Closed Loop # 3
Threads from CSGNet

CSGNet, the electronic mail network for individuals with control-theory interests, is a lively forum for sharing ideas, asking questions, and learning more about control theory, its implications, and its problems. The following "thread," stitched together from just one of the Net's many ongoing conversations exemplifies the rich interchanges among Netters.

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July 1991

Competition, Morals, Religion, and Science

Bill Powers: I woke up this morning wanting to write a nut letter or an essay. I hope the result is the latter. The trigger was hearing last night that the Gross National Product had dropped last quarter by "2.8% annualized," which I take to mean 0.7%. It occurred to me that something is drastically wrong, not with our "economy," but with our conception of it. It is simply not possible that the American people are incapable of sustaining an acceptable standard of living for themselves, through their own efforts. But the impossible seems to be occurring.

I think the villain is competition. This might seem like heresy in a free society, and perhaps it would be if competition were working the way it did in the 19th Century, when there was still a place to go when you got squeezed out. But I think that between population growth and running out of uncommitted territory and resources (because we are finally up against the fact that we live on a sphere), we are now faced

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with a degrees-of-freedom problem. What one person or group does to control for the things which matter disturbs what other persons or groups are controlling for, and adjustments which ease the conflict are becoming harder to find. I think that this process accelerated some time in the 1940s. I've been watching it get worse, therefore, for 50 years. It's been getting worse, of course, for much longer than that, but not as fast.

It used to be that when competition for jobs was fierce, the losers could somehow manage to find different but equivalent jobs or move to places where jobs were more available. When a company went under, another company would spring up to take its place, in an area where workers and managers could still apply their skills, but where the competition wasn't overwhelming. This worked for a long time (with ups and downs); in fact, it led to a mystique in which competition itself was lauded because it seemed to energize people to try harder. What wasn't so obvious was that this "trying harder" is a form of conflict: we are "trying harder" against each other. A lot of the energy created by competition accomplishes nothing more than cancelling out someone else's energy, leaving no net benefit for anyone. While there was still room to expand, while solutions to conflict still could be found, the energizing aspect of competition had a net positive effect. But there have always been hints that this is not the best way to organize a society: people always try to find a way to get out of the impasses caused by competition. Left to themselves, they seek the least-conflict state.

The basic idea behind social organizations like businesses or governments is that when people work together they can accomplish more for themselves than they can when working separately. This remains true as long as competition doesn't occur. Competition occurs naturally, through failures of coordination or through a desire for freedom. Failures of coordination can be corrected, because coordination is usually someone's job and people can learn to do a job better. But the desire for freedom, which is a necessity for autonomous systems like human beings, leads to competition through conflicts of goals, and no person can alter another person's goals in the same way a coordination plan can be altered. Conflict of goals can arise when individuals who are supposedly working together no longer subscribe to the same coordination plan. When that happens, either people leave the group or they begin to apply some of their efforts to resisting the efforts of others in the group. The group becomes less effective in either case.

When conflicts arise, some of the people in a group can leave to pin another group with goals they find more to their liking. As groups become larger, having wider effects on the shared environment, the potential for forming new groups diminishes, and conflict arises between groups. As that happens, the advantages of group effort over individual effort diminish. More and more of the group effort goes into

cancelling the effects of other groups' efforts.

One solution is the coalescence of groups. But because these groups have disparate goals, mechanisms have to be invented to deal with conflicts without resolving them. The systematic application of group-sanctioned coercion arises: law. Law exists because of individuals who pursue goals conflicting with those of the majority, but who do not or cannot leave the group. The degree of coercion used in a society is a direct reflection of the disparities of goals in that society, and a direct indication of the degree to which that society is failing in its primary purpose of enhancing the capacity of each individual to control his or her life better. It also reflects a loss of degrees of freedom; there is no longer a way to get out of a society with which one disagrees and find a situation more to one's liking. One must therefore either change one's goals or risk coming up against massive coercion.

As conflict increases, the efforts of individuals to satisfy their own goals also increase; they must, if the goals are still to be met. But a large part of the increased effort is simply defensive; it is necessary only because someone else wants something incompatible, and it accomplishes nothing but maintenance of the status quo. Life becomes harder to sustain, but it does not get any better. Eventually, the efforts increase even further, and life gets worse. The escalation of mutually cancelling effort has a natural upper bound: we call it war. On a smaller scale, we call it violence. Violence is the all-out application of one's maximum possible force to achieve a goal, winner take all. As competition increases, so does violence increase. Violence becomes less and less a fringe phenomena seen among people whose goals are the most extremely different from the average, and it creeps in toward the center.

I think the lessons of control theory are clear: competition is not the basis for a healthy society. What a better basis would be I do not know, but I know that this one can no longer work. The next phase in human societies will be invented when the current phase loses its support. I think the understanding of human nature provided by control theory already tells us that we are not on the right track, and will help in the formulation of new approaches which do not automatically generate self-destructive violence. Nobody is going to hand us the new ideas engraved on stone tablets. We will invent them, and survive, or wait for someone else to do it, and perish.

Izhak Bar-Kana: About competition, etc., I can quote Churchill: "Democracy is the worst, except for all other alternatives." To blame the conflicts and violence on free competition is a little bit too much. Maybe a less understanding attitude toward violence could help more, especially in this country.

Chuck Tucker: What Bill has done is to present a theory of society based (of course) on control theory. Basically, I agree with his characterization, with one minor alteration: I still believe that there is far less competition for those who "make it" than most of us suppose. I still hold to the idea that there is Capitalism for the Poor and Socialism for the Rich even in the so-called Socialistic countries. There must be some way to incorporate this phenomena into the model (unless I am wrong).

Ed Ford: Bill, I question whether competition is really the problem. An article in today's local newspaper on the new U.S. moral code states that "Americans are making up their own rules and laws. We choose which laws of God we believe. There is absolutely no moral consensus in this country, as there was in the 1950s and 1960s."

When I was a child, my family used to vacation in northern Michigan. In the small town near us, there were two gas stations. They closed alternately on Sundays, allowing each a day off every other week. Closer to home, my wife is in competition with numerous poster shops and yet, when she desperately needs a poster, she calls one of her competitors, and they sell it to her at their cost.

I don't believe it is our conception of the economy, but rather our values and beliefs upon which we establish the standards for our decisions and how we deal with each other (including how we compete). The real villain is the lack of consensus on the moral principles which came from our ancestors. As I reflect on the hundreds of people I have seen in my counseling practice, few have included faith in what recovering alcoholics call a higher power when they reveal those things which are important to them. The solid Judeo-Christian values which permeated my childhood environment seem to have disappeared.

What has made the CSG such a great organization is the very thing missing where people associate and/or deal with one another. We respect each other and what each one of us has to offer. In short, our values are very much the same.

Rick Marken: Powers' theory of control not only helps me understand the (usually simple) phenomena of control which I can easily demonstrate. It also provides a framework for understanding more complex control phenomena, such as what happens when two or more control systems interact. The theory makes predictions about what we would see if people were organized as hierarchical control systems. I believe that in this spirit Bill Powers brought up the topic of social systems and the problem of competition. Bill's model makes some interesting predictions about what happens when people interact in a world where there are fewer degrees of freedom available than those needed to be varied by all systems in order to achieve their goals. One of the most interest-

ing predictions, to me, is that it is not *physical* degrees of freedom which limit control, it is *perceptual* degrees of freedom. This means that even though the environment might provide enough degrees of freedom for n people to satisfy their goals simultaneously, it is possible for the people to perceive the environment as though it had only n-1 or fewer independent degrees of freedom. That will create conflict and competition—even though the competition is not intentional.

I think this "degrees-of-freedom" problem should be fleshed out better; but I think it is one aspect of many of the problems we appear to have in our society—the ones Bill alluded to, among others.

I agree tentatively with Izhak and Ed that the apparent value our society places on competition is not necessarily a big contributor to our problems. I think people verbally extol "competition" more than they actually practice it. I think competition—real competition, the kind where people act to deprive others in order to have for themselves—is a side effect of the degrees-of-freedom problem and the way certain people end up perceiving the world. One piece of evidence for this, I think, is that the most fierce advocates of competition will happily collude (cooperate) with the competition (and even break the law to do it) if it is to their mutual benefit.

I don't agree with Izhak's and Ed's proposed solutions to whatever problems we perceive in society. Izhak says we should tolerate violence less—but I haven't met many people who tolerate it. Violence is competition (which I believe is a side effect of the degrees-of-freedom problem) in a runaway condition. Killing all perpetrators of violence might cut down violence a bit—but, I think, because doing so would free up some degrees of freedom for the survivors. I'd rather find ways to increase the degrees of freedom available to all systems. As to Ed's solution, I don't see how it is informed by the control model. How does faith in a "higher power" improve the ability of control systems to cooperate for their mutual benefit? My experience has been that, since faiths are based on verbalisms rather than phenomena, people tend to perceive the meaning of the words slightly differently. Since many of the faithful have goals about what they want to perceive others believing, we see efforts at corrective action to bring people to the "true faith"—i.e., theirs. It took years for Western societies to free themselves from this source of conflict. Of course, we are not completely free of it. Faith might be great, individually—I can't participate because my thought processes keep getting in the way—but I think it ranks with economic ideologies as a singular cause of social problems.

