**EBNF**

* Wanted to not allow n1() but allow n1 and n1(3)
* Naming has been chosen to be case insensitive

**SEMANTIC ERRORS:**

1. Set of capital letters given for devicetype is not actually a valid devicetype
2. If we’ve used a device name more than once.
3. In device name, we should not allow names that are case insensitive keywords or device types.
4. Device set with parameters when it shouldn’t have any parameters (e.g. XOR(5))
5. Switch set with parameter that is not 0 or 1
6. Cannot have multiple outputs going to same input (an input can only be mentioned in the connections EXACTLY ONCE)
7. Input was never used.
8. Input name to a device name must be less than or equal to the number of inputs that have been parameterized for that device name.
9. Input/output name matches possible inputs for particular device type.
10. In connectionlist and monitorlist, device name must be a device name that has been mentioned in deviceslist.
11. In monitor list, can’t monitor same signal twice

**DESPCRIPTION OF ERROR HANDLING**

* Syntax errors: “SYNTAX ERRORS” followed by line number, followed by line and have arrow underneath indicating where in line syntax error occurs. Examples:

Line 42: SWITCH 5n2;

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* First do syntax errors THEN do semantic errors
* If a syntax error is found, output it, and continue parsing the rest of the file from the next semicolon to find more syntax errors.
* If no further syntax errors are found – move to semantic error checking.

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| Error number | How it is handled (line numbers and actual line included at beginning of message) | Example |
| 1 | Invalid device type: “devicetype” | INVALID DEVICE TYPE: “SWITCHH” |
| 2 | Device name “devicename” was already used in line “line” | Device name “nand1” was already used in line 43 |
| 3 | Cannot use keyword, “devicename”, as a device name | Cannot use keyword, “MONITOR”, as a device name |
| 4 | “devicetype” type devices do not take parameters. | XOR type devices do not take parameters |
| 5 | SWITCH type device can only take 0 or 1 as parameter | SWITCH type device can only take 0 or 1 as parameter |
| 6 | Input “input” was already used in line “line” |  |
| 7 | Input {“input”} was never used |  |
| 8 | “input” cannot be used the “num\_inputs” input “devicename” device |  |
| 9 | “input”/”output” is not valid for “devicetype” device “devicename” |  |
| 10 | Undefined device name: “devicename” |  |
| 11 | “signal” is already monitored: line “line” |  |