How do you narrow the field while you date? Try math.

By Sheldon H. Jacobson

Valentine's Day reminds us that we seek a person whose company we can enjoy and even with whom we can grow old. Indeed, at some point, most of us contemplate settling down with a life partner.

Yet with about half of marriages ending in divorce, most people are not doing a particularly good job of finding such a person.

Whether we settle for the first person we date or the 20th, determining the "right" person is an inexact science. Yet science — specifically, mathematics — may be able to help.

Consider this situation. You are presented with 20 boxes, each containing a prize that you cannot see. The prizes are valued from best to worst. You get to randomly pick a box and observe the value of the prize that it contains. You must then decide to keep the prize or toss it aside and pick another box. The one rule that you must follow is that once you discard a prize, it cannot be retrieved; it is gone forever. You also know the relative value of all the prizes that you have picked so far, while not knowing the value of the other prizes.

So at what point do you settle for a prize that you picked, forgoing the opportunity to observe and pick other prizes?

Sound familiar? It should. Think of the prizes in the box as potential life partners and every time you pick a box and observe its prize, you are dating one such person.

Mathematics has found a solution to this problem so as to maximize your probability of picking the prize with the highest value (aka the "best prize"). If you want to maximize your chance of picking and keeping the best prize, the best strategy is surprisingly simple: discard the first seven items and then keep the next item you pick that has a value larger than the seven items that you discarded. If there is no such item, then you keep the 20th item.

If you have 40 items in a box, discard the first 14 items and keep the next item you pick that has a value larger than the 14 items that you discarded.

This simple strategy is rooted in sound mathematics. In fact, the problem is called the best prize problem or the secretary problem. The strategy described here results in the highest probability of ending up with the highest value prize. The probability is around 0.37. As noted above, this strategy gives you the best chance of finding the ideal life partner.

The one unknown: How many people do you plan to date before you decide to settle down?

To help resolve that question, suppose that your settling down period runs from age 18 to 37. Suppose that you can reasonably get to know two people per year. This means that the number of prizes is 40 people, and using the best prize strategy, you would spend the first seven years dating and getting to know people. Then once you reach person No. 15, you would decide to settle down with the person who rises above all the previous people you dated.

You could, of course, bend the rules. Suppose No. 22 is the second-best person you dated up until that point. You can then decide to settle down with that person, forgoing the opportunity that the ideal person is waiting just around the corner at No. 33.

Then again, you may decide to divorce No. 22 for No. 33. However, you would likely not be dating while you're settled down, so No. 33 may never enter your life.

The takeaway from this analysis is finding the ideal life partner is complicated. The best prize problem, however, encourages you to sample from a pool of several people before making your decision.

Your parents likely gave you this advice when you were young and began to date. They encouraged you to meet and interact with several people and not focus on settling down with a single person too soon.

This is also likely the advice that you are giving your own children.

The process of finding a life partner can be complex. Yet with a bit of mathematics, strategies exist that help you narrow the field.

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