

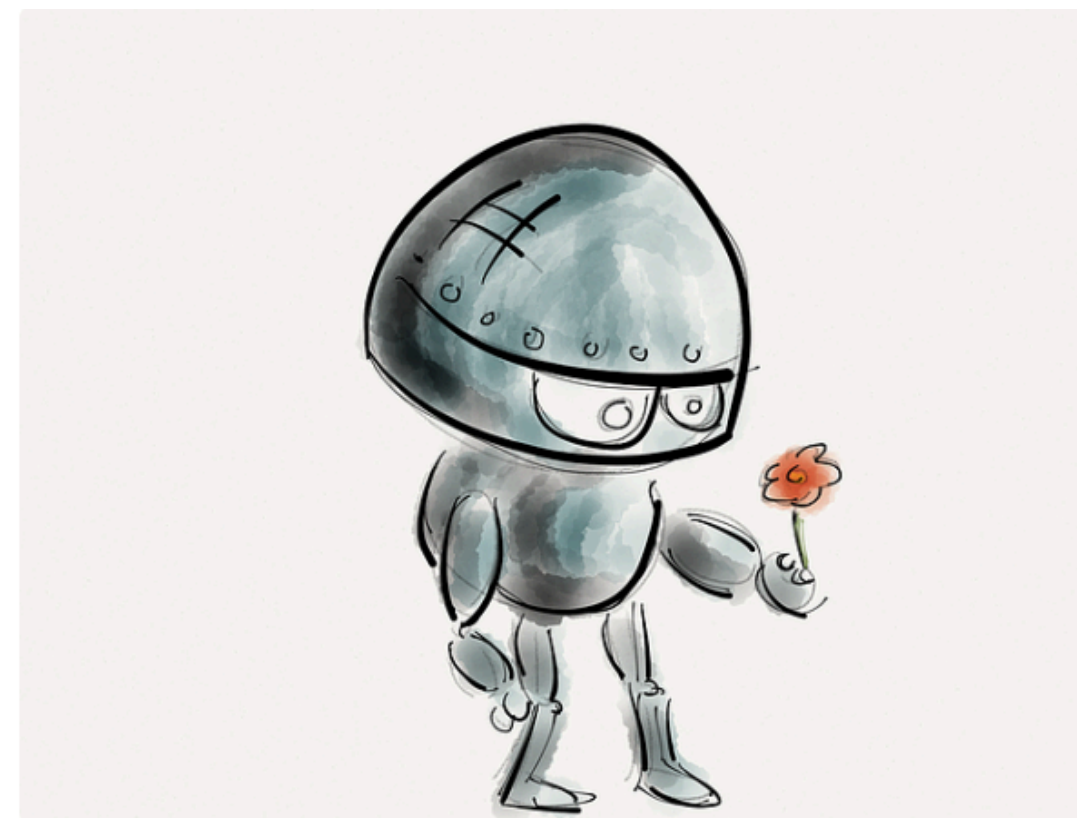
# Creating a Love Letter Program (Unplugged)

The (fun) work of Christopher Strachey

[cs4fn.blog/christopher-strachey/](https://cs4fn.blog/christopher-strachey/)

(A talk for LGBTQ+ month)

