

## Typelists

*Template Metaprogramming II. Reference: Alexandrescu, MC++D ch 2.*

```
struct Null {} ;
```

```
template< typename TCar, class TCdr >
struct Typelist
{
    typedef TCar Car ;
    typedef TCdr Cdr ;
} ;
```

---

*// metafunction Length*

```
template< class TList >
struct Length ;

template<>
struct Length< Null >
{
    enum { val = 0 } ;
} ;

template< typename TCar, class TCdr >
struct Length< Typelist<TCar,TCdr> >
{
    enum { val= 1 + Length<TCdr>::val } ;
} ;
```

*// metafunction Includes*

```
template< class TList, typename T >
struct Includes ;

template< typename T >
struct Includes< Null, T >
{
    enum { val = 0 } ;
} ;

template< typename T, class TCdr >
struct Includes< Typelist<T,TCdr>, T >
{
    enum { val = 1 } ;
} ;

template< typename TCar, class TCdr, typename T >
struct Includes< Typelist< TCar, TCdr >, T >
{
    enum { val= Includes< TCdr, T >::val } ;
} ;
```