HETEROGRAMS AND THEIR ALPHOMES

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For the benefit of new readers, allow me to explain the terms heterogram and alphome. Heterogram is my preferred term for isogram, a word such as AMBIDEXTROUS in which no letter is repeated. In "Alphomes" in the November 1995 Word Ways, I defined an alphome as follows: a set of alphabetically-ordered letters of which at least one arrangement is a word. Thus the alphome ABINIR makes the word BRAIN.

Heterograms can be classified according to the alphabetical content of their alphomes:

1. Those whose alphomes are made exclusively of alphabetically-isolated letters. The alphome of CARPET can be written A+C+E+P+R+T.
2. Those whose alphomes consist of both alphabetically-isolated letters and alphabetically-consecutive letter groups. MOCKED = CDE+K+M+O.
3. Those whose alphomes consist of two or more alphabetically-consecutive letter groups and no isolated letters. MOUTHING = GHI+MNO+TU.
4. Those whose alphomes consist of a single group of alphabetically-consecutive letters. BACED = ABCDE, STRUV = RSTUV.

In the August 1983 Kickshaws, Eugene Ulrich called words of type 1 non-vicinals and words of type 3 and 4, vicinals. (In fact, his definition also applied to words having repeated letters, like POSTS = OP+ST.)

It is type 3 words with which we are currently concerned. The headings to each list in the following pages indicate (a) the number of alphabetically-consecutive letter groups in the alphome and (b) the size of the letter groups in ascending order irrespective of the order in which they occur in the alphome. Thus SCORNED, whose alphome CDE+NO+RS consists of groups of 3, 2 and 2 letters respectively, appears under the heading 2+2+3. A few phrases are included. Pluralised place names indicate that more than one place of that particular name was found.

2+2

ab+dc ABED bc+no BONC de+st TEDS gh+no HONG ij+no JOIN no+uv VOUN
ab+ef BEAF cd+hi CHID de+tu DUET gh+op POGH ij+st JIST no+xy ONYX
ab+hi BAHI cd+no COND de+uv DUVE gh+tu THUG jk+no JONK no+yz NOYZ
ab+iij BIJA cd+tu DUCT de+yz YZED gh+uv VUGH kl+no LONK op+rs ROSP
ab+kl BALK de+gh DEGH ef+hi HEIF hi+mn MINH kl+op POLK op+st POST
ab+lm LAMB de+hi HIDE ef+kl KELF hi+no INOH kl+tu TULK op+tu POUT
ab+no OBAN de+kl KELD ef+lm FLEM hi+op IPOH lm+op PLOM op+xy POXY
ab+rs BARS de+lm MELD ef+no FONE hi+rs SHIR lm+tu MULT op+yz ZOPY
ab+st STAB de+mn MEND ef+rs SERF hi+st THIS mn+tu MUNT st+xy XYST
ab+tu TUBA de+no NODE ef+st FEST hi+tu HUIT no+rs NORS tu+xy TUYX
ab+yz BAYZ de+op DOPE ef+tu FUTE ij+lm MIJL no+st TONS
bc+hi BICH de+rs REDS fg+no FONG ij+mn MIJN no+tu UNTO

2+3

abc+hi CHIBA cde+op COPED de+tuv DUVET ijk+rs JIRKS nop+st PONTS
abc+kl BLACK cde+rs SCRED efg+lm FLEGM ijk+st KJTS nop+tu UNPOT
abc+lm CLAMB cde+tu EDUC efg+no FONGE ijk+rst JIRTS no+rst SNORT
abc+no BACON cd+stu DUCTS efg+rs GREFS klm+op KLOMP no+stu SNOUT
abc+op BACOP def+no FEOND ef+rst FRESTS kl+nop PLONK no+uvw UNVOW
abc+rs CRABS def+rst DERFS ef+stu FUSTE kl+stu TULKS no+rxy XOWYN
abc+ghi BIGHA def+tu FUTED ghi+no HONGI lm+stu SMULT op+rst SPORT
abc+hi HAJIB cd+ghi DIGHE ghi+rs SHRIG mno+rs MORN nop+st SPOUT
abc+mno AMBON de+iik JIKED ghi+st SIGHT mno+rst MONTS st+xyz ZYXST
abc+rst BRATS de+mno DEMON gh+stu THUGS mno+tu MOUNT
abc+tu TUBAS de+nop PEDON hi+qrs QIRSH mno+uv NOVUM
cd+hi CHIDE de+rst STRED hi+rst HIRST mn+stu MUNTS
cd+no CONED de+stu DUETS hi+stu SUITH nop+rts SPORN

