CO474 Argumentation and Multi-Agent Systems Assessed Coursework

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1 Part 4iii) a)

```
| ?-
| ?-
| ?-
| ?- ['appointmentExample.pl','p1.pl','p4.pl'].
% compiling /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/appointmentExample.pl...
% compiled /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/appointmentExample.pl in module user, 0 msec -9408 bytes
% compiling /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/p1.pl...
% compiled /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/p1.pl in module user, 0 msec -2336 bytes
% compiling /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/p4.pl...
% compiled /homes/dvn14/Desktop/MAS CW/MAS_Tests/Part 4 Latter/p4.pl in module user, 0 msec -6816 bytes
yes
| ?- grounded((not_sports(b), [overweight(b)])).
yes
| ?- grounded((not_free6(b), [sports(b)])).
no
| ?- grounded((free6(b),[free6(b)])).
yes
| ?-
| ?-
| ?-
```

Figure 1: Queries used to determine whether *free6pm(b)* belongs to the grounded extension

As queried in Figure 1, *free6pm(b)* does belong to the grounded extension.

2 Part 4iii) b)

In the grounded extension, *free6(b)* is defended because *not_sports(b)* $\leftarrow$ *overweight(b)* attacks *not_free6(b)* $\leftarrow$ *sports(b)*. Similarly, *get6(b)* rule is defended and *get6(b)* rule attacks *get8(b)* and *get6(a)*. Hence, Boris will be given the 6pm appointment and Anne will get the 8am appointment.

In the complete extension, the rule *not_free8(a)* $\leftarrow$ *child(a)* becomes a member of the stable extension and attacks rules *free8(a)* and *get8(a)*. This defends the rules *get8(b)* and *get6(a)*. Hence Anna will be given the 6pm appointment and Boris will get the 8am appointment. Regardless of the debatable assumptions on Anna's morning availability or Boris's sports classes, the arrangement of giving Anna the 6pm appointment and Boris the 8am appointment, will cater to the unsure assumptions.