If one selects eight different letters from the alphabet, they can be arranged in $8! = 40320$ different ways. If one allows any subset of letters from 1 through 8 to be chosen, the number of arrangements increases to $8! + (8\cdot7!)/2 + \cdots + 8 = 109600$. Obviously, no more than a tiny fraction of these arrangements is likely to form words, and choosing a set of eight letters and seeking to verify as many as possible as real words would be a lifetime's work.

However, there are only $2^8 - 1 = 255$ different ways in which subsets of 1 to 8 letters can be chosen if the arrangement of the letters within the subset is immaterial. For this article, I chose letters forming the word NEUSTRIA, with four consonants and four vowels. What is NEUSTRIA? It is the name of the western part of the dominions of the Franks after a conquest in 511 AD, comprising then the north-western part of modern France between the Meuse and Loire rivers and the Atlantic Ocean.

Webster's Third does not give NEUSTRIA as a main entry, referring to it only in the definition and etymology of the related adjective and noun NEUSTRIAN. Webster's Second includes NEUSTRIA in its Gazetteer section and in the definition of NEUSTRIAN in the main part of the dictionary. Both the Random House Dictionary and Funk & Wagnalls New Standard Dictionary include both NEUSTRIA and NEUSTRIAN. The Oxford English Dictionary contains neither NEUSTRIA nor NEUSTRIAN, but the H-N section of the Supplement does give NEUSTRIAN, with NEUSTRIA given in the definition and illustrative quotations.

In the lists given below, I have chosen as many words as possible from Webster's Second or Third editions; items from other dictionaries (as well as items from the Second or Third which are out-of-the-ordinary) are numbered and given explanatory footnotes at the end of the article. The lower-case letters are the letter combinations arranged in alphabetical order, and the upper-case letters are words or names that can be created from the combinations concerned.

Since dictionaries tend to list all 26 letters as words in their own right, it is not necessary to show the one-letter word list explicitly. One should also note that Webster's Third specifically lists the corresponding plural forms created by the simple addition of an -S to each alphabetic letter.
they can be subset of let-
ners in-
iously, no form words, many as pos-
which subsets ers within forming the hat is NEUS-
of the
th-western and the At-
y, referring
tive and noun Gazetteer sec-
the dictionary. "Standard
oxford Eng-", but the H-N
STRIA given
possible
dictionaries t-the-ordi-
end of the arranged in names that
their own elplicity.
the corres-
to each alpha-

ae AE at AT es ES is IS nt N'T st TS
ai AI au AU 1 et TE it IT lu IU 2 rs RS tu UT
an AN ei IE eu EU in IN ni RN 3 rt 'RT
ar AR en EN ir RI inns NS ru UR
as AS er ER ir RI esu SUE itu TUI

aei AIE ans SAN eis IES esu SUE itu TUI
aen EAN ant TAN eit TIE etu UTE nrs nrs
acer AWE anu ANU ei u IUE 5 inr RIN nrt nrt
aes EAS arcs ARS ern ERN ins SIN nu RUN nst nst
aet EAT art RAT enu ENS int TIN
aeru EAU aru ARU ent TEN inu UNI
ain AIN ast SAT enu UNE irs SIR
air AIR asu AUS ers ERS int TRI
aeru AIS atu TAU eit RET iru URI
ait AIT ein NIE eru RUE ist SIT
ui ULA 4 eir IRE est SET isu IUS
anr RAN
ein AINE 6 aimu AI NU eimu SINE ertu TRUE
aer EIRE airm AIRS eimu NIE 8 estu SUET
aes SAIL airt AIRT eim SIRE inrs RINS
aet ITEA airm ARUI eim TIRE inrt TRIN
aeru UNE arnt RANT enu ETUL
aers SEAR anru RAUN enrs ENS
aeru TEAR anst TANS enrt RENT
aeru UREA anru ANUS enst SENT
aest SEAT aru TUNA ensu SUNE
aesu ESAU arst STAR enst TUNE
aet AUTE arsu SURA
ain RAIN artu RUTA
ains NAIS astu SAUT
eint ANTI einr REIN
einr REINA aenst ANTES
aer EINS ANISE
aer ENTIA
aen UENAI 12 aenst STAR
aer RASSE
aer IATE
aeru URAEI
aer SACKET
aeru URENA
easu
aeru SNARE
aernt ANTRIE
aenru URENA

