Collinear Words

Letting $A = 1$, $B = 2$, ..., $Z = 26$, each word can be converted into a sequence of numbers. For example, GYP becomes $(7, 25, 16)$. Likewise, HUM, KID and LEA become $(8, 21, 13)$, $(11, 9, 4)$ and $(12, 5, 1)$ respectively. Now these four words have a very interesting property - if we look at the numbers. Let me write them down in a column:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>25</td>
<td>16</td>
<td>GYP</td>
</tr>
<tr>
<td>8</td>
<td>21</td>
<td>13</td>
<td>HUM</td>
</tr>
<tr>
<td>9</td>
<td>17</td>
<td>10</td>
<td>IQJ</td>
</tr>
<tr>
<td>10</td>
<td>13</td>
<td>7</td>
<td>JMG</td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>4</td>
<td>KID</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>1</td>
<td>LEA</td>
</tr>
</tbody>
</table>

Note that the numbers in the first column increase by 1, the numbers in the second column decrease by 4 and the numbers in the third column decrease by 3. In order to get from GYP to LEA we have to interpose two invalid "words", IQJ and JMG, but they can be disregarded.

If we think of the three columns as representing the $x$, $y$ and $z$ coordinates of space, then each word becomes a point in space and we can talk about the geometry of words. The regular property exhibited above by the four words GYP, HUM, KID and LEA corresponds to the fact that their four points in space all lie on a straight line. Thus GYP, HUM, KID and LEA can be said to be "collinear words".

Another set of familiar collinear words is:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>15</td>
<td>23</td>
<td>COW</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>22</td>
<td>DMV</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>21</td>
<td>EKU</td>
</tr>
<tr>
<td>6</td>
<td>9</td>
<td>20</td>
<td>FIT</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>19</td>
<td>GGS</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>18</td>
<td>HER</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>17</td>
<td>IQC</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>16</td>
<td>JAP</td>
</tr>
</tbody>
</table>

In this case the first column increases by 1, the second column
decreases by 2 and the third column decreases by 1. Also, we have to ignore four invalid "words": The remaining words, COW, FIT, HER and JAP, are collinear. Their line, of course, is different from the one determined by GYP, HUM, KID and LEA.

Other sets of familiar collinear words are BUD, HIP, JET, LAX; CRY, GNU, LIP, MHO; FAD, NIL, TOR, UPS.

One of the great U.S. recreational puzzle solvers, Robert L. Ward, claims that there are 31 sets of four collinear 3-letter words. (His reference to obtain admissible 3-letter words is the 1959 unabridged Second Edition of Webster's New International Dictionary of the English Language.) He also claims that there are no sets of five collinear 3-letter words.

Home to let

I hate to admit it, but I once watched a Benny Hill program on TV. That particular show pictured a building with a sign near its door:

HO M ES
TO LET

After some young ladies went inside, a workman expanded the sign to read:

H O M M ES
TO LET

The young ladies came running out. What the hell, Benny Hill!

Designing An Experiment

It occurred to me the other day that some people communicate by using bumper stickers. The messages are short, but they brag about collegial affiliations, tell you how to vote, tout vacation spots, worry about your salvation and even share a good joke. As you drive the highways, bumper stickers reveal a bit about other motorists' personalities and make them seem less like automations. On a long trip, you might first laugh at a humorous phrase and later note that the same driver, with his same message, is traveling the same route as yourself. You noticed this because of his bumper sticker.

I can imagine that in election years there are more political messages than at other times. I suspect that college campuses shout with displayed pride in the alma mater. Does religious fervor abound on the Sunday-morning, go-to-church, automobile?

Has anyone ever studied bumper stickers? Almost undoubtedly, but I have never seen such a study. The idea has interested me enough to make me want to design an experiment for collecting information. How does one go about it?

First there is the business of collecting and recording the messages themselves. It seems unlikely that questionnaires sent out to motorists would produce worthwhile results. Who would take the time to reply? And the postage would be expensive. One could send questioner stickers. some good sites be spotty and it'll be to go out. Yet even her she shouldn't visit selected provides more correlations to the Sears card. Does that mean Are the Baptist the bowing and the church that?

