# The $y$ (OUT[DC] of Word play <br> $$
\text { \#4 • FEB } 2024
$$ <br> <br> \#4 • FEB 2024 <br> <br> \#4 • FEB 2024 <br> "Mickey Mouse" Means Multitudes 

Luxurious Letterbanks<br>A 10x10 Word Square Highway Sign Debate Band-Name Badinage Multilingual Ladders Austere Autograms Poppin' Palindrops!

## Voice-to-Speech Blunders

 Rhyme Time • More!THE JOURNAL OF WORDPLAY
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Cover images from "Steamboat Willie," altered in Photoshop, and from a creation of Matevž Kovačič.

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## INTRODUCTION

## T Campbell

In the course of doing this journal, I've done my best to keep up with what the whole world of wordplay has to offer. But there are things I miss.

One of those things was Matevž Kovačič and his remarkable work with $10 \times 10$ squares. We're reprinting his freely available research here, and his finished square makes up our back cover.

Another was the work-and untimely departure-of Jack Lance. A humble, brilliant fellow who designed puzzles, games, puzzle hunt challenges, and other works of genius, Jack left us at 25 and is missed by friends and family. I felt it was important to share some of what he left behind, so the Journal presents a collection of his observations and simpler puzzles from his public accounts.

We've got a lot more, too! Anil has a variety of observations in "Mean Sidewalks" and a new feature called "Palindrops," where what begins as a well-known palindrome ends a bit differently. Daniel Galef has invented a new game for lovers of multiple languages. Darryl Francis has sought out long words with alternating vowels and more transposals/anagrams of well-known bands. Don Hauptman has a collection of news typos and a collection of speech-totext glitches (voice-os?).

Larry Kline shares his expertise on letterbanks. Louis Phillips offers up a few skewed dictionary definitions. Richard Lederer mixes up a rhyming romp, while in Richard Gid Powers' piece, a single silent "e" leads somewhere you'd never expect.

And I get into the act a little with meditations on highway signs, band-naming trends, the legendary Sator square and attempts to replicate it in English, and Mickey Mouse's entry into the public domain...seen from a wordplay perspective, of course.

Have we missed neat stuff we could've put into this issue too? Probably! But we'll keep at it until we cover it all. After all, this is only our one-year anniversary. [Chorus of party horns.] And with that, let's begin...

## WEIRDPLAY DICTIONARY

Louis Phillips

COMBFORT -- Barbershop
CYPHERPRESS -- Any tree that grows in a puzzling manner
DIPLOMATH -- The act of explaining to voters where all the money went
HOPTOMETRY --The profession devoted to helping people to look before they leap
INCOMENABULIA -- Stage one of thinking about money
LAMPOON -- Used to capture whales, but gives off more light than an ordinary harpoon
LETTERGIVERSATION -- The act of starting to spell a difficult word and then giving up and trying to think of a synonym instead

MENUDACIOUS -- (adj.) Describing a restaurant's offerings in an extravagant or fallacious manner

PREDICTIONARY -- Alphabetical listing of psychics' statements about the future
PUNHEAD -- Pinhead with a better vocabulary.
SLIDEWALK -- Icy pavement.
VALENTINY -- A card to be sent in February to a person you only love a little
WELDERLY -- Any robot over 5 years old

# THE DICTATOR'S DILEMMA 

## Unintended Results of Voice-to-Text

Don Hauptman
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My latest compilation of amusing media boners can be found elsewhere in this issue of The Journal of Wordplay. The following might be considered a companion piece of sorts.

Typographical errors in print, sometimes bizarre and embarrassing, probably go back to Gutenberg. (The notorious "Thou shalt commit adultery" typo occurred two centuries later, in 1631.) One might have expected modern technology to help prevent them. But computers and mobile devices have created vast new opportunities for mistakes. The bright side is that they are sometimes funny.

Speaking is more convenient than typing, and voice-to-text conversion has been a goal of inventors and entrepreneurs for decades. Early speech-recognition systems for home computers were primitive and clunky. Progress has been made; Siri and Alexa and Google Assistant respond to voice commands and transcribe speech for texting and emails and online posts.

But these high-tech amanuenses are still far from perfect, even though they draw upon internet reference databases and supposedly "learn" from the user's corrections. Is this A.I. in action? Dictating to my iPhone regularly produces blunders, many repeatedly, even though I thought I had "trained" the system by manually correcting the flubs. Some Siris never learn!

Alas, I don't always remember to record the most entertaining examples, so some have disappeared "into the either." But here are a few I recently captured:

- I said omnibus, which transformed to on the bus.
- The phrase the buyer reneges turned into the buyer and eggs.
- The word credentializing became credential lysing. (That last is a biological term.)
- Here's a gaffe that's sure to amuse philosophers and maybe gourmets: epistemology was altered to a pesto allergy.
- Finally, alliance (I used the French pronunciation) was "translated" as alley aunts.

Want other risible specimens? A search will turn up compilations like the above on many websites. As for ways to prevent dictation problems, I found this advice: Speak distinctly. Avoid background sounds, such as radio, TV, and conversation. Use a high-quality external microphone. And of course, proofread before sending.

But really, if everyone did that, wouldn't it spoil the fun?

## MEAN SIDEWALKS

Anil
Perth, Australia

- Severe severances sever several! A well-known adage: The more severe you are the more you sever and harm. Severe is not related to the other three words.
- In dreaming up T-shirt slogans for Dr. Duck's Dealy Deli, I hit upon these two apparent opposites:


## CLOSET GENIUS <br> CLOSET DODO

It's hard to tell which of these is preferable. Closet genius implies you look stupid. Closet dodo implies you're a total phony. And secret idiot.

I pick the second but for an unphony reason. I hereby come out of the closet and reveal that I am a legitimately registered honorary Dodo and once wrote a book about them, entitled Anno Dodo: A Manual of Extinction (1979). Indeed I still hope to revive, update, and finally publish it.

- I'd be a solipsist if it were socially acceptable. However, one could argue that solipsism, a windowless ego prison, is the norm and most people won't admit they have it. Might not even know they have it.
- FORGET IT: I resurrect my old 'sentence carried out' method (WW'08:208) to update a quote from an old movie [The Oscar, 1966, spoken by Tony Bennett] and to carry it out (complete it) and re-direct it to a failing of us old enuf to have seen the movie new:
"How quickly we forget the beginnings" of sentences.
- HOW TO HANDLE A REDNECK: Soothe with a healing lotion and stay out of the sun without a hat or high collar.
- A MATTER OF DEGREES: If MAs and MSs have mastered their subjects, what have PhDs and MDs done to theirs?
- GOOD STUDENT (at anagrams)

OK idea's put. = Soaked it up.
To which teacher replied, "A 'E' IOU!" "Y?" a student asked.
"'E' for excellence-because it contains each vowel once," teacher said.
"Except Y!," other students countered. "Soaked it up y'?"

Teacher counter-countered, "I exercise my absolute authority to declare Y a consonant."

- WHAT AM I?: What if Descartes applied 'I think therefore I am.' to animals? Or rocks? Do rocks not exist if they don't think? Now answered! By Donovan, who explained that a pebble on the beach does think and can talk back. So maybe Descartes was right after all, more generally than he realized.
- SF fans are very Conventional.
- PRE-MUTATION PERMUTATIONs: These pre-/per- swaps are cognate anagrams differing only in their prefixes. Pairs may be related.

Perfect Prefect: It's the chief or governor's name for and opinion of himself. perseverance pre-severance: Sadly, persisting at the boring job didn't prevent being laid off later.
perused pre-used: One read the used book in the store before or without buying it.
perverse pre-verse: Work oneself up into a contrarian mood before writing angry poems.
pre-force perforce: Some things need to be forced before they will happen.
preform > perform: Work it into shape before going on stage.
prescribe per scribe: The writer dictates hir own drug prescription.
pre-son person: son's older sister (or parent)
pretest pertest: Examine and predetermine the most pert (to change the rules perversely)

- Do I believe in ET intelligence? Of course. All astronomers have extraterrestrial intelligence!
- To "err" is human, but it's poor form in public speaking.
- Sex is a thing of the pass. "One thing led into another."
- You can change the first letter of DAUGHTER and get a pretty hilarious result [a word stool]. As well as L, many other letter substitutions give meaningful results, as in this little story:

A DAUGHTER'S SUITOR, Mother's Version
Suitor sought her daughter.
Bought her daughter?
Caught her daughter!
Jawed her daughter,
Pawed her daughter,
Fought her daughter.
Taught her? Daughter?

- From is a losing preposition. To can also be a giver, hence loser. And vice versa, both winners. Under is a losing pre-position. Over is a finishing pro-position.
- Today, women are shaving themselves for marriage.
- Yes, you can halve your cake and eat it two!
- An idle mind is Art's workshop. (Change of sponsorship for idle minds.)


## G.P.S.: A NEW WORD GAME OF LINGUISTIC NAVIGATION

Daniel Galef
The object is to get from a given starting word to a target word through a series of mutations into different languages. It's like a word ladder, except that instead of changing one letter at a time while retaining all the others here in each step, you must retain either the spelling, the pronunciation, or the meaning of the word. So any two adjacent words either look the same (G as in graphic), sound the same ( P as in phonetic or pronouncing), or mean the same ( S as in synonymous).

For the sake of fair play, these identities may be pretty loosely interpreted, especially "homophones" across different languages, for which a little fudging is acceptable to make it sporting...so mercy boku for your understanding. Likewise, diacritical marks, syllabic stress, etc. can be ignored. Nobody knows every language, so the possibilities are infinite and infuriating, and I leave the trickiest aspects to be explored by those glots who are polier than mine.

Here is an example of a prompt and solution, using only words commonly known to AngloAmericans and presumably the readers of this journal:

## ***

The pessimist knows EVERYTHING is PAIN.
 PAIN (English)

Or, listed as a ladder:
EVERYTHING (English) means the same as
ПAN (Greek) sounds the same as
PAN (Spanish) means the same as
PAIN (French) looks the same as
PAIN (English)
This solution is four steps: S, P, S, G—synonyms, homophones, synonyms, and homographs.
***

And here are three sample puzzles, the first two accompanied by a series of escalating hints:

Mardi Gras is coming up-can you make KING CAKE?
Hint 1: Five steps.
Hint 2: The only new language required is Persian.
Hint 3: You only need to alternate between (S) and (P).
Hint 4: The first step is SHAH.

Can you turn YELLOW into GREEN without adding blue?
Hint 1: Six steps.
Hint 2: The languages, in no particular order, are English, French, and Spanish.
Hint 3: The first step is into Spanish.
***

Change your mind and turn a YES into a NO.
Short words are almost too powerful for this game: Using only the languages already cited, I've found interesting eight-step, four-step, and three-step ladders. How many can you find?

## YOU CAN'T MAKE THESE UP!

## More Jaw-Dropping Published Errors and Mischievous Ripostes

Don Hauptman
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On May 15, 2021, The New York Times ran an obituary of Pat Bond, who in 1970 founded an organization for kinky-sex enthusiasts. One paragraph read: "Every week, however, more and more people appeared: just masochists at first, but eventually sadists, too, were welcome." My reaction: Whew. Imagine what they might have done if their exclusion had continued!

This is the $19^{\text {th }}$ compilation of amusing typos and oddities, followed by waggish comebacks, that I've contributed since 2001 to Word Ways, Interim, and now The Journal of Wordplay.

In my reading, I am a "blooper snooper," on the alert for mistakes-and anomalies and weird items like the one above. The print editions of The New York Times and The Wall Street Journal are delivered to my door every day. This time, all the cited specimens are from those two sources. TJoW readers are invited to submit candidates from other venues for future installments in this series.

The Wall Street Journal, October 4, 2023:
""We raised a warning when, after the pandemic, we had all airports more or less in the world rehiring people,' he said."

## - How about the ones on the moon?

The New York Times, April 23, 2023:
"It's a distinct American rite of passage: the ability to get behind the wheel of a car for the first time and go anywhere."

- Uh-oh!

Corrections, The Wall Street Journal, December 20, 2023:
"[An apartment dweller] said that an owl named Flaco was taking in 'the city lights.' A Page One article on Tuesday about Flaco, a zoo escapee, incorrectly said 'the city life.'"

- Perhaps he was headed for Birdland, the famed New York nightclub.

The New York Times, June 26, 2023:
"'Self-Made' begins not with Leonardo da Vinci, as advertised in the book's subtitle, but the somewhat more obscure German artist Albrecht Dürer, a pioneer in the field of self-portraiture who. . . ."

- Um . . . sort of like Beethoven was "more obscure" than Mozart?

The New York Times, January 13, 2024:
"[Sen. Joe Manchin] also nodded to recent polls that have shown Mr. Biden struggling, calling them 'alarming,' adding, 'It's alarming.'"

- Got the memo the first time!

The New York Times, September 1, 2023:
"By most estimates, [the African head of state] fathered at least 53 children with different women, a means of cementing political alliances."

- Fortunately, he wasn't monogamous.

The Wall Street Journal, November 22, 2021:
"'We were very impressed with it being a manufactured home,' said Mrs. Guerra, a homemaker."

## - At least she didn't have to D.I.Y.

The New York Times, May 29, 2022:
"'I think [tourists] would be shocked to know how much outdoor recreation there is here,' he said.
'There are four miles of hiking and mountain bike trails on my block.'"

- Yet some people complain about excessive urbanization.

The Wall Street Journal, December 22, 2023:
"'If I see [that terrorist leader], I will hit him with my slippers,' she said. . . . Throwing footwear at someone is considered insulting in the Arab world."

## - But a compliment elsewhere?

The Wall Street Journal, February 12, 2022:
"Elon Musk provided his latest update on his dreams to send people to settle Mars on Thursday evening."

- That would be even speedier than his renaming of Twitter.


## THE DEFINITIONAL CRISIS OF MICKEY MOUSE

T Campbell

On January 1, 2024, "Mickey Mouse" became part of the public domain. Any artist, writer, or other content creator could use "Mickey Mouse" in ways they couldn't before.

But that was only true for a certain definition of "Mickey Mouse." To be specific, the publicdomain "Mickey" is the one featured in a few black-and-white shorts with no voice acting, most notably his first appearance in Steamboat Willie. This means the colors of Mickey's clothes, his gloves, and his iconic voice are still in copyright. (Also, the trademark prevents anyone else from simply making their own "Mickey Mouse" cartoons.)

The personality of Steamboat Willie Mickey is different too: he's an impish, irresponsible employee and loves nothing more than making music-magically turning animals into instruments, sometimes without their consent.


The character of Mickey Mouse has evolved since then, and he's often been a bit hard to pin down. In animated films like Fantasia and The Prince and the Pauper, he was an "actor" lending boyish charm to whatever role the story required. In comic strips and comic books, he was often a mouse of action: investigating crimes, hunting for treasure, getting into fistfights. His later animated shorts leaned more toward domestic comedy, and he has an additional corporate role we'll return to later. One point of evolution is consistent, though. It's only in Steamboat Willie and a few other old shorts that Mickey seems insensitive to any distress he might cause. The later Mickey might bungle things up, but only by accident, and he'd want to make it right afterwards.

Disney itself addressed this disparity with last year's "Steamboat Silly," the final episode of The Wonderful World of Mickey Mouse. In it, the present-day Mickey and his pals accidentally create duplicates of Mickey's Steamboat self. Mickey's nostalgia for "the good old days" turns his usual cheer into toxic positivity, so he doesn't realize what a problem this is until the Steamboat Mickeys are wrecking his town with their merry musical numbers.


