplars were not models for imitation, but rather points of departure “designed to provoke original responses.” The fourth formulation is less a definition of what improvisation is than how one gains the knowledge to do it: a teacher presents the student with multiple views of important musical entities, and the student learns how they fit together. Another way of approaching this idea is to have the student learn to perform a number of core pieces, from which he can extract common elements. This reminds me of a writing exercise, in which an aspiring writer copies, by hand, portions of text from some model writer. The idea is that by reproducing the process slowly and with great attention, the style and structural elements of the source piece will be internalized more profoundly than is possible from less focused efforts. (This is how Benjamin Franklin claims he acquired his style.) The fifth formulation has something to do with self-actualization and creativity. I’m not sure exactly. I’m not sure Pressing is sure, exactly. This is the problem with this sort of analysis, and it will get worse before it gets better.

There is more on the technique of teaching improvisation in jazz, which I will skip, and then an interesting section on oral tradition – particularly, epic poetry – as improvisation. Pressing briefly discusses Perry and Lord’s famous study of Yugoslavian folklore, which was, at the time, the closest extant thing to the epic poetry of classical times. The principal technique in improvising epic poetry is, essentially, a grab bag of standard techniques – a poetic toolbox, in other words. When a poet reciting Homer delivered a line about Athena, some standard epithet was selected from a catalog of standard options,
subject to constraints on meter. Pressing comes back to the idea of “improvisation as musical toolbox” later.

Next the author discusses intuition and creativity. He struggles for a while to define what, exactly, intuition is, without ever coming up with anything very satisfying. Then he moves on to creativity. He has less trouble here – he postulates (citing someone else) six aptitudes for creative thinking: fluency, flexibility, originality, elaboration, and sensitivity problems. What these terms mean, exactly, Pressing doesn’t specify.

This is a good time to talk about the chief problem with this paper, which is even more evident in part 2: it’s just too damn general. Pressing can be forgiven this to some extent – it was written in the mid 80s, and a lot of the questions he really wanted answered just weren’t answerable then. They’re still not completely so, but we at least have the terminology to talk about these things, and the hardware to measure them concretely, at least sometimes. We can talk about intuition as a certain neural patterning in the prefrontal cortex, for example, that proceeds consciousness. Actually I just made that up, but I have run across some of these issues before in neuroscience and psychological contexts. Careers have been made on the topic of creativity, certainly – Mihaly Csikzentmihalyi is the most famous example – and the field of artificial intelligence has attacked it thoroughly and deeply, not always with fantastic results, but certainly with concrete models, like cognitive architectures like ACT-R and SOAR. So Pressing can be forgiven to some extent, but to some extent I find his “model” far too general and hand-wavy.

Pressing devotes a reasonable amount of space to the intersection of improvisation and AI. He claims that AI doesn’t even consider improvisation; I don’t know whether or not that was true then – I suppose it must be true, since Pressing has shown himself to be nothing if not thorough in his literature review. Still, this statement is rather tautological – for AI, or any computational approach, to address improvisation, it must be defined far more rigorously than Pressing has defined it in this paper. The most straightforward way to consider improv brings us back to one of his initial classification schemes: improvisation is just temporally-constrained composition. He mentions this in a roundabout way when he talks about the trouble AI would have, due to its unbounded search space and backtracking. It’s true that one can imagine these sorts of systems failing miserably: they need to produce some music, but instead they crank away for ten minutes trying to discover which is the best note to come next. It’s also true that AI has come a long way since everything was formulated in terms of search. In particular, a Brooks-esque reactive system would seem quite suited to the activities underlying improvisation Pressing describes in a later section of the paper.

In the last section of this first part of the paper, Pressing discusses the improvisational aspects of spontaneous speech. He mentions the pauses and the “uhs” and “ums” that pepper situated language, posits that these might be related to cognitive processing limits (so that these utterances are placeholders while the cognitive hardware catches up) and wonders if limits of this sort could apply to structural complexity in musical improvisation. This is a good insight, and is one of the class of things that time and
science have addressed—there are clear and measurable limits to the structural complexity that can be contained in working memory, and these limits produce tangible effects.

I get the impression that Pressing intended this paper as his magnum opus, or at least the foundation for it. The scope he attempts to address is vast, and countless times I found myself thinking that some issue he raised has been somebody’s lifetime’s work. There’s nothing wrong with academic or scientific ambition, but the effect, now, when so many of the things he discusses are large and thriving subfields of computer science, psychology, and neuroscience, the overall effect is to overwhelm the reader with details that do not, in the end, say very much. In the next section he will propose what he calls a “model” for improvisation, but nobody, I think, would use that term today for something so grandiose and underspecified. Still, the paper is a good resource as a list of prior work, and a thoughtful and studied exploration of the nature of improvisation.