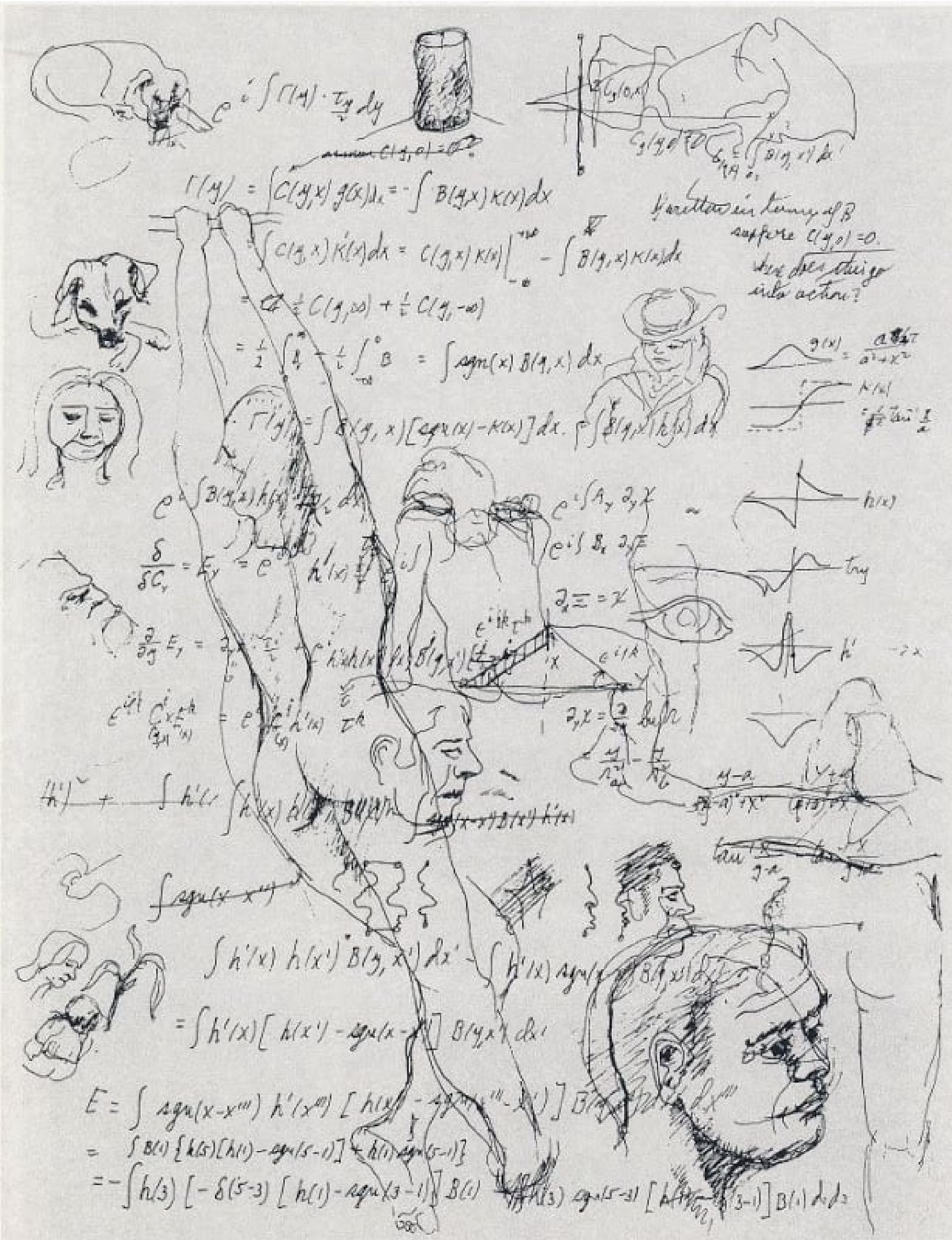
Framing Reality: Richard Feynman

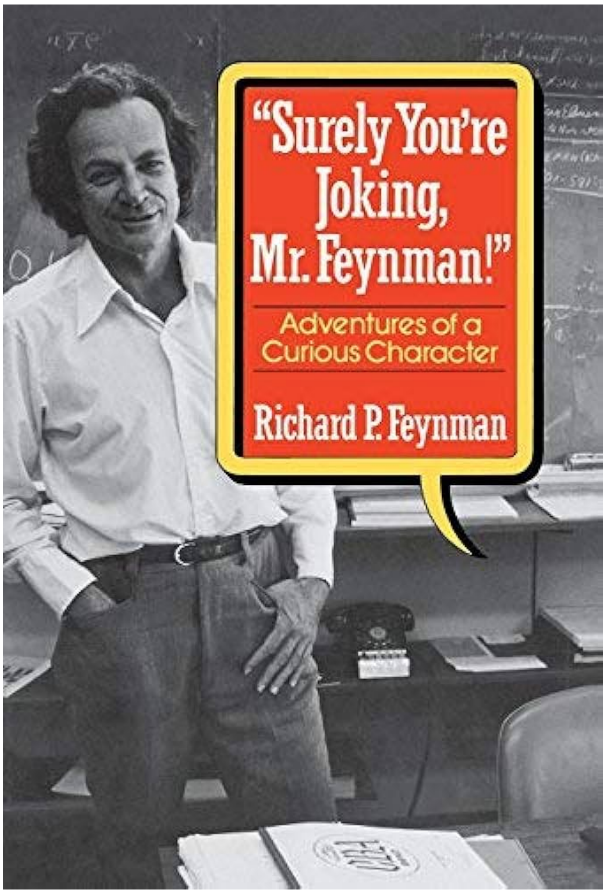
by [Carl Nelson](#) (December 2023)



Untitled— Richard Feynman

“Surely You’re Joking, Mr. Feynman!” is the autobiography of Richard P. Feynman, a Nobel Prize winning physicist, who was also famous for his leprechaun nature. The man had a fascination for puzzles, math, and women—somewhat in that order—and his life motored a whimsical path between these navigational beacons. This book got raves from my older twin brother electrical engineers. When a Facebook friend touted it recently, I decided it well past time I gave it a read.

Richard Feynman is generous with the people in his reminiscences, from hookers to gamblers to showgirls, to other scientists. His anecdotes are about curiosity and puzzle-solving. The punch lines are usually about pulling a prank or setting up a situation such as to fool his confederates at Los Almos, by safecracking or snitching classified files from out of their locked cabinets.



A most arresting aspect of Feynman’s nature is that he can describe something of interest to himself mathematically—while most of us are left with words, or lacking this, just inchoate gesture. Once Feynman described a particular event mathematically, he could then make further predictions about that event through the use of ensuing calculations, find hidden analogies with other events, and open doors to even further speculations. In the book’s leading example of this, he notices a plate tossed through the air in the college canteen which wobbles as it spins. Mr. Feynman seeks to describe this mathematically, taking on the challenge for fun. He succeeds in this and then goes on to predict the relationship of the two concurrent motions mathematically. About this he says, “There was no importance to what I was doing, but ultimately there was. The diagrams and the whole business that I got the Nobel Prize for came from that piddling around with that wobbling plate.”

