HETEROGRAMMATIC EIGHT-SQUARES

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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.

<p>| | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>B I S C E O P A</td>
<td>OED aswolleness, 1000q</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I N T O M B E D</td>
<td>OED entomb, verb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S T U M P E R I</td>
<td>Discophyrea stumperi vittatus, ITISa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C O M P R I S E</td>
<td>OED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E M P R I S O N</td>
<td>OED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O B E I S A N T</td>
<td>OED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P E R S O N A L</td>
<td>OED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A D I E N T L Y</td>
<td>OED adient, adjective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

all OED bar one

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**R FU A T**

**UM I A**

**FOR MIT**

**SUM I DER O** Sumidero sumidero microdentata, ITISa, or places

**AM I TER O L** C₁₂H₂₀N₂O, eg 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'

**UP FR A M E D** "domain of the upframed conceptual future"†

**PY R UV A TE** OED

**F R A D I N H O** Arroio Fradinho, Brazil, -6° 51', -41° 44'

**R U D I S TA 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 aswoleness, 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 aswoleness, 1000q

**I N T O M B E D** OED entomb, vb

**S T U M P E R I** Discothyrea stumperti vittatus, ITISa

**C O M P R Y S E** OED comprise

**E M P R I S O N** OED

**O B E I 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** C₁₂H₂₀N₂O, eg 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'
RECUSANT OED
EXONUMIA OED
COUMBITE “the song of the coumbite, the song of the earth...”, Jacques Roumain†
UNMOAT ED Web2 below line
SUBADERO Mexico, 28°26', -110°41'
AMITEROL qv
NITEROUS OED niterated, niterous
TAEDOLSU 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. Suusiuu’s: 3 found

<table>
<thead>
<tr>
<th>Word</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>BECHARMS</td>
<td>OED becharm</td>
</tr>
<tr>
<td>ELHANO UT</td>
<td>El Hanout, Morocco, 34°47', -4°21'</td>
</tr>
<tr>
<td>CHEGOURA</td>
<td>Douar Chegoura, Morocco, 3132, -807; or Chemoura, Algeria, 33°28', 5°58'</td>
</tr>
<tr>
<td>HAGISTER</td>
<td>OED</td>
</tr>
<tr>
<td>ANOSKELI</td>
<td>Greece, 35°27', 23°46'</td>
</tr>
<tr>
<td>ROUTE MAN</td>
<td>OED route 4</td>
</tr>
<tr>
<td>MURELAND</td>
<td>OED Meg, 1538q</td>
</tr>
<tr>
<td>STARINDE</td>
<td>OED stare 1300q (= staring)</td>
</tr>
<tr>
<td>MANGOLDS</td>
<td>OED mangel, mangold</td>
</tr>
<tr>
<td>AFELIOUN</td>
<td>Ighzer Afelioun, Morocco, 35°06', -2°45'</td>
</tr>
<tr>
<td>NESOLUMA</td>
<td>Nesoluma polyneicum orcutti, ITISp</td>
</tr>
<tr>
<td>GLOUSTE R</td>
<td>2 Hen. VI, iii. i. 57, or in Athens co., SE Ohio</td>
</tr>
<tr>
<td>OILSHARK</td>
<td>oil-shark, OED oil 6e</td>
</tr>
<tr>
<td>LOUTAMB I</td>
<td>Congo, -4°04', 13°19'</td>
</tr>
<tr>
<td>DUMERBAL</td>
<td>India, 20°00', 83°27'</td>
</tr>
<tr>
<td>SNARKILY</td>
<td>OED snarky</td>
</tr>
</tbody>
</table>

2. siissii’s: 8 found and given

<table>
<thead>
<tr>
<th>Word</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>HALFPENS</td>
<td>OED cunter 1.1 1579q; or calf-pens, OED calf 7 1856q</td>
</tr>
<tr>
<td>ANOREXIC</td>
<td>OED</td>
</tr>
<tr>
<td>LOFERI KA</td>
<td>Sudan, 4°11', 32°21'</td>
</tr>
<tr>
<td>FREISTON</td>
<td>Lincolnshire, 52°58', 0°3'; or Freyston, UK, 51°46', -4°56'</td>
</tr>
<tr>
<td>PERSHULT</td>
<td>Pershult, Sweden, 56°23', 13°14'</td>
</tr>
<tr>
<td>EXITURAL</td>
<td>OED exiture</td>
</tr>
<tr>
<td>NI KOLARE</td>
<td>Albania, 40°42', 20°27'; or NIKOLAYE†</td>
</tr>
<tr>
<td>SCANTLED</td>
<td>OED scantle</td>
</tr>
</tbody>
</table>

