Results from last notes (2).

```
In [2]: from nltk.corpus import treebank as tb
        words = [(fileid,sentnum,wordnum,word)
                for fileid in tb.fileids()[:1]
                for sentnum,sent in enumerate(tb.tagged_sents(fileid))
                for wordnum,(word,pos) in enumerate(sent)
                if pos in ['NNP','NNPS']]
```

```
In [3]: from sets import Set
        sents = [
                {'fileid':fileid,
                 'sentnum':sentnum,
                 'nnp':Set([word for word,pos in sent if pos in ['NNP','NNPS']]),
                 'nnp_loc':{word:wordnum for wordnum,(word,pos) in enumerate(sent) if pos in ['NNP'
                 'word_loc':{word:wordnum for wordnum,(word,pos) in enumerate(sent)}
                }
                for fileid in tb.fileids()
                for sentnum,sent in enumerate(tb.tagged_sents(fileid))
                ]
```

```
In [4]: sents[:1]
```

```
Out[4]: [{'fileid': 'wsj_0001.mrg',
          'nnp': Set(['Nov.', 'Pierre', 'Vinken']),
          'nnp_loc': {'Nov.': 15, 'Pierre': 0, 'Vinken': 1},
          'sentnum': 0,
          'word_loc': {',': 6,
           '.': 17,
           '29': 16,
           '61': 3,
           'Nov.': 15,
           'Pierre': 0,
           'Vinken': 1,
           'a': 12,
           'as': 11,
           'board': 10,
           'director': 14,
           'join': 8,
           'nonexecutive': 13,
           'old': 5,
           'the': 9,
           'will': 7,
           'years': 4}}]
```

