

ELEMENTS

CHRISTOPHER STRACHEY'S NINETEEN-FIFTIES
LOVE MACHINE

By Siobhan Roberts February 14, 2017

Long before artificial intelligence came into its own, Strachey taught a computer to write love letters.

Overwrought love letters began turning up on the notice board at the University of Manchester's computer lab in August, 1953. Dripping with lustful vocabulary, they were all variations on a basic syntactic template: "YOU ARE MY [adjective] [noun]. MY [adjective] [noun] [adverb] [verbs] YOUR [adjective] [noun]." And the signatory was always the same: "M.U.C.," for the Manchester University computer, a Ferranti Mark 1, the world's first general-purpose and commercially available machine of its kind. But the real author of the letters (in the first instance, anyway) was Christopher Strachey, a pioneering programmer. As he confessed in an article the following year, "There are many obvious imperfections in this scheme (indeed very little thought went into its devising), and the fact that the vocabulary was largely based on Roget's Thesaurus lends a very peculiar flavor to the results." For Strachey, though, the interesting thing was how a simple setup, using only about seventy base words, could produce a combinatorial explosion of results—on the order of three hundred billion different letters. The lovelorn user could run the program over and over until his fingers seized up, and never see the same letter twice.

DARLING HONEY

YOU ARE MY ARDENT FERVOUR. MY FELLOW FEELING COVETOUSLY PANTS
FOR YOUR YEARNING. YOU ARE MY LITTLE THIRST. MY DESIRE ATTRACTS
YOUR AMBITION. YOU ARE MY SWEET HUNGER.

YOURS WINNINGLY

M. U. C.

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Strachey was something of an outlier, according to Martin Campbell-Kelly, a historian of computing at the University of Warwick. While scientists and mathematicians of the day typically used computers strictly for numerical calculations, like analyzing weapons trajectories or seeking prime factors of huge numbers, his fascination was with non-numerical computations—what soon became known as artificial intelligence. “Strachey grabbed hold of that much more than anybody else,” Campbell-Kelly told me. The results were not always lovey-dovey. Besides training the Mark 1 to churn out billets-doux, he also taught it to play checkers (“draughts,” in British parlance). If M.U.C.’s opponent made too many mistakes, it would get crotchety and print out a reprimand: “I refuse to waste any more time. Go and play with a human being.”

Strachey’s literary inclinations were at least partly inherited, as Campbell-Kelly once noted in *Annals of the History of Computing*. He was a branch off the Bloomsbury tree, nephew of Lytton Strachey, one of the group’s founding members. Born in 1916, he grew up on London’s Gordon Square, with Virginia Woolf and John Maynard Keynes as neighbors. Oliver Strachey, his bookish, puzzle-loving father, trained as a pianist and became a cryptographer. His mother, Ray Costelloe, trained as a mathematician and electrical engineer and became a suffragist politician and author. Christopher started out in

mathematics at King's College, Cambridge, but, because of social and intellectual diversions, finished with a lower second in the natural sciences. During the war, he worked as a physicist for Standard Telephones and Cables; later, he became a beloved schoolmaster known for his brainteasers and science-society talks—two on Norbert Wiener's "Cybernetics," one on interplanetary travel, and another on the surface tension of soap film.

In 1951, Strachey asked his fellow King's alumnus Alan Turing, then assistant director of the Manchester computer lab, for a copy of his recently compiled Mark 1 handbook. Strachey proceeded to write the longest program the computer had ever run—twenty pages, with about a thousand instructions written by hand. He debugged it, astonishingly, in a single overnight session. This earned him Turing's praise and a job at Britain's National Research and Development Corporation. Strachey wrote the love-letter program while waiting to begin his new assignment, taking aesthetic advice from his sister, Barbara, and inspiration from Turing's 1950 essay "Computing Machinery and Intelligence." Turing himself was a believer, but he imagined the skeptic's view of machine intelligence. Far as computers might advance, this person would claim, "you will never be able to make one to do X"—where "X" meant "be kind, resourceful, beautiful, friendly, have initiative, have a sense of humour, tell right from wrong, make mistakes, fall in love, enjoy strawberries and cream, make some one fall in love with it," and other skills besides.

In choosing to write a program that expressed adoration rather than humor or literary talent, Strachey was perhaps playing the cynic, exposing the mechanical nature of romance. The German artist and theorist David Link, in his book "Archaeology of Algorithmic Artefacts," observes that Strachey's program was the first experiment in text-generating software, predating by thirteen years the M.I.T. chatbot ELIZA, which offered interactive psychotherapy. "Ultimately the software is based on a reductionist position vis-à-vis love and its expression," Link writes. "Love is regarded as a recombinatory procedure with recurring elements."

Link himself is ostensibly more of a romantic, having devoted six months of

his life to resurrecting the love-letter algorithm. Sourcing vintage parts on eBay and elsewhere, he constructed an emulator of the Ferranti Mark 1 that could execute the original source code. Then he took the contraption on tour. The resulting computer-art installation, LoveLetters_1.0, debuted in 2009 and, after nearly a dozen shows—in Australia, China, Germany, and Japan—ended its run, last June, at the Manchester Art Gallery. (Link's next Strachey homage, "Draughts," opens this fall at the Center for Art and Media Technology, in Karlsruhe.)

Last month, I invited myself to Link's home studio, in Cologne. By the time I arrived, he had pulled his creation out of storage (he keeps the boxes in his bedroom) and crudely rigged up the guts and brains of the operation on a table in his office. "So, we can start the machine," he said, flipping a switch on a console the size of an extra-large keyboard. A set of what looked like elongated floodlights turned on, phosphorescent green dots blinking in neat grids on their surfaces. These were Williams cathode-ray tubes, where the device's memory is stored; in the original Mark 1, they lived behind the screen, but for the installation Link decided to suspend them dramatically in the air. (For our fleeting purposes, they just sat on the table.) "Freud says that love is very much about projection," Link told me. "The same is true with the human-computer relationship." Suddenly, as we sat there in quiet contemplation, a loud racket erupted, causing my chair to shake. "Oh, it must be three o'clock," Link said. He had programmed a teleprinter, sitting on the floor next to me, to deliver love letters at one, three, and five.

For Link, the allure of Strachey's work is more historical than romantic. "My interest was not to seduce people with the program," he said. "In a nutshell, it shows how far artificial intelligence of a certain type can get with the variable-script-based approach." Link compared the program to modern-day haiku generators (charming enough) and commercial virtual agents (maddeningly useless). "You may have a short-term effect of surprise that a machine can really do such a thing, but you will feel the skeleton behind it quite quickly," he said.

Still, there is always a chance that the algorithm will make the heart leap with a few inspired lines of poetry rather than dissonant nonsense. Or perhaps the point is that they are one and the same—the same sweet nothings. As Link noted, Goethe once said that a good love letter should be “completely incomprehensible, so that friends and lovers would have complete liberty to put true meaning into it.” When Link printed off his very first missive from the Mark 1, this liberty belonged to his wife. The note began “DARLING LOVE,” but Link wouldn’t divulge anything else to me. “That’s Katja’s love letter,” he said.

The version of Strachey’s love-letter generator that appears in this article is based on the emulator developed by David Link.

Siobhan Roberts is the author of “Genius at Play: The Curious Mind of John Horton Conway.”

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