

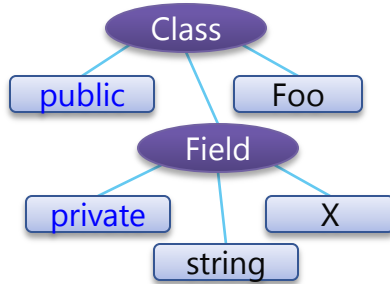
# Codename Roslyn: Exposing the VB and C#'s compilers code analysis

Karen Ng  
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# Why Roslyn?

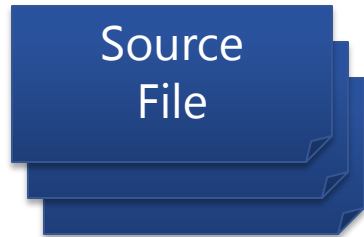
Language  
Object Model

Hosting in  
other contexts

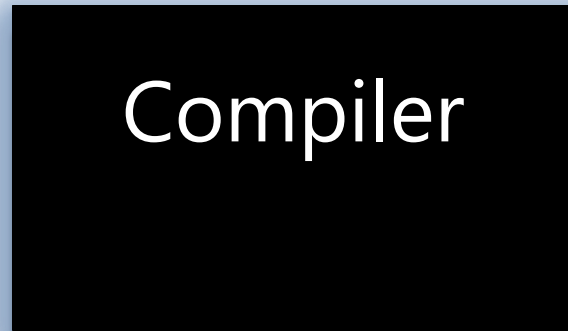


Read-Eval-Print Loop

DSL Embedding



Source  
File

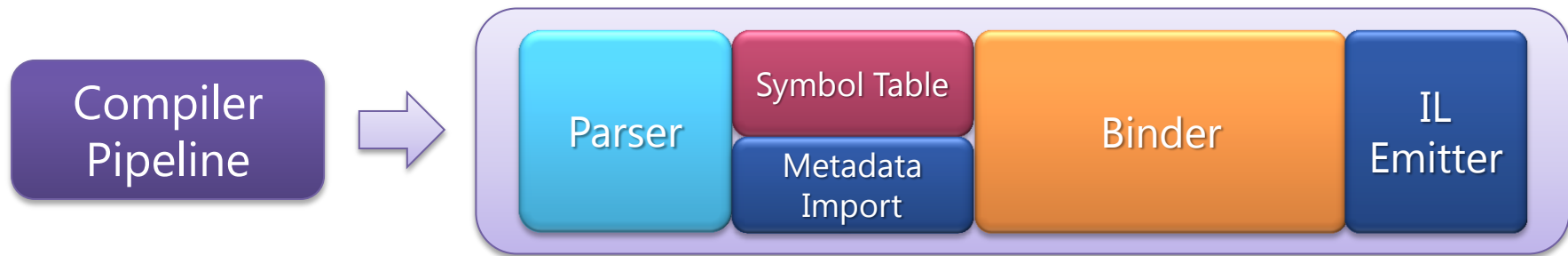


.NET  
Assembly

# Codename Roslyn

- Project that will deliver new VB and C# compilers and language services
- Includes:
  - Managed compilers + language services
  - Code analysis APIs
  - Language service extensibility
  - Read-Eval-Print-Loop (REPL)