We enhance our code to choose a verb position and to choose argument positions.

```
In [9]: from nltk.tokenize import word_tokenize
        from nltk.metrics import edit_distance
        from FB_to_PB import *
        f2p = fb_to_pb_map('FB_to_PB.csv')
        fb_dir = 'tmp.business_Freebase'
        for fbr in ['acquisition']:
            ctr(fbr)
            pbr = f2p[fbr]['PROPBANK_RELATION']
            vprt('pbr',pbr)
            pb = pb_instances(fb_dir,fbr,f2p)
            print 'FB relation %s (%d instances)'%(fbr,len(pb))
            #for pbi_num,pbi in enumerate(pb[165:168]):
            for pbi_num,pbi in enumerate(pb):
```

```python
        if len([word for arg,word in pbi.iteritems() if word.strip() == '']) > 0:
            print 'SKIPPING (blank argument): %s'% str(pbi)
            continue

        pbi_words = Set([token
                        for arg,word in pbi.iteritems()
                        for token in word_tokenize(word)
                        if token not in [',','.']])

        tb_sents = [sent for sent in sents if pbi_words.issubset(sent['nnp'])]
        if(len(tb_sents) > 0):
            ctr('MATCH!!!')
            vprt('pbi',pbi)
            vprt('pbi_num',pbi_num)
            for sent in tb_sents:
                ctrs('TB sentence')
                vprt('sentence',' '.join(tb.sents(sent['fileid'])[sent['sentnum']]))

                rel_dist = [(wordnum,word,edit_distance(pbr,word)) for wordnum,word in enume
                (rel_wordnum, rel_word, rel_edit_dist) = sorted(rel_dist, key=lambda tup:tup
                #vprt('rel_dist',rel_dist)

                ctrss('rel word')
                vprt('rel_wordnum', rel_wordnum)
                vprt('rel_word', rel_word)
                vprt('rel_edit_dist', rel_edit_dist)

                for arg,word in pbi.iteritems():
                    ctrss(arg)
                    print arg
                    vprt('word',word)
                    (long_tok_len, long_tok) = sorted([(len(token),token) for token in word_
                    vprt('long_tok',long_tok)
                    arg_word_num = sent['word_loc'][long_tok]
                    vprt('long_tok word num', arg_word_num)


                print sent


        ctr('')
```

```
_____acquisition_____
pbr:            acquire
FB relation acquisition (2085 instances)
SKIPPING (blank argument): {'ARG0': 'Volcom', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'Lanscroft Mine'}
SKIPPING (blank argument): {'ARG0': 'Thomson Corporation', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'Parakey'}
SKIPPING (blank argument): {'ARG0': 'Infor Global Solutions', 'ARG1': ''}
_____MATCH!!!_____
pbi:            {'ARG0': 'British Aerospace', 'ARG1': 'Rover Group'}
pbi_num:        167
_____TB sentence_____
sentence:       Under a separate arrangement , British Aerospace PLC 's Rover Group PLC
subsidiary will also be able *-1 to offer the vehicles through its dealers in the U.K. ,
and Renault 's truck-building subsidiary Renault Vehicles Industriels will have similar
rights in France .
_____rel word_____
rel_wordnum:    14
```

```
rel_word:        able
rel_edit_dist: 5
_____ARG0_____
ARG0
word:            British Aerospace
long_tok:        Aerospace
long_tok word num: 6
_____ARG1_____
ARG1
word:            Rover Group
long_tok:        Rover
long_tok word num: 9
{'word_loc': {'and': 29, 'Rover': 9, 'U.K.': 27, 'Group': 10, 'Industriels': 36, '*-1': 17,
'France': 42, 'through': 22, 'have': 38, 'Under': 0, '.': 43, 'its': 23, 'also': 14,
'offer': 19, 'able': 16, ',': 28, 'arrangement': 3, 'to': 18, 'truck-building': 32,
'Aerospace': 6, 'be': 15, "'s": 31, 'Renault': 34, 'separate': 2, 'Vehicles': 35,
'British': 5, 'subsidiary': 33, 'a': 1, 'in': 41, 'dealers': 24, 'rights': 40, 'vehicles':
21, 'will': 37, 'PLC': 11, 'the': 26, 'similar': 39}, 'nnp': Set(['Rover', 'U.K.', 'Group',
'Renault', 'Industriels', 'Vehicles', 'British', 'France', 'PLC', 'Aerospace']), 'nnp_loc':
{'Rover': 9, 'U.K.': 27, 'Group': 10, 'Renault': 34, 'Industriels': 36, 'Vehicles': 35,
'British': 5, 'France': 42, 'PLC': 11, 'Aerospace': 6}, 'sentnum': 11, 'fileid':
'wsj_1794.mrg'}

_____
SKIPPING (blank argument): {'ARG0': 'Google', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'InviteShare'}
SKIPPING (blank argument): {'ARG0': 'Hearst Corporation', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': 'British Broadcasting Corporation', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': 'Grand Junction Railway', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': 'Merseyrail', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': 'IAC/InterActiveCorp', 'ARG1': ''}
_____MATCH!!!_____
pbi:             {'ARG0': 'Philip Morris USA', 'ARG1': 'Kraft Foods'}
pbi_num:         449
_____TB sentence_____
sentence:        `` Now , Philip Morris -LCB- Kraft General Foods ' parent company -RCB- is
committed to the coffee business and to increased advertising for Maxwell House , '' says
*T*-1 Dick Mayer , president of the General Foods USA division .
_____rel word_____
rel_wordnum:   6
rel_word:      coffee
rel_edit_dist: 5
_____ARG0_____
ARG0
word:            Philip Morris USA
long_tok:        Philip
long_tok word num: 3
_____ARG1_____
ARG1
word:            Kraft Foods
long_tok:        Kraft
long_tok word num: 6
{'word_loc': {'and': 19, 'says': 28, 'USA': 38, '*T*-1': 29, 'is': 13, 'Dick': 30,
'coffee': 17, "''": 27, 'committed': 14, 'Mayer': 31, 'business': 18, "'": 9, ',': 32, '.':
40, 'to': 20, 'Philip': 3, 'Kraft': 6, '-RCB-': 12, 'division': 39, '``': 0, '-LCB-': 5,
'increased': 21, 'parent': 10, 'company': 11, 'of': 34, 'Morris': 4, 'president': 33,
'Now': 1, 'for': 23, 'Maxwell': 24, 'General': 36, 'Foods': 37, 'advertising': 22, 'House':
25, 'the': 35}, 'nnp': Set(['Mayer', 'USA', 'Maxwell', 'Dick', 'Morris', 'General',
'Foods', 'House', 'Philip', 'Kraft']), 'nnp_loc': {'Mayer': 31, 'USA': 38, 'Maxwell': 24,
'Dick': 30, 'Morris': 4, 'General': 36, 'Foods': 37, 'House': 25, 'Philip': 3, 'Kraft': 6},
'sentnum': 72, 'fileid': 'wsj_1856.mrg'}

_____
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'Wheal Fortune'}
SKIPPING (blank argument): {'ARG0': 'Ramb\xc3\xb8ll Group', 'ARG1': ''}
_____MATCH!!!_____
pbi:             {'ARG0': 'Random House', 'ARG1': 'Alfred A. Knopf'}
```

```
pbi_num:          493
_____TB sentence_____
sentence:         There is also speculation that Mr. Newhouse could bring in a powerhouse
businessman or another Newhouse family member 0 *T*-1 to run the business side , in
combination with a publishing executive like Robert Gottlieb , who *T*-38 left Random House
's Alfred A. Knopf *-2 to run the New Yorker , also owned * by the Newhouse family .
_____rel word_____
rel_wordnum:      5
rel_word:         There
rel_edit_dist: 5
_____ARG0_____
ARG0
word:             Random House
long_tok:         Random
long_tok word num: 39
_____ARG1_____
ARG1
word:             Alfred A. Knopf
long_tok:         Alfred
long_tok word num: 42
{'word_loc': {'Alfred': 42, 'family': 58, '*T*-1': 19, '*-2': 45, 'is': 1, 'There': 0,
'owned': 53, 'bring': 8, 'Mr.': 5, 'another': 14, 'in': 26, "'s": 41, 'A.': 43, 'by': 55,
'combination': 27, 'also': 52, '*': 54, ',': 51, 'powerhouse': 11, 'member': 17, '0': 18,
'Robert': 33, '*T*-38': 37, 'Knopf': 44, 'executive': 31, 'run': 47, 'to': 46, 'business':
23, 'that': 4, 'who': 36, 'Newhouse': 57, 'Yorker': 50, 'with': 28, 'speculation': 3,
'publishing': 30, 'a': 29, 'like': 32, 'New': 49, 'House': 40, 'could': 7, 'Random': 39,
'Gottlieb': 34, 'side': 24, '.': 59, 'businessman': 12, 'the': 56, 'or': 13, 'left': 38},
'nnp': Set(['Knopf', 'Yorker', 'Newhouse', 'House', 'Robert', 'Random', 'Gottlieb', 'A.',
'Mr.', 'Alfred', 'New']), 'nnp_loc': {'Knopf': 44, 'Yorker': 50, 'Newhouse': 57, 'House':
40, 'Robert': 33, 'Random': 39, 'Gottlieb': 34, 'A.': 43, 'Mr.': 5, 'Alfred': 42, 'New':
49}, 'sentnum': 19, 'fileid': 'wsj_0111.mrg'}
_____TB sentence_____
sentence:         Not included on the most-likely-successor list are Joni Evans , recruited *
two years ago * to be publisher of adult trade books for Random House , and Sonny Mehta ,
president of the prestigious Alfred A. Knopf unit .
_____rel word_____
rel_wordnum:      6
rel_word:         are
rel_edit_dist: 4
_____ARG0_____
ARG0
word:             Random House
long_tok:         Random
long_tok word num: 24
_____ARG1_____
ARG1
word:             Alfred A. Knopf
long_tok:         Alfred
long_tok word num: 35
{'word_loc': {'and': 27, 'Sonny': 28, 'Knopf': 37, 'trade': 21, 'prestigious': 34, 'books':
22, 'are': 6, 'Alfred': 35, 'Joni': 7, '.': 39, 'Mehta': 29, 'for': 23, '*': 15, ',': 30,
'A.': 36, 'to': 16, 'unit': 38, 'Not': 0, 'recruited': 10, 'most-likely-successor': 4,
'be': 17, 'publisher': 18, 'two': 12, 'included': 1, 'president': 31, 'years': 13, 'ago':
14, 'on': 2, 'Evans': 8, 'of': 32, 'Random': 24, 'list': 5, 'House': 25, 'the': 33,
'adult': 20}, 'nnp': Set(['Knopf', 'Sonny', 'Evans', 'House', 'Random', 'A.', 'Alfred',
'Joni', 'Mehta']), 'nnp_loc': {'Knopf': 37, 'Sonny': 28, 'Evans': 8, 'House': 25, 'Random':
24, 'A.': 36, 'Alfred': 35, 'Joni': 7, 'Mehta': 29}, 'sentnum': 20, 'fileid':
'wsj_0111.mrg'}
_____
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'JDS Uniphase'}
SKIPPING (blank argument): {'ARG0': 'Hill International, Inc.', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': 'Unilever', 'ARG1': ''}
_____MATCH!!!_____
pbi:              {'ARG0': 'Electronic Data Systems', 'ARG1': 'National Advanced Systems'}
pbi_num:          657
```

```
_____TB sentence_____
sentence:      And National Advanced Systems , a joint venture of Japan 's Hitachi Ltd. and
General Motors Corp. 's Electronic Data Systems , is expected *-1 to unveil a line of
powerful IBM-compatible mainframes later this year .
_____rel word_____
rel_wordnum:   20
rel_word:      line
rel_edit_dist: 5
_____ARG0_____
ARG0
word:          Electronic Data Systems
long_tok:      Electronic
long_tok word num: 18
_____ARG1_____
ARG1
word:          National Advanced Systems
long_tok:      National
long_tok word num: 1
{'word_loc': {'and': 13, 'is': 22, '*-1': 24, 'powerful': 30, 'Systems': 20, 'mainframes':
32, ',': 21, '.': 36, 'to': 25, 'IBM-compatible': 31, 'expected': 23, 'Corp.': 16, 'Data':
19, 'Advanced': 2, 'a': 27, "'s": 17, 'year': 35, 'unveil': 26, 'joint': 6, 'Ltd.': 12,
'line': 28, 'And': 0, 'this': 34, 'of': 29, 'National': 1, 'later': 33, 'Motors': 15,
'General': 14, 'Hitachi': 11, 'venture': 7, 'Japan': 9, 'Electronic': 18}, 'nnp':
Set(['Data', 'National', 'Motors', 'General', 'Hitachi', 'Systems', 'Ltd.', 'Japan',
'Corp.', 'Electronic', 'Advanced']), 'nnp_loc': {'Data': 19, 'National': 1, 'Motors': 15,
'General': 14, 'Hitachi': 11, 'Systems': 20, 'Ltd.': 12, 'Japan': 9, 'Corp.': 16,
'Electronic': 18, 'Advanced': 2}, 'sentnum': 55, 'fileid': 'wsj_1809.mrg'}
_____
SKIPPING (blank argument): {'ARG0': 'News International', 'ARG1': ''}
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'The Boston Patriot'}
_____MATCH!!!_____
pbi:           {'ARG0': 'Daimler-Benz', 'ARG1': 'AEG'}
pbi_num:       884
_____TB sentence_____
sentence:      AEG is 80 % owned *-1 by Daimler-Benz AG , the country 's biggest industrial
concern .
_____rel word_____
rel_wordnum:   4
rel_word:      country
rel_edit_dist: 5
_____ARG0_____
ARG0
word:          Daimler-Benz
long_tok:      Daimler-Benz
long_tok word num: 7
_____ARG1_____
ARG1
word:          AEG
long_tok:      AEG
long_tok word num: 0
{'word_loc': {'the': 10, 'industrial': 14, '%': 3, 'AG': 8, 'country': 11, 'is': 1, '*-1':
5, ',': 9, 'owned': 4, '.': 16, 'Daimler-Benz': 7, 'AEG': 0, 'biggest': 13, "'s": 12, '80':
2, 'by': 6, 'concern': 15}, 'nnp': Set(['AG', 'Daimler-Benz', 'AEG']), 'nnp_loc': {'AG': 8,
'Daimler-Benz': 7, 'AEG': 0}, 'sentnum': 6, 'fileid': 'wsj_1324.mrg'}
_____
SKIPPING (blank argument): {'ARG0': 'Fox Interactive Media', 'ARG1': ''}
_____MATCH!!!_____
pbi:           {'ARG0': 'International Paper', 'ARG1': 'Champion International Paper'}
pbi_num:       975
_____TB sentence_____
sentence:      Mead rose 3\/4 to 39 1\/2 , Federal Paper Board added 1\/2 to 24 3\/8 and
Scott Paper gained 1\/2 to 48 3\/8 , while International Paper fell 7\/8 to 48 7\/8 ,
Champion International lost 3\/8 to 31 1\/2 and Louisiana-Pacific dropped 1\/8 to 40 1\/4 .
_____rel word_____
rel_wordnum:   24
```

```
rel_word:        while
rel_edit_dist: 5
_____ARG0_____
ARG0
word:            International Paper
long_tok:        International
long_tok word num: 34
_____ARG1_____
ARG1
word:            Champion International Paper
long_tok:        International
long_tok word num: 34
```