2+4

abcd+tu ABDUCT cdef+no CONFED de+stuv DUVETS fg+rstu GROFTS lmn+tu MULTON
ab+lmno BLAMON cd+lmno DOLMEN efg+st FEGHTS gh+rstu GURTHS no+rstu UNSORT
ab+rst ARBUST de+mnop DOMPNE ef+rst FUSTER hi+rstu TRUISH op+rstu STUPOR
bcde+hi BICHED de+rstu RUDEST fghi+st FIGHTS ij+rstu JURIST

2+5

abc+kl BLACKED abcd+st CAT-BEDS abcdef+no BACON-FED
abc+lm CLAMBED de+rstuv STURVED
abc+no BEAN-COD ef+klmno MENFOLK
abc+rs SCABERD

2+6

3+3

abc+rst BRACTS def+stu DEFUST ghi+rst RIGHTS
abc+stu SUBACT efg+mno FOGMEN hij+rst THRILS
cd+ghi CHIGED efg+rst GREFTS hij+stu JUTISH
cd+mno COMEND fgh+stu FUGHTS klm+stu KLUMST
cd+nop PONCED ghi+mno HOMING mno+stu MOUNTS
cd+stu EDUCTS ghi+nop HOPING nop+stu UNSPOT

3+4

abcd+stu ABDUCTS
abc+rst CRABUTS
cde+mnop COMPEND
cde+rst CRUDEST

3+6

abcd+kl BLACKED abcd+st CAT-BEDS abcdef+no BACON-FED
3+5

abc+de+hi  HABIDE  STUBACTED  cde+klmno  NECKMOLD
abc+klmno  BLOCKMAN  efghij+rst  FIGHTERS

4+4
cdef+rstu  DEFRACTS  mnop+rstu  NO TRUMPS

2+2+2

ab+de+hi  HABIDE  ab+ij+rs  BAJRIS  de+hi+st  DEHIST  ef+no+st  SOFTEN
ab+de+kl  BALKED  ab+lm+op  APLOMB  de+ij+no  JOINED  ef+no+tu  FOUNTE
ab+de+lm  AMBLED  ab+mn+tu  NUBMAT  de+kl+op  POLKED  ef+op+rs  FOSPER
ab+de+mn  BEDAMN  ab+no+rs  BARONS  de+mn+op  PENDOM  gh+no+st  THONGS
ab+de+rs  BEARDS  ab+no+st  BATONS  de+no+rs  DRONES  gh+no+tu  NOUGHT
ab+de+st  BASTED  ab+no+tu  UNBOAT  de+no+st  OSTEND  gh+op+yz  PHYZOG
ab+de+tu  TABUED  ab+op+rs  ABSORP  de+no+tu  DEUTON  hi+kl+st  KILIST
ab+ef+lm  FLAMBE  ab+op+xy  PAYBOX  de+no+tu  VOUNDE  hi+no+rs  RHINOS
ab+ef+rs  FABERS  bc+hi+op  PHOBIC  de+no+yz  DOZYNE  hi+no+st  SHINTO
ab+ef+st  BEFAST  cd+hi+op  PHOCID  de+op+rs  PROSED  hi+no+tu  INOUTH
ab+gh+no  BONAGH  cd+hi+st  DICHTS  de+op+st  DESPOT  hi+op+rs  ROPISH
ab+gh+tu  HAGBUT  cd+no+tu  CONDUT  de+op+tu  POUTED  hi+op+st  PITHOS
ab+hi+kl  KIBLAF  de+gh+no  HODGEN  de+op+uv  UPDOVE  ij+no+st  JOINTS
ab+hi+op  PHOBIA  de+gh+op  DOG-HEP  ef+hi+rs  FISHER  kl+no+yz  ZYKLON
ab+hi+rs  BARISH  de+hi+lm  MILEDH  ef+hi+st  FETISH  no+st+xy  XYSTON
ab+hi+st  HABITS  de+hi+no  HONIED  ef+kl+rs  FLERKKS  no+st+xy  FREONS
ab+ij+mn  JIBMAN  de+hi+rs  DISHER  ef+no+rs  FREONS