# Compiler Pipeline

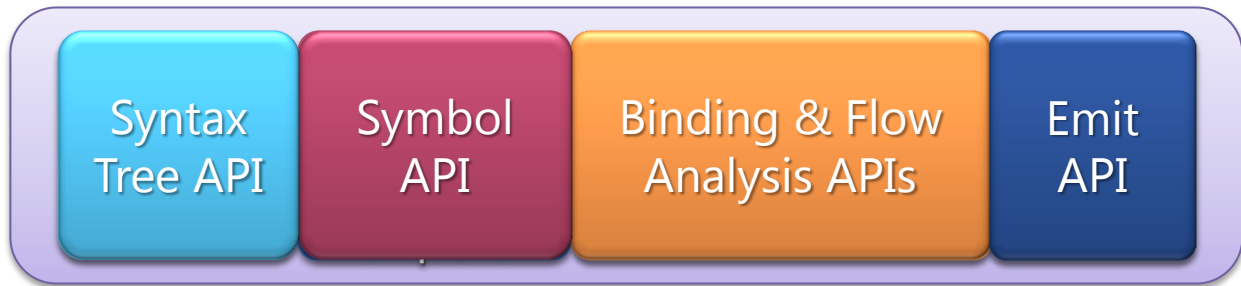


# Compiler API's

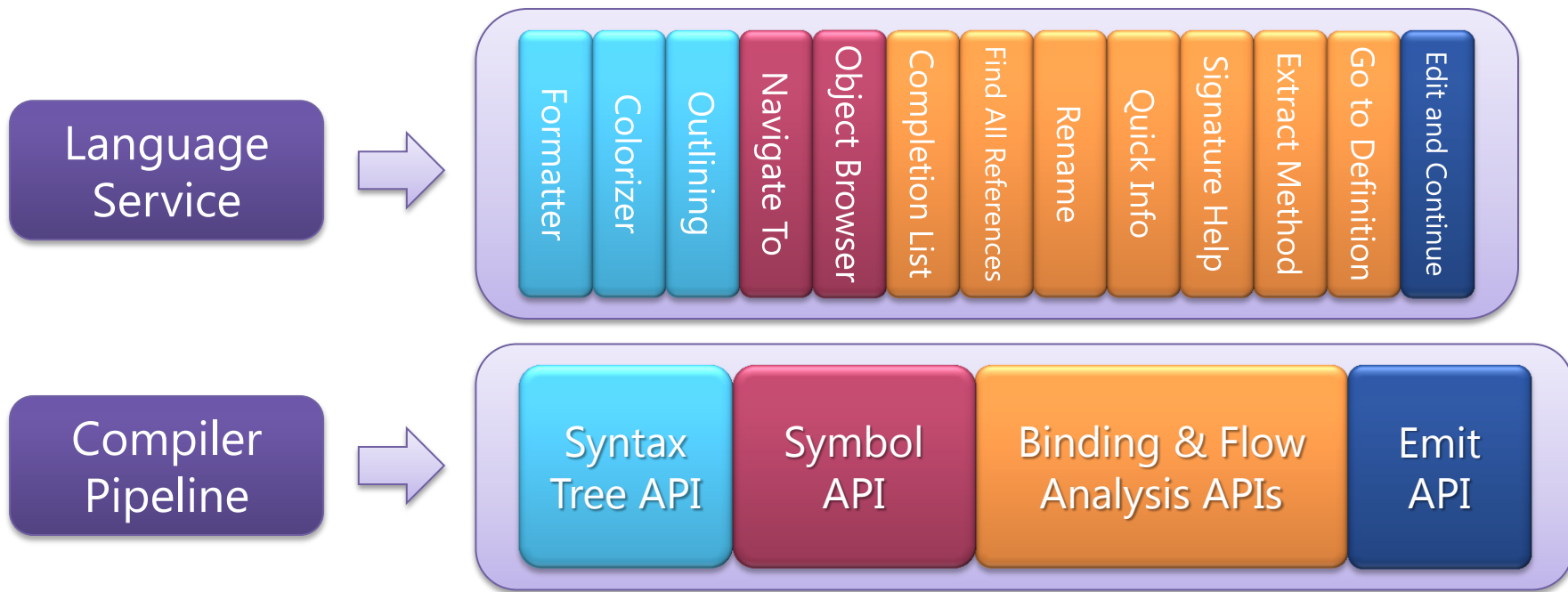
Compiler  
API



Compiler  
Pipeline



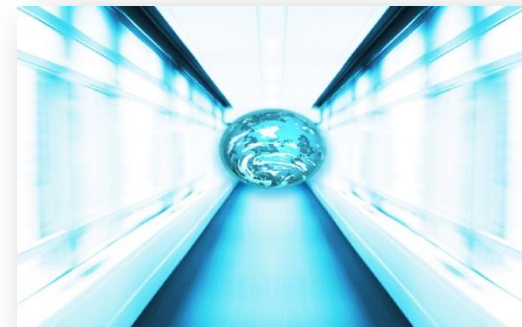
# Language Service



# Syntax Trees



*Immutable*



