STAT 542 HW 7 Example Solutions

# Problem 1(a), Chapter 19 Exercises:

> ## str\_subset returns the subset of the elements containing the specified string:

> macbeth %>%

+ str\_subset("^ [A-Z ]+\\.") %>%

+ head(12)

[1] " ASCII." " P.O. Box 2782"

 [3] " FIRST WITCH. When shall we three meet again?" " SECOND WITCH. When the hurlyburly's done,"

 [5] " THIRD WITCH. That will be ere the set of sun." " FIRST WITCH. Where the place?"

 [7] " SECOND WITCH. Upon the heath." " THIRD WITCH. There to meet with Macbeth."

 [9] " FIRST WITCH. I come, Graymalkin." " ALL. Paddock calls. Anon!"

[11] " DUNCAN. What bloody man is that? He can report," " MALCOLM. This is the sergeant" > # The total number of speaking lines:

> macbeth %>%

+ str\_subset("^ [A-Z ]+\\.") %>%

+ length()

[1] 646

We see the total number of speaking lines is 646, but it’s really 644 because the first couple are not really speaking lines.

# Problem 1(b), Chapter 19 Exercises:

Define a "hyphenated word" to be any lowercase letter followed by a hyphen (-) followed by another lowercase letter. Based on the search and list below, there are 71 instances of hyphenated words:

macbeth %>%

 str\_subset("[a-z]-[a-z]")

[1] "Since unlike many other Project Gutenberg-tm etexts, this etext"

 [2] " Confronted him with self-comparisons,"

 [3] " \"Aroint thee, witch!\" the rump-fed ronyon cries."

 [4] " Yet it shall be tempest-toss'd."

 [5] " King, who all-hailed me 'Thane of Cawdor'; by which title,"

 [6] " And fill me from the crown to the toe top-full"

 [7] " Greater than both, by the all-hail hereafter!"

 [8] " The temple-haunting martlet, does approve"

 [9] " Might be the be-all and the end-all -here,"

[10] " To plague the inventor. This even-handed justice"

[11] " Will plead like angels trumpet-tongued against"

[12] " The deep damnation of his taking-off,"

[13] " And pity, like a naked new-born babe"

[14] " But screw your courage to the sticking-place"

[15] " MACBETH. Bring forth men-children only,"

[16] " Proceeding from the heat-oppressed brain?"

[17] " Thus to mine eyes. Now o'er the one half-world"

[18] " Moves like a ghost. Thou sure and firm-set earth,"

[19] " Re-enter Lady Macbeth."

[20] " devil-porter it no further. I had thought to have let in some"

[21] " PORTER. Marry, sir, nose-painting, sleep, and urine. Lechery,"

[22] " Re-enter Macduff."

[23] " Re-enter Macbeth and Lennox, with Ross."

[24] " And let us not be dainty of leave-taking,"

[25] " ROSS. And Duncan's horses-a thing most strange and certain-"

[26] " And bade them speak to him; then prophet-like"

[27] " Re-enter Attendant, with two Murtherers."

[28] " Shoughs, waterrugs, and demi-wolves are clept"

[29] " The shard-borne beetle with his drowsy hums"

[30] " MACBETH. Thou art the best o' the cut-throats! Yet he's good"

[31] " This is the air-drawn dagger which you said"

[32] " Re-enter Ghost."

[33] " MACBETH. Come, we'll to sleep. My strange and self-abuse"

[34] " SECOND WITCH. Thrice and once the hedge-pig whined."

[35] " Days and nights has thirty-one"

[36] " Adder's fork and blind-worm's sting,"

[37] " Like a hell-broth boil and bubble."

[38] " Of the ravin'd salt-sea shark,"

[39] " Finger of birth-strangled babe"

[40] " Ditch-deliver'd by a drab,"

[41] " That I may tell pale-hearted fear it lies,"

[42] " THIRD APPARITION. Be lion-mettled, proud, and take no care"

[43] " Unfix his earth-bound root? Sweet bodements, good!"

[44] " Of Birnam rise, and our high-placed Macbeth"

[45] " Thou other gold-bound brow, is like the first."

[46] " For the blood-bolter'd Banquo smiles upon me,"

[47] " SON. Thou liest, thou shag-ear'd villain!"

[48] " Without leave-taking? I pray you,"

[49] " In my most ill-composed affection such"

[50] " And my more-having would be as a sauce"

[51] " Than summer-seeming lust, and it hath been"

[52] " MALCOLM. But I have none. The king-becoming graces,"

[53] " With an untitled tyrant bloody-scepter'd,"

[54] " From over-credulous haste. But God above"

[55] " Whither indeed, before thy here-approach,"

[56] " Which often, since my here-remain in England,"

[57] " Himself best knows; but strangely-visited people,"

[58] " The general cause? Or is it a fee-grief"

[59] " Did you say all? O hell-kite! All?"

[60] " Now minutely revolts upbraid his faith-breach;"

[61] " The devil damn thee black, thou cream-faced loon!"

[62] " MACBETH. Go prick thy face and over-red thy fear,"

[63] " Thou lily-liver'd boy. What soldiers, patch?"

[64] " Are counselors to fear. What soldiers, whey-face?"

[65] " Curses, not loud but deep, mouth-honor, breath,"

[66] " As she is troubled with thick-coming fancies,"

[67] " To hear a night-shriek, and my fell of hair"

[68] " Re-enter Seyton."

[69] " But bear-like I must fight the course. What's he"

[70] " Re-enter Macduff, with Macbeth's head."

[71] " Of this dead butcher and his fiend-like queen,"

>

# Problem 2(a), Chapter 19 Exercises:

Below are the words in Macbeth that END in “more” or in “less”. There are 19 of them:

> macbeth %>%

+ str\_subset("([a-z]more |[a-z]less )")

 [1] "directors, officers, members and agents harmless from all lia-" " And choke their art. The merciless Macdonwald-"

 [3] " As 'twere a careless trifle." " It is a peerless kinsman. Flourish. Exeunt."

 [5] " Wherever in your sightless substances" " Upon the sightless couriers of the air,"

 [7] " Have pluck'd my nipple from his boneless gums" " In measureless content."

 [9] " MACBETH. One cried, \"God bless us!\" and \"Amen\" the other," " When they did say, \"God bless us!\""

[11] " Thriftless ambition, that wilt ravin up" " And, to that dauntless temper of his mind,"

[13] " Upon my head they placed a fruitless crown" " Have so incensed that I am reckless what"

[15] " In restless ecstasy. Duncan is in his grave;" " Unless the deed go with it. From this moment"

[17] " With my confineless harms." " MACDUFF. Boundless intemperance"

[19] " A stanchless avarice that, were I King,"

>

# Problem 2(b), Chapter 19 Exercises:

Below are the instances of “Exit” or “Exeunt” in Macbeth. There are 58 of these instances.

> macbeth %>%

+ str\_subset("(Exit|Exeunt)")

 [1] " Hover through the fog and filthy air. Exeunt."

 [2] " Exit Sergeant, attended."

 [3] " Exeunt."

 [4] " MACBETH. Till then, enough. Come, friends. Exeunt."

 [5] " Which the eye fears, when it is done, to see. Exit."

 [6] " It is a peerless kinsman. Flourish. Exeunt."

 [7] " He brings great news. Exit Messenger."

 [8] " Leave all the rest to me. Exeunt."

 [9] " By your leave, hostess. Exeunt."

[10] " Exeunt."

[11] " Exeunt Banquo. and Fleance."

[12] " She strike upon the bell. Get thee to bed. Exit Servant."

[13] " That summons thee to heaven, or to hell. Exit."

[14] " For it must seem their guilt. Exit. Knocking within."

[15] " Exeunt."

[16] " For 'tis my limited service. Exit."

[17] " Exeunt Macbeth and Lennox."

[18] " Exeunt all but Malcolm and Donalbain."

[19] " Exeunt."

[20] " Exeunt."

[21] " Farewell. Exit Banquo."

[22] " Exeunt all but Macbeth and an Attendant."

[23] " MACBETH. Bring them before us. Exit Attendant."

[24] " Exit Attendant."

[25] " Exeunt Murtherers."

[26] " If it find heaven, must find it out tonight. Exit."

[27] " SERVANT. Madam, I will. Exit."

[28] " So, prithee, go with me. Exeunt."

[29] " Exeunt."

[30] " Exit Murtherer."

[31] " Shall be the maws of kites. Exit Ghost."

[32] " Unreal mockery, hence! Exit Ghost."

[33] " Exeunt all but Macbeth and Lady Macbeth."

[34] " We are yet but young in deed. Exeunt."

[35] " Sits in a foggy cloud and stays for me. Exit."

[36] " Exeunt."

[37] " Exeunt."

[38] " Come, bring me where they are. Exeunt."

[39] " I take my leave at once. Exit."

[40] " I dare abide no longer. Exit."

[41] " Exit Lady Macduff, crying \"Murther!\""

[42] " Exeunt Murtherers, following her."

[43] " MALCOLM. I thank you, Doctor. Exit Doctor."

[44] " The night is long that never finds the day. Exeunt."

[45] "Exit."

[46] " Exeunt."

[47] " Make we our march towards Birnam. Exeunt marching."

[48] " MACBETH. Take thy face hence. Exit Servant."

[49] " Profit again should hardly draw me here. Exeunt."

[50] " Exeunt Marching."

[51] " SEYTON. It is the cry of women, my good lord. Exit."

[52] " At least we'll die with harness on our back. Exeunt."

[53] " Exeunt."

[54] " Brandish'd by man that's of a woman born. Exit."

[55] " And more I beg not. Exit. Alarums."

[56] " Exeunt. Alarum."

[57] " Exeunt fighting. Alarums."

[58] " Flourish. Exeunt."

# Problem 3, Chapter 19 Exercises:

> x <- c(

+ "popular", "popularity", "popularize", "popularise",

+ "Popular", "Population", "repopulate", "reproduce",

+ "happy family", "happier\tfamily", " happy family", "P6dn"

+ )

> x

 [1] "popular" "popularity" "popularize" "popularise" "Popular" "Population" "repopulate"

 [8] "reproduce" "happy family" "happier\tfamily" " happy family" "P6dn"

>

> str\_subset(x, pattern = "pop") #1

[1] "popular" "popularity" "popularize" "popularise" "repopulate"

# This finds all strings containing the substring “pop” anywhere

> str\_detect(x, pattern = "^pop") #2

 [1] TRUE TRUE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE

# This returns TRUE for any string where “pop” appears at the BEGINNING of the string

> str\_detect(x, pattern = "populari[sz]e") #3

 [1] FALSE FALSE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE

# This returns TRUE for any string containing “popularize” OR the alternate spelling “popularise”

> str\_detect(x, pattern = "pop.\*e") #4

 [1] FALSE FALSE TRUE TRUE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE

# This returns TRUE for any string containing the substring “pop” followed by any sequence of characters, followed by an “e”

> str\_detect(x, pattern = "p[a-z]\*e") #5

 [1] FALSE FALSE TRUE TRUE FALSE FALSE TRUE TRUE FALSE TRUE FALSE FALSE

# This returns TRUE for any string containing “p” followed by a sequence of zero or more lowercase letters, followed by an “e”

> str\_detect(x, pattern = "^[Pp][a-z]+.\*n") #6

 [1] FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE

# This returns TRUE for any string that BEGINS with “P” or “p”, then contains one or more lowercase letters, then zero or more of any character, then “n”

> str\_subset(x, pattern = "^[^Pp]") #7

[1] "repopulate" "reproduce" "happy family" "happier\tfamily" " happy family"

# Finds strings that do NOT begin with “P” or “p”

> str\_detect(x, pattern = "^[A-Za-p]") #8

 [1] TRUE TRUE TRUE TRUE TRUE TRUE FALSE FALSE TRUE TRUE FALSE TRUE

# This returns TRUE for any string that begins with a capital (uppercase) letter followed by a lowercase letter

> str\_detect(x, pattern = "[ ]") #9

 [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE

# This returns TRUE for any string that contains a space in it

> str\_subset(x, pattern = "[\t]") #10

[1] "happier\tfamily"

# This finds any string that has a tab character (\t) in it

> str\_detect(x, pattern = "[ \t]") #11

 [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE TRUE TRUE FALSE

# This returns TRUE for any string that contains a space or a tab character in it

> str\_subset(x, pattern = "^[ ]") #12

[1] " happy family"

# This finds any string that BEGINS with a space

# Problem 10, Chapter 19 Exercises:

Answers may vary, but you should give at least two sentences justifying your opinion about the sentiment/mood of the poem.

EXTRA CREDIT:

Based on a brief formal sentiment analysis after removing stopwords and using the AFINN lexicon, the sentiment is overall negative, with an average sentiment score per word calculated to be –0.889. Note this is based on only 9 words, though!

> emily\_sentiments

── Variable type: numeric

 var n na mean sd p0 p25 p50 p75 p100

1 value 98 89 -0.889 1.69 -2 -2 -2 1 2

>