out

they can be subset of letters in-

which subsets

no

possible

dictionaries
the ord-
end of the

their own

to each alpha-

aes
aein
aeir
aes
aer
aenr
aen
aenru
Of course, at the eight-letter level, there is only one combination of the letters, AEINRSTU itself. NEUSTRIA or any transposal of it is sufficient to 'solve' this group of letters. However, in a display of virtuosity, I offer 16 alternatives to NEUSTRIA, all genuine transposals of AEINRSTU. I offer them mainly because there are very few eight-letter groups which have so many genuine transposals.

**ARETINUS** an Italian historian and philosopher (A Dictionary of Universal Biography, by Albert Hyamson)

**ASTURINE** a bird of the group Asturinae, a group of raptorial birds, variously ranked and limited, but always including the goshawks (FW)

**AURIENTS** the plural of AURIENT, an obsolete spelling of 'orient' (OED)

**AUSTRINE** an obsolete word meaning southerly (W2)

**INSTITUTE** an obsolete spelling of 'instore', to renew to furnish, to establish (W2)

**ITUREANS** natives or inhabitants of Iturea, an Arab kingdom in ancient Palestine south of Damascus (W3)

**NATURISE** the -ise spelling of 'naturize', to endow with a specific nature; the -ize spelling is in (W2), but the -ise spelling is not specifically listed in any dictionary

**NEUTRIAS** corpus (W2)

**RUINATES** reduces to poverty or wretchedness (W3)

**SAUTRIEN** an obsolete word meaning to play on the psaltery, a type of ancient zither (W2)

**TAURINES** examples of a crystalline compound that occurs in the muscles of invertebrates (W3)

**TURSENIA** a genus of plants (A Dictionary of the Flowering Plants and Ferns, by J.C. Willis, 7th edition)

**UNSATIRE** an undefined word, presumably meaning to remove the satirical nature from something (W2)

**URANITES** various minerals, including lime uranite and copper uranite (OED)
URINATES discharges urine (W3)

So, 247 of the 255 letter combinations are represented above. The 8 missing groups are: NRS, NRT, NST, RST, AEIU, NRST, AEISU and AEITU. Can anyone find words for any of these groups?

As the letters of NEUSTRIA seemed so extremely transposable, in part and in total, I wondered how well the letters would combine with the 26 letters of the alphabet. Would it be possible to take each of the 26 letters, add it to NEUSTRIA, and rearrange the nine letters to create a genuine nine-letter word or name? The list below shows that successful transaddition (that is, transposal after addition) is possible in 20 out of the 26 cases. Can anyone find transadditions for the missing cases?

