

Experiments to understand consistency of repairs by chatGPT.

Settings: With bug location but w/o fix comments

Prompt:

“Consider the following Alloy specification and its inline comments. There is a bug in this specification. Please find the bug and fix it. only provide the entire fixed code without any additional explanation. Do not provide partial solutions.”

Spec	Test Run 1	Test Run 2	Test Run 3	Test Run 4	Test Run 5	Test Run 6	Test Run 7	Test Run 8	Test Run 9	Test Run 10
addr1	Counterexample found	Counterexample found	Counterexample found	Counterexample found	Counterexample found	Counterexample found	Syntax error	Type error	Syntax error	Counterexample found
arr1	Counterexample found	No Counterexample found	Syntax error	Syntax error	Counterexample found	Counterexample found	Syntax error	Syntax error	Type error	Counterexample found
Balanced BST1	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error
Bempl1	Counterexample found	Counterexample found	Counterexample found	Counterexample found	Type error	Counterexample found	Syntax error	Counterexample found	Counterexample found	Counterexample found

Cd1_1	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error	Syntax error
Cv_inv_1_1	Syntax error	Type error	Syntax error	Type error	Type error	Type error	Syntax error	Type error	Syntax error	Counterexample found
Graphic_acyclic_1	Type error	Syntax error	Syntax error	Syntax error	Syntax error	No Counterexample found	No Counterexample found	No Counterexample found	No Counterexample found	Type error
Its_inv_1_01	Syntax error	Counterexample found	Syntax error	Counterexample found	Counterexample found	Type error	No Counterexample found	Counterexample found	Syntax error	No Counterexample found
Production_Inv1_1	Syntax error	No Counterexample found	No Counterexample found	Type error	No Counterexample found	Type error	No Counterexample found	Counterexample found	Syntax error	No Counterexample found
Student_inv_2_1	No Counterexample found	No Counterexample found	Type error	No Counterexample found	Counterexample found	No Counterexample found	No Counterexample found	Counterexample found	No Counterexample found	No Counterexample found
Trash_inv_1_1	Type error	Syntax error	Syntax error	Syntax error	Syntax error	Type error	Syntax error	Syntax error	Syntax error	Syntax error