

Clava Testing Results

July 25, 2023

1 c++98

1.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
ArrayTypeTraitExpr	N/A	False						
CXXBindTemporaryExpr	0.404	True	0.06	True	1	True	0.045	True
CXXBoolLiteralExpr	0.335	True	0.077	True	1	True	0.05	True
CXXConstCastExpr	0.389	True	0.083	True	1	True	0.048	True
CXXConstructExpr	0.419	True	0.124	True	1	True	0.049	True
CXXConversionDecl	0.52	True	0.128	True	1	True	0.047	True
CXXDefaultArgExpr	0.449	True	0.103	True	1	True	0.062	True
CXXDependentScopeMemberExpr	0.335	True	0.101	True	1	True	0.06	True
CXXDestructorDecl	0.339	True	0.073	True	1	True	0.056	True
CXXDynamicCastExpr	0.391	True	0.144	True	1	True	0.06	True
CXXFoldExpr	N/A	False						
CXXFunctionalCastExpr	0.382	True	0.08	True	1	True	0.05	True
CXXMemberCallExpr	0.354	True	0.095	True	1	True	0.054	True
CXXNewExpr	0.403	True	0.092	True	1	True	0.055	True
CXXOperatorCallExpr	0.434	True	0.121	True	1	True	0.047	True
CXXPseudoDestructorExpr	0.37	True	0.093	True	1	True	0.047	True
CXXReinterpretCastExpr	0.371	True	0.066	True	1	True	0.047	True
CXXScalarValueInitExpr	0.385	True	0.084	True	1	True	N/A	False
CXXStaticCastExpr	0.384	True	0.074	True	1	True	0.047	True
CXXThisExpr	0.329	True	0.075	True	1	True	0.053	True
CXXThrowExpr	0.629	True	N/A	False				
CXXTypeidExpr	0.524	True	N/A	False				
CXXUnresolvedConstructExpr	0.311	True	0.071	True	1	True	0.043	True
ClassScopeFunctionSpecializationDecl	N/A	False						
ClassTemplatePartialSpecializationDecl	0.343	True	0.08	True	1	True	N/A	False
ClassTemplateSpecializationDecl	0.352	True	0.079	True	1	True	0.053	True
DependentScopeDeclRefExpr	0.343	True	0.093	True	1	True	0.046	True
ExprWithCleanups	0.376	True	0.09	True	1	True	0.049	True
FileScopeAsmDecl	N/A	False						
FriendDecl	0.346	True	0.075	True	1	True	0.054	True
FunctionTemplateDecl	0.364	True	0.081	True	1	True	0.047	True

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
GNUNullExpr	0.336	True	0.063	True	1	True	0.055	True
ImplicitCastExpr	0.392	True	0.086	True	1	True	0.054	True
InitListExpr	0.352	True	0.082	True	1	True	0.057	True
LinkageSpecDecl	0.378	True	0.069	True	1	True	0.043	True
MaterializeTemporaryExpr	0.356	True	0.075	True	1	True	0.049	True
NamespaceAliasDecl	0.42	True	0.083	True	1	True	0.049	True
NamespaceDecl	0.416	True	0.077	True	1	True	0.052	True
NonTypeTemplateParmDecl	0.445	True	0.11	True	1	True	0.051	True
OpaqueValueExpr	0.418	True	0.102	True	1	True	0.053	True
ParenListExpr	0.393	True	0.089	True	1	True	0.049	True
SizeOfPackExpr	0.386	True	0.08	True	1	True	0.043	True
SubstNonTypeTemplateParmExpr	0.684	True	0.094	True	1	True	0.645	True
TemplateTypeParmDecl	0.312	True	0.059	True	1	True	0.047	True
UnresolvedUsingValueDecl	0.367	True	0.074	True	1	True	N/A	False
UsingDirectiveDecl	0.346	True	0.067	True	1	True	0.057	True
VARArgExpr	0.425	True	0.079	True	1	True	0.062	True
and	0.364	True	0.072	True	1	True	0.05	True
and_eq	0.341	True	0.074	True	1	True	0.048	True
bitand	0.406	True	0.074	True	1	True	0.06	True
bitor	0.393	True	0.067	True	1	True	0.048	True
bool	0.366	True	0.067	True	1	True	0.054	True
break_do	0.368	True	0.075	True	1	True	0.049	True
break_for	0.369	True	0.066	True	1	True	0.047	True
break_switch	0.364	True	0.082	True	1	True	0.047	True
break_while	0.42	True	0.076	True	1	True	0.048	True
case	0.395	True	0.083	True	1	True	0.051	True
catch	0.401	True	0.079	True	1	True	0.049	True
char	0.351	True	0.07	True	1	True	0.048	True
class	0.356	True	0.07	True	1	True	0.046	True
class_public	0.481	True	0.079	True	1	True	0.055	True
compl	0.411	True	0.085	True	1	True	0.055	True
const	0.395	True	0.084	True	1	True	0.051	True
const_cast	0.376	True	0.097	True	1	True	0.051	True
continue_do_while_loop	0.323	True	0.093	True	1	True	0.055	True
continue_for_loop	0.337	True	0.089	True	1	True	0.053	True
continue_while_loop	0.393	True	0.094	True	1	True	0.047	True
default	0.376	True	0.093	True	1	True	0.051	True
delete_ptr	0.382	True	0.067	True	1	True	0.055	True
do_while	0.366	True	0.095	True	1	True	0.049	True
double_var_decl	0.341	True	0.068	True	1	True	0.049	True
dynamic_cast	0.388	True	0.093	True	1	True	0.047	True
enum_decl	0.311	True	0.065	True	1	True	0.052	True
explicit_struct_member_decl	0.407	True	0.072	True	1	True	0.049	True
extern_language_func_decl	0.3	True	0.059	True	1	True	0.057	True

