

OVERLAPPING WORD SQUARES

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The single word square uses the same words across as down, and several articles about these have appeared in *Word Ways*, usually dealing with the construction of the largest possible square made of respectable English words. This article will examine single word squares that can be made to overlap. The smallest possible word square that can be made to partially overlap with another one is of size 2×2 . There are, in fact, three distinct ways for two such squares to overlap, and examples for each are shown:

The last overlapping square can also be written in a vertical format (place TO underneath AT, and OF underneath TO), but this type of variant, which is the result of changing the orientation of a previous pair without changing the letters, will not be considered a separate variant.

It appears that for an $n \times n$ word square there are n^2 distinct overlapping pairs; but since one of these is trivial (both squares overlapping totally), we will be concerned only with finding the other $n^2 - 1$ solutions.

The 3-square requires 8 solutions, the 4-square, 15, and the 5-square, 24. Examples are given for all of these, employing only words from Webster's Second or Third editions. When there is a great deal of overlap between the two squares of the pair, they become tricky to construct. Pair 5-24, for example, necessitated the discovery of a series of words which are formed by moving the last letter of a word to the beginning, forming thereby a new word, and repeating the process several times. Because of a quirk in the symmetry of pair 5-14, the same two word squares can be used to generate pair 5-16, but since this is not just a trivial rewriting it is allowed.

Cheers to the first finder of the 35 overlapping 6-square pairs!

MAN
ARE
NETOP
OIL
PLY

3-1

SIT
IRE
CATEN
AIR
TRY

3-2

PET
ERA
TARM
ROE
MET

3-3

ASH
SUE
SHEM
HER
ERR

3-4

THEEL
HOEMU
EELUG

3-5

CAP
TARE
APEN
RED

3-6

APE
PART
EREE
TEN

3-7

OARE
AREE
REEL

3-8

NINE
IDEA
NESS
EASTRAP
RILL
ALOE
PLEA

4-1

JOLT
OBOE
LOSE
QUITEEM
UNTO
ITEM
TOME

4-2

SPAR
POLO
ALIT
ROTEAM
ELSE
ASCI
MEIN

4-3

FIVE
ITER
VEIN
BEERNE
ERSE
ESSE
REEK

4-4

GOAT
OKRA
ARIL
TALEF
LIAR
EASE
FRET

4-5

PIKA
IBEX
KEPI
TAXIS
ACER
XEMA
IRAQ

4-6

PARTALL
AREARIA
REELION
TALLANE

4-7

FAIL
APSE
ISLEAD
LEERGO
AGIO
DOOR

4-8

SARI
AREA
CAREAM
ARIAMB
RIBS
EASY

4-9

ALTO
LOOM
TOMER
OMENU
ENDS
RUST

4-10

DATA
ATOP
ATOME
TAPER
OPAL
MELT

4-11

PASTOP
ACTAPE
STOPEN
TAPEND

4-12

STUB
TAPEX
UPONY
BENDS
XYST

4-13

FILE
MICES
ILEAS
CESSE
EASE

4-14

SWAGE
WAGER
AGERM
GERME

4-15

CARET
ARENA
RELAX
ENATE
TAXES
STORM
TEPEE
OPERA
RERUN
MEANT

5-1

PLACE
LILAC
ALAMO
CAMEL
BLARECOLE
LASER
ASTER
REEVE
ERRED

5-2

EXILE
XENON
INGOT
LOOSE
ENTERASE
RIVAL
AVOID
SAITE
ELDER

5-3

QUILT
UNTIE
ITEMS
LIMIT
SLATESTS
LOBES
ABETS
TETRA
ESSAY

5-4

ESTOP
SARNA
TRESS
ONSET
PASTERN
TEPEE
EPACT
RECTO
NETOP

5-5

SPACE
PATER
ATRIA
CELLS
OPERASE
PENAL
ENACT
RACHE
ALTER

5-6

HEXAD
ELEMI
XENON
AMONG
DINGOT
NORTH
GRATE
OTTER
THERE

5-7

FARCE
AGORA
ROVER
CREEL
PEARLY
ENDUE
ADORE
RURIC
LEECH

5-8

WARTS
AWAIT
RANDY
TIDALONG
STYLEGAL
OGIVE
NAVES
GLESS

5-9

UKASE
KNEES
AEONS
BLASENNA
LINESSAY
ANENT
SENSO
ESTOP

5-10

SPORTENET
PUREVADE
ORGANADIR
REAVEDITS
TENETERSE

5-11

GRAPE
REDAN
ADUST
PASTACK
ENTALON
ALONE
CONTE
KNEEL

5-12

ALIST
LENTO
INNER
BASTEPS
ACTORSO
STENO
TONED
ERODE

5-13

SCAPE
COMAS
AMAST
PASTER
ESTERE
TERNE
ERNES
REEST

5-14

COBRA
ORLOP
BLEVE
TROVER
RAPERS
OPERA
VERTS
ERASE

5-15

SCAPE
COMAS
AMASTER
PASTERE
ESTERNE
ERNES
REEST

5-16

OGEEES
GRAVE
AREASES
REEVENT
EESESTI
AVERS
SESSA

5-17

SPATEASE
PALERRED
ALTARERE
TEASERUM
ERREDEMA

5-18

MUSCA
UNTAR
STARES
CARENA
ARENAL
ENACT
SALTY

5-19

JAINA
AURAL
SIRENE
INANES
RALESS
ENEWE
NESES

5-20

CARIBES
ALINERT
RIBESTE
INERTHE
BESTEEL

5-21

BASER
ALINER
SIRENE
ENEWEL
RENEW
RELET

5-22

HIREN
SIRENE
IRENEW
RENEW
ENEWEL
NEWER

5-23

SIRENE
IRENEW
RENEW
ENEWER
NEWERY

5-24

Note that all squares other than the diagonally-overlapping ones (5-1, 5-2, 5-9, 5-10, 5-16, 5-17, 5-22, 5-23) can be turned over and rotated 90 degrees to form new overlapping patterns; for example, (5-14) turns into the pair of squares diagrammed at the left. Transformations of this type generate all the apparently-missing overlaps in the diagrams presented above.

SCAPE
COMASTER
AMASTER
PASTERNE
ESTERNES
REEST