In summary, I want to suggest that the value of theory is that it provides a framework for understanding complex phenomena based on a model of simpler phenomena. I think the control model is relevant to understanding complex phenomena like competition in social systems.

I think we should base a discussion of competition on the model, rather than suggesting solutions we could have picked up as easily from conservative newspaper columnists or Sunday evangelists.

Joel Judd: Through verbalisms we interpret, convince, and confabulate what we perceive (is this too far off the mark?). We do so, at least initially, according to patterns and interpretations which come to us from family, friends, and society. Narratives reveal the way we justify, explain, and account for disturbances to canonical concepts we have learned through verbal and non-verbal perceptions, and they are used to convince others that our perceptions are valid, or to go further and convince them that our interpretations of the world are the correct ones. This is one area where conflict arises among members of society.

This leads into recent comments from Ed and Rick about what we base our values on. I've withheld commenting about religion so far, as I've enjoyed comparing control theory with my own beliefs privately. I think it's OK to propose that something like control theory can provide information about societal problems and solutions to them. But I don't rule out the idea that higher-level reference levels could be adopted from a "higher authority" instead of "evolving" by trial and error, or arising by some other method. I don't see faith in a higher power as inherently problematic, nor does faith automatically translate into cooperative, loving control systems. If the faith inspires system concepts of the sort which foster peaceful coexistence and mutual cooperation, where's the harm in that? If there is only lip service being paid to the values, then we have what's commonly called "hypocrisy." Unfortunately, we do deal with higher levels in "verbalisms," so what I perceive by "love thy neighbor" might not be exactly what you perceive. However, there are ways of judging the way others perceive values, one of them being "by their fruits ye shall know them."

Another problem Rick presents is the tendency which humans have, once they feel they have the "truth," to try to convince/coerce others to perceive things the same way. This type of behavior is not all that different from fanatics of political ideology or any other ideology. It has two effects: 1) to attempt to take away another's free agency (i.e., control), and 2) to discourage one from looking to religion *at all* for answers about our existence. A related comment is that if we were to consider the possibility that there might be a worthwhile religious organization somewhere on earth, we would still have to face the fact that running it and belonging to it would be the same old imperfect control systems we find everywhere else. So one should be careful not to throw out the system because of the people who are involved in it.

I think anyone familiar with such matters would agree that faith has to be an individual matter; I can't "give" it to you any more than I can

give you good manners. But I think Ed's comment gets not to the proposal that a particular *religion* would solve society's problems, but that certain *values* might. And control theory explains how and why these values might—they provide a high level of control. I don't understand a separation of the two.

Bill Powers: Rick asks: "How does faith in a 'higher power' improve the ability of control systems to cooperate for their mutual benefit?" The method of levels might have something to say on this subject. One of the unjustified postulates behind this method is that awareness usually operates as if from some particular level, which gives form to the current point of view. What you see from this point of view is the set of all perceptual signals of lower levels, with the current point of view projected into them as an attribute of this apparent external world. So if you're working from the category level, it seems that all of the relationships, events, transitions, configurations, sensations, and intensities you experience are exemplars of categories. You aren't conscious of categorizing; you just see that the categories are there, as if they existed objectively. So you're unaware of the operation of the level currently occupied by awareness. You're aware of the lower levels *through* it. This is all very metaphorical, and I don't know what it's a metaphor *for,* but pragmatically it seems to reflect experience.

Working this metaphor in the other direction, the implication is that you are also unaware of the operation of control systems of *higher* level than the "occupied" level (the level in the state we call conscious, to be slightly more operational about this). In particular, you're not aware of what is setting the reference signals at the occupied level: they are experienced simply through realizing that some perceptions are in the wrong state (you feel an effort to change them) and others are OK. You see a square with one side bowed out, and that looks *wrong.* You want to push it straight and make it into a better square—a better exemplar of squareness.

As far as consciousness is concerned, then, the definition of OK and not OK is given, not chosen. If you happen to be conscious at the logical level, the next thing which happens is a lot of reasoning about where this OK-ness is defined. Ah... it is clearly coming from a Higher Power. And that is perfectly correct: it is coming from higher levels, principles and/or system concepts, systems running automatically in the forms they had after the last reorganization—but not consciously.

Which brings us to the next sentence in Rick's comment: "My experience has been that, since faiths are based on verbalisms rather than phenomena..." Not so fast. What I've just been proposing is a phenomenon which a lot of people might have experienced throughout history. They don't have to be theoreticians to experience it, but if

they are theoreticians and don't have any constraints on their theories like science, they are free to propose any explanation they like. One of tire theories is that this advice from above about what is OK and what is not OK comes from a supernatural power outside of you (perhaps acting on your insides, but basically existing in a universe larger and more powerful than yours). Moses came down from the mountain with 10 principles engraved on tablets. Could this be a story reflecting the first conscious human experiences at the principle level? Moses' theory, of course, was that the principles were handed down from a Higher Power—which we, of course, recognize as the system-concept level. Moses heard a Voice commanding him. If the highest organized level in which your awareness can reside is the principle level, the *reference* principles will seem to come to you out of nowhere, but that doesn't stop you from trying to devise a Where.

One of the constants across religions is a belief in the power of prayer or submission to divine guidance. Instead of thinking about the content of prayers, think about the attitude behind them. One has to deliberately seek a state in which guidance is sought and accepted. In other words, the rational system (if that is the highest conscious level) has to find a logical way to accept that it is not the highest level, and so not resist any changes *in itself* which it can't explain rationally (or, more generally, can't characterize in terms of its typical mode of perception, evaluation, and action). I think this is an attitude which fosters going up a level, because it encourages you to observe the conscious level, rather than just interpreting the world through it. You begin to experience it as a level, and you can't do that *from* that level.

Of course, the next level has to exist if any of this is to happen, and it has to be functioning at least a little bit. I think that theories are proposed most flexibly when the next level up is still forming and isn't working very well. It's possible that the principle level formed in historical, or at least legendary, times. And it's possible that we are still in process of forming the highest level I have any inklings of, the system-concept level. Control theory is a system concept, surely. Where did it come from? Don't ask me: there it was. There must have been a time in the history of *Homo sapiens* when *no* system concept would have made any sense, *no* principle, *no* program. It's hard to imagine how the world would have looked when the highest level was sequence.

Human beings have been thinking about system concepts in an organized way for fewer than a few centuries, I would guess. Maybe that's an exaggeration, especially as it implies that everyone develops the next level simultaneously. But just look at the way people have been trying to model human beings since the 1940s. There has been an explosion of conjecture, with all sorts of new ideas showing up out of nowhere. There has been a quantum change in the very way we ask questions

about organized systems. So it might be that our system-concept levels have just started becoming functional on a wider scale. No wonder we aren't very good at this kind of control.

And another implication is that a new level above system concepts is starting to bestir itself, poking random reference signals into the existing system-concept level, saying, "let's try this one on, or that one, or maybe that other one." What's it going to be about? There will probably come a time when people begin to get a strong sense that something is telling them to choose *particular* system concepts and avoid others: something which speaks to them from a direction they cannot comprehend any more than the first flint-knapper comprehended where the idea of sharpening stones came from. They are bound to wonder where that advice is coming from. There might be human beings alive now who wonder why I am having such a problem imagining why we pick one system concept rather than another.

So, Rick, I think there is a phenomenon, and that religious and philosophical drinkers have been trying to comprehend it. I don't agree with their theories, but I don't claim that they have been theorizing about nothing, or just verbalizing.

Rick Marken: In response to Joel Judd, and at the risk of offending everyone, let me share my own thoughts about the relationship between control theory and religion. Religion, from a control-theory perspective, is just something people do. In the model, religions are system concepts. The particular religion you follow is (according to the model) determined by the highest-level references in the model. So, in theory, there is no way to change references for religious system concepts other than by reorganization—and given the rather remarkable shifts I have seen people go through in their searches for spiritual fulfillment, random reorganization seems to be how it works. A religion is a perception derived from lower-level perceptions of principles (values, morals), programs (rituals), relationships (worship, prayer), etc. Different religions represent different combinations of these lower-order variables controlled at different reference levels.

So "being religious" is something that a 10-level hierarchical control system can do, like "being a Dodger fan" or "being a control theorist" (though don't ask me to build a working version of a religious control system this weekend—give me about 300 million years). I don't believe there is some "right set of values" for getting along in life or getting along with others any more than I believe there is a correct way to hold your right hand. There are certain values (rules) and rituals (programs) which are right if you want to perceive yourself as a "Catholic" or a "Buddhist" or a "Dodger fan," just as there is a correct way to hold your right hand if you want to say the Pledge of Allegiance correctly. "Right"

for a control system means "matching a reference signal"; the reference signals defining a particular religion are set by the system-level religion control systems.

