```
In [46]:   from nltk.corpus import propbank
           print propbank.fileids()[:10]

           ['prop.txt', 'verbs.txt', 'frames/abandon.xml', 'frames/abate.xml', 'frames/abdicate.xml',
           'frames/abduct.xml', 'frames/abet.xml', 'frames/abide.xml', 'frames/abolish.xml',
           'frames/abominate.xml']

In [127]:  propbank.verbs()

Out[127]:  ['abandon', 'abate', 'abdicate', 'abet', 'abide', ...]

In [128]:  def vprt(nm,v): print '%-14s %s' % (nm+':',v)
           def ctr(msg): print msg.center(80,'_')
           def ctrs(msg): print msg.center(50,'_')
           for i in propbank.instances()[:100]:
               ctr(i.baseform)
               #vprt('baseform',i.baseform)
               vprt('tagger',i.tagger)
               vprt('fileid',i.fileid)
               vprt('sentnum',i.sentnum)
               vprt('wordnum',i.wordnum)
               vprt('roleset',i.roleset)
               vprt('inflection',i.inflection)
               vprt('sentence',' '.join(i.tree.leaves()))
               ctrs('predicate')
               vprt('predicate',i.predicate)
               vprt('  wordnum',i.predicate.wordnum)
               vprt('  height',i.predicate.height)
               print i.predicate.select(i.tree)
               #ctrs('')
               #vprt('parse_corpus',i.parse_corpus)
               for a in i.arguments:
                   #vprt('argument',a)
                   ctrs(a[1])
                   vprt('loc',a[0])
                   print a[0].select(i.tree)
                   #ctrs('')
               ctrs('tree')
               #vprt('tree leaves', i.tree.leaves())
               #print 'tree'
               print i.tree
               print ''
```

```
_____join_____
tagger:        gold
fileid:        wsj_0001.mrg
sentnum:       0
wordnum:       8
roleset:       join.01
inflection:    vf--a
sentence:      Pierre Vinken , 61 years old , will join the board as a nonexecutive
director Nov. 29 .
_____predicate_____
predicate:     8:0
  wordnum:     8
  height:      0
(VB join)
_____ARG0_____
loc:           0:2
(NP-SBJ
  (NP (NNP Pierre) (NNP Vinken))
  (, ,)
```

```
          (ADJP (NP (CD 61) (NNS years)) (JJ old))
          (, ,))
_____ARGM-MOD_____
loc:            7:0
(MD will)
_____ARG1_____
loc:            9:1
(NP (DT the) (NN board))
_____ARGM-PRD_____
loc:            11:1
(PP-CLR (IN as) (NP (DT a) (JJ nonexecutive) (NN director)))
_____ARGM-TMP_____
loc:            15:1
(NP-TMP (NNP Nov.) (CD 29))
_____tree_____
(S
  (NP-SBJ
    (NP (NNP Pierre) (NNP Vinken))
    (, ,)
    (ADJP (NP (CD 61) (NNS years)) (JJ old))
    (, ,))
  (VP
    (MD will)
    (VP
      (VB join)
      (NP (DT the) (NN board))
      (PP-CLR (IN as) (NP (DT a) (JJ nonexecutive) (NN director)))
      (NP-TMP (NNP Nov.) (CD 29))))
  (. .))


_____publish_____
tagger:         gold
fileid:         wsj_0001.mrg
sentnum:        1
wordnum:        10
roleset:        publish.01
inflection:     p---a
sentence:       Mr. Vinken is chairman of Elsevier N.V. , the Dutch publishing group .
_____predicate_____
predicate:      10:0
  wordnum:      10
  height:       0
(VBG publishing)
_____ARG0_____
loc:            11:0
(NN group)
_____tree_____
(S
  (NP-SBJ (NNP Mr.) (NNP Vinken))
  (VP
    (VBZ is)
    (NP-PRD
      (NP (NN chairman))
      (PP
        (IN of)
        (NP
          (NP (NNP Elsevier) (NNP N.V.))
          (, ,)
          (NP (DT the) (NNP Dutch) (VBG publishing) (NN group))))))
  (. .))


_____name_____
tagger:         gold
fileid:         wsj_0002.mrg
sentnum:        0
```

```
wordnum:        16
roleset:        name.01
inflection:     pp--p
sentence:       Rudolph Agnew , 55 years old and former chairman of Consolidated Gold Fields
PLC , was named *-1 a nonexecutive director of this British industrial conglomerate .
_____predicate_____
predicate:      16:0
  wordnum:      16
  height:       0
(VBN named)
_____ARG1_____
loc:            0:2*17:0
(*CHAIN*
  (NP-SBJ-1
    (NP (NNP Rudolph) (NNP Agnew))
    (, ,)
    (UCP
      (ADJP (NP (CD 55) (NNS years)) (JJ old))
      (CC and)
      (NP
        (NP (JJ former) (NN chairman))
        (PP
          (IN of)
          (NP (NNP Consolidated) (NNP Gold) (NNP Fields) (NNP PLC)))))
    (, ,))
  (-NONE- *-1))
_____ARG2_____
loc:            18:2
(NP-PRD
  (NP (DT a) (JJ nonexecutive) (NN director))
  (PP
    (IN of)
    (NP (DT this) (JJ British) (JJ industrial) (NN conglomerate))))
_____tree_____
(S
  (NP-SBJ-1
    (NP (NNP Rudolph) (NNP Agnew))
    (, ,)
    (UCP
      (ADJP (NP (CD 55) (NNS years)) (JJ old))
      (CC and)
      (NP
        (NP (JJ former) (NN chairman))
        (PP
          (IN of)
          (NP (NNP Consolidated) (NNP Gold) (NNP Fields) (NNP PLC)))))
    (, ,))
  (VP
    (VBD was)
    (VP
      (VBN named)
      (S
        (NP-SBJ (-NONE- *-1))
        (NP-PRD
          (NP (DT a) (JJ nonexecutive) (NN director))
          (PP
            (IN of)
            (NP
              (DT this)
              (JJ British)
              (JJ industrial)
              (NN conglomerate))))))
  (. .))

_____use_____
```

```
tagger:         gold
fileid:         wsj_0003.mrg
sentnum:        0
wordnum:        5
roleset:        use.01
inflection:     p---p
sentence:       A form of asbestos once used * * to make Kent cigarette filters has caused a
high percentage of cancer deaths among a group of workers exposed * to it more than 30
years ago , researchers reported 0 *T*-1 .
_____predicate_____
predicate:      5:0
  wordnum:      5
  height:       0
(VBN used)
_____ARGM-TMP_____
loc:            4:1
(ADVP-TMP (RB once))
_____ARG1_____
loc:            0:2*6:0
(*CHAIN*
  (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
  (-NONE- *))
_____ARG2-PNC_____
loc:            7:2
(S-CLR
  (NP-SBJ (-NONE- *))
  (VP
    (TO to)
    (VP (VB make) (NP (NNP Kent) (NN cigarette) (NNS filters)))))
_____tree_____
(S
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
            (VP
              (TO to)
              (VP
                (VB make)
                (NP (NNP Kent) (NN cigarette) (NNS filters))))))))
    (VP
      (VBZ has)
      (VP
        (VBN caused)
        (NP
          (NP (DT a) (JJ high) (NN percentage))
          (PP (IN of) (NP (NN cancer) (NNS deaths)))
          (PP-LOC
            (IN among)
            (NP
              (NP (DT a) (NN group))
              (PP
                (IN of)
                (NP
                  (NP (NNS workers))
                  (RRC
                    (VP
                      (VBN exposed)
                      (NP (-NONE- *))
```

```
                        (PP-CLR (TO to) (NP (PRP it)))
                        (ADVP-TMP
                          (NP
                            (QP (RBR more) (IN than) (CD 30))
                            (NNS years))
                          (IN ago)))))))))))))
      (, ,)
      (NP-SBJ (NNS researchers))
      (VP (VBD reported) (SBAR (-NONE- 0) (S (-NONE- *T*-1))))
      (. .))
```

