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 2x2. 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 nxn 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!

3-1

3-2

3-3

3-4

3-5

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3-7

3-8

4-1

4-2

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4-5

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4-11

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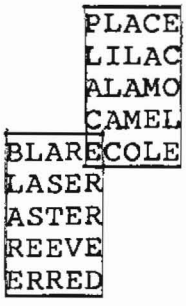
4-15

5-1



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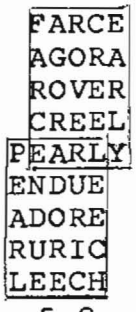
5-7



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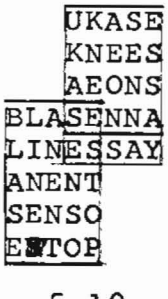

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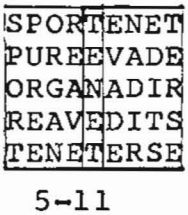


5-11

5-12

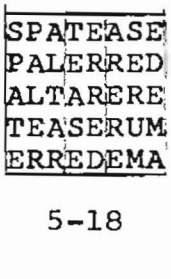
5-13

5-14

5-15

5-16

5-17



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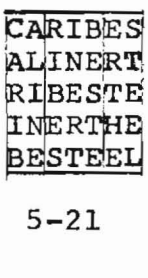
5-20



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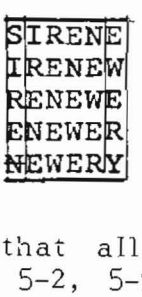
5-22

5-23



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.