*Efficient*

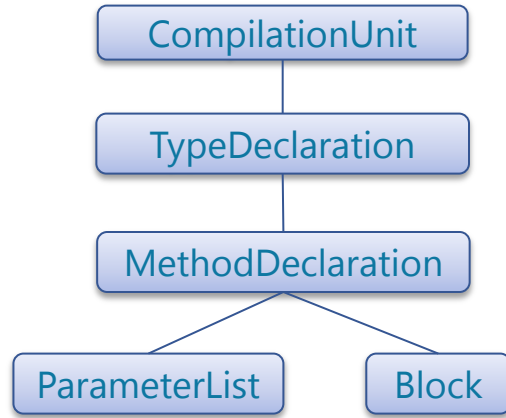


*Resilient*



*Complete & Consistent*

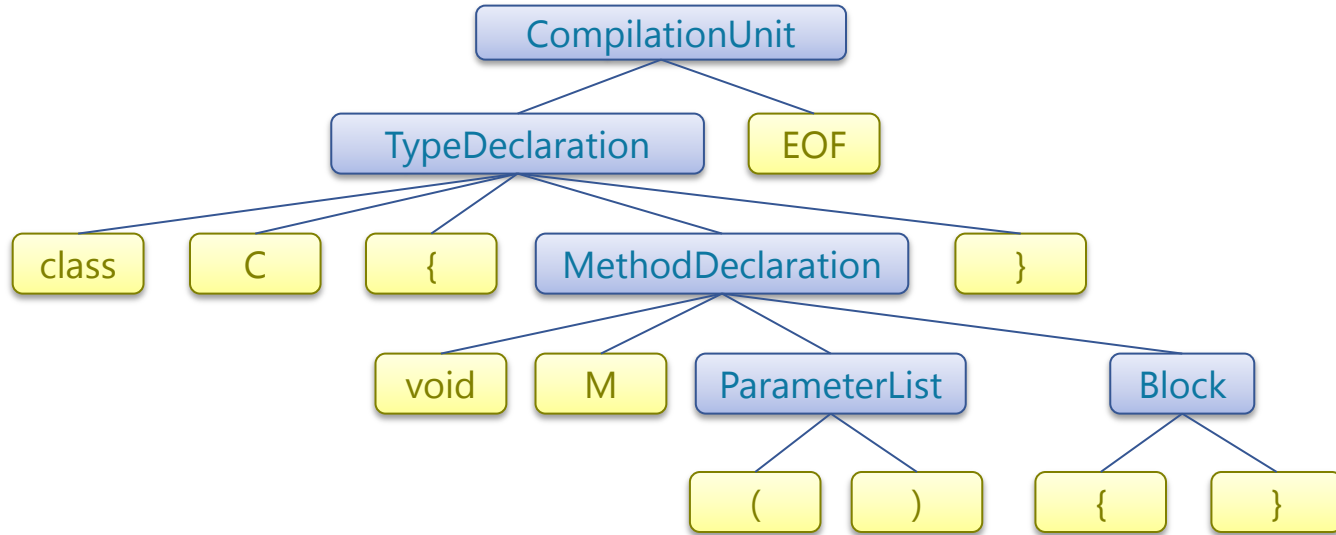
# Syntax Trees – Nodes



```
class C
{
    void M()
    {
    }
} // C
□
```

