

### 1-3. Antonym – Outputs

Two outputs are generated from annual release tagged antonyms (antCand.data.tag.\${YEAR}):

- Antonyms
- Negation Detection Cue words

They are described in the following sections:

#### 1. Antonym Generation

Antonyms are generated from the tagged antonym candidates.

##### 1.1. Program - GenAntFromTagCand.java

- Candidate has valid ant1 and ant2 (single word)
- Canonical tag on candidate is [Y]
- Expand Ant1 and Ant2 from citation to spVars (single words only)
- Input: \${0.Antonym}/\${YEAR}/input/antCand.data.tag.\${YEAR}

```
Shell> cd ${ANTONYM}/bin
Shell> GetAntonyms ${YEAR}
1
```

##### 1.2. Output:

- Output: \${0.Antonym}/\${YEAR}/output/antonyms.data.\${YEAR}

The output file of antonyms has 9 fields. Each line represents an antonym pair (aPair) and includes all associated information. All aPairs must be canonical antonyms. Table 1 shows examples of antonym outputs.

Ant1	EUI1	Ant2	EUI2	POS	Type	Negation	Domain	Source
successful	E0058773	unsuccessful	E0063388	adj	UB	N2	quality	PD
useful	E0063740	unuseful	E0232210	adj	UB	N2	quality	PD
useful	E0063740	useless	E0063743	adj	UB	N2	quality	SD
careful	E0015340	careless	E0015344	adj	UB	BN2	quality	SD
asleep	E0010731	awake	E0011449	adj	B	O	physical property	CC
long	E0038005	short	E0055691	adj	UB	O	size	CC
good	E0030153	bad	E0011777	adj	AB	O	quality	CC
with	E0065516	without	E0065526	prep	B	N2	existence	CC

like	E0419447	unlike	E0063275	prep	AB	BN2	quality	PD
absent	E0006585	present	E0049839	adj	B	N1	existence	CC
death	E0020918	life	E0037496	noun	UB	BN1	existence	CC

**Table 1. Antonym output examples**

## 2. Negation Detection Cue Word Generation

A sentence is detected as negative if it contains negation cue words. This list is generated from the annual release tagged antonyms.

### 2.1 Program

- Negation tag on antonym candidates is [N1|N2]
- Add spVar of negation cue word (can be multiwords)
- A negation detection cue word does not necessarily have antonyms (i.e., canon=[N]), such as:
  - ANTONYM\_NONE|EUI\_NONE|neither|E0783690|conj|N|NA|N2|DOMAIN\_NONE|LEX
  - ANTONYM\_NONE|EUI\_NONE|not|E0043086|adv|N|NA|N2|DOMAIN\_NONE|LEX
  - some|E0056728|nary a|E0575386|det|N|NA|N2|DOMAIN\_NONE|LEX
  - all|E0008090|nothing|E0043101|pron|N|NA|N2|DOMAIN\_NONE|CC
  - absence|E0006584|audience|E0011159|noun|N|NA|N1|DOMAIN\_NONE|CC

```
Shell> cd ${ANTONYM}/bin
Shell> GetAntonyms ${YEAR}
2
```

### 2.2 Output format:

- Output: \${0.Antonym}/\${YEAR}/output/NegCurWords.data.\${YEAR}

Output file has 3 fields, as shown in table 2.

Cue Word	EUI	POS
without	E0065526	prep
isn't	E0012152	aux
couldn't	E0014877	modal
neither	E0042155	det
neither	E0042156	pron
neither	E0783690	conj
...	...	...

**Table 2. Negation detection cue word examples**