Logic Dilemma

As Computer Scientists, we may want to know: What is computation? Here are several possibly disturbing ideas about computing:

1. Formal logic defines the control structure of programs and the silicon/physical basis of computation.

2. Logic is underneath most of our culture's conceptual structures (at least in academia).

3. Logic is the simplest and most useful formal system, with the hardest computational problem (is `P=NP?`).

4. Logic has been in our language since the beginning of language.

AND

5. People do not use logic well, and have a long history of not understanding it.

6. Logic is inconsistent when self-reference is incorporated into the domain model. No program can refer to itself safely.

7. In computation, we convert the basic concept of integers into logical structures.

8. Deduction, and computation in general, consists of following meaningless tables and rules while transforming a string of characters from one form to another.

9. Natural deduction is too difficult to use for most logic problems. Machine-based resolution is too difficult to understand.

10. The if-then construct of logic is based on a confusing table mapping: if the antecedent is false, then any consequent is true.

IN FACT, computation as logic seems to be antagonistic to all the grounds of philosophy:

- *aesthetics*: Yuk, computation is difficult and confusing and meaningless

- *ethics*: Everything we program is simply timed logic, so a program's impact on culture is solely in terms of manipulating very limited digital logic forms.

- *epistemology*: How can we know anything when our basic tool is hard to understand and inconsistent?

- *metaphysics*: What is reality in an information society, where the virtual is defined by computation?

- *logic*: Ah! Logic itself is one of the five fundamental areas of *philosophy*.

Form into study groups of three members, to answer these questions:

1. Is there a problem in the above ideas?
2. If so, what is it and what can we do about it?