

Scripting Languages And Environments
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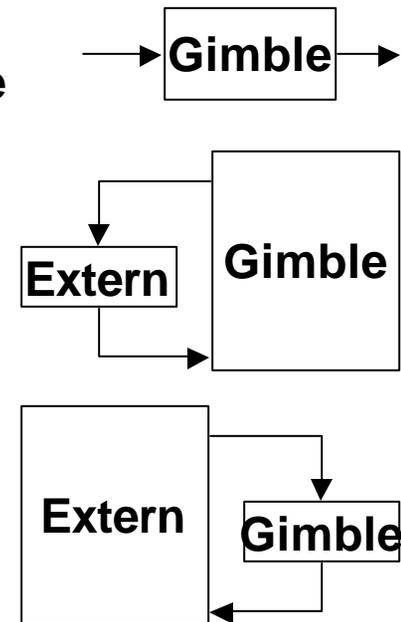
Scripting Languages

- **Purpose**
 - Application Customisation, Combination and Extension
- **Requirements**
 - Flexible structure
 - Simple syntax
 - Suitable environment
- **Services**
 - External interface description
 - Interface extension, Glue behaviour
 - Creating new interfaces and objects

Gimble

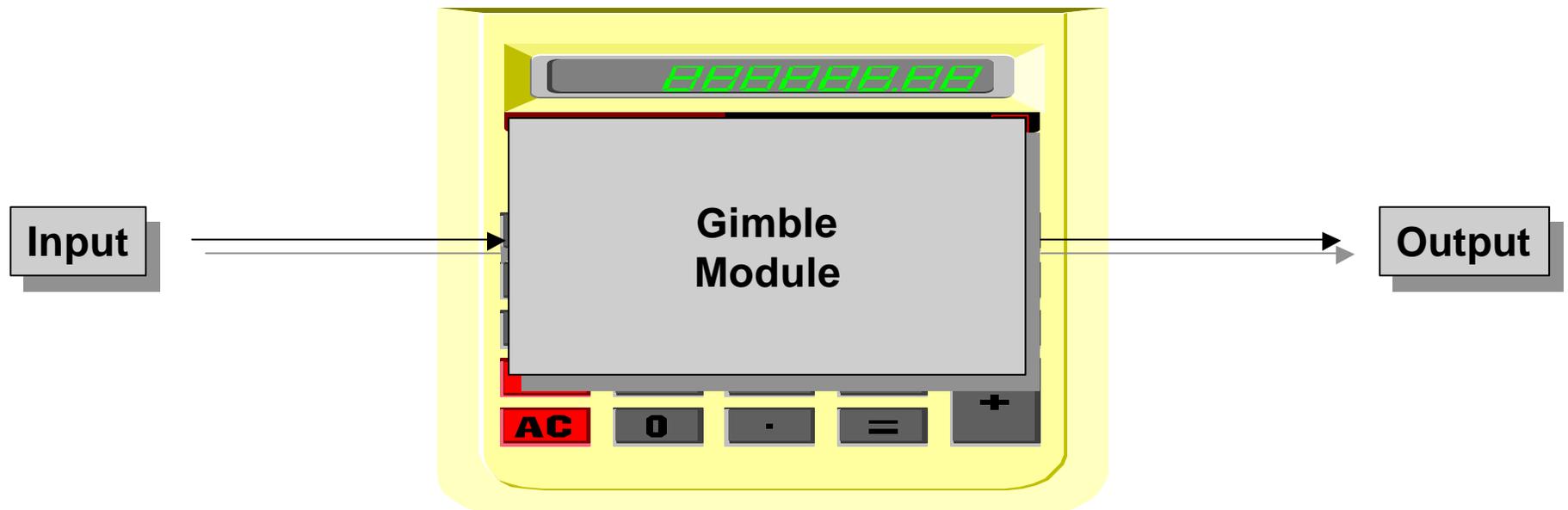
Project Components

- **Gimble**
 - A scripting language
- **BlackBox**
 - Shows Gimble language syntax and structure
- **DOSRun**
 - Shows stand-alone Gimble programs
 - Demonstrates use of external interfaces
- **GraphTool**
 - Draws a graph of a Gimble function
 - Demonstrates external use of Gimble objects
- **Wabe**
 - An environment for application extension
- **Excel Demo**
 - Shows contemporary scripting capabilities



