

MORE NICE N-ISOGRAMS

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The list of record-tying 2, 3, 4, and 5-isogram sets (bisograms, trisograms, or more generally nIsograms) was augmented recently by a computer search of a database of isograms manually culled from Webster's Third. As with previous exercises, the words conform to Games Magazine criteria of acceptability. This particular database was weighted more heavily in favor of longer words, in an attempt to find the elusive 2x20 to go along with GUNPOWDERY BLACKSMITH. However, none was found! Though the database was large, it was by no means exhaustive; record-breaking specimens may yet exist.

The current results include minor variants on previous items, as well as a number of elegant new examples. Highlights include perhaps the most common 19-letter bisograms found so far (SYMPATHIZED WRONGFUL), a variety of interesting balanced 3x22s and 4x24s (such as PRONGBUCKS JAWSMITH FLEXY and WHIZBAND FROCKS VELDT JUMPY), as well as some near-miss attempts at the previously-unscaled heights of 2x21, 3x23, and 4x25. The list of 5x26s (that is, 5-word pangrams) has also been expanded. Known 2x19s now exist for all letter distributions from 15,4 (DERMATOGLYPHICS BUNK) to 10,9 (many examples). In the 3x22 list, all distributions are represented from 13,6,3 (THUMBSCREWING ALKOXY PDQ) to 8,7,7 (BACKVELD FROWSTY HUMPING) except for 13,5,4 and 12,5,5. 5x25s are shown leaving 9 different letters: B,F,G,J,M,Q,V,W,Z. Asterisked examples have been supplied by Jim Puder.

The challenge in presenting and making sense out of this "list of lists" has been to arrive at some reasonable conventions for grouping nIsograms and ordering the words within them. In order to show related entries grouped together, and separate more "satisfying" items from the crowd, various conventions have been used:

- **Suffixes.** Suffixes which can be moved from one word to another, or a group of suffixes whose locations can be switched (-ING with -ED) are shown after a slash (/). Suffixes are assigned by making the longest possible word (or appending to the first alphabetically in case of a tie) until all suffixes have been used.
- **Word Ordering.** Once suffixes have been assigned, words within a nIsogram are ordered by length, except that vowelless words are listed last. Ties are broken alphabetically. The primary word of a nIsogram is the root of its first word (i.e., without suffixes).
- **NIsogram Ordering.** NIsograms are ordered alphabetically, beginning with their primary word. If a word is primary in some cases but not in others, its group will only include nIsograms in which it is pri-

mary. (This is a change from the ordering in previous articles, which was by word length.) This method allows for easier location of a given nlsogram, since word lengths result from assigning suffixes according to an arbitrary convention.

- **Quality.** As with previous articles, high-quality (Games-compliant) items are separated from near-misses of various flavors (plausible coinages, words from other sources, etc.). Also, for aesthetic reasons, the lists of quadrisograms and quintisograms are separated into those which do not require vowelless words, and those that do.
- **Leaves.** Letters left over are shown in alphabetical order, though where a significant-length word can be made, it is shown before other letters.

The previously-unpublished record-tying nlsograms are as follows:

High-quality 2x19s

bunchflowers	japygid	kmqtvxz	12,7
calyptrogen	dumbfish	jkqvwxyz	11,8
campfight/s	underblow	jkqvxyz	10,9
carbethoxyls	jumping	dfkqvwz	12,7*
gatchworks	unmixedly	bfjpvz	10,9
gunpowdery	backshift	jlmqvz	10,9
gunpowdery	mahlstick	bfjqvz	10,9
khidmutgar/s	benzoxyl	pfc,jqv	11,8
lumberjack	downshift	pyx,gqvz	10,9
overjumping	flybacks	dhqtwxz	11,8
patchworks	unmixedly	bfgjvz	10,9
providently	buckwash	fgjmqxz	11,8
providently	bushwack	fgjmqxz	11,8
pterygodum	blackfins	hjqvwz	10,9*
sympathized	wrongful	bcjkqv	11,8
throwbacks	unmixedly	fgjpvz	10,9
thumpingly	beadworks	cfjqvz	10,9
upthrowing	backvelds	fjmqxyz	10,9
zanthoxylum/s	jewbird	pfc,gkqv	12,7

High-quality 3x22s

backlight/ed	frown/s	jumpy	qvz	11,6,5
backlight/s	overjump	wynd	fqxz	10,8,4
backsight	frowzl/ed	jumpy	nqv	9,8,5
backveld	frowst/y	hump/ing	jqxz	8,7,7
backveld	frowst/y	jump/ing	hqxz	8,7,7
benzhydrol	puckfist	gawn	jqv	10,8,4
campfight/s	benzoxyl	dukw	jqrv	10,8,4
fringe pod/s	thwack	jumbly	qvz	10,6,6
frumpishly	backdown	vext	jg,qz	10,8,4
humpback	frowzly	jesting	vd,qx	8,7,7*
humpback	frowzly	vesting	djqx	8,7,7*
humpbacks	frowzly	jinxed	qt,gv	9,7,6*
humpbacks	frowzly	vexing	qt,jd	9,7,6*
jackfruit/s	bedgown	lymph	qvz	10,7,5