Since nothing really sets the reference for the highest-level systems (other than reorganization due to intrinsic error), there is no experience of anything saying "be Catholic" or "be a secular humanist," so, I think, we have the experience that we take our system concepts "on faith"; they just are true; they are what we like. You might attempt to rationalize why you want to maintain a particular system concept, but ultimately, if it is really a system-level reference (and not just, for example, a program-level perception you are controlling in order to, say, "please your parents"—a principle-level perception), then there is really no more of "you" left to adjust system level references to satisfy any higher-level goal. Some system concepts (the religion ones) are sometimes thought of as more important than others (the sportsfan ones), but I'm not impressed that this is anything other than a historical accident; if things go on as they are in soccer fandom, there will soon be as many people who died (and killed) for the home team as died (and killed) for Yahweh (or Christ or Mohammed or whomever).

I don't want this to be taken as anti-religious in any way. Control theorists just want people to behave "up to specs" (in Bill's wonderful phrase)—that means to be able to control the variables they need to control without interfering with other people's ability to control what they need to control. Many people seem to get great satisfaction, inspiration, and spiritual fulfillment from faith (i.e., controlling religious system concepts), and they do it without messing up other people. That's just great. All I want to argue is that the control model should be able to explain all of human behavior, and that certainly includes behavior called religious. The control model implies nothing about the best set of principles for people to adopt in order to live best and get along best with others. There is reason to suspect that many different sets of principles will do. However, there are certain principles which will lead to problems—not because god said so (though s/he might have—s/he just never says much to me), but because they are inconsistent with the nature of human nature. So a principle allowing a person to enslave other people (a principle, incidentally, which god never saw fit to condemn—the Hebrews started enslaving people, apparently with god's blessing, shortly after they themselves were freed from slavery) might work for some time (it did), but it's not a good long-term basis for running a society, because the slaves are control systems, and they will always try to get as much control as they can. And people waste much of their productivity doing what is needed to keep the slaves slaves. It also violates the "up to specs" rule, since

a slave probably has a hard time finding the set of references which eliminates intrinsic error.

I hope that control theory might be able to give a theoretical basis for understanding the best way for people to get along with each other and do the best for themselves as well. If the result of this theoretical exercise says "thou shalt have no other gods before me; then I shalt not.

This partly answers Bill's complaint about my claim that religions are based on verbalisms rather than phenomena. I agree that that claim of mine was wrong. As a matter of fact, I have had religious experiences (perceptions of religious phenomena) myself (almost always while listening to Bach, Mozart, or Beethoven). What I meant to describe (and what I will stick to) is my impression that many institutionalized religions, which take "scripture" very seriously when it comes to articulating their principles, tend to mistake the words for whatever wisdom (phenomena) those words might articulate. If you need to read a book in order to find out that it is wrong to kill and steal, then let me be the first to encourage you to keep reading that book.

Joel Judd: Rick, you didn't offend me. But I can tell that when the discussion gets rather "far afield," most people would rather "stay in the house." Talking about higher levels seems kind of ethereal I guess; not terribly scientific.

Mark Olson: Rick, you didn't offend me either. Joel, ethereal, maybe. Scientific, maybe not. Surely interesting, though! It's hard to conceptualize a systems-level analogy of a tracking task. It sure would be nice to make the ethereal scientific.

Anyway, the idea that the systems level is a recent (a few thousand years old) development is interesting. Could we develop a classification system of the animal kingdom based on the number of hierarchy levels each species possesses? My guess is that we would find a relationship between the amount of "rights" we give to a species and the number of hierarchy levels that species possesses. This idea just occurred to me, and, no, I am not particularly interested in animal rights as a topic in itself.

We shouldn't avoid this topic because it sounds unscientific—talking "unscientifically" often leads to an idea which, when tested, "revolutionizes" science. In other words, another variable means to an agreed-upon end.

Rick Marken: Mark, I agree—Bill's idea of a recent origin of the systems level is extremely interesting. I don't believe it, because I have this notion that the levels of perception are structurally imposed by the nervous system, and, thus, result from evolution rather than learning.

I read the physiological evidence as pointing in this direction; that is, there are cells, for example, in the lateral geniculate (I think) which look for patterns (configurations) rather than for other classes of perception (transitions, etc). I think the type of configuration a cell sees can be learned—a curve, rather than a line, maybe. I don't know of any evidence for this learning capability in cell receptive fields. But I think that such learning would be within a class. If the control model represents, to some extent, both the functional and structural organization of the nervous system, and if there is a systems-concept level up there in the cortex, then that's what it perceives—systems. Any kind of system, maybe, but just systems. If there were a level higher than systems, then I think it would have shown up by now. On the other hand, maybe it has always been there—it just didn't have much material to work with until now. Maybe that's why the systems level appears to show a historical development. It was always there (in *Homo sapiens*, but maybe it just didn't have much to work with early in the going.

Bill Powers: When the issue of religion, higher power, faith, and so on appeared on this net, only a couple of voices were heard against a vast silence. This is interesting. I happen to know that there are some strong opinions out there, a few favorable and many unfavorable, on this subject. I jumped right into it with a control-theory-based conjecture about the way religious perceptions and phenomena fit into the control model, and Rick, after expressing his views along the same lines, noted that we seem to have hit a touchy subject and offered to change it (not that we're limited to one subject at a time). And Joel Judd might have expressed more than one person's view when he said: "Talking about higher levels seems kind of ethereal I guess; not terribly scientific"

The interesting aspect of Joel's comment is that it is a higher-level point of view. To say that something isn't terribly scientific is to imply that we try to say things which *are* scientific. From this I deduce that one can perceive the degree of scientificness of a discussion. If the degree is less than some desired degree (very scientific), something must be able to detect the difference between the actual degree of scientificness and the desired degree. This difference, I take it, is the basis for whatever action is taken concerning the discussion, such as writing a sentence saying that it's pretty ethereal. Clearly, there must be a system concept about what "scientific" means, and there seems to be a control system related to it.

It seems to me that for those who consider stick wiggling boring and want to get into the more interesting higher-level aspects of the control-system model, we have here a wonderful laboratory in which to explore the real system, the one we carry around in our heads all the time. If I say something bearing on religion, your first reaction to it is evidence

about the system concepts you have and are willing to defend. If it is possible for you to observe those reactions and bring out a fuller description of them, then you will have one foot in the point of view from which you can evaluate system concepts as a phenomenon, using a real live example. As you observe this example of a system-concept control system in action, you will see how control actually works at this level, and gain a deeper understanding of the way system concepts guide and use lower levels of organization, such as those having to do with principles and programmatic thinking—logic.

Of course, in order to do this, it is necessary, at least for the moment, to cease identifying with any particular system concept—that is, treating it as your own point of view. I would wager that very few of those who saw the "religious" topic go by did anything but identify with whatever system concept was operable at the moment. The disturbance was successfully counteracted; the incipient error was kept small. If the topic had switched immediately back to one of the other popular low-level topics, there would have been a little sense of relief, of relaxing the guard. The disturbance would have gone away.

And now here it is back again. So what's happening now? Same sense of error again? Same generalizations about why it's not a good topic? Same strategy for making it go away? Have you been here before? If so, why not observe what's going on this time? You don't have to identify with a system concept to do that. It's just a system concept, a phenomenon. It relates to principle thoughts and logical thoughts and familiar words and phrases hooked up into familiar sequences. When you're just observing it, it isn't a good concept or a bad concept; it's just what it is and it works the way it does.

Phenomena first. Theory second. Hearken to Marken.

Mary Powers: Wonderful! Along comes this new thread—religion—which I can't keep my hands off. We're talking about a bunch of systems concepts here—organized religions of various flavors, God, and what Ed referred to, as the 12-step groups do: a Higher Power.

I don't hold with organized religions any more than Rick, and for similar reasons—they don't do anything for me, and, in their names, people have done and do horrible things to each other. The latter is not so much a flaw of religion, though, as it is a result of the human bias to consider only as truly human the members of one's own group—those, you treat with the Golden Rule, etc., but for those others (unbelievers, heretics, etc.), anything goes (but that's another thread).

I don't believe in God either, simply because giving a concept like that a name concretizes it, and soon you have paintings of a man with a white beard zapping Adam into life. I love myths and fairy tales, but I don't believe them as explanations of how things came to be. I prefer

stories which work—models—to explain things: cosmology, evolution, continental drift.

But when that kind of story is eliminated, there is a major part of religion still left, and that is concerned with the principles one lives by. I'm not in favor of buying any particular religion's list, but I am in favor of spending some time thinking about such things and whether what one is doing with one's life is relevant and consistent with them. (Ed is concerned with what he perceives as a decline in morality—I am impressed by the huge jump in the last couple of years in books on ethics which have come into the library where I worked until recently.)