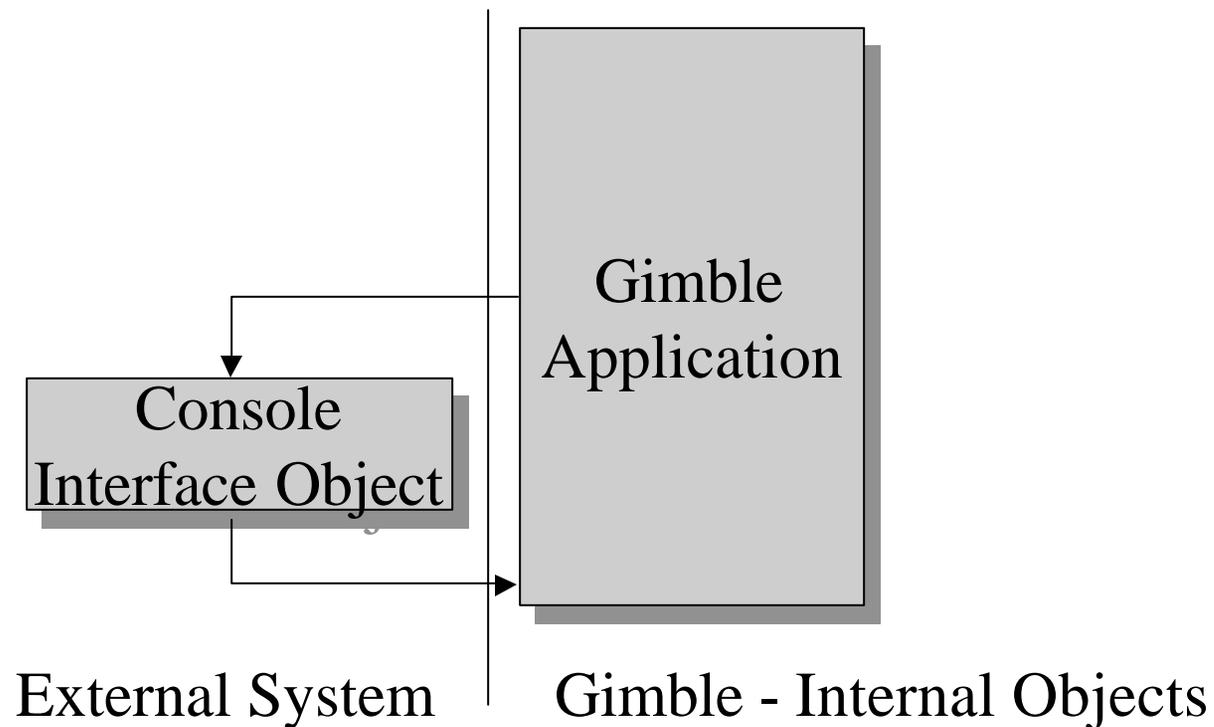
BlackBox

- Shows Gimble language syntax and structure
- Implements an Input/Output box in Gimble, gives it an input, then measures the output.



