

KICKSHAWS

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Kickshaws is currently being assembled by a series of guest editors. All contributions should be sent to the editor in Morristown, New Jersey.

Signs of the Times

A good highway sign costs a lot of money. It has to be brief, informative, unambiguous, easily read and durable. The last quality probably contributes most to the cost. The other qualities, although not adding much to the expense, should be of greater interest to Word Ways readers.

I once believed that most road signs could be grouped into 20 or 30 basic messages, things like STOP, YIELD, SPEED LIMIT 40, NEXT EXIT 3 MILES. Most of these basics, then, could be mass produced and the state or federal government could save a bit of cash. However, after a careful observation of highway signs, I now believe that the number of messages is close to infinity (certainly over 200).

Last November, while returning to Maryland from a Thanksgiving holiday in Connecticut, I noted each of the different highway messages along the 70 mile stretch of Maryland road from the Delaware border to a point just south of Baltimore. The entire stretch was traveled on Interstate 95. I don't know what the total number of signs was, but the number of different signs was 78.

Several messages fell into an "information" category: EXIT, SPEED LIMIT 50 MINIMUM 40, GAS FOOD LODGING, TOURIST INFORMATION, CLOSED, AIRPORT, etc. Other messages fell into an "instruction" category: TRUCKS USE RIGHT 2 LANES ONLY, EMERGENCY STOPPING ONLY, NO RIGHT TURN, OFFICIAL BUSINESS ONLY, SLOW, NO PARKING ANY TIME, YIELD, etc. All of these are fairly common anywhere one travels.

Just south of the Delaware border, Maryland has posted a series of signs that reminded me of a Burma-Shave ad. The first reads 55 SAVES LIVES; next comes 55 SAVES FUEL; then 55 SAVES MONEY; and, finally, MARYLAND FINES START AT \$ 40.

A few signs had pictures on them. There was the message DEER XING with a silhouette of a bounding deer. Later came EMERGENCY (picture of a phone) EVERY 1/2 MILE.

The big event along the entire route, however, seemed to be the Baltimore Tunnel Thruway. There were all kinds of signs before, during and after the tunnel: WARNING BOTTLE GAS PROHIBITED IN TUNNEL THRUWAY, BEGIN TUNNEL THRUWAY, TUNNEL REPAIRS EXPECT DELAYS, LAST EXIT BEFORE PAYING TOLL 500 FEET, PEDESTRIANS AND HITCHHIKERS SUBJECT TO ARREST, RADAR ENFORCED (after speed limit sign), TRUCK CHECK AHEAD KEEP RIGHT, RECREATIONAL VEHICLES AND TRUCKS KEEP RIGHT DO NOT PASS, LISTEN TO AM RADIO THRU TUNNEL, SLOW WHEN FLASHING, DO NOT CROSS DOUBLE LINES, KEEP UP SPEED, STAY IN LINE, NO RIGHT TURN, TRUCKS DO NOT PASS, SLOW MOVING VEHICLES MOVE RIGHT, NO TRAILERS, EXACT CHANGE LANES CARS ONLY 75¢.

After that last sign came the helpful hint COUNT YOUR CHANGE. I presume that the message was meant for those who had paid an attendant and not those who had fed a machine. Most automatic coin collectors, by the way, can be quite polite. Have you noticed the green light that comes on after you have dropped the coins? It says THANK YOU. I'm thinking of installing a light on my car that blinks YOU'RE WELCOME.

THANKS FOR YOUR PATIENCE DURING REPAIRS followed, and again there was a warning HITCHHIKERS PROHIBITED UNDER PENALTY OF LAW. (Maryland must have a thing about hitchhikers, for this last sign and one previous were the only two that carried threats.)

There was one sign which Maryland hoped I would not even have occasion to see. Can you guess what it said?

I'm sure you have heard of the light at the end of the tunnel. The sign SLOW WHEN FLASHING was referring to that light; but I can't help thinking that the tunnel police just wanted to get a good view of the strange people who pass through.