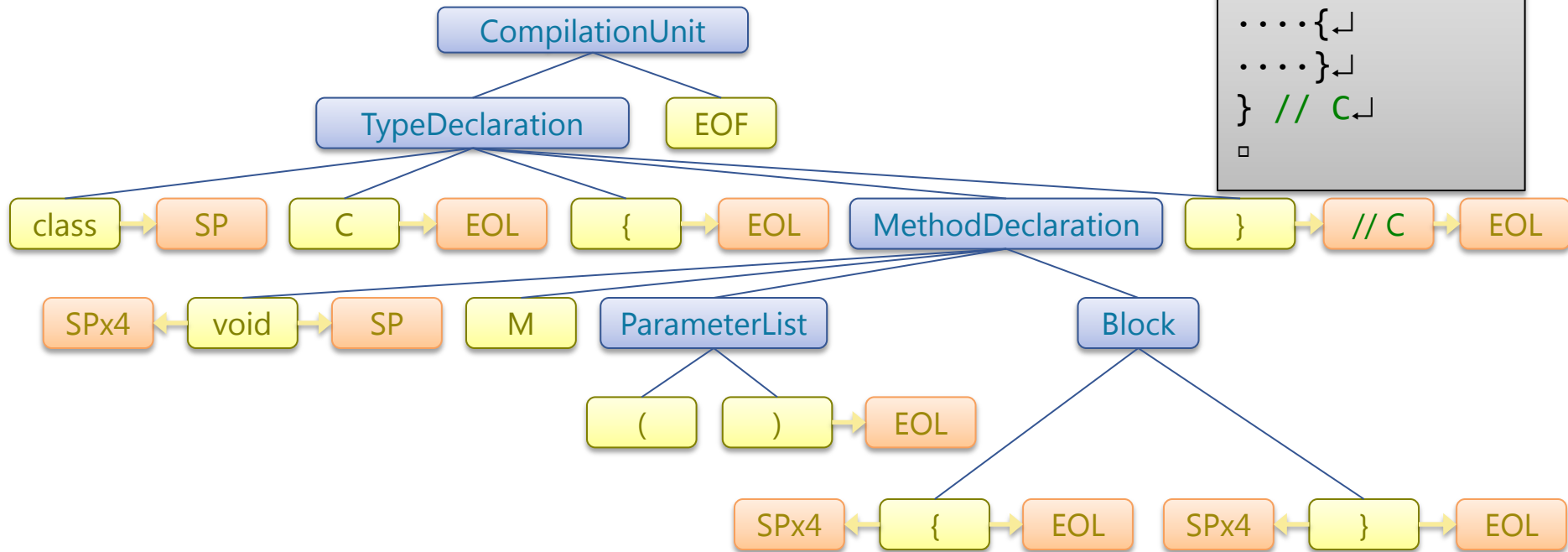


# Syntax Trees – Tokens

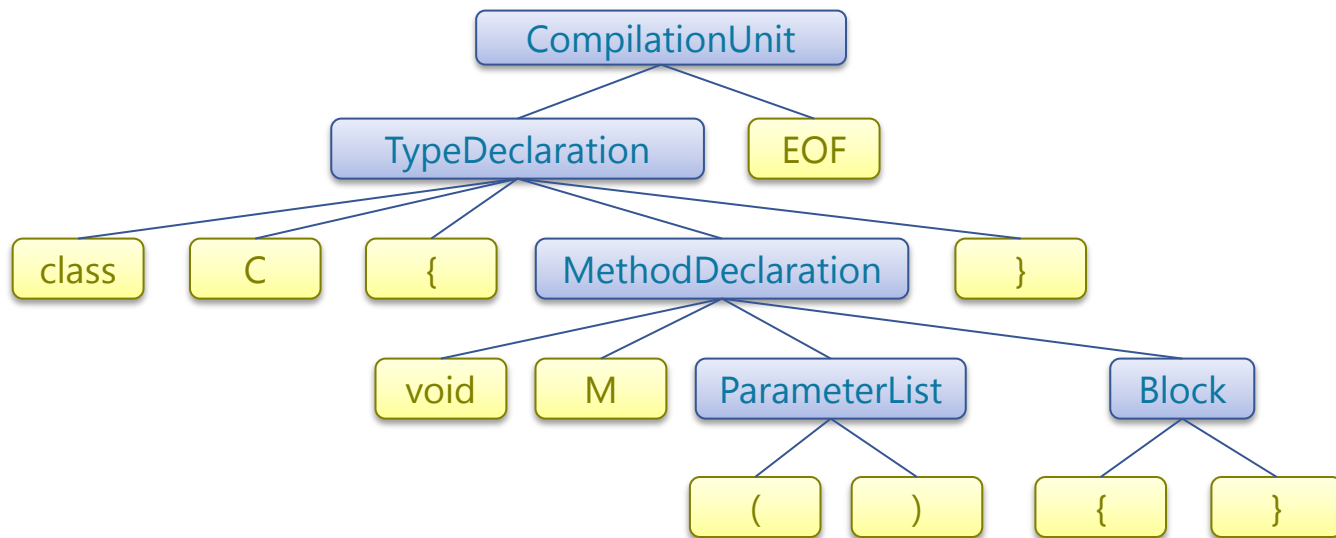


```
class C
{
    void M()
} // C
□
```