† Nikolaye-Aleksandrovskoye, Russia, 48°24', 135°5'
3. Saassaas (places): 1 found
ZODIACKS OED zodiac
OGHMULAK Ogh Mulak, Iran, 33° 39', 48° 45'
DHUPGARI India, 26° 36', 89° 01'
IMPOSTER OED
AUGSFELD Germany, 50° 01', 10° 33'
CLATERIN OED clatter 1b 1225q
KARELINO Russia, 58° 42', 60° 23'
SKIRDNOY Ukraine, 49° 01', 35° 41'

4. hr-r-r-r-rh (EDD): 7 found
RIESPACH France, 47° 33', 7° 17'
INSTAURE OED reinstaure
ESKATROL Eskatrol (Fool Button) contained Dextroamphetamine Sulfate†
STAPRENI Latvia, 56° 44', 25° 17'
PATRONYS OED patron, 14..q
AURENTIO Pointe Aurentio, New Caledonia, -22° 10', 166° 15'
CRONYISM OED
HELOISMA Helisoma azurea speciosa, ITIS a
† (Dexedrine) 15mg and Prochlorperazine (Compazine) 7.5mg, http://www.cobo.org/knowledge/faq/obscure.html

ROMUNTCH OED Romansh
OMUNYARI Uganda, 1° 48', 33° 48'
MULCARES Mulcares Yard, Montserrat, 16° 43', -62° 9'
UNCHRIST “Unchrist, all rolled in ruin...”, Gerard Manley Hopkins, The Loss of the Eurydice
NYARME-TO Ozero Nyarme-To, Russia, 72° 30', 69° 34'
TARIESUM OED tarrysome, 1513q
CRESTUMA Portugal, 41° 04', -8° 30'
HISTOMAP OED

5. tuuttuut: 2 found
HASEMKOT Hasem Kot, Afghanistan, 33° 12', 69° 46'
ACINOHUR Acino hur Golu, Azerbaijan, 40° 59', 46° 57'
SIVARUYO Peru, -17° 2', -69° 37'
ENACTORY OED
MORTEILS OED mortal 3, 1393 Langland, Piers Plowman xviii. 290
KHUOIBAC Khuoi Bac, Vietnam, 22° 41', 106° 17'; or Khuoi Nac, Vietnam, 22° 58', 105° 36'
OYRULATE OED overtimely, 1440q
TROYSCEN OED sib-lag, 1205q

6. AAAAAAAA (tutoring service): 175 found.
BUKITCHA Bukit Cha, Malaysia, 4° 45', 100° 51'
UNIPOLAR OED
KILOBAUD kilobaud (very common in data telecomms)†
IPOTAYNE OED ipotame, ipotayne
TOBALIEN Tobalien Point, Indonesia, 1° 5', 127° 59'
CLAYIEST OSPD, Pulliam
HAUNESTI Romania, 44° 47', 22° 37'
ARDENTIS OED ardent 2 (Latin)
† in OED text as journal Kilobaud Microcomputing
BUDINSKA Budinska Skala, Slovakia, 48° 28', 19° 26'; or RUDINSKA†
UNIMOLAR OED tosyl, 1938q (why not headword?) - normally chemists say 'molar'
DISOMATY Pulliam
IMOCAVUS Sterrhurus imocavus hebridicus, ITISa
NOMADISH "regarding my nomadish life, destiny and colonialism in Africa"†
SLAVICHE Belarus, 54° 59', 27° 12'
KATUSHEV OED imperialist 4, 1969q
ARYSHEVO 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).

PROVENDA OED provend (Latin)
REMINDAL OED remind
OMERFAKI Turkey, 39° 16', 29° 27'
VIRCALES Vircales Hacienda, Peru, -4° 48', -79° 33'
ENFAMISH OED
NDALITHE Ndalithe Island, Fiji, -16° 11', 179° 52'
DAKEHIN Dakeshin Maheshpur, Bangladesh, 24° 59', 89° 10'
ALISHENG Afghanistan, 34° 47', 70° 05'

7. Dddddddd (OED signature 6a 1864q “Detached Sheet: 4to; signature, Dddddddd”): 3 found
FRISLAND UK, 56° 35', -6° 36'; or URIISLAND uris-land OED ure 1,†
RESPALDO El Respaldo, Columbia, 7° 8', -75° 34'
ISPENDAM Turkey, 41° 04', 39° 28'
SPELDRIK Chambers speld
LANDMICE OED 11b land-mouse
ALDRICHES Aldrich’s, OED architect 1890q
NDAICHE T N’daichet, Burma, 24° 59', 97° 40'
DOMNESTI Tirgu Domnesti, Romania, 46° 1', 27° 11'
† or urisland OED ure 1 1589q

