

CS 350 Task 4: Project Specifications Grammar Unrolling

Description

The spreadsheet in the task resource bundle defines two parts of the language that drives our project. Tab *Rules* defines the grammar for the commands that create, connect, and manipulate the model and simulation. Tab *Fields* defines the form of the fields that the user must fill out in a command. In typical Agile style, the grammar will be expanded as we progress through the project. For now, you need to make sense of it. Soon you will be implementing a parser that accepts (probably) only the commands in blue (minus the starred ones for teams of two). However, in Part III of the project, you will be using my complete solution with the complete language, so you must understand what it does and how to use it. Lecture 37 covers this in more detail, and this document will be updated as we go.

Rewrite the rules into complete, standalone grammatical sentences. For example,

```
CommandPet      := PET CommandAnimal Identifier CommandHow
CommandAnimal   := ( DOG | CAT )
CommandHow      := ( VERY )? NICELY ON THE ( HEAD | TAIL ) FOR Number SECONDS
```

translates to

```
CommandPet      := PET ( DOG | CAT ) Identifier ( VERY )? NICELY ON THE ( HEAD | TAIL )
                  FOR Number SECONDS
```

We want a single rule that can be understood and explained without chaining partial rules. Unroll the rules only, not the fields; e.g., *Number* is either *Integer* or *Real*. Leave it as *Number*. Do not unroll **Parse**.

Literal symbols are in single quotes; parentheses are for grouping, not part of the expression; ? means zero or one; * means zero or more; and + means one or more; | means logical or.

Deliverables

Produce a single, professional PDF document that captures the unrolled rules. Keep the ID with each rule and order by it. Rules that have been collapsed into other rules and no longer stand alone and should be omitted.

This is a team task. Only one team member should submit it.