There are 33 songs:
Where is the message isn't (I have seen to the trunk.)

More important messages reveal more apt to...


What samples is it sufficient of observa-cars? Later mes- sages into One should provide ences to be.

Well, I think about how I own survey,

Suspended Sentences


He worries words at the results if not.

Her mother to her formed is to his master.

Crowds will her leaving...
1. Also, we words, COW, COW, COW, is different.

P, JET, LAX;

s, Robert L.

1959 un-

al Dictionary are no sets

Hill program a sign near

 expands the

Hill program a sign near

 communicate

They brag about vacation good joke.

a bit about
different phrases like automatically a word, is this because

frighten political
campuses religious fer-

ible?

undoubtedly, I was interested me collecting

Collecting the mes-

words at the ends of lines. How might they produce unwanted results if not programmed properly? Some examples:

Her mother was a rather formidable obstacle to his marriage.

Crowds watched the old bather leaving the surf.

She gave him a "come hit-her" look when he came home late.

She dropped her brass-her approach and tried coyness.
A Celestial Shaggy Dog

When Frank Sam met Sam Frank at a cocktail party, he thought someone was playing a joke on him. After all, their names were flip-flop images. Perhaps it was that similarity, however, which foretold of the close friendship that was to develop. Frank Sam and Sam Frank hit it off well together and, before long, they were inseparable companions. Wherever Sam Frank went, so did Frank Sam, and vice-versa of course.

A year passed before Sam Frank took ill and suddenly died. Frank Sam was unconsolable. The shock left him stunned. Eventually his mental depression began to affect his physical health, and within three months Frank Sam passed on as well.

When Frank Sam entered the gates of Heaven, his first words were, "Where's my buddy, Sam Frank? Where is he?"

The recording angel looked through the book and replied, "I'm sorry. He's not here. He must be at the other place."

"Well," said Frank Sam, "let me out. I want to visit my good friend."

At this point St. Peter joined in the conversation and instructed the newcomer, "First you must get your equipment. Follow that path down to the quartermaster supply and pick up your white robe, your harp, your halo and your wings. After that come back to see me and I'll give you a pass to the other place."

Zip! Frank Sam was off like a rocket. In no time at all he was back properly accoutered and carrying his harp. "Where's my pass? I've got to see my buddy!"

"Here is your pass," said St. Peter. "But you must pay heed to this warning: at midnight the gates to Heaven close and anyone left outside must stay outside through all eternity. You must return before the gates close at midnight."

Again, zip. Frank Sam dashed off to the other place. When he found himself walking down Main Street, he was attracted to one joint that was really rocking. The sound was vibrant and screams of excitement were pouring out of the front doors. Inside, the music pulsed as wild dancers gyrated to colored lights reflecting from mirrored balls in the ceiling. The place was alive.

It took one second for the two friends to spot one another. Frank Sam ran for Sam Frank and they joyously pounded each other, remembering all the great times they had shared on Earth. For the rest of the evening, they chatted and laughed and chatted some more. Frank Sam learned that Sam Frank was the owner of the night club and was pleased that he had done so well. But the night passed quickly and before long Frank Sam jumped up in surprise asking "What time is it?"

Sam Frank, looking at his watch, said, "Five minutes to twelve."

Zip, zip. Frank Sam hurried out, reaching the Pearly Gates just as they barely managed to open.

"Where's your pass?"

"With every friend," said Frank Sam, "I have a harp, and in my hand goes a pass to the other place."

Dictionary Rail

1. A 6-letter word is one in which the letter who is said to be in the middle of the word. The word is reduced to half of the word. Further, each letter is a vowel, and 2s. For example, the letters are IMO, OLN, ACC. What six words is the product of this word?

2. The letters are in order. In the letters are 1 apart, and blue letters are 6 apart, and the word?

3. The letters are in order. In the letters are 1 apart, and blue letters are 6 apart, and the word?

4. The word is position in the GPMYJB. The product of the letters is the weight of the word. What six colors is the weight of 1616616?

