To answer the question posed in the title of this paper immediately: no, not right now. A better question to ask would be, "Barring technological limitations, does the definition of a computer allow the theoretical existence of an intelligent computer?" In order to argue an answer to this question, it is necessary to precisely define the concepts of a 'computer' and of 'intelligence.' Consider the following: a computer is any device that takes input and actively manipulates it to provide output, such that if every input to the computational process were the same on two different instances of that process, it would provide the same output both times. Intelligence is more difficult to define, but its basic properties are summed up in the word 'insight.' An intelligent entity must be able to make inferences regarding the underlying causes of the effects it observes in experience. Furthermore, it must be able to apply this knowledge to future situations by predicting the results – within itself as well as its environment – of a given action on the part of itself or its environment.

In the aforementioned definition of a computer, the word 'input' itself requires some clarification. Any data that a computational process uses is considered input, not just environmental factors or user input, but also stored data of any kind. Output, likewise, is any response, in any form, to an input, whether it be displayed data, information to be held in memory, a physical action, or an emitted signal. These definitions, then, classify so-called "learning computers" as computers, even though different outputs could be achieved at two different occasions from the same program given the same user and environmental variables. This fact is due to the data stored within the computer itself that affects the outcome of its functions; since these are still considered input, the definition still holds.

Additionally, the word 'actively' holds critical importance in the definition of a computer above. In a certain sense, a brick thrown out of a building takes input – gravity, air resistance, and

an absence of a supporting force – and provides an output based on it – downward acceleration. This, however, is a passive response: there is nothing that could change about the brick itself that would result in a different response to the same situation, or set of inputs. Tying a string to the brick changes the inputs by introducing a supporting force and does not change the brick. Reshaping the brick so that it had a wide, flat bottom would indeed be changing the brick, but it also changes the inputs: air resistance is now stronger. A calculator, on the other hand, is an example of an actively responding computer. Changing its interpretation of a '+' keystroke, for example, could provide an output of '16' to the inputs of '4 + 4 =', which would normally result in an output of '8'. This change occurs entirely within the calculator and does not affect the provided inputs.

Human intelligence is the most popular sort of intelligence around. Quite conveniently for us, we humans get to decide what intelligence is, and could change our definitions if we found somebody (or something) that we didn't like going around immodestly exhibiting behaviors we had previously identified with intelligence. There are many humans who are willing to share the crown of intelligence with some animals, such as chimpanzees, dolphins, and dogs, but many reject the possibility of computer intelligence. However, the humility to share our reign is necessary. If a human were confronted with an entity – machine, animal, or anything else – that appeared, after rigorous testing, to be intelligent, it would be as arrogant to maintain that this entity were not truly intelligent as it would for a modern person to insist the same of black or left-handed people. Being a machine or animal is as superficial a characteristic as the color of a person's skin in regard to an evaluation of intelligence. How rigorous and of what nature this "rigorous testing" must be is a question of application, not of possibility. It may be very difficult to determine if a given entity is intelligent, but the question addressed in this paper is simply whether an intelligent computer is theoretically possible.

Most humans agree that humans are intelligent; many people hold that consciousness is the unique property of human intelligence. Their definition of consciousness is often that we know we can think, or that we can theorize about our own thought processes. Theorization can only follow from analysis. Humans' only means of analyzing our thought processes is by observing how we react to certain conditions, even if the response or conditions are completely internal. Consciousness, then, means we reason through our experiences to theorize about the underlying causes of the reactions we see ourselves exhibiting, and can therefore be reduced to the definition of intelligence set down in this paper's introductory paragraph.

The ability to theorize an underlying meaning behind an observation, as in the definition of intelligence above, is based on an understanding of the mechanics of the world in which one lives, which is in turn based on experience. Speculating an underlying meaning is simply the process of throwing out superfluous data from an observation. The ability to compare and contrast properties of different situations is all that is necessary to identify the meaningful elements of each for purposes of speculation, and this is just data analysis. Furthermore, applying decision-making based on one's predictions is an ability already observed at a low level of sophistication by current learning computers. Essentially, computers today appear to be able to think under very particular conditions, but *intelligence* demands that thought be extended to all conditions.

The unpredictability of human thought, often attributed to emotions, is often invoked as a difference between the operation of a human brain and a computer. Certain emotions, such as particular instances of fear or disgust, are innate in humans in order to protect inexperienced toddlers from coming to harm. These emotions can be modified through experience, hence rock climbers and circus geeks. However, what more are all other emotions than programmed reactions to direct experience or that provided through socialization? While the ability to love, to want, to be creative, or any number of idiosyncratic traits humans associate with the uniqueness of our

thoughts are too numerous to cover exhaustively in this paper, I would argue that each of them, when examined closely and logically, can be reduced to constituent parts that involve the intake of data and the manipulation of it based on experienceand one's own ideas (themselves products of experience), resulting in an output of further ideas or a more concrete reaction. Humans never do the exact same thing under the same external conditions, because the internal ones can not be the same, by virtue of learning and development of emotions.

"Any sufficiently advanced technology is indistinguishable from magic." So wrote Arthur C. Clarke in 1972. A corollary to this (not attributable to Clarke), is that "any technology, no matter how simple, is indistinguishable from magic to any sufficiently ignorant observer." Humans hold themselves as the standard for intelligence, and clearly current attempts at artificial intelligence are just crude simulations of that intelligence, weak AI. As a result, humans call it "ersatz intelligence," and insist that no matter how complex, free-wheeling, and in-depth this ersatz intelligence can be made, it is still not the real thing. However, when reduced to its constituent properties, human intelligence is achievable, theoretically, by a computer. Thus, human intelligence is really ersatz intelligence, which implies that since we call our own intelligence the "true" intelligence, any sufficiently advanced ersatz intelligence is indistinguishable from, and therefore equivalent to, true intelligence. We are the ignorant observers of our own intelligence, insisting that it is magical.