

Designing FOL KB

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Topic: Love your health & Cure your symptom

URL to the project's table

- https://docs.google.com/spreadsheets/d/14Ms5zrOkGY9cGT4HkZU37se8vJlckGFwed5N71ZSp_E/edit#gid=0

URL to the project's presentation

- https://docs.google.com/presentation/d/189ScNMzLseWr_770xiuRdii-yT8sVtzs88w7m1QpP1s/edit#slide=id.p

URLs

- <https://www.lenntech.com/fruit-vegetable-vitamin-content.htm>
- <https://www.pmfias.com/vitamins-minerals-deficiency-diseases-food-sources-of-vitamins-minerals/>
- <https://www.healthline.com/health/folate-deficiency#symptoms>
- <https://www.mayoclinic.org/diseases-conditions/vitamin-deficiency-anemia/symptoms-causes/syc-20355025>

Purposes

1. To define the vitamins that the fruits and vegetables have.
2. To define which vitamins help to treat which symptoms.
3. To define which symptoms occur at which organs.
4. To define which fruits and vegetables contain the same vitamins.
5. To make everyone know which vegetables or fruits cure which symptoms and help to restore which organ.
6. To help everyone to easily categorize which one is fruit and which one is vegetable.

Questions

1. Which vitamins do these vegetables and fruits have?
2. Which vitamins can make the symptoms get better?
3. Which organ does the symptom occur?
4. Which fruits and vegetables can help to cure the symptoms?
5. Which fruits and vegetables can maintain and repair organs?
6. Which vitamins can help to restore the organ?
7. Which one is a fruit?
8. Which one is a vegetable?
9. Do vegetables and fruits contain the same vitamin type?

Base Predicate

- $\text{fruit}(x)$ means x is a fruit.
- $\text{vegetable}(x)$ means x is a vegetable.
- $\text{contain_vit}(x, y)$ means vegetable or fruit x , vitamin y .
- $\text{vit_cure_symptom}(x, y)$ means vitamin x is suitable to cure symptom y .
- $\text{symptom_in_organ}(x, y)$ means symptom x occurs at organ y .
- $\text{vet_restore_symptom}(x, y)$ means vegetable or fruit x is suitable to eat if you have symptom y .
- $\text{vet_restore_organ}(x, y)$ means vegetable or fruit x can help to restore organ y .
- $\text{vit_cure_organ}(x, y)$ means vitamin x is suitable to cure organ y .
- $\text{same_vit}(x, y)$ means vegetable or fruit x and vegetable or fruit y have the same vitamin.
- $\text{same_type}(x, y)$ means x has the same type as y . That means x and y are fruits or x and y are vegetables.

Facts

- List of fruit(<fruit>)
- List of vegetable(<vegetable>)
- $\text{contain_vit}(\text{<fruit> or <vegetable>, <vitamin>})$
- $\text{vit_cure_symptom}(\text{<vitamin>, <symptom>})$
- $\text{symptom_in_organ}(\text{<symptom>, <organ>})$

Rules

- $\text{vet_restore_symptom}(x, y) \leftrightarrow \text{vit_cure_symptom}(z, y) \wedge \text{contain_vit}(x, z)$
- $\text{vet_restore_organ}(x, y) \leftrightarrow \text{vet_restore_symptom}(x, z) \wedge \text{symptom_in_organ}(z, y)$
- $\text{vit_cure_organ}(x, y) \leftrightarrow \text{vit_cure_symptom}(x, z) \wedge \text{symptom_in_organ}(z, y)$
- $\text{same_vit}(x, y) \leftrightarrow \exists z [\text{contain_vit}(x, z) \wedge \text{contain_vit}(y, z)]$
- $\text{same_type}(x, y) \leftrightarrow [\text{fruit}(x) \wedge \text{fruit}(y)] \vee [\text{vegetable}(x) \wedge \text{vegetable}(y)]$

Information for SWI-Prolog

- **Vegetable**

- vegetable(x) means x is a vegetable.
- contain_vit(x, y) means vegetable or fruit x , vitamin y.

