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# *The Glare from Everywhere*

## A Playlet on Bioethics Aspects of Clinical Decision Support Systems

by Douglas McNair

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*Technology shapes and is shaped by the culture that spawns it. Nowhere is this more vivid than in areas in which technology serves as an adjunct to ordinary human thought, decision making, and expression in health care. Increasingly, "expert-system rule-based" decision-support technology does just that: autonomously mimicking intelligent actions and decisions, according to someone's data and theories that the software has been set up to emulate—thereby influencing clinical choices and changing the landscape of autonomy, justice, and other bioethics matters. Bioethically defensible use of such technology entails new, ongoing, and vigorous engagement of the 'rulers' and the 'ruled.'*

*In presenting these ideas I have chosen a science fiction "play" idiom rather than "essay"—inasmuch as things paradoxically seem to be more true when they are fictional, more realistic when they are just a bit removed from life.*

*Indulge your imagination, then, and envision a time just ten years from today, when the nature of your involvement with others concerning health matters has changed because of expert-system technology. The way in which other people and organizations affect health care decisions that pertain to you has changed as well. As you project yourself into this future, will you passively hope for the best, or will you actively assert your beliefs and values along the lines, possibly, of one of the characters below? Will you maintain, along with the humanistic character in the play, that truth is primarily a matter of language and perception, a linguistic triumph of semiosis over mimesis—or will you side instead with the enthralled technocrat and claim that truth lies in mimicry of what is empirically real, and has nothing to do with dialogue, social process, and rhetorical power?*

### **Introduction**

In the previous century, Ruth Benedict, Robert Blank, Dan Callahan, and others wrote extensively on the impact of new technologies—such as life-support, transplantation, genetic testing and counseling, fetal therapies, and the like—on bioethics. Seldom, though, before the dawn of the new millennium was attention given to bioethics implications of recent developments in clinical information technologies. Possibly, it could not have come earlier than it did. Better late than never!

In those waning decades, artificial intelligence and expert-system software tools began to be used to order automatically or to cancel diagnostic workups at the precise second when doing so was justified, according to someone's Grand Plan. They were used to schedule "optimal" appointments

in managed care clinics, ostensibly to minimize waiting—although over time it became less clear whose waiting was being minimized; to send, via beepers or electronic mail, "alert" messages to providers and consumers about drug interactions and other items meriting attention—although over time it became less clear whose risks and costs were being attended to; to measure the

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consistency and quality of procedures and services performed by health care professionals and administrators—although over time it seemed that those whose work was perennially deemed to be “unmeasurable” were the ones holding positions of authority over the expert-systems measuring technology. The expert-systems software tools were used to issue electronic reports instantaneously to employers and purchasers of care services, on the progress and outcomes of individuals whose health status they were paying for—and over time it seemed as though the value of “waiting-and-seeing” was forgotten, displaced by almighty “acting now.” In other words, these software tools came to be used to automate all manner and kinds of decisions in health care.

As a result, principles whose realization once required contemporaneous, individualized human cognition and belief and intention and action now no longer required them—or now involved them only in a derivative or post facto sense. Thus, while there was practical good that was achieved through the use of these software tools—these automatons—to improve the quality, consistency, and efficiency of health care services, there were also potential adverse effects that included:

- “intrusion” upon the patient-provider relationship (John 1994; McDonald 1976), displacing the power held by each party or in other ways perturbing the processes that had characterized that hallowed relationship, without the prior consent of those parties;
- “medicalization” of circumstances that might not, according to disparate cultural views, involve sickness or injury or deficiency, but which were so construed by the software tools—by virtue of the on-line events that trigger their instantaneous action, or by virtue of the medical nomenclature databases in which the systems’ ascriptions and actions were expressed; and
- “bureaucratization” of decision making and the values that surround it in a formalist’s, universalist’s sense. And, more worrisome, in

a manner that inhibited innovation and reconsideration of earlier conventional wisdom, that disincensed development and maintenance of personal clinical knowledge (insofar as the tools may function as ‘crutch-like’ substitutes for individual skills and understanding), and that exalted singularly and arbitrarily the authors whose principles were memorialized in the logic of those systems (Shortliffe 1987).