Dear Abby

As I write every Saturday, this elderly lady just cannot understand me every Saturday. This elderly lady just cannot understand me. Since my husband was taken from life, He...
Just as they were beginning to close. With a burst of speed, he barely managed to dive inside. Panting and struggling for air, Frank Sam lay on the cloud completely winded.

"Where's your harp?" demanded St. Peter.

With every last ounce of breath Frank Sam sang out, "I left my harp in Sam Frank's disco."

Dictionary Rally Problems

1. A 6-letter word containing three occurrences of a particular letter is said to be reduced to a 3-letter sequence by removing the letter which occurs three times and rearranging the remaining letters in alphabetical order. For example, PUPPET by this procedure is reduced to ETU. What words can be reduced to ELU, GLP, IMO, OLN, ACO?

2. Each letter of a word can be replaced by a 1 or a 2 depending on whether it is in the first or second half of the alphabet, respectively. A word, then, would appear as a sequence of Is and 2s. For example, FAVORITE can be converted into the sequence 11222121 since the 1st, 2nd, 6th and last letters are in the first half of the alphabet and the remaining letters are in the second half. Further, each letter of a word can be replaced by a c or a v depending on whether it is a consonant or a vowel, respectively. For example, FAVORITE can be converted into cvvcvcv since the letters in the odd positions are consonants and the letters in the even positions are vowels. Determine the word that can be converted into 2122112112 and cvccvccvcc.

3. The letters of a certain 5-letter word containing no repeated letters were colored green, red, yellow, blue and orange in some order. In the normal English alphabet, the green and red letters are 1 apart, the red and yellow letters are 6 apart, the yellow and blue letters are 5 apart, the blue and orange letters are 6 apart, and the orange and green letters are 4 apart. What is the word?

4. The weight of a letter is the number corresponding to its position in the following 26-letter sequence: CFOQDKISNRLXAUZHTWEGPMYJB. The weight of a word is the number corresponding to the product of the weights of its component letters. For example, the weight of a word is the number corresponding to the product of the weights of its component letters. For example, the weight of Q is 4 and the weight of SODA is 8x3x5x13 = 1560. What six common words have weight closest to but not exceeding 1616616?

Dear Abby

As I write to you from this nunnery, my problem comes to visit me every Saturday with his boring accounts of events in the City. This elderly gentleman is the soul of grace and kindness but he just cannot understand that I wish to be alone.

Since my lover was killed in the war, I have chosen to retreat from life. He was, oh, so handsome and gifted with words. He
fairly made me swoon with the poetry of his letters. His face and figure were so manly and commanding.

Yet he died, in valor. And now this ugly old friend of his comes to remind me of those delicious days when life was young and gay and carefree. Dear Abby, how can I tell this kind old man that his attentions are not so eagerly desired and that I wish to live only with my memories of dear Christian? R.

Dear R: Everybody is a bore to somebody — even you, no doubt. From where I sit, it looks as if you are lucky to have such an attentive and entertaining friend — and my advice to you is to cherish him. Obviously this man needs an audience. Why not offer to assist him in writing the story of his life? If, as you suggest, he has an eye for beauty and a nose for news, he may have the makings of a novel in him — or even a play. In any case, you may be instrumental in helping him to solve a crisis of identity.

Breaking the Code

I must lead a sheltered life. About two months ago I was browsing through the Washingtonian magazine in my local library. As I flipped the pages, I noticed a cluster of "ads" that used the abbreviation ISO. It took me five minutes of probing to realize that the title of the column was "In Search Of" and that ISO was its shortened form.

Part of what made ISO interesting was the fact that the "ads" used several other abbreviations as well. Here is a sample of some of the items appearing in the column:

```
LOOKING FOR ONE WONDERFUL BLACK MAN  
IOWF - Peaceful Southern lad, sentimental, fun-loving,  
precocious, well-educated ISO sophisticated, well- 
employed professional or businessman. 36-37. P.O. Box  
3543, Bethesda, Maryland 20817.

SLIGHTLY CRAZY SWM — 34 ISO slim attractive  
body type. Together, sensitive ISO SIMDUM.J, self- 
employed professional or businessman. 35-37. P.O. Box  
3643, Bethesda, Maryland 20817.

BIFW — Attractive, 25 ISO nonsmoking, attractive  
mature, professional or businessman, 37-38. P.O. Box 588,  
Greenbelt, Maryland 20770.
```

