Food Provenance - Assignment 7

Team:

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Motivation

Are there any health threats associated with the ingredients in the food we consume?

If I have allergies, is this food ok for me to consume?
Changes made to the Ontology

- Re-focused on understanding what goes into your food
- Avoiding certain types of food due to hazards / allergies
- Refined & expanded the allergens we are tracking
- Added “Health Hazards”
- Reasoning will be used to:
  - Determine if a food is allergenic or a hazard based on ingredients
  - Determine if a food’s hazards / allergies is something the user cares about
  - Compare foods
Ontology - Class Hierarchy

- owl:Thing
  - Allergen
  - Brand
  - Certification
  - Food
  - 'Health hazard'
  - 'Healthy food alternative'
  - Ingredient
  - User

- ingredient
  - additive
    - 'Artificial sweetener'
    - 'Direct ingredient'
    - 'Dough strengtheners conditioner'
    - Emulsifier
    - 'Enzyme preparation'
    - 'Fat replacer'
    - 'Harmful ingredient'
    - Improving agent
    - 'Indirect ingredient'
    - 'Major ingredient'
    - 'Minor ingredient'
    - Nutrient
    - Preservative
    - 'Saturated fat'
    - Stabilizer
    - Thickener
    - 'Yeast nutrient'

- harmful ingredient
  - 'Carcinogenic ingredient to avoid'
  - 'Toxic ingredient to avoid'
  - Improving agent
    - 'Anti-caking agent'
    - 'Anti-foaming agent'
    - 'Crisping agent' ≡ 'Firming agent'
    - 'Firming agent' ≡ 'Crisping agent'
    - 'Foaming agent'
    - Gas
    - 'Glazing agent'
    - Humectant
    - 'Leavening agent'
    - 'PH control agent'

- additive
  - 'Color additive'
    - 'Certified color'
    - 'Non-certified color'
  - Flavor additive
    - 'Flavor enhancer'
    - 'Hormone additive'
    - 'Incidental additive'

- certification
  - 'Certification body'
  - Standard
Ontology - Object and Data Properties, Instances
Lisa wants to buy Mars M&M candies for her kid and wants to make sure if it is safe.

M&M candies is a Food

and hasIngredient Additive

which has subclass ColorAdditive

which has subclass CertifiedColor

which has instances Blue1, Blue2, Red40, Yellow5 and Yellow6 found in US M&M

and these instances have hasHealthHazard ChromosomalDamage, BrainTumor, Lymphomas, Hyperactivity, Asthma, Insomnia, Aggression, ThyroidTumor

and thus M&M candies are categorized as a “Health Hazard” NOT safe to consume.
Priya wants to buy Healthy Choice Chicken Noodle Soup and wants to make sure if it is safe.

Healthy Choice Chicken Noodle Soup is a **Food** and **hasIngredient** **Additive**

which has subclass **FlavorAdditive**

which has subclass **FlavorEnhancer**

which has instances HydrolyzedVegetableProtein found in Healthy Choice Chicken Noodle Soup

and this instances has further **hasIngredient** MonoSodiumGlutamate

**which has hasHealthHazard** Headache, Eczema, WeaknessOfArmsOrLegs, BurningSensationOfMouthHeadNeck

and thus Healthy Choice Chicken Noodle Soup is categorized as a “Health Hazard” NOT safe to consume.
Questions?
References

- http://www.special-education-degree.net/food-dyes/
- https://www.fda.gov/Food/IngredientsPackagingLabeling/FoodAdditivesIngredients/ucm328728.htm