

## Section 5 Worksheet

### *Advanced Datalog*

Consider the following schema about software dependencies:

SSpec(s, x) – The software (s) and its specification (x)

SDep(s, d) – The software (s) and a dependency (d) to another program it has

OpenSrc(s) – Software that has been made open source

We assume there are self dependencies or cyclic dependencies otherwise. Also, all dependencies are other software found in SSpec.

1. Find the number of direct dependencies for each piece of software.
2. Find all software (and respective specification) that have more software that is directly dependent than it has direct dependencies
3. Find all software (and respective specification) that is not dependent on open-source software.
4. Find all software (and respective specification) that is not a dependency to any open source software.
5. Find the maximum dependency depth for each piece of software.

Thought exercise: Would question 5 terminate if cycles in our dependency graph existed? What if we were finding the minimum dependency depth?