Of the three concepts I listed in the first paragraph, the one which makes the most sense to me in terms of control theory is the idea of a higher power. God, as they say, is everywhere, which means inside as well as Out There. Acknowledging a higher power is to recognize that there's a lot more to oneself than one's conscious self. Think of that forgotten name which appears an hour after you stopped trying to remember it, or, more seriously, the new idea or a solution to a problem (which can be intellectual, artistic, emotional, spiritual, moral, or whatever) which just appears, again not through conscious effort. One must consciously prepare the ground, but the answers come from a higher level than where one is consciously at, and it's no particular surprise that in a religious context they are called gifts from God.

It seems to me that this kind of thing happens best with practice, and the practice is letting go (the 12-steppers say, "Let go and let God"). The letting go is often done by sleeping. I take long hot baths. Many people do it by prayer and meditation. The interesting thing to me is that effortfully trying to get an idea or solve a problem looks very much like pushing on a conflict. As was discussed in the psychotherapy thread, control theory says that you cannot force a solution to a conflict, but resolve it by—whaddaya know!—going up a level. To one's higher power, or certainly to a higher level in oneself.

Whether or not doing this eventually leads one to being a more decent, moral person I do not know, but it seems likely to me. Over the last few millennia, the religious life has produced (in addition to bureaucrats, power freaks, and sadists) some very mellow souls, and it's worth looking at what they have to say—because they are talking (obscurely and metaphorically, usually) about levels of the mind which control theory, coming from the bottom up, is as yet only pointing at.

Izhak Bar-Kana: I respect the religions, at least those which I know, for trying to teach people that if *you* are not God, neither is anyone else around here.

Rick, I object to your arguing with arguments which are not mine. I am not sure we use the same names for the same things. When you mix

free competition with stealing, something is wrong. Bill Powers might have a good theory, and I might see that people respect him for that. I might see that he is very successful, at least within this small universe called CSG. I might try to do better, and this is all competition is about. If I try to steal his ideas, then I am a thief. I might try to call him names, I might become violent, but this has nothing to do with free competition. Maybe this is related to the modern trend in sociology: "Why ain't I entitled to the same things?"

I am not interested in the public opinion about violence, as I am not interested in the public opinion about education, drugs, etc., *especially* in this country. As a simple engineer, I am interested in deeds. My friend, you might be killed in front of a lot of people, and no one would interfere. Even worse, they would run away... from the police, so they would not get involved, become witnesses, etc. The amount of violence in this country, which people seem to get used to, is unbelievable.

Ed Ford: My reference to a higher power or religion was only to establish *an example* of a system of values (systems-concept level), a system which varies with each individual, from mere lip service, to control or to harm others, to genuine concern for others. Within our Group, we have established an unusually high degree of rapport because we have all accepted similar values and standards. It isn't the values themselves, but our (to quote Bill) attitude or perception of our individual goals and wants which determines how each of us deals with each other.

And yes, faith (maybe a misused word) can be based on fact. My belief that George Washington lived is based on fact. So is my belief in the basic message and messenger of the particular religion I adhere to. That also is based on fact (just look at today's date).

Rick, your comment that it took "years for Western societies to free themselves from this source of conflict" is most interesting. Our faith in a higher power doesn't improve our ability to deal more equitably with others unless we translate those values to standards and decisions in a way which respects the internal control systems of others. Unfortunately, people have used these ideas as an excuse to control, abuse, and manipulate others ("even the devil can cite scripture to his means"). For a control theorist, what makes any living-systems concept valid is that it has as its basis a respect for the choice-making abilities of others —for the control systems residing in all of us. I really intended to use my words as an example of a systems concept in my discussion about competition, not to create an issue about the validity of religion.

Joel Judd: Since this topic is still alive, I'll repeat what I said last fall about the initial attraction of control theory, and that is its inherent re-

spect for one's autonomy. Apart from the practical and conceptual short-comings of behaviorism and cognitivism, what I dislike the most about them is the way they ultimately tend to take away one's choice, or at least responsibility, since we are just reacting to stimuli. My own religious beliefs are centered around the concept of "free agency," and control theory just confirms my belief that we are all free to choose. Freedom, of course, doesn't mean "anything goes," but it's in deciding what goes and what doesn't that groups of people get into trouble.

Chuck Tucker: I have found the discussion begun by Ford's answer to Bill's discussion of competition to be very useful, and I think that an ethical standard can be constructed from the exchange of posts and some reference to previous writings. I shall briefly support my suggestion with comments about the posts.

It was Ford who suggested that CSG members get along so well because "we respect each other and what each one of us has to offer. In short, our values are very much the same." But notice that rather than focusing solely on this aspect of Ford's post, Rick mentioned a "higher power" and the phrase "verbalisms rather than phenomena," and he disagreed with Ed's suggestion that we need more faith. Then Joel brought the conversation back to Ford's original point by saying that .,faith" and .,values" rather that a particular religion can be used as higher level concepts to bring about cooperation. Bill made comments on "higher power;" demonstrating that a "higher power" can be part of a control system and used cooperatively as a phenomenon. Rick followed with a discussion of his view of religion, and while noting that he was not taking an "anti-religious" view, he did end his post with a recognition that he was wrong in noting that religion was just verbalisms. Then Rick, after noting he might have offended someone, suggested that the subject be changed. But Bill returned to the discussion by making the concepts of religion, science, and logic almost on the same level. Mary noted how control theory can use higher-level concepts like "higher power" without a particular religious organization's "spin" on the concepts. She also mentioned that it is "to one's higher power, or certainly to a higher level in oneself" which one goes to resolve a conflict.

Now, what I make of these exchanges is an ethical standard at the highest level used by those who use and believe in control theory. This standard is: all human beings are self-regulating control systems and should be respected as such. Ride is correct when he says that most religious leaders (and their religious doctrines) do not respect humans as self-regulating control systems and try (rather unsuccessfully in most instances) to coerce/force/bribe others to follow their rules (which many do not follow themselves). I claim (see Bill's Chapter 17 in *Behavior: The*

Control of Perception) that control theory contains this ethical standard, and that religions would do much better if they would also use this standard. Thus, we in the Group get along so well because we place a value on and find as important the fact that each of us is a self-regulating system.

Rick Marken: For reasons I cannot understand, I count myself as one with a belief which makes it far more satisfying to know the truth than to be right. I tend to distrust and fear control systems which prefer being right to being truthful (or, since we rarely, if ever, get the latter, which admit that their "rightness" is tentative). It seems to me there have been, are, and will certainly continue to be control systems which want only to be recognized as having the right idea—an idea we would probably call a system concept. The methods of showing that these system concepts are right have too often included violence.

I argue that there is only one system concept I know of which has, explicitly, included as one of its working principles the principle that it is more important to know the truth than to be right. I think this principle implies a willingness to subject one's beliefs to the test to observation, logic and reasoning—i.e., *falsifiability*. Scientists who act as though this principle is not part of their system concept are no longer—from my point of view—scientists (even if they say they are and they do a lot of math and a lot of experiments). They are just ideologues—religious fanatics like the rest. I don't think any ideology (religion) other than science contains this principle of "truth over right" as part of its system concepts. The very essence of religion is revelation—"I know what's true no matter what logic or my experience says." What could be more dangerous? When I meet a religious person (or the exponent of any other ideology—i.e., a system concept not including falsifiability as a central tenet) who says, "gee, I might be right but I'm willing to change based on the evidence;" then I'll be greatly impressed. I might even join the religion.

Joel Judd: Most serious religionists, or at least ones I admire, would argue that the search for meaning, God, etc., is the search to be both true *and* right. I don't see the mismanagement and abuse of religion as negating any possibility that there are Truth and Rightness together somewhere. The problem, or paradox, is that I don't believe inquiring minds want to know; rather, there has always been the desire to prone God, etc., "scientifically," and I don't see that happening in the near future. That is why scientists argue against "religion" as Rick does: "The very essence of religion is revelation—'I know what's true no matter what logic or my experience says.' What could be more dangerous?"

Or what could be more sublime? I find it interesting that Rick uses the word "revelation;" because in my beliefs that happens to be a key concept. It refers to the idea that God communicates with man (which of curse assumes there exists God, etc.). No, it's not amenable to logic, but yes; I do believe experience can bear out one's perceptions of "revelation," if you mean the same thing by experience as I do. Revelation to me might just be "'luck," "good fortune," or a "timely decision" to you. There is no way I can "prove" to you it is right, or true.

One last thread which has run unexpressed through most of the "religion" polemic concerns the idea of "selflessness," for lack of a better word. Most major religions include some form of the doctrine that a human being reaches greater heights by thinking less of self and more of others. In Christianity, the paradox was expressed by Christ when He spoke of "finding" your life by "losing" it, explaining that serving others is somehow more divine than serving yourself. Included in this self-subjugation is obedience to God, with the understanding that He has had more "experience" and is in a position to suggest how we might make the most of being human. I would bet that a lot of tie people we admire fall into this characterization, whether or not they believe in a higher power. It's great to recognize your potential as a fully functioning control system, but I think it's even greater to reign in all that power and place it in the service of others to help them reach their potentials. While I'll never be able to "prove" that, that's the interface between science and religion for me.