{'word_loc': {'and': 40, 'Louisiana-Pacific': 41, 'Federal': 7, '3\\/4': 2, 'Board': 9, 'International': 34, '3\\/8': 36, '24': 13, '7\\/8': 31, 'Champion': 33, '48': 30, 'rose': 1, ',': 32, '40': 45, '.': 47, 'to': 44, 'added': 10, 'fell': 27, 'Mead': 0, 'gained': 18, '39': 4, 'lost': 35, '31': 38, '1\\/2': 39, 'while': 24, 'Paper': 26, 'Scott': 16, '1\\/4': 46, '1\\/8': 43, 'dropped': 42}, 'nnp': Set(['Louisiana-Pacific', 'Champion', 'Federal', 'Paper', 'Scott', 'Mead', 'International', 'Board']), 'nnp_loc': {'Louisiana-Pacific': 41, 'Champion': 33, 'Federal': 7, 'Paper': 26, 'Scott': 16, 'Mead': 0, 'International': 34, 'Board': 9}, 'sentnum': 30, 'fileid': 'wsj_0162.mrg'}

```
_____TB sentence_____
sentence:        Last week Mr. Adler lowered his rating from hold to `` avoid '' on Boise
Cascade , Champion International , Great Northern Nekoosa , International Paper , Louisiana
Pacific and Weyerhaeuser .
_____rel word_____
rel_wordnum:    11
rel_word:        avoid
rel_edit_dist: 5
_____ARG0_____
ARG0
word:            International Paper
long_tok:        International
long_tok word num: 24
_____ARG1_____
ARG1
word:            Champion International Paper
long_tok:        International
long_tok word num: 24
```

