

Cliff Jones, *Abstractions of machines*

Few software developers need to understand what goes on inside a computer; instead, they take its instruction set as an abstract description of its behaviour. Even such descriptions are non-trivial and an early example of using a formalism to describe machines is Iverson's APL description of the IBM/360 architecture. (In passing, I'll relate a sad story about describing IBM's "FS" architecture.) Most programmers today program in "higher-level" programming languages and it is informative to view these as creating abstraction layers above the raw machine. The obvious abstractions are of data but one can see the same process going on for control flow and especially for concurrency.