Mickey and pals Minnie, Goofy, Donald, and Daisy use the Steamboat Mickeys' love of music to lure them into containment. But at the last minute, all the versions of Mickey that have existed over the years are let out into the world to wreak more havoc than ever.


In the face of this ungovernable mob, Minnie chooses acceptance. "Oh, well," she shrugs. "The more Mickey...the more wonderful the world!"

This invocation of the series title doesn't seem borne out by the facts of Minnie's situation, but it does seem like it might mirror Disney's uncomfortable acceptance, as its most iconic character starts to slip out of its control. Webcomics, games, and other independently created media have started to introduce their own Mickeys - and while they're mostly playing by the rules of the law, they usually aren't out to curry Disney's favor.

## MOUSETRAPPED by Randy Milholl and



That's Disney-the-company, of course, not Walt-Disney-the-person. That's an important and relevant distinction, one Walt himself tended to make toward the end of his life in the 1960s.

I'm not Walt Disney. I do a lot of things Walt Disney would not do. Walt Disney does not smoke. I smoke. Walt Disney does not drink. I drink.-Walt Disney, as quoted in American Experience: Walt Disney on PBS, 2017.

I'm not Walt Disney any more. Walt Disney is a thing. It's grown to become a different meaning than just one man.—Disney, quoted in Neal Gabler, Walt Disney: The Triumph of the American Imagination, 2006.

One could likewise say that Mickey Mouse was no longer Mickey Mouse in this period. As with Walt, his role as corporate mascot has often eclipsed any character traits that the company might worry would be controversial. What was left was only a vague sort of passive emcee standing in front of whatever Disney wanted to promote this week. "A mermaid movie? Oh, boy! Ha-ha!"

The twenty-first century has brought some of the mischief back to Mickey's personality in his own shorts, but the emcee still dominates when it comes to Disney's public image.

In the world of words, though, "Mickey Mouse" has taken on some other meanings entirely. Per Etymonline:

As an adjective meaning "small and worthless, petty, inconsequential" it was in use by 1951, perhaps from the popularity of the cheaply made Mickey Mouse wristwatch; it was used by 1935 in reference to mediocre dance-band music, based on the type of tunes played as background in cartoon films.

In the 1960 Dictionary of American Slang, we get this:
mickey mouse, mickey-mouse, micky mouse, micky-mouse adj. Sentimental insincere, or characterized by trick effects; said of pop. dance music or the musicians who play it. 1956: "A mickey-mouse band is a real corny outfit that pushes trombone sounds and uses out-of-tune saxes." S. Longstreet, The Real Jazz Old and New, 149. Musician use.

Mickey Mouse (movie) A documentary or short movie vividly showing the means of prevention, the causes, development, and care of venereal diseases; a documentary or short movie vividly showing methods of hand-to-hand combat. Wide W.W.II Army use, in ref. to such movies shown as part of soldiers' training courses.

The 1975 edition standardizes the spelling and gives seven more definitions (including one from African-American Vernacular English, as described in the language of the time):

Mickey Mouse, mickey mouse 1 Cheap, shoddy, or inferior; unfair, confused, or senseless; mean or "lousy." 2 Simple; easy; childlike. 1958: "At Michigan State [University] ... a 'Mickey Mouse course' means a 'snap course.'" M[aurice] Crane, "Vox Bop" [American Speech, October 1958] 3 Foolish; inconsequential. Mainly student use. 4 An easy task; specif. an easy course in college, one that is of slight educational value and almost impossible to fail; "crib," "gut," "pipe." Student use. 5 Action, behavior, etc., that is unnecessary, cowardly, confused, etc.; a mistake. 1965: "Logistically so far, the only big Mickey Mouse ... was a brief shortage of ... jungle boots. ..." Time, Dec. 10, 33/34. Mainly Armed Forces use. 6 \{derog.\} A white person. Negro use [sic]. 7 To waste time; fool around. 1973: "And the commissioner warns, 'We can't Mickey Mouse around
while faced with technical challenges from other countries. '" R. G. Hummerstone, Fortune, May, 264.

The current Merriam-Webster adds the definition "Annoyingly petty." Wiktionary gives "Mickey Mousing," describing a music-and-motion synchronization reminiscent of the early Mickey short cartoons.

Slang comes and goes; not all the 1960 or 1975 meanings are in use today. The most persistent "Mickey" slang is "Mickey Mouse operation" or "Mickey Mouse organization," used to refer to a poorly run and usually small and unsuccessful enterprise. This likewise has its roots in Mickey's post-1928 short cartoons, where the well-meaning Mickey often made a mess of things-sometimes alongside Goofy and Donald, who weren't paragons of competence either.

This makes its etymology a bit more of a compliment to the source material than the insults aimed at "Mickey Mouse" music and Mickey-Mouse watches. But the term still rankled Michael Eisner when he took over Disney in the 1980s. What probably bugged him the most was how often punster headline writers or commentators kept using it to describe his company.

But there was little he could do to stop it.
Outside the narrow bounds of trademark, words and wordplay have always acted as part of the public domain, and seldom in a way that flatters trademark holders. Disney also couldn't prevent Cockney rhyming slang from using "Donald Duck" as code for sexual intercourse (consider what words "duck" might rhyme with). "Superman" has an even more vulgar meaning (invoked in the Superman episode of Epic Rap Battles of History). The word "superman" has other definitions, too: a tricolor ice cream arrangement, a form of exercise, and a Nietzschean concept that far predates the blue-suited hero. And while the detective Sherlock Holmes' name is often invoked as a compliment, as in "he's a regular Sherlock Holmes," "Sherlock" can just as easily be a sarcastic insult-"No s**t, Sherlock!"

The usage of "Mickey Mouse" to mean amateurish, simple, or childlike has seemed to decline some in the last two decades, as the early Mickey cartoons faded from memory. Eisner might be gratified to know that - but he shouldn't be, because other usages aren't rising to replace them at anything like the same rate.

How will generations to come define Mickey, and other iconic characters like him? For trademark holders of these characters or anyone else with a stake in them, the most important thing is not how the characters get defined. It's whether people continue to define them at all. Such definitions are a sign of the public investing in them. Entering the lexicon is good news for anyone working in arts and entertainment. Leaving the lexicon, not so much.

So remember, next time you see an "unauthorized" use of a character's name or other featuresusage like that helps give characters life. Such plays, word and otherwise, are a form of making merry, making music. And that's what Mickey was born to do.

## A SILENT "E" BRINGS DOWN CHOSIE

Richard Gid Powers

Chosie broke his silence about the silent "e" that made him a pariah and he responded to the evidence that he did not properly credit his source when he used a silent "e" to "make the vowel before the consonant say its name."
"It all started," he says, "when I was writing a story and tried to come up with another way of saying "f u" to someone who had annoyed me (pissed me off) without using the "f word." So, I wrote "copulat you," which I thought was pretty clever and borderline woke, but when I looked it over, I got a feeling something was wrong. And there was. "Cop-u-lat you" not only didn't mean " $\mathrm{f} * * *$ you," it didn't mean anything at all. It was just dumb and looked like I was a retard who couldn't spell. Which I can't. If only I could make the "a" before the " t " say its name.

And it came to me. From a great movie, a classic. When Dirty Harry says, "Make my day," he doesn't say "Mack my day," which would have made the punk he was going to kill laugh at him. And the bystanders waiting for Harry to kill the evil punk would be laughing at him, too. And the audience. Talk about having a dramatic moment lie down and die!

No! Someone in the crowd would yell, "Try a silent 'e' after the ' $k$,' Harry, and make the 'a' say its name."

So Harry would stand there, that vein in his forehead pulsating to express how much he hated the punk who had murdered his wife, kid, and dog and stuffed their bodies in the clothes dryer AND ALSO (the pulsating vein) how hard he was thinking about what the copulat(e) a silent "e" was, and he'd finally say (to himself) "What the copulat(e) I'll try it, and he puts the silent "e" after the " $k$ " and says "Make my day," the punk stops laughing and quakes with fear and the audience yells "Now kill the punk, Harry," and he does. Movie history.

So, I went ahead and put a silent "e" after the " $t$ " in "copulat" and got "copulate" and didn't put in a footnote about how I stole it from Dirty Harry and pretty soon I was that "guy Chosie who invented the silent 'e' that makes the vowel before the consonant say its name."

I knew I done wrong by not giving Dirty Harry credit in a footnote but I didn't think nobody would catch me.

And they wuddna if they hadn't made me president of Harvard and all the other morons in the country thought it was great that a moron just like them was now the big dog in American Higher Education.

But while my fellow dopes were happy about how great it was that a fool like me (and them) was running Harvard, smart guys were sore that one of them didn't get the job, and one of them looked at my silent "e" at the end of "copulate" and remembered that Dirty Harry used a silent "e" when he said, "Make my day" before killing that punk, and now I was "Chosie the Plagiarist" and they booted my sorry ass out of Harvard.

And guess who's running the place now? Right. Dirty Harry. And I got a one-way ticket to Palookaville. Hey! That's not bad! How did I come up with that? I can use it in my next story.

The kid's still got it.

## HIGHWAY HA-HAS

T Campbell
Funny signs have prompted serious discussion lately. The Federal Highway Administration (FHA) has put out a new edition of its Manual on Uniform Traffic Control Devices (MUTCD). The result isn't a ban on funny signs (despite what early reports stated). But the FHA isn't super thrilled about them, either.


You can look through the MUTCD yourself, but these are the key passages:
Effective signs are legible to road users approaching them, and are readable and comprehensible in the viewing time provided to permit proper responses. Desired design characteristics include: (a) long visibility distances; (b) large lettering, symbols, and arrows; and (c) short legends. (Section 2E.08)


Guidance: When a CMS [changeable message sign] is used to display a traffic safety campaign, the message should be simple, direct, brief, legible, and clear...

A CMS should not be used to display a traffic safety campaign message if doing so could adversely affect respect for the sign. Messages with obscure or secondary meanings, such as those with popular culture references, unconventional sign legend syntax, or that are intended to be humorous, should not be used as they might be misunderstood or understood only by a limited segment of road users and require greater time to process and understand. Similarly, slogantype messages and the display of statistical information should not be used. (2L.07)


Again, this is not a ban. But it is a culture clash with many state-based departments of transportation, which enjoy creative messaging. Arizona and Nevada even hold comedy contests for sign-writers.

So, is this federal overreach sucking all the joy out of life, or do the sourfaces have a point? You might expect me to side with sign-designers right away, since I'm "that wordplay guy." But the truth is more complicated.

An unclear sign is worse than no sign at all, since it takes driver attention from the road and gives nothing of value back. For instance, the sign below ("HOLD ON TO YOUR BUTTS") is a no-littering sign referring to cigarette butts, but I find its message easy to miss or misunderstand. Funny? Sure. Effective? Ehhh... (The FHA agreed, reprimanding New Jersey over it.)


There's a reason stop signs in the U.S. are generally red and octagonal, yield signs are triangular, and so on. Mix that up, and you create a version of the Stroop effect, the cognitive stutter that one gets when seeing the word red in green lettering. The viewer could take a second or two longer to process a green stop sign - and sometimes that second or two can make more than 100 feet of difference.


Putting in extra words or unexpected words likewise adds to that processing time.


CORRECT

Unlike a stop sign, though, most changeable highway signs don't call for an instant reaction from the driver. If you're driving at a reasonable speed, you can mull over the message below at your leisure. And even if you don't know who Baby Yoda is, you can tell it's pro-carseat.


When the situation does call for immediate response, then the messages don't mess around:


The real goal here should be safety, with amusement a tool or side benefit. Texas turned to a more humorous approach after mid-2010s data suggested its old signage-which emphasized highway death stats-seemed to increase the number of highway deaths. But that data doesn't indicate funny signs are helpful, just that grim ones are unhelpful...and really, there isn't enough data to draw any responsible conclusions.

Until that changes, I think it's best that there's some push and pull on sign design. Clever messages can command attention, but too clever loops back around to being dumb. Not every job is a venue for self-expression...but an artful writer can make a message memorable. On the road, as in communication, what matters most is getting where you need to go.


## WHAT COMES AFTER TARAMASALATA?

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In the previous edition of TJOW (\#3: November 2023) we saw that taramasalata (the Greek dish) had six A's occurring in every alternate position in the word (and without any other vowels), and that there are some other words and names with six and even seven alternating A's. That article concluded by promising a follow-up investigating words and names with multiple alternating E's, I's, O's, U's and even Y's. So, here goes.

There are only two words in Webster's Third New International Dictionary with five alternating E's (and no other vowels cluttering up the E totality). They are:

- epexegeses, the plural of epexegesis, which Webster's defines as "an explanation following a word or larger part of a text that limits its application or clarifies its meaning (such as the great river, the river Euphrates): additional information"; and
- telemetered, the past tense of the verb telemeter, defined by Webster's as "to transmit the measurement of a quantity by ... an instrument for measuring the distance of an object from an observer."

One other 5-E item worth noting is (the unfortunately hyphenated) seven-eleven. Although not listed in unabridged dictionaries, it does appear in Green's Dictionary of Slang with this definition: "excellent, first-rate." This quote from 1934 is given: "Mac, we're due to be in the dough. It'll be seven-eleven with us." I suspect this may be rhyming slang for "heaven."

There don't appear to be any dictionary-listed words with five alternating l's, but there are a whole batch with four alternating l's. Here are just a few of the eight-letter examples: dividivi, kivikivi, kiwikiwi, libidibi, libidivi, pirijiri, piripiri, and tikitiki. Longer still, with nine letters, are these:

- disilicic: chemical formula $\mathrm{H}_{2} \mathrm{Si}_{2} \mathrm{O}_{2}$, according to Webster's Second Edition (W2);
- disilicid: a chemical compound containing two atoms of silicon (W2);
- nihilitic: characterized by nihility, or nothingness (W2);
- ricininic: a crystalline acid formed by the hydrolysis of ricinine, an extract of castor beans (W2).

Words with five alternating occurrences of the letter I appear restricted to just these four proper names:

- "Ciribiribin": a merry Piedmontese ballad, composed in 1898, recorded by many artists in its original three-quarter time; decades later, popular in four-four time with swing and jazz bands, according to Wikipedia;
- Fidicinini: a tribe of cicada insects, per Wikipedia;
- Kijinitini: a place in Kenya, approximately 300 miles from the capital Nairobi;
- Kirikirijin: the title of a 1981 novel by Japanese author Inoue Hisashi which won a distinguished prize for literature, according to Wikipedia.

There don't appear to be any dictionary-listed words with five alternating O's, but there is a whole batch with four alternating O's. The shortest is the 7-letter oloroso, a type of sherry. The 8 -letter specimens include: cocobolo, corocoro, doloroso, kolokolo, locofoco, mocomoco, tocororo and torotoro-the meanings of which can be established from various unabridged dictionaries. And there are two 9-letter words with four alternating O's:

- homologon: a thing corresponding to another, per The Oxford English Dictionary;
- locomotor: a person or thing having locomotive power, per the OED.

For a specimen with five alternating O's, there's the proper name Oconomowoc, a city in Wisconsin, with a population of around 20,000. An interesting fact about Oconomowoc is that The Wizard of Oz film premiered at that city's Strand Theatre in August 1939.

