COG IS TO US AS WE ARE TO GOD: A RESPONSE TO ANNE FOERST

by Mary Gerhart and Allan Melvin Russell

Abstract. Foerst says that a robot must have human features if it is to learn to relate to human beings. She argues that the image of God (*imago dei*) represents no more than a *promise* of God to relate to us. In our view, however, the principle of embodied artificial intelligence (AI) in the robot suggests some kind of *embodiedness* of the image of God in human beings if they are to learn to relate to God.

Foerst's description of how people react to a humanoid robot reads like Otto's description of the divine as *mysterium fascinans et tremendum* (awesome and alluring mystery). Her description makes robot-human interaction seem more religious than human-God interaction.

Keywords: artificial intelligence; creator; humanoid robotics; Image of God; metaphor.

BRIEF RECAPITULATION OF FOERST'S PROJECT

In her essay "Cog, a Humanoid Robot, and the Question of the Image of God," Anne Foerst asserts that the field of artificial intelligence (AI) especially the branch that works with "embodied" AI, can contribute new insights to the ongoing discussion between religion and the natural sciences. Focusing on a project for developing a robot called Cog, she wants to approach questions of interest to both scientists and theologians from a new direction, a detour around the impediments attached to analyses and interpretations of cosmologies, theories of evolution and stories of creation. Her detour is through this newly developing field of artificial intelligence.

Cog is a mechanical humanoid that Foerst says is "under construction." The robot is made with the shapes and functions of a human being. As Foerst puts it, "any entity with humanlike intelligence must have a body that is built in analogy to a human body." She goes on to say that

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"its body, then, can be seen as a tool for learning social skills and entering into relationships" (p. 101).

Cog is related to its makers as a creature, one with which they hope to be able to interact. Foerst says that Cog will be so like human beings that we will be able to use it to "study human development after birth" (p. 103). She says that Cog "is a realization of a very old dream of humankind: the reproduction of a human" (p. 99). (Presumably she means mechanical reproduction—we seem to have no trouble with the biological method.)

One of the strengths of Foerst's analysis is her emphasis on relationality. This paper is about relationships—the relationship between God and the living creatures of God, the relationship between human beings and the machines they create (nonliving creatures), and the relationships between human beings and other living creatures. The author develops an explicitly feminist argument for relationality as a form of intelligence that has been neglected in traditional understandings of intelligence: "Women, because of their daily experience, might choose different abilities: They often value social skills more highly than abstract, disembodied tasks. . . . Chess and theorem proving are here seen as products and not as the core of intelligence" (p. 101). The strength of her feminist critique notwithstanding, a further question needs to be asked: namely, is it Foerst's intention to *replace* intelligence understood as the ability to do abstract reasoning with intelligence understood as the ability and skill of social relationships? It seems to us that replacement of one form by another has its own problems. We would opt to add evidence of the ability to form and sustain relationships to the traditional skills of abstract intellection. Nevertheless, Foerst prompts the reader to ask what we can learn about these relationships from Scripture, from other text sources, from traditions and myths.

We find Foerst's project thought-provoking. Even though the so-called Cartesian assumption is uncritically applied (all critiques and correctives are ignored–either one is unexceptionally a Cartesian or one is not), as a heuristic strategy it may have merit, especially for addressing a particular kind of audience in either science or religion—an audience who seeks relief from the details of philosophical thought. Her introduction of embodied AI to the science-religion dialogue is novel, and although we find her expectations regarding Cog's development far more hopeful than current achievements seem to warrant, still her juxtaposition of embodied AI and the image of God challenges us to make the following comments and to raise further questions.

Comments and Questions

The creator-created relationship between the AI researchers and their robot suggests to Foerst that there may be something to be learned from

theological inferences regarding the God of the Hebrew Testament—who, in the book of Genesis, is the creator of all there is. With respect to God's creation of human beings, she notes that "in humankind God has created beings God can talk to, beings who listen and answer" (p. 106). Now one would expect that the principles required for the resemblance between embodied AI (Cog) and its creators would require similar principles for the resemblance between human beings—beings God can talk to—and their creator, God. We would expect the double analogy (see our title) to involve creatures that had the same structure—a cognitive structural affinity with their creator, if you will.