Chuck Tucker: My point was that control theory, as I understand it, has an ethical principle which is on the same level as religions, theories, ideologies, or meta-meta-instructions. The principle is: respect each human being as a self-regulating control system. I also tried to make the point that most of those I know who hold to some religious doctrines do not use this principle, and that occasions much conflict, anger, despair, and other disturbances even more profound.

Rick Marken: Joel, you make me feel a bit like Scrooge McScientist. I think my hostility toward some aspects of religion masks my real love of many things which would also be called religious. (In fact, I realize that I keep posting on this topic because I am so drawn to, well, spiritual topics). It's hard for me to have a consistent attitude about a system concept (or set of them) which has brought us everything from witch hunts to what Bach wrote. There are some beautiful sentiments in the *Bible.* I love Ecclesiastes (by and large), and the stories of the *New Testament* are great. I love the character of Jesus. I love a great deal of Western mythology—Greek, Norse, etc. I'm not a big fan of the Eastern mythologies—but that is a matter of taste.

The problem with religion—what spoils it for me—is what you might call "literalism" or "fundamentalism." I think it's what is also called "faith;" I'm afraid. It's the part where you have to "worship" something or "believe" that something "really" happened or that something "really" exists although there is no evidence for it. There is no faster way to corrupt the sublime, from my point of view, than by making the "rightness" of it mandatory. The problem, I think, comes from the fact that religion (Western religion, anyway) filled at least three roles, two of which are now handled much better by modern disciplines.

One role of religion was explanation of what was observed—this is what Genesis and many mythologies try to do. Now we've got science —we understand that the wonderful imagination which created the "explanatory" myths is only half of the process of explanation—there must also be the discipline of observation and testing. But some people still want the "explanation-of-phenomena" role for religion—to give it legitimacy, I suppose. Hence we get creationists, flat-earthers and other, basically harmless, crazies.

The second role of religion is to express the unexpressable—the nature of the human spirit. This is now handled by art—poetry, music, etc. The *Bible* has some of the best prose and poetry going. It is art—some of the most inspired art of all time. Biblical art is a subset of a vast expanse of songs of the human spirit. But it is not special (other than in terms of how well if achieves its artistic goals of expressing the human spirit). It has no more privileged place in the art world than Shakespeare or Chaucer (or name your favorite poet). But there are still some who want to maintain that biblical writings are special—inspired by God. This leads to book burners and banners. These crazies are dangerous and quite unacceptable.

The third role of religion (and there might be more) seems to me to be rather unique to Western Judeo-Christian religion. This is the ethical role. Apparently, at some time long ago, some Hebrew tribal person realized that there was no obvious reason why s/he was being a nice person. And if s/he had no reason, then nobody else had a good reason, and they might go haywire at any time. S/he realized that s/he needed to tell people there was a reason why they should continue to be nice to each other—it's because they have 11th-order system-concept control systems watching to make sure that they have selected the right references for their principles. S/he just called these references "God." Not leaving anything to chance, s/he made sure that everyone knew that if they didn't set their principles appropriately, then they would suffer an error signal—eternal damnation in the fires of hell (catchy new name for an 11th-level error signal).

I suppose civil laws could be considered replacements for the written ethical standards (backed by threat of coercion) which had been provided

by religion; but I don't think they are, quite. I think what Hugh Gibbon is doing in trying to analyze the system concepts underlying the law and our sense of justice is the start of a rational approach to understanding the ethical basis of our behavior. Chuck Tucker suggests that there might be an ethical principle which is part of control theory itself—but I don't think so. I think control theory can explain why we do (and don't) behave ethically, but it boasts no ethics of its own.

Because there is no really convincing modern discipline to replace the ethical role of religion (although I do believe that control theory might start to help—but don't expect anything interesting for a few decades), the crazies in this area of religion have been particularly prevalent and destructive. Nowhere else has religion caused more misery to innocent people than in the ethical bullshit it has imposed, based on the "wisdom" in ancient texts. I think the creationists are amusing and the book burners are annoying, but the ones bringing "God's rules" are just flat-out evil. I have had many homosexual friends whose lives I've seen made miserable and difficult because of the religious prejudice against this practice—because God says it's wrong. We have a massive overpopulation problem in the world, partly due to the fact that some nut cakes have divined that God doesn't like anything to come between semen and ovum (this one, alone, will probably be sufficient to end any hopes of a civilized society). From what I read, it seems to me that Jesus was the kind of guy who wanted people to find their highest degree of personal human fulfillment. He didn't get mad at prostitutes (who hurt no one, save possibly themselves) or homosexuals (again, who hurt no one except, possibly, themselves) or masturbators or birth controllers. Not even an adulteress. I think Jesus knew the difference between helping people achieve their own personal goals and helping people achieve his goals. I love selfless giving—but remember, that's *self less.* If Christians were really Christian, they would be out there trying to help homosexuals find the mates they want—not the mates the Christians want. Of course, these values of mine must be all wrong because they are not written down on an ancient parchment. Ah well.

Anyway, when it comes to religion, I think the aspects of it which really are wonderful can only be kept wonderful if they are brought back into the bosom of art, where they belong—where they will not be corrupted by the ugly drive for "rightness" tainting discussions of ethics.

Bill noted that discussions about religion, and our reactions to them, constitute hints about the nature of our own system-level reference signals. If you can get past the fact that the substance of these beliefs is considered "true;" you will notice that they are perceptions which you are trying to defend at particular references. Thus, our arguments, if analyzed properly (I bet Bill could help), are themselves a laboratory

for study of control of the highest-level perceptions in the control hierarchy—definitely more interesting than watching control of the position of a cursor on a screen.

Another reason that religion is relevant to control theory, I suggest, is for the same reason that it is hard to keep religion out of discussions of the origin of life. Control theory, like evolutionary theory, is trying to deal with aspects of human existence which were once the sole purview of religion; with evolution, it is the origin of people; with control theory, it is the nature of the soul. Of course, regular old psychology treads on religious issues, too. But control theory gets to the "soulful" aspects in a particularly deep way. Control theory explains (rather than explains away) one aspect of people which most deeply defines our human nature—our purposefulness. Suddenly, teleology is no longer a spiritual mystery, but an understandable characteristic of closed-loop, negative-feedback organizations of matter. Most importantly, religion itself is an understandable part of the control model—it is a system-level purpose, an intention to perceive certain principles, relationships, categories, etc. This doesn't make gods or religions go away (just as evolution did not make gods and religions go away) but; like evolution, control theory certainly requires a thoughtful reevaluation of this system concept. There is just no getting around it. I can't help but feel that, to the extent that control theory is an improved model of human nature, reevaluating one of the most important aspects of human nature in the context of this model cannot help but be for the best.

Bill Powers: Joel, this is the point where in ordinary conversations I would say "Oh, sorry, I didn't mean to tread on your beliefs." This isn't an ordinary conversation. It's a scientific conversation, meaning that the participants are assumed to be more interested in improving their explanations of natural phenomena than in defending them. So when you say, "I find it interesting that Rick uses the word 'revelation,' because in my beliefs that happens to be a key concept. It refers to the idea that God communicates with man (which of course assumes there exists God, etc.)," I can only take this to be a scientific report. You are reporting a phenomenon (and in conversations of this sort, one main ground rule is that all reports are honest and taken to be honest). The phenomenon is "experience can bear out one's perceptions of 'revelation,' if you mean the same thing by experience as I do. Revelation to me might just be 'luck; 'good fortune; or a 'timely decision' to you."

The theory I propose to account for the phenomena of revelation, taking it as given that revelations do occur, is that (1) higher-order systems in the brain, operating at levels higher than the normal level which is conscious (whatever that mans), can inject reference signals which appear arbitrary and sourceless to the conscious systems; and/

or that (2) the process of reorganization can alter (at random) the way the conscious systems operate, including the way they perceive, so that sudden new understandings and new methods of acting appear, as if from nowhere. I would argue that there is no reason to think that such changes in the conscious world are due to any factor outside the brain—i.e., a supernatural being. On the other hand, there is no evidence that such supernatural intervention does not occur; we do not have the ability, now, to tell the difference between supra-conscious processes originating inside the brain and supernatural processes originating outside the brain—our only evidence is the experienced result.

Now, you go on to say: "There is no way I can 'prove' to you it is right, or true." You are referring, I take it, to the proposition that such revelations originate outside the brain I agree; I see no way to construct a compelling argument which would persuade any reasonable person of the truth or falsity of your proposition, or of mine. So, in terms of scientific knowing, we would have to agree that we do not know which is the coned proposition, if either. In such cases, we must choose something as a provisional belief, to take the place of knowledge. The question then is which belief to choose, not on grounds that it is "right" (because we do not know which is right), but on whatever practical grounds we can find.