One other 5-O proper name we have unearthed is Nowohorodok, a city in $13^{\text {th }}$-century Ruthenia, a region which now appears to be part of the Baltic country of Lithuania. Internet information about Nowohorodok is sparse.

Dictionary-listed words with four alternating U's appear to be these: curucucu, kukukuku, murumuru, sucurujú and surucucu. Definitions are in various unabridged dictionaries. Outside of dictionaries, there appears to be a single 5-U non-proper name; Wikipedia explains that an umudugudu is the smallest administrative division of Rwanda.

For five alternating U's, we have uncovered these proper names:

- Kukuxumusu: a Spanish company specializing in clothing and product design; its name means flea kiss in the Basque language;
- Kutukuluru: a village in the state of Andhra Pradesh, India.

And so to Y . The only regular dictionary word displaying three alternating Y 's is syzygy. This is a word so useful that Merriam-Webster accords it four quite different definitions, thus:

- the nearly straight-line configuration of three celestial bodies (such as the sun, moon, and earth during a solar or lunar eclipse) in a gravitational system;
- a group of two coupled feet in Greek or Latin prosody;
- a pair of correlatives, opposites, or otherwise related things;
- part of a sea lily, a type of marine animal.

There is one other 3-Y word that we have found, but it is pretty obscure. The website Dictionaries of the Scottish Language (dsl.ac.uk) lists wysytyd as a form of the past tense of the verb "visit." The website provides one illustrative quotation, from the $15^{\text {th }}$ century, thus: "This lady wowyt gret pilgrymage ... And wysytyd hyr goddys." We think this can be rendered into modern-day English as "This lady wooed (undertook) a great pilgrimage (to a shrine) and visited her gods."

While there are some Russian placenames with three alternating Y's, none is an improvement on syzygy, so we will bypass them. And we have drawn a blank seeking out $4-Y$ words and names.

## THE SATOR SQUARE...AND SEQUELS

T Campbell
Christopher Nolan's Tenet includes nods to all five lines of the Sator square, a design found in Pompeii, Manchester, and several other sites of the Roman Empire. The post-volcanic ruins of Pompeii made its Sator square very well preserved.


Even by modern standards, and though one of its five lines looks made-up, the Sator square is a remarkable achievement. It's a palindromic word square, which makes it a four-way palindrome, reading backward and forward and up and down-SATOR AREPO TENET OPERA ROTAS, which probably translates as "the farmer Arepo works his plow-wheels." The name "Arepo" occurs nowhere else in Latin.

Nolan's Sator fascination has precedent. Long after the Roman Empire fell, people were keeping Sator squares in their homes, believing they had magic powers to ward off illness or ill fortune. (Considering their subject matter, I'd expect they'd also help with crops. Put Arepo to work for you!)

But is the Sator square the only one of its kind? Heck no...it wasn't even the only one of its kind in Pompeii.


The ROMA square—ROMA OLIM MILO AMOR—is less technically impressive, but likely more pleasing to its original audience. Patriotic Romans loved how their capital city and cultural identity, Roma, reversed to spell amor, love.

The full square translates to Rome once Milo love. Without context, it's not clear how to parse that. Did Rome once love Milo? Was Rome once Milo's love? Either interpretation hints at some drama.

So the Sator square isn't the only palindromic word square with a guessable meaning. Can we build such squares in English?

At the $3 \times 3$ level, that's challenging but not impossible-my latest micross follows that pattern, but without an obvious narrative. "Pat" $\boldsymbol{A K} \boldsymbol{A}$ "tap" works to describe two gestures with overlapping meanings. Nap a la Pan is to sleep innocently like a Greek nature god.

Moving up to 4 x 4 s , we get this image of serving a Hollywood star's outrageous backstage demands:


Alternatively, if you believe such squares do have magic powers, this could describe turning a demanding actor or singer into cheese.

Then there's this tale of debauchery. ONER is a bit archaic, but its meaning (a unique person, thing, or event) fits the rest of the grid's tone...


What oner did you perform in Reno in a state of eros that left you sore? The answer is left as an imaginative exercise for the reader.

At the $5 \times 5$ level, though, things get sticky.
Jeff Grant created a couple of "Modern Sator Squares" for Word Ways (Volume 40, Issue 3), but they took a lot of explaining. For Grant, spinning elaborate contexts for Resat, enema seres amene taser and Redan enema dexed amene Nader was part of the fun. Shorn of those paragraph-long explanations, though, the squares are tough to parse at best. One big issue is that most palindromic or reversible words in English begin and end with a consonant, but only the ones that begin and/or end with a vowel can supply a vowel for the first
word and the last. That's probably why Grant resorted to the unpleasant image of an enema and the obscure amene, meaning amenable or pleasant.

After many attempts, the best I can come up with is...


Parts apart! Radar, trap a strap! Parsed this way, the square is urging detection of the path of a strap that's fallen off a machine after it shattered in a collision or explosion. That image has a certain postmodernist, chaotic beauty. But, to my ear, it doesn't match the simple charm of farmer Arepo's labor. And it uses a two-word line-trap a-which might strike you as a cheat.

Then again, the name "Arepo" is kind of a cheat, too. For all the celebration the Sator square has attracted over two millennia, for all its elegant symmetry, it's still possible to imagine its author poring over it and muttering..."Oh, well. Four out of five ain't bad."

## TRANSPOSALRY (Part 2)

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In last November's The Journal of Wordplay \#3, I offered 40 transposals for the names of music artists and bands who had all appeared in Billboard charts between 1935 and 2023, ranging from Fats Waller/waterfalls to Commodores/cosmodrome. All the transposals were at least 10 letters long. As promised in that article, here are a further 40 transposals for the names of artists and bands who have appeared in various Billboard charts. This time, the period covered is slightly shorter, just 1950 to 2022.

Below is a brief definition of each transposal, and-to provide a clue as to the artist or bandthe title and year of one song which they charted with. It may not have been their first chart appearance, or last, or biggest. See how many artists and bands you can figure out. The transposals range from a minimum of 10 letters up to an impressive 16 letters. Where the solution is a band name, it may or may not be preceded by The.

| Transposal \& Definition | Song Title (Year) |
| :--- | :--- |
| beer-waterers <br> individuals or companies which water down beer | Music! Music! Music! (1950) |
| stonelayer <br> a workman who lays stones in building | Short Shorts (1958) |
| link scraper <br> a piece of computer software which scrapes (or copies) the links <br> on a web page; also called data scraper | Pointed Toe Shoes (1959) |
| Egyptienne <br> a slab serif typeface designed in 1956 | Town Without Pity (1961) |
| cineplasty <br> surgical fitting of a lever to a muscle in an amputation stump to <br> facilitate the operation of an artificial hand | Crazy (1961) |
| Countershot <br> a shot made in response to another shot, as from a gun or cannon | Do You Love Me (1962) |
| Ulotrichies <br> the plural of "ulotrichy," the condition of woolly-hairedness | Two Faces Have I (1963) |
| Inochentism <br> a millennialist and Charismatic Christian sect, split from <br> mainstream Eastern Orthodoxy in the early 20th century | Once a Day (1964) |
| Melanthia's <br> the possessive form of Melanthia, a genus of moths | The House of the Rising Sun (1964) |
| The Silent Force <br> a 2001 film listed on IMDb | Romeo and Juliet (1964) |
| Fourteenths <br> 14 equal parts into which a whole is divided | You've Got Your Troubles (1965) |
| Gravelstones <br> the small stones which make up gravel | I Want Candy (1965) |


| More Nipples <br> the title of an album by the Peter Brötzmann Sextet, available <br> from Amazon, and also on YouTube, Spotify, etc. | Green Tambourine (1967) |
| :--- | :--- |
| Elegiambus <br> a particular type of verse in Greek and Latin prosody | Ride Captain Ride (1970) |
| Starwinder <br> a sci-fi racing video game for the PlayStation | War (1970) |
| Thanksgiver <br> someone who gives thanks | Dancing in the Moonlight (1972) |
| Concionate <br> to deliver an oration; to preach | Superskirt (1974) |
| long-visaged <br> having a long face; of rueful countenance | Please Come to Boston (1974) |
| Entoplastral <br> pertaining to the entoplastron, a bony plate found in turtles | I Want to Hold You in My Dreams |
| gold warden <br> an officer charged with preventing the theft of gold in various (1975) <br> goldfields, such as in New South Wales | Lonely Boy (1977) |
| Eminem songs <br> as in The Real Slim Shady, Lose Yourself, Not Afraid, and many <br> others | Radioactive (1978) |
| target-rifle <br> a rifle adapted to target-shooting | No Diggity (1996) |
| El Miron, Spain <br> a small municipality located in the province of Avila, Castile and <br> Leon, Spain | No Getting Over Me (1996) |
| Thermonastic <br> features of the doctrines or philosophy of the Greek philosopher <br> Aristotle <br> pertaining to "thermonasty," plant movement associated with <br> changes in temperature | Talking in Your Sleep (1983) |
| Reelevates <br> elevates again | One |


| Interweavers <br> items which weave together | Two Teardrops (1999) |
| :--- | :--- |
| Chuck Berry <br> an American singer and songwriter who pioneered rock and roll | Sorry (2007) |
| Navigables <br> straits or sea-channels capable of being navigated | Addicted (2008) |
| Chevrotaines <br> an old spelling of "chevrotains," musk deer of south-east Asia | Untouched (2009) |
| Irrhetorical <br> not rhetorical; inelegantly phrased; unpersuasive | Rockin' the Beer Gut (2009) |
| donkey trains <br> groups of donkeys used for carrying cargo in mountainous regions <br> (similar to mule trains) - many photos can be found online | Take a Back Road (2011) |
| Reo language <br> an Eastern Polynesian language spoken by the Maori people, the <br> indigenous population of mainland New Zealand | You Know You Like It <br> (2015) |
| Leptomonas <br> a microscopic organism | Circles (2019) |
| Heavenlies <br> heavenly things, as opposed to earthly things, according to The <br> Oxford English Dictionary (OED) | My Boy (2021) |
| Mitt Romney <br> the current US junior senator for Utah, not seeking reelection in <br> November 2024 | Put Your Records On (2022) |

There are many other artists and bands whose names can be transposed, and the 80 presented in this and the preceding article are merely scratching the surface of what's available.

## ONCE UPON A RHYME TIME

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We usually think of rhyme as a musical device found only in poems and songs, but, in fact, rhyme is the name of the game. Rhyme appeals so powerfully to the human ear that, if we listen carefully, we can discover a surprising number of common, everyday words and phrases that contain rhyme. Let's sneak a peek at the saga of Henny Penny.

Once upon a rhyme time, Henny Penny got the heebie-jeebies that the sky was falling. Figuring that, with her mojo, it's use it or lose it, she dashed pell-mell, helter-skelter, hither and thither, higgledy-piggledy, hugger-mugger, willy-nilly, balls to the wall, and here, there, and everywhere, shouting, "Yoo-hoo! May Day! You snooze; you lose! This isn't sci-fi! It's the real deal for double trouble! The sky is falling!"

Keeping her eyes on the prize, Henny Penny came upon roly-poly, jelly-bellied Chicken Licken, no longer in his heyday. Licken huffed and puffed at Henny Penny, "Tee-hee, I don't want to create ill will with a blame game, but what's all this hubbub and hurly-burly about? Your whale of a tale sounds like a lot of phony baloney, folderol, razzmatazz, claptrap, and mumbo jumbo to me. I don't believe in abracadabra and hocus-pocus voodoo, and I don't want to kowtow to a shock jock with a hodgepodge of pie in the sky."
"Jeepers creepers and geez Louise! That's a low blow with a blackjack," clucked Henny Penny, who was left high and dry with her spirit at half-staff. "It's not easy-peasy trying to do my fair share by being fair and square to all those near and dear to me. Why are you making such a todo, taking potshots, and calling my story a rinky-dink hunk of junk? I'm no Humpty-Dumpty crumb bum. I may cry 'boo-hoo,' but I'm not a rum-dum hobo panhandling with a squeegee for freebees. Sticks and stones may break my bones, but names will never make or break me."

Backtracking, Henny Penny went off looking for Cocky Locky to tell him that the sky was falling. But Locky was too busy being a crackerjack hotshot and a hoity-toity wheeler-dealer out and about downtown to wine and dine bigwigs, throw funny money at jet-set fat cats with big paydays, and hobnob with dressed-for-success rich bitches at fancy-schmancy wingdings.

Feeling the wear and tear of walking a fine line through a stress test, off Henny Penny scurried to hippy-dippy Loosey Goosey. "Whaddaya know, Daddy-o?" honked Goosey. "Don't be a namby-pamby. Take a chill pill, go with the flow, and party hearty. I've got a razzle-dazzle, killerdiller, no-fuss-no-muss idea that's the bee's knees and will float your boat, flick your Bic, and knock your socks off. I'm hot to trot, so let's get down to the nitty-gritty and hustle our bustle to a spring fling attended by artsy-fartsy Deadheads who meet and greet, have tons of fun in the sun, and feel their flower power while smoking mellow yellow wacky tobacky. With fans wearing their backpacks, tie-dyed shirts, and zoot suits, it'll be a real blast from the past.
"It'll be better than a prime-time chick flick on the boob tube, a sure cure for all your gloom and doom. l'll get palsy-walsy and make hanky-panky with hotsy-totsy, lovey-dovey tootsie-wootsies who get sky-high ready to do handstands on the grandstands and the bandstand.
"Then we'll dance the hootchy-kootchy, boogie-woogie, hokey pokey, and funky monkey. Be there or be square! We'll be made in the shade and in like Flynn! If you want to be a fuddyduddy no-show, then I'll see you later, alligator."
"After a while, crocodile, but not while the sky is falling," replied Henny Penny, and she put the pedal to the metal to waylay her friend herky-jerky Turkey Lurkey. But plug-ugly Lurkey wasn't any help either. In fact, he was more harum-scarum than Loosey Goosey, acting like a Silly Billy bozo, a run-and-gun local yokel hillbilly pogo sticking around like a nitwit, a lamebrain who was drunk as a skunk with a peg leg. "What can one teeny-weeny, itsy-bitsy piece of sky falling down matter?" gobbled Lurkey like a ding-a-ling eager beaver trying to play a solo on an oboe and a hurdy-gurdy at the same time.

With ants in her pants, Henny Penny decided that her court of last resort was to get back on track by consulting fuzzy-wuzzy Foxy Loxy. Licken was sick of the humdrum, ragtag hoi polloi and their honky-tonk ways, while Loxy's claim to fame was that he was a true-blue guru.
"Okey dokey, you lucky duck," said Foxy Loxy with a tutti-frutti smile. "Your goof-proof, rough-and-tough, rock-'em-sock-'em story beats the heat, takes the cake, and fills the bill by hook and by crook, lock, stock, and barrel. Let's go to my teepee for a powwow and a chalk talk." So off the two ran to Loxy's den, where Loxy began to speed-read his handy-dandy cookbook about slicing and dicing sweetmeat and chugalugging it down with Mai Tais, Tia Marias, pale ale, and near beer.

At this, Henny Penny sensed double trouble and yelled, "Ah-ha! Oho! Who says that might makes right? I'm not one of your meals on wheels, you big pig! Never ever! Now it's a no go! It's one and done!"
"Holy moly and hell's bells, Peewee," snarled Loxy, looking less and less like a Care Bear and more and more like a lean, mean eating machine. "You're cruisin' for a bruisin', your ass is grass, and you are screwed, blued, and tattooed. That seals the deal! It's my way or the highway!"
"Don't have a shit fit, Loxy! This cave could really use a sump pump and a pooper-scooper, you unsanitary bowwow! No way, José, and up your nose with a rubber hose!" shot back Henny Penny, as she beat a retreat.

