Solomon's Sword Beats Occam's Razor

Stan Kelly-Bootle, Author

I've told you a googol times or more: Don't exaggerate! And, less often, I've ever-so-gently urged you not to understate.¹ Why is my advice ignored? Why can't you get IT... just right, balanced beyond dispute? Lez Joosts Mildews, as my mam was fond of sayin,² boxing both my ears with equal devotion. Follow the Middle Way as Tao did in his Middle Kingdom. Or "straight down the middle," as golfer Bing Crosby used to croon. His other golf song was "The Wearing of the Green," but such digressions run counter to my straight, plow-on-ahead advice. I've just smoked a cigarette branded Cleopatra, but that's none of your beeswax neither, and strictly between me and my Egyptian placements sponsor.

So, shun deviations and avoid life's bunkers lurking left and right. Our current presidential candidates excel in this craftiness, being both pro-Nafta and anti-Nafta as the local polls dictate. Yet, by one of those many quirks of natural language, politicians seeking "compromises" often find their reputations "compromised."

In pondering the attributes that make for good, well-shod scientists, and in particular, good systems designers and developers, an intuitive sense of balance looms large. We work from incomplete specifications and ill-defined, oft-conflicting aims. Do you want IT *now* or do you want IT *functional*? There are few finer discussions of these challenges than Jim Waldo's 2004 essay, "On System Design" (available via <http://doi.acm.org/10.1145/1167515.1167513>).

Waldo pondered anew why things were getting worse. After reviewing the "design" process, and reminding us of the term's ambiguity (systems may exhibit *design* without having been *designed*), he traces the environmental causes for this decline, such as intellectual property constraints and poor training. There's always some element of "us-them" scapegoating when things go wrong: echoes of Hardy wrongly blaming Laurel, which always niggles me because "Another fine mess you've gotten us into, Stan" easily triggers my guilty self-defensive reactions. (Why are there so few Stans around, whether Stanleys or Stan-islauses?)

Waldo, unlike the whinging Hardy, suggests real remedies of the agile and open persuasions to reduce the mess,

Choosing

YOUR BEST HYPOTHESIS

but without excluding the occasions when heavy and closed subterfuge is needed. Interestingly, he stresses the need for cour-

age at the grass-roots, nonmanagerial level—for example, in the ways masters should teach their crafts and delegate to apprentices. At the same time, Waldo urges solutions that don't require impractical major revolutions in the managerial infrastructure. You need to work around existing organizational hazards. Thus, we return to my opening theme of balancing between opposites. This is not the same as cowardly (and possibly painfully) sitting on fences. We envisage more a hidden door or two in the fence accessible to the qualified gnostic who is free to roam unhindered, admiring the views in many fields.

We face the apparent paradox that it's possible and useful to honestly hold mutually contradictory beliefs simultaneously. The Greek *dilemma* for two such opposing beliefs can be extended to *trilemma* for three, and on to *n-lemma*, but we strongly recommend small positive integral values for *n*. We can exclude Quineans whose heads are buzzing with propositions and quoted "propositions" that mean their opposites: that way madness lies, and a possible collapse of meaningful meanings. What I have in mind (to coin a phrase!) is hinted at by the idiom "playing both sides down the middle." There are plausible beliefs, which we can poshly call hypotheses, of the type Karl Popper called "falsifiable." Indeed, he used falsifiability to distinguish scientific hypotheses from those that may well be meaningful but somehow fall outside the nit-probing methods of science. Trying to ignore the sniff of circularity (which is all around us on such occasions), we seek ways of distinguishing between beliefs that require endless individual observational verifications to sustain them and beliefs that, at least conceptually, could admit to a sudden single deflating counter-example (see this column, "Some Swans are Black," July/August 2007).

Precision in wording one's beliefs is paramount, of course, when moving between formal and informal statements. Did Dijkstra consider all GOTOs harmful³ or,

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tautologically, just the ones that caused harm? And harm to whom? We can read beyond the title that Dijkstra is carefully “hedging his bets.” No computer is worth its chips without a branch-on-negative operator. So, it’s not so much the “going-to” another distant part of your program that’s harmful, it’s how to write readable control jumps in higher-level languages. GOTO-less programming means cleaner, structured code; GOTO-full programs were messy and hard to maintain, producing what the critics called spaghetti code, an insult to all pasta lovers.⁴

Many language theologians defend the compound GOTO known as the CASE statement. I go further by claiming God’s approval. No peer review can be peerer! Nature’s own Grand Unified Law is but a set of better-than-realtime nested CASE statements. I’ve seen the listings. Alas, I was allowed the skimpiest walk-through, and that only after signing a terrifying nondisclosure thingy of Faustian proportions. Dare I risk revealing the gist? Well, just entre nous. Note that God uses C++ (no surprise there, Bjarne):

```
#include <DixieDean.h> // divine headers, q.g. [quod
google]
```

```
T = -tPlanck; // start clock just ahead of time
```

```
switch BigBang {
    case 0: wait (tPlanck); t-break; ...
    case 1: switch word {
        ...
        case googol^googol: { ... }
        ...
    }
```

As far as I could check with HyperLint, every eventuality seems to be covered without a single exception throw needed. Readers reading this on April 1 are warned that I’m aware that I seem to be presenting a discredited, deterministic, discretely countable universe. Not necessarily. The symbols 0, 1, and googol are not to be interpreted by human C++ standards. God gave us the integers, and God can override the integers.