{'word_loc': {'and': 29, 'rating': 6, 'Northern': 21, 'Great': 20, "''": 12, 'Mr.': 2, 'International': 24, 'Weyerhaeuser': 30, 'Louisiana': 27, 'from': 7, 'Champion': 17, 'avoid': 11, ',': 26, 'Boise': 14, 'to': 9, 'Adler': 3, 'week': 1, '``': 10, 'his': 5, 'Last': 0, 'Cascade': 15, 'lowered': 4, 'Nekoosa': 22, 'hold': 8, 'on': 13, 'Pacific': 28, 'Paper': 25, '.': 31}, 'nnp': Set(['Great', 'Champion', 'Northern', 'Pacific', 'Boise', 'Cascade', 'Mr.', 'Paper', 'Nekoosa', 'International', 'Weyerhaeuser', 'Louisiana', 'Adler']), 'nnp_loc': {'Great': 20, 'Champion': 17, 'Northern': 21, 'Pacific': 28, 'Boise': 14, 'Cascade': 15, 'Mr.': 2, 'Paper': 25, 'Nekoosa': 22, 'International': 24, 'Weyerhaeuser': 30, 'Louisiana': 27, 'Adler': 3}, 'sentnum': 13, 'fileid': 'wsj_0666.mrg'}

```
_____
SKIPPING (blank argument): {'ARG0': 'HCC Insurance Holdings', 'ARG1': ''}
_____MATCH!!!_____
pbi:             {'ARG0': 'Kraft Foods', 'ARG1': 'General Foods'}
pbi_num:         1019
_____TB sentence_____
sentence:        Michael A. Miles , chief executive officer of Philip Morris Cos . ' Kraft
General Foods unit , bought 6,000 shares of the company on Sept. 22 for $ 157 *U* each .
_____rel word_____
rel_wordnum:    26
rel_word:        chief
rel_edit_dist: 5
_____ARG0_____
ARG0
word:            Kraft Foods
long_tok:        Kraft
long_tok word num: 13
_____ARG1_____
```

