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Celebrity math rehab

Taking risks part of daily life but eventually they all add up

JASON BROWN
Sat. May 15 - 4:54 AM



I read again about another celebrity infidelity and shake my head. But I'm sure the cheaters shake their heads, too, for different reasons — wondering how they got caught.

Surely, in their minds, they were careful enough, but that is part of the problem. Math caught up with them.

Risk is part of everyone's life. We take risks when we take a shower in the morning, when we cross the road to work and when we drive home at night. It's unavoidable.

Many probabilities are small, and we have a safe, uneventful day.

But even small risks can add up.

Suppose that someone, let's call him Shmiger, for argument's sake, repeatedly cheats on his wife with different women. Let's suppose that Shmiger is very careful and discreet, and there is only a small chance, say a 10 per cent one, of any single relationship being found out. A 10 per cent risk is a bit on the high side for things you really want to avoid, but chances are, nine times out of 10, or 90 per cent of the time, the risk taker will get off without consequence.

But what happens when the risk is repeated?

If Shmiger cheats with 12 mistresses, then the chance of getting away with all of the indiscretions is what you get by multiplying the probability of getting away with each, namely: $0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 \times 0.9 = 0.28$.

That is, only 28 per cent of the time will Shmiger get away with all the affairs. With almost an 80 per cent probability, he will get caught in some affair.

It's a bit of a paradox. I'm sure that after the 11th woman, Shmiger thought, "My chance of being caught on the next one is still only 10 per cent, a risk I'm willing to take."

That's all true — chance has no memory of what has happened.

But the important thing is not the chance of getting caught in the next affair, but what are the chances of getting caught up to and including the next one. Risk takers get taken in by this paradox over and over again. And it doesn't matter what the risk, whether it is infidelity, drug or alcohol use, or race car driving.

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Even if the risk is tiny because of training and experience, the risk is still there, and it will eventually catch up to the risk taker, if he or she doesn't die first. And it happens no matter how noble the risk taken, if it is repeated.

Crocodile hunter Steve Irwin's death is a case in point. He was an expert working with dangerous wildlife. But, of course, there was a risk every day in his work, and it caught up to him. By repetition, you upgrade your level of risk significantly.

So, now you're going over in your mind all the risks you take and re-evaluating taking them.

What about all the flights you take? Well, flying is indeed risky, but the risk is so small that you would have to fly over 4.02 million kilometres before your risk of dying in an airplane crash exceeded 50 per cent. So while flying is risky, it is a risk I'm willing to take.

And here is the final point. With all the various risks we have the option of taking every day, how should we decide which ones to accept and which to avoid?

Mathematically, a rational process for making such decisions is based not only on probabilities, but also on the value we attach to the outcomes of risky events. There is always a trade-off between the risk and benefit.

Psychologists have discovered that teens often make poor choices in risk taking, not because they minimize the probability of the risks, but because they overvalue the value of taking the risk, whether it is drugs, alcohol or sex.

Perhaps the Tigers and Jesses need to reconsider what they value. If only they could check themselves into math rehab.

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