Discrete Structures
Computer Assignment

Tony Lopar s1013792
Carlo Jessurun s1013793
Marnix Dessing s1014097

February 2, 2018

1 Language

The language we used is Python. This is the only sensible choice based on the fact the framework given for the assignment is written in Python. And due to the time frame we don't have time to write our own framework. Also Python has a calculus library Sympy (see next section). Since we are allowed to use Simpy, it was the most obvious choice to work with that.

2 Libraries

We use the following libraries:
1.: The framework given by the course.
2.: Sympy

2.1 Framework

The framework pretty much explains its self. We had to implement the parsing of the F(n) our self, after the associated homogeneous part was parsed. Broadly speaking we use the following approach in our solution:
Step 1: Rewrite in the default form
Step 2: Determine characteristic equation
Step 3: Find roots and multiplicities of characteristic equation
Step 4: Write down general solution
Step 5: Use initial conditions to determine values of the parameters

2.2 Sympy

3 Problems and solutions

Problem 1:
Solving a homogeneous relation for some init values was impossible...