This participant mostly looked only Protégé statement

(M)

00:36 ok, sorry I’m just reading, yea, I know you want me to think aloud, but, yea, emm, ok, so iceman is a subclass of, well, costumed is unsatisfiable, so is iceman, emm, so, ah, costumed is unsatisfiable because erm, because its superclass has a smaller cardinality than it,

01:43 so fix it, fix it you change the cardinality restrictions. Emm, basically delete axiom 4. Would do, emm, yea,

02:01 so this is the next one, ok, we do the same, and this time the unsatisfiable property is isMemberOf

02:13 ok, there’s everything that is a member at most of, ok, only robot, human team, yes, so thing, everything must belong to two different disjoint classes alien team and human team, emm, but the onlys here, probably the intended mistake you could, there’re number of ways to fix it, you could make allow human team and alien team not to be disjoint to robot also belong to human team, and, or you could remove the onlys, entirely depends on what you’re modelling, emm, yea, so, yea, that’s how I would, fix that

03:50 ok, so thing can only enhanced by superpowers, emm, thunder, enhanced, ok, everything is a thunder is enhanced by god device, which is disjoint with superpower, so, the range, god device is in the range of is enhanced by, so, ah, probably the range, well, again, depends on what you’re trying to model, probably you cou, you can change the range statement to allow enhanced by, could be is enhanced by device, or superpower, could be one of those, or you can fix it in a number of other ways, superpower is not disjoint with device, I guess, but the, again it depends on what you are trying to model, but you changing those will give you, emm, yea, allow thunder to be satisfiable.

05:10 I: ok, this is the next one,

05:12 emm, so every GWSuperSenses should be GirlWithPower, emm, I, sorry to be ?, this entirely depends on what you want, what the actual world, real world situation modelling is, probably you don’t want hero should be disjoint with girl with multi power, that would allow them all to be satisfiable, yea

06:07 I: so delete, either delete 4, or

Delete 4, yea, I, yea

I: any other thoughts?

Ahm, you could change these relations

I: 1 or 2?

Emm, is this GW supposed to be girl with? (I: yes) yes, emm, I’m not sure subclass should be the right thing for that, that probably won’t, yea, emm, that, girl and power should be modeled by relation, not class I think, that would be a completely rewriting of (the whole ontology)

07:02 ok, let me see, let me see, bear, has base in, ok, this is saying, bears, emm, bear can be base of either a cave or an aeroboat, but that’s not possible, because they are disjoint, and the only, the only is probably the quickest way to fix that, to allow aeroboat to be satisfiable

07:52 I: so change the only in the 2?

Emm, that won’t help, won’t? so emm, no, I would change 2 to nice structure 3, so Cave is subclass of is base of some bear, allows either cave or aeroboat to be the base of bear

08:27 I: ok, so cave is subset of has base in some?

Yea, just this exactly structure 3, but with cave instead of bear, yea, that will work

08:44 emm, ? of something, ok, well, so sub-property can’t have different range from its parent property, em, can’t have a disjoint range, can’t have a different, em, can’t have a disjoint range, yea, emm, we’ll take off sub-properties, then that’s, emm, yea, then I’ll delete 5, they’re not so, again, probably the shortest way of

09:51 I think I’m struggling here because both the diagram and the textual version are OWL based and I just don’t get on with OWL syntax or the OWL way of thinking, without variables, this is, class just gibberish, I know it is ? but OWL, but it is just gibberish way of writing anything, emm, so sorry, I was my prejudice, I know, emm, so something that only steals wood is subclass of others, emm, who are villains, and only villains steal, and villain they are not wood, (Tie notes: he’s reading the texts) emm, nothing sounds unsatisfiable, emm, I don’t think wood is unsatisfiable

11:36 I: emm, they are. It’s just, emm, oh, it’s complicated, there is a, property we call it vacuous truth, if in this case (pointing the first three axioms), then it must be, it’s too big to hold that one (pointing to steals only woods) to be subset of others, if this one is true, it can be the whole universe is subset of others, that is impossible,

12:16 emm, oh, because villain dis, emm, so if there’re, if something steals only wood, then it is,

I: others and it is villains, and

So if nothing steals wood, then this is true, nothing steals wood, this be an empty set (means the wood), ah, no I still don’t think this is unsatisfiable for wood,

I: emm, so here it is said that if this one (steals only woods) is subset, if

If this is a sub

I: yea, is a subset of others and is also the subset of villains, and here is said that the domain of steals is villains, then it said that if that thing is the villains, emm, has the relation with steals, but it also could be something outside this villains, is, can also be related with steals

14:10 no, steals is the domain, no, villain is the domain of steals, so the only thing can steal is villain,

I: yea

If no villain steals any woods, this is vacuously true, but so what?

