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| --- | --- | --- | --- | --- | --- |
|  | **Nouns - Cluster 1: Washing clothes** | **Frequency (*f*)** | **DBpedia** | **ConceptNet** | **NELL** |
| **1** | Pockets | 2 | x | 0 clicks, 1 minute | 3 clicks, 3 minutes |
| **2** | Clean | 4 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 5 minutes |
| **3** | Clothes | 44 | 0 clicks, 1 minute | 0 clicks, 1 minute | 1 click, 1 minute |
| **4** | Color / Colour | 34 | 1 click, 4 minutes | 0 clicks, 1 minute | 3 clicks, 3 minutes |
| **5** | Material | 3 | 0 clicks, 1 minute | x | 3 clicks, 5 minutes |
| **6** | Washing soap / detergent | 15 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **7** | Washing program | 5 | 1 click, 3 minutes | x | 3 clicks, 5 minutes |
| **8** | Washing drum | 1 | 1 click, 3 minutes | x | x |
| **9** | Door | 2 | x | x | 3 clicks, 4 minutes |
| **10** | Temperature | 17 | x | 0 clicks, 1 minute | 3 clicks, 4 minutes |
| **11** | Water | 12 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **12** | Bleach | 1 | x | x | 3 clicks, 6 minutes |
| **13** | Washing machine | 18 | 0 clicks, 1 minute | 0 clicks, 1 minute | 0 clicks, 1 minute |
| **14** | Electricity | 2 | x | x | 3 clicks, 4 minutes |
| **Average clicks:** | n/a | n/a | 0.33 clicks | 0 clicks | 2.6 clicks |
| **Average time:** | n/a | n/a | 1.8 minutes | 1 minute | 3.5 minutes |

**DBpedia**

1. x

2. <http://dbpedia.org/page/Washing_machine>

3. <http://dbpedia.org/page/Washing_machine>

4. <http://dbpedia.org/page/Washing_machine>, <https://en.wikipedia.org/wiki/Washing_machine>

5. <http://dbpedia.org/page/Laundry>

6. <http://dbpedia.org/page/Washing_machine>

7. <http://dbpedia.org/page/Washing_machine>, <https://en.wikipedia.org/wiki/Washing_machine>

8. <http://dbpedia.org/page/Washing_machine>, <https://en.wikipedia.org/wiki/Washing_machine>

9. x

10. x

11. <http://dbpedia.org/page/Washing_machine>

12. x

13. <http://dbpedia.org/page/Washing_machine>

14. x

**ConceptNet:**

1. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

2. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

3. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

4. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

5. x

6. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

7. x

8. x

9. x

10. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

11. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

12. x

13. <http://conceptnet5.media.mit.edu/c/en/wash_clothes>

14. x

**NELL:**

1. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

2. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

3. <http://rtw.ml.cmu.edu/rtw/kbbrowser/> , <http://rtw.ml.cmu.edu/rtw/kbbrowser/physicalaction:clothes_washing>

4. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.dummies.com/home-garden/how-to-wash-clothes-in-a-washing-machine/>

5. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

6. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

7. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/physicalaction:clothes_washing>, <https://www.google.com/search?q=%22clothes-washing%22>, <https://www.explainthatstuff.com/washingmachine.html>

8. x

9. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

10. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

11. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

12. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/householditem:washing_clothes>, <https://www.google.com/search?q=%22washing+clothes%22>, <https://www.wikihow.com/Wash-Your-Clothes>

13. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

14. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/visualizableobject:washing_machine>, <https://www.google.com/search?q=%22washing+machine%22>, <https://en.wikipedia.org/wiki/Washing_machine>