2+2+3

abc+ef+rs  BESCARF  ab+ij+tuv  JUVABIT  def+hi+rs  RED-FISH  de+op+stu  SPOUTED
abc+hi+op  PHOBIAC  ab+lm+stu  ALMS-TUB  def+hi+st  SHIFTED  de+rst+yz  DYZERTS
abc+hi+st  BICHATS  ab+mn+stu  NUMBAT  def+ij+rs  DRIJFFS  ef+hi+rst  SHIFTER
abc+ij+no  JACOBIN  ab+no+rst  BARTONS  def+no+st  FONSEST  ef+lm+stu  MESTFUL
abc+kl+no  NABLOCK  ab+no+stu  OUTBANS  de+ghi+st  SIGHTED  ef+mno+rs  ENFORMS
abc+kl+tu  BLU-TACK  ab+op+rst  BARPOST  de+ghi+tu  DUGHTE  ef+mno+st  FOMENTS
abc+no+rs  CARBONS  bc+no+stu  COBNUTS  de+hi+nop  DIPOHE  ef+op+rst  FORPETS
abc+def+st  BEDFAST  cd+hi+lm  MILCHED  de+hi+rst  DITHER  gh+kl+no  HOLKING
abc+de+ghi  BIGHEAD  cd+hi+no  HEDONIC  de+ij+kst  JETSKID  gh+mn+tu  THINGUM
abc+de+hij  JIB-HEAD  cd+hi+rs  HERDICS  de+tk+no  DJENKOL  ghhi+no+rs  HORSING
abc+de+mno  ABDOMEN  cd+hi+st  DITCHES  de+kl+nop  PLONEKD  gh+hi+no+st  HOSTING
abc+de+rst  BRASTED  cd+hi+tu  DUCHTIE  de+mno+rs  MODERNS  gh+hi+no+tu  THOuing
abc+de+stu  SUBDATE  cd+ij+st  DISJECT  de+mno+st  ENDMOST  gh+hi+op+rs  GRISHOP
abc+ef+mn  FENOBAM  cd+kl+no  CLONKEO  de+mno+tu  MOUNTED  gh+hi+op+tu  HIP-GOUT
abc+de+mnop  BEN DOPA  cd+kl+tu  DUCKLET  de+mno+uv  UNMOVED  gh+rs+yz  ZIGHYRS
abc+ef+st  GABFEST  cd+lm+op  CLOMPED  de+mnu+stu  DUSTMEN  gh+no+rst  THONGS
abc+ef+rst  BERAFTS  cd+lm+tu  MULCITED  de+nop+rs  RESPOND  gh+no+stu  NOUGHTS
abc+ghi+nm  BINGHAM  cd+no+rs  SCORNED  de+no+rst  RODENTS  hi+nop+st  NIPSHOT
abc+ghi+rs  GARBISH  cd+no+st  DOCENTS  de+no+stu  SNOTED  hi+no+stu  UNHOIST
abc+ghi+rst  BAIGHTS  cd+no+st  COUNTED  de+no+tuv  UNVOTED  hi+op+stu  POUTISH
abc+ghi+stu  HAGBUTS  cd+rs+uv  SCURVED  de+no+tuv  UNVOVED  mno+st+yz  MYZONTS
abc+hi+stu  BHUTIAS  cd+no+stu  CONDUTS  de+op+rst  SPORTED
abcd+hi+rs  DIBRACHS  cd+op+rstu  PRODUCTS  ef+op+rstu  POUFTERS
abcd+kl+no  BOCK-LAND  de+hi+mnop  DOMPHEN  ef+no+rstu  FORTUNES
ab+de+lmno  LEMON-DAB  de+lmno+tu  MOUNDEL T  fghi+lm+tu  MIGHTFUL
ab+de+rstu  ABSTRUDE  de+no+rstu  ROUNDEST  fghi+no+tu  INFOUGHT
ab+lmno+st  LAMBTONS  de+no+stuv  UNSTOVED  fghi+op+rs  HIP-FROGS
ab+no+rstu  TABROUNS  de+op+rstu  SPROUTED  fghi+op+st  GIFT-SHOP
bc+no+rstu  SCRAMBLED  ef+lmno+st  LOFTSMEN  hi+lmno+st  SHILMONT
cdef+no+tu  CONFUTED  ef+lm+rstu  FULMERTS  hi+op+rstu  PHOTURIS

