AFFINE ROMANCE

Stan Kelly-Bootle, Author

Buyer (and seller) beware

There's a British idiom, "Suck it and see," the epitome of skepticism, which despite its coarse brevity could well replace whole libraries of posh philosophic big-talk about the fabric of reality. A less aggressive version is "Show me, I'm from Missouri," which requires the proper Southern Mizoorah drawl for maximum impact. Wherever you're from, the message is one of eternal vigilance in the face of fancy claims. Advertising, the creation and pushing forth of fancy claims, predates human literacy, and its success is evident in many rampant domains ranging from religion and astrology to sugared water, pet rocks, and Java (only joking there, James).

From the serpent's cunning loss-leader fruit promotion in Eden (hurry, this offer ends soon) has grown a major industry, the dynamo of consumerism, winning both West and East. Ironically, there are warnings of evil in the very etymology (Latin *adversus*) and even stronger revelations in Vance Packard's *The Hidden Persuaders* (1957). It's still referred to generically as Madison Avenue, although the special talent needed to bamboozle, or in euphemistic ad-speak, "motivate," buyers is quite evenly distributed around the globe.

My immediate agenda, though, is to spread the blame between "seller" and "sold" in Packard's tales of greed and exploitation. No amount of caveat emptor (buyer beware) crusading seems able to rein in HomSap's infinite gullibility. The sucker birthrate increases daily, a potential refutation of Darwinian Dawkinsism. The various failed anti-consumerism campaigns lack the finely honed persuasions of the Madison Avenue "enemy." Can you spot the paradox: anti-ad ads? I propose, "Buy Two Caveat Emptor Banners, Get One Free!" Not quite as compelling as "Make your Armpits into Charmpits!"

HARD SELLING SOFTWARE.

HAVE I GOT THE ALGORITHM FOR YOU!

The marketing ploys revealed by Packard revolved around the idea that people don't buy *things*. They buy the related intangible dreams: satisfaction, self-esteem, and social success. The ads must disguise the objects accord-

ingly, so that cars mean freedom and sex appeal. What's the equivalent in selling computer hardware and software? Much has changed, of course, since the mainframe days of yore. When I was marketeering for IBM in the 1950s, the T. J. Watson credo reversed the traditional direction of selling-buying. The onus was on potential buyers to prove their worthiness to own a piece of sublime Big Blue.¹ Some of you may remember the prevailing "rule" that nobody could be blamed for installing (that is to say, being approved by) IBM rather than Univac—even if things went badly wrong.

As computer prices dropped and competition increased, old-fashioned selling and advertising returned. The current talisman is that those look-alike commodity platforms are touted as *solutions*. The problems may be ill-defined, possibly nonexistent, but who can resist *solutions*? Indeed, the solution now precedes the problem. The hardware can be jazzed up color-wise, reaching the point where people pay extra to have their MacBooks robed in Hamlet Black, a bizarre twist on the Henry Ford Model T's singular choice of paint jobs.

Of course, computer hardware is truly "general purpose" (see any book on Turing machines), so the promised *solutions* come in the form of operating systems, compilers, and applications. These invisible, unglamorous bit-strings, either pre-embedded or post-loaded from boxed disks, are what distinguishes the products as problem solvers.

The ad writers therefore need to extol the virtues of what must remain to most buyers rather mysterious, intangible entities. One might add, semi-cynically, that how these diverse bit-strings manage to interoperate with reasonable predictability is itself a major mystery to those who have strung the bits together. So, we find the ads claiming advantages that may strain the legal bounds of honesty. In the hierarchy of fibbing, also called the ISO Mendacity Sequence, we have lies, damned lies, statistics, damned statistics, benchmarks, delivery promises, and ACM Curmudgeon columnies.²

As well as benchmarks, intended to assert runtime speed advantages, we meet harder-to-verify claims concerning ease of installation, user friendliness, and that elusive, desirable “flexibility.” These subjective properties combine to offer the dream of “instant satisfaction,” whereby the solution itself is problem free.³ Such claims usually fall within reasonable honesty-in-advertising guidelines, whereas promises of “robustness” (especially “industrial robustness”) give one (or more) pause.

