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| **First Order Logic** |
| * ∀x Person(x) ∧ ∀y Supermarket(y) ∧ In(x,y) => Staff(x) v Customer(x) |
| * ∀x Supermarket(x) ∧ IsOpen(x) => ∃y Person(y) ∧ In(y,x) |
| * ∀x ∀y Person(x) ∧ Products(y) ∧ Buys(x,y) => Eats(x,y) |
| * ∀x ∀y Person(x) ∧ Products(y) ∧ Buys(x,y) => Adult(x) |
| * ∀x Adult(x) => ~Kids(x) |
| * ∀x Kids(x) => ~Adult(x) |
| * ∀x Person(x) => Adult(x) v Kids(x) |
| * ∀x IsAcceptablePayment(x) => Cash(x) v Debit(x) v Credit(x) |
| * ∀x Items(x) => Products(x) |
| * ∀x ∀y Person(x) ∧ Product(y) ∧ Buys(x,y) => ∃z Receipt(z) ∧ Has(x,z) |
| * ∀x ∀y Person(x) ∧ Product(y) ∧ Returns(x,y) => ∃z Receipt(z) ∧ Has(x,z) |
| * ∀x ∀y Person(x) ∧ Product(y) ∧ Returns(x,y) => ∃z Money(z) ∧ Has(x,z) ∧ IsIncreased(z) |
| * ∀x ∀y Person(x) ∧ Product(y) ∧ Buys(x,y) => ∃z Money(z) ∧ Has(x,z) ∧ IsDecreased(z) |
| * ∀x Supermarket(x) => ∃y Parking\_Lot(y) ∧ Contains(x,y) |
| * ∀x ∀y Person(x) ∧ Meat(y) ∧ Buys(x,y) => Non\_Vegetarian(x) |
| * ∀x ∀y Person(x) ∧ Meat(y) ∧ ~Buys(x,y) => Vegetarian(x) |
| * ∀x Vegetarian(x) => ~ Non\_Vegetarian(x) |
| * ∀x Person(x) => Vegetarian(x) v Non\_Vegetarian(x) |
| * ∀x Product(x) => Liquid(x) v Solid(x) |
| * ∀x Milk(x) => Liquid(x) * ∀x Oil(x) => Liquid(x) * ∀x Water(x) => Liquid(x) * ∀x Energy\_Drink (x) => Liquid(x) |
| * ∀x Liquid(x) => ~Solid(x) |
| * ∀x Solid(x) => ~Liquid(x) |
| * ∀x ∀y Solid(x) ∧ Pounds(y) => MeasuredIn(x,y) |
| * ∀x ∀y Liquid(x) ∧ Ounces(y) => MeasuredIn(x,y) |
| * ∀x ∀y Groceries(x) ∧ Supermarket(y) => IsAvailable(x,y) |
| * ∀x ∀y Meat(x) ∧ Supermarket(y) => IsAvailable(x,y) |
| * ∀x ∀y Supermarket(x) ∧ Products(y) ∧ Sells(x,y) => ~Made(y,x) |
| * ∀x Red(x) => Color(x) * ∀x Blue(x) => Color(x) * ∀x Green(x) => Color(x) * ∀x Black(x) => Color(x) * ∀x Yellow(x) => Color(x) * ∀x Pink(x) => Color(x) * ∀x White(x) => Color(x) * ∀x Orange(x) => Color(x) * ∀x Purple(x) => Color(x) |
| * ∀x Butter(x) => DairyProduct(x) * ∀x DairyProduct (x) => Product(x) |
| * ∀x Milk (x) => DairyProduct(x) |
| * ∀x Cheese(x) => DairyProduct(x) |
| * ∀x Yogurt(x) => DairyProduct(x) |
| * ∀x ∀y Product(x) ∧ Milk(y) ∧ Contains(x,y) => DairyProduct(x) * ∀x DairyProduct(x) => ∃y Milk(y) ∧ Contains(x,y) |
| * ∀x ∀y Butter(x) ∧ Milk (y) => Contains(x,y) |
| * ∀x ∀y Cheese(x) ∧ Milk (y) => Contains(x,y) |