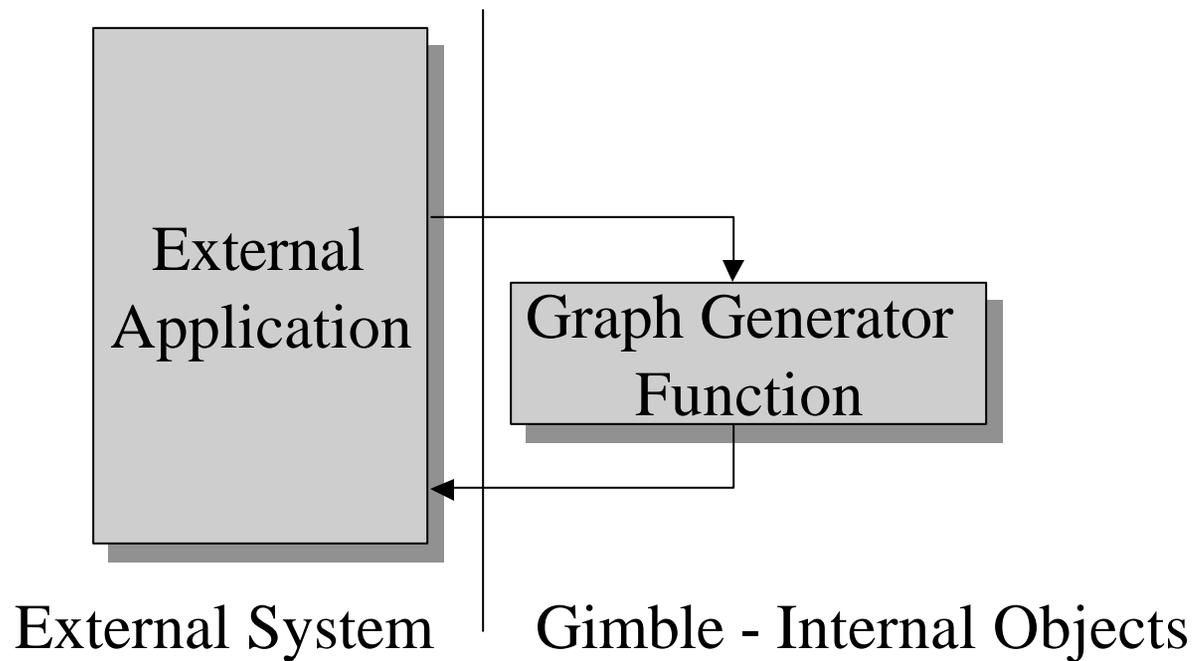
DOS Run

- Shows stand-alone Gimble programs
- Demonstrates use of external interfaces



GraphTool

- **Draws a graph of a Gimble function**
- **Demonstrates external use of Gimble objects**



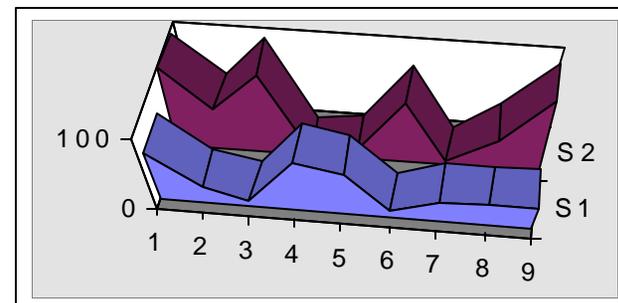
The Wabe

- **A sample graphical environment for application extension**
- **Provides native application graphical view, plus object-oriented system view**
- **Consistant Hierarchy of**
 - Object Members (properties, attributes, functions)
 - Code Statements
 - Statement Elements
- **Simple traffic simulation demonstration implemented**

