

FOURWORDS

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Of the thousands of patients with aphasia whom we have studied in our fifty combined years of neurologological practice, one of the most interesting was a 44-year-old man, whom we refer to as Rufo, who, following a seemingly-minor blow to his head, developed a highly-specific expressive aphasia: he lost the ability to utter the word **four**. The logological implications of the case might interest the readers of **Word Ways**.

One might suppose that a single-word expressive aphasia would not be a serious disability: surely, one can compensate for the loss of a single word in one's vocabulary. In Rufo's case, when the need arose to say **four**, he would need only to say **two plus two** or another of the many expressions synonymous with **four**.

In fact, Rufo can utter such synonyms. But Rufo's aphasia is stranger yet. Whenever he utters a substitute for **four**, e.g., **two plus two**, his aphasia somehow "captures" it, precluding subsequent utterances of that particular substitute. No matter how hard he tries to utter **two plus two** a second time, he fails. After its first articulation, the substitute seems to lose its identity as distinct from **four**. For Rufo, **four** is a black hole that swallows everything that gets too close.

We have spent many hours experimenting with the "black hole effect" without much success in understanding it. The results of those experiments, however, have led to a number of new insights into the workings of the brain (Unspeak, in press).

Two additional features of Rufo's aphasia became apparent early on. Firstly, symbolic methods for expressing the concept of **four**, such as writing and signing, were treated like verbal substitutes and suffered from the black hole effect. Rufo could hold up four fingers to express **four**, but only once. He might carry in his pocket a card inscribed with the numeral 4, but after showing it once, he forgets he's carrying it.

Secondly, the black hole effect is to a considerable extent generic, in the following sense. When Rufo utters **the number of legs on a horse** as a substitute for **four**, his aphasia extends to **the number of legs on a cow** and to **the number of feet on a horse (or cow)**. Apparently, the utterance of any specific instance of the generic expression **number of limbs on a quadruped** recalls that generic expression and links it to **four**, with the result that other specific instances become unutterable. The appearance of

this generic effect is unpredictable, depending on how obvious the generic expression is to Rufo.

Rufo can freely utter the homophones of **four**, but not as a substitute for **four**.

It happens that Rufo's occupation depends on his ability to communicate verbally, including the ability to express the number **four** a small but critical number of times each day. We estimated on average a need for one or two utterances of **four** daily (work days). Our initial practical goal in helping Rufo was simply to provide him with a sufficiently long list of words and phrases synonymous with **four**, so that he would have a ready supply enabling him to continue working. Naturally, the list had to be compatible with the constraints imposed by the black hole effect. Fortunately, Rufo's job requires his interaction with individuals from the widest possible range of occupations. (The sensitive nature of Rufo's job precludes our disclosing it.) Because Rufo's job requires him to familiarize himself with the field of interest of his "clients", we were not constrained as to sources in drawing up a list of fourwords.

We present below a partial list of words and phrases synonymous with **four** that we have compiled for Rufo's use. Many of the entries were suggestions of colleagues of the authors: Leonard Peller, Pat Douglass, Muiz Brinkerhoff, Peter Sebastian, Pat Schoenfeld and Bob Hunn. Entries in the list should be prefaced by "number of".

A's in Alabama	couples in a quadrille
Alien and Sedition Acts	cusps in an astroid
Aristotle's causes	D's in muddleheaded
B's in flibbertigibbet	decayears of a quadragenarian
base elements of the early Greeks	divisions of a quaternity
baseball infielders	E's in peewee
bases on a baseball field	eggs laid by quadriparous animals
basic taste sensations	Eiffel Tower columns
Beatles	elements of a quartet
beats to the measure in common time	eyelids
bits in a half-dollar	F's in riffraff
bits in a nibble (half a byte)	fundamental interactions of matter
bodily humors of early physiology	G's in huggermugger
bytes per dword	Galilean moons of Jupiter
C's in cachectic	gospels of the New Testament
calling birds	H's in hysterotrachelorrhaphy
canine teeth	heads on Mount Rushmore
cardinal winds	holes in a brass knuckles
cardinal virtues	Horsemen of the Apocalypse
cards dealt in hand of casino	hydrogens in a quadribasic acid
centuries in a quadricentennial	I's in inhibition
chambers of the heart	inner planets
compass points	J's in jejunojejunostomy
components of a tetramer	jokers in canasta
coordinates of space-time	K's in knickknack
corners of the world	L's in dillydally