Then wham, bam, thank you, ma'am: the sky fell down and killed them all, proving that sticks and stones can break one's bones, haste makes waste, and well begun is only half done.

## BAND NAME TRENDS

## T Campbell

Dmitri Borgmann was the first editor of Word Ways, and one of his contributions to its very first issue, "Musical Nouns of Multitude," is a time capsule from 1968, when the Beatles were still new and strange to Borgmann's generation. (Though I suspect some of his sniffing below is tongue-in-cheek.)

Long, long ago, groups of singers went by innocent, logical names such as "The Andrews Sisters." Some current groups, clinging to the past, still use titles of that kind: ""Chad Mitchell Trio"; "the Statler Brothers"; "the Johnny Mann Singers"; "the Baja Marimba Band"; etc. To a large extent, however, such ordinary names have given way to exotic, weird concoctions that are studies in irrelevancy. That is, the name of a pop group is often about as far removed from suggesting music as anything can possibly be. Let's examine some of the trends discernible in today's naming craze...

Borgmann classifies alliterators and rhymers (Herman's Hermits, Smothers Brothers), selfpraisers (The Supremes, The Sensations), misspellers (The Beatles, The Monkees), intense images (The Searchers, The Doors), religiosity (The Righteous Brothers, The Apostolic Intervention), self-condemners (The Zombies, The Rejects), and names startling in their abstraction-the out-of-this-world (Jefferson Airplane, Pink Floyd).

So what's happened since 1968 ?
Well, sorry, Borgmann...band names have not gotten less out-of-this-world, and they sure haven't gotten literal. For every exception like the Dave Matthews Band, there's a misleading name like Mumford and Sons. (They're not his sons.)

Despite the musicality of alliteration and rhyme, those devices haven't caught on. And though certain genres of music are big on self-praise (like hip-hop) or self-doubt (like trap music), selfpraise and self-condemnation don't find their way into many band names. Though I'd certainly give a fair listen to any bands named "The Totally Awesomes" or "Sorry for the Noise."

On the other hand, intense images are still big (Mastodon, Falling in Reverse, Cage the Elephant, Walk the Moon). Religious imagery still appears in a few prominent band names (Black Sabbath, Judas Priest, Leviticus). I could survey Christian bands, but that feels like biasing the results.

Strategic misspellings mark many band names (bannd namez?), especially in metal (Korn, Jackyl, Skrape, Outkast, Staind, Limp Bizkit, Karnivool, Puddle of Mudd).

- A subset of those revolve around creative use of the letter $V$, as in CHVRCHES, Wavves, Alvvays, Hovvdy, and Pvris.
- Many modern band names resemble acronyms, using all caps and "disemvoweled" spellings (MGMT, MSTRKRFT, STRFKR, SBTRKT, MNDR, BLK JKS, ASTR, SCXRLXRD, RVIDXR KLVN (Raider Klan), EC8OR, BTS).
- Others include numbers (Blink-182, Maroon 5, 3 Doors Down, +44, Matchbox 20, 98 Degrees, 30 Seconds to Mars, Sum 41, Eve 6, 311, Eiffel 65, June of 44, Isotope-217, and Ho9909-pronounced "horror").

These trends even influence solo artist names like Deadmau5 and The Weeknd. And they make these bands easier to google-a factor today's aspiring musicians consider when naming their bands.

And yet! A handful of bands, even recently named bands, have names so vague or weird as to make Google searches more difficult (The The, Was (Not Was), The Band, The Who, The Guess Who, Yes, Wham!, The Beat, The National, The 1975, and most of all, !!!, pronounced chk-chkchk. To find that last one, you have to do a search like "three exclamation points band.")

Some further trends worth noting:
The: The word "The" has had a strange journey in band-name history. In the 1950s and 1960s, it seemed like every potential band name with the structure "The [Simple Plural Noun]s" was seeing active use. Later, it was just "The [Noun]."

By the 1980s, newer bands like Rush and Journey tended to drop the "The." Although fans would sometimes add it anyway to two-word band names like (the) Smashing Pumpkins or (the) Talking Heads. Some bands who kept "The" tried spelling it "Thee" (Thee Headcoats, Thee Midniters, Thee Michelle Gun Elephant, Thee Flying Dutchmen, Thee Lordly Serpents).

By the turn of the century, there was a more genuine "The" resurgence-The White Stripes, The Datsuns, The Strokes, The Vines, The Exies. Today, I see a lot of chatter about The 1975, The Hu, The Struts, The Pretty Reckless, and The Black Keys.

Repetition, Repetition: Band namers think it's nice to say things twice... or thrice. There's Duran Duran, The Ting Tings, Attack! Attack!, Choir! Choir! Choir!, Everything Everything, Django Django, Hot Hot Heat, JR JR, Wet Wet Wet, BADBADNOTGOOD, PKEW PKEW PKEW, Ra Ra Riot, Mr. Mister, Years \& Years, Yeah Yeah Yeahs, Mother Mother, Radio Radio, Talk Talk, Rah Rah, Goo Goo Dolls, and The The... and that's a short list!

Place Names: Some bands have just ripped their names straight from the atlas (Chicago, Toronto, Nazareth, Boston, Phoenix, Berlin, Alabama, Kansas, America, Europe, Asia). A more recent trend is to use geography as a jumping-off point but add a creative twist (Glasvegas, The Manhattan Transfer, Best Coast, Miami Sound Machine, Hollerado, Japandroids).

Length: It seems like at some point in music history, every possible length for a band name has been identified as a trend. We've had periods where one-word names seemed to be the next big thing. Ditto for two-word names and three-word names. But the 2000s saw a memorable glut of crazy-long band names (The Plot to Blow Up the Eiffel Tower, The World Is A Beautiful Place \& I Am No Longer Afraid To Die, Eximperituserqethhzebibšiptugakkathšulweliarzaxułum, Please Inform the Captain This Is a Hijack, Success Will Write Apocalypse Across The Sky).

Key Words: Individual words have had their days in the sun. There was a point where every new band seemed to have "Wolf" in its name (Wolf Alice, Wolfmother, Joyous Wolf, Wolf Parade). Later, it was "Beach" (Beach House, The Beaches, Talmud Beach, Beach Slang, Menace Beach...too late for the Beach Boys). One word that's gained traction more recently is "rat" (Mallrat, Ratboy, Ratboys, Ratking, Rat Child, just Rats). Bands with the F-word in their name are gaining ground lately, too-which probably says something about our society, but I don't have time to get into that.

Witch House Weirdness: This is a small subgenre of electronic music, but it's right on the fringe of unconventional band names ( $\dagger \ddagger \dagger$ (Ritualzzz), Gr $\dagger \mathrm{ll} \mathrm{Gr} \dagger 11, \mathrm{M} \triangle \mathrm{S} \triangle \mathrm{C} \triangle \mathrm{RA}, \mathrm{oOoOO}$, VAGUE003, IC3PEAK, S U R V I V E). There are some normalish witch house band names, but they aren't as much fun to look at.

So if easy findability doesn't inform the weirdness of band names, what does?
Chi Luu, writing for JSTOR, best expressed the answer: "The unconventionality of rock ' $n$ ' roll life is often expressed through unusual syntax or syntactic violations." And that's true of newer genres too, since they're often rebelling against now-established rock conventions. What goes around, comes around.

## BANK ON IT: MAKING THE MOST OF LETTER BANKS

Larry Kline, aka Lowdown (lowdown@puzzlers.org)
Toronto, Ontario (Canada)
Did you know that Toronto, Ontario was built from "ration" resources? Or that the Toronto Raptors frequently make their "patrons" go wild?

Plenty of people mess around with anagrams (raptors, parrots, or parts) but how often do you notice letter banks? The NYT crossword column once described them as anagrams with benefits!

Let's get as much as we can out of Letter Bank (LB) wordplay and puzzles. This article will give you the lowdown on LBs and in a future article I plan to feature my own Lowdown Letter Banks.

## Bank Statements

We have a "bank" of letters to draw from whenever we write. It's called "the alphabet."

Most sentences and paragraphs don't use all 26 letters, though. In this paragraph, there are 20 unique letters. The "letter bank" of this paragraph is: ABCDEFGHIKLMNOPQRSTU.

The LB concept applies to certain kinds of constrained writing. You could choose a word as a title and then write a poem using only the letters in that word, like the poem "Vowels" in Canadian poet Christian Bök's book Eunoia. The title serves as the letter bank for the poem. Although it would also be fine to use a title word with repeated letters, the title wouldn't be the true "bank" (unique letters). A poem titled "Consonants," containing only those letters, would be using a six-letter bank. "Cantos" (a poetic term) could be a true LB title for the same poem.

In wordplay and puzzles, letter banks involve words and phrases rather than whole poems or paragraphs. Just as you might work out that an anagram of SESAME STREET is ASSERT ESTEEM, you can use the unique letters to spell MASTER (and its anagrams). I've discovered that there's an art to devising culturally relevant and/or proper-noun LBs and presenting them in a semantically compelling way. I call this artform/format "Letterbankism."

Letterbankism can be just for fun: "BACON, LETTUCE, AND TOMATO is a sandwich made from BUN, COLD MEAT, and some extras!" It can also be topical/political, veering into social commentary: "INTERNATIONAL OLYMPIC COMMITTEE earns billions in TV rights while most of the athletes earn a PALTRY INCOME." Some LBs are best suited to Letterbankism, others are better in puzzles, and many work well for both. (You can view my Twitter collection of \#Letterbankism if you log in; otherwise, you can view this one Letterbankism tweet.)

Once banks have your interest, you start noticing words and phrases with no duplicate letters or many duplicate letters (anything with just one or two dupes is basically useless). This makes finding letter banks a "unique" and "growing" pursuit!


Letter-banking promotes the three Rs of waste management: Reduce, Reuse, Recycle. It's a very pure and satisfying form of wordplay. When the Red Hot Chili Peppers released a song called "Poster Child" in 2022, it was a jaw-dropping LB milestone.

## Bank Accounts

Who came up with the term "letter bank"? None other than puzzle legend Will Shortz. He originated the letter bank and introduced it to the National Puzzlers' League (NPL) in 1980 as a new word puzzle category. Letter banks are closely related to anagrams, which trace back to ancient times, but the fledgling LB was distinct and simple enough to carve out its own niche (a very niche niche) in the wordplay world.

NPL members embraced LBs as a new option to use in "flats" (NPL word puzzles composed in rhyming verse). Two of the first examples given remain LB classics: LENS > SENSELESSNESS and IMPS > MISSISSIPPI. Four decades later, LBs continue to be popular in flats alongside other carefully documented wordplay forms such as alternades and beheadments.

A few NPLers experimented with letter bank clues in cryptic crosswords (more on that later) and one named Mike Selinker developed the LB-related card game Alpha Blitz. Meanwhile, Will Shortz had joined the New York Times, where he recently celebrated 30 years as editor of the daily crossword. At least five times, the NYT Crossword has featured a letter bank theme (as chronicled in NYT's Wordplay crossword column in 2018, 2020, 2022, 2023, and 2023 again).

Eric Chaikin (Beyond Wordplay) paid tribute to LBs in his 2021 article Bank Shot! with a great collection of letter bank lore, examples, and mini-puzzles. It's a must-read for aspiring bankers!

I hereby pay "bank" credit to Will for inventing LBs and to Eric for "spreading the word" online.

## Banking Terms \& Conditions

The letter bank, as a form of wordplay for puzzles, is a clearly defined relationship between a shorter word/phrase (known as the "bank") and a longer word/phrase (which I usually call the bank's "expansion"). The precise requirements are:

1. The bank has no duplicate letters (i.e. the bank is a heterogram).
2. The expansion uses all of the bank letters, one or more times each, and no other letters.
3. The expansion is at least three letters longer than the bank.

Some may read that last requirement and ask "Why three letters longer? Isn't that arbitrary?"
Even though the NPL's "three letters longer" rule may seem arbitrary, it's sensible and has become widely accepted for LBs in a puzzle context. In general terms, it's not incorrect to say that FORMAT is a bank for ARTFORM (one duplicate) or that POLITICAL (two duplicates) banks to TOPICAL. It's just that ARTFORM and POLITICAL aren't "repetitive" enough to be used that way in the specific form of puzzle wordplay called a "letter bank."

One other LB principle is that a bank can have multiple expansions, in which case we say that the expansions share a bank. For example, imagine idealistic lovers spreading germs while riding a TTC bus, streetcar, or subway train in Toronto:

- ROMANTICS (9) causing...
- CROSS-CONTAMINATION (5-13) on the ...
- TORONTO TRANSIT COMMISSION $(7,7,10)$

Any words/phrases that have the same set of unique letters as each other (like "administer," "mastermind," "mainstream media," and "Mediterranean Sea") are said to share a bank (ADEIMNRST), even if the bank can't spell a word.

## Bank Rates

If you like some numberplay with your wordplay, letter banks are for you. As a relationship between words and phrases of different lengths and letter distributions, LBs are inherently mathematical. You can enjoy LB wordplay and puzzles without considering the numbers side, but we're trying to "make the most of letter banks" so let's have some fun with the bank rates.

A letter bank's ratio compares the number of letters in the bank and the expansion. In the case of ANSWER > AWARENESS (which has 3 duplicates: A, E, S), the LB ratio is 6:9. The classic letter bank LENS > SENSELESSNESS has a ratio of 4:13.

What's the longest word made from the fewest different letters? If we divide the number of letters in a word by the number of unique letters, we get the quotient. So I would phrase the question as "Which word in English has the highest letter bank quotient?"

- SENSELESSNESS is 13 divided by 4 (13/4) for an LB quotient of 3.25 , which is the highest of any common English word.
- Uncommon words with higher LB quotients are the plural SENSELESSNESSES (3.75) and plant-based palindrome KINNIKINNIK (3.67), more commonly spelled KINNIKINNICK.

NYT's popular Spelling Bee game features seven different letters in a honeycomb grid. Every day, there's at least one "pangram" word to find that uses all of the letters. What's the longest word that could be a Spelling Bee pangram, given that the game never includes the letter S?

- NATIONALIZATION (15) is the longest pangram Spelling Bee has made available so far (from the bank AILNOTZ on January 8, 2024).
- Other 15 -letter words with Spelling Bee pangram potential are INCONVENIENCING, INTERCONNECTION, and NONINTERVENTION.
- The longest word from a 7-letter bank is probably Hawaii's state fish, HUMUHUMUNUKUNUKUAPUAA (21), but I doubt Spelling Bee will ever use AHKMNPU as a bank!

And here's a quirky quiz question: Which hit song has a 12-letter title that uses only one letter of the alphabet? (Yes, the title is a phrase with an extraordinary 12.0 LB quotient.) The answer is provided in the answer section.

## Cryptic Banking

Finally, we come to the ever-evolving story of banks in cryptics. Don't worry, this has nothing to do with cryptocurrency.

Crosswords began in America just over a century ago and quickly crossed over to Britain. Cryptic crosswords were a British innovation and spread to places with British influence around the world. Cryptics gained a foothold in the US, and North American cryptics have gradually blossomed, but the "American style" crossword (based on straight-definition clues) still dominates.

