Appendix for "Domain-Assisted Product Aspect Hierarchy Generation: Towards Hierarchical Organization of Unstructured Consumer Reviews"

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1   Appendix A

1.1   6 patterns in Hearst1992

1) NP_Y (,)? such as NP_X
2) such NP_Y as NP_X and/or NP_X
3) NP_X (,)? or other NP_Y
4) NP_X (,)? and other NP_Y
5) NP_Y (,)? including and/or NP_X
6) NP_Y (,)? especially and/or NP_X

1.2   30 phrase-level patterns in Girju2006

1) NP_X PP_Y
- PP_Y starts with *of*
2) NP_X PP_Y
- PP_Y starts with *in*
3) NP_X PP_Y
- NP_X ends with *branch*
- PP_Y begins with *of*
4) NP_X PP_Y - PP_Y starts with *from*
5) NP_X PP_Y
- PP_Y starts with *throughout*
6) NP_X PP_Y
- PP_Y starts with *at*
7) NP_X PP_Y
- PP_Y starts with *on*
8) NP_X PP_Y
- PP_Y starts with *to*
9) NP_X PP_Y
- PP_Y starts with *around*
10) NP_X PP_Y
- PP_Y starts with *all over*
11) X and other Z of Y
12) NP_X PP_Y
- PP_Y starts with *to*

- NP_X ends with *damage*
13) NP_X PP_Y
- PP_Y starts with *onto*
14) NP_X PP_Y
- PP_Y starts with *outside*
15) NP_Y PP_X
- PP_X starts with *with*
16) NP_Y PP_X
- PP_X starts with *above*
17) NP_Y s NP_X
18) PP_X PP_Y
- PP_X starts with *in*
- PP_Y starts with *in*
19) PP_Y PP_X
- PP_X starts with *on*
- PP_Y starts with *on*
20) NP_X, NP_Y
21) PP_Y WHP_X
- WHP_X starts with *whose*
22) NP_{X1X2} PP_Y
- NP_{X1X2} ends with *branches*
- NP_{X1X2} contains *and* or *or*
- PP_Y begins with *of*
23) NP_{X1X2} PP_Y
- NP_{X1X2} contains *and* or *or*
- PP_Y begins with *of*
24) NP_Y (NP_{X1X2})
- NP_{X1X2} contains *and* or *or*
25) NP_X (NP_Y)
26) NP_Y NP_X
27) $NP_Z CNP_X$ NP_Y
28) NP_Y NP_X NP_Z
29) NP_X NP_Y
30) $NP_X CNP_Y$ NP_Z

- verb: *be*

1.3 10 sentence-level patterns in Girju2006

1) NP_Y verb NP_X
- verbs: *carry, combine, comprehend, comprise, consist, contain , enclose, feature, have, hold, hold in, house, include, incorporate, inherit, integrate, receive, retain, subsume*

2) NP_Z verb NP_X PP_Y
- PP_Y starts with *in, into, as or from*
- verbs: *assemble, build, build in, carry, combine, compose, compound, comprehend, comprise, connect, consist, construct, contain , coordinate, create, embrace, enclose, enter, fabricate, feature, file, form, have, hold, hold in, house, include, incorporate, infix, inherit, insert, integrate, introduce, join, link, make, manufacture, merge, observe, organize, overlap, receive, retain, subsume, unify, unite, use*

3) NP_Z verb PP_X PP_Y
- PP_Y starts with *through*
- verbs: *drag, exit, leave*

4) NP_X verb NP_Y
- verbs: *accommodate, add, admit, affiliate, appertain, be, bear, belong, build in, colligate, compose, compound, confine, constitute, dwell, embrace, encompass, fall in, form, get together, infiltrate, inhere, involve, join, let in, lie, lie in, make, make up, pertain, rejoin, repose, represent, reside, rest, sign up, take*

5) NP_X verb PP_Y
- verbs: *attached to, inhere in* (PP_Y starts with *in* or *to*)

6) NP_X verb NP_Z PP_Y
- PP_Y starts with *of*
- NP_Z is *part* or *member*

7) NP_X NP_Y verb
- verbs: *carry, combine, comprehend, comprise, consist, contain , enclose, feature, have, hold, hold in, house, include, incorporate, inherit, integrate, receive, retain, subsume*

8) NP_{Y1} verb NP_X to NP_{Y2}
- verbs: *donate, give*

9) In PP_Y , NP_{X1} verb NP_{X2}
- verbs: *cover*
in NP_Y packed to NP_X

10) NP_Z PP_X verb NP_T PP_Y
CPP_X starts with *in*
CNP_T contains an adjective superlative

2 Appendix B

WordNet 12 topics: gathering,professional, people, building, place, milk, meal, water, beverage, alcohol, dish, and herb.

ODP 16 topics: computers,robotics, intranet, mobile computing, database, operating system, linux, tex, software, computer science, data communication, algorithms, data formats, security multimedia, and artificial intelligence.