ATPG

Group Project Phase #3

In this phase, you will focus on the implementation of two ATPG algorithms, D-Algorithm and PODEM for a single target fault.

1 SCOAP

Controllability and observability values for all possible lines/nodes in a netlist can be calculated following SCOAP. In the output file, each line is dedicated to one node as shown in the example below.

```
[cmd$] SCOAP <output-file-name>
```

```
22,5,4,0
23,5,5,0
16,4,2,3
<node>,<CC0>,<CC1>,<CO>
9,1,1,7
11,3,2,5
```

2 D-Algorithm

To generate a test pattern for fault <node-number>-stuck-at-<fault-value>:

```
[cmd$] DLAG <node-number> <fault-value 1/0> <output-file-name>
```

- The generated test vector is ternary, i.e. it can have 1, 0, and x values, and it must be saved in the given output file name.
- The runtime of the algorithm is important. Make sure the implementation is correct, and you don't get stuck in loops. You may use SCOAP metrics for better heuristics.
- For redundant faults, an empty tp file should be generated.

3 PODEM

The flow is similar to Sec. 2, but by implementing the PODEM algorithm.

```
[cmd$] PODEM <node-number> <fault-value 1/0> <output-file-name>
```