He didn’t do ontology debugging for several years, he was using the diagram all the time

(M)

00:38 I can try, ok, so just trying to read it through, just to understand what it is, so this diagram, thing is enhanced by particular instance of superpower, so that’s that part, up to this, seems very sensible, emm, then god device is enhanced by, so the god device is enhanced by thunder, so I guess that means god device and thunder, then there is something says superpower and device which are two separate things, and some relationship here, or something which is, emm, ok, god device is a particular instance of device, ok, emm, so that is, god device is a subclass of device, number three there, ok, so, I maybe falling in the first part here, but I understand that this representation (texts) is represented this way, when you say unsatisfiable, what you want us to do?

I: it means that this class said, it has something wrong, or it contains nothing inside this class, so in order to make this ontology work, we need to, try to emm, do some, emm, thing to fix the problem, so sometimes you will get rid of the part of the axiom which contains errors, or sometimes you add some class, just try to do something to fix the problem

Ok, yea,

03:15 so the implication from these I can think, is the goddevice could be within superpower and somehow isenhanceby superpower, the problem is, I think the problem is that because goddevice is contained within device that would be a problem for this (pointing to the fist diagram domain of isenhanceby right part, superpower) and the presentation shows that superpower and device are separate, so I think there is a difficulty here, and result open it (?) would involve some change to one of these two (pointing to the diagram goddevice inside device, and the diagram superpower disjoints with device)

I: change in the goddevice or superpower right?

Yea, in order to, exactly yea, in order to try to result this problem in that goddevice is within device, is some, is part of that, or in this case and the implication is the superpower, that goddevice is a superpower, so I think that’s the problem. Or, I don’t know, maybe it’s the implication because there is necessarily derived (?) nothing here between goddevice and superpower so could just be the labels that were making the assumptions there, but I think, yea, definitely something to do with these two (device and superpower)

05:06 I: so your suggestion is just makes superpower and device not disjoint

That would certainly help.

I: any other thoughts?

No that would be it

05:30 I: ok, good, so now this is the 2nd case, again the reasoner shows that emm, GWMultiPower and GWSuperSenses, they are unsatisfiable, and this is what you see from the

05:47 so supersense is part of multipower, emm, also supersense is part of multipower, oh, yea

I: sorry, just these long names, this is the girl with multi power, and girl with power

Ok, (murmur), ok so,

06:40 So the problem is just delete the left hand side (pointing to the part in the diagram that gwsupersenses inside gwmultipower), it breaks that, two things have the same name, either take out of the right hand side (pointing to the part in the diagram that inside hero, gwsupersenses inside gwmultipower) or take out of the left hand side, but for being both is the problem of the representation.

07:08 I: good, and this is the 3rd one, again, it shows that Costumed and Iceman, they are unsatisfiable, there are something wrong with these two classes, and how would you fix it?

07:28 ok, so god race is part of the secret team, iceman is costumed, so costumed and superhero (?) is both, and costumed is part of god race, ok, so already it looks that there’s a hierarchy: secret team, god race, costumed, iceman, ok, so then, secret team has member, so over here is some member, yea, of secret team, which is less and equal to 4, so there is going to be 4 whatever it is in secret team,

08:06 Costumed hasmemberof 5 which is greater than 4, so this is an issue so if secret team is the bigger one, and you got godrace and costumed, so costumed does get 5 in it, but we’re saying that secretteam can have up to 4 in it, so that is the problem, these two properties, if you like it, they have conflicted one of the other because of the representation shows they’re classes. So the solution will be to, well, it would be, would be, I think it will be fine if has the member of 5 for costumed that was 4, that would be okay, it appears looks like a small change, that would be satisfiable.

09:06 I: are you happy?

09:14 I: this is a very complicated one, but I think you are doing better and better, ok, so now something wrong with the class wood,

09:25 Wood, ok, ok, so steals, emm, well, ok, so the grey covering again was indicate

I: nothing inside

Nothing is inside, so wood has nothing inside, ok, so steals only woods subclass of others, so steals, so this thing, the universe, steals, something here, which is either people or others, or possibly a villain, but there is no, emm, there is no villain ?, ok, so others subclass of villain, others subclass of villain, yea, steals domain’s villain, yea, steals domain’s villain, villain is disjoint with wood, yea, let’s fair enough, yea, ok so, what’s unsatisfiable is wood, this is quite tricky, is it something to, to, so wood, everything was in here including wood, would have the domain of steals, but according to this, wood is disjoint from all these, so, some

11:32 to be honest, I’m not as confident as clear on this, I think it has something to do with this domain being implied through this square on the right hand side, or on the left hand side disjointness, it’s separate, so, I think hardly, I found it quite hard ‘cause nothing is in wood, it’s quite hard to think through, but I think in terms of representations it’s the property of that (pointing to the diagram on the part that the curve steals points to) and these (villain and wood) being disjointness issue, I think

12:22 I: the property or the disjoint

12:30 I: ok, (giving a new one), ok again, it said that this time is the property absorbs, is something wrong with it, and how would you fix it?