Here, claims of being “bug free” invoke deep questions at the bleeding heart of computing science. The most that can be plausibly expected is that after a certain number of primate-Planck time units of intense and ongoing tests under as many conditions as imaginable (including those of our beta-site guinea pigs), the number of detected, unplanned anomalies (see attached graph, or not) has been falling exponentially, and, damnitall, the release date cannot be further delayed. Then a statement that only the finest programmers are employed, using the best-of-breed tools and methodologies (see attached list, or not). Further, that an online auto-software-update system is available. Next, perhaps, a footnote explaining that some critical modules have been formally proved to be correct using formally proved code-proving programs. Finally in nano-font, a polite warning that in the unlikely event of injury, death, or loss of profits arising from missing semicolons, misdirected pointers, or dangling conditionals, you can, in the nicest way, go kiss our corporate ass.

It's worth adding the obvious: that the level of expected and implied “guarantee” will vary between vendors of compilers, operating systems, Web browsers, spreadsheets, games, spam filters, malware detectors, missile guiders, and cardiac monitors.⁴ Returning to the real world, we rely on reputation, word of mouth, and the Web-vine. For all the sneaky manipulations of our minds and wallets, I come down on the side of our democratic free-market economy, warts and all, with some reasonable regulations controlling “truth in advertising.” Since buyers sell and sellers buy (the two transactional roles can never be avoided), common sense should lead to a mutual respect for the seller's wiles and the buyer's cautions.⁵

So, watch me as I promote a book that you *must* buy.

TAOCP, VOLUME 4: THE ZEROETH FASCICLE

Yes, newly clutched in my damp, impatient hands is El Don's long-awaited and ongoing continuation of his three-volume *The Art of Computer Programming*. Its official title is *Volume 4 Fascicle 0: Introduction to Combinato-*

rial Algorithms and Boolean Functions (Donald E. Knuth, Addison-Wesley, 2008). There can be few ACM readers unaware of TAOCP and its complex publicational saga. What was started in 1962 as a single-volume project grew to a planned six- or seven-volume work, of which volumes 1 to 3 appeared in 1968, 1969, and 1973, respectively. Each of these was variously expanded with second or third editions between 1973 and 1998 together with a separate fascicle 1 for volume 1 in 2005, destined to become part of a volume 1, fourth edition. Are you paying attention?

The emergence of volume 4 as the planned complete treatment of combinatorial algorithms was delayed for several valid reasons. There were major diversions into industry-changing computer typesetting software (five volumes on TeX and METAFONT), not to mention teaching duties at Stanford, lectures *go leor*, a book on *Concrete Mathematics* (excluding Aggregate Theory and Stone's Embedding Theorem⁶), a playful account of Conway's *Surreal Numbers*, some Biblical diversions called *3:16*, and a prolific flow of original papers. As Knuth explains with typical Donnish humor, a key reason for volume 4's delay was that the very subject of combinatorics (his personal favorite branch) suffered (or enjoyed) a combinatorial explosion. There was also the need to revamp the hypothetical MIX computer and its assembly language in which the volume 1-3 algorithms were presented. The GNU MDX, by the way, lets you emulate the MIX “hardware” and run Knuth's code “from the book.” Now we have son-of-MIX, the RISC-based MMIX.

As a brief personal digression, I spent a day with Knuth at Stanford in 1980 seeking ideas for my *Devil's DP Dictionary* (see reference 2), myself being the nervous schoolboy fan in the great man's presence. We discovered that we had both worked on the IBM 650 upon which MIX is based. He located the online JARGON file compiled by Crispin/Finkel/Steele/Woods, which proved a rich resource. My deep regret: I had assembled photographs of Babbage, Cray, Iverson, Knuth, Turing, Wilkes, and other notables to present in a hall-of-fame section of my dictionary, but, alas, McGraw-Hill scotched the idea.

We already have the smaller *Volume 4, Fascicles 2* (2005), *3* (2005), and *4* (2006), while *Fascicle 1* is projected for 2009. But the latest *Volume 4, Fascicle 0*, modestly called a booklet by Knuth, is quite a meaty chunk at 216 pages. It's quite daunting to think that *Fascicle 0* will eventually form but a part of Chapter 7, Volume 4. We

pray that El Don's health allows him to complete *Volume 4* in as many fascicle stages as he considers proper. Then on to *Volumes 5, 6, 7* (for which tentative titles exist) as the arts of computer programming just refuse to slow down. Echoes of the Tristram Shandy/Russell paradox: a diary where each day's activities take two days to record.