> God said, "Let us make human beings in our image, after our likeness, . . ."
> (Gen. 1:26, OSB[1])
>
> God created human beings in his own image;
> in the image of God he created them;
> male and female he created them.
>
> (Gen. l:27, OSB)

The words *image* and *likeness* raise two questions. The first question pertains to the possible meanings of the startling resemblance between God and human beings in the first chapter of the Hebrew Scriptures. The second question pertains to the puzzling inequality in Foerst's argument between the necessary likeness of Cog to its creators and the likeness that seems to be absent (in her interpretation) between human beings and their creator. She claims, instead, that the likeness referred to in the biblical passage is not a similarity but a "performative": it attests to the establishment of a relationship—"God's promise to start and maintain a relationship with humans" (p. 105). In this interpretation, moreover, "the efficacy of performatives in the name of God depends on the faithful approval of the listener."

In her description of Cog, Foerst emphasizes Cog's actual similarity to a human being: its creators insist that, in order to learn to behave as a human being, Cog must look like and move as a human being. The analogy—Cog, as creature, is related to human beings as creator just as human beings, as creatures, are related to God as creator—is delightfully suggestive. Shouldn't we understand this analogy to suggest that just as Cog will learn to behave as human, so human beings learn to behave as God? This conclusion would seem to support the concept of human beings being created in the "image of God." But Foerst's interpretation of the image of God excludes the image that corresponds to embodiment and substitutes only a promise of relatedness: her interpretation suppresses any actual similarity. It is disappointing that the image of God—so rich with mystery and implication—is reduced to a promise of a continuing relationship. It seems rather like picking up a puppy at the pound.

Theologically, is not the image of God to be understood not merely as a promise but as a figuration that leads, in the New Testament, to an understanding that what you do to another human being you do to God? Curiously, Foerst insists on the actual embodiment of human characteristics in Cog—it is now at the human infant stage—but restricts the image of God characteristics in human beings to "promised" rather than actual, though partial, embodiment.

Over the centuries theologians have generated multiple solutions to the problem of knowing God. One set of possibilities included analogy (affirming a likeness between God and something known), negation of analogy (denying that God is like anything), and a third way, a negation of the negation of an analogy (claiming that God is more than either analogies or negations). Foerst ignores all traditional wrestling with ways of knowing God and substitutes for God an act of trust on the part of the believer—presumably to avoid a "Cartesian" assumption that she understands as objectifying God. Even if (for the purpose of argument) we grant the success of that substitution, it is not clear that she in fact continues to avoid the "Cartesian" assumption in her later claim that "aside from this affirmation, [God] does not exist, because *God does not want to exist for us otherwise*" (p. 106, italics the authors'). Does not the claim to know the desire of God assume attributes of God? Moreover, if God exists only in the context of human affirmations, what is the meaning of the claim that God is related to all creatures, both animate and inanimate?

Foerst holds that the image of God "is not a definition of humankind." Nevertheless, when she writes that "God has created [human] beings God can talk to, beings who listen and answer" (p. 106), she seems to step out of the frame of performance theory and toward definition: she makes a statement about the world as perceived religiously. If we are to trust the *story* in which God created us in the image of God, must we not also trust some *character* (that which many people call God) of the universe that makes trust possible?

Foerst has the admirable intention of enabling human beings to "see our mechanisms and our dignity at the same time" (p. 108). But the sight of our mechanisms (in Cog) is so much clearer and more persuasive than the sight of our dignity (in God) in her interpretation of *image* only as a promise of a continuing relationship. This interpretation seems not to take seriously the word *image* used in the biblical passage; indeed, her definition, "promise of a continuing relationship," sounds very much like the traditional definition of *covenant*. In other words, performance theory seems to be invoked here to explain how the Scriptures make sense in general rather than to elucidate possible specific meanings of *image* in this text.

The result is a puzzling incommensurability between the treatment of Cog and that of the image of God in the paper. Foerst takes her view from the writings of the AI creators of Cog, but she seems not to consider the writings of Scripture scholars in proposing her interpretations of the Hebrew Testament. For example, the field of meanings from which Cog is drawn is replete with technical descriptions of how Cog works, of what its makers expect it will become in spite of its massive immaturity to date, together with refutations of its critics. By contrast, the field of meanings from which the image of God is drawn is bereft of technical analysis of how the words function in the biblical text, of what it becomes (aside from mention that the term does appear again) in other biblical texts, and of allusions to other interpretations in the extensive literature on the subject. For example, why is the word *image* repeated in Genesis 1:26 and Genesis 1:27, together with the addition of a second word *likeness* in Genesis 1:26? Scholars think that the first word *image* is an archaic term (probably from the Yahwist narrator) meaning "exact replica" or "duplicate." The second word *likeness*, meaning "reflection" (probably added by the priestly narrator), softens the simplistic implications of *image* and despite the fact that it appears before Genesis 1:27, is considered to have been written later.[2]

Foerst's remarks about the reaction of observers of Cog are surprising. Why observers might feel many "strong emotions" of "fear and anxiety" (p. 104) is not clear. Persons who viewed *Star Wars* did not seem to evince such responses to R2D2 and its companion. These doubts lead us to wonder whether Foerst has made a formal study and acquired data that might provide a basis for her observations.