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
false	0.353	True	0.084	True	1	True	0.055	True
float_var_decl	0.344	True	0.08	True	1	True	0.054	True
for_loop	0.399	True	0.076	True	1	True	0.06	True
friend_member_decl	0.318	True	0.069	True	1	True	0.048	True
goto	0.344	True	0.093	True	1	True	0.048	True
if	0.365	True	0.076	True	1	True	0.052	True
if_else	0.347	True	0.094	True	1	True	0.049	True
inline_func_decl	0.396	True	0.084	True	1	True	0.052	True
int_var_decl	0.349	True	0.072	True	1	True	0.058	True
long_var_decl	0.363	True	0.076	True	1	True	0.044	True
mutable_struct_member_decl	0.435	True	0.089	True	1	True	0.072	True
named_union_decl	0.338	True	0.077	True	1	True	0.05	True
namespace	0.311	True	0.061	True	1	True	0.05	True
new	0.418	True	0.084	True	1	True	0.049	True
not	0.343	True	0.077	True	1	True	0.051	True
not_eq	0.384	True	0.064	True	1	True	0.051	True
operator	0.433	True	0.115	True	1	True	0.053	True
or	0.395	True	0.087	True	1	True	0.048	True
or_eq	0.37	True	0.087	True	1	True	0.048	True
private	0.363	True	0.069	True	1	True	0.049	True
protected_member_decl	0.357	True	0.076	True	1	True	0.048	True
register	0.287	True	0.054	True	1	True	0.047	True
return	0.356	True	0.084	True	1	True	0.048	True
short_val_decl	0.388	True	0.079	True	1	True	0.051	True
signed_var_decl	0.356	True	0.073	True	1	True	0.043	True
sizeof	0.372	True	0.069	True	1	True	0.053	True
static_cast	0.351	True	0.07	True	1	True	0.046	True
static_var_decl	0.372	True	0.097	True	1	True	0.058	True
struct_decl	0.387	True	0.056	True	1	True	0.05	True
switch_case	0.369	True	0.092	True	1	True	0.048	True
template_decl	0.393	True	0.087	True	1	True	0.05	True
template_typename	0.368	True	0.085	True	1	True	0.047	True
this	0.342	True	0.079	True	1	True	0.047	True
throw	0.893	True	0.121	True	1	True	0.591	True
true	0.351	True	0.07	True	1	True	0.055	True
try	0.369	True	0.075	True	1	True	0.115	True
typedef	0.384	True	0.057	True	1	True	0.05	True
typeid	0.383	True	0.089	True	1	True	0.056	True
unsigned_var_decl	0.423	True	0.118	True	1	True	0.052	True
using	0.357	True	0.07	True	1	True	0.057	True
using_namespace	0.34	True	0.067	True	1	True	0.054	True
virtual_struct_member_decl	0.336	True	0.074	True	1	True	0.046	True
void_func_decl	0.384	True	0.051	True	1	True	0.05	True
volatile_var_decl	0.433	True	0.067	True	1	True	0.085	True

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
wchar_t_var_decl	0.312	True	0.066	True	1	True	0.052	True
while_loop	0.35	True	0.077	True	1	True	0.051	True
xor	0.369	True	0.083	True	1	True	0.046	True
xor_eq	0.381	True	0.081	True	1	True	0.054	True

