

Theory

Q1.

- a. Let the ~~some~~ Universe exists be P
 let the Universe will end in heat be Q

~~Now if there is no big bang ~~R~~ be~~
 ~~R~~

Constructing above sentences

$$P \vee Q$$

Now if there is no big bang R then
 $\neg R \rightarrow P$

Now iff universe is expanding be S then
 then ~~will be~~ was a big bang (R) when
 is ~~R~~ $S \leftrightarrow R$

Now if the universe is expanding be S
 and accelerating be T then it will
 end in big death (Q) which is

$$S \wedge T \rightarrow Q$$

Do

If Universe will won't end in heat
@ Death ($\neg Q$) this implies that
there was no big bang (R) i.e

$$B \rightarrow Q \rightarrow R.$$

If Universe do not exists $\rightarrow R$ it implies
that was no a big bang (R) i.e

$$\neg R \rightarrow R.$$

Now if there was no big bang ($\neg R$)
then the universe is not expanding ($\neg S$)

$$\neg R : \neg R \rightarrow \neg S$$

Lastly, if universe will not end in
heat death: then it means that
it is not expanding and accelerating

$$(\neg S \vee \neg T) : \neg Q \rightarrow (\neg S \vee \neg T)$$

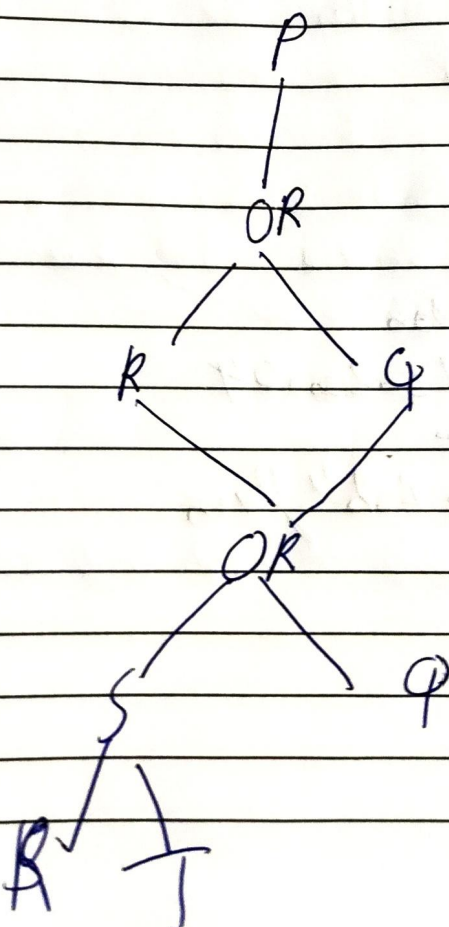
c. The Statement that can be inferred:

If universe is expanding (S) then there was a Big bang (R). Now if universe is expanding and accelerating ($S \wedge T$) then it will end in heat death (Q).

The Statement which can't be inferred

We can't directly say that universe is expanding or accelerating based solely on the provided statements. We can't tell what will happen if the universe simply exists and (P) or not based on solely provided statements.

d. ~~Given logic Statement~~



02 Semantics relation of Bob and also these people are

Bob

- is a person
- lives in Delhi, India
- is male
- is related to:
 - John
 - is a person
 - lives in London, UK
 - is male
 - is Bob's friend
 - Mary
 - is a person
 - lives in New York, USA
 - is female
 - is Bob's cousin
 - Peter
 - is a person ^{Tokyo}
 - lives in ~~Tokyo~~ ^{Delhi} ~~Tokyo~~ ^{Tokyo}
 - is male
 - is Bob's Cousin

Inheritance

This is a feature of semantic networks that allows nodes to inherit all properties of nodes. For example in the above semantic network the node Person can be used to define these properties like it is such as is a person, has a name. Name the nodes Bob, John, Mary, Peter can inherit these properties.

Multiple Inheritance

This is a feature in semantic networks which allows nodes to inherit all the other properties of all nodes. For example in the above semantic network the node Peter can inherit both the person node and the John's person node.

Example as

~~Bob inherit the property~~ is a person from

Example:

Bob entered the property is a person from the person node

John entered the property is a male from person node

Mary entered the property is a female from person node

Pete entered the property is a person, is a spouse from the person node.

More information

John is Bob's friend

Mary is Bob's cousin

Pete is Bob's brother

Now this additional information is used to represent the semantic relations between edge types. The nodes comprise nodes. For example we can add edge type Bob is married to John & with the label friend.