29/10/2014

Constant

Bugsquashing Talk

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Constant variables


```
int a = 1;
const int c = 2;

const int* p1 = &c;

const int* p2 = &a;

int* p3 = &c;
```

Constant pointers


```
char s[] = "Lala";
char* p = s;

const char* pc = s;
```

```
pc[3]='g';
```

```
pc = p;
```

```
//Pointer to constant
```

Constant pointers


```
char s[] = "Lala";
char* p;

char * const cp = s;


cp[3] = 'g';


cp = p;


//constant pointer
```

Constant pointers

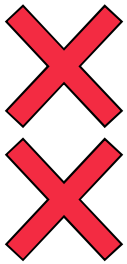

```
char s[] = "Lala";
char* p;

const char *const cpc = s;

cpc[3] = 'g';

cpc = p;

//constant pointer to constant
```



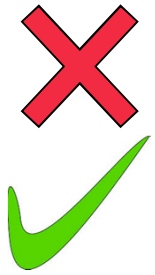
Constant pointers


```
char s[] = "Lala";
char* p;

char const * pc2 = s;

pc2[3]='g';

pc2 = p;
```



```
//char const * pc == const char* pc
//read from right to left
```

Constant parameters


```
void f2 (char* p, const char* q){

    p[2] = 'x';

  //q[2] = 'x';
}
```

(comment added for 2nd part)

```
char s1 [] = "Lala"; char s2 [] = "blubb";

char* c1 = s1;
const char* c2 = s2;

f2(c1,c2);
f2(c2,c2);
f2(c1,c1);
```

Constant cast

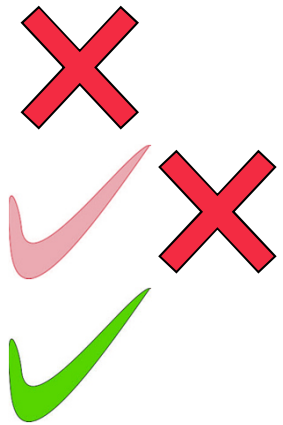

```
void f3 (char * str)
{
      cout << str << '\n';
  //  str[3] = 'y';                (comment added
}                                  for last line)


const char * c = "dubdiduu";

f3 ( c );

f3 ( const_cast<char *> (c) );

f3 ( const_cast<char *> (c) );
```



Constant macro


```
DummyTestClass* dummy = new DummyTestClass();

mitk::AffineTransform3D* x1 =
                        dummy->GetIndexToWorldTransform();

const mitk::AffineTransform3D* x2 =
                        dummy->GetIndexToWorldTransform();

mitk::AffineTransform3D* const x3 =
                        dummy->GetIndexToWorldTransform();
```

✓

✓

✓

```
x1->SetScale(1);
```

✓

```
x2->SetScale(1);
```

✗

```
x3->SetScale(1);
```

✓

```
# define itkGetObjectMacro(name, type)
virtual type * Get##name ()
{
    return this->m_##name.GetPointer();
}
```

Constant macro


```
const DummyTestClass* dummy = new DummyTestClass();

mitk::AffineTransform3D* x1 =
        dummy->GetIndexToWorldTransform();

const mitk::AffineTransform3D* x2 =
        dummy->GetIndexToWorldTransform();

mitk::AffineTransform3D* const x3 =
        dummy->GetIndexToWorldTransform();
```

```
#define itkGetConstObjectMacro(name, type)
virtual const type * Get##name () const
{
        return this->m_##name.GetPointer();
}
```

dkfz.

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