The likelihood of “specific” adverse bioethically noteworthy effects must surely seem to us, the immediate descendants of the past millennium, to have been greater back then, in the late twentieth century, when the software’s “historicity”—its culture-bound and perspectival qualities—was overlooked. And surely “general” questions concerning ‘objective’ or legitimate authority, privacy, and the limits of consent, and other bioethics issues must also have been greater then. Sages still alive remember that those general issues were, in fact, “highlighted” by the use of artificial intelligence software tools in biomedicine late in that era—highlighted in ways that helped to shed light on applications of normative judgment, reason, and authority that do not involve software automation. But it might have been otherwise! The Millennial Rapprochement of Individual and State might never have happened. Of course, you, yourself, played a vital role. Which role, however, is our question—and the question of the Court.

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### Scene One

*You, Who Illumines & Gazes Upon (Glares At) Others*

**Advocate:** May the Court recall for you an Internet dialogue in which you participated ten years ago, late in the 1990s—a dialogue that is already in-progress at the point where we join it below. You were at that time an academic obstetrics outcomes researcher, isn’t that so? And, on account of the financial and political impact of the work that you did, you preferred to cloak your real identity for safety reasons. What the Court wishes to know is whether you are the person

identified to others by the Internet name@address **Sophocles-Ethoid@Thirg.edu**, or the one known as **George-Eliot-Ethoid@Carthogia.com**.

As we replay this dialogue, let us refresh your memory. Hadn't you just finished explaining your new prenatal care package—consisting of 3,128 expert-system rules, based on a double-blind randomized clinical trial study of 920 mothers—to your colleague? Although you had “known” each other via communications like this for several years, you have never met each other face to face.

In this replay, the colleague with whom you are in online discussion has listened to your justifications for the expert-system rules database you and your research team have created, and is concerned about the “objective” methods by which you arrived at your conclusions—isn't that correct? And concerned about the social implications of giving priority to aggregated data and to groups that oversee its collection and use—over the individual judgments of the provider or the consumer. What do you have to say for yourself? What evidence can you present the Court, to show which of these identities is you?

[You watch the replay on the computer monitor above the judge. There are several windows displayed on the screen, but only ones containing text scrolling by. Why no images? Perhaps this was before the Global Archive was built, with its vast amounts of space enabling the Web Government to keep a trace of all of the datatypes exchanged—including the bulkier ones, like images and video and acoustic waverforms.

Oh, yes: you remember this moment; remember it as though it were yesterday, despite the fact that ten years have elapsed and despite the fact that there are no video windows on the monitor. You remember how the video camera above your computer monitor faithfully digitized your thoughtful visage and shipped it to your colleague over the network. As you view the corresponding rendering of your colleague's cheerful countenance in the video window on your monitor, it occurs to you that it appears to be remorphed, so

as to appear somehow nicely age-wisened. You remember how you dispatched your acknowledgment to the server and momentarily wondered how it is that you recognize your colleague—wondered whether a cosmetically adjusted appearance mattered in your estimation of a person and the sense you make of your communication. Oh, yes: it is not difficult for you to remember which was your character in this dialogue! Your biggest worry is what you will tell the Court when the replay is finished.]

**George-Eliot-Ethoid@Carthogia.com:**

Though I don't share your fascination with statistics and empirically-defended if's and then's, Sophocles, I'd be very glad if you'd refrain from disparaging my own fascinations! We Carthogians value life every bit as much as you do—we're logically consistent according to our own traditions. Ours is no sloppy relativists' tolerance! We nonobjectivists are exactly like anybody else, including you objectivists. I mean, although our explanations and persuasive strategies do vary according to our conditions, they don't necessarily signify different motivations. One doesn't have to find someone else's desires and preferences objectively false in order to find them undesirable!

