

Problems of the Week – 14

Using up all Scrabble letters

You have a set of n letter tiles, each tile having exactly one letter of the English alphabet. (Each letter may appear multiple times; thus you may have 5 of As, 2 of Bs, 7 of Cs, etc.) You also have a limited vocabulary of m English words. You want to determine whether you can make a collection of English words that use up all of the letter tiles, with each tile appearing exactly once in this collection, and each word coming from your vocabulary of m words. (A word may appear multiple times in your collection.)

Show that this problem is NP-complete.