# Syntax Trees – “Trivia”

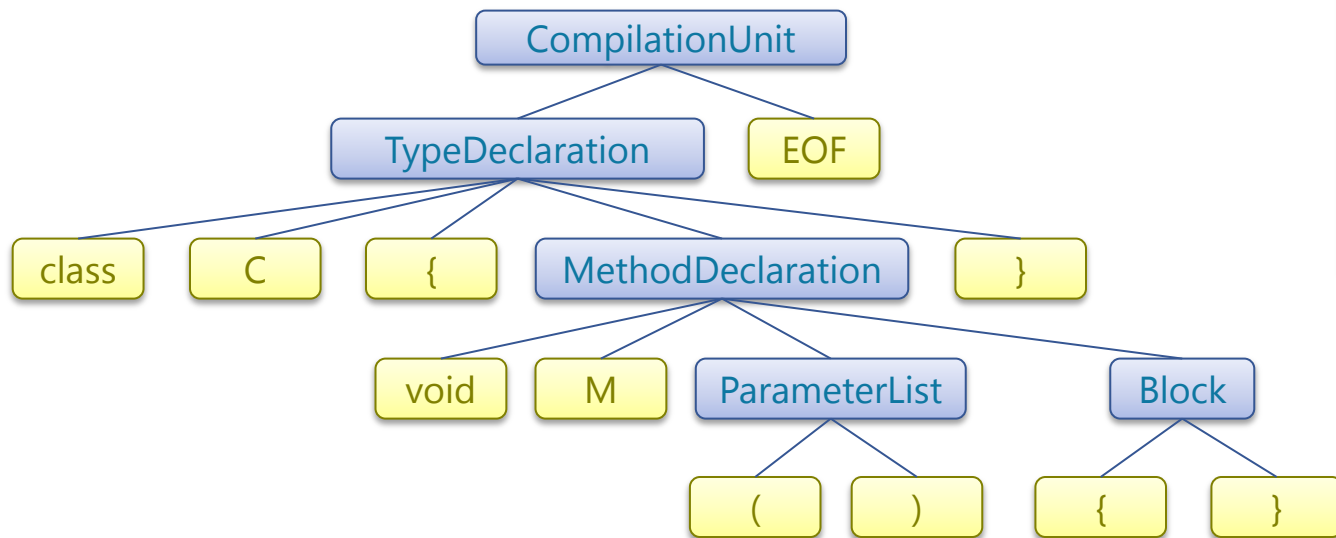


# Syntax Trees



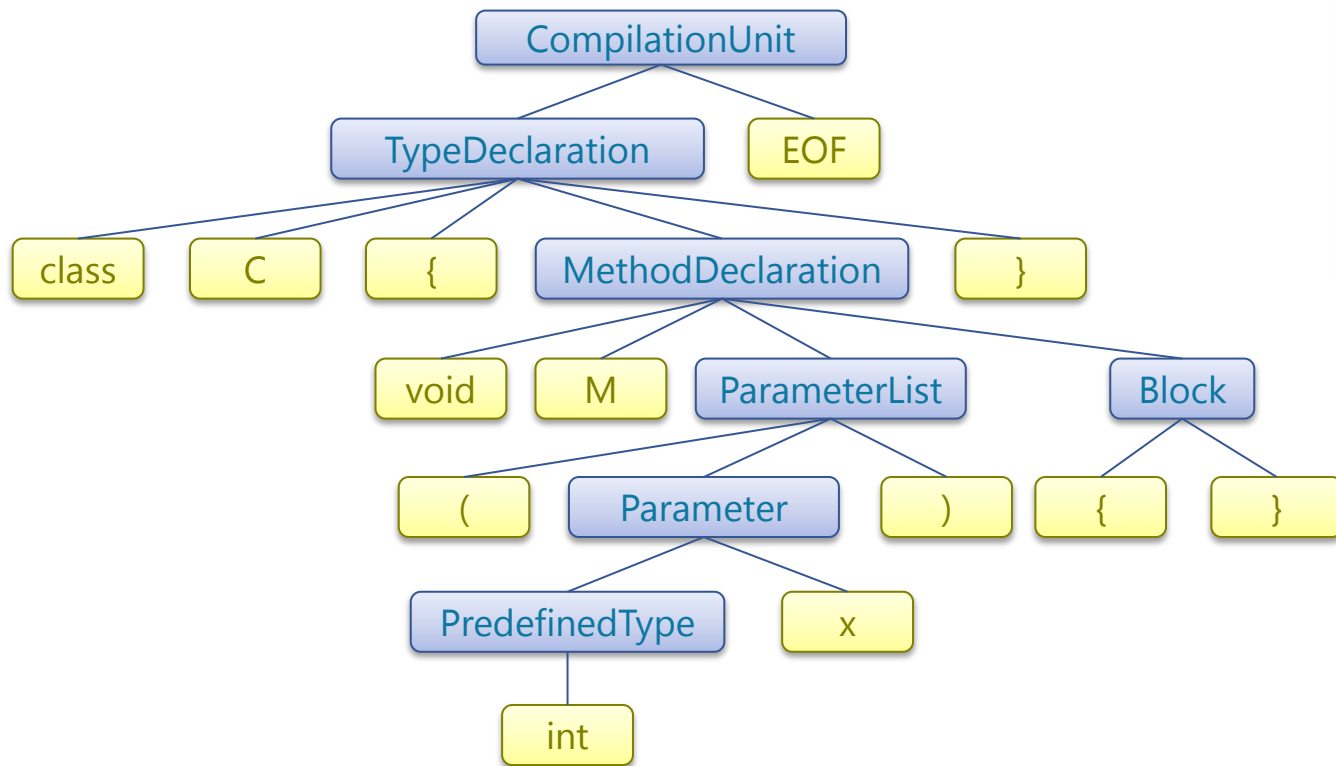
```
class C
{
