

| Number of required components to represent each combination |    |     |     |    |    |    |    |    |    |    |    |    |    |    |
|---|----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|
|   | 0  | 1   | 2   | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |
| 0   | 18 | 77  | 58  | 36 | 33 | 40 | 38 | 43 | 39 | 41 | 43 | 45 | 44 | 38 |
| 1   | 77 | 77  | 102 | 87 | 87 | 91 | 90 | 93 | 90 | 92 | 90 | 94 | 94 | 89 |
| 2   | 58 | 102 | 44  | 60 | 57 | 62 | 61 | 64 | 62 | 63 | 65 | 67 | 66 | 60 |
| 3   | 36 | 87  | 60  | 22 | 36 | 44 | 42 | 45 | 43 | 44 | 46 | 47 | 46 | 40 |
| 4   | 33 | 87  | 57  | 36 | 17 | 38 | 36 | 41 | 38 | 40 | 44 | 44 | 43 | 36 |
| 5   | 40 | 91  | 62  | 44 | 38 | 25 | 42 | 47 | 45 | 46 | 49 | 49 | 49 | 42 |
| 6   | 38 | 90  | 61  | 42 | 36 | 42 | 22 | 45 | 43 | 44 | 47 | 47 | 47 | 40 |
| 7   | 43 | 93  | 64  | 45 | 41 | 47 | 45 | 28 | 42 | 48 | 52 | 52 | 51 | 45 |
| 8   | 39 | 90  | 62  | 43 | 38 | 45 | 43 | 42 | 24 | 45 | 48 | 50 | 48 | 42 |
| 9   | 41 | 92  | 63  | 44 | 40 | 46 | 44 | 48 | 45 | 25 | 50 | 44 | 50 | 42 |
| 10  | 43 | 90  | 65  | 46 | 44 | 49 | 47 | 52 | 48 | 50 | 30 | 54 | 53 | 48 |
| 11  | 45 | 94  | 67  | 47 | 44 | 49 | 47 | 52 | 50 | 44 | 54 | 30 | 54 | 48 |
| 12  | 44 | 94  | 66  | 46 | 43 | 49 | 47 | 51 | 48 | 50 | 53 | 54 | 28 | 46 |
| 13  | 38 | 89  | 60  | 40 | 36 | 42 | 40 | 45 | 42 | 42 | 48 | 48 | 46 | 22 |

| Label |                             |
|-------|-----------------------------|
| 0     | capital-common-countries    |
| 1     | capital-world               |
| 2     | city-in-state               |
| 3     | currency                    |
| 4     | family                      |
| 5     | gram1-adjective-to-adverb   |
| 6     | gram2-opposite              |
| 7     | gram3-comparative           |
| 8     | gram4-superlative           |
| 9     | gram5-present-participle    |
| 10    | gram6-nationality-adjective |
| 11    | gram7-past-tense            |
| 12    | gram8-plural                |
| 13    | gram9-plural-verbs          |

| Color Meaning |                                 |
|---------------|---------------------------------|
|               | Class alone                     |
|               | $Combination = Sum$             |
|               | $0.9Sum < Combination < 1.1Sum$ |
|               | $Combination \leq 0.9Sum$       |
|               | $Combination \geq 1.1Sum$       |