Joshua Kosman and Henri Picciotto both joined the National Puzzlers' League (NPL) in the 1980s, when LBs were just getting going. In 1995, they teamed up to edit cryptic crosswords for the NPL's monthly puzzle collection, The Enigma. After a few NPLers tried basing a clue on a letter bank, Henri and Joshua developed the idea and envisioned a brand-new category of cryptic clue (alongside anagrams, charades, and the other standard types).

Kosman \& Picciotto fully established Letter Bank cryptic clues during their tenure coconstructing the cryptic crosswords in The Nation from 2011 to 2020. Their 2013 blog post "Going to the Bank" is still online, featuring some of their early LB clues. Notice how those clues explicitly indicate for the solver to "Use and reuse pieces" or "Draw as needed on the
resources of" the bank. Henri and Joshua knew that once solvers were familiar with LB clues they would accept smoother and less obvious LB indicators like "expanding" or "spreading" (just as cryptic solvers accept a wide variety of anagram indicators that don't literally mean "mixed up").

Another teaching from Kosman \& Picciotto (now known for their Out of Left Field cryptics) is that an LB cryptic clue can work one of two ways: either it can provide the "bank" needed to build the clue's answer or it can provide the longer word/phrase and indicate that the answer is the "bank." The first kind is more common, but solvers have learned to spot the second kind of LB clue and reverse the process.

I like to refer to the two types as expanding and collapsing LB clues. Can you solve these two clues and identify them as expanding or collapsing?

- Sesame Street's unique characters could be perfect (6)
- Popular TV show's new arrangement to stream with reruns $(6,6)$

Over the past decade, most of North America's experienced cryptic solvers have clued in on letter bank clues. Many cryptic constructors have happily added LBs to their cryptic clue toolkit. One of the first was Canada's preeminent puzzlemaker, Fraser Simpson, who has a long history with the NPL, Shortz, and Kosman \& Picciotto. Fraser has prolifically crafted letter banks for many years in his weekly Globe \& Mail cryptic crosswords (and a few of his other word puzzles).

I hereby give "extended" credit to Henri and Joshua for establishing the Letter Bank cryptic clue and to Fraser for all his puzzles, banks, and guidance.

Have LB clues infiltrated the birthplace of the cryptic crossword yet? Not so much, but we've had glimmers of hope. Alan Connor pondered LB clues for the British cryptic crowd in a 2021 Guardian crossword blog post. I've had positive responses after introducing LBs to cryptic/wordplay fans across the UK (via Twitter), as well as Europe, Australia and New Zealand, South Africa, and India. Actually, India stood out as the country where cryptic folks already had some awareness, with LB clues occasionally appearing in English-language crosswords nation-wide.

In a future article, I plan to write about my Lowdown Letter Banks (more than 600 cryptic-style LB clues to solve, if you still have a Twitter account). I'll leave you with my very first LLB clue:

- Tricky puzzles confused increasingly tipsy crowd $(7,10)$

Thank you for banking with us!

## PALINDROPS

(DROP IN, PALS!) ('Drop’ in Pals?)
Anil
Perth, Australia

Here's a hospital for wounded would-be palindromes I call palindrops. They're drop-outs that failed to complete the palindrome rule. Sound delicious, don't they? Like melon drops? No, think of palindrops as plain drops.

Every initial letter is included, so quality varies. My original palindromes, and significantly modified older ones, are marked ${ }^{A}$ and have mostly appeared in Word Ways. Most originals are well known or easily deduced or retro-read from the left end. The lost ending of the original is also given in most of the comments in all-caps. Thanks to Jeff Grant who reviewed this and contributed some of these, for which he hired Anil to do the explanations and gratuitous comments.

Able was I ere I saw Idris. What a man!
Able was I ere I saw a mirror! / Sir, I soon saw I was no Adonis. After seeing myself alongside Adonis, OSIRIS, and Mr. ELBA, I gave up on looks.

Abel was I ere I saw Cain. Abel's murder was literally a Cain mutiny.
A DNA gun is in progress. Truly! (Help!) And not in UGANDA.
A man, a pain, a root canal. Relieved by a PANAMA dentist.
Anal sex at noon taxes Anil. Call it a fee, not a tax. It isn't taxing. (Her name is LANA, nosy.)

Anne, I vote more cars race Rome to Paris. She wants to reduce traffic in her home VIENNA.

Are we not drawn onwards, we Jews, drawn onward to new heights? Golan Heights?

Avid ogler gnomes oppose mongrel nudes. Those freaks didn't even look at GODIVA!

Bishop made lame female damp. Oh, brother! Brother Bishop that is, her SIB! Currently on trial.

Bottom motto: Z. This is at the bottom of the list of letter mottos. Zed's motto is "Down with the uppity 25! Especially that troublemaker B (see Dammit)."

Call, Ida, call a Pontiac. Call a Pontiac what, Ida? A fake CADILLAC?

Campus motto: Bottoms up, girls! See Deb, for example, MAC.
"Dammit, I'm pissed off!" B's motto. B is MAD at Zed for stealing its motto. Yet B itself is often a troublemaker. I had to name the second volume of Strange Bedfellows "volume C" because of B"s refusal to be used.

Deb nixes sex in the road. She explains, "It"s all the beatles there! Yuk."
Deb nixes sex in a hammock. Okay, you name the venue, Deb, l'm easy. A BED would be nice.

Deer flee freedom in Oregon? No, Geronimo, deer feel hunted! The deer say, "It was okay back when you guys did it on foot with just spears, Geron! It"s unfairly easy for you now!"

Deliver no evil, avid diva, live on celibate. Unnecessary, diva, you won't be REVILED; see next.

Dennis and Edna fucked. It's no longer judged as SINNED.
${ }^{\text {A }}$ Diadem ran on armed snakes. Huh? Ordinary snakes are armless, so they can't AID you.

Dog, as a devil deified, lived as a spoiled brat. A Monty Python dog GOD was named GNIK.

Do geese see cod? Only in wet dreams.
${ }^{\text {A }}$ Do-gooder? Re-do, OMG! Do 'do-gooders' actually do any good? Or one of GOD's mistaken?

Do not refer to God. Commandment 3 was a rebuke to NOD lovers like Cain.
Drab as a fool, aloof as a palindromist. So aloof the BARD failed as a palindromist.
Droll, God! Were we created by a LORD with a perverse sense of humour? It's believable!

Egad, a base tone denotes a bad cold. Get covid-tested-it's a pandemic AGE!
Emil asleep, Hannah peels. 'Damn, I missed it!' Emil says. ‘Suck A LIME!' Hannah replies.

Ere we were here we were there. And before that there, etc, etc, etc, etc, ...
${ }^{\text {A }}$ Espy L.A., cop an apoplexy. I avoid the place! It's an APOCALYPSE Now.
Flee to me, remote control. I need an ELF helper to fetch the remote. Or must I walk to the TV?!

Fool afoot! Lost the election, impeached twice, won't go away! ALOOF to any criticism. cf. Strange Bedfellows vol. C. (In the SB all eight words are related, surprisingly: A "Impeachment: Unfettered 'pedestal pedestrian' afoot - expeditiously repudiate impediment!")
${ }^{\text {A }} \mathbf{G}$ (genome DNA) ran demon omelet. A human EGG omelet! Don't eek. It's the same demon omelet that stirred our eggs' DNA into action to develop into us! Insidious.

Goldenrod adorned logology. It blessed me with an anagram poem on LOGOLOGY:

> Goldenrod,
> do rend log, Erupt as a new sprout, Or abuse a word by punning?
> or, God-lend, mysteriously inspired,
> end Gold (Or)! completing the cycle.

Golf? No sir, prefer poison frog! No PRISON FLOG for tennis fans. Or native Andean hunters.
${ }^{\text {A }}$ God to pot? OMG! I left God for pot long ago, Oh My God. My DOG still hasn't forgiven me.

Harpoon no Winfrey! Heck no, OPRAH's a treasure.
Heads, sides reversed, is tails. No palindrop, but fits right into the spirit of these wrecks.

He laminated a cadet animal cracker. He layered it with peanut butter, jelly and Vegemite, EH?

Homeopath gin night-a poem? Ha! Homeopath gin is so dilute no ethanol remains!
I Love Me, vol. II. Long-awaited Michael Donner sequel.
I saw elf fur. Tall in a vanilla truffle was Santa. I told you his elves weren't human. Fur flew when Santa had to beat them. Don't censure him. He's Santa and can do as he pleases.

Jalapeña, Jane pal? A joint? Call it a chilli-out offer-a joint both hot and cool.

Kay, a red nude, peeped under a kilt. Easy to do since she caused it to lift autonomously.

La Dolce Vita t' imitative clod, Marcello. Mastroianni lost his soul to the sweet life. So did AL.

A Lay a wallaby baby? Ball away, pervert! No, AL! "Whatever turns you on" is now cancelled.

Lepers, rebel! Don't be a pariah! You've nothing to lose but your skin, which you REPEL anyway.

Lid off a daffy duck. The lid was a DAFFODIL in its head feathers. Lay off Dr. Duck's daffy pal!

Madam, I'm adamant! (Is she having another beg-out headache, ADAM?)
Madam, I'm Anil.
Ma is as selfless as I should be.
Was it a rat I was? - a three-palindrop biography
Megan: I finish sin if I nag Harry. Forgive the unroyal spelling of unroyal Meghan.
Mud negates a set mirror. How true. So much for my narcissistic AGENDUM.
"Murder for a jar of red wine!" Is that a strong lust, or a jury's verdict? (See RED RUM below.)
${ }^{\text {A }}$ Music I dole, melodic I sing. It's a lie! I'm quite tone deaf.
My gym nixes sex in the shower. Prudes run MY GYM. Gnomes, I bet. See Avid above.
${ }^{\text {A }}$ Nail Arts, U American! Neither Yanks nor AUSTRALIANs are primarily lovers of the Arts nor adequate supporters thereof. AUS is said by detractors to be a cheap anagram copy of USA. But those ignorami have never lived here or they'd say that USA should see AUS as a role model. (Except for climate change action!)
${ }^{\text {A }}$ No IS in unison. False. Except meaning that Islamic State disagrees with everyone everywhere and hides out in the NO SIN UNisON crowd to escape detection. Condemn them in unison!
"No, it's a banana republic," denying it's a BASTION of abuse and corruption, where Noriega can idle, held in a cage—ironic! (Speaking of IRON rule.)
${ }^{\text {A }}$ No worse babes row a boat. You couldn't find a less fit bunch of three-year-olds! Or put a comma after No for a "punc lib" opposite. They're not the worst rowers.

No XO in Nixon. False! But the characters have been changed to protect against palindromy.

Nurse so no noses run away. The nurse issues tissues to stopper the runaway noses.
O, desirable Melba, rise-provoker. Reminds me of Kay the red nude above.
O, desire, rise not! Kay's advice to that kilt man.
Oh, no, Donald!! And I don't mean DON HO. Nor Donald Duck, nor any happy person.
A Popeye Soda aka POPEYE POP, Olive Oyl's fave! Can't find it? Try Dr. Duck's Dealy Deli.

A "Q" arid Iran. US policy: Question, Quarantine and Queer this Axis of Evil country, not IRAQ, who escaped the Axis.

Rats live on no evil planet. I'd argue with that one! Many a STAR supports my opinion.
Red rum, sir, is intoxicating. In case MURDER is not to your taste.
"Re-peekaboo boob!": a pecker. Finders KEEPERs here.
Re: venom music, I summon Wagner. What EVER sort of Philistine wrote this indictment? Anil!
${ }^{\prime}$ Rot, aid algae tea, conquistador! Yes, you and your GLADIATOR-types dedication to killing.
${ }^{\text {A }}$ Sameness suppositories. They make everyone flow equally, but more gently than ENEMAS.

Satan, oscillate my metallic dong. That rings a bell. It would make a great metallic SONATA.

A Saved so? Bonobos devastated! Endangered, our closest kin, DEVAS! Can Jesus save them? I doubt it. It's mainly His followers doing most of the endangering-of most species!
${ }^{\text {A }}$ Sex at 99 surprises! You have to be there to understand.
So may Obadiah, even in Nineveh, aid a boy, Andy? Should've asked AMOS.

Star comedy by Republicans. 2017-21: GOP's turn to look the clown, like DEMOCRATS earlier.

Stared under, bred nude babies. Another RATS-in-Kilts story.
Stark rabid, I bark "mad dog!" Correcting the biology of the original. RATS don't cause rabies.
${ }^{\text {A }}$ Stop, dumb malefactor, raper of ore, parrot, café, lamb, mud wrestlers! This is not a single human attacker, more a collective, figurative assault. But admit it, mud wrestlers are pretty sexy.

Sums are not set as a test on Darwin. ERASMUS Darwin, that is.
Sums are not set as a test on logology. Not always, but see my Alphagrahic Arithmetic in TJoW.

Tarzan raised Desi Arnaz' chimp. The ignorant actor named it a Cheetah. Was it a RAT it was?
T. Eliot's bathroom. Standard U.S. euphemism. In Australia bathroom and TOILET are usually separate. When visitors say, "I have to go to the bathroom urgently!" we reply, "Are you that dirty?"

Ten animals I slam in a sensitive spot! I won't say where, to protect their NET privacy and dignity.

Tons of UFOs? No thanks. I'm just not that into the fake ET relics market.
Too bad I hid a password. I can't remember where I put it! It was in my BOOT.
Top Step Pup Pet Shop. Pups only. 'We don't SPOT ourselves selling lower animals like cats.'

To senile fatso: Lost a feline diet? Feline means both slim and female, SOT. Compare Sex at 99.

A Total rig: a girl, a cot. And some sort of birth control. TOTs should not be an issue.
Utter, "Et Bruté?" Caesar was stabbed in the forum in the sternum and in the rectum, I've heard.

A Vum, I'd peep dim IR. I vow, l'll look into the fading IR lamp problem soon. No, a UV lamp!

WASPs an asp rejected. 'No snakes or other dark skinned creatures allowed,' white Anglo-Saxon Protestant supremacists say. (Or did the asp reject the WASPs?)
"We led!"-a General, a renegade Ike. Renegade? The straightest figure of all 20thC US, LEW!
${ }^{\text {A }}$ Why logology, H.B.? Howard W. Bergerson would eagerly answer if still with us. RIP, H.W.
${ }^{\text {A }}$ Worst naive deviants argue. They line up in a row to ROW.
A "XO fat!"-a mom. "Cross out junk food, kids! Be more like a slender FOX," a mother urges.

Yawn, a? More Roman Vias! Oh no, not more roads leading to Rome. Wake me if I fall asleep.

Zzz on. I did! And you too may now zzz without offending me like those who zzz'ed earlier.

References: All originals not marked ${ }^{\wedge}$ (Anil’s) are in M. Donner’s 1996 I Love Me, Vol. I, including many previously in Borgmann's 1965 Language on Vacation and Bergerson's 1973 Palindromes and Anagrams.

## AUTOGRAMS

Matthew Abate

## Preface

An autogram is a self-referential statement, that lists the frequencies of its own letters and symbols [1, 2, 3]. I should let one describe itself:

This Autogram contains fifty-three spaces, twenty-four commas, five hyphens, seven As, four Cs, three Ds, thirty-seven Es, fifteen Fs, four Gs, twelve Hs, sixteen Is, two Ls, four Ms, seventeen Ns, thirteen Os, four Ps, fifteen Rs, thirty-four Ss, twenty-six Ts, eight Us, eight Vs, five Ws, three Xs, seven Ys, and one period.