More important, we need to ask where religious experience is located. It appears to us that Foerst locates traditional religious experience in the Cog-human interaction and removes these aspects from the human-God interaction. Foerst's treatment of the human-divine relation is a placid "promise of a continuing relationship" to which the human subject is required only to assent and trust. By contrast, she says that the Cog-human relation evokes fascination and fear in human beings—an exact echo (in translation) of Rudolf Otto's description of human beings' experience of the divine as *mysterium fascinans et tremendum* ("awesome and alluring mystery")! The paradoxical result is that Foerst offers us a bleached theology and a romanticized robotology.

But, again for the sake of argument, let us explore religious experience on the side of Cog (as distinct from the observers of Cog). If Cog is intelligent enough to be a resource for understanding the behavior of human beings, should it not be expected to develop a religious consciousness? But in the paper there is no hint of this evitability. Furthermore, HAL, the computer in Stanley Kubrick's *2001: A Space Odyssey* (the movie based on

the Arthur Clarke novel), reminds us that when we do develop an intelligent robot, it will have the potential for becoming a threat to us if it should come to recognize its own self-interest. Interestingly enough, the Genesis story does take under consideration the likelihood that the self-interest of the created can run counter to the interests of the creator. In the Genesis story when Adam and Eve have eaten of the tree of the knowledge of good and evil but not yet of the tree of immortality, God prepares to "banish them lest they also eat of the tree of life and become like us." This consideration leads us to ask what the limits of the resemblance of Cog and human beings are. Finally, we wonder if there are ethical restrictions on our treatment of Cog. If and when we are finished with it, is it acceptable to "trash" it?

In the invitation to respond to this article, the editor asked us to comment on Foerst's use of metaphor. This assignment is difficult because we find in the article a conflation of symbol, metaphor, and the constructivist approach—a conflation that eliminates the distinction between kinds of intentional acts of meaning. For example, Foerst says the discourse will be shifted by her "symbolic approach," which "understands environments as socially constructed and assumes that every description of reality is metaphorical" (p. 93). In our own theory of metaphor (Gerhart and Russell 1984), for example, we find it useful to distinguish between metaphor and analogy. The making of a metaphor is, for us, an act that is relatively rare. Metaphors are looked for most frequently in poetry and art, but they can be found in science and religion as well (Gerhart and Russell 1993). Following are two of the best known: In the natural sciences the laws of the heavens are the same as the laws of the earth (Isaac Newton); in religion a person's ultimate concern is that person's god (Paul Tillich).

What Foerst calls metaphorical we see as analogical. In analogy, A (unknown) is said to be like B (known). The analogy increases our knowledge of A. In metaphor, A (known) is declared to be the same as B (known). The metaphor creates one or more startlingly new understandings. Paul Ricoeur captures this distinctive feature of metaphor when he contrasts live metaphors and dead metaphors (once alive but now absorbed into the lexicon of everyday meanings). Foerst seems to be aiming for a metaphor when she says that "the immanent symbol understanding of AI . . . brings together two different spheres . . ." (p. 97). Her example—a double comparison of Cog to human beings as human beings are to God—is an analogy, however, and not a metaphor. Nonetheless, the result of the comparison is that we have a better understanding: "We can see our mechanisms and our dignity at the same time" (p. 108).

Arthur Koestler, in his film *Koestler on Creativity* (based on his book *The Act of Creation)*, called creation of anything new a "combinatorial act," claiming that *cogito* came from the Latin *cogitare*—to shake together.

Anne Foerst is "shaking together" several things, combining the insights derived from studies of "intelligence"—especially artificial intelligence—with insights derived from biblical hermeneutics focused on the creation story of Genesis and the concept of the image of God. As well as being *about* creation, her essay is itself a creation.

NOTES

1. Oxford Study Bible.
2. We are indebted to Joseph P. Healey for this information.

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