Looking at an event and figuring how to characterize it mathematically boggles me—though I try in a like way with poetry. And whereas to think that my poetic descriptions might lead to a prediction or an insight is a vanity of mine, from Feynman we received a testable reality.

About this, Richard Feynman makes some very useful observations. One is that the usefulness of physics and math only comes from real world observations of how an event occurs. Emerging physics is not the describing the trajectory of such events with *a priori* theorems and laws. Theorems and laws are problems already solved, whereas the description of the real event will demonstrate mathematical relationships which are at work within the situation—even though they might not appear initially to have any applicability. Only the teasing apart of reality will demonstrate this. It’s the difference in being told how to meet girls and having tried it. (Something Feynman studies zealously.) This is what would seem most stressed by Feynman, that is, to find math in reality rather than vice versa. Just for fun, I Googled whether Feynman had ever actually tried to describe a woman mathematically, since he loved observing them. The closest I got was this, from *The Pleasure of Finding Things Out*:

> *When I was at Cornell, I was rather fascinated by the student body, which seems to me was a dilute mixture of some sensible people in a big mass of dumb people studying*

home economics, etc., including lots of girls. I used to sit in the cafeteria with the students and eat and try to overhear their conversations and see if there was one intelligent word coming out. You can imagine my surprise when I discovered a tremendous thing, it seemed to me. I listened to a conversation between two girls, and one was explaining that if you want to make a straight line, you see, you go over a certain number to the right for each row you go up, that is, if you go over each time the same amount when you go up a row, you make a straight line. A deep principle of analytic geometry! It went on. I was rather amazed. I didn't realize the female mind was capable of understanding analytic geometry.

