Some Thoughts on the Occasion of Ken Iverson’s Centenary

Leslie Goldsmith
17 December 2020
\begin{align*}
  &i \leftarrow \mu(A) \\
  &j \leftarrow v(B) \\
  &k \leftarrow v(A) \\
  &C_{j^i} \leftarrow 0 \\
  &C_{j^i} \leftarrow C_{j^i} + A_{k^i} \times B_{j^k} \\
  &k \leftarrow k - 1 \\
  &k : 0 \\
  &j \leftarrow j - 1 \\
  &j : 0 \\
  &i \leftarrow i - 1 \\
  &i : 0
\end{align*}
If it is to be effective as a tool of thought, a notation must allow convenient expression not only of notions arising directly from a problem, but also of those arising in subsequent analysis, generalization, and specialization.

The utility of a language as a tool of thought increases with the range of topics it can treat, but decreases with the amount of vocabulary and the complexity of grammatical rules which the user must keep in mind. Economy of notation is therefore important.

—Ken Iverson, 1979 Turing Award Lecture
Minimalism

The careful choice of elementary concepts upon which functional requirements not even imagined can later be supported in an innate manner
• Interpreted vs. compiled languages
• Homogeneous vs. heterogeneous solutions
• Insatiable appetite for data and computation
The most amazing achievement of the computer software industry is its continuing cancellation of the steady and staggering gains made by the computer hardware industry.

—Henry Petroski
A computer is a stupid machine with the ability to do incredibly smart things, while computer programmers are smart people with the ability to do incredibly stupid things. They are, in short, a dangerously perfect match.

—Bill Bryson