Reaganamics

When President Reagan last invited Prime Minister Begin to the White House, he had Haig in to begin beggin' Begin for a Middle East peace plan. The press didn't report whether or not Reagan had Haig and Begin for breakfast.

Poems and Songs by Word Lengths

Many scientific papers and magazine articles can now be referenced by the use of uniterms or keywords. These keywords can be most helpful in recovering documents, especially if they are unusual or peculiar to a small group of papers. In addition, one can search files using combinations of keywords, combinations which help narrow the search for the particular document desired.

While thinking about such searches, I conjectured that words which occurred frequently in a document would not make good keywords. IS,

ARE, IN, THIS are not helpful because they are too common within a paper and are too common in general writing. Rather, it might be more helpful to choose as uniterms those words which are uncommon within the paper, words which occur, say, only once. (There should be some argument against this idea also, but it doesn't hurt to conjecture.)

Having nothing at all to do one week this past year, I thought it might be interesting to look at a few poems and song lyrics in an attempt to isolate the uncommon words, the ones which occurred only once in the entire poem or song. (Perhaps a game or puzzle would be suggested.) To add zest to my task, I decided to list these uncommon words by length.

Taking the carol "O Little Town of Bethlehem", I discovered that ARE, BUT, EAR, FOR, HIM, LIE, MAY, MEN, MET, OUT, SEE and YET are the three-letter words which occur once and only once in the lyrics. Given this entire collection, only a very observant person could identify its source. These words are not helpful uniterms. The four-letter collection is CAST, COME, DARK, DEAR, DEEP, GIFT, GLAD, HOLY, KEEP, KING, LORD, LOVE, MARY, MEEK, PRAY, SING, TELL, THIS, TOWN, WILL and WITH. Much better; but would you have been able to pinpoint the reference? Try ABIDE, CHILD, EARTH, ENTER, FEARS, GIVEN, GREAT, HOPES, HUMAN, LIGHT, PEACE, SOULS, THERE, TODAY, WATCH, WHERE, WHILE, WORLD, YEARS. Certainly by combining the collections of longer words, there should be no doubt about the song.

Just how uncommon are the words in the paragraph above? We know that they appear only once, but what about all the other words that are repeated? You might be pleased to know that "O Little Town of Bethlehem" contains 44 three-letter words of which 12 (see above) are unique. Let me write that 44/12. The corresponding ratios for longer length words are: four-letter 27/21, five-letter 27/19, six-letter 10/6, seven-letter 10/10, eight-letter 6/5, nine-letter 6/5 and eleven-letter 1/1. The most repetition, therefore, can be found in three-letter words -- as might be expected with so many "and" and "the" uses. I find the low repetition rate for words longer than six letters a bit surprising. Do you?

When a similar analysis was done on "A Visit From St. Nicholas", the unique words of five or more letters were quite revealing of the poem. COMET, JELLY, JOLLY and VIXEN alone give the essential clues. There is only one word of eleven letters (counting hyphens) in the poem: SUGAR-PLUMS. But the collection of unique four-letter words isn't so obvious: BACK, BEDS, BOWL, CARE, CHIN, DREW, EACH, EVEN, FACE, FOOT, HELD, HOOF, HUNG, JERK, KNEW, KNOW, LAWN, LONG, MEET, MOON, MORE, MUST, NAME, NICK, OPEN, PACK, PIPE, ROOF, ROSE, SASH, SNUG, SOOT, SUCH, TEAM, THAN, THEM, TINY, TORE, WALL, WENT, WILD, WINK, WORD and WORK. On second thought, that NICK might be a give-away.

Looking at the repetition rates, we have three-letter 143/18, four-letter 119/44, five-letter 56/50, six-letter 44/33, seven-letter 24/19, eight-letter 17/11, nine-letter 11/7, ten-letter 1/1 and eleven-letter 1/1. It

was surprising to me that REINDEER occurred only once and COURSERS was a repeated word.