1.2 Graphical Analysis

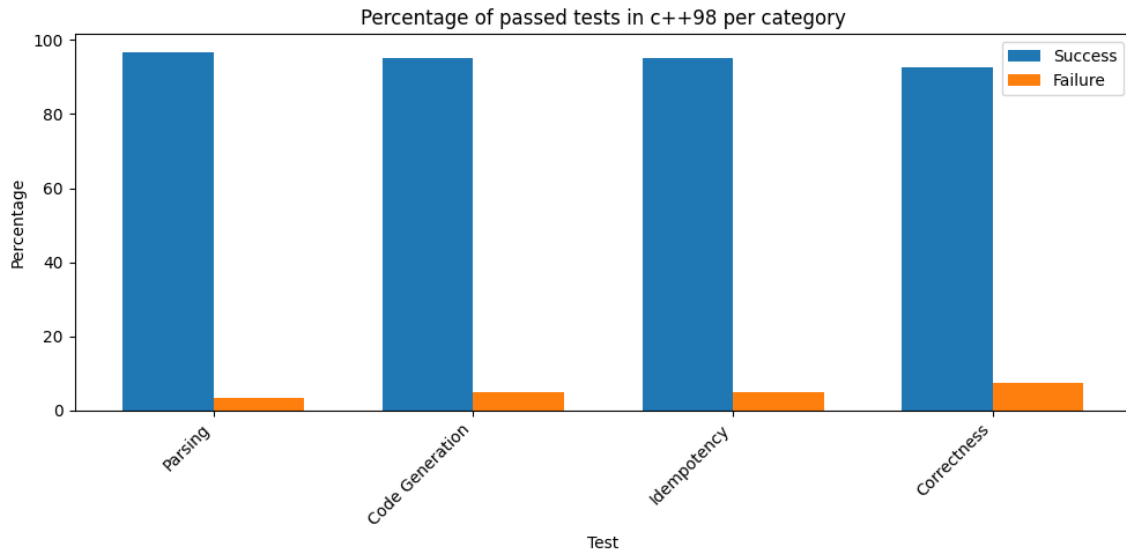


Figure 1: Percentage of passed tests in c++98

2 c++11

2.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
ArrayInitIndexExpr	0.435	True	0.084	True	1	True	0.058	True
ArrayInitLoopExpr	N/A	False						
AtomicExpr	0.463	True	0.105	True	1	True	N/A	False
CXXDefaultInitExpr	0.419	True	0.094	True	1	True	0.055	True
CXXDeleteExpr	0.377	True	0.071	True	1	True	0.055	True
CXXForRangeStmt	0.405	True	0.117	True	1	True	0.066	True
CXXInheritedCtorInitExpr	0.446	True	N/A	False				
CXXNoexceptExpr	0.402	True	0.066	True	1	True	0.05	True
CXXNullPtrLiteralExpr	0.396	True	0.114	True	1	True	0.055	True
CXXStdInitializerListExpr	0.497	True	0.099	True	1	True	0.064	True
ConstantExpr	0.449	True	0.087	True	1	True	0.054	True
ConstructorUsingShadowDecl	0.403	True	N/A	False				
LambdaExpr	0.378	True	0.085	True	1	True	0.053	True
PackExpansionExpr	0.519	True	0.123	True	1	True	0.045	True
TypeAliasDecl	0.461	True	0.084	True	1	True	0.047	True
TypeTraitExpr	0.616	True	0.083	True	1	True	N/A	False
UnresolvedLookupExpr	0.39	True	0.081	True	1	True	0.046	True
UnresolvedUsingTypenameDecl	0.349	True	0.079	True	1	True	0.047	True
UserDefinedLiteral	0.633	True	0.093	True	1	True	0.397	True
alignas	0.428	True	0.073	True	1	True	N/A	False
alignof	0.793	True	0.115	True	1	True	0.722	True
auto	0.404	True	0.089	True	1	True	0.052	True
char16_t	0.384	True	0.077	True	1	True	0.049	True
char32_t	0.497	True	0.122	True	1	True	0.051	True
class_enum_type	0.42	True	0.064	True	1	True	0.051	True
constexpr	0.436	True	0.065	True	1	True	0.073	True
decltype	0.606	True	0.094	True	1	True	0.049	True
default_externally_visible	0.357	True	0.076	True	1	True	0.043	True
delete_funcs	0.523	True	0.048	True	1	True	0.597	True
for_ranged	0.366	True	0.096	True	1	True	0.048	True
inline_namespace	0.368	True	0.043	True	1	True	0.046	True
mutable_lambda	N/A	False						
noexcept	0.302	True	0.053	True	1	True	0.041	True
nullptr	0.35	True	0.07	True	1	True	0.048	True
reinterpret_cast	0.628	True	0.11	True	1	True	0.056	True
sizeof_ellipsis	N/A	False						
static_assert	0.419	True	0.071	True	1	True	0.102	True
thread_local	0.508	True	0.077	True	1	True	0.432	True
using_alias	N/A	False						