According to "The Gold Bug" by Edgar Allan Poe, I ought to take a frequency count of the abbreviations, since they are obviously some kind of code. Furthermore, it might be important to distinguish those abbreviations before and after ISO. A quick tally reveals:

```
Before ISO: BF-1, DBF-1, DIF-2, DWF-12, DWF-1, DWM-22, GFB- 
1, GWM-2, MBF-1, MBM-1, MWF-2, MWM-6, SBF-2, SJF- 
2, SJM-4, SJWM-1, SWF-11, SWF(J)I-1, SWM-35, WIL-2, WM-2, WW- 
2, WWMF-1, WWMJ-1, WWM-2

After ISO: BF-2, BIWF-3, BIWM-1, BWI-1, DBM-1, DF-3, DJH-2,  
DOF-1, DWF-13, DWM-10, GWF-1, MF-1, MW-1, SBF-1, SBF-2, 
SDWF-1, SF-4, SJF-2, SJM-2, SM-1, SOF-2, SWDWM-1, SWF-29,
```

Looking for one wonderful black man. — I know statistics show that you don't answer ads, but I'm worth trying, sociable, well-dressed and polite, ISO 33-50, strong sense of self. ISO 135-684 Washington, D.C.


Encourage me — Personal ads are new to me, but I'm anxious to meet SWDM with complementary interests (tennis, sailing, sports, art). ISO 151-684 Washington, D.C.

Can you fill in the blanks?

How Fashions will be:

James Laver, Indecent and Shaming Fashions, New York, 1952, 1954. Can you fill these into the correct order?
His face and of his comes young and old man that I wish no doubt. Have such an to you is to why not offer you suggest, may have the in any case, you identity.

I was brows- library. As that used the g to realize that ISO was at the "ads" a sample of

SWJ-1, SWM-15, WF-7, WJM-1, WSF-1, WWDJM-1, WWM-2

Comparing the two lists, we see that similar abbreviations appear on both sides of ISO but the match is not exact. For example, there is no DOF before ISO nor any DJF after ISO. We have two pentagraphs after an ISO but none before. With respect to frequencies, SWM (35) is the highest before ISO and SWF (29) is the highest after ISO. Another interesting fact that I noticed is that the two GWMS before the ISO appeared in the same ad with the 2 GWMs after the ISO.

My guess is that we are working with a multilength, two-part commercial code. Because most ads have postal addresses or a six-digit numerical code attached to them, I believe we are dealing either with Russian agents who are announcing their letter drops or with the Mafia who are involved with the numbers racket, all unbeknownst to the editor of the magazine. I have notified the CIA and expect both plots to be exposed in the press very soon.

An Almost Clueless Crossword

An English friend of mine gave me the following crossword puzzle, as is, to solve:

<table>
<thead>
<tr>
<th>1 AAN</th>
<th>1, but I'm not only fth strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - looking Pretty, clock on</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>you, but arbitrary sensible, WW ISO</td>
</tr>
</tbody>
</table>

Can you fill in the cells?

How Fashions Change

James Laver, in Taste and Fashion, says that the same costume will be:

<table>
<thead>
<tr>
<th>indecent 10 years before its time</th>
<th>shameless 5 years before its time</th>
</tr>
</thead>
<tbody>
<tr>
<td>daring 1 year before its time</td>
<td>smart</td>
</tr>
<tr>
<td>dowdy 1 year after its time</td>
<td>hideous 10 years after its time</td>
</tr>
<tr>
<td>ridiculous 20 years after its time</td>
<td>amusing 30 years after its time</td>
</tr>
<tr>
<td>quaint 50 years after its time</td>
<td>charming 70 years after its time</td>
</tr>
<tr>
<td>romantic 100 years after its time</td>
<td>beautiful 150 years after its time</td>
</tr>
</tbody>
</table>

SWJ-1, SWM-15, WF-7, WJM-1, WSF-1, WWDJM-1, WWM-2
Howard County, Maryland

You may never have heard of Howard County. It has no large cities. Rather it has farms and neat villages that perch on hills or nestle in valleys between the great metropolises of Baltimore and Washington D.C. It is rural and suburban; and it delights the traveler with beautiful scenery.

