

Enhancing Subtype Inference by Tracking Value Constraints

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I. INTRODUCTION

This report extends the work on subtype inference by introducing a method to track value constraints on integer variables. This approach, while potentially risky due to the use of unsafe Rust, allows for a broader coverage of cases where C enums can be translated into Rust enums.

```
1 enum Day {  
2     Mon, Tue, Wed, Thu, Fri, Sat, Sun  
3 };  
4  
5 enum Day next_day(enum Day day) {  
6     return (day + 1) % 7;  
7 }
```

This code defines a C enum to represent days of the week and a function that returns the next day. The function takes an input day, adds 1, and returns the result modulo 7. The `Day` has values ranging from 0 to 6, and the return expression of the function also produces values within this range. Thus, a variable of type `Day` will always have a defined variant.