Dijkstra, “spreading his bets,” suggests another helpful idiom, leading to game theory and risk analysis. For here we reach real life as it is lived by the vast majority of my readers. A moment of truth approaches, demanding honest introspection. If your beliefs have no discernible impact on your behavior, can we really believe the sincerity of your belief-claims? Russell was fond of testing someone’s belief that it was going to rain. Did that someone

stay indoors or venture out without her brolly? Sooner or later, balances must be balanced, weights weighed, decisions made, bets placed, acts enacted. But how to pick the best (or least-worst) hypothesis?

Occam’s razor just shaves off a few baby-hairs from rival hypotheses. Solomon’s sword divides the whole baby, offering each mother an evenly balanced slice. But hurry before someone empties the baby with the bathwater. (Philosophers love these confusing homely parables.) We nod knowingly over the Biblical tale, admiring Solomon’s wisdom in identifying the biological mother. Don Watson applies modern jurisprudence to the case with telling results (“Solomon Reversed on Appeal”),⁵ while I’m inclined to ponder the outcome if the mothers had been equally versed in game theory brinkmanship. Calling them Mrs. A and Mrs. B, we must assume that each sincerely believes in her claimed maternal relationship. Each must weigh the credibility of Solomon’s threat to cleave the babe in twain. And each must assign values to the possible outcomes: one mother winning full custody or neither; both gaining gruesome half-custody, which can be taken as at least denying the rival mother custody. Twisting the aphorism, “It’s not enough to succeed, others must fail,” we reach this: “It’s not so bad losing as long as others do not win.” Jim Waldo’s courage is in great demand.

In our own fair trade, extreme, opinionated, back-biting positions are taken on the most fundamental issues, such as “What is or are data, and how should it or they be processed?” As that curmudgeon’s curmudgeon, Arthur Schopenhauer, meant to say, “Opinions are like bums, everybody’s got one.”⁶

Even from our 60 glorious ACM years of relatively polite ruminations, the rumble of language and operating-system religious wars breaks through. Open Software’s Open Wounds? Methodological Madness? The Association of Computing Machinations? And up for grabs on the ground floor (awaiting the \$1 million P = NP Clay Institute Prize): Completely Unprovable Incompleteness? As we quipped in the FastRandy Univac days, “I hear the sound of distant drums!” But let’s not exaggerate.

FROM BOOLE TO BOOTLE

It’s hard, not to say pointless, to formalize this balance of extremes. But Booles rush in.⁷ Extending my great, grand (meaning famously renowned) Great-Grand-Uncle George’s binary logic, we have the SKB-quasi-continuous-ternary system with +N (true), -N (false), iN (meaningless). Here, N is an integer ≥ 0 intended, somehow, to indicate plausibility or evidential-support; *i* is either

of the square roots of minus 1. Your choice, if you think it matters. The aim is to “quantify” propositions over an integral Gaussian lattice (q.g.).

$T(P) = (x, y) = x + iy$, the truth-value of P , is meant to indicate some mix of truth, falsehood, and meaninglessness. With $y = 0$ (giving $T(P)$ real values), we are close to traditional binary Booleans but with $x > 0$ meaning true, $x < 0$ meaning false, and with the added nuance that $x_1 > x_2 > 0$ means that x_1 is more true than the true x_2 . Similarly $0 > x_1 > x_2$ means that x_2 is falser than the false x_1 . Reassuringly, all truths, however small, are truer than all falsehoods, however small! For $x = 0$, $y \neq 0$, we conveniently locate all truly meaningless propositions on the y -axis. I’m working on a meaningful metric for meaninglessness, one that meets our daily intuition that some propositions are clearly dafter than others. Thus, $y_1 > y_2$ means y_1 is more meaningless than y_2 . The rules for logical implication must also be carefully extended beyond the traditional $(p \rightarrow q) = (\neg p \vee q)$. We must retain the old truth tables for real values of $T(P)$, so that true never implies false, but I’ve never been happy with false implies true or false. We would certainly hope to prevent “daft” implying anything “dafter,” while “daft” can safely imply “less daft.” Formally, $T(0, y_1) \rightarrow T(0, y_2)$ for all $y_1 \geq y_2 > 0$. But $T(0, y_1) \rightarrow T(0, y_2)$ for all $y_2 \geq y_1 > 0$. I call this the Limiting Insanity Clause in honor of the Marx Brothers.

