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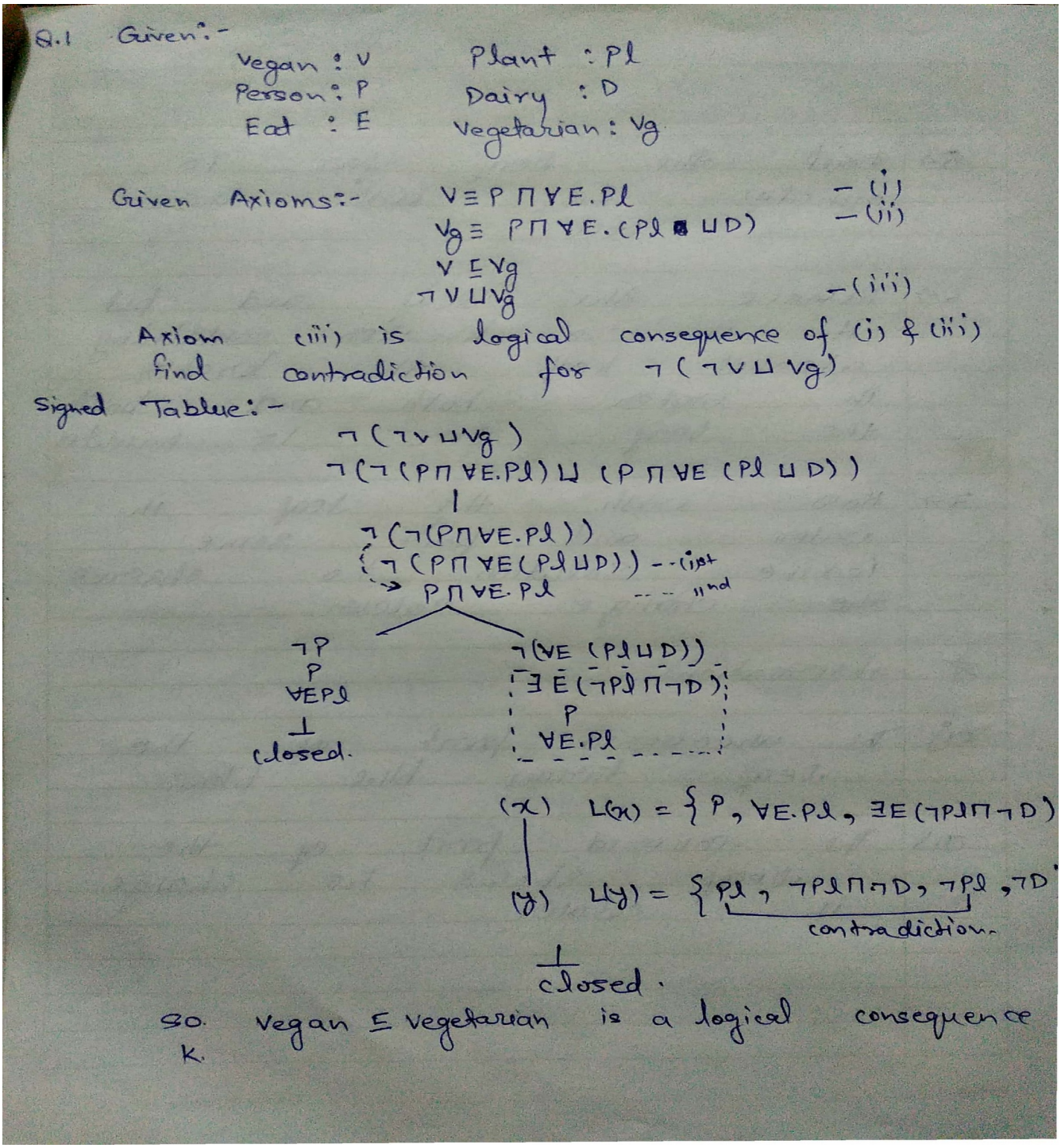
Theory, Report, Analysis

