

The small letter *a* is 01100001. These strings of numbers are reorganized into machine language that in turn is managed by computer code written in any of a number of languages, from Basic to C++ to Java.

If that seems complex, then simply remember this: To a computer, everything is a number, from a letter on a screen to a bit of music. Everything is reduced to zeros and ones. In order to manage computers, completely artificial languages have been created. The purpose of those languages is getting the computer to use the data it has been given.

But the computer can only manage things that can be expressed in binary code. It can play music, but it cannot write it (not well at least), or explain its beauty. It can store poetry but cannot explain its meaning. It can allow you to search every book imaginable, yet it cannot distinguish between good and bad grammar, at least not well. It is superb at what it can do, but it excludes a great deal of what the human mind is capable of doing. It is a tool.

It is a powerful and seductive tool. Yet it operates using a logic that lacks other, more complex, elements of reason. The computer focuses ruthlessly on things that can be represented in numbers. By doing so, it also seduces people into thinking that other aspects of knowledge are either unreal or unimportant. The computer treats reason as an instrument for achieving things, not for contemplating things. It narrows dramatically what we mean and intend by reason. But within that narrow realm, the computer can do extraordinary things.

Anyone who has learned a programming language understands its logical rigor, and its artificiality. It doesn't in the least resemble natural language. In fact, it is the antithesis of natural language. The latter is filled with subtlety, nuance, and complex meaning determined by context and inference. The logical tool must exclude all of these things, as the binary logic of computing is incapable of dealing with them.

American culture preceded American computing. The philosophical concept of pragmatism was built around statements such as this by Charles Peirce, a founder of pragmatism: "In order to ascertain the meaning of an intellectual conception one should consider what practical consequences might conceivably result by necessity from the truth of that conception; and the sum of these consequences will constitute the entire meaning of the con-

ception." In other words, the significance of an idea is in its practical consequences. An idea without practical consequences, it follows, lacks meaning. The entire notion of contemplative reason as an end in itself is excluded.

American pragmatism was an attack on European metaphysics on the grounds of impracticality. American culture was obsessed with the practical and contemptuous of the metaphysical. The computer and computer language are the perfect manifestations of the pragmatic notion of reason. Every line of code must have a practical consequence. Functionality is the only standard. That a line of code could be appreciated not for its use but for its intrinsic beauty is inconceivable.

The idea of pragmatism, as it has evolved into languages like C++, is a radical simplification and contraction of the sphere of reason. Reason now deals only with some things, all of which are measured by their practical consequences. Everything that lacks practical consequence is excluded from the sphere of reason and sent to another, inferior sphere. In other words, American culture does not deal easily with the true and beautiful. It values getting things done and not worrying too much about why whatever thing you are doing is important.

This gives American culture its central truth and its enormous drive. The charge against American culture is that it has elevated the practical beyond all other forms of truth. The charge is valid, but it also fails to appreciate the power of that reduction. It is in the practical that history is made.

If we look for the essence of American culture, it is not only in pragmatism as a philosophy but also in the computer as the embodiment of pragmatism. Nothing exemplifies American culture more than the computer, and nothing has transformed the world faster and more thoroughly than its advent. The computer, far more than the car or Coca-Cola, represents the unique manifestation of the American concept of reason and reality.

Computing culture is also, by definition, barbaric. The essence of barbarism is the reduction of culture to a simple, driving force that will tolerate no diversion or competition. The way the computer is designed, the manner in which it is programmed, and the way it has evolved represent a powerful, reductionist force. It constitutes not reason contemplating its complexity, but reason reducing itself to its simplest expression and justifying itself through practical achievement.