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| --- | --- | --- | --- | --- | --- |
|  | **Nouns – Cluster 2: Doing dishes** | **Frequency (*f*)** | **DBpedia** | **ConceptNet** | **NELL** |
| **1** | Detergent / Soap | 24 | 0 clicks, 1 minute | 0 clicks, 1 minute | 1 click, 2 minutes |
| **2** | Water | 31 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 3 minutes |
| **3** | Order | 2 | x | x | 3 clicks, 3 minutes |
| **4** | Sponge | 10 | 2 clicks, 3 minutes | 1 click, 2 minutes | 3 clicks, 4 minutes |
| **5** | Special coatings | 1 | x | x | x |
| **6** | Dishes | 32 | 0 clicks, 1 minute | 0 clicks, 1 minute | 0 clicks, 1 minute |
| **7** | Towel | 2 | x | 0 clicks, 1 minute | 3 clicks, 3 minutes |
| **8** | Cutting boards | 1 | 1 click, 2 minutes | x | x |
| **9** | Meat | 1 | x | x | x |
| **10** | Utensils | 1 | 0 clicks, 1 minute | x | x |
| **11** | Dishwasher | 14 | 0 clicks, 1 minute | 2 clicks, 3 minutes | 3 clicks, 3 minutes |
| **12** | Electricity | 1 | x | x | x |
| **13** | Plastic containers | 1 | x | x | x |
| **Average clicks:** | n/a | n/a | 0.4 clicks | 0.5 clicks | 2.3 clicks |
| **Average time:** | n/a | n/a | 1.43 minutes | 1.5 minutes | 2.7 minutes |

**DBpedia**

1. <http://dbpedia.org/page/Dishwasher>

2. <http://dbpedia.org/page/Dishwasher>

3. x

4. <http://dbpedia.org/page/Dishwasher>, <https://en.wikipedia.org/wiki/Dishwasher>, <https://en.wikipedia.org/wiki/Sponge_(tool)>

5. x

6. <http://dbpedia.org/page/Dishwasher>

7. x

8. <http://dbpedia.org/page/Dishwasher>, <https://en.wikipedia.org/wiki/Dishwasher>

9. x

10. <http://dbpedia.org/page/Dishwasher>

11. <http://dbpedia.org/page/Dishwasher>

12. x

13. x

**ConceptNet**

1. <http://www.conceptnet.io/c/en/soap>

2. <http://www.conceptnet.io/c/en/soap>

3. x

4. <http://www.conceptnet.io/c/en/soap>, <http://www.conceptnet.io/c/en/washing_dishes>

5. x

6. <http://www.conceptnet.io/c/en/soap>

7. <http://conceptnet.media.mit.edu/c/en/dishes>

8. x

9. x

10. x

11. <http://www.conceptnet.io/c/en/soap>, <http://www.conceptnet.io/c/en/soap?rel=/r/UsedFor&limit=1000>, <http://www.conceptnet.io/c/en/washing_dishes>

12. x

13. x

**NELL**

1. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/bathroomitem:soap_dishes>

2. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/automobilemodel:dishwashing>, <https://www.google.com/search?q=%22Dishwashing%22>, <https://en.wikipedia.org/wiki/Dishwashing>

3. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/automobilemodel:dishwashing>, <https://www.google.com/search?q=%22Dishwashing%22>, <https://en.wikipedia.org/wiki/Dishwashing>

4. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/automobilemodel:dishwashing>, <https://www.google.com/search?q=%22Dishwashing%22>, <https://en.wikipedia.org/wiki/Dishwashing>

5. x

6. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

7. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/automobilemodel:dishwashing>, <https://www.google.com/search?q=%22Dishwashing%22>, <https://en.wikipedia.org/wiki/Dishwashing8>

8. x

9. x

10. x

11. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/automobilemodel:dishwashing>, <https://www.google.com/search?q=%22Dishwashing%22>, <https://en.wikipedia.org/wiki/Dishwashing>

12. x

13. x

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Nouns – Cluster 3: Vacuuming** | **Frequency (*f*)** | **DBpedia** | **ConceptNet** | **NELL** |
| **1** | Vacuum cleaner | 11 | 0 clicks, 1 minute | 0 clicks, 1 minute | 2 clicks, 3 minutes |
| **2** | Electricity | 4 | 1 click, 2 minutes | x | x |
| **3** | Tool | 1 | 1 click, 3 minutes | 1 click, 1 minute | 3 clicks, 4 minutes |
| **4** | Dirt / Dust / Waste / Sand | 19 | 0 clicks, 1 minute | 2 clicks, 3 minutes | 3 clicks, 4 minutes |
| **5** | Object | 3 | x | x | x |
| **6** | Space / Room | 3 | 1 click, 3 minutes | 1 click, 2 minutes | 3 clicks, 3 minutes |
| **7** | Bag / Dustbag | 7 | 0 clicks, 1 minute | 2 clicks, 3 minutes | 3 clicks, 3 minutes |
| **8** | Mode | 2 | x | x | x |
| **9** | Floor | 14 | 0 clicks, 1 minute | 2 clicks, 2 minutes | 3 clicks, 5 minutes |
| **10** | Pole | 1 | x | x | x |
| **11** | Spot | 2 | x | x | x |
| **12** | Pattern | 1 | x | x | x |
| **13** | Liquid | 3 | 0 clicks, 1 minute | x | x |
| **14** | Corner | 7 | 1 click, 2 minutes | x | x |
| **15** | Cable / Cord | 3 | 1 click, 3 minutes | x | 3 clicks, 3 minutes |
| **16** | Operational radius | 1 | x | x | x |
| **Average clicks:** | n/a | n/a | 0.5 clicks | 1.3 clicks | 2.9 clicks |
| **Average time:** | n/a | n/a | 1.8 minutes | 2 minutes | 3.6 minutes |