12:46 absorbs, ok, so here we are saying, ok, so energy, heat, within the heat, there are two parts, subclasses, there is a thing, fire, and contains, what was the asterisk for?

I: any individual

Any individual, ok, so any individual within this universe can resist some part of heat, absorbs some subproperty of heat, subclass, so this thing resists, this thing absorbs, that’s, if you take the human meaning resists absorbs, these two would be contradictory, if resists, cannot absorb it

I: sorry, I am not good at giving names, but the purpose is that said that absorbs is a subproperty of resists, so something if it has the property of absorbs, then it must have the property of

Resists as well, that’s true, so we can get off there, ok, thank you, emm, or as here, we are saying absorbs, I’m not sure what’s wrong, emm, so saying within all of this, there is something that are fire and matter, there are some other things that are part of heat and energy, they both have the, this thing both has the property of absorbs from these two things, resists of this, emm, energy can’t have a, one instance of both of these, ok, so if we would have one thing here could be absorbed, inside energy, yea, sorry, inside energy and heat, emm, then within that there would be some, so what within this could absorb this thing, could also absorb other thing, (murmur), yea, I’m not sure why there is a problem, it could be not understanding, just, so yea, the implication figures these are two different things, they are both absorbed by this thing, I’m not sure why things are unsatisfiable

I: emm, because it says that if something has the property of absorbs, it must have something resists, there should be something, emm, this one should also be inside heat, because it said that if it has the absorbs, then it must have the resists, but resists is in here, so this part should also be inside here,

17:5 ok I understand that. So it’s the fact that the two arrows from the one thing were saying that this has both these properties (absorbs and resists), for that to be satisfied, if it’s absorbed, it must also be resisted. So I would either have to have an arrow, well, because it’s contained there, then is it the case that only absorbs would in this, is it possible?

17:48 so you either take this out (from Fire) and put in here (inside Heat) in someway, emm, in order to maintain this relationship between absorbs and resists, or you can reduce or remove the property for resists, then I guess would be the case the thing could absorbs two independent things, happen to inherit from resists, yea, I think it could be one of those two caused the issue

18:30 I: ok, now this time this

18:35 ok Aeroboat is unsatisfiable, so we are on a, is base of inverse of has base in, (murmur), waw, ok, so, go to the figure again, it’s easy, so this some set of thing is the base of some class over here, and then we are saying some other set of, inverse of base of over there, emm, waw,

I: oh, it says the domain of one property is the range of the other one

Ok, ok, so domain and range, so the bear has base in, some part of cave, ok, aeroboat, base of bear, aeroboat, cave aeroboat, (murmur), so aeroboat is base of bear,

21:08 so the problem is between these the 2nd and 3rd that shows you that cave and aeroboat are disjoint, completely separate, but the implication of the 2nd and 3rd line, that there is something has, bear has base in some subclass of cave, and the base of bear is aeroboat, so that implies, I think, follow through is aeroboat should be contained within cave, but it didn’t, in this case so, either move it inside there, move aeroboat inside cave, yea, I can’t think a second solution, so

22:10 I: ok, one is enough, ok, (giving a new one), thank you

22:18 ok, so unsatisfiable class is Cache, (murmur) cache is subclass of, ok, is owned by something in info centre, R&D centre, lab and cache, then armory, cache subclass, so, human race, so the armory is owned by human race, ok, ah, the dash, so this is at least,

I: yes, at least one

At least one within human race, is in armory, so armory is owned by at least, so armory is owned by at least one human race, ok, info centre, is, going the other way,

I: oh, this one is the domain, it’s the, this pattern (pointing to the domain pattern in training materials)

Ok, oh yea, so only teleportation moves thing, it’s going back to the example from here, only teleportation moves things, so the equivalent one here is only info centre is owned by Thing, ok, so the unsatisfiable class is cache, so cache is owned by at least one human, cache is separate team from info centre, ok, info centre, is owned by, ah, so it’s a person, or something within, the info centre is only owned

I: only info centre

25:47 only the info centre is owned by this (pointing to the right hand side square), so these people don’t own anything other than info centre. Then that’s a problem because we are saying that human race, at least one of the human race is in the armory, but the cache, then therefore the cache, ok, so the problem is that the cache is separate from info centre, only put things into this, people, human, whatever, it could be only owned by info centre, so implicated that. Yea, cache should be inside the info centre. That could work.