    void M()
} // C
□
```

# Syntax Trees



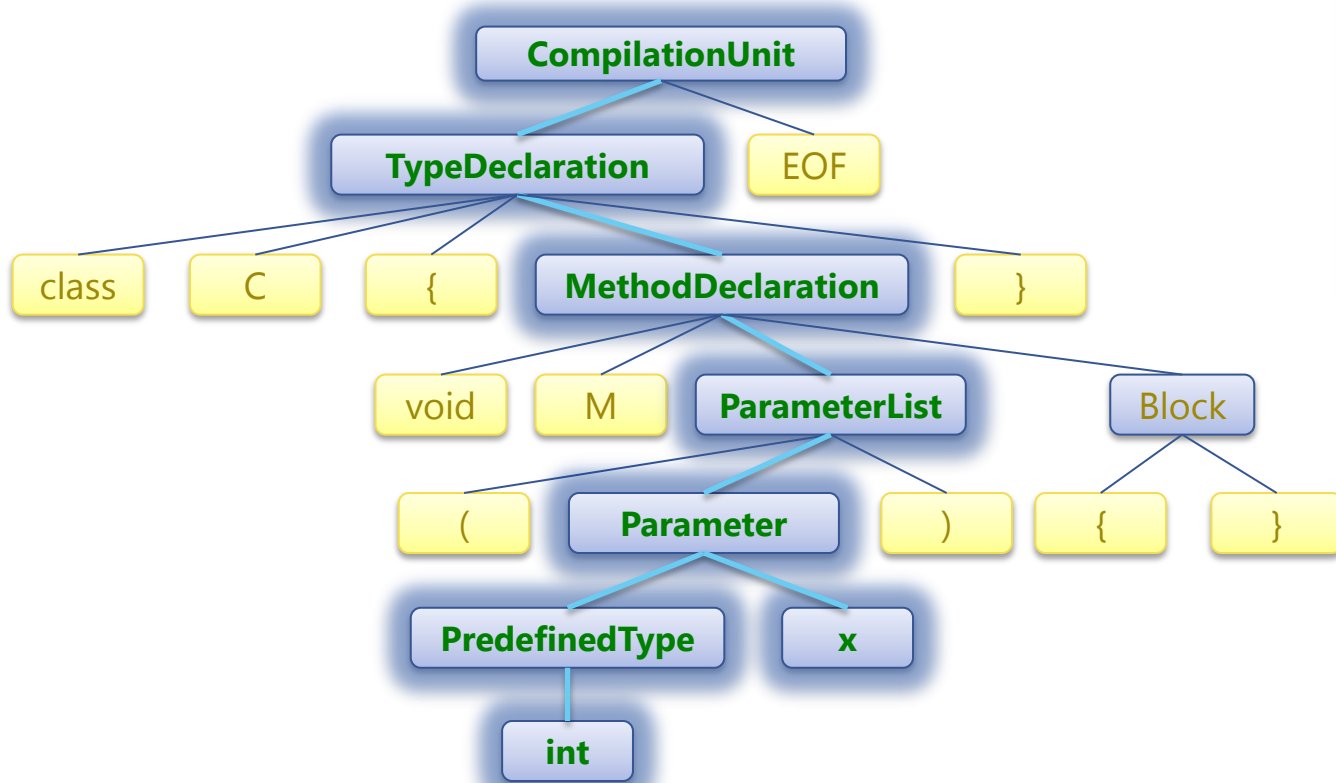
```
class C  
{  
    void M(int x)  
    {  
    }  
} // C  
□
```

