

Welcome

To Advance through Presentation
Use Page Up and Page Down Keys



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Apple Event Object Model

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AppleScript
Technology Manager



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Apple Event Object Model

Andy Bachorski

Apple Event Guru

What Will Be Covered

- Application Terminology
- Apple Event Object Model
- Designing a Terminology
- Basics of Dispatching Events
and Resolving Objects

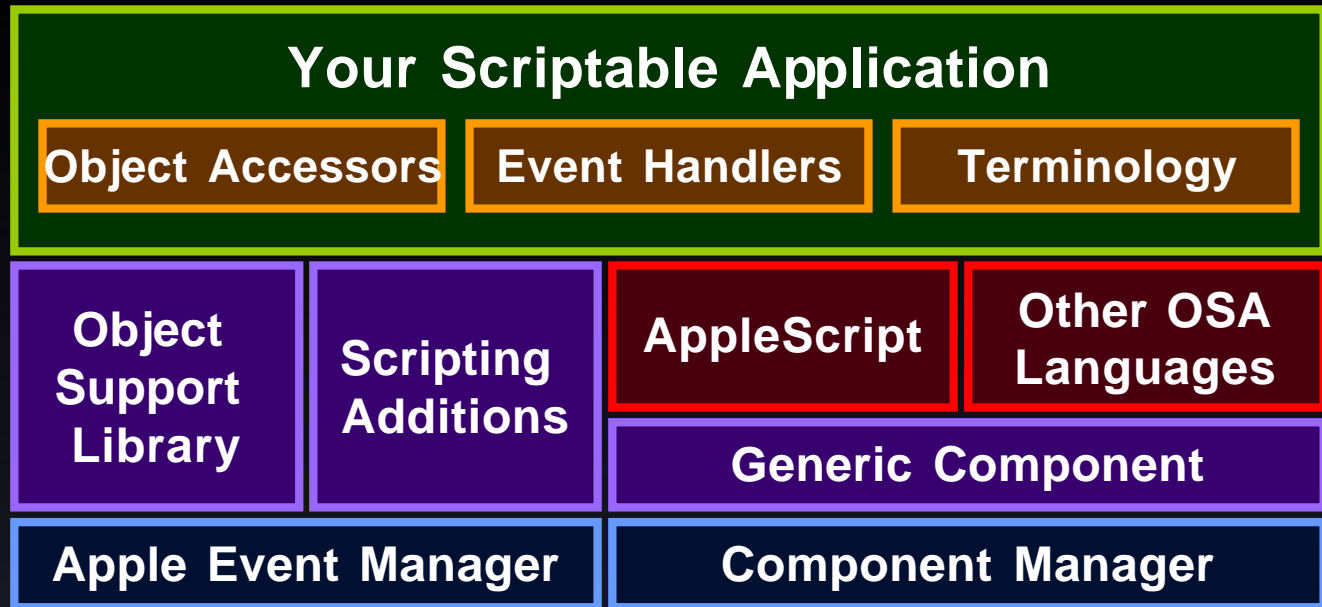


What Won't Be Covered

- Code for:
 - Handling and Sending Apple Events
 - Resolving Objects
 - Recordability and Attachability



Mac OS Scripting Architecture



AppleScript Terminology

- What it is
 - A dictionary used by script writers
 - An interface used by AppleScript



AppleScript Terminology

- What it isn't
 - Documentation for AppleScript interface
 - Used at run-time by AppleScript or applications
 - A guarantee about what can be scripted



Apple Event Object Model

- English-like syntax
- Suites—related objects and actions
- Objects—application, window, record
- Commands—get, set, count, make, delete



English-Like Syntax

- Easy to read and write
- Objects and commands combined with prepositions

Tell application “Finder”

get the name of the startup disk
count the folders in the system folder
make new alias at desktop to startup disk
get every file in the extensions folder ↵
whose name contains “Apple”

End tell



Apple Event Registry

- List standard object model suites
- Suites are organized by function
 - Standard
 - QuickDraw
 - Mail
 - Database
 - ...