I drive to work through a small part of Howard County. As I cross the Patuxent River, I begin my journey on Brown Bridge Road. Then halfway up the hill I turn right onto Lime Kiln Road, and that takes me to Whiskey Bottom Road. The names of the roads, ways, streets, and courts beckon the explorer and welcome the poet. Let me share with you some of the charm, some of the captivating Howard County byways.

If you like wildlife, there are Browsing Deer, Chatterbird Place, Cross Fox Lane, Darting Bird Lane, Humble Bee Road, Marsh Hawk Way, Mink Hollow Road, Oven Bird Green, Spotted Horse Lane, and Wild Turkey Lane.

Nature of a different sort finds expression in April Day Garth, Berrypick Way, Cloud Burst Hill, Flight Feather, Kind Rain, Lightning View Road, New Leaf Court, Rainbow Span, Rising Moon, Rock Sparkle Row, Shadowshape Place, Sweetwind Place, Tawney Bloom, Tinted Hill, and Tufted Moss.

And there is whimsy: Catfeet Court, Fable Road, Folly Quarter Road, Greekboy Place, Hobson’s Choice Lane, Jacob’s Ladder, Kit Kat Road, Lover Not Place, Old Rover Road, Paul Revere Ride, The Mending Wall, and Wishing Bridle.

Visit Howard County. It’s a nice place to be.

More Street Talk

Logologists have paid far too little attention to street names. This past summer, Louis Phillips sent the editor of Word Ways his favorite street names from a 1908 book, The Street Directory of Principal Cities of the United States:

AMPERAND AVENUE, Saranac Lake NY
ZIGZAG STREET, Columbia SC
MYSTERY STREET, New Orleans LA
HOW STREET, Haverhill MA
PLATO ALLEY, Pittsburgh PA
JUST RIGHT PLACE, Scranton PA
OH STREET, Greenville PA
WORD STREET, Dallas TX
SIDE STREET, Boston MA
PANHANDLE STREET, Chicago IL

I wonder how many of these still exist.

The editor also sent along a newspaper clipping from the March 29, 1984 Morristown Daily Record:

DOVER—If be phooey street, some residents request. For years the Brontes of the Bronte Street have lived. Now they want the name changed to something more pleasant.

On April 21, the residents of Bronte Street sent a request to Mayor Bob Pendergast of the city council: "We think the name should be changed. We want a name that is more appropriate for this community."

Mayor Pendergast indicated that he would consider the request. He added that the city council was interested in naming streets after the Brontes because of their significant contributions to literature.

Two Bilingual Stores

Once upon a time, there was a store in the heart of the city. It was called the "Spanish Store" and it sold goods for the local residents. The store was run by a man named Luis, who had a unique ability to speak both Spanish and English.

He would often listen to the customers' needs and help them find the products they wanted. The customers appreciated his bilingual abilities, which made it easier for them to communicate with him.

The store was well-known for its high-quality goods and excellent customer service. The residents appreciated the store's commitment to meeting their needs, and they often referred their friends and family to the Spanish Store.

Luis's bilingual skills were highly valued by the residents, and he continued to run the store for many years, providing a valuable service to the community.

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DOVER—If the residents of Hooey Street have their way, it’ll be phooey on Hooey! They want to change the name of their street, so they’ve presented the board of aldermen with a petition requesting the street be renamed Rutan Drive ... the 18 residents claim they “have been subject to ridicule and been the brunt of many jokes because of the name of the street we live on.” But Dale Hooey of Ledgewood ... says he’s proud of the Hooey name. He doesn’t know whether the street was named after one of his ancestors, but said he wouldn’t want the name of the street changed if it were ...