The singularity at the origin $T(P) = (0, 0)$ is reserved for genuine, meaningful don’t-knows. Don’t push me on this. Epistemologist Donald Rumsfeld has not returned my calls. Some think they know that the truths or falsehoods of Goldberg’s conjecture ($P = NP$) are presently unknown but in essence knowable. That is, one day, before the stars lose their glory,⁸ we’ll nail them as true or false. Others think they may be in essence undecidable a la Goedel. One thing is certain. I’ll never get a Fields medal unless those ageist bastards increase the MaxAge $\gg 40$.

THE TEXT IS TAKEN FROM...

High on my list of why-bothers is a recent “translation” by the Australian Bible Society of the Bible into mobile-phone text-speak format. This SMS Bible is ever-so-predictably unclever when u find @ da strt of Gnsis: “In da Bginnin God cre8d da heavens & da earth. Da earth waz barren, wit no 4m of life...” Surely not blasphemous as some sensitive souls have screamed. And you can hardly say that anything is literally lost in translation, since the SMS is almost an automatic token-by-token mapping of the earlier CEV (Contemporary English Version) from the American Bible Society. En route via untold redactions

from the original Hebrew, Aramaic, and Greek via Tyndall to the KJV (King James Version and its gender-free Ruler James Version) and on to the CEV, there are paths that many bemoan as undignified dumbing-downs. Is the SMS version just a gimmicky last straw? Or will hoodies dig the message and see the light?

Will this weak rebic⁹ file-compression scheme ever find a place among all our Zip and archiving tools? I say Stuffit! Incidentally, TTY has reemerged as the abbreviation for this telephone-text mode. Olde Fartes will recall the ancient peripheral as defined in my *Devil’s DP Dictionary* (McGraw-Hill, 1981):

TTY n. \pronounced ‘titty’\ [Acronym for TeleTYpe] Any terminal of the teletype vintage in which the restricted character set is more than offset by the unique busy signal, viz., printer noise. See also GLASS TTY.

To save you hunting in your attic for the tattered remains [sic] of my book, here’s the cross-ref:

GLASS TTY n. \pronounced ‘glass titty’\ A CRT terminal so lacking in features that it behaves like a TTY.

CRT n. [Cathode Ray Tube] Originally an important storage device, developed by Prof. F.C. Williams, Manchester University, in 1947, but now relegated to trivial applications in the timesharing and entertainment environments. See also GLASS TTY.

At this rate I could exhaust you and the dictionary tracking overt and covert links. I’ll leave it for now with the oft-quoted daddy of all cross-references:

recursive adj. See recursive.

Thanks for the reader feedback on conflicting aphorism-pairs. I’ll report the winners in my next column. Q

REFERENCES

1. *Understating* is not the use of footnotes, which are a few of my favorite things, along with Julie Andrews, the sound of music, and positive reader feedback. Note, too, that *understanding* really means *overstanding*.
2. Scouse mothers’ malapropisms are called *malapudlianisms*. See “Lern Yerself Scouse,” Stan Kelly, Fritz Spiegel, Frank Shaw (Scouse Press, 1966).
3. “GOTO Statement Considered Harmful.” Letter to *Communications of the ACM*. March 1968; reprinted in the 60th anniversary issue.

4. Older readers will know of R. Lawrence Clark's response to Dijkstra's letter: the infamous COME FROM construct (*Datamation*, December 1973). What started as a spoof became a serious joke involving programs running backwards; http://www.fortran.com/come_from.html.
5. Watson, D. E. 1992. Solomon Reversed on Appeal; [http://www.enformy.com/\\$solomon.html](http://www.enformy.com/$solomon.html).
6. For some genuine Schopenhauerian quotes and insights, see *The Consolations of Philosophy*, Alain de Botton, Penguin, 2001. Schopenhauer's own opinions were even stronger than Nabokov's or Dijkstra's. Thus: "If only I could get rid of the illusion of regarding the generation of vipers and toads as my equals, it would be a great help to me" (op. cit., 176).
7. The Bootle-Boole family connection has now been verified at Disney's GenomeLand. The T-gene mutation can be dated to the Irish potato famine, compounded with spelling errors by a Lincoln Registrar.
8. You'll share my relief that cosmological eschatologists have extended the cosmic lifespan to 300 trillion years. Make them all count! Start running that NP program NOW.
9. Readers are invited to coin a more precise word than

rebus for the simpler set of phonograms used in text-speak (1 = won; 4 = for; 6 = sex; 8 = ate; Gr86 = great sex; G! = gangbang; more). No doubt the new mobile phones, as pocket servers/workstations/satnavs/tv studios, can handle the full range of graphic rebuses.

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