**DBpedia**

1. <http://dbpedia.org/page/Vacuum_cleaner>

2. <http://dbpedia.org/page/Vacuum_cleaner>, <https://en.wikipedia.org/wiki/Vacuum_cleaner>

3. <http://dbpedia.org/page/Vacuum_cleaner>, <https://en.wikipedia.org/wiki/Vacuum_cleaner>

4. <http://dbpedia.org/page/Vacuum_cleaner>

5. x

6. <http://dbpedia.org/page/Vacuum_cleaner>, <https://en.wikipedia.org/wiki/Vacuum_cleaner?oldid=743307366>

7. <http://dbpedia.org/page/Vacuum_cleaner>

8. x

9. <http://dbpedia.org/page/Vacuum_cleaner>

10. x

11. x

12. x

13. <http://dbpedia.org/page/Vacuum_cleaner>

14. <http://dbpedia.org/page/Vacuum_cleaner>, <https://en.wikipedia.org/wiki/Vacuum_cleaner>

15. <http://dbpedia.org/page/Vacuum_cleaner>, <https://en.wikipedia.org/wiki/Vacuum_cleaner>

16. x

**ConceptNet**

1. <http://conceptnet.io/c/en/vacuuming>

2. x

3. <http://conceptnet.io/c/en/vacuuming>, <http://conceptnet.io/c/en/vacuum_cleaner>

4. <http://conceptnet.io/c/en/vacuuming>, <http://conceptnet.io/c/en/vacuum_cleaner>, <https://en.wiktionary.org/wiki/vacuum_cleaner>

5. x

6. <http://conceptnet.io/c/en/vacuuming>, <http://conceptnet.io/c/en/vacuum_cleaner>

7. <http://conceptnet.io/c/en/vacuuming>, <http://conceptnet.io/c/en/vacuum_cleaner>, <https://en.wiktionary.org/wiki/vacuum_cleaner>

8. x

9. <http://conceptnet.io/c/en/vacuuming>, <http://conceptnet.io/c/en/vacuum_cleaner>, <https://en.wiktionary.org/wiki/vacuum_cleaner>

10. x

11. x

12. x

13. x

14. x

15. x

16. x

**NELL**

1. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/physicalaction:vacuuming>, <https://www.google.com/search?q=%22Vacuuming%22>

2. x

3. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/fungus:hepa_vacuuming_of_dusty_surfaces>, <https://www.google.com/search?q=%22HEPA+vacuuming+of+dusty+surfaces%22>, <https://molekule.com/blog/hepa-vacuum-what-it-can-and-cannot-do/>

4. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/fungus:hepa_vacuuming_of_dusty_surfaces>, <https://www.google.com/search?q=%22HEPA+vacuuming+of+dusty+surfaces%22>, <https://molekule.com/blog/hepa-vacuum-what-it-can-and-cannot-do/>

5. x

6. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/fungus:hepa_vacuuming_of_dusty_surfaces>, <https://www.google.com/search?q=%22HEPA+vacuuming+of+dusty+surfaces%22>, <https://molekule.com/blog/hepa-vacuum-what-it-can-and-cannot-do/>

7. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/fungus:hepa_vacuuming_of_dusty_surfaces>, <https://www.google.com/search?q=%22HEPA+vacuuming+of+dusty+surfaces%22>, <https://molekule.com/blog/hepa-vacuum-what-it-can-and-cannot-do/>

8. x

9. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/physicalaction:vacuuming>, <https://www.google.com/search?q=%22vacuuming%22>, <https://housewifehowtos.com/clean/how-to-vacuum-properly/>