| * ∀x ∀y Yogurt(x) ∧ Milk (y) => Contains(x,y) |
| * ∀x Yogurt(x) => IsSweet(x) |
| * ∀x Butter(x) => IsSalted(x) v ~IsSalted(x) |
| * ∀x Cheese(x) => IsSalted(x) |
| * ∀x Milk(x) => IsSweet(x) v ~IsSweet(x) |
| * ∀x ∀y Product(x) ∧ Milk(y) ∧ Is(x,y)=> White(x) * ∀x ∀y Product(x) ∧ Milk(y) ∧ Is(x,y)=> Liquid(x) |
| * ∀x ∀y Product(x) ∧ Butter(y) ∧ Is(x,y)=> Yellow(x) * ∀x ∀y Product(x) ∧ Butter(y) ∧ Is(x,y)=> Solid(x) |
| * ∀x ∀y Product(x) ∧ Yogurt(y) ∧ Is(x,y)=> White(x) * ∀x ∀y Product(x) ∧ Yogurt(y) ∧ Is(x,y)=> Solid(x) |
| * ∀x ∀y Product(x) ∧ Cheese(y) ∧ Is(x,y)=> Yellow(x) V White(x) * ∀x ∀y Product(x) ∧ Cheese(y) ∧ Is(x,y)=> Solid(x) |
| * ∀x DairyProduct(x) => Groceries(x) |
| * ∀x Vegetables(x) => Frozen(x) v Canned (x) v Fresh (x) |
| * ∀x Fruits(x) => Frozen(x) v Canned (x) v Fresh (x) |
| * ∀x Frozen(x) => ~ Canned (x) * ∀x Frozen(x) => ~Fresh(x) |
| * ∀x Fresh (x) => ~ Canned (x) * ∀x Fresh (x) => ~ Frozen (x) |
| * ∀x Canned (x) => ~ Fresh (x) * ∀x Canned (x) => ~ Frozen (x) |
| * ∀x Vegetables(x) => Groceries(x) |
| * ∀x Fruits(x) => Groceries(x) |
| * ∀x Potatoes(x) => Vegetables(x) * ∀x Onions(x) => Vegetables(x) * ∀x Jalapenos(x) => Vegetables(x) * ∀x Bell\_peppers(x) => Vegetables(x) * ∀x Cabbages(x) => Vegetables(x) * ∀x Okra(x) => Vegetables(x) * ∀x Green\_Onions(x) => Vegetables(x) * ∀x Ginger(x) => Vegetables(x) * ∀x Tomatoes (x) => Vegetables(x) * ∀x Broccoli (x) => Vegetables(x) * ∀x Mushrooms (x) => Vegetables(x) * ∀x Lemons(x) => Vegetables(x) * ∀x Spinach (x) => Vegetables(x) * ∀x Kale (x) => Vegetables(x) * ∀x Fenugreek (x) => Vegetables(x) |
| * ∀x Potatoes(x) => Oval(x) v Round(x) |
| * ∀x Potatoes(x) => Red(x) v Brown(x) v Yellow(x) v White(x) |
| * ∀x Tomatoes(x) => Round(x) |
| * ∀x Tomatoes(x) => Red(x) v Green(x) |
| * ∀x Jalapenos(x) => Green(x) v Red(x) v Yellow(x) V Orange(x) |
| * ∀x Bell\_peppers(x) => Green(x) v Red(x) v Yellow(x) V Orange(x) |
| * ∀x Cabbages(x) => Green(x) v Purple(x) |
| * ∀x Green\_Onions(x) => Onions(x) |
| * ∀x Onions(x) => White(x) v Purple(x) |
| * ∀x Broccoli (x)=> Green(x) |
| * ∀x Lemon(x) => Yellow(x) v Green(x) * ∀x Lemon(x) => Round(x) |
| * ∀x Leafy\_Vegetables(x) => Vegetables(x) * ∀x Spinach (x) => Leafy\_Vegetables(x) * ∀x Kale (x) => Leafy\_Vegetables(x) * ∀x Fenugreek (x) => Leafy\_Vegetables(x) |
| * ∀x Spinach (x) => Green(x) * ∀x Kale (x) => Green(x) * ∀x Fenugreek (x) => Green(x) |