2.2 Graphical Analysis

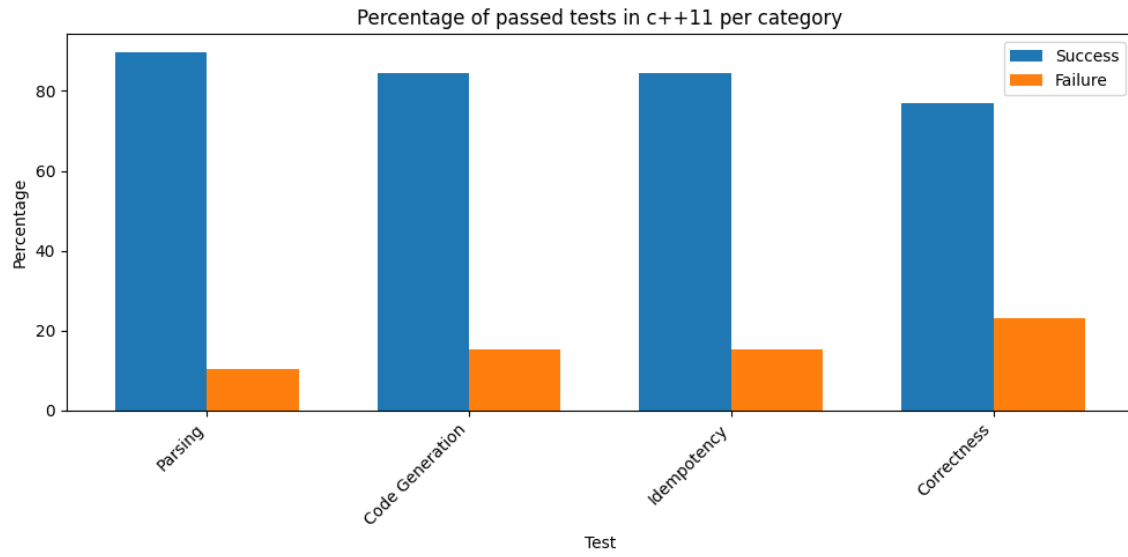


Figure 2: Percentage of passed tests in c++11

3 c++14

3.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
VarTemplateDecl	0.401	True	0.066	True	1	True	N/A	False
VarTemplatePartialSpecializationDecl	N/A	False						
VarTemplateSpecializationDecl	0.378	True	0.085	True	1	True	N/A	False

3.2 Graphical Analysis

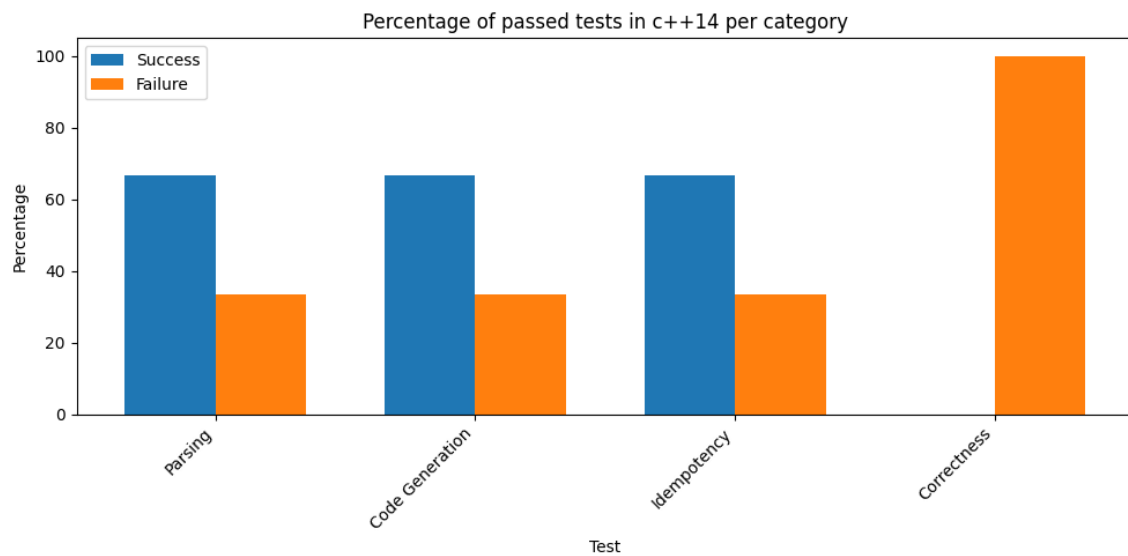


Figure 3: Percentage of passed tests in c++14

4 c++17

4.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
BindingDecl	N/A	False						
CXXDeductionGuideDecl	N/A	False						
DecompositionDecl	N/A	False						
UsingPackDecl	0.408	True	0.093	True	1	True	0.047	True
auto_structured_binding	N/A	False						
inline_specifier	0.438	True	0.093	True	1	True	0.054	True