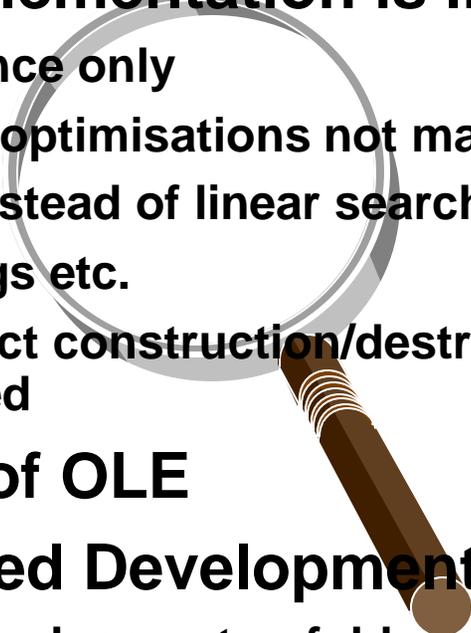


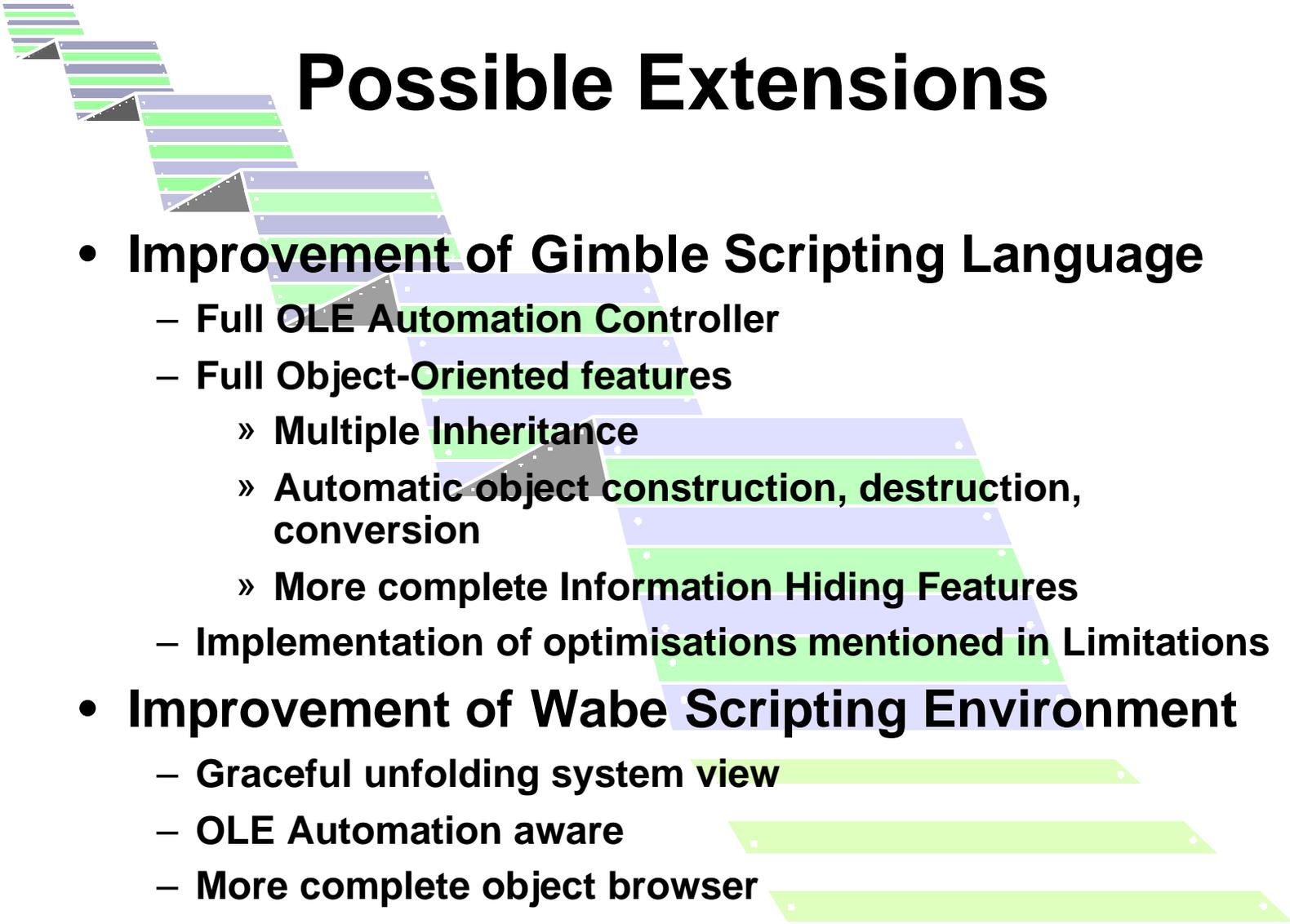
Excel

- **Shows current scripting capabilities**
 - Macro recording
 - Interface and object descriptions
- **Shows current missing functionality**
 - No overlap between native and code structures, and the interfaces used to edit them
 - No user access to inheritance and information-hiding at run-time
 - Problems when scaled



Project Limitations

- **Language implementation is incomplete**
 - Single inheritance only
 - Many potential optimisations not made
 - » Indexing instead of linear searches
 - » Packed flags etc.
 - Automatic object construction/destruction/conversion not implemented
 - **No use made of OLE**
 - **Underdeveloped Development Environment**
 - System browser does not unfold gracefully
 - Few external visual editing tools provided
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Possible Extensions

- **Improvement of Gimble Scripting Language**
 - Full OLE Automation Controller
 - Full Object-Oriented features
 - » Multiple Inheritance
 - » Automatic object construction, destruction, conversion
 - » More complete Information Hiding Features
 - Implementation of optimisations mentioned in Limitations
- **Improvement of Wabe Scripting Environment**
 - Graceful unfolding system view
 - OLE Automation aware
 - More complete object browser