lumberjack	downshift	pyx	gqvz 10,9,3
nightcaps	frowzled	jumby	kqvx 9,8,5
nightfowls	vracked	bumpy	jqxz 10,7,5
nightfowls	vracked	jumpy	bqxz 10,7,5
patchwork/ed	jumbl/y	zing/s	fqvx 11,6,5
patchwork/s	delving	jumby	fqxz 10,7,5
patchworks	flexing	jumby	vd,qz 10,7,5
pitchforked	jumbly	vangs	qwxz, 11,6,5
prongbuck	jawsmith	flexy	vd,qz 10,7,5
prongbuck/s	mitzvah	flexy	djqw 10,7,5
prongbuck/s	mitzvah	wyled	fjqx 10,7,5
rockshaft	jumbl/ing	pyx/ed	qvwz 9,8,5
sprightful	backdown	zyme	jqvx 10,8,4
throwback/s	delving	jumpy	fqxz 10,7,5
throwback/s	dump/ing	flex/y	jqvz 10,7,5
throwbacks	flex/ing	jump/y	vd,qz 10,7,5
throwbacks	flumped	zingy	jqvx 10,7,5
throwbacks	jinxed	glumpy	fqvz 10,6,6
throwbacks	jumpingly	xed	fqvz 10,9,3
throwback/s	vexingly	jump	dfqz 10,8,4
throwback/s	vexingly	dump	fjqz 10,8,4
upgrowth/s	flyback	jinxed	mqvz 9,7,6

High-quality 4x24s, all words with vowels

backflow/s	jump/ing	dryth	vex	qz 9,7,5,3
backlight/s	frowzy	jump	vend	qx 10,6,4,4
backsight	frowzled	jynx	ump	qv 9,8,4,3
backsight	frowzled	jynx	vum	pq 9,8,4,3
blackfish	judgment	vrow	pyx	qz 9,8,4,3
boschvark	widget	flump	jynx	qz 9,6,5,4
campfight/s	bulked	jynx	vrow	qz 10,6,4,4
cymbling	kvutza	fjord	sphex	qw 8,6,5,5
cymbling/s	kvutza	fjord	phew	qx 8,7,5,4
jacklight/s	frowzy	bump	vend	qx 10,6,4,4
vexingly	fjord/s	thwack	bump	qz 8,6,6,4
patchworked	gulf	jynx	zimb	qv 11,4,4,4
strongback	fjeld	whump	vizy	qx 10,5,5,4
whizbang	frock/s	veldt	jumpy	qx 8,6,5,5

Vowelless words, 4x24s

schmaltz	jukebox	fringy	pdq	vw 8,7,6,3
schmaltz	jukebox	frying	pdq	vw 8,7,6,3
sketching	frowzly	jambu	pdq	vx 9,7,5,3
sketching	frowzy	jambul	pdq	vx 9,6,6,3
skutching	frowzly	jambe	pdq	vx 9,7,5,3
throwback/s	fuzing	xylem	pdq	jv 10,6,5,3
throwbacks	fumingly	vex	pdq	jz 10,8,3,3
thumbscrew	jok/ing	flax/y	pdq	vz 10,6,5,3
thumbscrewing	folky	zax	pdq	jv 13,5,3,3
thwackers	jumbling	foxy	pdq	vz 9,8,4,3
vetchling	sjambok	furzy	pdq	wx 9,7,5,3

vetchling/s	jambok	furzy	pdq	wx 10,6,5,3
vetchworms	fungibly	zax	pdq	jk 10,8,3,3
vetchworms	fungibly	jak	pdq	xz 10,8,3,3
vetchworms	fuzing	balky	pdq	jx 10,6,5,3

blacksmith	expugn	frowzy	vd	jq 10,6,6,2
humpback	frowzly	jesting	vd	qx 9,7,7,2*
jacketing/s	frowzly	bumph	vd	qx 10,7,5,2
patchwork/s	flexing	jumby	vd	qz 10,7,5,2
prongbuck	jawsmith	flexy	vd	qz 9,8,5,2
throwback/s	flex/ing	jump/y	vd	qz 10,7,5,2

High-quality 5x25s, all words with vowels

backveld/s	fritz	whump	jynx	go	q 9,5,5,4,2
droplight/s	beck	jynx	waqf	vum	q 10,4,4,4,3
mitzvah/s	fjeld	grown	buck	pyx	q 8,5,5,4,3
mitzvah/s	fjeld	wrong	buck	pyx	q 8,5,5,4,3
mitzvah/s	fjeld	wrung	bock	pyx	q 8,5,5,4,3
sawbuck	fjord	lymph	zing	vext	q 7,5,5,4,4

