Hoare: Turing Lecture

Daniel Jackson
why this is a great paper

style
› simple, clear, direct, entertaining

big ideas, still resonant
› cost of complexity
› impact of bad specs on design
› simplicity and the MVP

controversial ideas
› static typing
› default type conversions
› small language cores

relevant to JavaScript, Ruby, Java!
on the role of language

Due credit must be paid to the genius of the designers of ALGOL 60 who included recursion in their language and enabled me to describe my invention so elegantly to the world. I have regarded it as the highest goal of programming language design to enable good ideas to be elegantly expressed.
To observe these four principles, I selected a rather small subset of ALGOL 60. As the design and implementation progressed, I gradually discovered methods of relaxing the restrictions without compromising any of the principles. So in the end we were able to implement nearly the full power of the whole language, including even recursion, although several features were removed and others were restricted.
A lack of clarity in specification is one of the surest signs of a deficiency in the program it describes, and the two faults must be removed simultaneously before the project is embarked upon.
on the price of simplicity

Almost anything in software can be implemented, sold, and even used given enough determination. There is nothing a mere scientist can say that will stand against the flood of a hundred million dollars. But there is one quality that cannot be purchased in this way--and that is reliability. The price of reliability is the pursuit of the utmost simplicity. It is a price which the very rich find most hard to pay.
on complexity

I gave desperate warnings against the obscurity, the complexity, and overambition of the new design, but my warnings went unheeded. I conclude that there are two ways of constructing a software design: One way is to make it so simple that there are obviously no deficiencies and the other way is to make it so complicated that there are no obvious deficiencies.