Taller 9

Métodos Computacionales para Políticas Públicas - URosario

Entrega: viernes 26-abr-2019 11:59 PM

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Instrucciones:

- Guarde una copia de este *Jupyter Notebook* en su computador, idealmente en una carpeta destinada al material del curso.
- Modifique el nombre del archivo del *notebook*, agregando al final un guión inferior y su nombre y apellido, separados estos últimos por otro guión inferior. Por ejemplo, mi *notebook* se llamaría: mcpp_taller9_santiago_matallana
- Marque el *notebook* con su nombre y e-mail en el bloque verde arriba. Reemplace el texto "[Su nombre acá]" con su nombre y apellido. Similar para su e-mail.
- Desarrolle la totalidad del taller sobre este *notebook*, insertando las celdas que sea necesario debajo de cada pregunta. Haga buen uso de las celdas para código y de las celdas tipo *markdown* según el caso.
- Recuerde salvar periódicamente sus avances.
- Cuando termine el taller:
  1. Descárguelo en PDF. Si tiene algún problema con la conversión, descárguelo en HTML.
  2. Suba todos los archivos a su repositorio en GitHub, en una carpeta destinada exclusivamente para este taller, antes de la fecha y hora límites.

NLTK Book (http://www.nltk.org/book/), Exercises:

- Chapter 1: 22, 26, 28
- Chapter 2: 2, 4, 11

In [1]:

```
import nltk
```

In [21]:

```
dler = nltk.downloader.Downloader()
dler._update_index()
dler._status_cache['panlex_lite'] = 'installed' # Trick the index to treat panlex_lite as it's
already installed.
dler.download('all')
```

```
[nltk_data] Downloading collection 'all'
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[nltk_data]    | Downloading package abc to
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[nltk_data]    |   Package averaged_perceptron_tagger_ru is already
[nltk_data]    |       up-to-date!
[nltk_data]    | Downloading package perluniprops to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
[nltk_data]    |   Package perluniprops is already up-to-date!
[nltk_data]    | Downloading package nonbreaking_prefixes to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
[nltk_data]    |   Package nonbreaking_prefixes is already up-to-date!
[nltk_data]    | Downloading package vader_lexicon to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
[nltk_data]    |   Package vader_lexicon is already up-to-date!
[nltk_data]    | Downloading package porter_test to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
[nltk_data]    |   Package porter_test is already up-to-date!
[nltk_data]    | Downloading package wmt15_eval to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
[nltk_data]    |   Package wmt15_eval is already up-to-date!
[nltk_data]    | Downloading package mwa_ppdb to
[nltk_data]    |     C:\Users\usuario\AppData\Roaming\nltk_data...
```

```
[nltk_data]    |   Package mwa_ppdb is already up-to-date!
[nltk_data]    |
[nltk_data]  Done downloading collection all
```

Out[21]:

```
True
```

In [32]:

```
from nltk.book import *
```

Chapter 1

22.Find all the four-letter words in the Chat Corpus (text5). With the help of a frequency distribution (FreqDist), show these words in decreasing order of frequency.

In [33]:

```
words_4 = [w for w in (text5) if len(w) == 4]
fdist=FreqDist(words_4)
fdist.most_common()
```

Out[33]:

```
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    ('U105', 35),
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    ('baby', 26),
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    ('play', 25),
    ('U110', 25),
    ('U114', 25),
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('U113', 1),
('dump', 1),
('toop', 1),
('four', 1),
('U118', 1),
('sets', 1),
('asss', 1),
('paid', 1),
('Iowa', 1),
('Teck', 1),
('"...', 1),
('jeff', 1),
('crib', 1),
('drug', 1),
('cook', 1),
('9:10', 1),
 ('9.10', 1),
 ('ladz', 1),
 ('aime', 1),
 ('hong', 1),
 ('kong', 1),
 ('Oops', 1),
 ('tits', 1),
 ('gret', 1),
 ('guns', 1),
 ('inch', 1),
 ('sean', 1),
 ('howl', 1),
 ('Take', 1),
 ('z-ro', 1),
 ('U137', 1),
 ('Haha', 1),
 ('1985', 1),
 ('slam', 1),
 ('pine', 1),
 ('puke', 1),
 ('waaa', 1),
 ('urls', 1),
 ('star', 1),
 ('Save', 1),
 ('teck', 1),
 ('Room', 1),
 ('sori', 1),
 ('Long', 1),
 ('poem', 1),
 ...]
```

26.What does the following Python code do? sum(len(w) for w in text1) Can you use it to work out the average word length of a text?