ARG1
word: General Foods
long_tok: General
long_tok word num: 14

{'word_loc': {'157': 29, 'executive': 5, 'for': 27, '.': 32, 'unit': 16, 'Sept.': 25, '$':
28, "'": 12, ',': 17, 'shares': 20, 'A.': 1, 'Philip': 8, 'Kraft': 13, 'bought': 18, 'Cos':
10, 'company': 23, 'Michael': 0, '6,000': 19, 'Morris': 9, 'Miles': 2, 'Foods': 15, 'on':
24, '22': 26, '*U*': 30, 'of': 21, 'General': 14, 'chief': 4, 'officer': 6, 'each': 31,
'the': 22}, 'nnp': Set(['Cos', 'Sept.', 'Michael', 'Foods', 'General', 'Morris', 'Miles',
'Philip', 'Kraft']), 'nnp_loc': {'Cos': 10, 'Sept.': 25, 'Michael': 0, 'Foods': 15,
'General': 14, 'Morris': 9, 'Miles': 2, 'Philip': 8, 'Kraft': 13}, 'sentnum': 31, 'fileid':
'wsj_1157.mrg'}
_____TB sentence_____
sentence: The executive made his purchases shortly before * being named *-1 to his
current chief executive officer 's position ; formerly he was Kraft General Foods ' chief
operating officer .
_____rel word_____
rel_wordnum: 5
rel_word: before
rel_edit_dist: 5
_____ARG0_____
ARG0
word: Kraft Foods
long_tok: Kraft
long_tok word num: 23
_____ARG1_____
ARG1
word: General Foods
long_tok: General
long_tok word num: 24