There's something that concerns me about your brand of science. As I see it, the situation is this: when a social paradigm—either yours or mine—gets deeply entrenched, it not only informs most human practices but also patterns human organizations and the structures of society—even the ways that nature and culture are accessed and experienced. What concerns me is that I seem to take this as a starting axiom, while, for you, not only is it not axiomatic, no amount of evidence is able to move you to admit the value others have achieved—even the values that match your ideal, unless their means and methods coincide with yours!

**Sophocles-Ethoid@Thirg.edu:**

Yes, yes. Go ahead and quibble over what the bearing of my statistics is, as regards reality. But how can you oppose the simple if-then principles in this new obstetrics guidelines database, when

they could save lives and prevent much needless suffering—as well as save society more than \$500 million each year arising from prematurity and birth defects? I should think even a relativist like you would concede that this prenatal rules database represents a unity of current expertise!

**George-Eliot-Ethoid@Carthogia.com:**

That's just it! You say 'unity' when all there is is your own group of cronies—self-appointed and anonymous ones at that, and ones that hardly grasp what it is they say and do that give offense! For example, those of your expert-system rules that pertain to birth defects: you might well recognize that here in Carthogia it is sacrilege to speak of birth 'defects'. These are conditions that, tragic though they may be, help us to refine our society's traditions of caring and coping.

How arrogant for you to set the utilitarianism of your rules database above the values that we hold dear—or to not notice that that is what you are inadvertently doing when you make us subject to the operation of your software systems without our knowledge or consent! How can I help you to know? All of reality is patterned according to one's paradigms. Mine or yours, it makes no difference! When the pattern is firmly established, it also becomes invisible—as it seems to me it has become for you.

Please understand that I do empathize with your fine motives, and I even admire your science. But our relation to technology is neither one of domination by technology, nor one of conscious manipulation of technology. I believe one might well think of it as though each person is 'implicated' in technology—this expert-system software technology no less than any other kind—and in the various cultural artifacts that she uses. I am implicated, even though my involvement and pattern remain implicit!

**Sophocles-Ethoid@Thirg.edu:**

Ahh. How all your passionate talk of multicultural views and policies depresses me! And our resources are stretched so thin these days! I'm feeling old, and, in this chapter of my life, reminiscing is much my preference. Much better than

dreaming! I happily recall the notion of objectivity that prevailed in the Seventeenth Century. Now *there* one could speak of facts—of demonstrable, universal truths! Do you remember, George, how the familiar sense of the word 'fact' emerged, as 'a datum of experience, to be distinguished from the conclusions that may be based on it'? It entered the English language at the time of Bacon, did it not? The word originally came from the Latin *facere* 'to do'—and the Oxford English Dictionary still maintains, in the century before Bacon, the word still meant an act or deed, especially a crime, as in the legal phrase 'after the fact'—post facto!

**George-Eliot-Ethoid@Carthogia.com:**

Yes, and Bacon himself said that experimentation, which seeks to validate each premise and each conclusion, was "putting nature on the rack," a lawyerly analogy, I suppose. In his time, torture was the preferred means of investigating crimes like theft, adultery, heresy—things that involved the keeping of secrets. But, if I'm not mistaken, what Bacon's Fact seemed to promise was not consensus, nor freedom from all personal or cultural bias, but freedom just from theoretical or interpretive bias! And even this limited claim had its immediate adversaries.

'Neutral' facts were no more plausible in the seventeenth century than in the twenty-first! Even if one accepted Bacon's optimistic belief that we're capable of separating theory from facts by strictly adhering to 'scientific' method, one would have other good reasons for not submitting to the verdict of dogged observation and experiment! So long as common experience and a shared taste for universals were the basis of science and biomedicine, no social problems of inter-subjective strife ever arose.

Oh, occasionally an active imagination distorted experience by combining right premises and wrong conclusions together, but this was usually only annoying at first. It was not until the health economics consequences of specific combinations became greater than, would we say, about fifteen percent of the gross domestic prod-

uct of nations that 'strange' facts and 'contrived' experiments really collided with common experience, and the "shared" taste ceased to be shared.

