

*Excerpts from Daniel Dennett, ch. 2 of Intuition Pumps and Other Tools for Thinking, W.W. Norton, 2013.*

### **1. Making Mistakes [Cf. Falsification in Science]**

Making mistakes is the key to making progress. Of course there are times when it is really important not to make any mistakes—ask any surgeon or airline pilot...But it is less widely appreciated that there are also times when making mistakes is the only way to go. Many of the students who arrive at very competitive universities pride themselves in not making mistakes—after all, that’s how they’ve come so much farther than their classmates, or so they have been led to believe. I often find that I have to encourage them to *cultivate the habit* of making mistakes, the best learning opportunities of all. They get “writer’s block” and waste hours forlornly wandering back and forth on the starting line. “Blurt it out!” I urge them. Then they have something on the page to work with...Biological evolution proceeds by a grand, inexorable process of trial and error—and without the errors the trials wouldn’t accomplish anything...

The chief trick to making good mistakes is not to hide them—especially not from yourself. Instead of turning away in denial when you make a mistake, you should become a connoisseur of your own mistakes, turning them over in your mind as if they were works of art, which in a way they are. The fundamental reaction to any mistake ought to be this: “Well, I won’t do *that* again!” Natural selection doesn’t actually think the thought; it just wipes out the goofers before they can reproduce; natural selection won’t do that again, at least not as often...[But] when we reflect, we confront directly the problem that must be solved by any mistake-maker: what, exactly, is *that*? What was it about what I just did that got me into all this trouble? The trick is to take advantage of the particular details of the mess you’ve made, so that your next attempt will be informed by it and not just another blind stab in the dark...

So when you make a mistake, you should learn to take a deep breath, grit your teeth, and then *examine* your own recollections of the mistake as ruthlessly and as dispassionately as you can manage. It’s not easy. The natural human reaction to making a mistake is embarrassment and anger...and you have to work hard to overcome these emotional reactions. Try to acquire the weird practice of savoring your mistakes, delighting in uncovering the strange quirks that led you astray. Then, once you have sucked out all the goodness to be gained from having made them, you can cheerfully set them behind you, and go on to the next big opportunity...

I am amazed at how many really smart people don’t understand that you can make big mistakes in public and emerge none the worse for it. I know distinguished researchers who will go to preposterous lengths to avoid having to acknowledge that they were wrong about something. They have never noticed, apparently, that the earth does not swallow people up when they say, “Oops, you’re right. I guess I made a mistake.” Actually, people *love* it when somebody admits to making a mistake. All kinds of people love pointing out mistakes. Generous-spirited people appreciate your giving them the opportunity to help, and acknowledging it when they succeed in helping you; mean-spirited people enjoy showing you up. Let them! Either way we all win.

## 2. Rapoport's Rules [Avoiding the Straw Fallacy]

Just how charitable are you supposed to be when criticizing the views of an opponent? If there are *obvious* contradictions in the opponent's case, then of course you should point them out, forcefully. If there are somewhat hidden contradictions, you should carefully expose them to view—and then dump on them. But the search for hidden contradictions often crosses the line into nitpicking, sea-lawyering,<sup>1</sup> and—as we have seen—outright parody. The thrill of the chase and the conviction that your opponent *has* to be harboring a confusion somewhere encourages uncharitable interpretation, which gives you an easy target to attack. But such easy targets are typically irrelevant to the real issues at stake and simply waste everybody's time and patience, even if they give amusement to your supporters. The best antidote I know for this tendency to caricature one's opponent is a list of rules promulgated many years ago by the social psychologist and game theorist Anatol Rapoport (creator of the winning Tit-for-Tat strategy in Robert Axelrod's legendary prisoner's dilemma tournament).

How to compose a successful critical commentary:

1. You should attempt to re-express your target's position so clearly, vividly, and fairly that your target says, "Thanks, I wish I'd thought of putting it that way."
2. You should list any points of agreement (especially if they are not matters of general or widespread agreement).
3. You should mention anything you have learned from your target.
4. Only then are you permitted to say so much as a word of rebuttal or criticism.

One immediate effect of following these rules is that your targets will be a receptive audience for your criticism: you have already shown that you understand their positions as well as they do, and have demonstrated good judgment (you agree with them on some important matters and have even been persuaded by something they said).<sup>2</sup>

Following Rapoport's Rules is always, for me at least, something of a struggle. Some targets, quite frankly, don't deserve such respectful attention, and—I admit—it can be sheer joy to skewer and roast them. But when it is called for, and it works, the results are gratifying. I was particularly diligent in my attempt to do justice to Robert Kane's (1996) brand of incompatibilism (a view about free will with which I profoundly disagree) in my book *Freedom Evolves* (2003), and I treasure the response he wrote to me after I had sent him the draft chapter:

. . . In fact, I like it a lot, our differences notwithstanding. The treatment of my view is extensive and generally fair, far more so than one usually gets from critics. You convey the complexity of my view and the seriousness of my efforts to address difficult questions rather than merely sweeping them under the rug. And for this, as well as the extended treatment, I am grateful.

