COMP2209 Coursework Report

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**Challenge 1:**

The implementation won’t handle subsequent deflections, only deflections of the initial ray. Recursion was the only solution for this since there were no mutable states or loops. However, recursion ended up breaking the rest of the implementation. The implementation also won’t handle double deflection and only returns a placeholder for the exit index

**Challenge 2:**

Given that all interactions were given, the first solution was to look for intersections and that would be an atom, in theory. However, something may have been missed since the solution comes up with atoms that don’t exist. Further progess with the problem wasn’t possible due to this unknown error.

**Challenge 3:**

The PrettyPrint implementation mostly works, however attempts at implementing Scott Numerals using custom recursive data types ultimately didn’t work. However, there could have been a pattern matched solution.

**Challenge 4:**

The implementation is highly flawed because it won’t work with much more than simple parsers. Numerous attempts were made to combine the smaller parsers to parse the more complex expressions. However, due to these breaking the simpler basic functionality, they were ommitted.

**Challenge 5:**

No working solution was found. Basic functionality (passing the basic test example) wasn’t acheieved.

**Challenge 6:**

Not attempted due to time constraints and not understanding the concepts of reduction particularly well

**Testing:**

Testing was primarily done interactively, therefore the testing file contains only the most basic of tests to ensure that each challenge maintained functionality on a broad level as other challenges were attempted.