_____make_____

```
tagger:          gold
fileid:          wsj_0003.mrg
sentnum:         0
wordnum:         9
roleset:         make.01
inflection:      i---a
sentence:        A form of asbestos once used * * to make Kent cigarette filters has caused a
high percentage of cancer deaths among a group of workers exposed * to it more than 30
years ago , researchers reported 0 *T*-1 .
```
_____predicate_____
```
predicate:       9:0
  wordnum:       9
  height:        0
(VB make)
```
_____ARG0_____
```
loc:             7:0
(-NONE- *)
```
_____ARG1_____
```
loc:             10:1
(NP (NNP Kent) (NN cigarette) (NNS filters))
```
_____tree_____
```
(S
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
            (VP
              (TO to)
              (VP
                (VB make)
                (NP (NNP Kent) (NN cigarette) (NNS filters)))))))))
    (VP
      (VBZ has)
      (VP
        (VBN caused)
        (NP
          (NP (DT a) (JJ high) (NN percentage))
          (PP (IN of) (NP (NN cancer) (NNS deaths)))
          (PP-LOC
            (IN among)
            (NP
              (NP (DT a) (NN group))
              (PP
                (IN of)
                (NP
                  (NP (NNS workers))
                  (RRC
```

```
                              (VP
                                (VBN exposed)
                                (NP (-NONE- *))
                                (PP-CLR (TO to) (NP (PRP it)))
                                (ADVP-TMP
                                  (NP
                                    (QP (RBR more) (IN than) (CD 30))
                                    (NNS years))
                                  (IN ago)))))))))))))
      (, ,)
      (NP-SBJ (NNS researchers))
      (VP (VBD reported) (SBAR (-NONE- 0) (S (-NONE- *T*-1))))
      (. .))
```