Paul Curzon, Queen Mary University of London

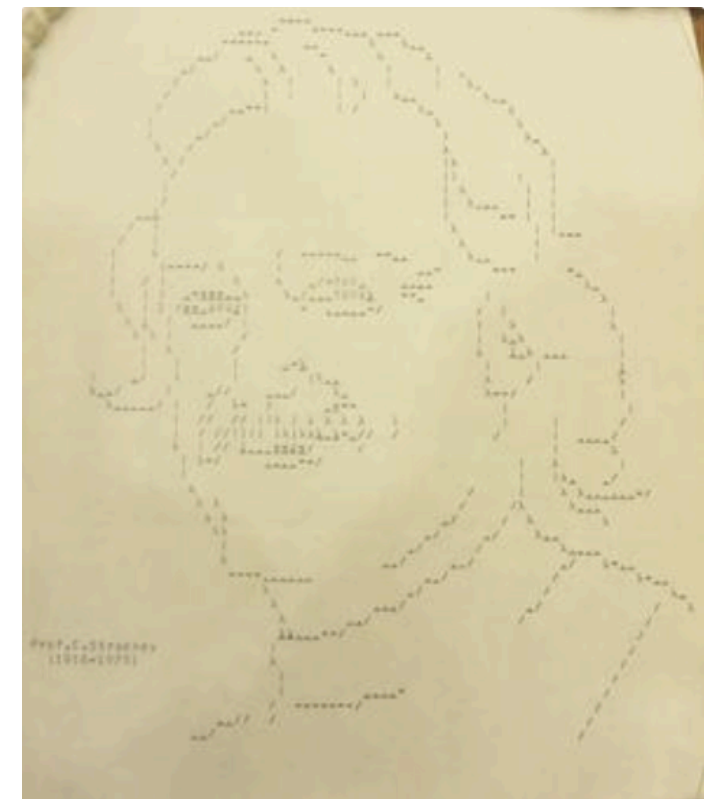


# Programs being creative

- Computer creativity is a major research area.
  - work on eg generating stories, jokes, marketing ads ...
- First person to think about it was the Victorian, Ada Lovelace.
  - She suggested computers would one day do creative tasks (like compose music), though said they would not be intelligent, not *really* creative.
- Now Chatbots like ChatGPT can write poems, stories, songs, Haiku, programs, etc (based on machine learning and natural language processing).
- One Science Fiction short story publisher just stopped accepting manuscripts as was being swamped by computer generated stories.

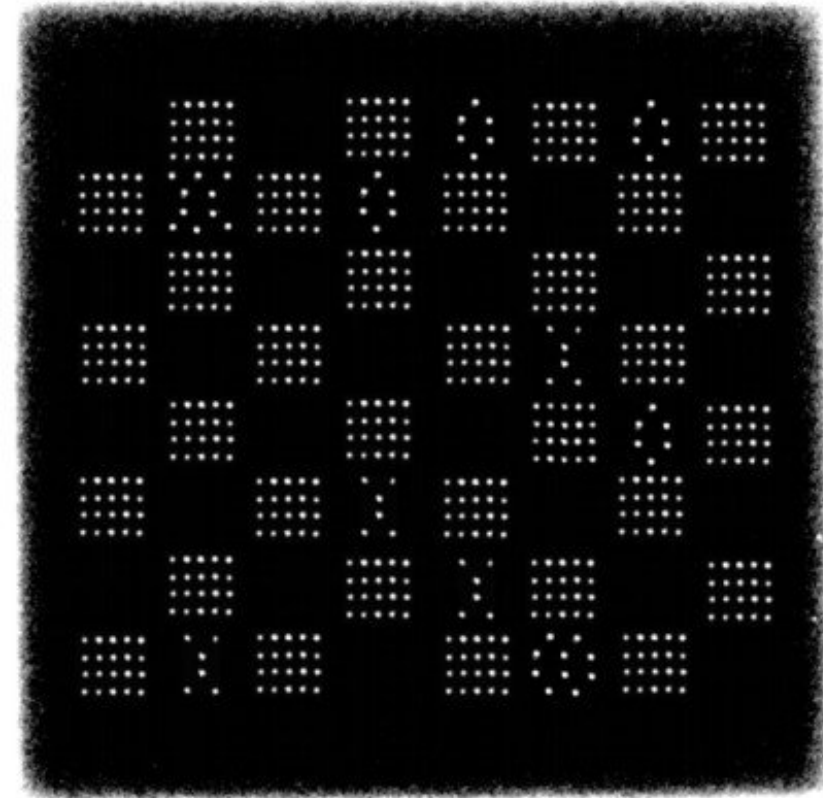
# Christopher Strachey

- A school teacher who became a computer science great working in the area of programming language design
- He went on to lead the Programming Research group at Oxford University
- (despite struggling at school and having a nervous breakdown at university)
- One of the first wizard programmers
  - Reputation as an expert debugger
  - Especially good at helping others to debug their own programs