{'word_loc': {'purchases': 4, 'named': 9, 'formerly': 20, 'being': 8, '*-1': 10, 'before':
6, "'": 26, '*': 7, 'Foods': 25, '.': 30, 'current': 13, 'to': 11, ';': 19, 'Kraft': 23,
'was': 22, 'executive': 15, 'his': 12, "'s": 17, 'operating': 28, 'The': 0, 'he': 21,
'made': 2, 'shortly': 5, 'General': 24, 'chief': 27, 'officer': 29, 'position': 18}, 'nnp':
Set(['Foods', 'Kraft', 'General']), 'nnp_loc': {'Foods': 25, 'Kraft': 23, 'General': 24},
'sentnum': 36, 'fileid': 'wsj_1157.mrg'}
_____TB sentence_____
sentence: American Express , Kraft General Foods , and Mattel executives said 0 the
move wo n't affect their relationships with the ad agency .
_____rel word_____
rel_wordnum: 6
rel_word: their
rel_edit_dist: 5
_____ARG0_____
ARG0
word: Kraft Foods
long_tok: Kraft
long_tok word num: 3
_____ARG1_____
ARG1
word: General Foods
long_tok: General
long_tok word num: 4

{'word_loc': {'and': 7, 'Express': 1, 'ad': 21, 'move': 13, 'relationships': 18, 'said':
10, 'their': 17, 'agency': 22, ',': 6, '.': 23, '0': 11, 'Kraft': 3, 'wo': 14, 'Mattel': 8,
'American': 0, 'affect': 16, 'with': 19, 'General': 4, "n't": 15, 'Foods': 5, 'the': 20,
'executives': 9}, 'nnp': Set(['Express', 'Foods', 'Mattel', 'American', 'General',
'Kraft']), 'nnp_loc': {'Express': 1, 'Foods': 5, 'Mattel': 8, 'American': 0, 'General': 4,
'Kraft': 3}, 'sentnum': 42, 'fileid': 'wsj_1317.mrg'}
_____TB sentence_____
sentence: `` General Foods 's relationships with its agencies are based *-1 on the
agencies ' work , and will continue *-1 to be *?* , '' said *T*-2 David Hurwitt , a vice
president of Kraft General Foods .
_____rel word_____
rel_wordnum: 4

```
rel_word:        are
rel_edit_dist: 4
_____ARG0_____
ARG0
word:           Kraft Foods
long_tok:        Kraft
long_tok word num: 35
_____ARG1_____
ARG1
word:           General Foods
long_tok:        General
long_tok word num: 36
```

{'word_loc': {'and': 17, '*T*-2': 27, '*-1': 20, "''": 25, 'are': 8, 'its': 6, 'relationships': 4, 'said': 26, 'based': 9, "'": 14, '*?*': 23, ',': 30, '.': 38, 'to': 21, 'Kraft': 35, 'be': 22, '``': 0, "'s": 3, 'agencies': 13, 'David': 28, 'president': 33, 'with': 5, 'a': 31, 'on': 11, 'Hurwitt': 29, 'vice': 32, 'of': 34, 'work': 15, 'General': 36, 'will': 18, 'Foods': 37, 'continue': 19, 'the': 12}, 'nnp': Set(['Kraft', 'Foods', 'David', 'Hurwitt', 'General']), 'nnp_loc': {'Kraft': 35, 'Foods': 37, 'David': 28, 'Hurwitt': 29, 'General': 36}, 'sentnum': 43, 'fileid': 'wsj_1317.mrg'}

```
_____TB sentence_____
sentence:       The Kraft General Foods brand stopped *-1 advertising for about a year in
1987 and gave up several market share points and its leadership position in the coffee
business .
_____rel word_____
rel_wordnum:    2
rel_word:        share
rel_edit_dist: 5
_____ARG0_____
ARG0
word:           Kraft Foods
long_tok:        Kraft
long_tok word num: 1
_____ARG1_____
ARG1
word:           General Foods
long_tok:        General
long_tok word num: 2
```