I encourage the reader to count the characters above and verify that the sentence is true and the list is comprehensive. However, the real fun with autograms comes from constructing them. Their premise naturally leads to fun puzzles and brain teasers.

This sentence contains ___ Es.
This sentence contains $\qquad$ Os.

In the first example above, either of the words four or five could be inserted in the blank to create a consistent statement. The second example can't be solved just with a number word-placing two in the blank leads to a sentence with three Os-placing three in the blank leads to a sentence with two Os. Instead, the reader might choose a more creative solution.

## This sentence contains four Es and four Os.

An autogram is created when all of the characters' frequencies are enumerated correctly, or when the list is comprehensive in some way-capitalization or punctuation may be disregarded, and any numbering system may be employed. With these loose guidelines, many languages, list formats, and self-reference structures are possible.

This autogram contains XLV spaces, XX commas, VIII As, IV Cs, III Ds, III Es, II Gs, II Hs, XXXIV Is, II Ls, IV Ms, IV Ns, V Os, III Ps, III Rs, XXIV Ss, IV Ts, II Us, X Vs, XI Xs, and a period.

In the remainder of this article, I will present some autograms I constructed, using various rule sets and premises. My goal in this study is to further popularize the autogram concept [2], which I find delightfully artistic, thought provoking, and under-explored in puzzle design.

All of the autograms contained in this article, including those above, were constructed by the present author (aided with a computer and search algorithm). At the end of the article, I provide a few autogram puzzles I believe are of reasonable difficulty for a human to complete unaided.

## Anagrams:

I'll start with some shorts and build in complexity to larger self-referential passages.

```
23s
    3s
    25s
        5Ss
```

Attempting to use few characters, I wrote this statement without punctuation and with arithmetic numerals in place of number words. Nonetheless, there is a nice visual-the second numeral on any line is the same as the first numeral on the next-and I've attempted to highlight this pattern using the staircase layout. Here's another with even fewer characters:

$$
33 s 3 S s
$$

And one last one:

## twice twice

None of the above employ a sentence prefix like This sentence contains or a conjunction like and in the list. When an autogram contains no extraneous words like this, and is comprised only of the character frequency list, it may be called a reflexicon [1].


In an attempt to avoid an incomplete sentence, I wrote the above reflexicon so that it neither starts nor stops. The statement contains One $B$ and One $Q$, but no $D s, J s, K s$, or $Z s$. This creates degrees of freedom in the solution-one could replace the One $Q$ with One $D$ and the statement would remain consistent. Leaving degrees of freedom in this way can produce an unsatisfying autogram unless there is some other interesting reason why certain symbols appear only once.

When every symbol of an autogram is used two or more times, that autogram may be called pure [1]. The first autogram of this article's preface is pure; however, its prefix This autogram contains admits other, impure, solutions.

This autogram contains sixty-three spaces, twenty-nine commas, six hyphens, seven $A s$, one $B$, four Cs, three Ds, thirty-eight Es, six Fs, four Gs, ten Hs, sixteen Is, one J, one K, two Ls, four Ms, twenty-six Ns, seventeen Os, four Ps, one Q, twelve Rs, thirty-nine Ss, twenty-four Ts, seven Us, seven $V s$, six $W s$, seven $X s$ s, eight Ys, one $Z$, and one period.

Certain characters do appear only once in the autogram above; however, I have removed degrees of freedom in the solution by requiring that all twenty-six English letters be included. That is, the statement is both an autogram and a pangram, and now there are no degrees of freedom. See also [1,2] on pangrammatic autograms.

Whenever possible, I try to avoid the third, seventh, tenth, eleventh, thirteenth, seventeenth, twenty-first, and twenty-sixth letters of the alphabet.

One might call this a lipogrammatic autogram-since the character set is both intentionally limited and described comprehensively. Constructing lipogrammatic autograms brings its own challenges; one couldn't write avoids the fourteenth letter of the alphabet, for instance, since $N$, the fourteenth letter of the alphabet, appears in the word fourteenth.

```
In that sentence, there are exactly Fifty-Six spaces, Twenty-Five commas, Five hyphens, Seven As, Five Cs, Three Ds,
    Forty-Seven Es, Fifteen Fs, Three Gs, Twelve Hs, Fifteen Is, Three Ls, Three Ms, Eighteen Ns, Ten Os, Four Ps,
        Fourteen Rs, Thirty-Two Ss, Twenty-Six Ts, Five Us, Ten Vs, Four Ws, Four Xs, Eight Ys, and One period.
        In that sentence, there are exactly Fifty-Six spaces, Twenty-Five commas, Five hyphens, Seven As, Five Cs,
    Three Ds, Forty-Four Es, Sixteen Fs, Three Gs, Twelve Hs, Fifteen Is, Three Ls, Three Ms, Seventeen Ns, Ten Os,
Four Ps, Fourteen Rs, Thirty-One Ss, Twenty-Seven Ts, Five Us, Eight Vs, Five Ws, Four Xs, Eight Ys, and One period.
```

The style above maybe be called an autogram chain [1]-a set of passages, each one describing its neighbor's character frequency. Just as a sentence prefix like This autogram contains may admit multiple autogram suffixes, a chain prefix like In that sentence, there are exactly may admit multiple chains. Here is a chain of length 3:


Constructing an autogram chain is perhaps easier than constructing a stand-alone autogram-one may start by writing any passage, and then writing the enumerating sentence that describes itworking backwards until a chain emerges. With chains, it's possible to have characters that appear once but do not add degrees of freedom: notice, for example, that the statement One $G$ appears in the upper passage and lower left passage, whereas Two Gs appears in the lower right passage. While the character $G$ does not create degrees of freedom in the solution, the fact that One $Z$ appears in each sentence does.

Given any chain, one can construct a larger chain by reusing sentences multiple times-for example, using our chain of length 3 , we might create chains of length, e.g., $6,9,12, \ldots$ by reusing the same sentence set over and over again. I'll call a chain Reduced if each sentence within the chain is unique. Any single sentence in a reduced chain defines the whole chain-that is, the same sentence will not appear in more than one reduced chain. For this prefix In that sentence, there are exactly, I was able to find reduced chains of length $2,3,5,6,7,8,9,10$, and 1.


Below, I provide a final chain example where I construct chain of length 4, by repeating a chain of length 2 twice. Then I created a chain of length 2 surrounding the chain of legnth 4 . I call this chain composite since there is a chain contained within a chain, and the outer chain here is reduced.


## Closing Remark:

As I hope the above has made clear, autograms provide a large and under-explored landscape for which to be creative. I hope this article serves as encouragement for you to attempt to construct your own.

## Puzzles:

For each of the following, fill in the blanks so that every character that appears in the completed sentence is enumerated correctly within the sentence. Every blank must contain only numerals, and no character appears more than 100 times. A video solution for the first puzzle is available at https://www.youtube.com/watch?v=GpIy8qGjEHE.

This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4 Os, 3 Ps , 2 Rs , 27 Ss , 4 Ts , __ $2 s$, __ $3 s, \ldots 4 s, \ldots 5 s, 46 s, \ldots 7 s$, __ $9 s$, and a period.

This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4 Os, 3 Ps, $2 R s, 27 S s, 4 T s, \ldots 2 s, \ldots 3 s, \ldots 4 s, \ldots 5 s, 56 s, \ldots 7 s, \ldots 9 s$, and a period.

This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4 Os, 3 Ps , $2 \mathrm{Rs}, 27 \mathrm{Ss}, 4 \mathrm{Ts}$,__ 2 s , __ 3 s , __ 4 s , __ $5 \mathrm{~s}, 66 \mathrm{~s}, \ldots \quad 7 \mathrm{~s}$, __ 9 s , and a period.

## References

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## THE MIND OF JACK LANCE

Jack Lance

Jack Lance, AKA Zachary Polansky, was a gifted puzzle and game designer who worked in many media and left the world far too early. In his memory, we present this selection of writings plucked from his social media accounts. I have added a few bracketed explanations in a few spots where I thought readers might need a little help getting on the same page. Bracketed asterisks after puzzling challenges are addressed in the "Answers" section. --T
"AN EYEPATCHED PIRATE" is an anagram of "THE PAIRED-EYE CAPTAIN." Oh wait, hold on, nevermind. The first one only has one I, but the second has two.

```
dad = a papa
racecar = track cart
never odd or even = NaN [computing term meaning "not a number"]
was it a car or a cat I saw? = motor o' tom?
```

"This text looks super weird like broken english" you say "It really sounds off just kinda" I did write so that there'd be task hidden so well in it but if needed you can find still. You just need to start to erase words not placed divisible even into thirds. Be reading when done. [*]
div is a type of html element found on most websites. However, on websites, cdiv [404] is not found.

```
fibonacciRabbits
=
for(int i=0; i++<s; )
{
c=a+b;
a=b;
b=c;
}
```

[The program is an anagram of its title and produces the Fibonacci numbers.]

Jack does give quiz:
Load four char (A-Zed) dice. Next turn them. Goal: Make each word, okay? [*]

## LGBTQ+'S "P" ("I'D FUCK W/ ANY") + J OVER 1000(M X HZ)^2

[This is a pangram that defines PAN, as in pansexual, combined with GRAM, the metric measurement. It uses all 26 letters, but only uses each once.]


The Spanish "soso" can be a rough synonym of the English "so-so"!

It seems backwards that AD (Anno Domini) is in Latin and BC (Before Christ) is in English.

They're called storm drains because when d' rain drops come down, they stor' 'm.

ONE, TWO, THREE... UNO, DOS, TRES... and UN, DEUX, TROIS all have the appropriate number of consonants.

If you say negative things about someone else, that's roasting. If you say positive things about someone else, that's toasting. If you say positive things about yourself, that's boasting.

I said, "If you detail a car, that means you remove from it, but if you detail a painting, that means you add to it," and my dad replied, "But if you detail a dog, that means you remove from it."

Finances are a lot like tic-tac-toe. One either has excess or owes.

It's weirdly ambiguous what state a person wearing this shirt loves.


CLAMBAKE is an eight-letter food spelled by inserting one four-letter food into another. Also, MEALTIME becomes two four-letter foods upon swapping its central letters.

For someone who claims to be a real human being who just always wears a robot costume and is definitely not a robot, I have to say the name "Guy-Man"uel sure is a little suspicious.

## Dental consonant

From Wikipedia, the free encyclopedia
A dental consonant is a consonant articulated with the tongue against the upper teeth, such as $/ \mathrm{t} / \mathrm{l} / \mathrm{d} / \mathrm{s} / \mathrm{h} /$, and $/ \mathrm{l} /$

If you remove every other letter of "Thanos" (perfectly balanced, as all things should be), you get "Tao," which is a word referring to the balance of the universe! [Thanos, of course, sought that balance by eliminating half of everything...]
"Speaking from the bottom of my heart" is pretty close to "Speaking at the top of my lungs"

Square meals:
DIP
ICE
PEA

ACOB
CAKE
OKRA
BEAN

```
LAMB LAMB
AGAR-AGAR
MAHI-MAHI
BRIE BRIE
```

At a frat party, you might find people dropping acid or dropping the bass.
mildew $=$ mild "ew"

Getting $65 \%$ on a test is D -grading

```
"Random repetitions?"
=
"Nope, It is modern art!" [anagram]
```

The letters T-E-N are exactly half of the letters T-W-E-N-T-Y

Pronouncing aloud the first two letters of "fowl" and the first two letters of "party" means the same thing as "party foul"

For such a tall monument that you can go to the top of, the "I Fell" Tower is a pretty unsettling name. (I suppose it is very visually stunning for tourists, so I understand why the English pronunciation is closer to "Eyeful" Tower!)

On "Rome's Got Talent," when all the judges give you an X, it's a perfect score.

Cool beans make chilly chili.
"Parallel" and "Concurrent" can be synonyms or antonyms

Double negatives:
Overlay - Understand
Nightfall - Dayspring
Indie - Outlive
Hothead - Cold Feet
Rushmore - Ceaseless

Is cow tipping how steak tips are made?

Letters related to numbers related to one shape can form a phrase related to a time related to a different shape!

If Artoo Detoo (R2D2) and See Threepio (C3PO) are robots, doesn't that make Obi Wan (OB1) one, too?
/rə'spänd/ can mean "comeback" or "came back."

Autohomophonological words:
WE
NOSY
WHIRRED
EYELESS (?)
EFFEMINATE (?) [*]

The past tweet is exactly an arrangement of this.

A tweet that is next perfectly anagrams this one.

For a product that's used to save trees, the Amazon Kindle Fire does not bring the right image to mind.

Of Pepsi and Coke's root beers, how did the one that *isn't* called Barq's get the mascot of a dog?

Raps and rhapsodies are both styles of music used to convey strong emotion with irregular form.
[Ichi is one in Japanese. Ocho is eight in Spanish.]

$$
|C H|=\mid
$$

$$
O C H O=8
$$

In "I like those people like those people like those people, like, those people are cool," "like" is a different part of speech each time.

It's called "table salt" because it goes on the table.
...but then why is the thing next to it called "ground pepper"?
"He's got her nose" could be said about a mother and her child, or a father and his child.

Both Roombas and goombas exist for the sole purpose of walking back and forth on all of the ground that they can access.

A haiku:
Resume the evening
Evening the resume
Resume the evening

Twenty-nine letters, twelve unique.

Universal formula:
$\cos (\mathrm{m}) \cdot \log (\mathrm{y})$

The phrase "Disco ball" consists entirely of three circles.

I just realized the 3DS sounds like it was dedicated to a character found in one of its games, King Dedede.

A radon detector is a tocsin which talks in case of a toxin.

A machine which plays different music depending on what number the user chooses would be a rad io system.

The name of a Super Smash Bros Brawl character can have its first three letters removed and replaced with the letter after the first of those three in the alphabet to form the name of another Brawl character. The same character can also have its last three letters removed and replaced with the letter after the first of those three in the alphabet to form the name of another Brawl character! [*]

Although the words "humans" and "people" mean the same thing in most scenarios, swapping them tends to get you some *really* weird looks.

Moving one unit at a time, and turning left at a vowel and right at a consonant, what is the phrase "It's a plus sign"? [*]

I haven't bold a strikethrough the course of this whole game! Compared to usual, I really underscored.

Poe \& T.S. = POETS!

The word ANTICLOCKWISE contains N, W, S, and E in anticlockwise order.
"Spring" and "Fall" are both seasons. "Springs" and "Falls" are both bodies of water. In fact, even the word "seasons" starts with "seas."

Moe and Sideshow Bob from The Simpsons are both bart-enders.
"niched" and "cliched" are, in some sense, very aesthetically nice opposites.

Adding a " $t$ " to the front of the words "rick" and "roll" both accurately describe a rick-roll.

I was getting a lot of hits, but then the server crashed and the whole net went down. I guess I'll have to get a new ping-pong table...

This is a sentence with two unusual par(enthe)ses.

In English, beheading "none" leaves "one"
In Spanish, beheading "one" ("uno") leaves "none" ("no")


A study measuring how much time parents spend with their children would be the only permissible use of the second-person in a report.

A trap in chess should be called a pawnsy scheme.
"It's your word against mine" would be an excellent slogan for Scrabble. (Currently it is "Every word's a winner.")