26:30 I: ok, good,

Waw, it’s good, no, I would take much longer to get it otherwise

26:41 I: ok, the last one, it’s not the class, it’s the property, typo

26:51 ok, that’s fine, that should be isMemberOf, that’s fine, so that’s the property, ok, so there is, star was

I: an individual

An individual, sorry, ok, so the individual is a member of, oh, no, so hold on, zero or one, so, is member of, at most one, that’s a nice way to say that, at most one individual, is, within robot, so, emm, some, at least one is in the human team, alien team, so robot is part of alien team, and human team and alien team are completely separate,

27:49 so we are saying that robot is in the alien team, so the problem here is that, emm, so whatever this is, is within robot and alien team, and this side we are saying individual, this which is human team, and they are saying these two are separate, so the issue is that robot and this thing are contained within alien team over here, and this thing is contained in here, did this have to be the same individual, or can it be the useful (?) an individual?

28:44 I: it could be any individual, for every individual inside universe

Ok, so for every individual in the universe, at most one,

I: instance of that

Whatever that is, so the member of at least one of those things, remove bottom one, and then individual there can be a member of, so the problem is that that can’t be true, with these properties, is member of could be the same, emm, so these could be applied to the same individual, but that can’t be supported because they have to be disjoint, so the solution is to move the group outside the human team, or move the group outside the robot, or if the robot came out in the alien team somewhere. The issue is the alien team and human team are disjoint, so I guess some of the best or an A solution is let these overlap (human team and alien team intersected), in that way you could have the same, can be satisfied.

30:40 Q1

I do (debugging), in the similar way, I trying draw this kind of figures or these sketches that are more like this, you know Venn diagrams, or some kind of circle, so there is some strong similarity. I think the fact there is a representation structure for us makes that step lots of quicker and easier, I think to debug from the text only on its own, I will end up with trying to translate or we’ll represent that in some visual form in order to, even just (imagine) with my head, but when I was quite a few lines stood up, attempt to try to draw out of them, and yeah, this is more straightforward. especially because this is a formal, I don’t know, I assume it’s correct, they are kind of formal representational, so there is a, I insistently have a faith in viewing the representation to debug rather than thinking there would be a mistake in the representation, when I look at the text and try to work out myself, as many times I’ll make a mistake in my representation, so certainly helps, it’s good, given choice that uses it.

32:28 Q2

yeah, I mean, generally, it depends on the form of spoken where is (?) so some time is, if in the logic, then drawing like this would be the form that we prefer to use, sometimes while I just make a mistake in some representation stuff, I think one of the techniques that I would use could be to try to have a reasoning example, so after trying to identify … (?) mistake or this representation, I’ll try to think about an individual case to see whether they have go through the representation (?) which just use as a … (?) cast process, but I guess, even with those examples, doing with those representation would be more straightforward.

33:31 Q3

To be honest, it’s not a, maybe it’s unfair, or unreasonable comparison, just would be adjustability or suitability of using them in larger examples. Ontologies could be quite big. So I don’t know how well it would map to when there is a really large or a larger representation, it maybe that certain part of it could be represented well like this, rather than trying to represent everything, which doesn’t work and text them up(?), my hunch, no evidence or research back it up, but part of them is … it’s important to be useful, and I think if you can do that, then the representation would be great. If you didn’t do that and have a representation for a large space, I don’t know, it may be that’s clear but I think filter it are trying to better done the participate (?) part so where things are going wrong will help a lot.

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| **Task id by unsatisfiable** | **Solutions** |  |
| **(Mul)** Thunder | Make superpower and device not disjoint | R |
| **(Mul)** Costumed, Iceman | Change =5 to = 4 | R |
| **(Mer)** GWMultiPower, GWSuperSenses | (1) make GWMultiPower supset GWSuperSenses and Hero not disjoint  (2) make GWMultiPower supset GWSuperSenses not inside Hero | R |
| **(Mer)** Wood | (1) change the property in the only case  (2) make Villain and Wood not disjoint | R |
| **(Mer)** absorbs | (1) make the range of absorbs not being Fire and something inside Heat  (2) delete the property resists | R |
| **(Mul)** Aeroboat | Make Aeroboat inside Cave | R |
| **(Mul)** isMemberOf | (1) make the range of isMemberOf<=1 not inside neither Robot nor HumanTeam  (2) make HumanTeam and AlienTeam not disjoint | R |
| **(Mer)** Cache | Make cache inside InfoCentre | R |