{'word_loc': {'and': 21, '*-1': 6, 'share': 19, 'in': 25, 'its': 22, 'market': 18, '1987': 13, 'for': 8, '.': 29, 'several': 17, 'gave': 15, 'coffee': 27, 'business': 28, 'year': 11, 'brand': 4, 'leadership': 23, 'The': 0, 'a': 10, 'about': 9, 'Kraft': 1, 'up': 16, 'General': 2, 'Foods': 3, 'points': 20, 'stopped': 5, 'advertising': 7, 'position': 24, 'the': 26}, 'nnp': Set(['Foods', 'Kraft', 'General']), 'nnp_loc': {'Foods': 3, 'Kraft': 1, 'General': 2}, 'sentnum': 70, 'fileid': 'wsj_1856.mrg'}

```
_____TB sentence_____
sentence:        `` Now , Philip Morris -LCB- Kraft General Foods ' parent company -RCB- is
committed to the coffee business and to increased advertising for Maxwell House , '' says
*T*-1 Dick Mayer , president of the General Foods USA division .
_____rel word_____
rel_wordnum:    6
rel_word:        coffee
rel_edit_dist: 5
_____ARG0_____
ARG0
word:           Kraft Foods
long_tok:        Kraft
long_tok word num: 6
_____ARG1_____
ARG1
word:           General Foods
long_tok:        General
long_tok word num: 36
```

{'word_loc': {'and': 19, 'says': 28, 'USA': 38, '*T*-1': 29, 'is': 13, 'Dick': 30, 'coffee': 17, "''": 27, 'committed': 14, 'Mayer': 31, 'business': 18, "'": 9, ',': 32, '.': 40, 'to': 20, 'Philip': 3, 'Kraft': 6, '-RCB-': 12, 'division': 39, '``': 0, '-LCB-': 5, 'increased': 21, 'parent': 10, 'company': 11, 'of': 34, 'Morris': 4, 'president': 33,

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'sentnum': 72, 'fileid': 'wsj_1856.mrg'}
_____TB sentence_____
sentence: Brands made * by the Kraft General Foods unit of Philip Morris Cos. had
about 95 % of the market share .
_____rel word_____
rel_wordnum: 0
rel_word: about
rel_edit_dist: 5
_____ARG0_____
ARG0
word: Kraft Foods
long_tok: Kraft
long_tok word num: 5
_____ARG1_____
ARG1
word: General Foods
long_tok: General
long_tok word num: 6

{'word_loc': {'about': 14, 'made': 1, '%': 16, 'share': 20, 'of': 17, '*': 2, 'had': 13,
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'Foods', 'General', 'Morris', 'Philip', 'Kraft']), 'nnp_loc': {'Cos.': 12, 'Foods': 7,
'General': 6, 'Morris': 11, 'Philip': 10, 'Kraft': 5}, 'sentnum': 112, 'fileid':
'wsj_1875.mrg'}
_____TB sentence_____
sentence: Philip Morris disclosed little detailed information about performance by
major business lines except *-1 to say that most , including Philip Morris U.S.A. , Kraft
General Foods and Miller Brewing Co. , posted increased revenues .
_____rel word_____
rel_wordnum: 25
rel_word: about
rel_edit_dist: 5
_____ARG0_____
ARG0
word: Kraft Foods
long_tok: Kraft
long_tok word num: 24
_____ARG1_____
ARG1
word: General Foods
long_tok: General
long_tok word num: 25

