

# Results from the Compiler Construction Competition

IMADA

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## Programs

Program	Group						
	1	2	3	4	5	6	8
C-ErrAssignToType					$C_E$		$C_E$
C-ErrFuncParamsInvalidType					$C_E$		$C_E$
C-ErrFuncParamsTooFew					$C_E$		$C_E$
C-ErrFuncParamsTooMany					$C_E$		$C_E$
C-ErrInvalidToken					$C_E$		$C_E$
C-ErrTypeLoop		$C_E$			$C_S$		$C_S$
C-ErrUnmatchedBeginComment		$C_E O$			$C_E O$		$C_E O$
C-NullWrong					$C_E$		$C_E$
C-ReturnInMainScope					$R/C_E(42)O$		$R/C_E(42)O$
F-FuncParamsEvalOrder	$R_O$	$R_O$		$R_O$	$R_O$		
F-ShortCircuitAND		$R_T$		$R_T$	$R_T$		
F-ShortCircuitOR		$R_T$		$R_T$	$R_T$		
O-AbsoluteValueTest	$C_E$	$C_E$	$C_E$	$C_E$	$C_S$		$C_S$
O-AbsTest					$R_O$		
O-ArrayComparisonsA					$C_S$		
O-ArrayComparisonsB		$R_O$			$C_{O/E}$		$C_{S/E}$
O-ArrayIndex					$C_{O/E}$		
O-ArrayLength					$R_O$		
O-ArrayOfOwnType		$C_E$			$R_O$		
O-ArrayOfRecords		$R_O$			$C_{O/E}$		$C_E$
O-Assoc					$R_O$		
O-BinarySearchTree		$C_S$			$C_{O/E}$		$C_S$
O-Comments							
O-Factorial							
O-FuncCallAsParamA							
O-FuncCallAsParamB					$R_O$		
O-FuncModifyingParams					$R_S$		
O-FuncRedefinedInItself		$C_O$			$C_O$		$C_O$
O-FuncRedefinedReturnType		$C_S$			$C_{O/E}$		$C_E$

Program	Group						
	1	2	3	4	5	6	8
O-FuncRedefinedType					$R_O$		
O-FuncReturnRecord		$C_S$			$C_{O/E}$		$C_S$
O-Function					$R_O$		
O-IfThen					$C_S$		
O-KnapsackNoComments					$C_{O/E}$		
O-Knapsack					$C_{O/E}$		
O-LargeExpTreeA							
O-LargeExpTreeB					$R_O$		
O-LargeExpTreeC					$R_O$		
O-LargeExpTreeD		$C_O$			$R_O O$		
O-MultiDimArray					$C_{O/E}$		$C_E$
O-MultipleTypecheckPassesA					$R_O$		
O-MultipleTypecheckPassesB		$R_O$			$C_{O/E}$		$C_S$
O-MultipleTypecheckPassesC					$C_S$		
O-NullCorrect					$C_{O/E}$		
O-RecordComparisonsA		$R_O$			$C_{O/E}$		$C_{S/E}$
O-RecordComparisonsB		$C_S$			$C_{O/E}$		$C_S$
O-RecordsWithArray		$R_O$			$C_{O/E}$		$C_S$
O-Recursion					$R_S$		
O-SimpleRecord		$R_O$			$C_{O/E}$		$C_S$
O-StaticLinkA					$R_O$		
O-StaticLinkB		$R_O$			$C_S$		
O-StaticLink					$C_S$		$C_E$
O-WhileDo							
R-ErrOutOfBounds1		$R_E$		$R_E$	$C_{O/E}$		
R-ErrOutOfBounds2		$R_E$		$R_E$	$C_{O/E}$		
R-ErrRuntimeDiv0		$R_S$			$R_E$		
R-ErrRuntimeNegArraySize		$R_S$		$R_E$	$R_E$		
R-ErrRuntimeNullPointer	$R_E(2)$	$R_E$	$R_S$	$R_S$	$C_{O/E}$		$R_E$
R-ErrRuntimeOutOfMem		$R_E(134)$	$R_S$	$R_S$	$R_{E/S}$		$C_E$

## Total

Problem Type	Group						
	1	2	3	4	5	6	8
Compile-time	1	10	1	1	34	0	24
Run-time	2	13	2	8	20	0	1
Total (of 59 tests)	3	23	3	9	54	0	25

# Legend

Compile-time problems:

$C_T$  : Compiler does not terminate.

$C_E$  : Compiler gives no or incorrect error when an error during compilation was expected, or compiler gives an error when no error during compilation was expected.

$C_E(N)$  : As  $C_E$  with the error code being  $N$ .

$C_S$  : Compiler gives Segmentation fault or Floating exception.

$C_O$  : The produced output cannot be assembled.

Run-time problems:

$R_T$  : The compiled program does not terminate.

$R_E$  : The compiled program gives no or incorrect runtime error when a runtime error was expected, or the compiled program gives a runtime error when no runtime error was expected.

$R_E(N)$  : As  $C_E$  with the error code being  $N$ .

$R_S$  : The compiled program gives Segmentation fault or Floating exception.

$R_O$  : The compiled program produces incorrect output.

## Time Trial on Knapsack

Compilation done using the -x switch (except with the compiler does not work with it). All tests performed on desdemona, each program run 3 times

Group	First	Second	Third	Average
1	13.37s	13.40s	13.23s	13.36s
2	27m	27m	27m	27m
3	17.50s	17.60s	17.58s	17.56s
4	37.37s	37.46s	37.44s	37.42s
5	—	—	—	—
6	13.85s	13.81s	13.77s	13.81s
8	31.88s	31.95s	31.85s	31.89s