_____cause_____

```
tagger:        gold
fileid:        wsj_0003.mrg
sentnum:       0
wordnum:       14
roleset:       cause.01
inflection:    pnp3a
sentence:      A form of asbestos once used * * to make Kent cigarette filters has caused a
high percentage of cancer deaths among a group of workers exposed * to it more than 30
years ago , researchers reported 0 *T*-1 .
```
_____predicate_____

```
predicate:     14:0
  wordnum:     14
  height:      0
(VBN caused)
```
_____ARG0_____

```
loc:            0:3
(NP-SBJ
  (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
  (RRC
    (ADVP-TMP (RB once))
    (VP
      (VBN used)
      (NP (-NONE- *))
      (S-CLR
        (NP-SBJ (-NONE- *))
        (VP
          (TO to)
          (VP (VB make) (NP (NNP Kent) (NN cigarette) (NNS filters)))))))))
```
_____ARG1_____

```
loc:            15:2
(NP
  (NP (DT a) (JJ high) (NN percentage))
  (PP (IN of) (NP (NN cancer) (NNS deaths)))
  (PP-LOC
    (IN among)
    (NP
      (NP (DT a) (NN group))
      (PP
        (IN of)
        (NP
          (NP (NNS workers))
          (RRC
            (VP
              (VBN exposed)
              (NP (-NONE- *))
              (PP-CLR (TO to) (NP (PRP it)))
              (ADVP-TMP
                (NP (QP (RBR more) (IN than) (CD 30)) (NNS years))
                (IN ago)))))))))
```
_____tree_____

```
(S
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
            (VP
              (TO to)
              (VP
                (VB make)
                (NP (NNP Kent) (NN cigarette) (NNS filters)))))))))
    (VP
      (VBZ has)
      (VP
        (VBN caused)
        (NP
          (NP (DT a) (JJ high) (NN percentage))
          (PP (IN of) (NP (NN cancer) (NNS deaths)))
          (PP-LOC
            (IN among)
            (NP
              (NP (DT a) (NN group))
              (PP
                (IN of)
                (NP
                  (NP (NNS workers))
                  (RRC
                    (VP
                      (VBN exposed)
                      (NP (-NONE- *))
                      (PP-CLR (TO to) (NP (PRP it)))
                      (ADVP-TMP
                        (NP
                          (QP (RBR more) (IN than) (CD 30))
                          (NNS years))
                        (IN ago)))))))))))
  (, ,)
  (NP-SBJ (NNS researchers))
  (VP (VBD reported) (SBAR (-NONE- 0) (S (-NONE- *T*-1))))
  (. .))
```

_____expose_____

```
tagger:        gold
fileid:        wsj_0003.mrg
sentnum:       0
wordnum:       26
roleset:       expose.01
inflection:    p---p
sentence:      A form of asbestos once used * * to make Kent cigarette filters has caused a
high percentage of cancer deaths among a group of workers exposed * to it more than 30
years ago , researchers reported 0 *T*-1 .
```