4.2 Graphical Analysis

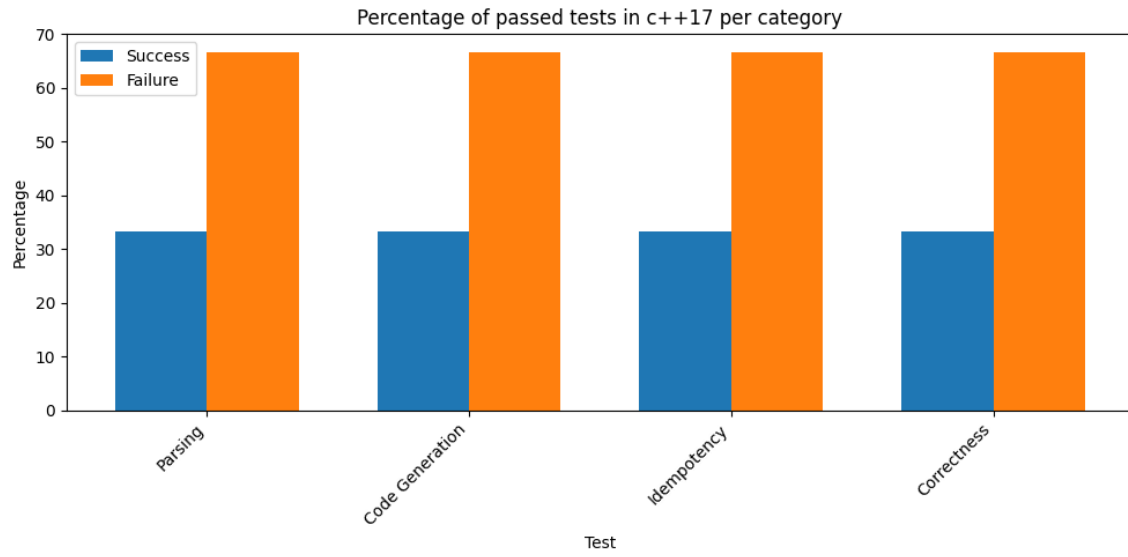


Figure 4: Percentage of passed tests in c++17

5 c++20

5.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
CXXRewrittenBinaryOperator	0.38	True	0.092	True	1	True	0.056	True
CoawaitExpr	N/A	False						
ConceptDecl	N/A	False						
ConceptSpecializationExpr	N/A	False						
CoroutineBodyStmt	N/A	False						
CoroutineSuspendExpr	N/A	False						
CoyieldExpr	N/A	False						
DependentCoawaitExpr	N/A	False						
RequiresExpr	N/A	False						
UsingEnumDecl	N/A	False						
auto_abbrev_func_temp	N/A	False						
char8_t	N/A	False						
co_await_NF	N/A	False						
co_return_NF	N/A	False						
co_yield	N/A	False						
concept	N/A	False						
consteval	N/A	False						
constexpr	N/A	False						
export	N/A	False						
private_module	N/A	False						
requires	N/A	False						
using_enum	N/A	False						