On April 21, two descendants of the original Hooey wrote:

... the heirs of Samuel Hooey believe the name Hooey Street should remain, as it was named in honor of our great-great-grandfather 72 years ago, a farmer for 50 years on Salem Street in Dover, and an upstanding member of the community; no one made fun of his name then ... How long have the present residents lived on Hooey Street? Who chose the name Rutan Drive? Exactly what type of ridicule are the residents suffering? Do the residents not receive their mail and oil deliveries on time? Granted, most of us have been the brunt of ridicule in our lifetimes, and as adults we overcome such situations. However, residents of Hooey Street who signed a petition are letting other peoples' ridicule victimize them into being ashamed of the name of the street on which they live, instead of taking pride in its name. The heirs of Samuel Hooey (eight of us remain) feel once an honor is given it should not be taken away, and we are highly insulted to think the residents of Hooey Street who signed the petition would do such a thing.

Two Bilingual Jokes

Once upon a time there was a very beautiful French mademoiselle who had three kittens. Being of a logical and ordered mind, she named these kittens Un, Deux, and Trois. It happened to be winter and the ground outside was covered with snow. It was cold and the backyard pond had frozen to a sheet of ice. But, undaunted, the three little kittens romped in the snow and ventured onto the pond. At the edge, of course, the ice was relatively thick, but as the kittens approached the middle of the pond, the ice grew thinner and eventually broke. And Un, Deux, Trois quatre cinq!

A Spaniard, newly arrived in this country, entered a Sears store to purchase some socks. Unable to speak English, he asked for the socks in Spanish. As it turned out, the Sears salesman could not speak Spanish, so he was unaware of what the Spaniard wanted. Once again the Spaniard asked for socks in Spanish, perhaps a little louder, realizing that the Sears clerk could not speak his language. And again the salesman could not understand. The half conversations went on for some time with both parties losing patience. Finally the Spaniard noticed a counter display of socks. He grabbed the salesman by the arm, led him to the counter, dangled a sock in front of his eyes and said, “Eso, si? ¿Qué es?” Where-
upon the Sears clerk responded, "If you knew how to spell it, why didn't you do so right at the beginning?"

IN QUEST OF ANAGRAMS AND PANGRAMS

The "Computer Recreations" column of the October 1984 Scientific American magazine should be of considerable interest to Word Ways readers and other logologists. In it, A.K. Dewdney first describes two multiple-word anagram generators (by Jon Bentley of AT&T Bell Labs and James A. Woods of NASA Ames Research Center) much like the one used by Mike Morton to generate Reaganagrams in the May Word Ways issue. All generators operate on an initially-specified collection of letters by starting with a word which uses a subset of these letters and then looking for all possible words which can be formed out of the remainder (if any). This tedious task is much shortened if one always starts with a word containing the rarest letter in the set.

A pangram is sometimes defined as a sentence containing all letters of the alphabet with repetitions allowed. Lee Sallows of Nijmegen, the Netherlands programmed a digital computer to search by brute force for 26 number-words which would make the following sentence self-descriptive: "This pangram contains [number-word] As, [number-word] Bs, ..., and [number-word] Zs." Since there are 16 different letters used in number-words from one through ninety-nine, he found himself examining 10^16 different possible solutions — a task which would have taken the computer 31.7 million years! Nothing daunted, he constructed a special-purpose analogue computer which eventually reduced the time to only 105 minutes. Alas, there was no solution to the sentence given above, but by varying the initial verb to "lists" he achieved success:

This pangram lists four As, one B, one C, two Ds, twenty-nine Es, eight Fs, three Gs, eleven Hs, one I, one K, three Ls, two Ms, twenty-two Ns, fifteen Os, two Ps, one Q, seven Rs, twenty-six Ss, nineteen Ts, four Us, five Vs, nine Ws, two Xs, four Ys and one Z.

Empirically, Sallows discovered that about one verb in eight works, and one verb in sixty-four leads to two different solutions. It remains to be seen how few different letters can be used in a self-descriptive sentence; Sallows has discovered one with only 20 (omitting B, J, K, M, P, Q).

In the November 1971 Word Ways, Howard Bergerson exhibited a self-descriptive sentence that inventoried its letters instead of its words: "In this sentence, the word and occurs twice, the word eight occurs twice, the word four occurs twice, ..., and the word word occurs fourteen times."