

# HETEROGRAMMATIC EIGHT-SQUARES

REX GOOCH

Letchworth Garden City, Herts, England

rexgooch@ntlworld.com

Eight-squares exist in overwhelming numbers (a few million million by my guess, and 27 million million by Chris Long's formula), so there are many 'perfect' examples. A 1902 effort by Charles B Stewart had a two-word place name and a word with an initial capital: *decisive egomania computes impotent sauterne interned Viennese East Eden*. In November 1926 (in *Enigma*) Mrs Burkholder came close to perfection with words from a single dictionary: *Agaricus* (genus) *generant anaconda recanter ironwort cantonal underage* (Webster2 is needed to avoid hyphen) *startled*. Finally, a 'perfect' square by Darryl Francis was reported in W88-80: *rosetter overrule sequined eruptive tritical tunicate elevates redeless*, all in Web3, except for *redeless* in Web2.

The major challenge is therefore to find eight-squares with some additional attributes. I had failed to find a nine-square made from heterogrammatic words by a margin of one word (*Nine-Square Roundup* in August 2003), so it was natural to hunt for heterogrammatic eight-squares. This turned out to be a worthwhile challenge, as I found many (18000), but none quite perfect. Given that I also found a very few diagonal nine-squares with a single diagonal, the supposition is that there is a legion of such eight-squares, but what about heterogrammatic eights with diagonal words?

Throughout the article, the squares in each section are presented in approximately descending order of quality, marks being deducted for phrases, hyphens, apostrophes, non-headwords, initial caps, foreign words etc, multiple deductions applying to a single word. All letters in the squares are normally lower-case, except where **boldface** indicates a capital letter. For some squares, the notes give alternative words after a semicolon.

## Heterogrammatic Eight-Squares

Despite being restricted to just 15% of the 8-letter vocabulary of around 750,000, the heterogrammatic squares below are almost perfect, in that virtually all words are solid lower-case dictionary headwords (or regular derivations). They are thus comparable in quality to the best ten-squares taken from a full vocabulary. In fact, I have failed to find any previous heterogrammatic word squares in *Word Ways* larger than 5x5 (eg *agami gamin amine miner inert* in W69-226).

Here is a small selection of the better examples from the 18,000 or so squares found. BISCEOPA heads three of the best squares.

B I S C E O P A OED aswolkeness, 1000q  
 I N T O M B E D OED entomb, verb  
 S T U M P E R I Discothyrea stumperi vittatus, ITISa  
 C O M P R I S E OED  
 E M P R I S O N OED  
 O B E I S A N T OED  
 P E R S O N A L OED  
 A D I E N T L Y OED adient, adjective

all OED bar one

R E F U S A N T OED  
 E X O N U M I A OED  
 F O R S M I T E OED  
 U N S P I T E D Web2, below line  
 S U M I D E R O Sumidero sumidero microdentata, ITISa, or places  
 A M I T E R O L  $C_{12}H_{20}N_2O$ , eg [www.echinachem.com/Category/showChemical.asp](http://www.echinachem.com/Category/showChemical.asp)  
 N I T E R O U S OED niterated, niterous  
 T A E D O L S U North Korea, 41° 23', 129° 19'

U P F R A M E D "domain of the upframed conceptual future"†  
 P Y R U V A T E OED  
 F R A D I N H O Arroio Fradinho, Brazil, -6° 51', -41° 44'  
 R U D I S T A N lower case, Web2 Rudista  
 A V I S M E N T OED advisement with earlier form of advise, eg 2a 1425q  
 M A N T E R O I Pheidole manteroi ferox, ITISa  
 E T H A N O I C OED  
 D E O N T I C S Chambers deontology  
 † in review of *Reframing Business: When the Map Changes the Landscape* by Richard Normann, on Amazon.com