Are you ready for two puzzles: (1) What poem or song contains the following six-letter words once and only once: BREEZE, BRIGHT, FLIGHT, HAILED, NATION, PRAISE, REFUGE, SHINES, SHOULD, STREAM, TERROR and WASHED? (2) What poem or song contains the following eight-letter words once and only once: ANSWERED, AUDIENCE, CHILDREN, CLENCHED, DEFIANCE, FEATURES, GRANDEUR, HILLSIDE, HURLING, LAUGHING, LIKEWISE, MADDENED, OCCURRED, PRECEDED, SCORNFUL, SIGNALLED, SPHEROID, STRANGER, STRICKEN, UNHEEDED, WREATHED and WRITHING?

Never Too Late?

In the November 1974 Kickshaws, Dave Silverman posed several problems with word pairs forming conventional phrases, such as BLACK BOX or FULLBACK. In the grid below are listed nine words in three rows and three columns. Find a single word that can be paired (either before or after) with each of the words in the first row, and place it in (1); do the same for the second and third rows, as well as for the three columns. Now find a single word that can be paired with each of words (1) through (6), and place it in (7). What is this word?

JACK	HOLE	SHOE	(1)
LIGHT	SORE	FALL	(2)
BORN	LEVEL	MAN	(3)
(4)	(5)	(6)	(7)

Stutter Starters

In the worlds of poetry and song there is a remarkable tendency toward repetition. Certainly entire choruses recur; but single words or phrases are also repeated -- undoubtedly to give a beat or dramatic effect. The poets and lyricists, moreover, seem to enjoy starting their works with stutters:

Blow, blow, thou winter wind
 Double, double, toil and trouble
 Hark! Hark! The lark at heaven's gate sings

If it was good enough for Shakespeare, why not for Tin Pan Alley?

Chicago, Chicago, a wonderful town
 Georgia, Georgia, the whole day through
 Toot, Toot, Tootsie! Goodbye!

The appreciation for stutter starters is a natural one, considering the fact that we are raised on them through childhood:

Baa, baa, black sheep

Deedle, deedle dumpling, my son John
 Mary, Mary, quite contrary
 Peter, Peter pumpkin eater
 Tom, Tom, the piper's son
 Twinkle, twinkle little star

We should not be astounded, therefore, by our delight in such Broadway show-stoppers as:

Edelweiss, edelweiss, every morning you greet me
 Matchmaker, matchmaker, make me a match
 People, people who need people

Some poets and lyricists push their works with opening triplets:

Bongo, bongo, bongo, I don't want to leave the Congo
 Lookie, lookie, lookie, here comes cookie
 Row, row, row your boat
 Tramp, tramp, tramp, the boys are marching

and George Gershwin goes a bit farther with

Do, do, do what you done, done, done before

But Yale deserves first prize for its Boola Song, which consists of an endless repetition of this word. If you wish to be a successful poet or songwriter, the handwriting is on the wall: MENE, MENE, TEKEL UPHARSIN.

Dictionary Rally Problems

(1) (1973) Define a Route Word to be a word with ten or more letters which can be formed by tracing a path from one cell to an adjacent cell in a 3x3 letter-square. Only vertical and horizontal moves are allowed. Diagonal moves are not allowed. For example, the word TELEVISION can be obtained from the letter-square at the right. Now find a Route Word for each of the following letter-squares:

O	M	A	H	P	A	S	U	N	S	E	P	R	O	F	A	F	M	O	T	I
N	E	S	O	G	R	E	T	I	A	R	T	M	L	A	R	E	U	P	A	S
C	H	P	T	E	X	R	A	L	N	I	O	C	H	E	O	N	D	H	R	E

(2) (1974) A certain six-letter word containing no repeated letters contains 3 letters from the group C J Q R S Z, 2 letters from the group B E H U V Z, 1 letter from the group F G I K O P, 3 letters from the group A B E H R U, 2 letters from the group C I M O O X, and 1 letter from the group D J N S V Y. What is the word?