_____predicate_____

```
predicate:     26:0
  wordnum:     26
  height:      0
(VBN exposed)
```

_____ARG2-to_____

```
loc:           28:1
(PP-CLR (TO to) (NP (PRP it)))
```

_____ARGM-TMP_____

```
loc:            30:3
(ADVP-TMP
  (NP (QP (RBR more) (IN than) (CD 30)) (NNS years))
  (IN ago))
_____ARG1_____
loc:            22:1,24:0,25:1*27:0
(*CHAIN*
  (*SPLIT* (NP (DT a) (NN group)) (IN of) (NP (NNS workers)))
  (-NONE- *))
_____tree_____
(S
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
            (VP
              (TO to)
              (VP
                (VB make)
                (NP (NNP Kent) (NN cigarette) (NNS filters))))))))
    (VP
      (VBZ has)
      (VP
        (VBN caused)
        (NP
          (NP (DT a) (JJ high) (NN percentage))
          (PP (IN of) (NP (NN cancer) (NNS deaths)))
          (PP-LOC
            (IN among)
            (NP
              (NP (DT a) (NN group))
              (PP
                (IN of)
                (NP
                  (NP (NNS workers))
                  (RRC
                    (VP
                      (VBN exposed)
                      (NP (-NONE- *))
                      (PP-CLR (TO to) (NP (PRP it)))
                      (ADVP-TMP
                        (NP
                          (QP (RBR more) (IN than) (CD 30))
                          (NNS years))
                        (IN ago)))))))))))
  (, ,)
  (NP-SBJ (NNS researchers))
  (VP (VBD reported) (SBAR (-NONE- 0) (S (-NONE- *T*-1))))
  (. .))


_____report_____
tagger:         gold
fileid:         wsj_0003.mrg
sentnum:        0
wordnum:        37
roleset:        report.01
inflection:     vp--a
sentence:       A form of asbestos once used * * to make Kent cigarette filters has caused a
high percentage of cancer deaths among a group of workers exposed * to it more than 30
```

```
years ago , researchers reported 0 *T*-1 .
_____predicate_____
predicate:      37:0
  wordnum:      37
  height:       0
(VBD reported)
_____ARG0_____
loc:            36:1
(NP-SBJ (NNS researchers))
_____ARG1_____
loc:            0:4*39:0
(*CHAIN*
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
            (VP
              (TO to)
              (VP
                (VB make)
                (NP (NNP Kent) (NN cigarette) (NNS filters))))))))
    (VP
      (VBZ has)
      (VP
        (VBN caused)
        (NP
          (NP (DT a) (JJ high) (NN percentage))
          (PP (IN of) (NP (NN cancer) (NNS deaths)))
          (PP-LOC
            (IN among)
            (NP
              (NP (DT a) (NN group))
              (PP
                (IN of)
                (NP
                  (NP (NNS workers))
                  (RRC
                    (VP
                      (VBN exposed)
                      (NP (-NONE- *))
                      (PP-CLR (TO to) (NP (PRP it)))
                      (ADVP-TMP
                        (NP
                          (QP (RBR more) (IN than) (CD 30))
                          (NNS years))
                        (IN ago)))))))))))
  (-NONE- *T*-1))
_____tree_____
(S
  (S-TPC-1
    (NP-SBJ
      (NP (NP (DT A) (NN form)) (PP (IN of) (NP (NN asbestos))))
      (RRC
        (ADVP-TMP (RB once))
        (VP
          (VBN used)
          (NP (-NONE- *))
          (S-CLR
            (NP-SBJ (-NONE- *))
```

```
                    (VP
                      (TO to)
                      (VP
                        (VB make)
                        (NP (NNP Kent) (NN cigarette) (NNS filters))))))))))
          (VP
            (VBZ has)
            (VP
              (VBN caused)
              (NP
                (NP (DT a) (JJ high) (NN percentage))
                (PP (IN of) (NP (NN cancer) (NNS deaths)))
                (PP-LOC
                  (IN among)
                  (NP
                    (NP (DT a) (NN group))
                    (PP
                      (IN of)
                      (NP
                        (NP (NNS workers))
                        (RRC
                          (VP
                            (VBN exposed)
                            (NP (-NONE- *))
                            (PP-CLR (TO to) (NP (PRP it)))
                            (ADVP-TMP
                              (NP
                                (QP (RBR more) (IN than) (CD 30))
                                (NNS years))
                              (IN ago)))))))))))
      (, ,)
      (NP-SBJ (NNS researchers))
      (VP (VBD reported) (SBAR (-NONE- 0) (S (-NONE- *T*-1))))
      (. .))
```

_____enter_____

tagger: gold
fileid: wsj_0003.mrg
sentnum: 1
wordnum: 11
roleset: enter.01
inflection: vn-3a
sentence: The asbestos fiber , crocidolite , is unusually resilient once it enters the
lungs , with even brief exposures to it causing symptoms that *T*-1 show up decades later ,
researchers said 0 *T*-2 .