10. x

11. x

12. x

13. x

14. x

15. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/physicalaction:vacuuming>, <https://www.google.com/search?q=%22vacuuming%22>, <https://housewifehowtos.com/clean/how-to-vacuum-properly/>

16. x

|  |  |  |  |  |  |
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|  | **Nouns – Cluster 4: Cooking** | **Frequency (*f*)** | **DBpedia** | **ConceptNet** | **NELL** |
| **1** | Food | 20 | 0 clicks, 1 minute | 0 clicks, 1 minute | 0 clicks, 1 minute |
| **2** | Salt / Pepper | 9 | 1 click, 2 minutes | 1 click, 2 minutes | 3 clicks, 2 minutes |
| **3** | Oil / Fat | 12 | 1 click, 2 minutes | 1 click, 2 minutes | 0 clicks, 1 minute |
| **4** | Pan (size) | 21 | 0 clicks, 1 minute | 0 clicks, 1 minute | 0 clicks, 1 minute |
| **5** | Expiration date | 1 | x | x | x |
| **6** | (Amount of) heat | 12 | 0 clicks, 1 minute | 0 click, 1 minute | 3 clicks, 3 minutes |
| **7** | Burner | 1 | x | 1 click, 3 minutes | x |
| **8** | Stove / Oven | 9 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **9** | Spoon | 3 | 0 clicks, 1 minute | 0 clicks, 1 minute | 0 clicks, 1 minute |
| **10** | Coating / Material | 1 | x | x | 3 clicks, 3 minutes |
| **11** | Pasta | 4 | 2 clicks, 3 minutes | 1 click, 2 minutes | 0 clicks, 1 minute |
| **12** | Potato | 1 | 2 clicks, 4 minutes | 1 click, 2 minutes | 3 clicks, 3 minutes |
| **13** | Knife | 3 | x | x | x |
| **14** | State (of the food) | 1 | x | 0 clicks, 1 minute | 2 clicks, 3 minutes |
| **15** | Ingredient | 11 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 3 minutes |
| **16** | Dish | 2 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **17** | Edibility | 1 | x | x | x |
| **18** | Taste | 6 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **19** | Amount | 4 | 2 clicks, 3 minutes | x | 3 clicks, 2 minutes |
| **Average clicks:** | n/a | n/a | 0.6 clicks | 0.4 clicks | 1.9 clicks |
| **Average time:** | n/a | n/a | 1.7 minutes | 1.4 minutes | 2 minutes |

**DBpedia**

1. <http://dbpedia.org/page/Cooking>

2. <http://dbpedia.org/page/Cooking>, <https://en.wikipedia.org/wiki/Cooking>

3. <http://dbpedia.org/page/Cooking>, <https://en.wikipedia.org/wiki/Cooking>

4. <http://dbpedia.org/page/Cooking>

5. x

6. <http://dbpedia.org/page/Cooking>

7. x

8. <http://dbpedia.org/page/Cooking>

9. <http://dbpedia.org/page/Cooking>

10. x

11. <http://dbpedia.org/page/Cooking>, <http://dbpedia.org/page/List_of_cooking_techniques>, <https://en.wikipedia.org/wiki/List_of_cooking_techniques>

12. <http://dbpedia.org/page/Category:Cooking>, <https://en.wikipedia.org/wiki/Category:Cooking?oldid=653796959>, <https://en.wikipedia.org/wiki/Cooking>

13. x

14. x

15. <http://dbpedia.org/page/Cooking>

16. <http://dbpedia.org/page/Cooking>

17. x

18. <http://dbpedia.org/page/Cooking>

19. <http://dbpedia.org/page/Cooking>, <http://dbpedia.org/page/List_of_cooking_techniques>, <https://en.wikipedia.org/wiki/List_of_cooking_techniques>

**Conceptnet**

1. <http://conceptnet.io/c/en/cooking>

2. <http://conceptnet.io/c/en/cooking>, <http://conceptnet.io/c/en/cooking?rel=/r/HasContext&limit=1000>

3. <http://conceptnet.io/c/en/cooking>, <http://conceptnet.io/c/en/cooking?rel=/r/HasContext&limit=1000>

4. <http://conceptnet.io/c/en/cooking>

5. x

6. <http://conceptnet.io/c/en/cooking>

7. <http://conceptnet.io/c/en/cooking>, <http://conceptnet.io/c/en/cooking?rel=/r/RelatedTo&limit=1000>