In [24]:

```
sum([len(w) for w in text1]) / len(text1)
```

Out[24]:

```
3.830411128023649
```

28.Define a function percent(word, text) that calculates how often a given word occurs in a text, and expresses the result as a percentage.

In [16]:

```
def percent(word, text):
    return 100 * text.count(word) / len(text)
print (str(percent('monstrous', text1)) + '%')
```

```
0.003834076505162584%
```

Chapter 2

2.Use the corpus module to explore austen-persuasion.txt. How many word tokens does this book have? How many word types?

In [17]:

```
nltk.corpus.gutenberg.fileids()
```

Out[17]:

```
['austen-emma.txt',
 'austen-persuasion.txt',
 'austen-sense.txt',
 'bible-kjv.txt',
 'blake-poems.txt',
 'bryant-stories.txt',
 'burgess-busterbrown.txt',
 'carroll-alice.txt',
 'chesterton-ball.txt',
 'chesterton-ball.txt',
 'chesterton-brown.txt',
 'chesterton-thursday.txt',
 'edgeworth-parents.txt',
 'melville-moby_dick.txt',
 'milton-paradise.txt',
 'shakespeare-caesar.txt',
 'shakespeare-hamlet.txt',
 'shakespeare-macbeth.txt',
 'whitman-leaves.txt']
```

In [18]:

```
austen = gutenberg.words('austen-persuasion.txt')
len(austen)
```

Out[18]:

```
98171
```

In [19]:

```
len(set(austen))
```

Out[19]:

```
6132
```

4.Read in the texts of the State of the Union addresses, using the state_union corpus reader. Count occurrences of men, women, and people in each document. What has happened to the usage of these words over time?

In [27]:

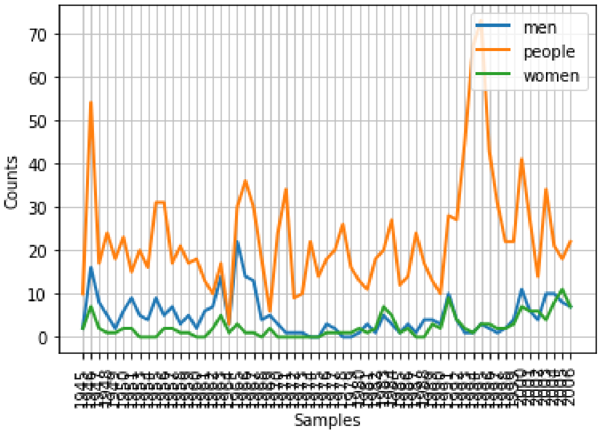
```
nltk.corpus.state_union.fileids()
```

Out[27]:

```
['1945-Truman.txt',
 '1946-Truman.txt',
 '1947-Truman.txt',
 '1948-Truman.txt',
 '1949-Truman.txt',
 '1950-Truman.txt',
 '1951-Truman.txt',
 '1953-Eisenhower.txt',
 '1954-Eisenhower.txt',
 '1955-Eisenhower.txt',
 '1956-Eisenhower.txt',
 '1957-Eisenhower.txt',
 '1958-Eisenhower.txt',
 '1959-Eisenhower.txt',
 '1960-Eisenhower.txt',
 '1961-Kennedy.txt',
 '1962-Kennedy.txt',
 '1963-Johnson.txt',
 '1963-Kennedy.txt',
 '1964-Johnson.txt',
 '1965-Johnson-1.txt',
 '1965-Johnson-2.txt',
 '1966-Johnson.txt',
 '1967-Johnson.txt',
 '1968-Johnson.txt',
 '1969-Johnson.txt',
 '1970-Nixon.txt',
 '1971-Nixon.txt',
 '1972-Nixon.txt',
 '1973-Nixon.txt',
 '1974-Nixon.txt',
 '1975-Ford.txt',
 '1976-Ford.txt',
 '1977-Ford.txt',
 '1978-Carter.txt',
 '1979-Carter.txt',
 '1980-Carter.txt',
 '1981-Reagan.txt',
 '1982-Reagan.txt',
 '1983-Reagan.txt',
 '1984-Reagan.txt',
 '1985-Reagan.txt',
 '1986-Reagan.txt',
 '1987-Reagan.txt',
 '1988-Reagan.txt',
 '1989-Bush.txt',
 '1990-Bush.txt',
 '1991-Bush-1.txt',
 '1991-Bush-2.txt',
 '1992-Bush.txt',
 '1993-Clinton.txt',
 '1994-Clinton.txt',
 '1995-Clinton.txt',
 '1996-Clinton.txt',
 '1997-Clinton.txt',
 '1998-Clinton.txt',
 '1999-Clinton.txt',
 '2000-Clinton.txt',
 '2001-GWBush-1.txt',
 '2001-GWBush-2.txt',
 '2002-GWBush.txt',
 '2003-GWBush.txt',
 '2004-GWBush.txt',
 '2005-GWBush.txt',
 '2006-GWBush.txt']
```