leaflets of clover	quarters in a dollar
leaves of a quatrefoil	quarts in a gallon
legs of card tables	R's in refrigerator
legs of horses	radio station call letters
letters in a quadrilateral	Roosevelt's freedoms
letters in a tetragram	rulers in a tetrarch
letters in the word "word"	runs scored in a grand slam
letters preceding E in the alphabet	S's in asbestosis
limbs of a cross	schools of Islamic law
lines of a quatrain	seasons of the year
lobes of the liver	shooting stops in a biathlon
loudspeakers for quadrophonic sound	sides of a quadrilateral
M's in mammogram	species of nitrogenous bases in DNA
major human blood groups	spikes on a caltrop
Maxwell's equations	spouses of a quadrigamist
members of a quadrumvirate	square of two
minimum years of age of bonded whiskey	square root of sixteen
missed pitches for a base on balls	stars of the Southern Cross
movements in a classical symphony	streets bounding a city block
N's in announcement	strokes in common auto engine
natural wisdom teeth	suits in deck of playing cards
no-hitters pitched by Sandy Koufax	Sundays in Advent
nonsense words in kid's counting rhyme	syllables in a choriamb
nucleons in helium	syllables in a quadrisyllable
O's in cookbook	tetrahedron faces
P's in whippersnapper	truths of Buddha
pairs of legs on a spider	U's in tumultuous
parathyroid glands	umpires per baseball game
patch pockets in a bush jacket	units of a quaternion
pecks in a bushel	valence of carbon
persons in a double date	wheels on a quadricycle
phases of the moon	wings on a biplane
players in tennis doubles	woods in a set of golf clubs
players in a bridge game	works in a tetralogy
posters on a canopied bed	wrestlers in a tag team match
primary arithmetic operators	years in a Presidential term
products of quarterings	years in a quadrennial
products of a quadrisection	years between leap-years
quadrants of a plane	Z's in razzmatazz
quadruplicates	zeros in ten thousand
quarterly events	Zodiac signs of six letters

As noted, this is only a portion of the list we compiled. For words beginning with the combining form **quadri-**, we listed only a few examples, whereas the Second (Electronic) Edition of the Oxford English Dictionary gives a long list of such words. Similarly, we list only a few words beginning with the combining form **tetra-**. All the legitimate **quadri-** and **tetra-** forms in the OED can be used by Rufo.

Undoubtedly there are many more interesting fourwords that can be added to this list. There might be members of the logological community whose special areas of knowledge abound with other verbal expressions equivalent to **four**. Readers who wish to contri-

bute should submit their suggestions, along with sources and explanations, to the editor, who will forward them to the authors, who in turn will supply them to Rufo. Possibly, in the future we can publish an expanded list along with the names of their contributors. The authors would also be interested in suggestions for different approaches to a practical solution of Rufo's problem, and suggestions for neurologological research offered by this unique disorder.

Preliminary reports of Rufo's case have stimulated considerable interest. We have heard of several cases of similar single-word aphasias, including one of a greatly distressed woman who lost the ability to utter the word **shopping**, and a man who lost the ability to utter the word **dinner**. Undoubtedly we will hear about other cases, and respectfully request that good taste prevail.

ADVENTURES OF A VERBIVORE

This is the title of Richard Lederer's seventh book on word-play, published in 1994 by Simon & Schuster's Pocket Books for \$21. A delight to read, it has three major themes:

- * *discussion of various classes of words: personal names, poker slang, spooky etymologies, Britspeak, prep school slang*
- * *first-person accounts of his adventures in logology-land: the Mohonk Word Weekend, excerpts from his radio show, experiences teaching English in a Philadelphia ghetto school, expert testimony in court cases concerning the meaning of certain words and phrases, letters from his fans*
- * *a tour of various grammatical matters: plurals, apostrophes, super-sentences, language errors in comic strips*

*Lest you think that former English teacher Lederer is a bluenose about rules of grammar, note that he defends split infinitives, the use of "hopefully", "I feel badly", and "like" as a subordinating conjunction ("tell it like it is")! **Word Ways** readers will recognize a number of pieces that first appeared here, most recently a discussion of homonyms and a quiz on the logology of US presidents.*