Vowelless words, 5x25s

kvutzah/s	boring	fjeld	pyx	cwm	q 8,6,5,3,3
kvutzah	boxing	fjeld	spry	cwm	q 7,6,5,4,3
kvutzah/s	boxing	fjeld	pry	cwm	q 8,6,5,3,3

backflow/s	zither	jynx	vum	pdq	g 9,6,4,3,3
backflow/s	zither	jynx	guv, vug	pdq	m 9,6,4,3,3
backflow/s	zither	jynx	mug, gum	pdq	v 9,6,4,3,3
backflow/s	zythum	ring, grin	vex	pdq	j 9,6,4,3,3
backlight/s	fuze	jynx	vrow	pdq	m 10,4,4,4,3
backlight/s	vrouw	jynx	fem	pdq	z 10,5,4,3,3
blacksmith	fuze	jynx	vrow	pdq	g 10,4,4,4,3
boxingly	crwth/s	kuvasz	fem	pdq	j 8,6,6,3,3
bricklow/s	zythum	fang	vex	pdq	j 9,6,4,3,3
flockmaster	jynx	whiz	guv, vug	pdq	b 11,4,4,3,3
flockmaster	jynx	vugh	biz	pdq	w 11,4,4,3,3
flockmaster	jynx	vugh	wiz	pdq	b 11,4,4,3,3
gatchwork/s	flexy	zimb	jun	pdq	v 10,5,4,3,3
gatchwork/s	flue, fuel	jynx	zimb	pdq	v 10,4,4,4,3
jukebox	crwths	mazing	fly	pdq	v 7,6,6,3,3
jukebox	crwths	fling	mazy	pdq	v 7,6,5,4,3
jukebox	crwths	flavin	gym	pdq	z 7,6,6,3,3
rockshaft	zimbel	jynx	guv, vug	pdq	w 9,6,4,3,3
schmaltzy	vibex	fork	gunj	pdq	w 9,5,4,4,3
schmaltzy	vibex	work	gunj	pdq	f 9,5,4,4,3
throwback/s	flex/y	zing	vum	pdq	j 10,5,4,3,3
throwback/s	flexy	gunj	vim	pdq	z 10,5,4,3,3
throwback/s	zymin	flex	guv, vug	pdq	j 10,5,4,3,3
throwback/s	zymin	gulf	vex	pdq	j 10,5,4,3,3
thumbscrew	flog, golf	kiva	jynx	pdq	z 10,4,4,4,3
thumbscrew	folk	jynx	vagi, viga	pdq	z 10,4,4,4,3

vetchworm/s	fix/y	gunj	balk,klab	pdq	z 10,4,4,4,3
vexingly	schwarz	bumf	jot	pdq	k 8,7,4,3,3
whizbang	flock/s	jury	vext	pdq	m 8,6,4,4,3
whizbang	freckly	jot/s	vum	pdq	x 8,7,4,3,3
wingback/s	thujyl	form,from	vex	pdq	z 9,6,4,3,3
backswing	thujyl	form,from	vex	pdq	z 9,6,4,3,3
wingback/s	zythum	flor	vex	pdq	j 9,6,4,3,3
backswing	zythum	flor	vex	pdq	j 9,6,4,3,3
wrathful	gemsbok	jynx	vic	pdq	z 8,7,4,3,3
xanthism	frowzly	beck	guv,vug	pdq	j 8,7,4,3,3
zubrowka/s	flitch,flicht	jynx	gem,meg	pdq	v 9,6,4,3,3
					-
jacklight/s	frowze	numb	pyx	vd	q 10,6,4,3,2
patchwork/s	flexy	gunj	zimb	vd	q 10,5,4,4,2
patchwork/s	zimb	jynx	fug	vd	q 10,6,4,3,2
throwback/s	flex/y	jump	zing	vd	q 10,5,4,4,2
Vowelless words, 5x26s					
blacksmith	frowzy	gunj	vex	pdq	10,6,4,3,3
humbling	frowzy	jacks	vext	pdq	8,6,5,4,3
jacklight/s	frowzy	numb	vex	pdq	10,6,4,3,3
jumbling	frowzy	hacks,shack	vext	pdq	8,6,5,4,3
skutch/ing	frowzly	jamb	vex	pdq	9,7,4,3,3

Finally, here are some near-misses of various sizes.

- 2x21 bumperjacks (not in Web), downflight ('upflight' in Web)
- 2x20 bumperjacks (not in Web), downlight
- 2x20 bumperjacks (not in Web), nightfowl
- 2x20 thumbscrewing, poklady (Czech 'treasures')
- 2x20 cymographs, unblitzed (like a well-protected quarterback?)
- 2x20 explicandums ('explicanda' in Web), growthy
- 2x20 flyspecking, badmouth (not in Web 3)
- 2x20 kymograph, unblitzed (see above)
- 3x23 cymbling/s, kvutzah, Wexford (usu cap in Web 3)
- 3x23 humpbacked, frowzly, vingts (French 'twenties')
- 3x23 humpbacks, veldting (just wishful thinking!), frowzy
- 3x22 kvetching (not in Web 3), frowzly, jambus
- 3x22 kvetching (see above), jambuls, frowzy
- 4x25 kvetching (see above), jambuls, frowzy, pdq
- 4x25 kvetching (see above), frowzly, jambus, pdq
- 5x25 zemstvo (in OSPD only), jingly, wharf, buck, pdq