B I S C E O P A OED aswolkeness, 1000q  
 I N C O M B E R OED  
 S C A M P E R ' D scamper'd, OED scamper 1 1687q  
 C O M P R I S E OED  
 E M P R I S O N OED  
 O B E I S A N T OED  
 P E R S O N A L OED  
 A R D E N T L Y OED

all OED

B I S C E O P A OED aswolkeness, 1000q  
 I N T O M B E D OED entomb, vb  
 S T U M P E R I Discothyrea stumperi vittatus, ITISa  
 C O M P R Y S E OED comprise  
 E M P R I S O N OED  
 O B E Y S A N T OED obeisant  
 P E R S O N A L OED  
 A D I E N T L Y OED adient, adj

all OED bar one

R E C U B A N T Web2  
 E X O N U M I A OED  
 C O N S K I T E OED  
 U N S K A T E D OED; or UNSLATED Web2, below line  
 B U K A S E R O Uganda, 0° 23', 33° 28'  
 A M I T E R O L  $C_{12}H_{20}N_2O$ , eg [www.echinachem.com/Category/showChemical.asp](http://www.echinachem.com/Category/showChemical.asp)  
 N I T E R O U S OED niterated, niterous  
 T A E D O L S U North Korea, 41° 23', 129° 19'

R E C U S A N T	OED
E X O N U M I A	OED
C O U M B I T E	“the song of the coumbite, the song of the earth...”, Jacques Roumain†
U N M O A T E D	Web2 below line
S U B A D E R O	Mexico, 28° 26', -110° 41'
A M I T E R O L	qv
N I T E R O U S	OED niterated, niterous
T A E D O L S U	North Korea, 41° 23', 129° 19'

† 1907-1945, Haitian author, *The Columbia World of Quotations*, 1996

## Heterogrammatic Eight-Squares with SW-NE diagonal

Of the 18,000 heterogrammatic squares, about 300 (1.7%) have a word as the SW-NE diagonal. Some of the better squares showing each of the ten different SW-NE diagonal words are given below. No squares with either of the NW or SE diagonals were found. The SW-NE diagonal is perforce palindromic, so cannot be a heterogram. All except one of the diagonals are to be found in *Palindromicon II*. Disregarding the merits of the diagonal word itself, the diagonals SIISSII'S, HRRRRRRRH, AAAAAAAA, and EEEEEEEE yield the best squares, in which half the words are 'perfect'.

### 1. Suussuu's: 3 found

B E C H A R M S	OED becharm
E L H A N O U T	El Hanout, Morocco, 34° 47', -4° 21'
C H E G O U R A	Douar Chegoura, Morocco, 3132, -807; or Chemoura, Algeria, 33° 28', 5° 58'
H A G I S T E R	OED
A N O S K E L I	Greece, 35° 27', 23° 46'
R O U T E M A N	OED route 4
M U R E L A N D	OED Meg, 1538q
S T A R I N D E	OED stare 1300q (= staring)

M A N G O L D S	OED mangel, mangold
A F E L I O U N	Irhzer Afelioun, Morocco, 35° 06', -2° 45'
N E S O L U M A	Nesoluma polynesianum orcuttii, ITISp
G L O U S T E R	2 Hen. VI, iii. i. 57, or in Athens co., SE Ohio
O I L - S H A R K	oil-shark, OED oil 6e
L O U T A M B I	Congo, -4° 04', 13° 19'
D U M E R B A L	India, 20° 00', 83° 27'
S N A R K I L Y	OED snarky

### 2. siissii's: 8 found and given

H A L F P E N S	OED cunter I.1 1579q; or calf-pens, OED calf 7 1856q
A N O R E X I C	OED
L O F E R I K A	Sudan, 4° 11', 32° 21'
F R E I S T O N	Lincolnshire, 52° 58', 0° 3'; or Freyston, UK, 51° 46', -4° 56'
P E R S H U L T	Pershult, Sweden, 56° 23', 13° 14'
E X I T U R A L	OED exiture
N I K O L A R E	Albania, 40° 42', 20° 27'; or NIKOLAYE†
S C A N T L E D	OED scantle

† Nikolaye-Aleksandrovskoye, Russia, 48° 24', 135° 5'

**3. Saassaas (places): 1 found**

Z O D I A C K S	OED zodiac
O G H M U L A K	Ogh Mulak, Iran, 33° 39', 48° 45'
D H U P G A R I	India, 26° 36', 89° 01'
I M P O S T E R	OED
A U G S F E L D	Germany, 50° 01', 10° 33'
C L A T E R I N	OED clatter 1b 1225q
K A R E L I N O	Russia, 58° 42', 60° 23'
S K I R D N O Y	Ukraine, 49° 01', 35° 41'