Vegetable	Contain Vitamin					
Vegetable (artichoke)	ContainVit (artichoke, a)	ContainVit (artichoke, b1)	ContainVit (artichoke, b2)	ContainVit (artichoke, b6)	ContainVit (artichoke, c)	
Vegetable (asparagus)	ContainVit (asparagus, a)	ContainVit (asparagus, b1)	ContainVit (asparagus, b2)	ContainVit (asparagus, b6)	ContainVit (asparagus, c)	ContainVit (asparagus, e)
Vegetable (broccoli)	ContainVit (broccoli, a)	ContainVit (broccoli, c)	ContainVit (broccoli, k)			
Vegetable (cabbage)	ContainVit (cabbage, a)	ContainVit (cabbage, b1)	ContainVit (cabbage, b2)	ContainVit (cabbage, b6)	ContainVit (cabbage, k)	
Vegetable (carrots)	ContainVit (carrots, a)	ContainVit (carrots, b1)	ContainVit (carrots, b2)	ContainVit (carrots, b6)	ContainVit (carrots, c)	
Vegetable (cauliflower)	ContainVit (cauliflower, c)	ContainVit (cauliflower, k)	ContainVit (cauliflower, b6)			
Vegetable (coriander)	ContainVit (coriander, c)	ContainVit (coriander, k)				
Vegetable (cucumber)	ContainVit (cucumber, a)	ContainVit (cucumber, b1)	ContainVit (cucumber, b2)	ContainVit (cucumber, b6)	ContainVit (cucumber, c)	
Vegetable (eggplant)	ContainVit (eggplant, c)	ContainVit (eggplant, k)	ContainVit (eggplant, b6)			
Vegetable (green_beans)	ContainVit (green_beans, c)	ContainVit (green_beans, k)				
Vegetable(kale)	ContainVit (kale, a)	ContainVit (kaler, c)	ContainVit (kaler, k)	ContainVit (kaler, b6)		
Vegetable(okra)	ContainVit (okra, c)	ContainVit (okra, b)	ContainVit (okra, k)			
Vegetable(onions)	ContainVit (onions, c)					
Vegetable(peas)	ContainVit (peas, c)	ContainVit (peas, b)	ContainVit (peas, k)			
Vegetable (peppers)	ContainVit (peppers, a)	ContainVit (peppers, c)	ContainVit (peppers, k)	ContainVit (peppers, b6)		
Vegetable(potato)	ContainVit (potato, c)	ContainVit (potato, b6)				

Vegetable(shiitake)	ContainVit (shiitake, b1)	ContainVit (shiitake, d)				
Vegetable(spinach)	ContainVit (spinach, a)	ContainVit (spinach, c)	ContainVit (spinach, k)			
Vegetable (summer_squash)	ContainVit (summer_squa sh, c)	ContainVit (summer_squa sh, k)				
Vegetable (tomatoes)	ContainVit (tomatoes, c)	ContainVit (tomatoes, k)				

- **Fruit**

- fruit(x) means x is a fruit.
- contain_vit(x, y) means vegetable or fruit x , vitamin y.

Fruit	Contain Vitamin					
Fruit(apple)	ContainVit (apple, C)					
Fruit(apricots)	ContainVit (apricot, A)	ContainVit (apricot, C)				
Fruit(banana)	ContainVit (banana, A)	ContainVit (banana, B1)	ContainVit (banana, B2)	ContainVit (banana,B6)	ContainVit (banana, C)	
Fruit(blackberries)	ContainVit (blackberries, B1)	ContainVit (blackberries, B6)	ContainVit (blackberries, C)			
Fruit(cherries)	ContainVit (cherries, A)	ContainVit (cherries, B1)	ContainVit (cherries, B2)	ContainVit (cherries,B6)	ContainVit (cherries, C)	
Fruit(corn)	ContainVit (corn, A)	ContainVit (corn, B1)	ContainVit (corn, C)			
Fruit(grape)	ContainVit (grape, A)	ContainVit (grape, C)	ContainVit (grape, K)			
Fruit(guava)	ContainVit (guava, A)	ContainVit (guava, B2)	ContainVit (guava, C)			
Fruit(kiwi)	ContainVit (kiwi, B6)	ContainVit (kiwi,C)				
Fruit(lemon)	ContainVit (lemon, C)					
Fruit(lychee)	ContainVit (lychee, B1)	ContainVit (lychee, C)				
Fruit(mango)	ContainVit (mango, A)	ContainVit (mango, B1)	ContainVit (mango, B2)	ContainVit (mango, B3)		
Fruit(peach)	ContainVit (peach, A)	ContainVit (peach, B2)	ContainVit (peach, C)	ContainVit (peach, K)		