I: so the wood doesn’t exist

No, it just means no wood steals any, the wood could exist, just not stolen by any villains,

I: yea?

No? There could be non-empty set of wood, it’s just none of them is in the steal relationship with any villain

I: emm

See? Variables

I: (writing with variables and trying to find a way to explain clearly) so wood is equal to bottom

16:04 can I have a piece of paper so I can write it, emm, I don’t want to write on your notes, emm, (writing) I won’t take this, but try out, but, emm, perhaps best result here is to build a model of this, emm, something is wood, emm, villain is disjoint with wood, so something is villain, emm, something which are others, and, emm, it’s in the steal come from this set, steal, so set stole things, emm wood, emm, yea, what if just nothing steals any woods,

I: nothing steals any wood,

I think it will be unsatisfiable this (axiom 1) is other way round, others subclassof steals only wood. I’m sure missing something, yea, the set steals only wood, lives inside the other set, but it could be empty, then if it’s empty, they can be wood,

I: but we don’t allow empty, if it said that’s is empty, then something is wrong,

Ok, anonymous (?) class, every set must contain something, emm, that’s not the part of the semantics of OWL

I: ok, but we want to make it has some meaning, so we can’t say that one is empty, then why we use it, but that’s a good question, I will think about it

No, this is a perfectly meaningful situation, where no wood exists, but none of it stolen, it’s not the case that every constructed class must be nonempty for it to be a meaningful situation, I can see the point one thing every, emm, so where primitive, every named class, emm, even that, I, particularly if this is part of a larger context with other things going on, other things might be interacted with wood, but, I won’t make the whole situation, wrong or useless, emm, sorry

I: ok, you’re the first person that picked out this, I will think about it.

Ok, sorry, I wouldn’t fix that, that’s fine

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22:25 Q1

That’s hard to say because I wasn’t really using the diagram. ... What I do draw pictures, do draw pictures to do, but again that’s an ...

22:55 Q2

What I would normally trying, and picture the emm scenario, hahahaha, I don’t know how I describe my normal methods for ontology debugging, try several things to see whether it works. Sorry it’s not very helpful.

23:24 Q3

I would disbelief (?) them differently, but (I: or do you have any suggestions or opinions?) it’s tricky, because while I can see the advantages of having the properties as arrows, they’re also sets, so I would, I also want them to be circles, the set of, do you see what I mean, emm, I think, maybe it is er, I think this diagrammatic notation is very influenced by the owl syntax, I think that maybe makes it a slightly harder to read because owl syntax is hard to read. I realize, I grew up with first order logic with variables and I don’t know why you would harmsting (?) yourself by getting rid of them. Aah, no one never says emm all tempcontrol are heatmanipulation and coldmanipulation emm, there were examples of things that are particular e.g. Steals of wood

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| **Task id by unsatisfiable** | **Solutions** |  |
| **(Mul)** Thunder | Change axiom 1 isEnhancedBy Range depends on what you are modelling | R |
| **(Mul)** Costumed, Iceman | Change the cardinality restrictions, basically delete axiom 4: SecretTeam SubClassOf hasMember max 4 Thing will do | R |
| **(Mer)** GWMultiPower, GWSuperSenses | Delete axiom 4: Hero DisjointWith GWMultiPower | R |
| **(Mer)** Wood | No solution |  |
| **(Mer)** absorbs | Delete axiom 5: absorbs SubPropertyOf resists | R |
| **(Mul)** Aeroboat | Change axiom 2 to Cave SubClassOf isBaseOf some Bear | R |
| **(Mul)** isMemberOf | (1) delete axiom 5: HumanTeam DisjointWith AlienTeam  (2) change axiom 4 to Robot SubClassOf HumanTeam  (3) remove the onlys | R |
| **(Mer)** Cache | Delete axiom 5: InfoCentre DisjointWith RnDCentre | R |