_____predicate_____
predicate: 11:0
  wordnum: 11
  height: 0
(VBZ enters)

_____ARG0_____
loc: 10:1
(NP-SBJ (PRP it))

_____ARG1_____
loc: 12:1
(NP (DT the) (NNS lungs))

_____tree_____
(S
  (S-TPC-2
    (NP-SBJ
      (NP (DT The) (NN asbestos) (NN fiber))
      (, ,)
      (NP (NN crocidolite))
      (, ,))
    (VP
```

```
            (VBZ is)
            (ADJP-PRD (RB unusually) (JJ resilient))
            (SBAR-TMP
              (IN once)
              (S
                (NP-SBJ (PRP it))
                (VP (VBZ enters) (NP (DT the) (NNS lungs)))))
            (, ,)
            (PP
              (IN with)
              (S-NOM
                (NP-SBJ
                  (NP (RB even) (JJ brief) (NNS exposures))
                  (PP (TO to) (NP (PRP it))))
                (VP
                  (VBG causing)
                  (NP
                    (NP (NNS symptoms))
                    (SBAR
                      (WHNP-1 (WDT that))
                      (S
                        (NP-SBJ (-NONE- *T*-1))
                        (VP
                          (VBP show)
                          (PRT (RP up))
                          (ADVP-TMP (NP (NNS decades)) (JJ later)))))))))))
        (, ,)
        (NP-SBJ (NNS researchers))
        (VP (VBD said) (SBAR (-NONE- 0) (S (-NONE- *T*-2))))
        (. .))


_____cause_____
tagger:        gold
fileid:        wsj_0003.mrg
sentnum:       1
wordnum:       21

------------------------------------------------------------------------
AttributeError                          Traceback (most recent call last)
/Users/alex/projects/cmsc723_Final_Project/<ipython-input-128-5d17150c7f36> in <module>()
    14      ctrs('predicate')
    15      vprt('predicate',i.predicate)
---> 16      vprt('  wordnum',i.predicate.wordnum)
    17      vprt('  height',i.predicate.height)
    18      print i.predicate.select(i.tree)

AttributeError: 'PropbankSplitTreePointer' object has no attribute 'wordnum'


roleset:       cause.01
inflection:    p---a
sentence:      The asbestos fiber , crocidolite , is unusually resilient once it enters the
lungs , with even brief exposures to it causing symptoms that *T*-1 show up decades later ,
researchers said 0 *T*-2 .
_____predicate_____
predicate:     21:0
  wordnum:     21
  height:      0
(VBG causing)
_____ARG0_____
loc:           16:2
(NP-SBJ
  (NP (RB even) (JJ brief) (NNS exposures))
  (PP (TO to) (NP (PRP it))))
_____ARG1_____
loc:           22:2
(NP
```

```
    (NP (NNS symptoms))
    (SBAR
      (WHNP-1 (WDT that))
      (S
        (NP-SBJ (-NONE- *T*-1))
        (VP
          (VBP show)
          (PRT (RP up))
          (ADVP-TMP (NP (NNS decades)) (JJ later))))))
_____tree_____
(S
  (S-TPC-2
    (NP-SBJ
      (NP (DT The) (NN asbestos) (NN fiber))
      (, ,)
      (NP (NN crocidolite))
      (, ,))
    (VP
      (VBZ is)
      (ADJP-PRD (RB unusually) (JJ resilient))
      (SBAR-TMP
        (IN once)
        (S
          (NP-SBJ (PRP it))
          (VP (VBZ enters) (NP (DT the) (NNS lungs)))))
      (, ,)
      (PP
        (IN with)
        (S-NOM
          (NP-SBJ
            (NP (RB even) (JJ brief) (NNS exposures))
            (PP (TO to) (NP (PRP it))))
          (VP
            (VBG causing)
            (NP
              (NP (NNS symptoms))
              (SBAR
                (WHNP-1 (WDT that))
                (S
                  (NP-SBJ (-NONE- *T*-1))
                  (VP
                    (VBP show)
                    (PRT (RP up))
                    (ADVP-TMP (NP (NNS decades)) (JJ later)))))))))))
    (, ,)
    (NP-SBJ (NNS researchers))
    (VP (VBD said) (SBAR (-NONE- 0) (S (-NONE- *T*-2))))
    (. .))

_____show_____
tagger:        gold
fileid:        wsj_0003.mrg
sentnum:       1
wordnum:       25
roleset:       show.02
inflection:    vn--a
sentence:      The asbestos fiber , crocidolite , is unusually resilient once it enters the
lungs , with even brief exposures to it causing symptoms that *T*-1 show up decades later ,

researchers said 0 *T*-2 .
_____predicate_____
predicate:     25:0,26:1
```

In [ ]: