

Problem 1.1

- i. int
 INT
- ii. int -> bool
 ARROW (INT, BOOL)
- iii. ('a->'b)->('a->'b)
 ARROW(ARROW (VAR "a", VAR "b"), ARROW(VAR "a", VAR "b"))

Problem 1.2

- i. succ (pred 5)
 AST_APP(AST_SUCC, AST_APP(AST_PRED, AST_NUM 5))
- ii. if 7 then true else 5
 AST_IF(AST_NUM 7, AST_BOOL true, AST_NUM 5)
- iii. fn a : int => f a a
 AST_FUN("a", INT, AST_APP(AST_APP(AST_ID "f", AST_ID "a"), AST_ID "a"))

Problem 1.3

 Typerchecker.sml

Problem 2.1-2.3

 Interp.sml, interp_static.sml, interp_lazy.sml, interp_lazy_static.sml

Problem 2.4

 With type checker, we don't have to write checks for expressions before executing them, so no RES_ERROR return needed for type checking.