The Mathematics of How I Met My Wife

(an introduction to Fermi Problems and significant figures)

In my early thirties, I remember sitting in my kitchen, faced with a high probability that I was going to remain single. There was actually a calculator in my hands, which further diminished the chances that I would meet a nice girl, but I also took that into consideration.

Not wanting to rob the cradle and neither wanting someone already fighting a biological clock, my preferences were for someone 1 to 8 years younger than me. Given that I'm wired to seek out species-representatives with two copies of the X-chromosome; based on a female-lifespan of about 80 years and that my contacts were with people from an urban population of 3 million, the pool of candidates consisted of $0.5\left(\frac{8}{80}\right)(3 \times 10^6) = 150\,000$ women. The almanac, however, revealed that 41% of women in that age group were already married, which cut the candidates to 61 500.

Based on my youth, thinking of women in either my neighborhood or school, it seemed that maybe 1 in every 30 liked me. I, in turn, seemed to be physically drawn to 1 in every 15 women. That created a mutual attraction factor of 1 in every 30×15 = 1/450. That reduced the total number of candidates to 137.

Even to someone who likes science, I can seem to be on the obsessive side so it was imperative that my future mate would understand and enjoy the subject. At the time about a quarter of women had at least a bachelor's degree, and of those only about 10% had one in sciences or engineering. That meant I was down to 0.25(0.10)137 = 3.4 women (without rounding off after intermediate steps).

I was always open to having relationships with women of different cultures and did have a few. But even without narrow-minded parents in the way, it was simply easier to have a common background between mates. Given the proportion of Mediterranean women in the city, the 3.4 candidates dwindled to 0.17. There were uncertainties in the calculation, but Fermi problems usually put one within an order of magnitude (power of ten), so basically there were between 0.017 to 1.7 Montreal woman waiting for me. Average out the extremes, apply significant figures, and it rounds off to one.

One morning, a few weeks after the doomsday-calculation, I was on my way to work. After a long conversation with an acquaintance whom I had not seen in years, and while the subway doors were closing, he mentioned a job opening.

I had been thinking of switching schools, so I contacted the person in charge, and got the job for the upcoming academic year. At the time, we had a lab technician whom our head teacher did not like. I thought he was responsible and competent. But not enough people shared my opinion. The next autumn his replacement walked in. She was easy talk to and then I was struck by her resemblance to a pretty girl I knew back from elementary school, who happened to be her relative. Of Italian origin, and eight years younger than me, she also had a degree in chemistry. After several conversations, I asked her out on a dinner date.

Eight months later we were married and working in Hawaii, 7905 kilometers from my lonely kitchen and estimations.