One possibility we must entertain is that sudden changes in the conscious world sometimes might be due to normal reorganization or to the action of higher-order systems in the brain, and sometimes might be revelations from a higher power outside (or larger than) the brain. If that possibility exists, then we must ask about the consequences of making a mistake: of mistaking a brain process for a revelation from God. Suppose you suddenly get the thought, crystal-clear and compelling and as if from a higher source, "All of your troubles are being caused by the Jews. You must therefore kill all of the Jews, and purify the land." If you are convinced that this thought is a product of your own organizing processes, you will evaluate it in terms of all of your other concepts and understandings and goals, and quite probably will dismiss it as just another of those bright ideas which would not work out very well. But if you decide that this sudden idea is a revelation from God, you have no choice but to obey. The theory of God does not allow for ignoring God's word, or reevaluating it.

I think we must accept that thousands upon thousands of people have received sudden thoughts which they attributed to God, and as a result have committed what I at least consider to be unspeakable evils, thinking that they were acting under Divine Orders. In many theologies, the answer to this problem is not to say that such sudden thoughts arose from internal reorganizations and were simply not evaluated appropriately, but that they originated in *another* supernatural power:

Satan, the god of evil. The theory of God, in combination with observations which seem to attribute unacceptable characteristics to God, requires introducing the theory of Satan, who is responsible for the unacceptable "Divine" orders.

The *Koran* states quite plainly that God commands loyal Muslims to convert the infidels, and if they will not convert, to destroy them as the forces of Satan. I imagine that there have been many faithful Muslims who have undergone a crisis of the spirit over this teaching: God says you must kill these innocent people, while reason and compassion say that to do so would be evil. The power of faith, however, can overcome mere human reason and feeling. The good Muslim would subjugate his personal thoughts and feelings to the commands of God, and do what the Divine Word says he or she must do. I'm no expert on the Muslim faith, but I think this is not a grossly unrealistic scenario.

In this country, of course, our God (of Christianity or Judaism, to speak only of the majority beliefs) does not command us to kill the infidels (although not everyone would agree with that). So we have the case where in one part of the world, divine revelation contradicts what divine revelation says in another part. A crisis of the spirit in a soldier from the U.S.A. in the Persian Gulf War might lead him to decide not to kill an Iraqi soldier in his sights, while another crisis of the spirit in an Iraqi soldier might lead him to decide to kill the American who is in an equally helpless position Both reject what personal inclination demands, and submit eventually to the Word of God—with opposite results.

The theory of God keeps getting more complicated as problems like this arise. This theory, to say the least, lacks universality. It must be clear to the adherents of different faiths that their beliefs differ radically from those of others who also lay claim to belief in God. The only solution which does not lead to God contradicting Himself is to decide that one's own faith is the *right* one, while the others are in error on the points of dispute—they have mistaken their own thoughts for revelations from God. In countries where freedom of religious belief and expression are considered extremely important, this leads to the odd situation in which a constitutional edict requires distortions of the True Word of God to be tolerated. In other words, one must figure out how it is all right for other people to go against the word of God, while it is *not* all right for oneself to do the same thing.

All in all, I think that my theory makes more sense. It allows us to understand the experience of revelation in a way which does not require all people to experience the same, or even consistent, revelations. It does not in any way deny the reality of the experience of revelation: it merely explains it in a different way. In a context allowing equal consideration to all varieties and details of religious belief, I think my proposition

remains free of contradictions and entails the postulation of the fewest entities, whereas the theory of God requires the multiplication of entities and the maintenance of principles which differ from believer to believer—all of them True.

Rick Marken: Bill, what can I say? Pretty strong stuff—a theory of the 11th order. I think your point about constitutionally mandated religious tolerance was great I've always wondered how it could really work, since it does require (if you believe in the "god theory") that you allow other people to go against the word of god while you don't. I think it is becoming dear that it can't work. It's not going to work in India any more. It's barely holding on in the U.S. It seems to me there are only two possible solutions—one (which I think Ed suggested) is to accept the god theory and hope (or require) that everyone agrees on just which god is really out there; the other is to give up the god theory and try an alternative—possibly brain theory: the theory of 11th-order control systems. I think that the latter is quite unlikely, ever. Pretty depressing. My rule of thumb, however, is to always try to live in the society having the least institutionalized commitment to a particular version of the god theory. I hope America can hold out for a while longer—but it looks like, after a brief period of enlightenment, the world is prepared to dip into another millennium of besting for the correct god theory. Oy vay.

Joel Judd: Rick and Bill: "I wanted out, but they keep pulling me back in." (Al Pacino in "Godfather III")
At the risk of turning this into a forum for personal beliefs, I want to mention some fundamental notions in order to respond to your comments. Assume (and I know this is a big assumption) the following scenario: there exist a couple of Gods (it takes two to have kids, you know) who have some offspring and want to offer a physical/mortal existence to them (for reasons I won't go into fully). This existence requires a place to live and the niceties of mortality—birth and death Part of the reason for sending the children away is to let them learn to make choices concerning—that's right—Good and Bad, Right and Wrong. Following the mortal part of this plan, the children will continue on immortally in different states of "maturity" and "knowledge" according to their actions on earth. Now, as soon as this plan is presented, two people offer to help carry it out—right again, Lucifer and Christ (both sons of God, by the way). (In case you think I'm making this up, check out Isaiah and Revelations, among other sources.) However, they quibble over an important issue: Free Agency. You see, Lucifer, being a good guy and a little bit selfish, offers to make sure that *all* of God's children make it back safe and sound—by forcing them to make good choices.

Christ, on the other hand, says he will let everyone have a say in the matter, allowing them choices (and, knowing that children inevitably goof sometimes, he will do his best to allow everyone to make up for their mistakes, and show them how to do so). Well, we can find out how this (mythical) story turns out by looking at Christian theology. Lucifer becomes the bad guy by resenting God's rejection of his offer, and he and his followers leave without tasting mortality.

Returning to science, I try not to get worked up about science/religion (dare I say S-R?) arguments, because of conclusions like Bill's: "In such cases, we have to choose something as a provisional belief, to take the place of knowledge. The question then is which belief to choose, not on grounds that it is 'right' (because we do not know which is right), but on whatever practical grounds we can find." I believe that the crowning principle of mortality is freedom (as do you all, but perhaps for different reasons), and from my point of view, part of the reason for being here is to see what we'll do without that convincing certainty that "Dad" is always looking over our shoulder. However. "If that possibility [revelation] exists, then we must ask about the consequences of making a mistake: of mistaking a brain process for a revelation from God. Suppose you suddenly get the thought, crystal-clear and compelling and as if from a higher source, 'All of your troubles are being caused by the Jews. You must therefore kill all of the Jews, and purify the land.'... But if you decide that this sudden idea is a revelation from God, you have no choice but to obey. The theory of God does not allow for ignoring God's word, or reevaluating it." This and Rick's comments along the same lines point out many people's worst fears about religions. But religion can suffer from the same confusion as science. For example, the characterization of the "theory of God" given above assumes that anyone is justified in professing revelation and recruiting others to help. This is not the pattern in Christianity, where one person is called at a time to speak for God (as "Prophet"). Nor can a prophet say whatever he or she wants to say and get away with it. There are any number of checks and balances on people's behavior by which we can judge—"by their fruits ye shall know them," "do unto others,," etc. We all can think of worst-case scenarios where God, Christ, and others have been invoked in the name of genocide, purification, education, and other causes. But I don't think any of those crusades spread peace, goodwill, and cooperation, the hallmarks of God-like behavior. We can judge religion and religionists with a few almost common-sensical standards, like the couple just mentioned.

Bill says: "The theory of God keeps getting more complicated as problems like this arise. This theory, to say the least, lacks universality. It must be dear to the adherents of different faiths that their beliefs differ radically from those of others who also lay claim to

belief in God .... whereas the theory of God requires the multiplication of entities and the maintenance of principles which differ from believer to believer—all of them True." Unfortunately, this is one of the best ways *to* turn people off about something: provide too many contradictory choices. Returning *to* the scenario laid out above, and assuming it were correct, wouldn't this be a great way to turn people off about religion/God?

There are two other issues I'll dangle. One concerns the idea of Spirit/Body (the soul). That revelatory communication (if it occurs) would take place at levels we generally talk about as *lower*, I find intriguing. I wonder about the Spirit/Body interface and how higher levels might relate to/communicate with things "spiritual l" as opposed to the more physiological functions of lower levels of the hierarchy. Of course, if you don't entertain notions of immortality, then such issues are not interesting.

The second issue concerns the perspective on life obtained from belief in God and belief in Man. I almost never bring this issue up, because it directly addresses the worst fears examples which always come up in discussions of religion If one is focused entirely on mortality and birth and death as the bookends of one's existence, then life often becomes overwhelmingly precious and something to be maintained at all costs. If, on the other hand, one believes that "life" began long before birth, and extends long after death, then the mortal part of this picture becomes almost a "drop in the bucket; " as it were. That *does not mean* that life is valueless or worthless, only that it is not *everything*. When someone whips out an *Old Testament* "myth" and shows how this beneficent God drowned thousands of Egyptians in the Red Sea, or murdered thousands of Sumerians in the Middle East, I tend to look at the context of the story (what we *don't* know about the situation as well as what we do), and consider the Big Picture. And when a child dies of malnutrition and disease in Bangladesh, or a family is wiped out in a Kansas tornado, I don't curse God, or complain that if God existed He certainly wouldn't let such things happen. Instead, I try to do my part to see that the corner of the world I can influence is made better.