## Scene Two

*You, One Who is Transfixed in the Glare*

**George-Eliot-Ethoid@Carthogia.com:**

The idea I would like to offer to you is that how peaceably one is able to coexist with a technology like expert-systems software in health care depends on the degree to which its worldview — the perspective that underlies the technology, how its databases are set up, and how it operates — coincides with or diverges from one's own. It also depends on whether those who are responsible for the software tools exhibit oneness instead of pure service to others. Eventually, we all find that the shoe is on the other foot, don't we! Suddenly you, the great expert-system if-then rules database author, are subjected to somebody else's rule! Autonomy isn't worth much if the opportunity and the means to make your autonomy felt have been taken away!

**Sophocles-Ethoid@Thirg.edu:**

I believe I should respond here before we go much further. Maybe you've misunderstood me all this time! Maybe you're thinking that my own aspirations have not changed over the years. And where would I be without you as my catalyst? How my conceptions of what I am aiming at have changed under the pressures you have brought to bear!

The academic health care institutions that were once revered as sources of public truth now compete in the marketplace! You recall how advocates once commended these expert-systems by drawing attention to the scientific basis upon which the logic and actions of the software systems supposedly were founded? Of course, for me, no knowledge merits the label 'scientific' unless it achieves extensive intersubjective agreement—unless it is 'objective' or 'factual'. But many things appear to meet this condition without being truly scientific; courtroom decisions, for example, are routinely established by intersubjective consensus. We move closer to 'sci-

ence' when we provide truths that enable us to predict. After all, what cannot be falsified or disproven is not 'science' as the term is commonly understood, but is instead axiomatic or theoretical.

We come closer still to science when we reach truths that facilitate control! We are mapping causes and effects! We start with terra incognita and get progressively better—*better*, not 'perfect' or 'complete'! You see, I believe I am lately providing more room for agreement between us—consensus, if you like, but, for me, still absolute in the limit. And I'm providing for face-saving and healthy resolution of disagreement, too! This isn't enough for you?

**George-Eliot-Ethoid@Carthogia.com:**

But surely you see that many of the decisions that humankind considers important escape explicit recognition — they don't show on our maps! Things we fail to notice, even when reality is represented in photographic detail. Why? Because we're looking for something else! The standardized medical nomenclatures that your systems use hide as much as they reveal!

In his *Guide for the Perplexed*, E.F. Schumacher told of his being lost while sight-seeing in Leningrad. He was consulting his pocket map when a friendly local approached him and offered to help. The Russian pointed on the map to where they were standing, and Schumacher expressed his confusion. "But these big churches around us: they aren't on the map!" The helper replied, "We don't show churches on our maps." "But that's not so," objected Schumacher. "That church over there—it's on the map!" The Russian replied, "Oh, that one. That is now a museum!" By the way, what is Leningrad called these days? I presume it's still on the map.

In other words, case-by-case variations and the time-dependencies of meanings tend to get under-represented by these decision-support software tools — not because the tools are insufficiently expressive, but because people were biased, or lazy or tired of trying to understand, or too proud to bother to properly model what they

didn't know for certain. The expectations embodied by the tools' logic and distilled knowledge were echoed in their operation. And, by contrast, the possibilities that, per the logic we imperfect humans created, were *a priori* forbidden by the if-then rules we wrote—these possibilities were dashed on the terrible rocks of the rule authors' incredulity: they never had a chance!

Most evident or persuasive to those whose good we mean to enhance! Our well-intended proposals are greeted with resentment and fear—or branded as radical, dangerous, overly-simplistic, unnecessary, counterproductive, or irrelevant—all on a timescale that is short compared with the length of an average human life. And getting even shorter, given the tempo and rhythm of these artificial intelligence tools! How odd!