After switching yellow and violet, pick one letter from each color of the rainbow in order to make a 7-letter word. [*]

```
"DO MONEY CALCULATIONS WELL"
=
"ECONOMICALLY SOUND WALLET"
```

28 hours per week $=\mathrm{pi} / 3$ radians
Although the weirdest unit conversion I have ever done, this is technically correct.
"I would have not given you all of the candy that there is." makes sense but "I'd haven't given y'all of the candy that there's." doesn't.

This is the "Chinese symbol meaning 'hands'." and a "picture that denotes 'tree'."


My lab partner hates me because of the mass of physics terms that work as potential puns and the frequency I normally say them within a current period. Especially when I force it; it mega-hurts his ears.

Lines of "c"s in cursive look like seas!

You tell someone to "break a leg" before an audition because you're hoping they get into a cast.

> If we pretend
> the set of primes
> will ever end,
> then we define
> the number N
> just multiply 'em.
> Increment
> and we can find
> the dividend
> when we divide
> is not whole then
> that means we lied.

Of all the mountains to climb, EVEREST'S SEVEREST

I don't get why teachers always tell students to put phones away. I thought they were supposed to like when their students brought apples?

I try to type pretty witty top row twitter quote I wrote. [This sentence uses only the top row of a standard keyboard.]
"Off" and "on" are interchangeable surprisingly often.
"The fire alarm went * "
"It was built * the foundation"
"She survives * welfare"

The word "indevout" is very indecisive.
It means "not totally committed to a cause or belief." and has both the words "in" and "out" in it.
／aI／in Spanish means／yor／in Chinese（hay，有）
／aI／in English means／you／in Spanish（I，yo）
／aI／in Chinese means／yov／in English（哎，yo）
－looks like 1 if you rotate it 90 degrees．
七 looks like 7 if you rotate it 180 degrees．
百looks like 100 if you rotate it 270 degrees．
［These correspond to the Chinese word for each number．］

Public ships are cruise ships．Private ships are the crew＇s ships．

Each word that this tweet uses can take some noun／pronoun definition．
＂sleep around＂and＂mixed greens＂can be interpreted as cryptic instructions on how to make the words＂peels＂and＂genres，＂respectively．

Can anyone come up with two words which contain synonyms of each other within them？The best I can get is＂vari［ant］＂and＂［form］icidae＂

In puzzles in which 100 perfect logicians get captured and threatened unless they perform some task，are such scandals called＂Logic－gates＂？

The words＂Odd＂and＂Impaired＂are related words in two entirely different senses．Same with ＂Number＂and＂Single．＂

All the vowels in this occur in equal amounts．

If a trickster has tricks，what does a grandmaster have？

The word＂has＂is a conjugated form of the same verb in both English and Spanish．

Having an albatross on your neck means metaphorically that you have a burden and literally that you have a bird on.

To know where you are in a [story] line, you need to have [e]x-position.

Word products are much more fun than word sums.
(e.g. JACK $=10 * 1 * 3 * 11=330$ )

Can you find 2016? Factorials from 4! to 11 !? 9,000,000? [*]

In England, money you use to pay an expense is your ex-pence.

The address of the State of the Union (w/ capitals) address is at the Capitol in the capital of the union of the states.

If something is made clear, it either becomes more visible or less visible.

The word "eagle" is phonetically contained within the word "seagull."

I think that that that that "that" that appeared second in this sentence meant might be difficult to interpret.

Logic puzzle limerick:
The only lie in this poem is line 2
No, line 4 is also not true
Line 2 is a lie
And so is line 5
Line 1 is a blatant lie too [*]

Proof limerick:
If $\mathrm{rt}(2)$ was said rationally
In simplest form $a$ to $b$
a's square's half of b's
So halve both of these
The ratio's smaller QED

Pseudocode limerick:
Input an integer $n$
For i from 2 to n , then:
If $n \bmod i$ is non
Print out "We are done"
Else do the for loop again

You can’t say "Dynamite? DYNAMITE!!!" without "Might die."
"Unity" begins with "you 'n' I"

Is Silverado a type of Colorado?

Pros/Cons of being a literalist: CONS: People found guilty of a criminal offense. PROS: People who profit engaged in a profession.

Casinos can be very addictive, is that why its staff are called dealers?

If you haven't learned Rubik's cube notation by now, then you've been, to be upfront, downright left back.
/r/evolution and /r/emigration are the longest subreddit names which take ' $r$ ' backhooks.

You can't spell "square" without "u are." You can't spell "diamond" without "i am."

The word "taxicab" is the most redundant word, considering it is a synonym of both "taxi" and "cab."

The word "illuminated" means the same thing even if you only use every third letter.

If you text too many selfies, you get very high cell fees.

Stenography and steganography are more-or-less opposites. English....why must you do this kind of thing to us?

I use second meanings each second that I'm meaning to be clever.
"Left there" can be its own opposite, as in "Everyone but him left there 15 minutes ago, so he is the only one left there"

Many superheroes wear masks to conceal their identities. However, the Teenage Mutant Ninja Turtles have masks for the exact opposite reason! Without their masks, it would be *harder* to identify who's who.


# SOLVING THE 10-SQUARE PROBLEM IN ENGLISH LANGUAGE USING EFFICIENT PRUNING STRATEGIES 

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#### Abstract

Word squares are linguistic puzzles consisting of words arranged in a square grid that can be read both horizontally and vertically. The construction of a perfect 10-word square in English has been an open problem in recreational linguistics for over a century, as the search space is vast and subject to strict constraints. Previous attempts have relied on the use of proper names, capitalized words, hyphenated words, or tautonyms to find partial solutions to the problem. In this paper, we present a novel algorithm that uses advanced pruning techniques to significantly reduce the search space of the problem and overcome the previous limitations. Using publicly available English word datasets, our method successfully constructs the first proper 10 -square in English, demonstrating the potential of algorithmic approaches to complex linguistic challenges.


## 1. Introduction

Word squares are a fascinating and ancient form of acrostic puzzle in which a series of words are arranged in a square grid so that they can be read both horizontally and vertically. The number of words, which is equal to the number of letters in each word, determines the order of the square. An example of 3-square with words from a standard English dictionary [1]:

PSI
SAT
ITS

The history of word squares goes back to antiquity, with the first-century Sator square from the remains of Pompeii [2] being one of the earliest and best-known examples. This Latin 5-square is not only palindromic, but also contains additional hidden meanings and symbols that have sparked scholarly debate about its origin and purpose.

In modern times, word squares have been constructed in a variety of languages and sizes, with English-language squares extending to order nine. The search for a perfect 10-square in English has been going on since 1897, when the first 9 -square was published [3]. Several partial solutions for the English 10 -square have been proposed using lists of personal and geographical names [3].

Constructing a 10 -square word puzzle is very challenging, mainly because of the need for a large vocabulary [4]. Brute force methods are not practical for solving such puzzles because the number of candidate solutions is $(n)$, where $n$ is the size of the vocabulary. This leads to an exponential increase in the number of possible word combinations and makes the task computationally intractable. Even if basic pruning methods are used to reduce the search space,
the sheer volume of possible solutions remains overwhelming and presents a significant obstacle for those trying to solve 10 -square word puzzles.

In this paper, we make several contributions to the field of word puzzle construction. First, we introduce advanced pruning strategies to effectively manage the state space of square word puzzles. By adding single characters to partial solutions rather than whole words, we efficiently prune search space and significantly reduce the number of tests required compared to previous approaches. Second, the construction of our solution focuses on the below-the-diagonal part of the word matrix. Here, the transposed elements are automatically set to the appropriate values, exploiting the symmetry of the word square solutions. Finally, we have compiled a comprehensive dataset of about 360K English words of length 10, taken from various publicly available sources. This extensive vocabulary offers the possibility of constructing 10 -squares.

Remarkably, our developed algorithm successfully constructed the first perfect 10-word square in the English language without using proper nouns, capitalized words, hyphenated words, or tautonyms, solving a problem that has existed since 1897.

## 2. Methodology and Implementation

### 2.1. Custom Dictionary Construction

To create large word squares, an extensive dictionary is required. The estimated size of a vocabulary needed to create a single 10 -word square is about 247,718 words of length 10 [4] (or 256,945 if the assumption of independence of characters from their position within the word is omitted).


## A B CDEFGHI J KLMNOPQRSTUVWXYZ

Figure 1: Frequency distribution of characters in English words of length 10.

In practice [3], the actual size of the dictionary tends to be $38 \%$ larger than the estimated value. Taking this factor into account, approximately 342,000 words are required to construct a 10 -square. These requirements are beyond the capabilities of a single dictionary or data source.

In order to gather enough words for this purpose, we have gathered words from the following sources:

1. English Wiktionary [5]
2. One Billion Word Language Modeling Benchmark Dataset [6]
3. JStor [7]
4. Catalogue of life [8]
5. SemMedDb [9]

Consolidating the data sources and removing words beginning with a capital letter, hyphenated words and words containing non-English characters resulted in a dictionary of about 360,000 words of length 10. In Fig. 1, we show the frequency distribution of the characters in the dictionary.

Applying Long's estimation formula [4] with the frequencies of the characters in our dictionary gives an estimate of the size of the dictionary needed for the 10 -square of 222,406 . Taking into account the $38 \%$ increase factor, the size of the vocabulary needed for the 10 -square is about 307,000 . It is important to note that the consolidated dictionary data is noisy and contains misspelled words and words from other languages. Since manual cleaning of the dictionary was not feasible, we chose to manually filter out misspelled words only if they appeared in the solutions of our word square construction algorithm. The generated dictionary, especially if we take into account that it also contains non-valid words, is just about the estimated size needed to generate one 10 -word square.

## 3. Algorithm and Problem Definition

In this section we present an efficient algorithm for solving the word-square problem and give a clear definition of the problem itself.

The word square problem is a combinatorial puzzle in which the goal is to find all the word squares from a given vocabulary $V$ containing $N$ words of size $n$. Words arranged in a square grid can be read both horizontally and vertically. A word square can be represented as $n \times n$ symmetric matrix $W=\left(w_{i j}\right)$ of characters, where the characters in each row and column form valid words from the vocabulary.

We develop a backtracking search algorithm that effectively navigates through the space of partial solutions using advanced pruning rules to minimize the exploration of partial solutions that cannot lead to a valid solution. The algorithm includes the following main steps:

Initialization: Start constructing the solution in the upper left corner of the word matrix.

Traversal path: Iterate through the cells of the matrix using a specific traversal path that starts at the first column of each row, moves diagonally upwards until it reaches the main diagonal element, and then continues with the next row. In the last row, the algorithm enumerates all remaining diagonals and ends in the bottom right cell of the matrix (as shown in Fig. 2). This is the only traversal path that ensures that for each new cell to be examined, both the immediate left and the upper neighboring cell are already defined, which is crucial for the application of pruning rules (see Sect 3.1).

Candidate selection: For each cell $w_{i j}$, select valid candidate characters based on the pruning rules (described in detail in Sect 3.1).

Backtracking: If no valid candidate characters can be placed in a cell, backtrack to the previous cell on the matrix traversal path or stop if the current cell is the top left matrix cell.


Figure 2: Traversal path of the matrix algorithm ensuring that the immediate left and upper neighbouring cells are defined for the application of the pruning rules.

Validating the transposed cell: When you have found a valid character $C$ for a cell $w_{i j}$, also check whether the transposed cell $w_{j i}$ can accommodate $C$ by applying the same pruning rules.

Progression: If the partial solution with $w_{i j}=w_{j i}=C$ is considered valid, proceed to the next cell on the matrix traversal path.

The algorithm generates all valid word squares by effectively enumerating all valid solutions and efficiently discarding partial solutions that cannot lead to a valid solution. In the worst case, the algorithm faces the challenge of enumerating an exponential number of possible partial solutions for word squares. However, the pruning heuristic has proven effective in practice, especially for large vocabularies, as it significantly reduces the search for invalid solutions. The algorithm's ability to competently navigate through the space of partial solutions, apply advanced pruning rules, and exploit the symmetric property of the word matrix makes it a valuable approach to solving the word-square problem.

### 3.1. Pruning Strategies within the Algorithm

In this section, we introduce the pruning mechanisms that our algorithm uses to solve the word square problem. These mechanisms are important to improve the performance of the algorithm by minimizing the exploration of partial word squares that cannot lead to valid solutions of the problem.

The algorithm uses both near and long-range expansion constraints to effectively prune the search space. The short-range expansion constraints are applied to ensure that a candidate character $C$ can be placed at a specific position within the word matrix, taking into account the symmetric nature of the matrix and vocabulary $V$. There are four short-range expansion constraints, with constraints 3 and 4 being the symmetric counterparts of constraints 1 and 2 . All of the following conditions are shown in Fig. 3:

1. Horizontal expansion in row $i$ : $V$ must contain a word with the prefix $w_{i_{0}} w_{i_{1}} \ldots w_{i(j-1)} C$.
2. Vertical expansion in column $j: V$ must contain a word with the prefix $w_{0} j w_{1} j \ldots w(i-1) j C$.
3. Horizontal expansion in row $j: V$ must contain a word with the prefix $w_{j 0} W_{j 1} \ldots w_{j(i-1)} C$ (symmetrical counterpart to condition 1).
4. Vertical expansion in column $i: V$ must contain a word with the prefix $w_{0 i} w_{1 i} \ldots w_{(j-1) i} C$ (symmetrical counterpart to condition 2).

In addition to the short-range constraints, a long-range expansion constraint is applied if $i>j$. In such a case the intersection element of $w_{i j}$ and its transpose $w_{j i}$, namely $w_{i i}$, must contain a matching character $X$ so that $V$ contains words:

1. wi0 $\ldots w i,(j-1) C w^{j-i-1} X$
2. $w 0 i \ldots w(j-1) i C w^{j-i-1} X$
where $w^{n}$ denotes any sequence of characters of length $n$. The long-range constraint is shown in Fig. 4.

Our algorithm expands partial word-square solutions in the traversal order illustrated in Fig. 2 to effectively apply pruning mechanisms. For the traversal step for $w_{i j}$ the pruning tests are performed in the following order:

1. $w_{i j}$ is set to a character $C$ that satisfies the valid short-range expansion constraints in the horizontal and vertical directions for $w_{i j}$.
2. $w_{j i}$ is set to $C$ and checked to see if the short-range expansion constraints in the horizontal and vertical directions are satisfied for $w_{j i}$.


Figure 3: Types of short-range expansion constraints for candidate character $C$. Note that the matrix traversal path of the algorithm (see Fig 2) ensures that all constraints can be evaluated.

If $i>j$, the algorithm evaluates all rows within the interval $(j, i]$ for compliance with the longrange expansion constraints with respect to column $j$. In case of a violation of the constraints, the algorithm returns to the previous stage of the traversal path using backtracking. It is important to note that although analogous long-range expansion constraints are possible for columns relative to the current row, these were implemented but later removed from the implementation of the algorithm. This decision is based on the observation that the inclusion of these constraints does not help to increase the efficiency of the algorithm.

By testing the long- and short-range expansion constraints immediately after adding each character to the partial word square, our algorithm ensures maximum pruning of the search space. This approach is more efficient and effective than the common practice of adding whole rows or columns to the partially defined word square solution, which increases the number of tests performed and prevents the symmetry constraints from being tested for all characters in the added word. This is because not all transposed elements of the word matrix are defined after a whole
row or column has been added to the partial word square solution. Therefore, our traversal is more efficient and effective for creating word squares.