abcd+hi+rs  BED-CHAIRS  abcde+no+rs  ABSONDER  efgi+no+st  NIGHT-FOES
abcd+kl+tu  DUCK TABLE  abcde+no+tu  DOUBTANCE  efgi+no+tu  NIGHT-FOES
abcd+lm+rs  SCRAMBLED  def+lmnop+st  POND SMELT

cdefghi+kl+st  FLIGHTDECKS

abc+op+rst  CRAB-POTS  cde+ij+stu  JUSTICED  ef+nop+rst  FORSPENT
ab+ghi+lmn  HAMBLING  def+hi+rst  RED-SHIFT  ghi+mnop+tu  MOUTHING
ab+ghi+rst  BAR SIGHT  def+nop+rs  FORSPEND  ghi+mn+st  THINGUMS
ab+nop+rst  PROBANTS  de+ghi+rst  DRIGHTES  ghi+no+rst  SHORTING
cd+hi+rst  DITCHERS  de+hij+mnno  DEMJOHN  ghi+no+stu  SHOUTING
cd+kl+stu  DUCKLETS  de+mnno+rst  MORDENTS  ghi+op+rst  OPRIGHTS
cd+mn+stu  DOCUMENT  de+mnop+rst  UNMODEST  gh+mn+stu  NUGHTSOM
cd+no+rst  CONSTRED  de+mnop+rst  PORTENDS  hi+nop+rst  HORN-TIPS

cde+no+stu  CTENODUS  ef+mnop+rst  FORSMENT

abcd+ijkl+rs  JACK-BIRDS  cde+ijkl+no  DJENKOLIC  de+mnop+rstu  UNDERMOST
abc+no+rstu  OBSCURANT  cde+mnop+rs  COMPRENDS  de+nop+rstu  UNSPORTED
ab+mnop+rst  BRAMPTONS  cde+no+rstu  CONSTRUED  efgi+no+rstu  UNFORGETS
ab+mnop+rst  UMBROSANT  cde+op+rstu  PRODUCET  fghi+no+rst  FROTHINGS
ab+nop+rstu  SUBPATRON  def+no+rstu  UNFROSTED  fghi+op+rst  PROFIGHTS
bcd+hi+rst  DITCH-BURS  de+lmno+stu  MOUNDEL T  ghi+mnop+rs  MORPHINGS

cde+hi+rst  DISCURETH  de+mnop+stu  EMPOUNDEST

abcd+hi+rst  BREAD-STICH  abcde+no+rstu  DOUBTANCES  efgi+mnop+rs  FISHMONGER
abcd+kl+stu  DUCK TABLES  ab+efghi+rst  BEAR-FIGHTS  efgi+no+rst  FORENIGHTS
abcd+mnop+stu  UNCOMBATED  de+lmnop+stu  PLUMSTONED  efgi+no+stu  TONGUE-FISH