5.2 Graphical Analysis

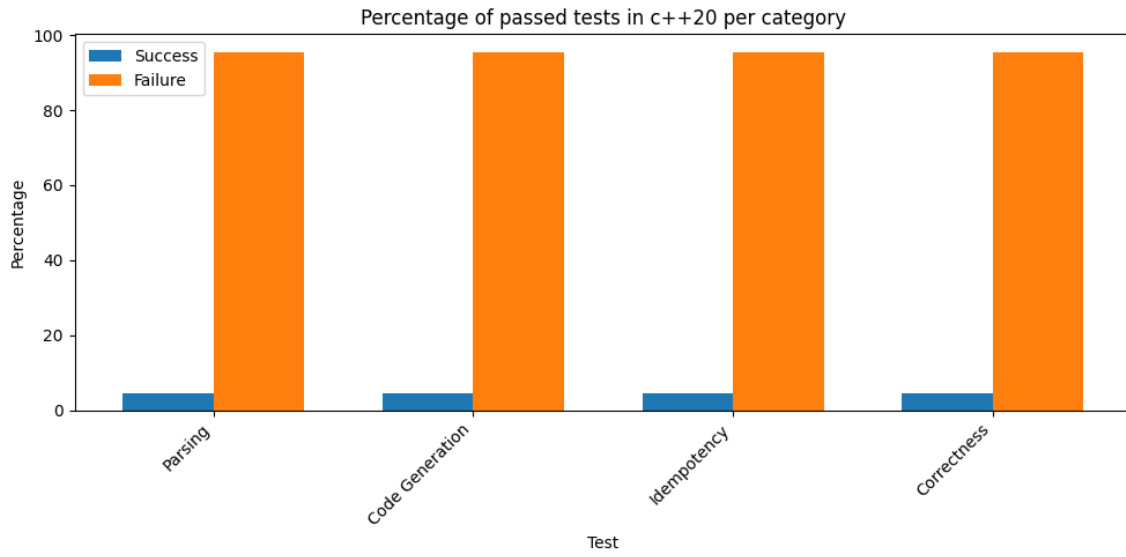


Figure 5: Percentage of passed tests in c++20

6 c89

6.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
AddrLabelExpr	N/A	False						
ArrayInitIndexExpr	0.421	True	0.148	True	1	True	0.064	True
ArraySubscriptExpr	N/A	False						
BinaryConditionalOperator	0.409	True	0.083	True	1	True	0.044	True
BinaryOperator	0.489	True	0.157	True	1	True	0.055	True
CStyleCastExpr	0.434	True	0.089	True	1	True	0.052	True
CallExpr	0.321	True	0.07	True	1	True	0.045	True
CharacterLiteral	0.345	True	0.084	True	1	True	0.051	True
CompoundAssignOperator	0.373	True	0.087	True	1	True	0.054	True
CompoundLiteralExpr	0.404	True	0.083	True	1	True	0.051	True
ConditionalOperator	0.388	True	0.078	True	1	True	0.046	True
DeclRefExpr	0.324	True	0.083	True	1	True	0.049	True
EnumConstantDecl	0.353	True	0.066	True	1	True	0.049	True
ExtVectorElementExpr	N/A	False						
FloatingLiteral	0.352	True	0.064	True	1	True	0.047	True
ImaginaryLiteral	N/A	False						
ImplicitValueInitExpr	0.344	True	0.078	True	1	True	0.053	True
IndirectFieldDecl	0.312	True	0.072	True	1	True	0.053	True
IndirectGotoStmt	N/A	False						
InitListExpr	0.374	True	0.067	True	1	True	0.043	True
IntegerLiteral	0.344	True	0.064	True	1	True	0.05	True
MatrixSubscriptExpr	0.314	True	0.088	True	1	True	0.048	True
MemberExpr	0.38	True	0.102	True	1	True	0.054	True
NoInitExpr	0.361	True	0.082	True	1	True	0.042	True
ParenExpr	0.361	True	0.081	True	1	True	0.052	True
StringLiteral	0.326	True	0.065	True	1	True	0.049	True
UnaryExprOrTypeTraitExpr	0.392	True	0.091	True	1	True	0.047	True
UnaryOperator	0.331	True	0.06	True	1	True	0.05	True
asm_func_decl	N/A	False						
auto_var_decl	0.355	True	0.074	True	1	True	0.043	True
char_var_decl	0.338	True	0.071	True	1	True	0.045	True
const_var_decl	0.363	True	0.062	True	1	True	0.044	True
do_while	0.433	True	0.08	True	1	True	0.053	True
double_var_decl	0.332	True	0.077	True	1	True	0.051	True
enum_decl	0.329	True	0.064	True	1	True	0.045	True
extern_var_decl	0.359	True	0.066	True	1	True	0.044	True
float_var_decl	0.375	True	0.079	True	1	True	0.047	True
for_loop	0.396	True	0.073	True	1	True	0.052	True
for_loop_break	0.327	True	0.095	True	1	True	0.047	True
for_loop_continue	0.372	True	0.092	True	1	True	0.056	True
goto	N/A	False						

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
if	0.339	True	0.069	True	1	True	0.045	True
if_else	0.34	True	0.083	True	1	True	0.047	True
int_var_decl	0.351	True	0.062	True	1	True	0.05	True
long_var_decl	0.376	True	0.07	True	1	True	0.047	True
named_union_decl	0.336	True	0.074	True	1	True	0.049	True
prep_define	0.329	True	0.088	True	1	True	0.051	True
prep_defined	0.343	True	0.088	True	1	True	0.042	True
prep_elif	0.308	True	0.079	True	1	True	0.049	True
prep_else	0.323	True	0.072	True	1	True	0.061	True
prep_endif	0.327	True	0.072	True	1	True	0.045	True
prep_error	0.329	True	0.073	True	1	True	0.045	True
prep_if	0.345	True	0.082	True	1	True	0.044	True
prep_ifdef	0.362	True	0.076	True	1	True	0.048	True
prep_ifndef	0.339	True	0.068	True	1	True	0.046	True
prep_include	0.306	True	0.049	True	1	True	0.056	True
prep_line	0.348	True	0.063	True	1	True	0.05	True
prep_pragma	0.336	True	0.053	True	1	True	0.045	True
prep_undef	0.308	True	0.084	True	1	True	0.048	True
register_var_decl	0.345	True	0.068	True	1	True	0.066	True
return_stmt	0.309	True	0.057	True	1	True	0.047	True
short_var_decl	0.389	True	0.082	True	1	True	0.049	True
signed_var_decl	0.321	True	0.062	True	1	True	0.05	True
sizeof	0.315	True	0.068	True	1	True	0.054	True
static_var_decl	0.392	True	0.08	True	1	True	0.045	True
struct_decl	0.367	True	0.067	True	1	True	0.044	True
switch_case	0.332	True	0.091	True	1	True	0.05	True
switch_default	0.415	True	0.092	True	1	True	0.045	True
typedef_decl	0.347	True	0.077	True	1	True	0.046	True
unnamed_union_decl	N/A	False						
unsigned_var_decl	0.381	True	0.086	True	1	True	0.047	True
void_func_decl	0.321	True	0.06	True	1	True	0.048	True
volatile_var_decl	0.332	True	0.067	True	1	True	0.044	True
while_stmt	0.418	True	0.086	True	1	True	0.045	True