God is not around to babysit us every second any more than most parents are around their 50-year-old children—but they certainly are available to give advice and offer solutions, *if the children ask* (and sometimes when they don't).

None of this is very scientific or convincing experimentally. But it's how I make sense of the world, and my life in it. *That* can be explained by control theory, as Bill and Rick and others have pointed out. But it probably can't be proved. Back to more mundane matters.

Bill Powers: Rick, before we get any further into showing the defects

of various god theories, let's pause and figure out what we're doing. Control theory is not going to settle the question of the existence, nature, or purposes of God. That question isn't even interesting from the control-theory point of view. What is interesting is the fact that people support such beliefs and that the beliefs play some role in determining their principles, strategies, procedures, categories, and so on. If we wanted to play games at the system-concept level, we could make up our own stories about why we're here and what it's all about. We could seek converts, start a church or a political party, and go around claiming that our system concept is better than anyone else's. We could even have our own war once we got the hang of it. It's been done lots of times before.

Speaking strictly as a control theorist, a position from which I've been straying lately, what I'm interested in are the system concepts underlying the various god theories. I want to know if there are sets of principles from which they are drawn; if the principles guide logic and reasoning; if logic and reasoning select sequences of actions; if the sequences are indeed composed of symbols (category-perceptions)— and so on. In other words, I want to know if the hierarchical-control-theory model actually works as an explanation of human experience and behavior. As a control theorist, it isn't my business to offer free advice concerning which system concepts are the best.

As I said, I've been straying from this course. Straying from it involves saying things like "How can your system concept be the only True one when I know of many people who believe in a different and even contradictory one?" That amounts to trying to tell someone his or her system concept is no good. If people are control systems, and if they all have 11th-level (system-concept) organizations, and if they each develop in a fundamentally autonomous way, then of course they are going to end up with different system concepts, even when they think they have the same system concepts as others do.

In fact, it is very hard for people to agree on system concepts even when they try. It isn't so much that they resist having their system concepts modified to fit the group, but that they really have only a foggy idea of what the "group system concept" is supposed to be. Perceptions of this level are extremely hard to communicate. Religious and political groups keep forming and fragmenting for this very reason: the people develop divergent perceptions and goals, get into conflicts, and split up into smaller groups to eliminate the conflict. This happens in every case where people try to share important system concepts, not just in religion. If anyone gets fanatical or fundamentalist about control theory, it will happen here, too. The more important the goal (meaning the smaller the error that is tolerable), the less difference in interpretation is required to create a significant conflict.

There are many things we can say as control theorists about system concepts without getting into judging their substance. The point of a hierarchical-control model is to account for all of the levels of human functioning we can identify. We certainly have to consider an important subject like religious belief, because it is a phenomenon of human experience. We are even interested in the content of those beliefs. But the interest does not have to do with the correctness of the content; only with its relationship to lower levels of control.

So if I say, as I'm inclined to do, 'Joel, I don't believe the story you tell,' I am not speaking as a control theorist but only as a human being who prefers his own stories. I'm willing to argue on this subject as long as anyone feels like participating, especially if there are things I really should be doing but don't want to do, but if I do so I won't be talking about control theory. I'll just be telling you how William T. Powers is organized—one-five-billionth of the human race. Maybe I'm doing that when I talk about control theory, too, but I'm a heck of a lot better organized in that field than I am in the field of spiritual subjects.

So, Joel, it's quite unimportant whether I believe your story or not —as long as we agree that we're here to talk about hierarchical control theory. If you could analyze the story into system concepts, principles, programs, sequences, and so on, we could talk about how well the hierarchical model fits the way these perceptions work together and the way a person might behave to maintain them at their respective reference levels. Then we might come to understand something about belief itself, instead of trying to decide which beliefs are correct. I understand that, from your standpoint, your beliefs are true and right. From my standpoint, so are mine. With that settled, I think we can talk about belief as a phenomenon of human nature, and return to our original subject.

Rick Marken: OK, Bill, speaking as a control theorist, I think I am theorizing that religious phenomena (among others—such as ideological phenomena of various flavors—any experiences which seem to be based on a set of principles) are, in the model, 11th-order control systems. I believe the control-theory model says that different people want to perceive themselves as "Christians" or 'Jews" or 'Nazis" or "Communists" or "Pacifists" because of differences among these people in terms of 11th-order reference signals. One interesting thing about the 11th level (which you brought up) is that the reference levels for these perceptions seem to come from "outside" of the person. I imagine that a person whose reference for "religiousness" has him/her controlling for "Christianity" (as he/she understands it) experiences the source of this reference as being outside—the higher power that is above him/ her. This is certainly the way I experience my own reference for religious-

ness (which is obviously set at "atheism"). It feels less like something I choose than like something I am.

For some reason it is difficult to become conscious of the fact that the reference for a system concept is selected by you, not something "out there" which imposes itself on you. Actually, system-level references *are*, to an extent, imposed on you (from the model's point of view) by reorganization. But it is hard to see that the reference for a religion is something your brain came up with in the same way your brain came up with a reference for a particular sitting position. For some reason, it is possible (though not necessarily easy) to learn that you are the one who selects the references for a particular configuration (like the sitting position), but it is nearly impossible for people to realize that they select the reference for a particular system concept—not to satisfy a higher-level goal, but as a result of fairly random reorganization to satisfy intrinsic needs. This might be an important point for therapists. The 11th order might be the "id" of control theory—the source of one's desires (references) for particular system concepts might be very difficult (if not impossible) to make accessible to consciousness. My hypothesis is that consciousness (whatever that is) can become aware of the source of a reference signal only if it can take a point of view from a level of the control hierarchy which is at the level from which that reference is sent. Thus, it is possible to become conscious of the source of the reference for the sitting-position configuration when you look at configuration perceptions as a means of perceiving a higher level perception—such as a particular relationship between your line of sight and a computer monitor. I suspect that it is difficult (or impossible) to look at system concepts from the point of view of whatever it is which wants to use system-concept perceptions to achieve its goals. Anyway, to the extent it is possible, the hierarchical-control model gives the term "consciousness-raising" a whole new, drug-free meaning.

The bottom line is that, from the control-theory point of view, system concepts (like the ones Joel and Ed and Bill and I are discussing) are perceptions maintained at particular reference levels set there for reasons which are not that well-understood (in terms of the model or in terms of one's own consciousness). I think a person who understands the control model has to accept this fact about the nature of his or her own system concepts.

Problems arise at the system-concept level, not because some system concepts are bad and others are good, but because (according to my understanding of the control model) people tend to assume that the references for their system concepts come from "out there." *That is the problem*. It leads to the conclusion that the level at which you want to keep a particular system concept is the truly right level—forgetting to add that it is just "the right level for you"—because it is *your reference*

signal. There is nothing wrong, really, with any system concept, as long as you can remember that it is just right *for you*, not necessarily for anyone else. This is the message of control theory about all levels of perception The "right" level of a perception is the level matching *your own* reference for that perception The only caveat is that, in controlling your perception, you should do so without interfering with the abilities of other persons to control their own perceptions. This interference is called conflict, and control theorists generally want to find ways to avoid it. Thus, system concepts like "kill the..." can be considered bad if you agree with this principle of conflict avoidance. Obviously, killing is the ultimate way to prevent people from controlling their own perceptions.

If people just could be happy controlling their own system concepts and letting others control their own system concepts, then all would be fine. I could care less what a person believes. My problem comes from the fact that most system concepts have principles involving other people—like the Moslem principle (and Christian, too) of converting the infidel. That stuff scares me; I think principles like that come about because people don't understand that system reference levels (the "right" way to be) are not "out there," they are "in the individual." Why system concepts seem to include edicts about how other people should behave is an interesting question—one that social psychologists, especially those interested in collective behavior, should look at very carefully. I'll leave that discussion for later.

It's easy to see when people are confusing internal references for external references. People who say "we have to do it right" obviously believe that their reference for whatever perception they are controlling is "out there;" so that anyone can control relative to it.

Joel Judd: Bill says: "Religious and political groups keep forming and fragmenting for this very reason: the people develop divergent perceptions and goals, get into conflicts, and split up into smaller groups to eliminate the conflict." This made me think of a couple of things: 1) The adoption of conquerors' religions in history, e.g., the Indians' "acceptances" of Catholicism in Peru. Many of their beliefs were tolerated by priests and have become part of the ritual worship for Andean people, a mixture of Pagan and Christian. A Catholic from New York visiting a chapel in Peru might be astonished or even shocked at the differences in what ostensibly is the same religion. 2) The problems caused by church clergy adopting political stances (e.g., Archbishop Romero). Either one of these would make a very interesting control-theory thesis for some student of political science, anthropology, etc.