{'word_loc': {'detailed': 4, 'and': 27, 'major': 9, '*-1': 13, 'except': 12, 'say': 15,
'including': 19, 'Co.': 30, 'information': 5, 'little': 3, 'Brewing': 29, ',': 31, '.': 35,
'to': 14, 'disclosed': 2, 'performance': 7, 'Philip': 20, 'Kraft': 24, 'increased': 33,
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'Co.']), 'nnp_loc': {'U.S.A.': 22, 'Brewing': 29, 'Morris': 21, 'General': 25, 'Foods': 26,
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_____
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_____MATCH!!!_____
pbi: {'ARG0': 'American Airlines', 'ARG1': 'Trans World Airlines'}
pbi_num: 1139
_____TB sentence_____

```
sentence:        The additions solidify American 's position as the third-largest U.S.
transatlantic carrier , behind PanAm Corp. 's Pan American World Airways and Trans World
Airlines .
_____rel word_____
rel_wordnum:    0
rel_word:       and
rel_edit_dist: 6
_____ARG0_____
ARG0
word:           American Airlines
long_tok:       American
long_tok word num: 18
_____ARG1_____
ARG1
word:           Trans World Airlines
long_tok:       Airlines
long_tok word num: 24
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8, 'carrier': 11, 'solidify': 2, 'position': 5, 'the': 7}, 'nnp': Set(['Trans', 'Airways',
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'U.S.': 9, 'Pan': 17}, 'sentnum': 5, 'fileid': 'wsj_0502.mrg'}
_____TB sentence_____
sentence:        Just last week , for example , Trans World Airlines and Pan Am Corp. 's Pan
American World Airways went so far as *-1 to offer cash rebates or gift checks of $ 200 to
$ 1,000 *U* to certain frequent-flier members making trans-Atlantic flights in business
class or first class .
_____rel word_____
rel_wordnum:    0
rel_word:       and
rel_edit_dist: 6
_____ARG0_____
ARG0
word:           American Airlines
long_tok:       American
long_tok word num: 16
_____ARG1_____
ARG1
word:           Trans World Airlines
long_tok:       Airlines
long_tok word num: 9
{'word_loc': {'and': 10, 'certain': 39, '*-1': 23, 'Airlines': 9, 'frequent-flier': 40,
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'business': 46, 'offer': 25, 'far': 21, 'rebates': 27, 'American': 16, 'members': 41,
'Trans': 7, 'class': 50, 'trans-Atlantic': 43, 'last': 1, 'gift': 29, 'Just': 0, '*U*': 37,
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'World', 'Trans', 'Pan']), 'nnp_loc': {'Corp.': 13, 'Airways': 18, 'Am': 12, 'Airlines': 9,
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_____
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_____MATCH!!!_____
pbi:            {'ARG0': 'Commerzbank', 'ARG1': 'Dresdner Bank'}
pbi_num:        1286
_____TB sentence_____
sentence:        Deutsche Bank , Dresdner Bank and Commerzbank all also have expressed
eagerness *-1 to expand in France before 1992 .
_____rel word_____
rel_wordnum:    18
```

```
rel_word:       before
rel_edit_dist: 5
_____ARG0_____
ARG0
word:           Commerzbank
long_tok:       Commerzbank
long_tok word num: 6
_____ARG1_____
ARG1
word:           Dresdner Bank
long_tok:       Dresdner
long_tok word num: 3
{'word_loc': {'and': 5, 'Dresdner': 3, 'all': 7, '1992': 18, 'eagerness': 11, 'to': 13,
'.': 19, '*-1': 12, 'Deutsche': 0, 'expressed': 10, ',': 2, 'also': 8, 'expand': 14,
'have': 9, 'in': 15, 'France': 16, 'Commerzbank': 6, 'Bank': 4, 'before': 17}, 'nnp':
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'Commerzbank': 6, 'Deutsche': 0, 'Bank': 4, 'France': 16}, 'sentnum': 9, 'fileid':
'wsj_0477.mrg'}
_____TB sentence_____
sentence:       Other banks were slightly more resilient , with Dresdner Bank shedding 4.8
to 320 , and Commerzbank slipping 2.5 to
_____rel word_____
rel_wordnum:    12
rel_word:       were
rel_edit_dist: 5
_____ARG0_____
ARG0
word:           Commerzbank
long_tok:       Commerzbank
long_tok word num: 16
_____ARG1_____
ARG1
word:           Dresdner Bank
long_tok:       Dresdner
long_tok word num: 8
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Set(['Dresdner', 'Commerzbank', 'Bank']), 'nnp_loc': {'Dresdner': 8, 'Commerzbank': 16,
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_____
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'Newsweek Inc'}
SKIPPING (blank argument): {'ARG0': '', 'ARG1': 'Central Maine Power Company'}
---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
/Users/alex/projects/cmsc723_Final_Project/<ipython-input-9-d4bca552ec1c> in <module>()
     22                             if token not in [',',',','.']])
     23
---> 24         tb_sents = [sent for sent in sents if pbi_words.issubset(sent['nnp'])]
     25         if(len(tb_sents) > 0):
     26             ctr('MATCH!!!')

/Library/Frameworks/Python.framework/Versions/7.3/lib/python2.7/sets.pyc in issubset(self,
other)
    290         """Report whether another set contains this set."""
    291         self._binary_sanity_check(other)
--> 292         if len(self) > len(other):  # Fast check for obvious cases
    293             return False
    294         for elt in ifilterfalse(other._data.__contains__, self):

/Library/Frameworks/Python.framework/Versions/7.3/lib/python2.7/sets.pyc in __len__(self)
     81     def __len__(self):
     82         """Return the number of elements of a set."""
---> 83         return len(self._data)
     84
```

```
     85     def __repr__(self):
```

KeyboardInterrupt:

In [ ]: