

How useful is unpredictability?

Bruce Craven

Reader in Mathematics at Melbourne University until retirement. Still active in mathematical research and writing.

Abstract

How has gambling become so important, and embedded, in human culture? Does it stem from former conditions when physical risks were necessary? Some unpredictability seems built into the world. What might be a Christian attitude to risk-taking? Could some gambling impulse be directed to better ends?

Key words

Unpredictable, gambling, risk-taking

Introduction

This essay started as a meditation, by a Christian, on why gambling is so deeply embedded in human nature, how it may have arisen, and a few things that might be done about it. Sociologists do not seem to look at these aspects, and psychologists are incomprehensible. Gambling depends on unpredictability, and there is some reason to suppose that an element of unpredictability (at any rate, by humans) is a basic feature of the world, and not only of humans. If so, then there are some implications for the relations between humans and God. Some suggestions here extend an earlier study on 'God in Chaos'.

Why is gambling important?

Why is gambling so important, and so much sought after? Gambling often relates to things of little importance, like the fall of a card, or a random number in a lottery. It is often personally and socially destructive. Why then is it so appealing, and why is there so much of it?

There is extensive psychological and sociological research on gambling, in particular why certain people become 'problem gamblers' (gambling compulsorily to a dangerous extent), or why certain forms of gambling are much done, or how gambling is encouraged and promoted (Cosgrave 2006, Orford et al. 2003). But all this seems to take for granted the phenomenon that many people are strongly attracted to gambling.

Certainly children brought up in a family, or cultural environment, where gambling is usual, are likely to follow this pattern. But how might it have arisen?

Did gambling serve productive functions in earlier times? Our hunter-gatherer ancestors had to take great risks on hunting. If they didn't, they could not feed their children. The descendants of hunters must inherit some propensity for risk-taking.

The great voyages of exploration in the 17th and 18th century could only have been undertaken by men who were happy to take very great risks.

In 19th century North America, much settlement was dangerous; many pioneers died from accidents, disease or lack of food. Many others also gambled other resources than their lives. Much of the infrastructure (e.g. railways) on which further economic development depended, was paid for by investors who gambled their money (and usually lost it). In a different social environment, a lucky one might then be able to keep his gains (though it was understood that a Carnegie must give much away to good causes). There was indeed also a great deal of unproductive gambling (note, for example, the great popularity of poker), but much led to productive results.

In the present social climate, there seems little scope for the pioneering sort of gambling. This must always have been so for a considerable number of city dwellers. But then must the risk-taking impulse break out somewhere else? Is the present gambling mania a misdirection of a risk-taking impulse, that was once sometimes productive?

Some social implications

Can we do anything to redirect some part of the strong gambling impulse to more constructive directions? And what might be those directions?

We don't need now to hunt mammoths; and not many can be astronauts. But many tasks that need doing involve arduous conditions, with dangers involved. As an old man, who is physically handicapped, I certainly cannot tell young people that they should go to third world countries to do risky jobs, without the degree of security and privilege that Europeans had when they were colonial masters (though the risk of disease is much less). But some may yet wish to do these things, and may even be attracted by the risks, if they are given the opportunity. (But they could do with less harassment in the way that taxation and insurance are run.)

Is our society too protective, especially of the young, against risk? I give a few scattered examples. Fifty years ago, a cyclist did not have to wear a helmet. It was not assumed as automatic that dangers must be insured against, or that an accident must be the fault of someone else, who must pay for it. When I fell over on a badly paved footpath, and suffered some injury, I was astonished to be asked, "Are you going to sue the council?". When I was taught chemistry when young, I was expected (without having to be told) to be careful with dangerous chemicals. There was no

thought that accidents should somehow be made impossible. (I remember a room in a French pension where a fire warning did not tell me to escape, leaving all behind; instead, it told me not to panic, and gave instructions on putting out fires.)

There are many areas where farming may be productive, but there are serious human dangers from storm, fire and flood. Our present society tries to stop people taking these risks, and has no place for anyone who thus gambles and then loses, not even anywhere to live, since law and custom permit only expensive housing (with a crushing mortgage). Our present society encourages unproductive gambling, but obstructs productive risk-taking. (If it prospers, they call it capital gains and take the profit away!)

Is unpredictability fundamental?

Is the unpredictability, on which gambling depends, more than a social phenomenon? Many physical systems can show chaotic behaviour; perhaps not at the level of quantum mechanics, but certainly at the higher level where dynamic systems may be described by differential equations. Even if the system is deterministic, uncertainties in the initial condition will make the behaviour unpredictable after some lapse of time, which might be centuries for planets, days for weather, and much shorter intervals for some smaller systems. Indeed, observations cannot prove that these systems are completely deterministic (though they may be). The uncertainties leave some room for some other influences. Determinism need only imply a limited extent of predictability. Such systems are, in a sense, open to the future.

A 'chaotic' system (as many physical systems are), in which a very small (unobservable) disturbance can produce large effects later, leaves room for God (and also human minds) to exert influence, without conflicting with the observations on which physical laws are based (Craven 2006, 'Are God's actions hidden in chaos?'). From this viewpoint, there is room for God's action, and human freewill, as well as physical laws, without any inevitable contradiction. There remains the question, to what (partial) extent is the future determined, or predictable?

Of course, there is no proof that God acts in this way, and a reductionist may choose to apply Occam's razor to reject the concept. The object here is not to claim any proof, but to provide living space for theists (in particular Christians), where they can hold consistently their trust in God and their scientific understanding.

Ethical consequences

If uncertainty thus plays a fundamental role, then how much risk-taking, and of what kind, is not only a Christian's fate, but also his/her responsibility? We are, indeed, told to 'count the cost'. There is no reason to expect God to favour our ill-considered plans. It would be well to avoid financial schemes that we do not understand. But (for example) an

enterprise that would genuinely help the poor and downtrodden might be worth sticking our financial necks out for (although all my 'risk-averse' instincts protest.)

What would happen if our society offered some encouragement to some specified areas of productive risk-taking? This would require some changes to financial (especially tax) arrangements (some risk-takers would have to be allowed to earn more, if they can). And productive risk-taking would need to be given some of the public esteem that is now directed to successful gamblers at casinos and racecourses.

Autonomy?

Many Christians believe both that God determine all details, and that individuals are responsible for their decisions and actions. The two ideas are contradictory. However, with the viewpoint presented here, that predictability is limited, one may hold that God has delegated a large measure of autonomy to his physical world, and to us humans. Thus we have a real freedom to choose our paths, though subject to important constraints on where those paths can go.

The world is highly structured, and not only by physical laws. Random effects are important, but should not be supposed to negate the structure. In biology (see Morris, 2003, and the book review by Stening, 2009) many instances are given where various organisms have developed the same properties independently, often in different isolated locations. Morris concludes from this 'convergence' that the very structure of the universe led them to evolve along similar paths to similar results, even without any other divine intervention. (But such intervention may also happen — see the above discussion of 'chaos'.)

We are somewhat in the position of an explorer through a landscape of mountains, valleys and rivers, many of which he cannot see until he bumps into them. He can choose his path, but only some paths can get anywhere. His world is highly structured, this structure representing (in the present picture) God's intentions. But plan and purpose do not at all imply that every detail is predetermined.

References

Cosgrave, JF (Ed.) 2006, *The sociology of risk and gambling reader*, Routledge, New York.

Craven, BD 2006, 'Are God's action hidden in chaos?', *Christian Perspectives on Science and Technology*, *ISCAST Online Journal*, viewed March 2010, http://www.iscast.org/journal/opinionpageCraven_B_2006-06_God_In_Chaos.jpg

Morris, SC 2003, *Life's solution: Inevitable humans in a lonely universe*, Cambridge University Press, Cambridge.

Orford, J, Sproston, K, Erens, B, White, C, and Mitchell, L 2003, *Gambling and problem gambling in Britain*, Brunner-Routledge, Hove and New York.

How useful is unpredictability?

Stening, R 2009, 'Simon Conway Morris, Life's solution: Inevitable humans in a lonely universe', Book review, *Christian Perspectives on Science and Technology*, *ISCAST Online Journal*, viewed March 2010, http://www.iscast.org/journal/book_reviews_page/Stening_R_2009-06_Conway_Morris_Review