**4. hr-r-r-r-rh (EDD): 7 found**

R I E S P A C H	France, 47° 33', 7° 17'
I N S T A U R E	OED reinstaure
E S K A T R O L	Eskatrol (Fool Button) contained Dextroamphetamine Sulfate†
S T A P R E N I	Latvia, 56° 44', 25° 17'
P A T R O N Y S	OED patron, 14..q
A U R E N T I O	Pointe Aurentio, New Caledonia, -22° 10', 166° 15'
C R O N Y I S M	OED
H E L I S O M A	Helisoma azurea speciosa, ITISa † (Dexedrine) 15mg and Prochlorperazine (Compazine) 7.5mg, <a href="http://www.cobo.org/knowledge/faq/obscure.html">http://www.cobo.org/knowledge/faq/obscure.html</a>

R O M U N T C H	OED Romansh
O M U N Y A R I	Uganda, 1° 48', 33° 48'
M U L C A R E S	Mulcares Yard, Montserrat, 16° 43', -62° 9'
U N C H R I S T	"Unchrist, all rolled in ruin...", Gerard Manley Hopkins, <i>The Loss of the Eurydice</i>
N Y A R M E - T O	Ozero Nyarme-To, Russia, 72° 30', 69° 34'
T A R I E S U M	OED tarrysome, 1513q
C R E S T U M A	Portugal, 41° 04', -8° 30'
H I S T O M A P	OED

**5. tuuttuut: 2 found**

H A S E M K O T	Hasem Kot, Afghanistan, 33° 12', 69° 46'
A C I N O H U R	Acinohur Golu, Azerbaijan, 40° 59', 46° 57'
S I V A R U Y O	Peru, -17° 2', -69° 37'
E N A C T O R Y	OED
M O R T E I L S	OED mortal 3, 1393 Langland, <i>Piers Plowman</i> xviii. 290
K H U O I B A C	Khuoi Bac, Vietnam, 22° 41', 106° 17'; or Khuoi Nac, Vietnam, 22° 58', 105° 36'
O U Y R L A T E	OED overtimely, 1440q
T R O Y S C E N	OED sib-lag, 1205q

**6. AAAAAAAAA (tutoring service): 175 found.**

B U K I T C H A	Bukit Cha, Malaysia, 4° 45', 100° 51'
U N I P O L A R	OED
K I L O B A U D	kilobaud (very common in data telecomms)†
I P O T A Y N E	OED ipotame, ipotayne
T O B A L I E N	Tobalien Point, Indonesia, 1° 5', 127° 59'
C L A Y I E S T	OSPD, Pulliam
H A U N E S T I	Romania, 44° 47', 22° 37'
A R D E N T I S	OED ardent 2 (Latin) † in OED text as journal <i>Kilobaud Microcomputing</i>

**B U D I N S K A** Budinska Skala, Slovakia, 48° 28', 19° 26'; or RUDINSKA†  
**U N I M O L A R** OED tosyl, 1938q (why not headword?) - normally chemists say 'molar'  
**D I S O M A T Y** Pulliam  
**I M O C A V U S** Sterrhurus imocavus hebridicus, ITISa  
**N O M A D I S H** "regarding my nomadish life, destiny and colonialism in Africa"‡  
**S L A V I C H E** Belarus, 54° 59', 27° 12'  
**K A T U S H E V** OED imperialist 4, 1969q  
**A R Y S H E V O** Russia, 56° 18', 86° 23'  
 † Rudinska Kosa, Bosnia and Herzegovina, 43° 48', 17° 53'; or  
 TUDINSKA, Tudinska Reka, Yugoslavia, 44° 21', 19° 39'  
 ‡ Ali M' ROIVILI (others also use this, presumably instead of nomadic).