MAIL ACKS

Duncan A. Hall offers from New Zealand some welcomed refinements to my Gaussian lattice of complex truth-values $T(P) = x + iy$ (*ACM Queue* March/April 2008). He suggests that we can use the two values of $i = \sqrt{-1}$ to distinguish "truly meaningless" from "falsely meaningless." I invite meaningful examples.

Andy Kowalczyk, whose name I once saw on an optician's test-card, sends me from Bloomington, Indiana, an aphorism penned by Roger de Bussy-Rabutin while he was serving anxious time in the Bastille. It's movingly relevant to the prize-winning contradictory pair, "Absence makes the heart grow fonder" and "Out of sight, out of mind," submitted by Joe Perret (*ACM Queue*, May/June 2008).

"Absence is to love as wind is to fire; it extinguishes the small and kindles the great."

It brings to mind the tragic loss of Jim Gray who disappeared at sea on January 27, 2007, and the moving anniversary tributes in the August 2008 issue of *Communications of the ACM*. Ambrose Bierce (whose *Devil's Dictionary* was my inspiration) is another hero of mine whose time and place of death are unknown—Gringo Bierce simply vanished without a trace having joined Villa's army during the Mexican civil war in 1913-14. There was much speculation, following several sightings, that Bierce may have lost his memory and survived in some remote part of Mexico. Can we assign some tiny, tiny probability to the possibility that Jim Gray may still be alive? However disturbing that may be to his loved ones, wouldn't the conjecture appeal to Jim's scientific mind?

I offer my dear readers the usual prize beyond valuation for the best explanation of my column title, "Affine Romance." Hint: geometrical clues in the Kern/Field hit song of 1936. **Q**

REFERENCES

1. One is reminded of Ettore Bugatti's approach when selling his customized Royale model in the late 1920s. Buyers had to establish that they were reigning monarchs. The global market crashes combined with diverse regime changes came at a bad time for sales. The huge

prices fetched now by Bugatti Royales (I believe all seven have survived—I've personally seen five of them) indicate what a real bargain they were back then.

2. *Mendacity Sequence* (n.) "An ISO standard sorting sequence allowing the F's in a truth table to be ordered by degree of falsehood." *Benchmark* (v. trans.) "To subject (a system) to a series of tests in order to obtain prearranged results not available on competitive systems." (Kelly-Bootle, S. 1981. *The Devil's DP Dictionary*. New York: McGraw-Hill).
3. The cliché "If you're not part of the solution, you're part of the problem" is one of those glib dichotomies that has oft led to a job termination. Both it and its inversion defy a decent parse. "No Parseran," as my uncle in the Spanish Civil War proclaimed before he was forced to surrender.
4. My own internal pace-setting pacemaker and external monitor are programmed in C++, which Bjarne Stroustrup assures me is a good thing, better than Java for what's known as Borrowed Realtime with Nonrandom Garbage Collection. After a recent check, my esteemed cardiologist Dr. Evans (flattery was never more warranted or advisable) told me that my pacemaker battery was good for another four years. I said, "I'll do the best I can."
5. Omar Khayyam's *Rubaiyat*: "I often wonder what the vintners buy / One half so precious as the goods they sell." (tr. E. Fitzgerald).
6. These are Knuth's own in-jokes.

LOVE IT, HATE IT? LET US KNOW

feedback@acmqueue.com or www.acmqueue.com/forums

STAN KELLY-BOOTLE (<http://www.feniks.com/skb/>; <http://www.sarcheck.com>), born in Liverpool, England, read pure mathematics at Cambridge in the 1950s before tackling the impurities of computer science on the pioneering EDSAC I. His many books include *The Devil's DP Dictionary* (McGraw-Hill, 1981), *Understanding Unix* (Sybex, 1994), and the recent e-book *Computer Language—The Stan Kelly-Bootle Reader*. *Software Development Magazine* has named him as the first recipient of the new annual Stan Kelly-Bootle Eclectech Award for his "lifetime achievements in technology and letters." Neither Nobel nor Turing achieved such prized eponymous recognition. Under his nom-de-folk, Stan Kelly, he has enjoyed a parallel career as a singer and songwriter. He can be reached at curmudgeon@acmqueue.com.

© 2008 ACM 1542-77300/08/0900 \$5.00