23, familiar with OWL, DL, Protégé, MRes student, mostly using texts, but always write e.g. “A \sqsubset B” instead of “MultiPower \sqsubset Power”, his strategy is first find the unsatisfiable class or property, look at the axioms contained the unsatisfiable class or property, to check whether there is something wrong there, if not, continue to look at the class linked with the unsatisfiable one, if yes, delete the axiom

(M)

00:30 ok to use concept diagrams?

I: whatever you want, just, we just, something like we use this one as a helper

00:39 ok, ok, emm, disjoint, emm, ah, subclass of, is power,

01:38 right, I know why, because you say is, this class (GWMultiPower) is subclass of this class (GirlWithPower), and we also know this class subclass hero, so if we get an inference, we can get this class (GWMultiPower) subclass hero, but it says hero is disjoint with this class (GWMultiPower), so it’s unsatisfiable

02:09 I: yes, and then how would you fix it? how would you correct it? make it satisfiable

02:18 I mean, may I change the axioms or

I: yea, sure, whatever you like to change, just like fix in Protégé, you repair an ontology and how would you do that

Emm, may I change the class name?

I: yea, you can tell me and I will note it down, or if you want to make some notes, (giving him a piece of paper)

Thank you, (murmur), so we cannot change the knowledge, what’s the knowledge base wants to express, I mean

I: it depends on you, I just want to get how you, what’s the way you do debugging, so it depends on you, you just tell me how you want to do it, then I will just note it down, and try to see what will happen, it doesn’t matter, there is no rule how you, how should you fix it, it’s really depending on you

04:08 Emm, actually, I will delete this axiom, and, it’s will

I: ok, you said, delete axiom 3, right?

Yea

04:20 I: ok, any other thoughts?

I think we can use the class C to get the right answer, but emm, I think it’s a little difficult, so if there is no rules, I think that’s fastest way

04:48 I: ok, yea, this is the second one

04:53 thank you, (murmur), absorbs, range, energy, fire subclass of (writing his own abbreviation), ah, disjoint, emm,

07:07 I think if we delete any one of these axioms, we can get the right knowledge base, right?

07:17 I: ok, so you said that delete 3, 4, 5, 6, any one

Any one of them

I: ok yea

07:39 I: (giving a new one) try to only use these two (textual and diagram representations), just get used to the meaning

I mean, because the class name is too long

I: ah, ok, ok, I see

07:53 (murmur) (writing his own abbrev)

08:51 emm, you mean, the has member means the, the emm, I mean, the subclass member of this class, or because we know nothing about this property

I: no, this part is the subclass of this one, emm, secret team is subclass of this part (pointing to hasMember max 4 Thing)

Ah, alright, alright, sorry, sorry, emm, I think the class name is too long, sorry, (writing his abbrev) (murmur), ah, if we change the, change the, ok,

11:53 I think we can delete the 3rd axiom

11:56 I: ok, yea, (giving a new one)

12:03 thank you, (murmur, writing)

14:23 ah I think we can delete the first axiom

14:28 I: ok, and just please think aloud, because I want to know how you make these decisions, yea

14:38 ah because if we, emm, emm, the unsatisfiable class is a cache, and this class subclass of this class (Lab) and this class (armory), so, emm, so we can see if we, emm, and the, the lab, the class lab subclass of this class (R&D centre), and this class (armory) subclass of the property some human race, and we also know this, this class is domain by the info centre, and obviously I think it’s about the, I mean the, emm, it’s about the domain and the subclass, so we delete this class

15:34 I: ok, (giving a new one)

15:45 (murmur) bear, disjoint, some bear, disjoint, so, I see, so bear subclass (writing), ah

17:04 I think I will delete this axioms (pointing to axiom 4)

17:08 ok, any other thoughts?

17:17 emm, or delete this axiom (pointing to axiom 1), but I think two, I think this axiom is good, because has base in and is base of is a good inverse property I think

17:35 I: ok, (giving a new one)

17:42 (murmur, writing) god device, superpower,

18:29 we can delete the 3rd axiom or the 1st axiom, one of them,

18:35 I: ok, why, and how you think, how you made that decision?