# Christopher Strachey

- Given a chance to “play” on the NPL pilot ACE computer and then the Manchester Mark I and II computers.
- Wrote the first computer (draughts-playing) game.
- First recorded computer music
  - His draughts program played God Save the King with a flourish on the computer’s Hooter at the end of the game
- In 1952 he wrote the first “creative” program
  - a love letter writing program



# A Love Letter Generator

See <https://teachinglondoncomputing.org/writing-love-christmas-algorithm/>

- Strachey's program wrote gushing love letters like:

*BELOVED CHICKPEA,*

*YOU ARE MY EAGER BURNING, MY FONDEST WISH,*

*MY EAGER HEART, MY BREATHLESS THIRST.*

*MY FONDEST FANCY LOVINGLY ATTRACTS YOUR AVID ENTHUSIASM.*

*YOURS BEAUTIFULLY, M.U.C*

- How?
  - It used templates with gaps for nouns, verbs, etc
  - It randomly selected words from word lists to substitute into the appropriate slots

# One possible template

(Either use a fixed template or take template lines in random order)

*salutation name-to,*

*I (I)verb **your** adjective noun.*

***You are my** noun1.*

***I want** (to)verb **you forever.***

***You are my** adjective noun2.*

***My** noun2 adverb (It)verb **your** adjective noun2.*

***Yours,** adverb, name-from.*

*Beloved Little Cabbage,*

***I pine for **your** wistful devotion.***

***You are my** cuddle-bear.*

***I want to hold **you forever.*****

***You are my** burning desire.*

***My** affection lovingly yearns for **your** sympathetic passion.*

***Yours,** keenly, Muppet.*



# An Unplugged activity

**Combine English and Computing**

See <https://teachinglondoncomputing.org/writing-love-christmas-algorithm/>

- A fun way to learn both English grammar and algorithms.
- The algorithm...
  - Have students create their own word lists (and later template lines).
  - Put words onto packs of template cards.
    - Separate packs for nouns, verbs, etc.
  - Shuffle and draw from the piles to choose words.
  - Add them to the template sheet to create a love letter.

# Example Word Lists

**salutation:** Beloved, Cherished, Darling, Dear, Dearest

**name:** Angel, Baby, Chickpea, Duckling, Honey Bee, Teddy Bear, Jewel, Little Cabbage, Light of my Life, Little Dove, Love, Muppet, Pumpkin, Sweetheart

**adjective:** affectionate, amorous, anxious, avid, beautiful, breathless, burning, covetous, craving, curious, eager, fervent, fondest, loveable, lovesick, loving, passionate, precious, seductive, sweet, sympathetic, tender, unsatisfied, wistful

**noun1:** buttercup, cuddle-bear, dreamboat, heart, hunger, love, poppet, rose

**noun2:** adoration, affection, ardour, charm, comfort, craving, desire, devotion, enchantment, fervour, fondness, hunger, infatuation, love, lust, passion, thirst

**adverb:** affectionately, ardently, anxiously, curiously, eagerly, fervently, fondly, keenly, lovingly, passionately, seductively, tenderly, wistfully

**(to) verb:** to eat, to kiss, to caress, to hold, to see, to touch

**(I) verb:** adore, cling to, hold dear, hope for, hunger for, like, long for, love, lust after, pant for, pine for, sigh for, tempt, thirst for, treasure, yearn for

**(It) verb:** adores, clings to, hopes for, hungers for, likes, longs for, loves, lusts after, pines for, pounds for, sighs for, tempts, thirsts for, treasures



# If love is too embarrassing...

- Instead use templates to generate:
  - Holiday postcard messages
  - Christmas cards
  - Halloween horrible greetings
  - Reworded song lyrics eg
    - **Ain't no** sunshine **when she's** gone ...
    - **Ain't no** cabbage **when she's** snoring ...
  - Counting stories, etc
  - Other variations
    - Have students work out existing templates (eg Strachey's) from the output

# Write the program (then improve it)

## ...a very good intro programming exercise

- Students learning to code could then write the program.
- Different levels of complexity are possible:
  - The user inputs the words (from randomly selected cards) when asked.
  - If statements used to choose words.
    - given the result of a “random” method.
  - Add a method for each template line.
  - Use a for loop to choose template lines randomly.
  - Use Arrays/lists for word lists.
- Could also provide partial programs to edit.