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<sup>1</sup> Maritime law is notoriously complicated, strewn with hidden traps and escape clauses that only an expert, a sea lawyer, can keep track of, so sea-lawyering is using technicalities to evade responsibility or assign blame to others.

<sup>2</sup> The formulation of Rapoport's Rules here is my own, done from memory of correspondence with Rapoport many years ago, now apparently lost. Samuel Ruth recently pointed out to me that the original source of Rapoport's Rules is in his book *Fights, Games, and Debates* (1960) and his paper "Three Modes of Conflict" (1961), which articulates rule 1, attributing it to Carl Rogers, and variations on the rest of the rules. My version is somewhat more portable and versatile.

Other recipients of my Rapoport-driven attention have been less cordial. The fairer the criticism seems, the harder to bear in some cases. It is worth reminding yourself that a heroic attempt to find a defensible interpretation of an author, if it comes up empty, can be even more devastating than an angry hatchet job. I recommend it.

### 3. Sturgeon's Law [Cf. Appeal to Authority]

The science-fiction author Ted Sturgeon, speaking at the World Science Fiction Convention in Philadelphia in September 1953, said,

When people talk about the mystery novel, they mention *The Maltese Falcon* and *The Big Sleep*. When they talk about the western, they say there's *The Way West* and *Shane*. But when they talk about science fiction, they call it "that Buck Rogers stuff," and they say "ninety percent of science fiction is crud." Well, they're right. Ninety percent of science fiction is crud. But then ninety percent of everything is crud, and it's the ten percent that isn't crud that is important, and the ten percent of science fiction that isn't crud is as good as or better than anything being written anywhere.

Sturgeon's Law is usually put a little less decorously: *Ninety percent of everything is crap*. Ninety percent of experiments in molecular biology, 90 percent of poetry, 90 percent of philosophy books, 90 percent of peer-reviewed articles in mathematics—and so forth—is crap. Is that true? Well, maybe it's an exaggeration, but let's agree that there is a lot of mediocre work done in every field. (Some curmudgeons say it's more like 99 percent, but let's not get into that game.) A good moral to draw from this observation is that when you want to criticize a field, a genre, a discipline, an art form, . . . *don't waste your time and ours hooting at the crap!* Go after the good stuff, or leave it alone. This advice is often ignored by ideologues intent on destroying the reputation of analytic philosophy, evolutionary psychology, sociology, cultural anthropology, macroeconomics, plastic surgery, improvisational theater, television sitcoms, philosophical theology, massage therapy, you name it. Let's stipulate at the outset that there is a great deal of deplorable, stupid, second-rate stuff out there, of all sorts. Now, in order not to waste your time and try our patience, make sure you concentrate on the best stuff you can find, the flagship examples extolled by the leaders of the field, the prize-winning entries, not the dregs. Notice that this is closely related to Rapoport's Rules: unless you are a comedian whose main purpose is to make people laugh at ludicrous buffoonery, spare us the caricature. This is particularly true, I find, when the target is philosophers. The very best theories and analyses of *any* philosopher, from the greatest, most perceptive sages of ancient Greece to the intellectual heroes of the recent past (Bertrand Russell, Ludwig Wittgenstein, John Dewey, Jean Paul Sartre—to name four very different thinkers), can be made to look like utter idiocy—or tedious nitpicking—with a few deft tweaks. Yuck, yuck. Don't do it. The only one you'll discredit is yourself.

### 4. Joosting [Cf. Paul Graham, "What You Can't Say"]

...[It is hard] to achieve what Doug Hofstadter (1979, 1985) calls joosting, which stands for "jumping out of the system." This is an important tactic not just in science and philosophy, but

also in the arts. Creativity, that ardently sought but only rarely found virtue, often is a heretofore unimagined violation of the rules of the system from which it springs. It might be the system of classical harmony in music, the rules for meter and rhyme in sonnets (or limericks, even), or the “canons” of taste or good form in some genre of art. Or it might be the assumptions and principles of some theory or research program. Being creative is not just a matter of casting about for something novel—anybody can do that, since novelty can be found in any random juxtaposition of stuff—but of making the novelty jump out of some system, a system that has become somewhat established, for good reasons...

Advising somebody to make progress by jootsing is rather like advising an investor to buy low and sell high. Yes, of course, that’s the idea, but how do you manage to do it? Notice that the investment advice is not entirely vacuous or unusable, and the call for jootsing is even more helpful, because it clarifies what your target looks like if you ever catch a glimpse of it. (Everybody knows what more money looks like.) When you are confronting a scientific or philosophical problem, the system you need to jump out of is typically so entrenched that it is as invisible as the air you breathe. As a general rule, when a long-standing controversy seems to be getting nowhere, with both “sides” stubbornly insisting they are right, as often as not the trouble is that there is something they both agree on that is just not so. Both sides consider it so obvious, in fact, that it goes without saying. Finding these invisible problem-poisoners is not an easy task, because whatever seems obvious to these warring experts is apt to seem obvious, on reflection, to just about everybody. So the recommendation that you keep an eye out for a tacit shared false assumption is not all that likely to bear fruit, but at least you’re more likely to find one if you’re hoping to find one and have some idea of what one would look like.

