# Whiley Valid Test Results

## Fail

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| Reason | Test |
| Failed Postcondition | * Assume\_Valid\_1 (has an assumption that assumes r is >= 0) * While\_Valid\_58 (has assume on input is >= n) |
| No byte | * Byte\_Valid\_1 to 9 * Cast\_Valid\_5 * While\_Valid\_18 |
| No function | * Lambda\_Valid\_9 * ListAccess\_Valid\_8 * OpenRecord\_Valid\_3 * FunctionRef\_Valid\_2, 5, 6, 8, 1, 12, 13 |
| StackOverflow  Due to recursive types? | * Coercion\_Valid\_8 (recursive) * Complex\_Valid\_2,3,4 (all recursive) * ConstrainedInt\_Valid\_20 (function is recursive, never ends if input < 0) * Contractive\_Valid\_1, 3 (recursive) * DoWhile\_Valid\_4 (recursive) * FunctionRef\_Valid\_10, 11 (recursive + function) * IfElse\_Valid\_4 (recursive) * RecursiveType\_Valid\_12, 2, 20, 21, 22, 23, 24, 26, 28, 29, 3, 4 (recursive) * TypeEquals\_Valid\_16, 2 (recursive) * While\_Valid\_15, 20 (recursive) |
| Upper limit <= lower limit  Just need to tweak limits | * Complex\_Valid\_1, 10, 11, 5 * ConstrainedInt\_Valid\_10, 13, 16, 17, 19, 22, 23, 24, 6, 8 * ConstrainedList\_Valid\_17, 18, 19, 2, 20, 21, 22, 3, 6, 8 * ConstrainedRecord\_Valid\_1, 2, 9 * Define\_Valid\_4 * Fail\_Valid\_3 * Function\_Valid\_18, 20, 4, 6, 8 * IntDiv\_Valid\_3 * Lambda\_Valid\_3, 4 ,7 * ListAssign\_Valid\_4 * Method\_Valid\_1 * RecordAssign\_Valid\_7 * RecursiveType\_Valid\_19, 7 * String\_Valid\_1 * Switch\_Valid\_4 * TypeEquals\_Valid\_3, 31, 33, 39, 45, * UnionType\_Valid\_11, 14, 18, 2, 20, 5, 9 * While\_Valid\_16, 21, 3 |
| No possible values for the nominal type  Just need to tweak limits | * Complex\_Valid\_8 (Transition) * Constrained\_List\_Valid\_11 (state) * ConstrainedRecord\_Valid\_6 (state) * RecordDefine\_Valid\_1, 3 (Point) * Record\_Valid\_5 (Card) * RecursiveType\_Valid\_17 (State) * TypeEquals\_Valid\_1 (bop) * UnionType\_Valid\_7 (msgType1) |
| Fail to compile  Due to intersection type | * ConstrainedIntersection\_Valid\_1 (for the *is* clause, expected type byte found bool) * Intersection\_Valid\_1, 2 (intersections don’t work) * NegationType\_Valid\_3 (intersections don’t work) |
| NegativeArraySizeException | * While\_Valid\_2, 26   Due to executeArrayRange not checking end – start > 0 |

# Whiley Invalid Test Results

Problem with DoWhile\_Invalid\_4 stuck in infinite loop

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| Reason | Test |
| Export method only | * ArrayAssign\_Invalid 2, 3, * ArrayLength\_Invalid\_1 * Lifetime\_Lambda\_Invalid\_3, 5, 6 * Subtype\_Invalid\_4 (technically is ok as it removes the invalid input during test gen) * TupleAssign\_Invalid\_1, 3 * TupleAssign\_Invalid\_2 (technically ok as it removes invalid inputs during test gen) * UnionType\_Invalid\_10 (technically ok as it removes invalid inputs during test gen) |
| No function specifications | * Export\_Invalid\_1 * Function\_Invalid\_2 |
| Loop invariant/error ignored when running | * DoWhile\_Invalid\_6, 8 * While\_Invalid\_11 * While\_Invalid\_7 (technically correct as it still works correctly) |
| Assert/Assume ignored when running | * ArrayLength\_Invalid\_2 |
| ArrayIndexOutOfBounds is good? | * ArrayUpdate\_Invalid\_1 * While\_Invalid\_10 |
| DivisionByZero is good? | * Remainder\_Invalid\_1 |
| Invalid test didn’t pass as it was within limit  Just need to tweak limits to get these tests to pass | * ConstrainedArray\_Invalid\_2 (Need int > 127) * ConstrainedInt\_Invalid\_5 (Need int > 9) |
| Property invariants aren’t checked | * Property\_Invalid\_2, 3, 4, 8 |
| No function/method to test | * StaticVar\_Invalid\_5 |