**George-Eliot-Ethoid@Carthogia.com:**

I do hope that someday other of your objectivist brothers and sisters will understand the differences of our views not as a reflection of "your" objective epistemic empowerment and "our" subjective disability. I'd rather that we understand them as a product of our different personal histories and present positions in society. Let's understand them as reflections of our different postures or attitudes, aspects of our character and outlook that tend not to budge, or that move like glaciers by melting or cleavage. This means that we would recognize that what "you" regard as a desirable prenatal protocol, say, may not only "seem" but, in fact, "be" undesirable to others.

How likely is it that other people will change their minds when you argue the objective correctness of your own views and the objective falseness of others' preferences and desires? Isn't it more effective for you to show us the relevance of objectivists' analyses to our experiences in a friendly way, or to suggest the desirability of the proposed changes and rules in relation to our interests and projects? Isn't it more effective for you to inform those who may be subject to the automated policies in your expert-systems and obtain their consent in advance? You see, I mean to help you to discover new paths for yourself!

At times, we nonobjectivists rail against you. But we do change your felt experiences and desires; you become a different person than you would have been without this contact!

Another observation on your expert-systems: many cultures do seem in this period of time to have behaved as though ideas were possessions, don't you think? This wasn't just about expert-systems in health care as a special kind of intellectual property: wasn't this due to the general commoditization of everything in society? How I remember the bitter contests over rule- and protocol-royalties and the allocation of liability and property rights (Cole 1990; Hayden 1993; Sayadian 1993).

I feel, though, as if it could not have been helped—as though the ideas and principles that were incarnated in these software systems really did remain vital. It was just that their adherents changed daily and in a way that, up until then, would have been thought peculiar. What I miss most is being able to know my friends and adversaries at close range, by touch!

### Epilogue

**Sophocles-Ethoid@Thirg.edu:**

On that we both agree! And, I hope, on other things, too. For example, that innovations in biomedicine have always been notorious for precipitating policy issues that have moral implications—that proliferating technologies, including ones like artificial intelligence software decision-support systems, each have the potential to alter human values and social priorities. They may reinforce some values and threaten or neglect other values.

This much we both hold to be true, in light of the ideas above—ideas that would seem to place ethics on a higher plane than the one on which the decision-support software systems operate.

But isn't this hierarchy itself an illusion? Couldn't it be that the phenomenon of bioethics and the phenomenon of health care information technologies are two of a kind—both striving for good, for justice, for respect for persons and

groups; both emblematic of our Age? As for the ethics-related aspects of automated information systems, I am reminded of the notion of TEYKU problems (Engelhardt 1986). TEYKU problems are, as you recall, ones that are insoluble in an absolute sense—arguments on various sides balance each other or cancel each other out.

We are impressed that—either due to the indeterminacy of matters of fact, or due to pluralism regarding the clinical and moral principles—many of the quandaries of contemporary health care in which information technology has come to be involved do not admit of “reasoned” resolution.

May one sacrifice one unwilling person in order to save others, or in order to preserve a viable managed-care plan, or to make good on a commitment to some other individual, or to accomplish some other purpose? We are inclined to agree: medicine, much as life in general, is to a degree both inescapably tragic and culture-bound—irrespective of our reliance upon technology. Bye for now! :-}

**George-Eliot-Ethoid@Carthogia.com:**

I like that thought! In fact, I like it so much I will offer you one in return: a mutilation of Thomas Nagel’s phrase, “The View from Nowhere”—the godlike impartiality of knowledge—into “The Glare from Everywhere,” symbolic of the dual, situated role of ‘subject’ and ‘object’ that each of us plays.

So, yes, let’s consider our many interpretations of ‘good.’ Let’s consider the limits of reason and authority—of the traditional personal kind, and of the varieties that are automated and mediated by expert-system software. Let’s live with a measure of regret at life’s tragedies and suffering, but without remorse; let’s tolerate each others’ views, live passionately, and affirm life in all its aspects—even those that are tragic, even those that don’t compute! ,;-)

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