6.2 Graphical Analysis

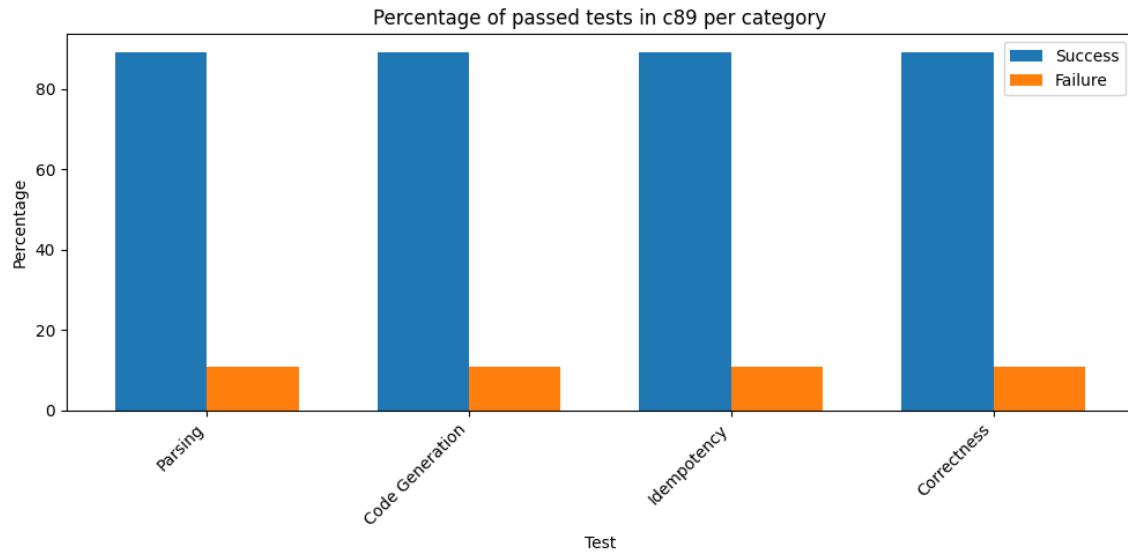


Figure 6: Percentage of passed tests in c89

7 c99

7.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
_Bool_var_decl	N/A	False						
_Complex_var_decl	N/A	False						
_Imaginary	N/A	False						
_Pragma	0.386	True	0.064	True	1	True	0.05	True
inline_func_decl	0.353	True	0.093	True	1	True	0.048	True
restrict	N/A	False						

7.2 Graphical Analysis

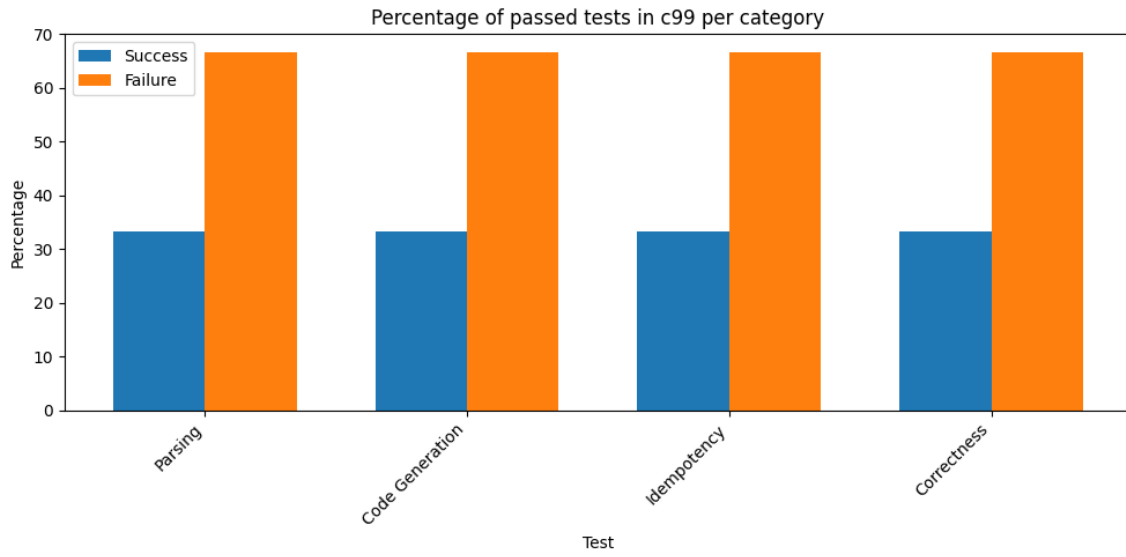


Figure 7: Percentage of passed tests in c99

8 c11

8.1 Table

	Parsing		CodeGeneration		Idempotency		Correctness	
	Time	Success	Time	Success	Tries	Success	Time	Success
GenericSelectionExpr	N/A	False						
_Alignas	0.37	True	0.079	True	1	True	0.053	True
_Alignof	0.419	True	0.074	True	1	True	0.065	True
_Atomic	0.315	True	0.063	True	1	True	0.046	True
_Generic	N/A	False						
_Noreturn	0.37	True	0.089	True	1	True	0.069	True
_Static_assert	0.317	True	0.074	True	1	True	0.056	True
_Thread_local	0.396	True	0.086	True	1	True	0.069	True

