



"...in any science, the 'noise' might prove to be not merely something to get rid of, but the essential phenomenon of interest."

—E.T. Jaynes

PROGRAMMING BY POKING: WHY MIT STOPPED TEACHING SICP

by [Yarden Katz](#) | [April 4, 2016](#) | [Leave a comment](#)

In [this talk](#) at the NYC Lisp meetup, Gerry Sussman was asked why MIT stopped teaching the legendary 6.001 course, which was based on Sussman and Abelson's classic text [The Structure and Interpretation of Computer Programs](#) (SICP). Sussman's answer was that: (1) he and Hal Abelson got tired of teaching it (having done it since the 1980s). So in 1997, they walked into the department head's office and said: "We quit. Figure out what to do." And more importantly, (2) that they felt that the SICP curriculum no longer prepared engineers for what engineering is like today. Sussman said that in the 80s and 90s, engineers built complex systems by combining simple and well-understood parts. The goal of SICP was to provide the abstraction language for reasoning about such systems.

Today, this is no longer the case. Sussman pointed out that engineers now routinely write code for complicated hardware that they don't fully understand (and often can't understand because of trade secrecy.) The same is true at the software level, since programming environments consist of gigantic libraries with enormous functionality. According to Sussman, his students spend most of their time reading manuals for these libraries to figure out how to stitch them together to get a job done. He said that programming today is "More like science. You grab this piece of library and you poke at it. You write programs that poke it and see what it does. And you say, 'Can I tweak it to do the thing I want?'". The "analysis-by-synthesis" view of SICP — where you build a larger system out of smaller, simple parts — became irrelevant. Nowadays, we do programming by poking.

As to why they chose Python as an alternative, Sussman joked that it was "late binding" decision. Python has a ton of libraries that make it applicable to many types of projects that instructors might want to assign (like writing software to control a robot.)

Sussman admitted that the SICP curriculum was "more coherent" than what they have now and that they still don't know what the right



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curriculum should be.

The **full text** of SICP is available online. The SICP **video lectures** by Sussman and Abelson from 1986 (given to HP) are also available.

—

Yarden Katz is a fellow in the Dept. of Systems Biology at Harvard Medical School.



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