Part 2c: Reasoning

a. Does Tom now have at least two tomatoes? [Yes]

Tom → Person → CognitiveAgent → buys → Product
(*Tom buys a product.*)

Tomato → Vegetable → Food → Product
(*Tomatoes are products. => Tom buys Tomatoes.*)

1 kilo = 1000 gr
(*Background Knowledge - BK*)

Tomato → avgWeight = 200gr

1000gr / 200gr = 5

=> *Tom buys at most 5 tomatoes => Tom has at least 2 tomatoes now.*

b. Did Tom buy any meat? [Yes]

Tom → Person → CognitiveAgent → buys → Product
(*Tom buys a product.*)

Ground Beef → Meat → Food → Product.
(*Ground beef is a product. Tom buys ground beef.*)

=> *Tom has ground beef.*

c. Are the tomatoes made in the supermarket? [No]

Tomato → MemberOf → Vegetable → producedByFarm → Farm
(*Tomatoes are produced by farms.*)

Supermarket → not SubsetOf → farm.
(*Make use of closed world assumption, i.e. what is not known at all can not be inferred. Supermarkets are not shown to be farms or a subset of farm. Also, no BK is available.*)

=> *Tomatoes are not made in the supermarket.*

d. What is Tom going to do with the tomatoes? [Eat them]

Tom → MemberOf → Carnivore → SubsetOf → Person
(Tom is a person.)

Tomatoes → MemberOf → Vegetable → SubsetOf → Food
(Tomatoes are food.)

=> *Tom eats the tomatoes. (BK: A person eats food.)*

e. Does Glattcenter Migros Supermarket sell deodorant? [Yes]

Migros → sells → Axe Ice 24 → MemberOf → Deodorant

=> *Migros sells Deodorant.*

f. Did Tom bring any money to the supermarket? [Yes]

From a) and b) we already know that Tom buys tomatoes and ground beef.

Tomato → prize → 1.10 (per kilo)
(The prize for the tomatoes per kilo is 1.10.-)

Tom → money → 1000.-
(BK: Tom has 1000.- to spend at the moment.)

=> *Tom uses his money to buy the tomatoes. (BK: To buy a product one needs to give money to receive the product.)*

g. Are there other people in Migros while Tom is there? [Yes – staff!]

Supermarket → SubsetOf → Organization → SubsetOf → Employer → employs → Person
(Supermarket employs persons.)

Migros → MemberOf Supermarket
(Migros is a supermarket.)

Migros → employs → Pedro Domingos
(Pedro Domingos must be a person, same name of relation.)

=> *There is at least one other person in Migros while Tom is there.*

h. Is Tom a vegetarian? [No]

Tom → MemberOf → Carnivore

=> *Tom is not a vegetarian. (BK: Carnivore eat meat.)*

i. Who owns the deodorant? [Migros]

From e) we know that Migros sells Deodorant.

=> *Migros owns the deodorant. (BK: The assumption is that one has to own something before selling it.)*

j. Did Tom have 200gr of ground beef? [Yes]

From b) we know that Tom has ground beef.

Half a kilo → 500gr
(BK)

500gr > 200gr

=> *Tom has at least 200gr of ground beef.*

k. Does the Shell station next door have any gas? [Yes]

The sentence already says that the Shell Gas Station is next to Migros. Althougth true, we do not check that explicitly.

Shell Gas Station → MemberOf → Gas Station → SubsetOf → Organization → SubsetOf → Employer → SubsetOf → Cognitive Agent → sells → Product
(Shell sells products.)

From i) we know that one has to own/have something before selling it again.

=> *Shell Gas Station has gas. (BK: Gas is a product.)*

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l. Do the tomatoes fit in Tom's car trunk? [Yes]

Tomato → avgSize → 125cm3

From a) we know that Tom has at most 5 tomatoes, i.e. the tomatoes occupy a maximum size of 625cm3.

=> The tomatoes fit in Tom's car trunk. (BK: A car trunk has a minimum size of 150'000cm3, Smart...)

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