## 5. The “Surely” Operator: A Mental Block [Cf. Overconfidence Effect]

When you’re reading or skimming argumentative essays, especially by philosophers, here is a quick trick that may save you much time and effort, especially in this age of simple searching by computer: look for “surely” in the document, and check each occurrence. Not always, not even most of the time, but often the word “surely” is as good as a blinking light locating a weak point in the argument, a warning label about a likely boom crutch.<sup>3</sup> Why? Because it marks the very edge of what the author is actually sure about and hopes readers will also be sure about. (If the author were really sure all the readers would agree, it wouldn’t be worth mentioning.) Being at the edge, the author has had to make a judgment call about whether or not to attempt to demonstrate the point at issue, or provide evidence for it, and—because life is short—has decided in favor of bald assertion, with the presumably well-grounded anticipation of agreement. Just the sort of place to find an ill-examined “truism” that isn’t true!...

I decided recently to test my hunch about “surely” a bit more systematically. I went through dozens of papers—about sixty—on the philosophy of mind at [philpapers.org/](http://philpapers.org/) and checked for occurrences of “surely.” Most papers did not use the word at all. In those that did use it (between one and five times in the sample I checked), most instances were clearly innocent; a few were, well, arguable; and there were six instances where the alarm bell sounded loud and clear (for

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<sup>3</sup> This is Dennett’s term for any “thinking tools that backfire, the ones that only seem to aid in understanding but that actually spread darkness and confusion instead of light” (p. 14)

me). Of course others might have a very different threshold for obviousness, which is why I didn't bother tabulating my "data" in this informal experiment. I encourage doubters to conduct their own surveys and see what they find.

## 6. Rhetorical Questions

Just as you should keep a sharp eye out for "surely," you should develop a sensitivity for rhetorical questions in any argument or polemic. Why? Because, like the use of "surely," they represent an author's eagerness to take a short cut. A rhetorical question has a question mark at the end, but it is not meant to be answered. That is, the author doesn't bother waiting for you to answer since the answer is so flipping obvious that you'd be embarrassed to say it! In other words, most rhetorical questions are telescoped *reductio ad absurdum* arguments, too obvious to need spelling out. Here is a good habit to develop: Whenever you see a rhetorical question, try—silently, to yourself—to give it an unobvious answer. If you find a good one, surprise your interlocutor by answering the question. I remember a *Peanuts* cartoon from years ago that nicely illustrates the tactic. Charlie Brown had just asked, rhetorically, "Who's to say what is right and wrong here?" and Lucy responded, in the next panel, "I will."

## 7. What is a Deepity? [Cf. the Bait-and-Switch Fallacy]

My late friend, the computer scientist Joseph Weizenbaum had a yearning to be a philosopher and tried late in his career to gravitate from technicalities to profundities. He once told me that one evening, after holding forth with high purpose and furrowed brow at the dinner table, his young daughter Miriam said, "Wow! Dad just said a deepity!" What a wonderful impromptu coinage! I decided to adopt it and put it to somewhat more analytic use.

A deepity is a proposition that *seems* both important and true—and profound—but that achieves this effect by being ambiguous. On one reading it is manifestly false, but it would be earth-shaking if it were true; on the other reading it is true but trivial. The unwary listener picks up the glimmer of truth from the second reading, and the devastating importance from the first reading, and thinks, Wow! That's a deepity. Here is an example. (Better sit down: this is heavy stuff.)

Love is just a word.

Oh wow! Cosmic. Mind-blowing, right? Wrong. On one reading, it is manifestly false. I'm not sure what love is—maybe an emotion or emotional attachment, maybe an interpersonal relationship, maybe the highest state a human mind can achieve—but we all know it isn't a word. You can't find love in the dictionary!

We can bring out the other reading by availing ourselves of a convention philosophers care mightily about: when we *talk about* a word, we put it in quotation marks, thus:

"Love" is just a word.

This is true; "love" is an English word, but just a word, not a sentence, for example. It begins with "L" and has four letters and appears in the dictionary between "lousy" and "low-browed," which are also just words. "Cheeseburger" is just a word. "Word" is just a word. But this isn't fair, you say. Whoever said that love is just a word meant something else, surely. No doubt, but they didn't say it. Maybe they meant that "love" is a word that misleads people into thinking that

it is the term for something wonderful that doesn't really exist at all, like "unicorn," or maybe they meant that the word was so vague that nobody could ever know whether it referred to any particular thing or relation or event. But neither of these claims is actually very plausible. "Love" may be a troublesome, hard-to-define word, and love may be a hard-to-be-sure-about state, but those claims are obvious, not particularly informative or profound.