I have perceptions of higher levels as possibly having rather long time frames—ditto, reorganization which might involve them. "Christian"

might be a perception built up over 10 years, 40 years, or a lifetime. We probably would not consider a newborn a Protestant; the newborn itself almost certainly doesn't either. At what point do we say he/she is? When his/her behavior fits our perception of "acting like a Protestant?" Maybe this was all assumed in the discussion, but I wanted to make sure. The same thing would hold for other concepts, like "language," which develops over years of experience with language. Wouldn't some of the mysterious nature of the origin of higher reference levels be explained if we admit these longer time frames in their development? Then it wouldn't be possible to point to a discrete experience and say, "That's when I developed a reference level for 'family.'' That would address the following comment: "But it is hard to see that the reference for a religion is something your brain canes up with in the same way which your brain came up with a reference for a particular sitting position." On the other hand, if reorganization commences to address intrinsic needs, and so much of peoples' reorganizations ends up working with religious ideas/God, what does that suggest about the source/purpose of intrinsic needs?

I can understand that Rick's theory makes no judgments about rightness/wrongness—it is an explanatory tool. That can be as true for development as it is for the description of a mature control hierarchy. But I'm not sure about the idea of negating "right things out there." Isn't there a "right way" of driving a car? That's not the same as saying that there is a right way to do *every little thing every time* I get in the car. Rather, there is a system concept for "right way to drive" which drivers share. We don't sit in the back seat to drive, we don't use our hands to manipulate the pedals, we don't go down the road backwards, though we can do these things. There's a right way to do a lot of things: use the language, pay taxes, get a Ph.D., worship God. For some things, though, there is more than one right way... uh, I just lost my train of thought.

Anyway, developmentally, we have models for developing concepts: parents, God, Michael Jackson In the case of children, we act as if there is a right way (*ours*) and expect them to adopt it. So how do we teach one another system concepts which we can agree on even though each is an individual?

Rick Marken: Here's a quick response to Joel's great questions: "We probably would not consider a newborn a Protestant... At what point do we say he/she is?" When you test for evidence that the person is controlling the appropriate variables. Just apply disturbances and watch for resistance. Acting "like a this or that" is not enough to show that there is control; for example, I can get you to write out a profanity as you move a mouse to counter a two-dimensional disturbance

to the position of a cursor. You are producing a profanity, but you are not controlling it—i.e., you will do nothing to resist my attempts to make your hand write a non-profanity. System concepts are probably not controlled until a person is well into the teens. Lower-level perceptual abilities also develop over time—you must be able to control configuration before you can control transitions. Plooij found dear evidence of this in chimps (who probably cannot perceive, and hence control, system concepts).

"Wouldn't some of the mysterious nature of the origin of higher reference levels be explained if we admit these longer time frames...?" The origin of the higher reference levels is no more mysterious than the origin of lower-level references. They are equally mysterious. The model accounts for the origin of higher-order references differently than that of lower-order references—but there is *no* mystery about how it is done in the model.

"I can understand that Rick's theory makes no judgments about rightness/wrongness—it is an explanatory tool. That can be as true for development as it is for the description of a mature control hierarchy. But I'm not sure about the idea of negating 'right things out there.' Isn't there a 'right way' of driving a car? That's not the same as saying that there is a right way to do *every little thing every time* I get in the car. Rather, there is a system concept for 'right way to drive' which drivers share." Bingo—1 think we have here a place where the content of your personal system concepts might come into conflict with the content of the system concept we call control theory. This might be a job for *Zen and the Art of Motorcycle Maintenance*, but I'll just give you the short answer. No, there is no right way of driving a car. There are just variable (perceptual) aspects of the car's behavior—some of which you can learn to influence in predictable ways—and you can bring these variables to reference levels which you specify in order to satisfy other reference levels. But there is no "right way to drive a car" unless you are talking about the "real-world" constraints on the way you can influence what you perceive. In my car, you can only accelerate forward (when sitting in the drivers seat on a level road) by pushing on a pedal under your right foot (with the ignition on). If you don't do this, it won't go. Same in our tracking experiments: there is only one "right way" to influence the cursor, because we've set up the world that way.

So the real world (the one we know only in terms of our physical models) does impose constraints on how we can influence the perceptual variables we are controlling—but the particular values to which we move our perceptions are right or wrong only in terms of whether they bring higher-order perceptions to their reference levels.

The term "right" implies a standard for comparison—a reference. If you believe that there are standards "out there" for how things

should be, then I simply ask, "How do you know them when you see them?" Control theory explains how to determine when a variable is being controlled, and what the standard of reference is for the variable. When we apply this best to objects "out there;" we typically find that they are not maintained at a standard level unless there is a control system around making that happen. I'm afraid that, from a control theory perspective, "right" is defined by the control system—not by anything outside the control system which is not also a control system. This has got to be very disturbing to certain system concepts—but not to mine.

I do plenty of level-five-on-down control studies—and I think we're all convinced that we can demonstrate and account for the phenomenon of control at those levels rather well. It has to be considered one of Powers' most important insights that *all* behavior can, in principle, be handled by control theory. As I said in my foreword to Bill's book, Bill didn't invent control theory, but he noticed the appropriate way to apply it to living systems. He also noticed that all behavior—from tensing muscles to defending principles—is control and, hence, can be accounted for by control theory. What could be more important to promoting the control-theory view of human behavior than to show that system concepts, principles, programs, etc. are controlled perceptual variables?

So, while I think it is certainly nice to have more and more evidence that variables like temperature, chemical concentration, force, or whatever are controlled, it seems to me it could be monumentally more important to show that things like "atheism," or "humanitarianism," or whatever other system concepts such words only point to, are actually controlled variables—and to show how they are controlled, how disturbances are resisted, etc.

I am happy to volunteer myself as a subject for this investigation Perhaps Bill (or anyone else) could start testing for my controlled principles, programs, etc, by introducing carefully selected disturbances.

Gary Cziko: Rick says: "So, while I think it is certainly nice to have more and more evidence that variables like temperature, chemical concentration, force, or whatever are controlled, it seems to me it could be monumentally more important to show that things like 'atheism,' or 'humanitarianism,' or whatever other system concepts such words only point to, are actually controlled variables—and to show how they are controlled, how disturbances are resisted, etc." I agree that this would an important advance for control theory, but there seem to be (to me, anyway) so many problems in demonstrating this convincingly.

One problem is that if we disturb your principles enough, you might change (reorganize) them, and then we won't see you defending them

any more. If we keep telling you how dumb you are, you might at first resist, but after a while you might reorganize your systems concept so that our comments no longer create any error. We can show control at lower levels because we can count on subjects to be nice and adopt the reference levels we give them. But I can't see this working for high-level reference levels, such as belief in God, etc.

There are also serious ethical problems raised by disturbing one's perceptions at the higher levels. Joel Judd thought of giving students disturbing (inaccurate) test scores to see how they would react. Try getting that one pass the research review committees for human subjects!

But with all of the smart people out there in CSGNet-land (except for Rick Marken, of course), I suspect someone will come up with solutions to these problems.

Bill Powers: Rick says: "I believe the control-theory model says that different people want to perceive themselves as 'Christians' or Jews' or 'Nazis' or 'Communists' or 'Pacifists' because of differences among these people in terms of 11th-order reference signals." To be more precise, it's because of differences in 11th-order input functions. At any level, it's the input function which determines what function of which lower-level signals is to amount to a perception. The perceptual signals are just signals which get bigger or smaller. If you stuck an electrode on the signal, it would look like any other neural signal, no matter what it means. Same for reference signals: they just say "this much," not this much of what. The "what" is given by the form of the input function and which control system you're talking about. I am not at all satisfied with this aspect of the model, because it doesn't seem to capture the quality of perceptions. Chi the other hand, when you focus on any one perception very closely, it starts to seem like "just a signal" and to lose a lot of its meaning. Anyway, good or bad, this is how the model is presently designed.

People get a "Christianness signal" from all sorts of different lower-order perceptions, don't they? The perceptions contributing to Jerry Falwell's Christianness are certainly different from those contributing to the Pope's Christianness. It's very confusing when people use the same words for perceptions that are different. But they have to—there are more perceptions than words.

Gary, the test for the controlled variable doesn't require disturbances so large that they destroy control. All you need is a disturbance large enough to call forth an opposing (successful) effort which can be observed. If the opposing effort succeeds, there won't be enough error for long enough to produce significant reorganization. You won't change a person's principles or system concepts by pushing on them a little. But you will find out a lot about what the person will resist and what the

person will let pass. "Disturbing" a controlled variable doesn't mean pushing hard enough to cause it to change. It just means pushing hard enough to elicit an opposing effort which cancels the disturbance as far as the controlling person is concerned. If you use a large enough disturbance to succeed in overcoming the opposition, the result is, as you say, likely to be reorganization, and you won't be observing the same system any more. But that isn't how the test is used.

There aren't any ethical problems in using the test correctly. You don't actually change anything which matters to the person. The only cost to the person is a little effort to oppose the disturbance. This means, of course, that you must choose your disturbances so they *can* be resisted successfully.