She went on and said, "Suppose you have another line coming in from the other side and you want to figure out where they are going to intersect." Suppose on one line you go over two to the right for every one you go up, and the other line goes over three to the right for every one that it goes up, and they start twenty steps apart, etc.—I was flabbergasted. She figured out where the intersection was! It turned out that one girl was explaining to the other how to knit argyle socks." (Pgs. 175-176)

(For the record my wife, who is a knitter, did not particularly enjoy this passage and thought Feynman "an arrogant ass—add that!" She said. "And by the way, I got a minor in math—just because it was fun!" (Time and marriage have taught me that there are some things wives will not like, and vice versa. But good journalism demands their statement.)

And this leads to one of the book's very valuable offerings. That is, that there is more than one way to solve a math or physics problem. (And more than a thousand ways to describe a woman, I would estimate. Some, they might even like!)

Frankly, I'd never considered that there was more than one way to determine certain mathematical results than that offered through the formula given: for examples, that the area of a circle: $A = \pi r^2$, or that the length of a right triangle's hypotenuse is the square root of the sum of the square of the other two sides. Certainly, these have proved to be most succinct and useful of formulas, but surely not the only ways they might be calculated. For example, what if you haven't the lengths of the other two sides but only the angle and length of one leg? One must understand triangles a bit better to accomplish this. Don't ask me for any more mathematical examples, but more worldly examples abound.

For example, often in life one believes they have solved a problem only to discover later, that they have simply assigned a different character to the problem. I believe serial marriages can be an example of this. So I'm not against serial marriages, as they are simply evidence of there being more than one way to solve a problem. Often, marriage two or three is the keeper.

Likewise, summiting the Matterhorn is a problem with several already mapped out strategies where even, "An ascent of the Hörnligrat (the easiest route) is not a simple undertaking" —Google.

Conversely, we understand the reality in a problem better the more solutions we find to the problem. For example, what is an elephant?

We might find out a lot by asking, how to mount an elephant?

> Problems: the Backbone of Perception, Or, Why an Elephant Might Pass Us Right By!
>
> There are several ways to survive,
> and some are necessarily better than others.

And I’m all for solving a problem in manifold ways,
because how we solve a problem may determine
what we think the problem was—
and lead to a longer life. For example,
if I were to summit an elephant
by placing a ladder to its side,
I’d have a very different idea of the elephant,
than if I were to try and summit from the front.

Moreover our efforts to describe the problem
can determine our solutions.
Summiting an elephant from the front
would certainly involve a more nuanced
understanding of the elephant than
to approach from the side where the need
is mostly for a ladder.

And then sometimes a found solution
can reveal a description, or vice versa. For example,
say that you are still alive,
after trying to mount this elephant,
and the longer you are alive
the more ways you might describe
how easy it is to die. Until, eventually,
you agree it’s a miracle you aren’t already dead.
Or perhaps, the elephant lifts you with its nose?

Without problems to solve,
we might all be blind. There would be no solutions,
and therefore no descriptions.
An elephant might just pass us right by!

To understand life is to understand that there are a number of strategies in either embracing and/or avoiding it. And that possibly the best way to fail at either is to codify one strategy at the expense of all the others. And in this lies the great evil of propaganda which uses ‘framing’ as one of its most used tools.

> *… Lakoff is the godfather of the art of* framing *which is defined as: the process of choosing words and phrases to communicate an idea in a way that invokes certain metaphorical associations and rules out others. Frames set the vocabulary and metaphors through which an issue can be comprehended and discussed. By consistently invoking a resonant frame, the framing party sets the terms of the debate, shapes the perceptions of the issue, and provides a narrative for possible solutions.” —Toby Rogers, substack 9.3.2023*

The most catastrophic and egregious example of this I’ve encountered is contained in an anecdote brought back by some of the first Western economists sent to Russia following détente. The visiting Western economists, in responding to one of the Russians’ most devilish rationing pickles, explained how a free market will automatically set the appropriate pricing and production quotas. The Russians heard this in disbelief. “We have these enormous bureaucracies in place in order to calculate just that sort of thing, and after years of effort we still can’t get it right. And now you claim to be able to solve this same problem by doing nothing?” The Russians found this uproariously funny.

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Carl Nelson has recently finished a book of poetry titled, *Self-Assembly*, which will be published shortly, and from which the above poetry has been selected. To see this and more of his work, please visit Magic Bean Books.

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