| * ∀x Apples(x) => Fruits(x) * ∀x Oranges(x) => Fruits(x) * ∀x Grapes(x) => Fruits(x) * ∀x Strawberries(x) => Fruits(x) * ∀x Blackberries(x) => Fruits(x) * ∀x Blueberries(x) => Fruits(x) * ∀x Raspberry(x) => Fruits(x) * ∀x Kiwi(x) => Fruits(x) * ∀x Watermelon (x) => Fruits(x) * ∀x Cherry(x) => Fruits(x) * ∀x Banana(x) => Fruits(x) * ∀x Mangoes(x) => Fruits(x) * ∀x Pear(x) => Fruits(x) |
| * ∀x Apples(x) => Red(x) * ∀x Apples(x) => IsSweet(x) v IsSour(x) * ∀x Strawberries(x) => Red(x) * ∀x Strawberries(x) => IsSweet(x) * ∀x Raspberry(x) => Red(x) * ∀x Raspberry(x) => IsSweet(x) |
| * ∀x Grapes(x) => Round(x) * ∀x Grapes(x) => Red(x) v Green(x) v Black(x) * ∀x Grapes(x) => IsSweet(x) |
| * ∀x Oranges(x) => Yellow(x) v Orange(x) * ∀x Oranges(x) => IsSweet(x) v IsTangy(x) * ∀x Mangoes(x) => Yellow(x) v Orange(x) * ∀x Mangoes(x) => IsSweet(x) v IsTangy(x) * ∀x Pear(x) => Yellow(x) v Orange(x) * ∀x Pear(x) => IsSweet(x) v IsTangy(x) |
| * ∀x Banana(x) => Yellow(x) * ∀x Banana(x) =>IsSweet(x) |
| * ∀x Blackberries(x) => Black(x) * ∀x Blackberries(x) => IsSweet(x) * ∀x Blueberries(x) => Black(x) * ∀x Blueberries(x) => IsSweet(x) |
| * ∀x Kiwi(x) => Green(x) * ∀x Kiwi(x) => IsTangy(x) |
| * ∀x Cherry(x) => Red(x) * ∀x Cherry(x) =>IsSweet(x) |
| * ∀x Blueberries(x) => Berries(x) * ∀x Raspberry(x) => Berries(x) * ∀x Strawberries(x) => Berries(x) |
| * ∀x Berries(x) => IsSweet(x) |
| * ∀x Watermelon (x) => Green(x) * ∀x Watermelon (x) => IsSweet(x) * ∀x Watermelon (x)=> Round(x) |
| * ∀x Fruits(x) => ~Vegetables(x) |
| * ∀x Fruits(x) => ~DairyProduct(x) |
| * ∀x Vegetables(x) => ~DairyProduct(x) |
| * ∀x Eggs(x) => Meat(x) * ∀x Chicken(x) => Meat(x) * ∀x Beef(x) => Meat(x) * ∀x Turkey => Meat(x) * ∀x Sausage(x) => Meat(x) * ∀x Pork(x) => Meat(x) * ∀x Bacon(x)=> Meat(x) * ∀x Fish(x) => Meat(x) |
| * ∀x Meat(x) => Frozen(x) v Canned(x) v Fresh(x) |
| * ∀x Meat(x) => ~DairyProduct(x) |
| * ∀x Meat(x) => ~Fruits(x) |
| * ∀x Eggs(x) => Brown(x) v White(x) * ∀x Eggs(x) => Oval(x) |
| * ∀x Meat(x) => ~Vegetables(x) |
| * ∀x Green\_Cardamom(x) => Spices(x) * ∀x Cloves(x) => Spices(x) * ∀x Pepper(x) => Spices(x) * ∀x Salt(x) => Spices(x) * ∀x Garlic(x) => Spices(x) * ∀x Italian\_Seasoning (x)=> Spices(x) * ∀x Cumin\_Seeds (x) => Spices(x) * ∀x Mustard\_Seeds (x)=> Spices(x) * ∀x Paprika(x) => Spices(x) * ∀x Smoked\_Paprika(x)=> Spices(x) * ∀x Basil(x) => Spices(x) * ∀x Oregano(x) => Spices(x) |
