Extraction of potential multi-word expressions in a parallel corpus of their translations from a multilingual corpus

WG 2: Parsing Techniques for MWEs

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Basic setting

Orwell's 1984 parallel corpora
Resources of 16 languages belonging to Multext-East V.4. (courtesy of Institute Jozef Stefan, Ljubljana)

Orwl-mk.txt

Orwl-mk.xml

Main module

```
import sys
sys.path[:0] = ["../"]

from text.output import writeText
from text.output import writePhrasesXML
from text.output import writePhrasesCount
from text.input import readOrwellMkXML
from text.core import findPhrases
from text.core import trimCountLower
from text.core import trimSubPhrases

text =  readOrwellMkXML('Omk.xml')
phrases = findPhrases(text)
phrases = trimCountLower(phrases, 2)
phrases = trimSubPhrases(phrases)

writeText(text, 'text.txt')
writePhrasesCount(phrases, 'phrases_count.txt')
writePhrasesXML(phrases, 'phrases.xml')
```

The core part

```
from collections import defaultdict

def findPhrases(sentences):

    phrases = defaultdict(list)

    for sentence in sentences:
        words = sentence.text

        for i in xrange(2, len(words)):

            for x in xrange(0,len(words)-i):
                s=words[x]
                for y in xrange(x+1, x+i+1):
                    if(y<len(words)):
                        s+=" "+words[y]

                phrases[s].append(sentence)

    return phrases

def trimCountLower(phrases, count):

    keys = phrases.keys()

    for phrase in keys:
        if len(phrases[phrase]) < count:
            del phrases[phrase]

    return phrases
```

Separation of all the repeated blocks of words

15463 blocks of words (potential MWEs)
They appeared in total 53246 times
Average length: 3.44 words / block

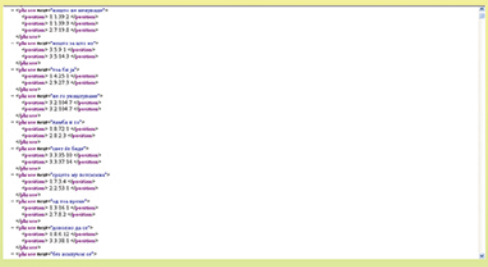
Generated smaller blocks

length of the block	frequency	generated smaller blocks
39 words	2	741
24 words	2	276
20 words	2	190
17 words	2	136
12 words	2	66
...	...	...

Removing of the blocks generated by longer blocks

4690 blocks of words (potential MWEs)
They appeared in total 7621 times
Average length: 2.07 words / block

Part of extracted MWEs



Frequency of extracted MWEs

Filtering of nominal phrases

Adj N (безнадежна љубов - beznadezhna ljubov = hopeless love)
Adj Adj Noun (друго човечко суштество - drugo chovechko sushtestvo = another human being)
Adj N N (мал број луѓе - mal broj lugje = very few people)
N N (безумие безумие - bezumie bezumie = folly folly)
Adj N Prep N (будното око на полицијата - budnoto oko na policijata = under the eyes of the police)
Adj N Adv (неколку минути подоцна - nekolku minuti podocna = after only a few minutes' delay)
Adj N Prep Adj N (дневната заповед на големиот брат - dnevnata zapoved na golemiot brat = big brother's order for the day)
Adv N Adv N (повеќе храна повеќе облека - povekje hrana povekje obleka = more food more clothes)

Blocks that contain a verb