In [35]:

```
cfd = nltk.ConditionalFreqDist(
    (target, fileid[:4])
    for fileid in nltk.corpus.state_union.fileids()
    for w in nltk.corpus.state_union.words(fileid)
    for target in ['men', 'women','people']
    if w.lower().startswith(target))
cfd.plot()
```



11.Investigate the table of modal distributions and look for other patterns. Try to explain them in terms of your own impressionistic understanding of the different genres. Can you find other closed classes of words that exhibit significant differences across different genres?

In [38]:

```
from nltk.corpus import brown
brown.categories()
```

Out[38]:

```
['adventure',
 'belles_lettres',
 'editorial',
 'fiction',
 'government',
 'hobbies',
 'humor',
 'learned',
 'lore',
 'mystery',
 'news',
 'religion',
 'reviews',
 'romance',
 'science_fiction']
```

In [39]:

```
cfd = nltk.ConditionalFreqDist(
    (genre, word)
    for genre in brown.categories()
    for word in brown.words(categories=genre))
genres = ['news', 'religion', 'hobbies', 'science_fiction', 'romance',
          'humor','adventure','belles_lettres','editorial', 'fiction','government','learned','lore'
,'mystery','reviews']
modals = ['can', 'could', 'may', 'might', 'must', 'will']
cfd.tabulate(conditions=genres, samples=modals)
```

```
                  can could   may might  must  will
           news    93    86    66    38    50   389
       religion    82    59    78    12    54    71
        hobbies   268    58   131    22    83   264
science_fiction    16    49     4    12     8    16
        romance    74   193    11    51    45    43
          humor    16    30     8     8     9    13
      adventure    46   151     5    58    27    50
 belles_lettres   246   213   207   113   170   236
      editorial   121    56    74    39    53   233
        fiction    37   166     8    44    55    52
     government   117    38   153    13   102   244
        learned   365   159   324   128   202   340
           lore   170   141   165    49    96   175
        mystery    42   141    13    57    30    20
        reviews    45    40    45    26    19    58
```

Will es una palabra que tiene gran preponderancia en textos news, hobbies, goverment y lore: cumple la lógica de que esta palabra se relaciona directamente para estructurar promesas, intenciones y acciones espontaneas, lo que se confirma con la espontaneidad aspectos como hobbies y las promesas e intenciones en temas de goverment, lore y news (que en muchos casos esta asociado a goverment). En segunda instancia la palabra mas usada es can (casi al mismo nivel de could) en donde se toma para can como referencia el uso en learned y belle_lettres, asociandose directamente con el caracter estricto de learned y el caracter subjetivo de belle:lettres.

In [40]:

```
cfd = nltk.ConditionalFreqDist(
    (genre, word)
    for genre in brown.categories()
    for word in brown.words(categories=genre))
genres = ['news', 'religion', 'hobbies', 'science_fiction', 'romance',
          'humor','adventure','belles_lettres','editorial', 'fiction','government','learned','lore'
,'mystery','reviews']
modals = ['dead','love', 'pain']
cfd.tabulate(conditions=genres, samples=modals)
```

```
                dead love pain
           news    8    3    1
       religion    9   13    3
        hobbies    3    6    0
science_fiction    7    3    7
        romance   15   32    5
          humor    3    4    1
      adventure   25    9    9
 belles_lettres   20   68    4
      editorial    5   13    2
        fiction   19   16   10
     government    1    1    0
        learned   12   13   18
           lore   15   10   10
           lore   15   19   19
        mystery   21    7    8
        reviews    3    7    0
```

Las palabras dead, love y pain tienen una relacion directa entre dead en el ambito fiction, debido a que en ella se concentra gran parte del género. En contextos ficticios podemos asumir que la palabra muerte siempre sera el eje principalal igual que Belles Lettres. Por sentido compun, la palabra amor y romance están totalmente vinculados.

Tambien podríamos decir que al existir una relacion de la palabra love en el ambito de belles lettres, parte de un desarrollo del romaticismo e idealismo. Finalmente podemos observar que en el ambito adventure, la palabra dead tiene una relación por el extremismo y el peligro de estos contextos.