# Syntax Trees



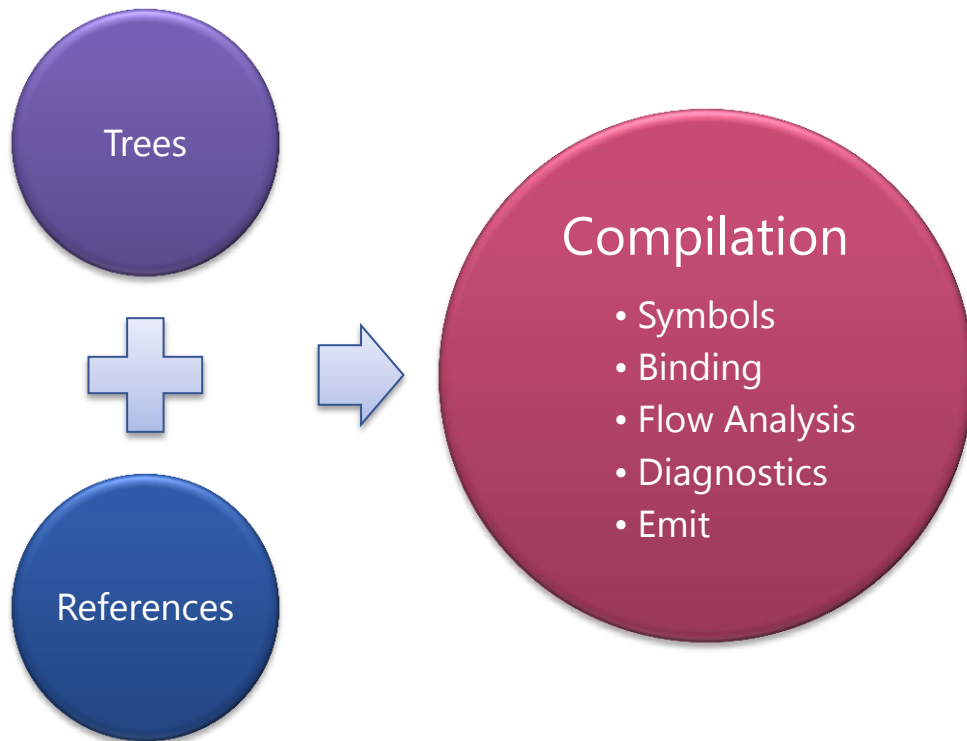
```
class C
{
    void M(int x)
    {
    }
} // C
□
```

# Syntax Trees



```
class C
{
    void M(int x)
    {
    }
} // C
□
```

# Compilations



# DEMO

## Roslyn Demo

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# Closing Thoughts

- Roslyn opens up a multitude of new tools with deep language understanding
- If you had live access to the compilers code analysis, what would you build?



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