8. EEEEEEEE (James Joyce, Ulysses): 86 found
PADLOCKE OED withe, 1570q
AVOUCHER OED
DOWCHERY OED Dowche, dowchery (first purchase of tracker fund?)
LUCREZIA Lucrecia (forename), OED convey 2, 1567q
OCHESANTAN Iran, 33° 40', 50° 24'
CHESTING OED chest
KERIANGO Angola, -10° 35', 15° 20'
ERYANGOU China, 32° 38', 110° 42'
RAMBUCHE Ecuador, -0° 14', -80° 20'
AVOUCHE OED
MOLCHEPA Russia, 43° 59', 40° 08'
BUCKERAM OED buckram
UCHEWARI Uchewari Bhit, Pakistan, 26° 34', 69° 04'
CHERAFIT Greinet Cherafit, Mauritania, 15° 40', -6° 4'
HEPARINS OED heparin, plural in OSPD
EDAMITSU Japan, 33° 52', 130° 49'
LANDOME Nassau co., SE N.Y.
LJUTOMER OED Lutomer
AUDIVERT Paraguay, -20° 0', -58° 21'
N'TIFERCH Asif n'Tiferch, Morocco, 29° 50', -7° 53'
DOVETAIL OED
OMERANLI Turkey, 39° 20', 37° 49'
MERCILON Mercilon - oral contraceptive, see www.organon.com/products/contraception
ERTHILING possibly in Web2, = erth (OED, = earth) + ling

9. MMMMMMM (Washington Post, 22 Dec 1978, c4/1 “Mmmmmmmmm” at Travolta’s hunky nearness”): 5 found.
FIBROSUM Dorland
ISLAREMO Isla Remo, Chile, -47° 59', -73° 53'
BLEDSMIR Bled Smir, Algeria, 35° 10', 0° 2'
RADOMILE Bosnia and Herzegovina, 44° 25', 16° 55'
ORSMILEN Sweden, 61° 38', 16° 04'
SEMILON Web2
UMILENKA Russia, 54° 22', 35° 6'
MORENGAI Morengai Farm, Kenya, 0° 3', 37° 8'

PORICH'AM Porich'am, North Korea, 40° 27', 126° 19'
ORICHUMA Venezuela, 7° 6', -70° 39'
RIOLUMBE Rio Lumbe, Mozambique, -18° 10', 35° 44'
I-CLUMBEN i-clumen, OED
CHUMPING OED chump vb
HUMBIRDS OED hum-bird, or humbird’s in 1634q
AMBENDRO Madagascar, -20° 53', 43° 54'
MAENGSOLO Maengsol-li, South Korea, 34° 8', 126° 38'

BORIKHAM Laos, 18° 33', 103° 43'; or TORIKHAM, Torikham, Pakistan, 35° 54', 71° 33'
ORICHUMA Venezuela, 7° 6', -70° 39'
RIOLUMBE Rio Lumbe, Mozambique, -18° 10', 35° 44'
I-CLUMBEN i-clumen, OED
KHUMZING Burma, 23° 1', 93° 47'
HUMBIRDS OED hum-bird, or humbird’s in 1634q
AMBENDRO Madagascar, -20° 53', 43° 54'
MAENGSOLO Maengsol-li, South Korea, 34° 8', 126° 38'

10. OOOOOOOO (Bluebottle, in The Goon Show): 11 found.
MULHEICO Montes Mulheico, Mozambique, -14° 23', 38° 4'
UTAIN-GOL Utain-gol, Mongolia, 46° 23', 99° 21'
LANDFORM solid in Chambers and OED variant
HIDEOUTS Chambers hideout
ENFORMYT OED inform 5a, 1400q
IGOUMANE Morocco, 31° 15', -9° 25'
CORTYNEO OED curtain, 1340q
OLMSTEDI Etheostoma olmstedi williamsi, ITISa
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:

- GOBSMACK OED
- HOME SICK OED
- ZETLISCH Hohen Zetlisch, Czech Republic, 49° 50', 12° 46'
- MODRICKA Modricka Reka, Yugoslavia, 43° 31', 21° 20'
- NYASKOCH Mys Nyaskoch, Russia, 51° 44', 87° 32'
- MISTRUCK Mistruck, Honduras, 15° 14', -83° 53'
- NEBLISCH Neblisch, Poland, 53° 51', 21° 11'
- HOGSBACK hogs-back, OED hogback 2a 1973q
- TOMSHACK personal name, US Census
- TOMBRACK 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:

- IZUTACHO Izutacho, Japan, 35° 28', 139° 39'
- OTARUSHI Otaru-shi, Japan, 43° 11', 141° 1'
- ISTANGOL Istan gol, Pakistan, 35° 57', 71° 47'
- KINGSWAY Kingsway, an important road and Underground station, London, WC2
- OTEMACHI Otemachi, Japan, 36° 4', 136° 13'
- UCHINDOL Uchin Dol, Bulgaria, 43° 20', 24° 36'
- KINGSEAT Kingseat, Fife, Scotland
- ACHINDOW Ach’indow, Ethiopia, 14° 19', 38° 15'
- ARETUCHARI Aretuchir, Mexico, 28° 7', -107° 36'
- IMURACHO Imuracho, Japan, 34° 44', 137° 26'
- ICHANSUL Ichansul, Guatemala, 14° 13', -90° 25'
- OCHINGUE 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.

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