18:43 because, emm, we can get emm, the thunder subclass of this property some this class (god device), and we can also know this property’s range, so, and we get the, this class (god device) subclass of this subclass (device), so if this class emm, I mean, they are disjoint, or the, or the, or this class subclass is disjoint, so we, so maybe there is some problem, so we delete one of them (axiom 3 or 4)

19:22 I: ok, ok, (giving a new one)

19:30 (murmur) subclass of,

19:57 ah, there is the problem, functional, because, the class, emm, ah we know about the class hierarchy the disjoint, so if they are functional, that’s only one relation, so

I: how would you fix it?

20:18 delete this one (axiom 3)

20:23 I: ok, this is the last one, and emm, it’s more complicated, difficult, so, emm, if you cannot have any solution, it’s ok, but please try your best, and try to see from the diagram, whether, how, whether you have solution how to fix it,

20:47 ok, ok

I: emm, the first axiom, I cannot exactly represent in diagram, so I just change to the first axiom into an equivalent axiom, then I represent in diagrams, so it maybe not exactly the same as what this axiom said, but they have the same meaning

21:18 ok, ok, (murmur) domain, disjoint of, ah, only,

22:51 alright, based from, em, if we create a concept diagrams from these axioms, we can get this pictures, and we know the wood is disjoint with villain, and we also know the steals domain is villain, so and others subclass of villain, so if we use this diagram to, emm, to, I mean to test (?) the first one, emm, the first one we can also get a domain, but the domain, but the wood is disjoint with villain, so but, but in the 3rd axiom, we know that the domain is villain, so I think that’s a problem, and the, emm,

24:00 for me I will delete the fourth axiom

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24:26 yes, it’s quite different, because I also use the Protégé, and we can get the, I mean the inference, when we find some problems, and it’s a, we can get some axioms in the inference tree. And, erm, for me I think this axiom, if I can read the axiom it’s more, it’s easier for me to debug. And, erm, I mean, eemm, because based from this problem, em, you, I mean you draw the two different situation in one picture, ah, I mean, I mean, em, if we have, em, e.g. for the last question (Wood), if we draw a concept diagrams based on the axiom 2, 3 and 4, we can get one concept diagrams, if we draw a concept diagrams based on the axiom 1, we can draw another concept diagrams, but I mean, in some, if we draw the two concept diagrams together, it confused me, because, I cannot immediately figure out which one is the first one, which one is the (2nd)

26:17 em, I think, if I found some unsatisfiable class and I, first of all, I will find the axioms about this class, and 2nd I will find the, if, e.g. if I find A is an unsatisfiable class, and I found A subclass (of something), b something else, and I will find some class about this class, find some axiom about this class, and I will find these axioms maybe have some problem of this, each other.

27:07 I think it’s ok, but em if we can, em, have two concept diagrams (means multiple diagrams) I think it’s better, because sometimes too complicated.

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| **Task id by unsatisfiable** | **Solutions** |  |
| **(Mul)** Thunder | (1) delete axiom 4: SuperPower DisjointWith Device  (2) delete axiom 3: GodDevice SubClassOf Device | R |
| **(Mul)** Costumed, Iceman | Delete axiom 3: Costumed SubClassOf GodRace | R |
| **(Mer)** GWMultiPower, GWSuperSenses | Delete axiom 3: GirlWithPower SubClassOf Hero | R |
| **(Mer)** Wood | Delete axiom 4: Villain DisjointWith Wood | R |
| **(Mer)** absorbs | (1) delete axiom 3: Heat SubClassOf Energy  (2) delete axiom 4: Fire SubClassOf Matter  (3) delete axiom 5: absorbs SubPropertyOf resists  (4) delete axiom 6: Energy DisjointWith Matter | R |
| **(Mul)** Aeroboat | Delete axiom 4: Cave DisjointWith Aeroboat | R |
| **(Mul)** isMemberOf | Delete axiom 3: Functional: isMemberOf | Incorrect solution |
| **(Mer)** Cache | Delete axiom 1: isOwnedBy Domain InfoCentre | R |