Q1: ALC Tableau whether Vegan⊑Vegetarian is a logical consequence of K



Q2: i). Statements into description logics translation:-

⊑ : Subsumes
∃ : There Exist or some
⊓: intersection
∀: For All
⊔: Union

1. Team ⊑ ∃ takesPartIn .ChampionshipTour
2. ChampionshipTour ⊑ (∃ organizedBy.Team) ⊓ (∃ consistOf.Tournament)
3. Tournament ⊑ ∃ belongsTo.ChampionshipTour
4. Sportsman ⊑ Person ⊓ ∃ plays.SportGame
5. TeamMember ⊑ Sportman ⊓ ∃ playsFor.Team
6. StrongAthlete ⊑ Sportman ⊓ (TeamMember ⊔ >=3 plays.SportGame)
7. Footballer ⊑ Person ⊓ =1 playsFor.FootballTeam
8. Trainer ⊑ Person ⊓ ∃ responsibleFor.Team
9. Master ⊑ Person ⊓ Sportsman ⊓ Trainer
10. SportGame ⊑ ∃ isPlayedAt.Tournament
11. TeamSport ⊑ SportGame ⊓ ∃ hasWinner
12. PopularSport ⊑ SportGame ⊓ >=2 isPlayedAt.Tournament
13. MultisportTeam ⊑ Team ⊓ >=2 plays. { basketball, volleyball, football, rugby }

or

MultisportTeam ⊑ Team ⊓ >=2 plays.KnowSportGame
KnownSportGame ≡ { basketball, volleyball, football, rugby }

14. InterestingTournament ⊑ ∀ hasWinner.DebutTeam
15. SmallSportEvent ⊑ Tournament ⊓ <=2 Includes.SportGame

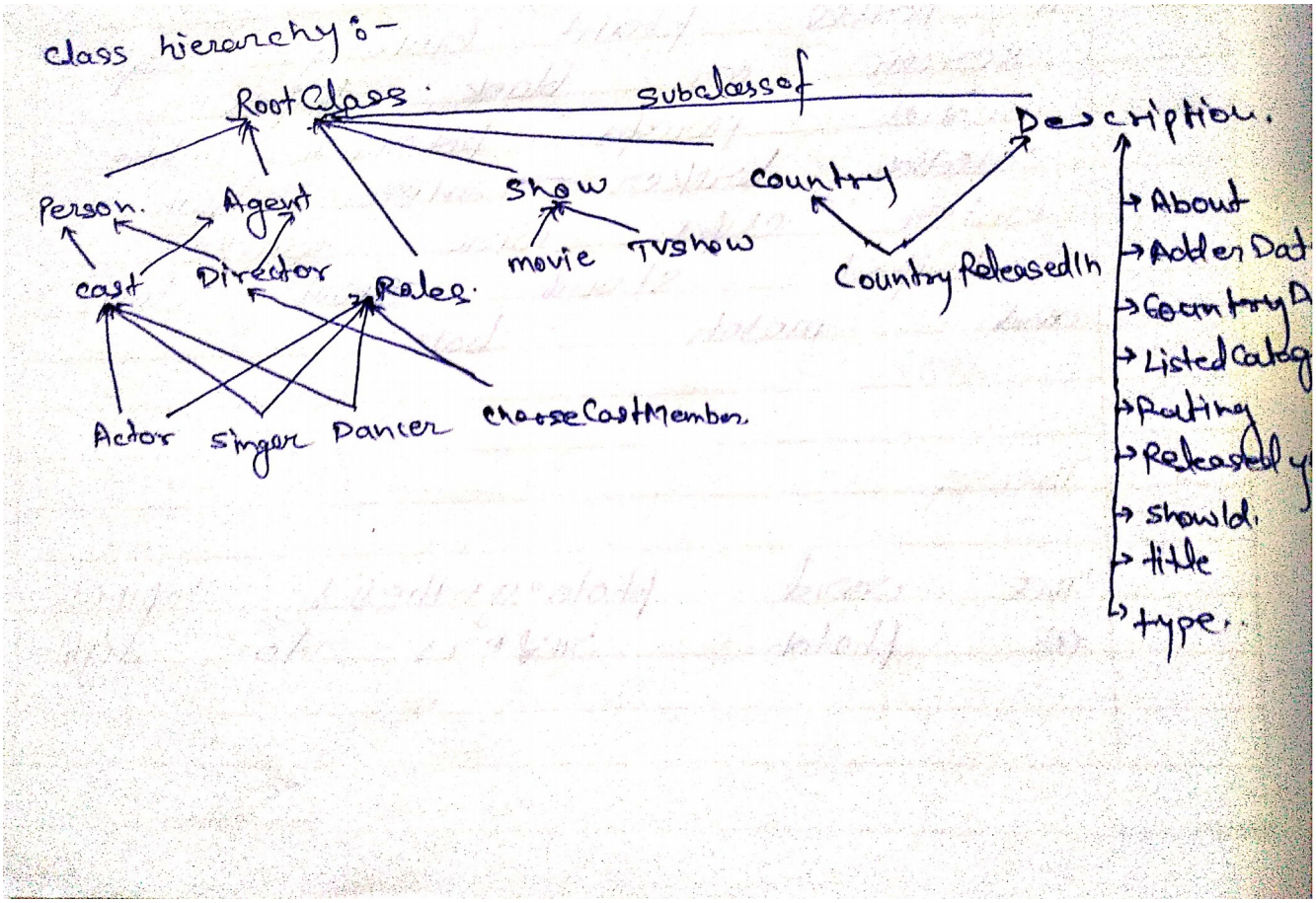
ii). 10 competency questions for the ontology MT19063_Q2.owl:-