# From 1952 to now

- Strachey wrote his program 70 years ago
- Now chatbots can generate similar “creative” things.
- They use Deep Learning and Natural Language models...
  - still just following algorithms
  - essentially just making predictions of sequences of words most likely to come next
  - based on word sequences from the internet

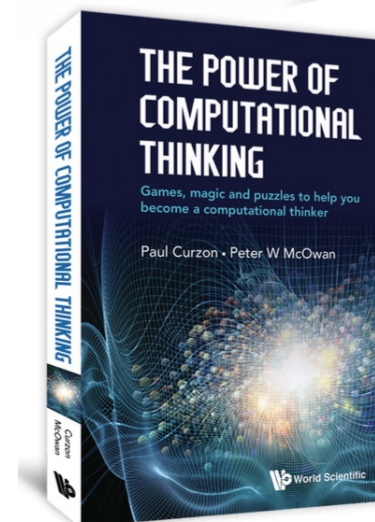
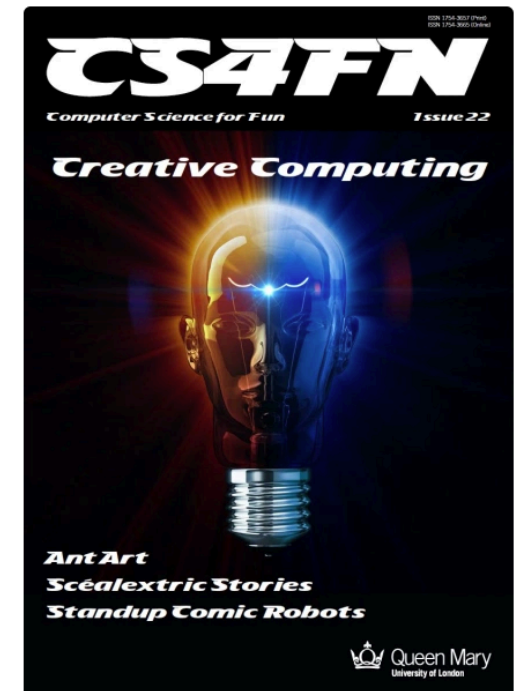
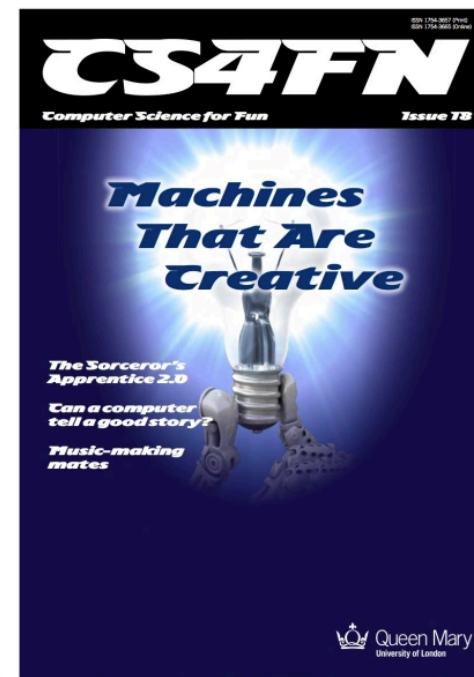
# Summary

- Strachey was an amazing computer scientist but with a massive sense of fun.
- Generator programs are a fun way to combine English with Computing
  - whether unplugged or writing the program or both.
  - the unplugged activity is the design phase
  - can lead to discussion of creative programs and whether they are creative, chatbots, what creativity is, ethical issues ...

# Thank You

**cs4fn.blog/christopher-strachey/**

- For free resources on the fun side of Computer Science
  - cs4fn.blog, Twitter @cs4fn
- Activities
  - teachinglondoncomputing.org
- Magazines on creative computing
  - cs4fndownloads.wordpress.com



- Or buy the book