Figure 4: Long-range expansion constraints. The existence of $X$ ensures that $C$ may be placed in a word square. The $*$ cells represent arbitrary characters, currently undefined, which must be taken into account when evaluating the long-range constraints.

### 3.2. Efficient data structures for pruning the search space

The effectiveness and running time of algorithms for constructing word squares are significantly influenced by the use of efficient data structures for pruning the search space. The size and pattern of words in the dictionary also affect the ability to find large word squares.

To test the conditions for expansion over short- and long-range expansion, we use a trie or an array of trie sets. A trie allows constant-time access to the set of next possible characters of a word prefix, so that the expansion conditions for the short range can be tested in both horizontal and vertical directions in constant time.

Similarly, an array of $d$ trie sets allows constant-time access to the set of next nearest possible characters based on a word prefix, followed by $d<n-1$ arbitrary characters, ensuring constant-time testing for a single long-range expansion constraint. Note that $n$ long-range expansion constraints must be performed, resulting in $O(n)$ long-range test complexity. Note that the amortized time for the construction of dictionary trie and $d$ trie sets must also be considered.

In summary, our backtracking algorithm constructs word squares by incrementally creating partial solutions while efficiently pruning the search space using diagonal traversal and various pruning mechanisms. By incorporating appropriate data structures, the algorithm achieves a balance between computational complexity and effectiveness in constructing valid word squares. This approach enables the construction of word squares even in situations where brute force methods or methods that add whole rows or columns to partial solutions would not be feasible.

The linear complexity of testing long-range interactions together with the constant-time testing of short-range expansion constraints for each matrix cell helps ensure that the algorithm remains efficient and practical for different dictionary sizes and word-square dimensions.

## 4. Results and Discussion

We applied our algorithm for constructing word squares to a noisy dictionary of about 360 K English words of length 10 obtained from the sources in Sect. 2.1. This dictionary contains misspelled words, proper nouns and non-English words. Since manual cleaning is not feasible, we filtered out misspelled words only if they appeared in the algorithm's solutions.

In parallel, we ran four versions of the algorithm, each with a fixed character in the upper left corner of the matrix, until all the letters of the English alphabet were exhausted. After the algorithm generated solutions, we manually checked them for validity and immediately removed invalid words from the dictionary. The processing time for enumerating all possible solutions for a single fixed letter in the top left corner ranged from a few hours to over a week on a computer with an $\operatorname{Intel}(\mathrm{R})$ i5-9400F CPU @ 2.90 GHz processor.

The algorithm run with the " $S$ " in the upper left corner took 34 hours, evaluating over 800 billion partial solutions. The resulting perfect square excludes proper nouns, capitalized words and hyphenated words:

| S | C | A | P | H | A | R | C | A | E |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| C | E | R | R | A | T | E | A | N | A |
| A | R | G | O | L | E | T | I | E | R |
| P | R | O | C | O | L | I | C | I | N |
| H | A | L | O | B | O | R | A | T | E |
| A | T | E | L | O | M | E | R | E | S |
| R | E | T | I | R | E | M | E | N | T |
| C | A | I | C | A | R | E | N | S | E |
| A | N | E | I | T | E | N | S | I | S |
| E | A | R | N | E | S | T | E | S | T |

## Word Description \& Source

| scapharcae | adj. epithet of bacterium Ornithinibacillus scapharcae [10] |
| :--- | :--- |
| cerrateana | adj. epithet of a plant Pitcairnia cerrateana [8] |
| argoletier | noun (obsolete, military) a light mounted soldier; a mounted bowman [11] |
| procolicin | noun a propeptide form of colicin [12] |
| haloborate | noun a type of inorganic compound [13] |
| atelomeres | adj. epithet of a species of moths Ectropis atelomeres [8] |
| retirement | noun withdrawal from one's position or occupation or from active working life [14] |
| caicarense | adj. epithet of a plant Machaerium caicarense [8] |
| aneitensis | adj. epithet of a tree fern Alsophila aneitensis $[8]$ |
| earnestest | adj. (now rare) superlative form of earnest [15] |

The solution contains five species epithets, one type of inorganic compound, one type of organic compound, one rare word, one obsolete word and one common English word, with the newest word introduced in 2011.

This is the first correct solution to the 10 -word square problem, which was posed in 1897. Although other 10-word squares might exist or future English words might allow for new solutions, an 11word square is unlikely. We have unsuccessfully attempted to construct an 11-word square from the sources in Sect 2.1, which supports the claim that the estimated size of the dictionary required for an 11-word square is in the order of one million words [4].

## 5. Data and Code Availability

The implementation of the algorithm for constructing word squares and the dictionary used to construct 10 -square from this paper can be found at https://github.com/matevz-kovacic/wordsquare.

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## FURTHER READING

A few new books of note.
A Feast of Words. In this volume, TJoW's Richard Lederer (richardhlederer@gmail.com) offers up highlights from his half-century of logology, with a plethora of illustrations by Brett Radlicki. Waterside Productions, paperback \$17, e-book \$10. Link here.

The Corset \& The Jellyfish: A Conundrum of Drabbles is a unique kind of literary puzzle-100 mysterious illustrations, 100100 -word stories of surreal imagination, and a special bonus story left for you to construct from the words of the others! Nick Bantock claims this work was found in a North London attic, but it's got his inventive mind all over it. Tachyon Publications, paperback $\$ 20$, e-book $\$ 12$. Link here.

Buzz Words: Punny and Playful Beelocutions is an e-book by Vikas O'Reilly-Shah and Adrienne Valesano. After making up some words that would increase their scores in the New York Times Spelling Bee puzzle, if only they existed...O'Reilly-Shah and Valesano opted to bring them to life. Pinpugn and bratuity are just two of the portmanteaux they offer up. Self-published, hardcover \$20, paperback \$9, e-book \$2. Link here.

## ANSWERS

## G.P.S. Exercises:

EVERYTHING CAKE:

KING (English) — $\boldsymbol{S}$ —SHAH/شاه (Persian) — $\boldsymbol{P}$ — CHAT (French) — $\boldsymbol{S}$ —GATO (Spanish)— $\boldsymbol{P}$ — GÂTEAU (French) - $\boldsymbol{S}$-CAKE (English)

## YELLOW to GREEN:

YELLOW (English)— $\boldsymbol{P}$-IELO (Spanish)— $\boldsymbol{S}$-GLACE (French)— $\boldsymbol{P}$ —GLASS (English)— $\boldsymbol{S}$-VERRE (French)— $\boldsymbol{P}$ —VERT (French)— $\boldsymbol{S}$-GREEN (English)

The YES to NO exercise has many options and is left for the reader to explore.

## Transposalry:

| Transposal | Artist / Band | Transposal | Artist / Band |
| :--- | :--- | :--- | :--- |
| beer-waterers | Teresa Brewer | Eminem songs | Gene Simmons |
| stonelayer | Royal Teens | target-rifle | Leif Garrett |
| link scraper | Carl Perkins | El Miron, Spain | Ronnie Milsap |
| Egyptienne | Gene Pitney | thermonastic | The Romantics |
| cineplasty | Patsy Cline | reelevates | Steve Earle |
| countershot | The Contours | tare weight | Great White |
| ulotrichies | Lou Christie | Tuberculate | Culture Beat |
| Inochentism | Connie Smith | pit-manager | Martin Page |
| Melanthia's | The Animals | Backsettler | BLACKstreet |
| The Silent Force | The Reflections | Aristotelianisms | Alanis Morissette |
| fourteenths | The Fortunes | Interweavers | Steve Wariner |
| gravelstones | Strangeloves | Chuck Berry | Buckcherry |
| More Nipples | Lemon Pipers | Navigables | Saving Abel |
| elegiambus | Blues Image | Chevrotaines | The Veronicas |
| Starwinder | Edwin Starr | Irrhetorical | Trailer Choir |
| thanksgiver | King Harvest | donkey trains | Rodney Atkins |
| concionate | Connie Cato | Reo language | Alunageorge |
| long-visaged | Dave Loggins | Leptomonas | Post Malone |
| entoplastral | Stella Parton | Heavenlies | Elvie Shane |
| gold warden | Andrew Gold | Mitt Romney | Ritt Momney |
|  |  |  |  |
|  |  |  |  |

## Bank On It:

The hit song with a 12.0 LB quotient is "Mmm Mmm Mmm Mmm" by Crash Test Dummies-a Canadian band, of course. The cryptic answers are MASTER and SESAME STREET.

## Autograms:

Use the process outlined at https://www.youtube.com/watch?v=cSFNeUEL7qI.
This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4


This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4


This sentence contains 49 spaces, 22 commas, 6 As, 5 Cs, 3 Ds, 6 Es, 2 Hs, 4 Is, 3 Ms, 6 Ns, 4


## Jack Lance Puzzles:

This text looks super weird...
If you follow the instructions in the text, erasing all words "not placed divisible even into thirds," then the text goes from
"This text looks super weird like broken english" you say "It really sounds off just kinda" I did write so that there'd be task hidden so well in it but if needed you can find still. You just need to start to erase words not placed divisible even into thirds. Be reading when done.
to
looks like you really just did that task well, but you still need to not even be done.
Follow those instructions to repeat the operation and you get
You did well, still not done.
Do it once more and get
Well done.

## Jack does give quiz:

This is a set of four-letter words:

```
JACK - DOES - GIVE - QUIZ - LOAD - FOUR - CHAR - AZED - DICE - NEXT - TURN -
THEM - GOAL - MAKE - EACH - WORD - OKAY
```

The challenge here appears to be to take four dice and put letters on each of their sides. If we use six-sided dice (the most common kind, with other kinds almost unused outside of role-playing games), that would give us 24 sides. And the instructions use a total of 24 letters, all except "B" and "P." From this, we can assume we're to construct four six-sided dice, with each side corresponding to one of the letters in the instructions and each letter used only once.

Since the four dice together need to spell JACK, we know that the "A" die does not have C, K, or J on its other sides. Since they need to spell LOAD, we can eliminate L, O, and D. After similar study of CHAR, AZED, GOAL, MAKE, EACH, and OKAY, and remembering B and P are missing, we can state:

The A die does not have C, D, E, G, H, J, K, L, M, O, R, Y, Z.
So the A die may have F, I, N, Q, S, T, U, V, W, X.
We know from the above that the E die is not the A die. From the missing B and P and DOES, GIVE, AZED, DICE, NEXT, THEM, MAKE, EACH:
The E die does not have A, C, D, G, H, I, K, M, N, O, S, T, V, X, Z.
The E die may have F, J, L, Q, R, U, W, Y.
We know from the above that the O die is neither the A die nor the O die. From the missing B and $P$ and DOES, LOAD, FOUR, GOAL, WORD, OKAY:
The $O$ die does not have A, D, E, F, G, K, L, R, S, U, W, Y.
The O die may have C, H, I, J, M, N, Q, T, V, X, Z.
We know from the above that the D die is the last of the four-neither A nor E nor O .
From DOES, LOAD, AZED, DICE, WORD:
The D die does not have $\mathrm{A}, \mathrm{C}, \mathrm{E}, \mathrm{I}, \mathrm{L}, \mathrm{O}, \mathrm{R}, \mathrm{S}, \mathrm{W}, \mathrm{Z}$.
The D die may have F, G, H, J, K, M, N, Q, T, U, V, X, Y.
Now that we've identified four dice and some of the things they do not have, we can reach further conclusions. By eliminating letters that we have proven are not on three out of the four dice, we can conclude that:

The A die must have S.
The E die must have L, R.
The O die must have C, Z.
The D die must have G, K.

From the above plus the word JACK, we can conclude that the E die must have the $\mathbf{J}$-the other three letters in JACK are already spoken for. So now, in simplified terms, we have these letters confirmed on the four dice:

AS - EJLR - COZ - DGK
DOES already has its four letters represented in the above, as do the words LOAD and A-ZED, so these three words are of no further use. CHAR has three of its four letters spoken for, so the fourth must be in the D die, giving us

AS - EJLR - COZ - DGHK
So now we keep finding words with three out of their four letters already labeled and use elimination to label the fourth. With that approach, DICE gives us
AIS - EJLR - COZ - DGHK

WORD:
AISW - EJLR - COZ - DGHK

OKAY:
AISW - EJLRY - COZ - DGHK

GIVE:
AISW - EJLRY - COVZ - DGHK
MAKE:

## AISW - EJLRY - CMOVZ - DGHK

THEM:

## AISTW - EJLRY - COMVZ - DGHK

At this point, we might get a bit stuck. There are four words left, each with two letters unaccounted for-QUIZ, FOUR, NEXT, and TURN. But since U is part of QUIZ, FOUR, and TURN, it can only appear in a die that doesn't have I or T in it (as the first die does), doesn't have R in it (as the second die does) and doesn't have O or Z in it (as the third die does). So it must be in the fourth die:
AISTW - EJLRY - COMVZ - DGHKU

Resuming the "three out of four" exercise, we do QUIZ:

## AISTW - EJLQRY - COMVZ - DGHKU

FOUR:
AFISTW - EJLQRY - COMVZ - DGHKU
TURN:
AFISTW - EJLQRY - COMNVZ - DGHKU
NEXT:

## AFISTW - EJLQRY - COMNVZ - DGHKUX

This is our final answer-the only set of six-sided dice configurations that can be arranged to spell every part of the instructions!

## Autohomophonological:

These words are described by their homophones. The short word "we" could be called "wee." "Nosy" has no z. "Whirred" is a word. The last two are a bit stretchier. "Eyeless" is i-less, while "effeminate" has "f, min it."

## Super Smash Brothers:

The character in question is Lucario. The transformations Jack describes can turn him into rival characters "Mario" and "Lucas."

## Plus sign:

Following these instructions will lead you to draw a plus sign. (It follows a pattern of one vowel-a left turn-followed by two consonants-right turns-repeated four times over.)

## After switching yellow and violet...

The word is "rainbow." (There may be other possibilities, but none as thematically appropriate.)

## Word products:

Multiple possibilities emerge, especially with higher numbers with factors corresponding to common letters. To pick just the first few values:
$2016=16^{*} 9^{*} 14=$ PIN, and likewise NIP. Because A is equal to 1 , any number of A's can be added to any answer, so PAIN is also valid here.
$4!=24=6 * 1 * 4=\mathrm{FAD}$, or $12 * 1 * 2=\mathrm{LAB}$.
$5!=120=6 * 1 * 4 * 5=$ FADE (or DEAF $).$

## Logic puzzle limerick:

If line 1 is true, then lines 3,4 , and 5 are true; but if those lines are true, then lines 2,5 , and 1 are false. This is an impossibility, so line 1 must be false. However, this does not prove that line 2 is true, only that line 2 is not the only lie in the poem-and since 1 is already proven to be a lie, there's no more to be proven here.

If line 2 is false, then lines 3 and 4 are true, which would mean that line 5 is false and line 1 is true. We've established that line 1 cannot be true, so line 2 must be true.

Since line 1 is false and line 2 is true, lines 3 and 4 must be false. Both the falseness of line 4 and the truth of line 1 prove that line 5 is true.

L1: F, L2: T, L3: F, L4: F, L5: T

## 

 C $\underset{A}{B}$ B 4 H ARGOLETIER PROCOIICIN HATOBORATE ATEIOMFRES RETIREMENT CAICARENSE ANEITENSIS FARNESTEST