1. What are the names of all the championship tours?
2. Tell all the footballers names?
3. what are the names of all the strong athlete?
4. Is Ram a trainer?
5. Is Team1 a multi sport team?
6. is Tournament1 a interesting tournament?
7. What are all the names of small sport events?
8. what are the names of all the masters?
9. Is sport1 a popular sport?
10. Who is the trainer of TeamA?

Q3: Designed Ontology MT19063_Q3.owl

Used ODP :
1. Agent ODP
2. Description ODP

Class Hierarchy: Used class hierarchy is following:-

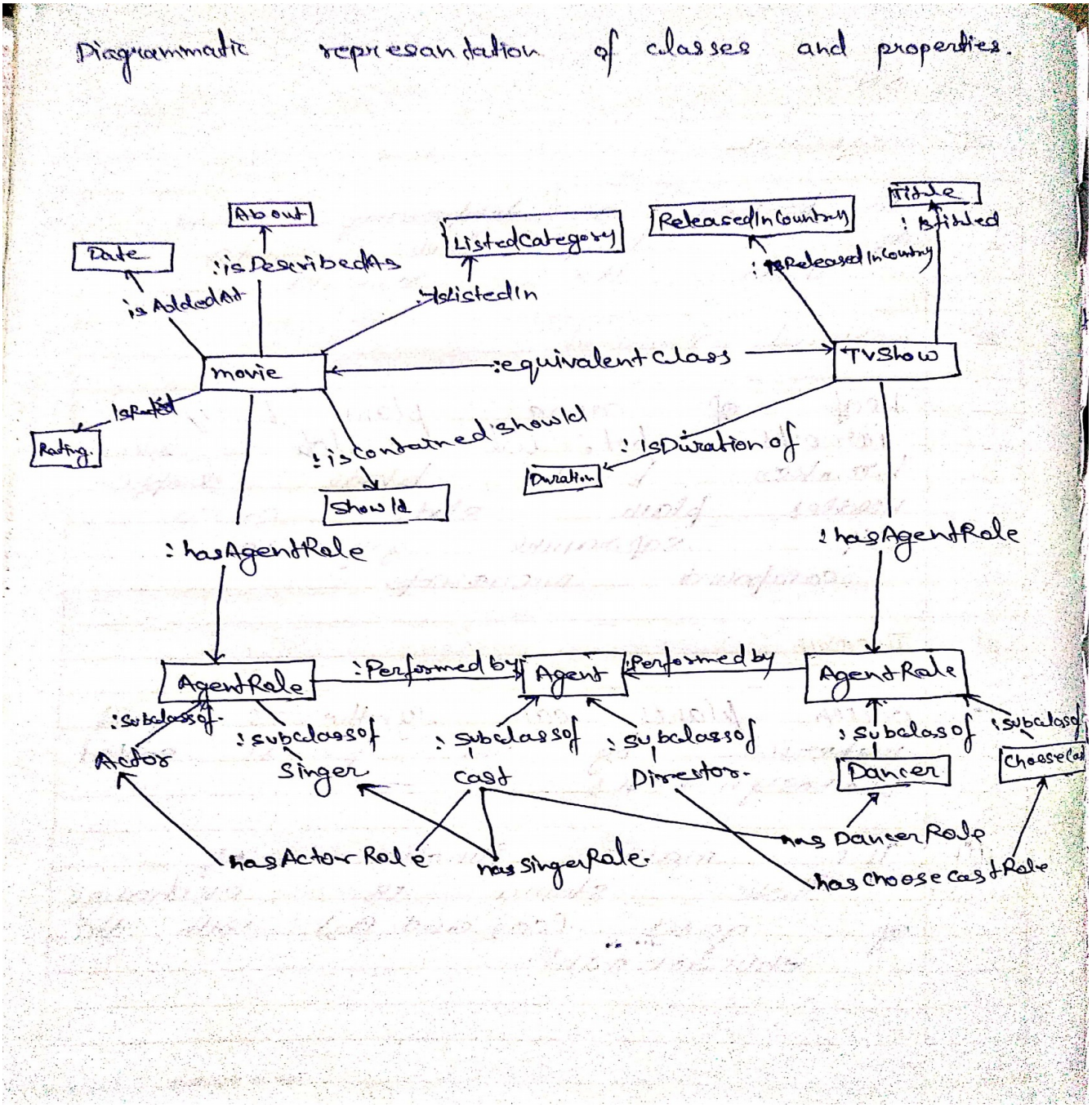


Justification of class hierarchy:-

1. Person is a rigid class because an instance has not existance without being its instance.
2. Movie And Tvshow are identical classes because they both have same entities.
3. Actor, Singer, Dancer are anti rigid classes not being an instance can be exist
4. Actor, Singer, Dancer are unity classes because the form Cast class.

5. All the subclasses of Description
(About,AddedDate,CountryReleasedIn,ListCategory,Rating,ShowID,Title,Type) are anti-rigid because not being an instance can have existance.
6. Director and Cast are also anti-rigid classes not being an instance of these classes can have existance.

Diagrammatic represantation of Classes and Properties:



TBox axioms in the ontology MT19063_Q3.owl which can give answers of following competency questions:-

1. What is the added date of a perticular movie/TvShow?
2. In which countries a perticular movie released?
3. What is the description of a perticular show?
4. What is the show id of movie/TvShow?
5. Who are the cast members of a movie/TvShow?
6. Who is the director of a movie/TvShow?
7. What is the duration of movie/TvShow?
8. What is the rating of of a movie/TvShow?
9. What are the name of all singers in a movie?
10. What are the name of Sci-Fi/Comedy movies?
11. In which year movie/TvShow released?

Q4: Output is stored in *Question4_ReasonarsOutputfile.txt* file. This Output includes classification output, explanations, generated explanation for inconsistent ontology.

After observation I am getting same output from the both reasoner. I also write the code to compare the output. If output is different it will detect and print the comment.