2+3+6
defghi+mnop+rs  HEMINGFORDS

(Hemingford Abbots and Hemingford Grey are two villages in Cambridgeshire, England)
<table>
<thead>
<tr>
<th>2+4+4</th>
<th>2+4+5</th>
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<tbody>
<tr>
<td>ab+lmno+rstu</td>
<td>MULBARTON'S</td>
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<tr>
<td>bcd+no+rstu</td>
<td>CURBSTONED</td>
</tr>
<tr>
<td>bc+fghi+rstu</td>
<td>FITCHBURGS</td>
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<tr>
<td>fghi+no+rstu</td>
<td>FOUR THINGS</td>
</tr>
<tr>
<td>abcd+hi+rstu</td>
<td>SCHUBERTIAD</td>
</tr>
<tr>
<td>abcde+no+rstu</td>
<td>CRAB-SNOUTED</td>
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<table>
<thead>
<tr>
<th>3+3+3</th>
<th>3+3+4</th>
<th>3+3+5</th>
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<tbody>
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<td>cde+mnop+stu</td>
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<td>cde+nop+stu</td>
<td>CONSPUTED</td>
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<td>ghi+mnop+stu</td>
<td>MOUTHINGS</td>
<td></td>
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<tr>
<td>ghi+nop+rst</td>
<td>HOT SPRING</td>
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<tr>
<td>cde+mnop+stu</td>
<td>PRODUCENTS</td>
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<tr>
<td>cde+nop+rst</td>
<td>CONSUMPTED</td>
<td></td>
</tr>
<tr>
<td>abc+efghi+rst</td>
<td>BRIGHT FACES</td>
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<table>
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<tbody>
<tr>
<td>ab+de+gh+rs</td>
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<td>ab+de+hi+rs</td>
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<td>ab+de+hi+st</td>
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<td>ab+de+kln+no</td>
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<td>ab+de+mn+tu</td>
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<tr>
<td>ab+de+op+rs</td>
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<tr>
<td>ab+de+op+st</td>
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<table>
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</thead>
<tbody>
<tr>
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<tr>
<td>abc+kl+no+xy</td>
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<td>abc+kl+op+st</td>
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<tr>
<td>ab+de+hi+rst</td>
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<tr>
<td>ab+de+hi+rst</td>
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<td>ab+de+mn+st</td>
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<td>ab+de+mn+st</td>
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<td>ab+de+mnop+rs</td>
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<td>ab+de+rop+rs</td>
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<td>ab+de+rop+rs</td>
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<tr>
<td>ab+ef+lm+rs</td>
</tr>
<tr>
<td>ab+ef+hi+rst</td>
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<table>
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<tbody>
<tr>
<td>abc+hi+op+rs</td>
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<tr>
<td>abc+hi+op+rs</td>
</tr>
<tr>
<td>ab+de+mn+stu</td>
</tr>
<tr>
<td>ab+ghij+no+rs</td>
</tr>
<tr>
<td>ab+ghij+no+rs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2+2+2+5</th>
</tr>
</thead>
<tbody>
<tr>
<td>abcdef+hi+kl+rs</td>
</tr>
</tbody>
</table>
Buried in these lists is a handful of rather special words and these examples are taken from words with five or more letters:

1. In some cases each alphabetically-consecutive group of letters which appears in the alphome also occurs in alphabetical order in the word itself:

<table>
<thead>
<tr>
<th>Word</th>
<th>Alphome</th>
</tr>
</thead>
<tbody>
<tr>
<td>KLOMP</td>
<td>= KLM + OP</td>
</tr>
<tr>
<td>SHINTO</td>
<td>= HI + NO + ST</td>
</tr>
<tr>
<td>ALMS-TUB</td>
<td>= AB + LM + STU</td>
</tr>
</tbody>
</table>
DJENKOL = DE
         J K L
         N O

= DE+JKL+NO

2. In other cases each alphabetically-consecutive group of letters which appears in the alphome appears in reverse alphabetical order:

PLONKED = P ON
         L K
         ED

= DE+KL+NOP

POUTISH = PO
          UT S
          I H

= HI+OP+STU

3. A word may be exactly the same as its alphome in which case it is called an alphomic word. Thus the word HIRST is the same as its alphome HI+RST, whilst DEHIST is the same as its alphome DE+HI+ST.

4. If a word is a reversal of its alphome it is called a reverse alphomic word. Thus POLKED is the reverse of its alphome DE+KL+OP.