Fruit(pineapple)	ContainVit (pineapple, B1)	ContainVit (pineapple, B2)	ContainVit (pineapple, B5)	ContainVit (pineapple, B6)	ContainVit (pineapple, C)
Fruit(watermelon)	ContainVit (watermelon, A)	ContainVit (watermelon, B6)	ContainVit (watermelon, C)		
Fruit(durian)	ContainVit (durian, A)	ContainVit (durian, B9)	ContainVit (durian, C)		

- **Organ and Symptom**

- symptom_in_organ(x, y) means symptom x occurs at organ y.

Organ	Symptom					
Skin	symptom_in_organ (dry_skin,skin)	symptom_in_organ (skin_rashes,skin).	symptom_in_organ (cracked_lips,skin).			
Eye	symptom_in_organ (vision_deterioration,eye).	symptom_in_organ (bitots_spots,eye).				
Brain	symptom_in_organ (confusion,brain).	symptom_in_organ (change_in_mood,brain).	symptom_in_organ (depression,brain).			
Body	symptom_in_organ (numbness,body).	symptom_in_organ (easy_bruising,body).	symptom_in_organ (painful_swollen_joints,body).	symptom_in_organ (muscle_pain,body).	symptom_in_organ (bone_and_back_pain,body).	symptom_in_organ (immune_system_problems,body).
Bladder	symptom_in_organ (blood_in_the_urine_or_stool,bladder).					
Ovary	symptom_in_organ (heavy_menstrual_periods,ovary).					
Head	symptom_in_organ (gray_hair,head).					

Lung	symptom_in_or gan (shortness_of_b reath,lung).					
Heart	symptom_in_or gan (fast_heart_rate ,heart).	symptom_in_org an (fatigue_and_tire dness,heart).				
Throat	symptom_in_or gan (tongue_swellin g,throat).	symptom_in_org an (phlegm,throat)	symptom_in_or gan (soreness_of_t hroat,throat).			

● Vitamin and Symptom

- vit_cure_syptom(x, y) means vitamin x is suitable to cure symptom y.

Vitamin	Symptom				
A	vit_cure_syptom (a,dry_skin).	vit_cure_syptom (a,vision_deterioratio n).	vit_cure_syptom (a,bitots_spots)		
B1	vit_cure_syptom (b1,fast_heart_rate).	vit_cure_syptom (b1,shortness_of_br eath).	vit_cure_syptom (b1,numbness).	vit_cure_syptom (b1,confusion).	
B2	vit_cure_syptom (b2,fatigue_and_tire dness).	vit_cure_syptom (b2,change_in_mood).	vit_cure_syptom (b2,dry_skin).	vit_cure_syptom (b2,soreness_of_thr oat).	
B6	vit_cure_syptom (b6,fatigue_and_tire dness).	vit_cure_syptom (b6,skin_rashes).	vit_cure_syptom (b6,cracked_lips).		
B9	vit_cure_syptom (b9,fatigue_and_tire dness).	vit_cure_syptom (b9,gray_hair).	vit_cure_syptom (b9,tongue_swelling)		
B12	vit_cure_syptom (b12,fatigue_and_tir edness).	vit_cure_syptom (b12,shortness_of_b reath).	vit_cure_syptom (b12,depression).		
C	vit_cure_syptom(c, dry_skin)	vit_cure_syptom(c, easy_bruising)	vit_cure_syptom(c,p ainful)	vit_cure_syptom (c,swollen_joints).	vit_cure_syptom(c, have_phlegm)

D	vit_cure_syptom(d, Muscle_Pain)	vit_cure_syptom(d,F atigue_and_Tirednes s)	vit_cure_syptom(d, Bone_Pain)	vit_cure_syptom(d,b ack_Pain)	
E	vit_cure_symptom (e,muscle_pain).	vit_cure_symptom (e,immune_system_ problems).	vit_cure_symptom (e,vision_deterioratio n).		
K	vit_cure_symptom (k,easy_bruising).	vit_cure_symptom (k,blood_in_the_urin e_or_stool).	vit_cure_symptom (k,heavy_menstrual_ periods).	vit_cure_symptom (k,have_phlegm).	