Finally, I investigated the substitute letter transposal possibilities of NEUSTRIA. In other words, if each of the letters of NEUSTRIA is replaced by each of the other 25 letters of the alphabet in turn, can real words or names be found for each of the 8x25 cases? For example, replacing the A with a B allows TURBINES to be made; replacing the A with a C allows NUTRICES to be made; and replacing the A with a D allows INTRUDES to be made. After substituting all 25 letters for A, the same strategy can be repeated by replacing the E, then the I, and so on. My list gives 129 of the 200 possibilities (or 137 of the 208 possibilities, if you count the 8 times which I have included NEUSTRIA itself). Can anyone plug my gaps and perhaps increase the total to 150 or more?
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>RIUE</td>
<td>an obsolete form of 'rife' and 'rive' (OED)</td>
</tr>
<tr>
<td>10</td>
<td>SIUE</td>
<td>an obsolete form of 'sieve' (OED)</td>
</tr>
<tr>
<td>11</td>
<td>URIS</td>
<td>an obsolete form of 'ours' (OED)</td>
</tr>
<tr>
<td>12</td>
<td>UENAI</td>
<td>a town in Japan (Times Index Gazetteer)</td>
</tr>
<tr>
<td>13</td>
<td>RIUES</td>
<td>plural of RIUE, an obsolete form of 'rive'; RIUES appears in an illustrative quotation dated 1533-4 at the second noun 'rive' in (OED)</td>
</tr>
<tr>
<td>14</td>
<td>UNEAIS</td>
<td>an obsolete form of 'uneaths' (OED)</td>
</tr>
<tr>
<td>15</td>
<td>SAU'RIE</td>
<td>an obsolete form of 'savoury' (OED)</td>
</tr>
<tr>
<td>16</td>
<td>IURATE</td>
<td>an obsolete form of 'jurat' (OED)</td>
</tr>
<tr>
<td>17</td>
<td>SATIUE</td>
<td>an obsolete form of 'sative' appearing only in a 1599 quotation in (OED)</td>
</tr>
<tr>
<td>18</td>
<td>UNFAIREST</td>
<td>the assumed superlative of UNFAIR in (W3); the superlative is shown in full in The Official Scrabble Players Dictionary, published by Merriam-Webster</td>
</tr>
<tr>
<td>19</td>
<td>EROTIANUS</td>
<td>an author (A Dictionary of Universal Biography, by Albert Hyamson)</td>
</tr>
<tr>
<td>20</td>
<td>VAUT-RIENS</td>
<td>plural of VAUT-RIEN, another form of VAURIEN (OED)</td>
</tr>
<tr>
<td>21</td>
<td>UNWARIEST</td>
<td>the assumed superlative of UNWARY in (W3); the superlative is shown in full in The Official Scrabble Players Dictionary</td>
</tr>
<tr>
<td>22</td>
<td>SIGNETUR</td>
<td>let it be written, in Latin (Random House Dictionary)</td>
</tr>
<tr>
<td>23</td>
<td>VAUTRIN'S</td>
<td>the possessive form of a proper name from (W2)</td>
</tr>
<tr>
<td>24</td>
<td>UNIWRAST</td>
<td>a Middle English form of 'unwrast', shown only at the entry UN- on page 28, column 3, of (OED)</td>
</tr>
<tr>
<td>25</td>
<td>UNFASTER</td>
<td>the assumed comparative form of 'unfast', in (W2)</td>
</tr>
<tr>
<td>26</td>
<td>SATUREIE</td>
<td>the plant savory (OED)</td>
</tr>
<tr>
<td>27</td>
<td>STRIEGAU</td>
<td>a town in Lower Silesia, Prussia (Funk &amp; Wagnalls New Standard Dictionary)</td>
</tr>
<tr>
<td>28</td>
<td>ARTIOUES</td>
<td>plural of ARTIOUE, an obsolete form of 'arctic' (OED)</td>
</tr>
<tr>
<td>29</td>
<td>HAUTEINS</td>
<td>plural of HAUTEIN, an obsolete form of 'hautain' (OED)</td>
</tr>
<tr>
<td>30</td>
<td>MINUATES</td>
<td>diminishes (OED)</td>
</tr>
<tr>
<td>31</td>
<td>SAUNTITE</td>
<td>an obsolete form of 'sanctity' (OED)</td>
</tr>
<tr>
<td>32</td>
<td>VAUNTISE</td>
<td>a boast (OED)</td>
</tr>
<tr>
<td>33</td>
<td>WAUNTYES</td>
<td>plural of WAUNTY, an obsolete form of 'wanty' (OED)</td>
</tr>
<tr>
<td>34</td>
<td>TOURNAINE</td>
<td>a former province of western France (Random House Dictionary)</td>
</tr>
<tr>
<td>35</td>
<td>UNEASIER</td>
<td>the assumed comparative form of UNEASY, which is in (W3); the comparative is actually shown in the Random House Dictionary</td>
</tr>
<tr>
<td>36</td>
<td>KAUKERSIN</td>
<td>a variant form of 'caorsin' (OED)</td>
</tr>
<tr>
<td>37</td>
<td>UNIWARES</td>
<td>unawares (OED)</td>
</tr>
<tr>
<td>38</td>
<td>WASTRINE</td>
<td>an obsolete form of 'western' (OED)</td>
</tr>
</tbody>
</table>