

C SC 620
Advanced Topics in Natural
Language Processing

Lecture 8

2/12/04

Adminstrivia

- Email me your slides for your presentation next week
 - Only one person has done that so far ...
- Remember it should be a 15 minute presentation total (including questions)

Next Topic

- Next topic we're going to look in depth at is Machine Translation
- Paper collection:
 - *Readings in Machine Translation*
 - Edited by Sergei Nirenburg, Harold Somers and Yorick Wilks
 - Published July 2003
 - MIT Press

Color and WordNet

argent blue-black charcoal gray hueless neutral white

achromatic

↕ antonym

chromatic

amber azure blue brown dun green red ... yellow

Semantic Relation

- Natural objects sometimes have a canonical (or idealized) color
 - Examples:
 - grass **color-of** green
 - cucumber **color-of** green
 - banana **color-of** yellow
 - apple **color-of** red
 - apple **color-of** green
 - sky **color-of** blue

WordNet and Canonical Color

- WordNet is very inconsistent in its use of color
 - Relation: sky **color-of** blue
 - Concept:
 - *blue sky*
 - Synset: {blue, blue_sky, wild blue yonder, blue air}
 - (synset id: 107581577)
 - Gloss: *the sky as viewed during daylight: he shot an arrow into the blue*
- Note:
 - *red sky* is not in WordNet

WordNet and Canonical Color

- *Blue* to *sky* (1 link)
 - blue/n is in [blue_sky,blue,blue_air,wild_blue_yonder]
 - [blue_sky,blue,blue_air,wild_blue_yonder] is an instance of [sky]
- Hyponyms of *sky*:
 - blue sky
 - mackerel sky

WordNet and Canonical Color

- *Red to sky* (6 links)
 - red/n is in [Bolshevik,Marxist,pinko,red,bolshie]
 - [Bolshevik,Marxist,pinko,red,bolshie] is an instance of [radical]
 - [radical] is an instance of [disputant,controversialist]
 - [disputant,controversialist] is an instance of [person,individual,someone,somebody,mortal,human,soul]
 - [person,individual,someone,somebody,mortal,human,soul] is an instance of [causal_agent,cause,causal_agency]
 - [causal_agent,cause,causal_agency] is an instance of [entity,physical_thing]
 - [sky] is an instance of [entity,physical_thing]

Examples

- **Grass**
 - **Gloss:** *narrow-leaved green herbage: grown as lawns; used as pasture for grazing animals; cut and dried as hay*
- *Green to grass (4 links)*
 - green/n is in [greens,green,leafy_vegetable]
 - [greens,green,leafy_vegetable] is an instance of [vegetable,veggie]
 - [vegetable,veggie] is a part holonym of [herb,herbaceous_plant]
 - [gramineous_plant,graminaceous_plant] is an instance of [herb,herbaceous_plant]
 - [grass] is an instance of [gramineous_plant,graminaceous_plant]

Examples

- **Cucumber**

- Gloss: *a melon vine of the genus Cucumis; cultivated from earliest times for its cylindrical green fruit*

- *Green to cucumber (3 links)*

- green/n is in [greens,green,leafy_vegetable]
 - [greens,green,leafy_vegetable] is an instance of [vegetable,veggie]
 - [cucumber,cuke] is an instance of [vegetable,veggie]
 - cucumber/n is in the synset [cucumber,cuke]

Examples

Apple

Gloss: *fruit with red or yellow or green skin ...*

- *Green to apple* (4 links)
 - green/n is in [greens,green,leafy_vegetable]
 - [greens,green,leafy_vegetable] is an instance of [vegetable,veggie]
 - [vegetable,veggie] is an instance of [produce,green_goods,green_groceries,garden_truck]
 - [edible_fruit] is an instance of [produce,green_goods,green_groceries,garden_truck]
 - [apple] is an instance of [edible_fruit]

Examples

- *Red to apple* (10 links)
 - red/n is in [red,redness]
 - [red,redness] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [blue,blueness] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [Payne's_gray] is an instance of [blue,blueness]
 - [Payne's_gray] is an instance of [pigment]
 - [pigment] is an instance of [coloring_material,colouring_material,color,colour]
 - [coloring_material,colouring_material,color,colour] is an instance of [material,stuff]
 - [rind] is an instance of [material,stuff]
 - [peel,skin] is an instance of [rind]
 - [peel,skin] is a part holonym of [edible_fruit]
 - [apple] is an instance of [edible_fruit]

Examples

- *Yellow to apple* (12 links)
 - yellow/n is in [yellow,yellowness]
 - [yellow,yellowness] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [blue,blueness] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [Payne's_gray] is an instance of [blue,blueness]
 - [Payne's_gray] is an instance of [pigment]
 - [pigment] is an instance of [coloring_material,colouring_material,color,colour]
 - [coloring_material,colouring_material,color,colour] is an instance of [material,stuff]
 - [material,stuff] is an instance of [substance,matter]
 - [solid] is an instance of [substance,matter]
 - [food] is an instance of [solid]
 - [produce,green_goods,green_groceries,garden_truck] is an instance of [food]
 - [edible_fruit] is an instance of [produce,green_goods,green_groceries,garden_truck]
 - [apple] is an instance of [edible_fruit]

Examples

- *Purple to apple* (12 links)
 - purple/n is in [purple,purpleness,empurpled]
 - [purple,purpleness,empurpled] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [blue,blueness] is an instance of [chromatic_color,chromatic_colour,spectral_color,spectral_colour]
 - [Payne's_gray] is an instance of [blue,blueness]
 - [Payne's_gray] is an instance of [pigment]
 - [pigment] is an instance of [coloring_material,colouring_material,color,colour]
 - [coloring_material,colouring_material,color,colour] is an instance of [material,stuff]
 - [material,stuff] is an instance of [substance,matter]
 - [solid] is an instance of [substance,matter]
 - [food] is an instance of [solid]
 - [produce,green_goods,green_groceries,garden_truck] is an instance of [food]
 - [edible_fruit] is an instance of [produce,green_goods,green_groceries,garden_truck]
 - [apple] is an instance of [edible_fruit]

Visual Information

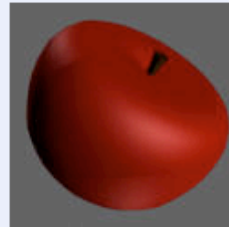
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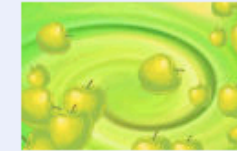
apple.jpg
205 x 295 pixels - 13k
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apple.jpg
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3d.faws.org/objects/animals_plants/apple.jpg



vs-apple-macintosh.jpg
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Visual Information



apple.jpg
320 x 240 pixels - 14k
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180 x 239 pixels - 13k
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538 x 400 pixels - 35k
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apple.jpg
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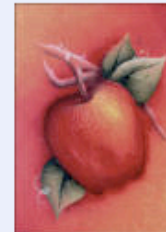
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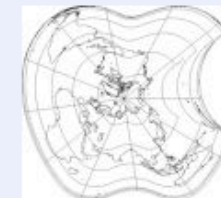
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361 x 330 pixels - 38k

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175 x 256 pixels - 14k
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