**Locally Relax the Value Restriction by Control Flow Analysis**

**Team 17**

**b00902064 宋昊恩**

**b00902107 游書泓**

1. **(purpose)** In this study, we propose an extension to the Hindley-Milner type system that loosens the value restriction.
2. **(motivation)** Since Wright suggested in [WR95], the value restriction has been the standard way to type a language with both parametric polymorphism and imperative features. The value restriction is simple and effective, but rejects many semantically correct programs.
3. **(scope)** Garrigue [GAR04] relaxes the value restriction by generalizing all covariant type variables. The modification later became part of the OCaml language.
4. **(gap indication)** However, both approaches are only ad-hoc approximations to the pureness of the input expression.
5. **(solution)** Thus we incorporate a baseline control flow analysis into the type system in this project.
6. **(results)** The control flow analysis gives a finer approximation of the pureness information. Hence we can generalize more cases than the existing systems.