

LVALUES, RVALUES, GLVALUES, PRVALUES, XVALUES, HELP!

ANDERS SCHAU KNATTEN, ZIVID

OSLO C++ USERS GROUP

2022-11-03

LVALUES, RVALUES

lvalue

rvalue

Has identity

No identity

lvalue

rvalue

Has identity

No identity

```
std::string s{"foo"};  
s = std::string{"bar"};
```

lvalue

rvalue

Has identity

No identity

```
std::string s{"foo"};  
s = std::string{"bar"};  
std::string{"bar"} = s;
```

lvalue

rvalue

Has identity

No identity

```
std::string s{"foo"};  
f(s); //lvalue  
f(std::string{"foo"}); //rvalue
```

Can't move

Can move

lvalue

rvalue

Has identity

No identity

```
std::string s{"foo"};  
f(s); //lvalue  
f(std::string{"foo"}); //rvalue
```

Can't move

Can move

lvalue

rvalue

Has identity

No identity

```
std::string s{"foo"}  
f(std::move(s)); //???  
f(std::string{"foo"}); //rvalue
```


Can't move

lvalue

Can move

rvalue

Has identity

No identity

```
std::string s{"foo"};  
f(s); //lvalue  
f(std::string{"foo"}); //rvalue
```

Can't move

lvalue

Can move

xvalue

rvalue

Has identity

No identity

```
std::string s{"foo"};  
f(s); //lvalue  
f(std::string{"foo"}); //rvalue  
f(std::move(s)); //xvalue
```

Can't move

lvalue

Can move

xvalue

prvalue

Has identity

No identity

```
std::string s{"foo"};  
f(s); //lvalue  
f(std::string{"foo"}); //prvalue  
f(std::move(s)); //xvalue
```

Can't move

lvalue

Can move

xvalue

prvalue

Has identity
glvalue

No identity

```
std::string s{"foo"};  
f(s); //lvalue / glvalue  
f(std::string{"foo"}); //prvalue  
f(std::move(s)); //xvalue / glvalue
```

Can't move

lvalue

Can move
rvalue

xvalue

prvalue

Has identity
glvalue

No identity

```
std::string s{"foo"};  
f(s); //lvalue / glvalue  
f(std::string{"foo"}); //prvalue / rvalue  
f(std::move(s)); //xvalue / glvalue / rvalue
```

Can't move

lvalue

Can move
rvalue

xvalue

prvalue

Has identity
glvalue

No identity

```
std::string s{"foo"};  
f(s); //lvalue / glvalue  
f(std::string{"foo"}); //prvalue / rvalue  
f(std::move(s)); //xvalue / glvalue / rvalue
```