| * ∀x Spices(x) => Groceries(x) |
| * ∀x Spices(x)=> ~DairyProduct(x) * ∀x Spices(x)=> ~Fruits(x) * ∀x Spices(x)=> ~Vegetables(x) * ∀x Spices(x)=> ~ Meat(x) |
| * ∀x∀ y Product(x) ∧ IsSweet(x) ∧ Sugar(y) => Contains(x,y) |
| * ∀x∀ y Product(x) ∧ IsSalty(x) ∧ Salt(y) => Contains(x,y) |
| * ∀x Icecream(x) => Frozen(x) * ∀x Popsicle(x) => Frozen(x) |
| * ∀x Cereal(x) => Others(x) * ∀x Bread(x) => Others(x) * ∀x Rice(x) => Others(x) * ∀x Oil(x) => Others(x) * ∀x Sugar(x) => Others(x) * ∀x Chocolate(x) => Others(x) * ∀x Energy\_Drink (x) => Others(x) * ∀x Water(x) => Others(x) * ∀x Others(x) => Groceries(x) |
| * ∀x ∀y Cereal(x) ∧ Milk(y) => EatenWith(x,y) |
| * ∀x ∀y Bread(x) ∧ Butter(y) => EatenWith(x,y) |
| * ∀x Sugar(x) => White(x) v Brown(x) |
| * ∀x Sugar(x) => IsSweet(x) |
| * ∀x ∀y Chocolate(x) ∧ Sugar(y) => Contains(x,y) |
| * ∀x Energy\_Drink (x) => Liquid(x) * ∀x Energy\_Drink (x) => IsSweet(x) |
| * ∀x IsSweet(x)=> Tastes(x) * ∀x IsSour(x)=> Tastes(x) * ∀x IsTangy(x)=> Tastes(x) * ∀x IsSalty(x)=> Tastes(x) |
| * ∀x Round(x)=> Shapes(x) * ∀x Oval(x)=> Shapes(x) * ∀x Elliptical(x)=> Shapes(x) |
| * ∀x Vegetables(x) => EatenAfterCooking(x) * ∀x Vegetables(x) => ~EatenRaw(x) |
| * ∀x Fruits(x) => EatenRaw(x) v EatenAfterCooking(x) |
| * ∀x DairyProducts(x) => EatenRaw(x) v EatenAfterCooking(x) |
| * ∀x Meat(x) => EatenAfterCooking(x) * ∀x Meat(x) => ~EatenRaw(x) |
| * ∀x Cereal(x) => EatenRaw(x) v ~EatenAfterCooking(x) * ∀x Bread(x) => EatenRaw(x) v EatenAfterCooking(x) * ∀x Rice(x) => ~EatenRaw(x) v EatenAfterCooking(x) * ∀x Oil(x) => ~EatenRaw(x) v EatenAfterCooking(x) * ∀x Sugar(x) => EatenRaw(x) v EatenAfterCooking(x) * ∀x Chocolate(x) => EatenRaw(x) v EatenAfterCooking(x) * ∀x Energy\_Drink (x) => EatenRaw(x) v ~EatenAfterCooking(x) * ∀x Water(x) => EatenRaw(x) v EatenAfterCooking(x) |
| * ∀x ∀y Product(x) ∧ Product(y) => (x != y) |
| * ∀x Salmon(x) => Fish(x) * ∀x Tuna(x) => Fish(x) |
| * ∀x ∀y Color(x) ∧ Color(y) => (x != y) |
| * ∀x ∀y Tastes (x) ∧ Tastes (y) => (x != y) |
| * ∀x Staff(x) => -Customer(x) * ∀x Customer(x) => -Staff(x) |
| * ∀x ∀y Shapes(x) ∧ Shapes(y) => (x != y) |
| * ∀x Groceries(x) => Product(x) |
| * ∀x Icecream(x) => Others(x) * ∀x Popsicle(x) => Others(x) |