8.2 Graphical Analysis

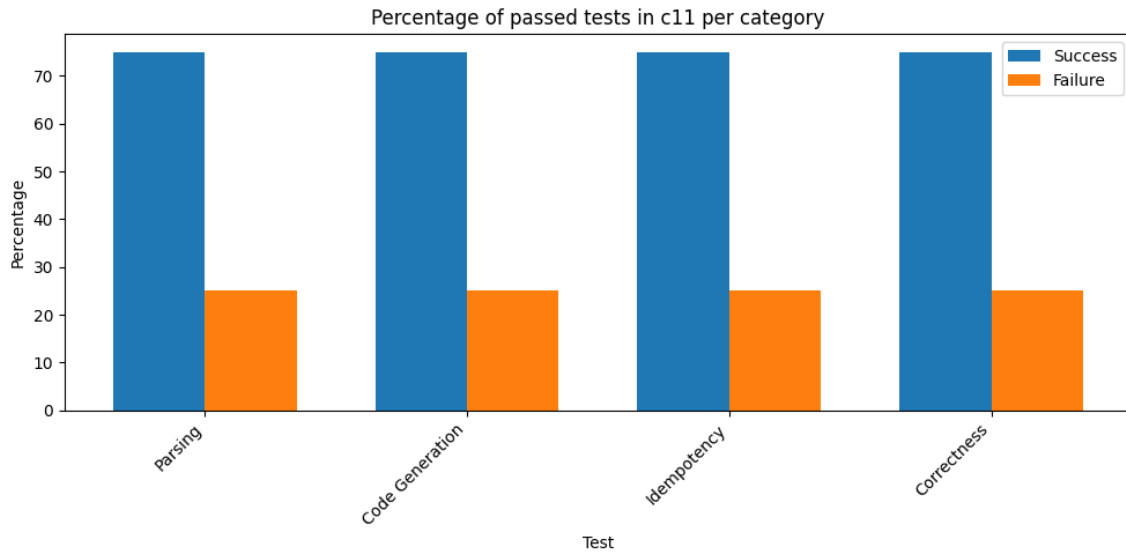


Figure 8: Percentage of passed tests in c11

9 Percentages

Note: In Absolute percentages test phases that were not run count as failed.

9.1 Total

- Absolute percentage of passed tests: 81.14%
- Percentage of passed tests: 93.83%

9.2 c++98

- Absolute percentage of passed tests: 94.92%
- Percentage of passed tests: 98.11%

9.3 c++11

- Absolute percentage of passed tests: 83.97%
- Percentage of passed tests: 93.57%

9.4 c++14

- Absolute percentage of passed tests: 50.0%
- Percentage of passed tests: 66.67%

9.5 c++17

- Absolute percentage of passed tests: 33.33%
- Percentage of passed tests: 66.67%

9.6 c++20

- Absolute percentage of passed tests: 4.55%
- Percentage of passed tests: 16.0%

9.7 c89

- Absolute percentage of passed tests: 89.19%
- Percentage of passed tests: 97.06%

9.8 c99

- Absolute percentage of passed tests: 33.33%
- Percentage of passed tests: 66.67%

9.9 c11

- Absolute percentage of passed tests: 75.0%
- Percentage of passed tests: 92.31%

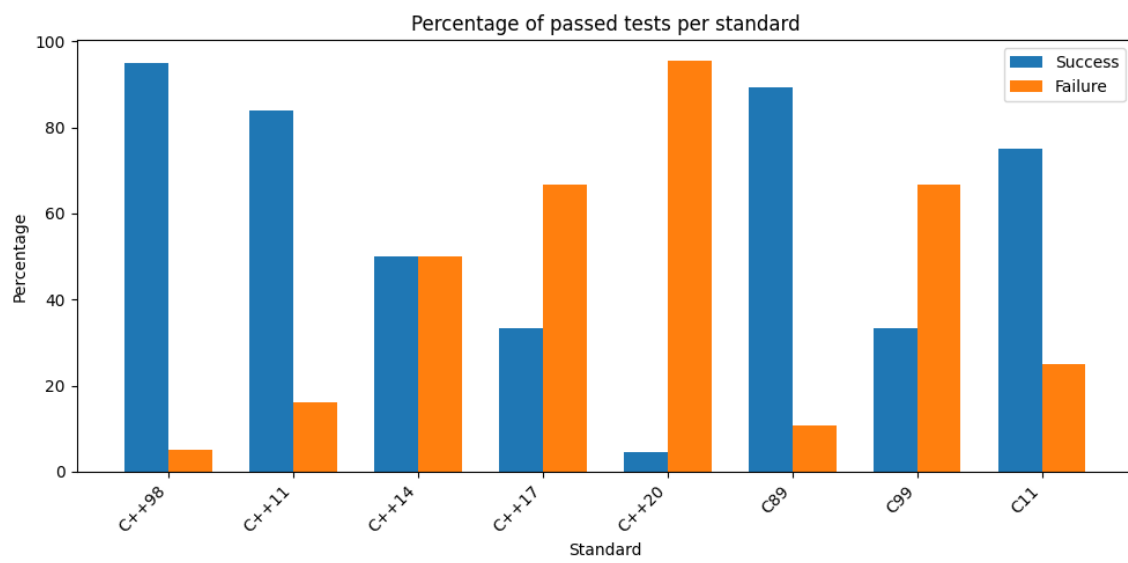


Figure 9: Percentage of passed tests per standard