8. <http://conceptnet.io/c/en/cooking>

9. <http://conceptnet.io/c/en/cooking>

10. x

11. <http://conceptnet.io/c/en/cooking>, <http://conceptnet.io/c/en/cooking?rel=/r/HasContext&limit=1000>

12. <http://conceptnet.io/c/en/cooking>, <http://conceptnet.io/c/en/cooking?rel=/r/HasContext&limit=1000>

13. x

14. <http://conceptnet.io/c/en/cooking>

15. <http://conceptnet.io/c/en/cooking>

16. <http://conceptnet.io/c/en/cooking>

17. x

18. <http://conceptnet.io/c/en/cooking>

19. x

**NELL**

1. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

2. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

3. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

4. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

5. x

6. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

7. x

8. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

9. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

10. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/buildingmaterial:iron_cooking>, <https://www.google.com/search?q=%22iron+cooking%22>, <https://www.seriouseats.com/2014/11/the-truth-about-cast-iron.html>

11. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>

12. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

13. x

14. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/magazine:what_s_cooking>, <https://www.google.com/search?q=%22What%27s+Cooking%22>

15. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

16. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

17. x

18. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

19. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hobby:cooking>, <https://www.google.com/search?q=%22Cooking%22>, <https://en.wikipedia.org/wiki/Cooking>

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|  | **Nouns – Cluster 5: Window cleaning** | **Frequency (*f*)** | **DBpedia** | **ConceptNet** | **NELL** |
| **1** | Detergent / Soap | 19 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 5 minutes |
| **2** | Water | 22 | 0 clicks, 1 minute | 0 clicks, 1 minute | 3 clicks, 4 minutes |
| **3** | Cloth | 3 | 1 click, 2 minutes | 0 clicks, 1 minute | 3 clicks, 4 minutes |
| **4** | Window | 23 | 0 clicks, 1 minute | x | 3 clicks, 3 minutes |
| **5** | Top | 2 | x | x | 3 clicks, 4 minutes |
| **6** | Bottom / End | 2 | x | x | 3 clicks, 4 minutes |
| **7** | Handle / Cleanser | 2 | 1 click, 2 minutes | x | 3 clicks, 3 minutes |
| **8** | Air | 1 | 2 clicks, 3 minutes | x | 3 clicks, 2 minutes |
| **9** | Stain | 2 | x | 0 clicks, 1 minute | 3 clicks, 2 minutes |
| **10** | Order | 2 | x | x | x |
| **Average clicks:** | n/a | n/a | 0.7 clicks | 0 clicks | 3 clicks |
| **Average time:** | n/a | n/a | 1.7 minutes | 1 minute | 3.4 minutes |

**DBpedia**

1. <http://dbpedia.org/page/Window_cleaner>

2. <http://dbpedia.org/page/Window_cleaner>

3. <http://dbpedia.org/page/Window_cleaner>, <https://en.wikipedia.org/wiki/Window_cleaner>

4. <http://dbpedia.org/page/Window_cleaner>

5. x

6. x

7. <http://dbpedia.org/page/Window_cleaner>, <https://en.wikipedia.org/wiki/Window_cleaner>

8. <http://dbpedia.org/page/Window_cleaner>, <https://en.wikipedia.org/wiki/Window_cleaner>, <https://en.wikipedia.org/wiki/Squeegee>

9. x

10. x

**Conceptnet**

1. <http://conceptnet.io/c/en/cleaning>

2. <http://conceptnet.io/c/en/cleaning>

3. <http://conceptnet.io/c/en/cleaning>

4. x

5. x

6. x

7. x

8. x

9. <http://conceptnet.io/c/en/cleaning>

10. x

**NELL**

1. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

2. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

3. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

4. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

5. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

6. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

7. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

8. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

9. <http://rtw.ml.cmu.edu/rtw/kbbrowser/>, <http://rtw.ml.cmu.edu/rtw/kbbrowser/hallwayitem:cleaning_window>, <https://www.google.com/search?q=%22cleaning+window%22>, <https://shewearsmanyhats.com/the-best-window-cleaner/>

10. x

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Easily accessible (*E*)** | **Hard accessible (*H*)** | **Avg. time** | **Avg. number of clicks** |
| **DBpedia** | 62.5% | 37.5% | 01:41 | 0.50 |
| **ConceptNet** | 52.8% | 47.2% | 01:23 | 0.44 |
| **NELL** | 70.8% | 29.2% | 03:02 | 2.54 |