(3) (1974) Each letter, except the last, of a certain word containing no repeated letters has, as its successor, one of the three letters listed directly beneath it in the following block. What is this 10-letter word?

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
 J D A I K C A B C D F A H J N H B I C E G E R E B D
 T F M U R L H O G U O I S W R K J M P N L K S O G F
 Y N O V Z O P T S Z X M U Y V L W Y T V P X Z Q W X

(4) (1979) Define a near-transposition to be an eight-letter word which can be spelled, but with one and only one letter changed, using the letters of an eight-letter place name. Thus READABLE is a near-transposition of BELGRADE since they both contain the letters A, B, D, E, E, L and R but differ by one: an A (in READABLE) corresponding to the G (in BELGRADE). What are the near-transpositions of BATHURST, FORT LAMY, ILLINOIS, KINGSTON, MARYLAND, NEW DELHI, NORTH SEA, PAKISTAN and SCOTLAND?

Another Shaggy Dog

It was Roy Rogers' birthday and Dale Evans had presented him with a new pair of custom-made, hand-tooled, two-toned shoes. They were beautiful and Roy was so pleased that he wore them down to the corral to show them off to the hired ranch hands.

After several ooh's and ahh's, the cowboys wished Roy a happy birthday and offered to show him the new horse at the other end of the corral. Not wanting to dirty his new footgear, Roy took off his shoes, placed them near the fence, put on some old boots and went off to see the new horse.

It was an hour later when Roy returned to find that his shoes had been torn, scratched and muddied. They had been gnawed and covered with saliva by some creature with sharp teeth. Tracks identified the culprit as a mountain lion. Furious at the destruction of his birthday gift, Roy ran to the ranch house, grabbed his rifle, hopped on Trigger and rode off into the mountains. He was determined to bring back that lion -- dead.

One hour passed. Then two. Finally Roy returned to the ranch with the lifeless mountain lion draped over Trigger's back. As he rode past the house, Dale Evans ran out to the porch singing, "Pardon me, Roy, is that the cat that chewed your new shoes?"

Computer Crash

In the August 1969, February 1970, February 1971 and February 1972 issues of Word Ways, the game of Crash has been defined and discussed. Essentially, a hidden 'target' word must be determined by successive firings of 'shot' words. Information about the target word is gained by learning how many crashes (in-position hits of letters) each shot has with the target.

Suppose we were to play this game against a computer which had an n-bit target word and accepted only shots consisting of n-bit words. The contest, of course, would be entirely different but would still be interesting.

First, we would have the advantage that the alphabet size had reduced from 26 to 2 (from the English letters to 0 and 1). There would be only two possibilities instead of 26 at each position of the word. Second, we would lose all those restrictive, polygraphic combinations that are normally associated with English words (the TH's, CK's, ST's, etc.). The computer target word could have any combination of 0's and 1's. Moreover, any of the 2^n n-bit words could be the target. (In normal Crash, the target must be a real English word and, therefore, must be drawn from a set much smaller than 26^n .) Third, zero crashes are quite helpful in the normal game. They give evidence of what letters are not at specific positions. A zero crash with computers is equivalent to determination of the target and, if it occurs at all, does so at the end of the game.

So what makes computer Crash interesting? Well, it leads to some intriguing theoretical questions. For example, is it possible to obtain a single, preordained set of n-bit shots which would determine, by its set of crashes, any target word? The answer to this question is obviously "yes". The collection of all n-bit words would be such a set. Second, what is the size of the smallest such preordained set? Now the answer is not so obvious. In fact, the answer is not known for all values of n, only for some. For example, if the target word is 12 bits long, then only eight 12-bit shots are necessary (and sufficient) to determine the target. On a more manageable scale, you might like to verify that the following four 5-bit shots are sufficient to determine any 5-bit target: (1 1 1 1 1)(1 1 1 0 0)(0 1 0 1 0)(0 1 1 0 1). Third, if we relax the requirement that the set be preordained and allow a change in tactics as crashes are announced, then by how much can the number of shots be reduced? This question is not very well defined because now the answer will be dependent on the target word. But if all target words are tested, some will require more shots than others. These words can be used as a measure of shot reduction.

Computer Crash does not hold the charm, for word buffs, that normal Crash does. But there is still the challenge of selecting a good shot; and there is certainly the curiosity that is raised by the above questions. In addition, computer Crash is related to coin-weighing problems, to mathematical maximization by "hill-climbing" and to the mathematical theory of set-covering.

As Told To Me By George Hurley

Good neighbors we have who beg bread,
Cups of sugar, tabasco and rice,
Whose salads wear only our dressing,
Whose ice trays just never suffice.

Good neighbors we have who beg curry,
Mix daiquiris with only our lime.
Yet the neighbor for whom we most worry,
Is living on our borrowed thyme.

Herb Spice is awfully nice,
 Quoth the fly, "He'd never hurt you."
 Herb Spice, take my advice,
 Is a tarragon of virtue.

Holes be quick, holes be nimble,
 Holes outrun my good wife's thimble.

The poet's in quite
 A frightful state,
 For he can't make his height
 Rhyme with his weight.

The Advice Column

Dear Abby:

I am writing to you for help since I cannot leave my house to seek assistance. My trouble began a few months ago when I found myself overworked and depressed. I began taking homemade pep pills. They had a remarkable effect, and for some time after each dose I was a different man. Whole new vistas opened up. It was both exhilarating and frightening. Of course I realized that friends might misunderstand, so I was careful to keep those hours, as it were, off the record. Unfortunately, in some of these periods of overstimulation I must have done something wrong. Ugly stories have been appearing in the newspapers and the police are investigating in my neighborhood. Abby, my problem is this: I now find that I cannot turn off! Something must have been sour in the last batch. I keep having flashbacks. I'm not myself. I can't face questioning and I musn't be seen until I return to normal. What should I do?

Scared Tripper

Dear Scared Tripper:

I do not wish to frighten you further, but you really must take yourself to one of the respected doctors of your community. Do not hide yourself in your rooms. You need professional medical help.

Tripping is one of the evils of our present-day society. While the tripper feels that he has released himself from the fetters of conventional life, he has in reality only released the evil that torments his soul. He becomes the embodiment of everything that is hideous within himself. Do not wait until it is too late. Seek medical advice.

From the return address on your envelope I see that you reside in London -- near a neighborhood of my acquaintance. May I refer you to a good friend of mine, a noble soul who seeks to improve the essence of man? If you really seek help, let me recommend you to Dr. J-----.

Abby

Product Name Exxon

Product names have been discussed before in Word Ways. In May 1968, "How to Name a Product" gives conditions to be imposed on a desired name. In August 1968, "How Not to Name a Product" discusses a proposal based on the conditions treated in the first article. In November 1968 "In Search of a Name" presents another proposal. The February 1972 Word Ways merely mentions that Standard Oil of New Jersey is to be renamed Exxon, an example of a double-X bigram. Because I can find no further Word Ways commentary on the subject, I thought you might like to hear, in Exxon's own words, how they chose their name (as excerpted from the May 1973 issue of *O*R*L*).

A computer was programmed to produce four and five-letter combinations with a certain number of vowels and consonants so they would be pronounceable. Research done in the past showed that four and five-letter names were preferred by the public. Out came some gibberish, names used by other companies, and some that good judgment said just were not suitable. The computer also delivered a sizeable list of possibilities.

From some 10,000 names which included the trademarks already owned by Jersey, the list was pared down to 234, to 16, and finally to six. The legal staff went to work on these to find out if there were any restrictions on any of them and, if so, how serious they were. Exxon, a name resulting from this research, was free and clear nationally and internationally. Linguistic experts picked up the study here to determine how the names stacked up worldwide.

First, we wanted to be sure that everybody could pronounce our proposed trademark. Our research consultants did linguistic studies in 55 of the world's principal languages and interviewed nationals of every country in the world except for 19 relatively small nations, such as Albania, Vatican City, and several small African countries. They found that Exxon rolled off the tongue as easily as "okay" or Coca Cola, two international passwords.

Besides making certain that everyone could say the name, the company had to be sure that it didn't translate into another language as a vulgarity and wasn't similar to words or expressions having meanings the company would prefer not to be associated with its products. As a case in point, one of our trademarks is part of a Japanese expression that means "stalled car". It can also be used to mean "sit down".

While psychologists and statisticians were doing in-depth consumer acceptance studies, the designers were hard at work doing their thing ... (The logo they evolved) played on the double "X" in Exxon, using it as a device to call attention to the name. Double "X" is an unusual letter combination except in Maltese.

To find out how the public responded to the Exxon name and symbol, interviewers gave a series of tests ... Each group was shown a slide

with famous trademarks such as GM, IBM, XEROX, manufactured words and Exxon for five seconds. They were then asked to write down all the names they remembered. Exxon, a name they'd never seen or heard, scored high on the test. Another test involved matching a trademark with a certain type of business such as food, office equipment and, of course, petroleum. People in all groups associated Exxon with oil and chemicals. When the test groups were asked to assign certain adjectives to different trademarks, they consistently chose "distinctive", "attractive", "distinguished", "scientific", and "dynamic" as descriptions of Exxon.

One of the basic appeals of the new name for us is that it says and means nothing. Now, that may sound a bit strange but from a legal and marketing standpoint it makes a lot of sense. A created name is less likely to have any legal restrictions on its use.

Letters at a Distance

In recreational word play there has been much discussion of offset word pairs, where each letter of one word is a fixed distance away (in the alphabet) from the corresponding letter in another word. PECAN to TIGER is a good example of a pair where the fixed distance is four, as shown at the right. Defining the value of a letter as its position in the alphabet, we can characterize the relationship between these two words by writing

P	E	C	A	N
Q	F	D	B	O
R	G	E	C	P
S	H	F	D	Q
<u>T</u>	<u>I</u>	<u>G</u>	<u>E</u>	<u>R</u>

$$W(2, i) = W(1, i) + 4,$$

the value of the i th letter of word 2 is equal to the value of the i th letter of word 1 plus 4. If we allow the alphabet to be cyclic, with A following Z, then BUNNY to SLEEP is another offset word pair. In this case,

$$W(2, i) = W(1, i) + 17 \pmod{26}.$$

The term ' $\pmod{26}$ ' just means that if the result of adding 17 to $W(i, 1)$ is larger than 26, then the result must be reduced by 26. A useful way of representing this equation is to write two alphabets with one slid against the other by 17 positions:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

Corresponding letters of the word pairs, then, appear as vertical digraphs in the alphabets: BS, UL, NE, NE, YP.

Suppose, now, we take a look at the equation

$$W(2, i) = n \cdot W(1, i)$$

where, instead of adding a number, we multiply by some integer. Taking

n to be 5 as an example, we can form a pair of corresponding alphabets that are 5-apart in the new, multiplicative sense. In this situation, the lower alphabet will be a scrambled one.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
E J O T Y D I N S X C H M R W B G L Q V A F K P U Z

Note that the value of a letter in the lower, scrambled, alphabet is 5 times the value of its corresponding letter in the upper alphabet. For example, $E = 5 = 5 \cdot 1 = 5A$ and $C = 3 = 3 + 2(26) \bmod 26 = 3 + 52 = 55 = 5 \cdot 11 = 5K$. With this pair of alphabets we can see that NARE goes to RELY and ONE goes to WRY.

For n equal to 25, the corresponding alphabets are

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Y X W V U T S R Q P O N M L K J I H G F E D C B A Z

and GRUNT to SHELF is a 25-times word pair in this new scheme.

From this brief discussion, you should now believe that there are several opportunities to search for n-times word pairs. Just pick an n (other than 13 or its multiples), calculate the alphabet pairs and find the words. Then tell me, please, for which n you find the longest pair.