**P R O V E N D A** OED provend (Latin)  
**R E M I N D A L** OED remind  
**O M E R F A K I** Turkey, 39° 16', 29° 27'  
**V I R C A L E S** Vircales Hacienda, Peru, -4° 48', -79° 33'  
**E N F A M I S H** OED  
**N D A L I T H E** Ndalithe Island, Fiji, -16° 11', 179° 52'  
**D A K E S H I N** Dakeshin Maheshpur, Bangladesh, 24° 59', 89° 10'  
**A L I S H E N G** Afghanistan, 34° 47', 70° 05'

**7. Dddddddd (OED signature 6a 1864q "Detached Sheet: 4to; signature, Dddddddd"): 3 found**

**F R I S L A N D** UK, 56° 35', -6° 36'; or URISLAND uris-land OED ure 1,†  
**R E S P A L D O** El Respaldo, Columbia, 7° 8', -75° 34'  
**I S P E N D A M** Turkey, 41° 04', 39° 28'  
**S P E L D R I N** Chambers speld  
**L A N D - M I C E** OED 11b land-mouse  
**A L D R I C H S** Aldrich's, OED architect 1890q  
**N ' D A I C H E T** N'daichet, Burma, 24° 59', 97° 40'  
**D O M N E S T I** Tirgu Domnesti, Romania, 46° 1', 27° 11'  
 † or urisland OED ure 1 1589q

**8. EEEEEEEE (James Joyce, Ulysses): 86 found**

**P A D L O C K E** OED withe, 1570q  
**A V O U C H E R** OED  
**D O W C H E R Y** OED Dowche, dowchery (first purchase of tracker fund?)  
**L U C R E S I A** Lucrecia (forename), OED convey 2, 1567q  
**O C H E S T A N** Iran, 33° 40', 50° 24'  
**C H E S T I N G** OED chest  
**K E R I A N G O** Angola, -10° 35', 15° 20'  
**E R Y A N G O U** China, 32° 38', 110° 42'  
  
**R A M B U C H E** Ecuador, -0° 14', -80° 20'  
**A V O U C H E D** OED  
**M O L C H E P A** Russia, 43° 59', 40° 08'  
**B U C K E R A M** OED buckram  
**U C H E W A R I** Uchewari Bhit, Pakistan, 26° 34', 69° 04'  
**C H E R A F I T** Greinat Cherakit, Mauritania, 15° 40', -6° 4'  
**H E P A R I N S** OED heparin, plural in OSPD  
**E D A M I T S U** Japan, 33° 52', 130° 49'

**P L A N D O M E** Nassau co., SE N.Y.  
**L J U T O M E R** OED Lutomer  
**A U D I V E R T** Paraguay, -20° 0', -58° 21'  
**N' T I F E R C H** Asif n' Tiferch, Morocco, 29° 50', -7° 53'  
**D O V E T A I L** OED  
**O M E R A N L I** Turkey, 39° 20', 37° 49'  
**M E R C I L O N** Mercilon - oral contraceptive, see [www.organon.com/products/contraception](http://www.organon.com/products/contraception)  
**E R T H L I N G** possibly in Web2, = erth (OED, = earth) + ling

**9. MMMMMMMM (Washington Post, 22 Dec 1978, c4/1 "Mmmmmmm" at Travolta's hunky nearness"): 5 found.**

**F I B R O S U M** Dorland  
**I S L A R E M O** Isla Remo, Chile, -47° 59', -73° 53'  
**B L E D S M I R** Bled Smir, Algeria, 35° 10', 0° 2'  
**R A D O M I L E** Bosnia and Herzegovina, 44° 25', 16° 55'  
**O R S M I L E N** Sweden, 61° 38', 16° 04'  
**S E M I L O N G** Web2  
**U M I L E N K A** Russia, 54° 22', 35° 6'  
**M O R E N G A I** Morengai Farm, Kenya, 0° 3', 37° 8'

**P O R I C H' A M** Porich'am, North Korea, 40° 27', 126° 19'  
**O R I C H U M A** Venezuela, 7° 6', -70° 39'  
**R I O L U M B E** Rio Lumbe, Mozambique, -18° 10', 35° 44'  
**I- C L U M B E N** i-clumben, OED  
**C H U M P I N G** OED chump vb  
**H U M B I R D S** OED hum-bird, or humbird's in 1634q  
**A M B E N D R O** Madagascar, -20° 53', 43° 54'  
**M A E N G S O L** Maengsol-li, South Korea, 34° 8', 126° 38'

**B O R I K H A M** Laos, 18° 33', 103° 43'; or TORIKHAM, Torikham, Pakistan, 35° 54', 71° 33'  
**O R I C H U M A** Venezuela, 7° 6', -70° 39'  
**R I O L U M B E** Rio Lumbe, Mozambique, -18° 10', 35° 44'  
**I- C L U M B E N** i-clumben, OED  
**K H U M Z I N G** Burma, 23° 1', 93° 47'  
**H U M B I R D S** OED hum-bird, or humbird's in 1634q  
**A M B E N D R O** Madagascar, -20° 53', 43° 54'  
**M A E N G S O L** Maengsol-li, South Korea, 34° 8', 126° 38'

**10. OOOOOOOO (Bluebottle, in The Goon Show): 11 found.**

**M U L H E I C O** Montes Mulheico, Mozambique, -14° 23', 38° 4'  
**U T A I N- G O L** Utain-gol, Mongolia, 46° 23', 99° 21'  
**L A N D F O R M** solid in Chambers and OED variant  
**H I D E O U T S** Chambers hideout  
**E N F O R M Y T** OED inform 5a, 1400q  
**I G O U M A N E** Morocco, 31° 15', -9° 25'  
**C O R T Y N E D** OED curtain, 1340q  
**O L M S T E D I** Etheostoma olmstedi williamsi, ITISa

W U R M A N D O	Wurmando Mela, Pakistan, 34° 1', 71° 20'
U N H A L G O D	OED unhallowed (Old English)
R H E N D O U S	Gour Rhendous, Algeria, 32° 5', 5° 29'
M A N G O U C H	(surely a mis-spell!) Station de Mangouch, Tunisia, 36° 33', 9° 2'
A L D O U R I E	Aldourie Castle, UK, 57° 24', -4° 19'
N G O U R E M A	Ngourema Toboro, Mali, 14° 25', -4° 33'
D O U C I M E R	OED
O D' S H E A R T	Od's heart!, OED heart 53

## Popular Top Row Words in Heterogrammatic squares

A frequent everyday top row word (0.16% of squares) is DESPATCH. More frequent are the following, with the TOMBRACH the most popular, occurring at the top of 0.43% of all squares:

G O B S M A C K	OED
H O M E S I C K	OED
Z E T L I S C H	Hohen Zetlisch, Czech Republic, 49° 50', 12° 46'
M O D R I C K A	Modricka Reka, Yugoslavia, 43° 31', 21° 20'
N Y A S K O C H	Mys Nyaskoch, Russia, 51° 44', 87° 32'
M I S T R U C K	Mistruck, Honduras, 15° 14', -83° 53'
N E B L I S C H	Neblisch, Poland, 53° 51', 21° 11'
H O G S B A C K	hogs-back, OED hogback 2a 1973q
T O M S H A C K	personal name, US Census
T O M B R A C K	Tombrack, Ireland, 52° 36', -6° 32'

## Popular Words anywhere in Heterogrammatic Squares

A frequent everyday word is ISLANDER, at 0.07% of all 150,000 words in the squares; KINGSLEY (Water Babies) and TUCKINGS are a little more frequent; but the most frequent, occurring up to 0.225% of the time, are listed here in ascending frequency:

I Z U T A C H O	Izutacho, Japan, 35° 28', 139° 39'
O T A R U S H I	Otaru-shi, Japan, 43° 11', 141° 1'
I S T A N G O L	Istan gol, Pakistan, 35° 57', 71° 47'
K I N G S W A Y	Kingsway, an important road and Underground station, London, WC2
O T E M A C H I	Otemachi, Japan, 36° 4', 136° 13'
U C H I N D O L	Uchin Dol, Bulgaria, 43° 20', 24° 36'
K I N G S E A T	Kingseat, Fife, Scotland
A C H I N D O W	Ach'indow, Ethiopia, 14° 19', 38° 15'
A R E T U C H I	Aretuchic, Mexico, 28° 7', -107° 36'
I M U R A C H O	Imuracho, Japan, 34° 44', 137° 26'
I C H A N S U L	Ichansul, Guatemala, 14° 13', -90° 25'
O C H I N G U E	Rio Ochingue, Angola, -12° 4', 18° 5'

Sources: Dorland = Dorland's Illustrated Medical Dictionary; ITIS = Integrated Taxonomic Information System of the USDA; ITISa = ITIS animal; ITISp = ITIS plant; NIMA = National Imagery and Mapping Agency (USA, default source for place names); OSPD = Official Scrabble Players Dictionary.