Apple Event Objects

- Properties
 - Intrinsic to the object
 - May be read/write or read-only
 - May have properties or elements
- Elements
 - Contained by the object
 - Can be created and destroyed



Apple Event Objects

	cDocument	cRectangl	cWord
Properties	pClass pDefaultType pName pIsModified	pClass pDefaultType pBounds	pClass pDefaultType pFont pSize pStyle
Elements	cFile cRectangle	(none)	cCharacter
Commands	create elemen get data set data delete open close print save	create eleme get data set data delete	create eleme get data set data delete



Object Specifiers

- Use as the targets for commands
- Directions for how to find the object
- Self-contained
- Recursive



Object Specifiers

get word 5 of document 1

Object class	cWord	
Object contained	Object class	cDocument
	Object contained	typeNull
	Object form	formAbsolutePosition
	Object data	1
Object form	formAbsolutePosition	
Object data	5	



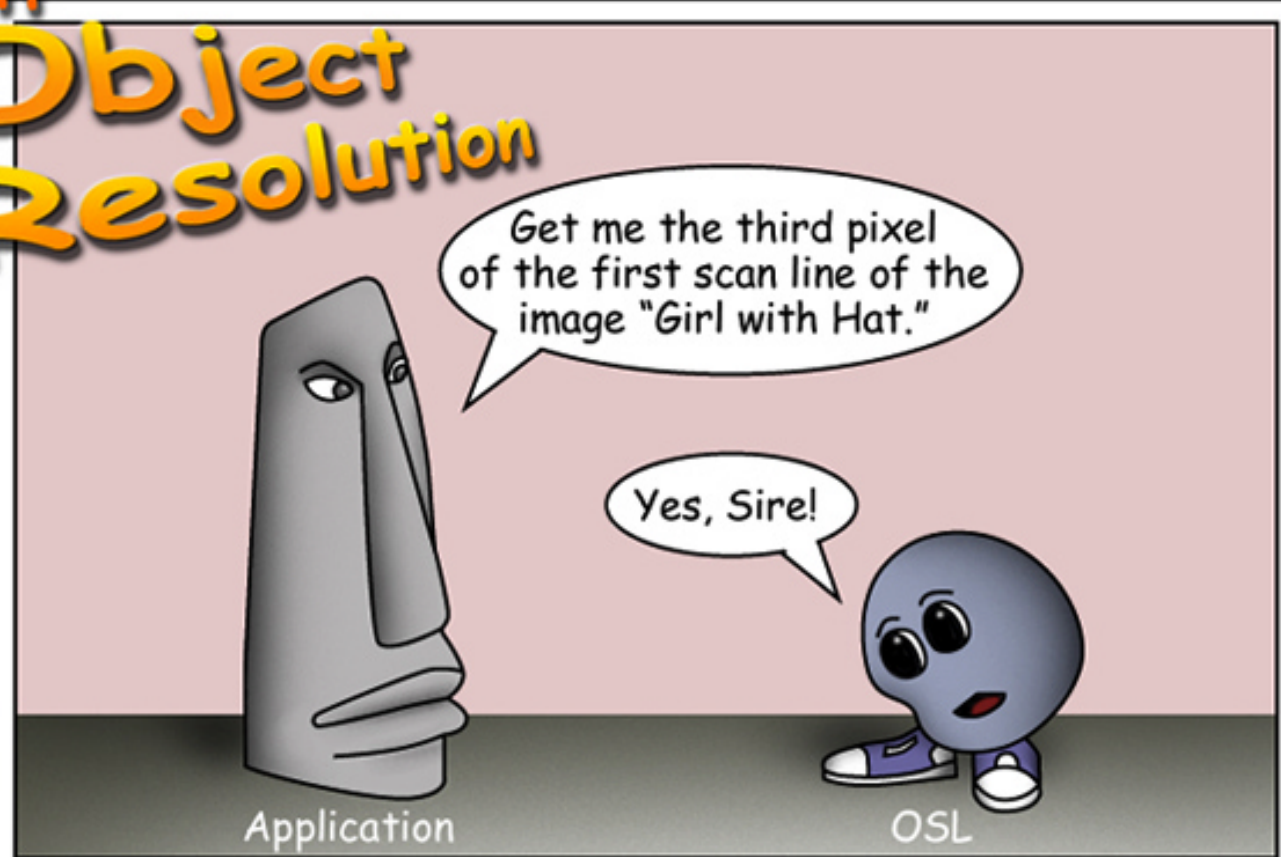
Object Specifier Forms

- formName
- formAbsolutePosition
- formRelativePosition
- formRange
- formTest
- formPropertyID

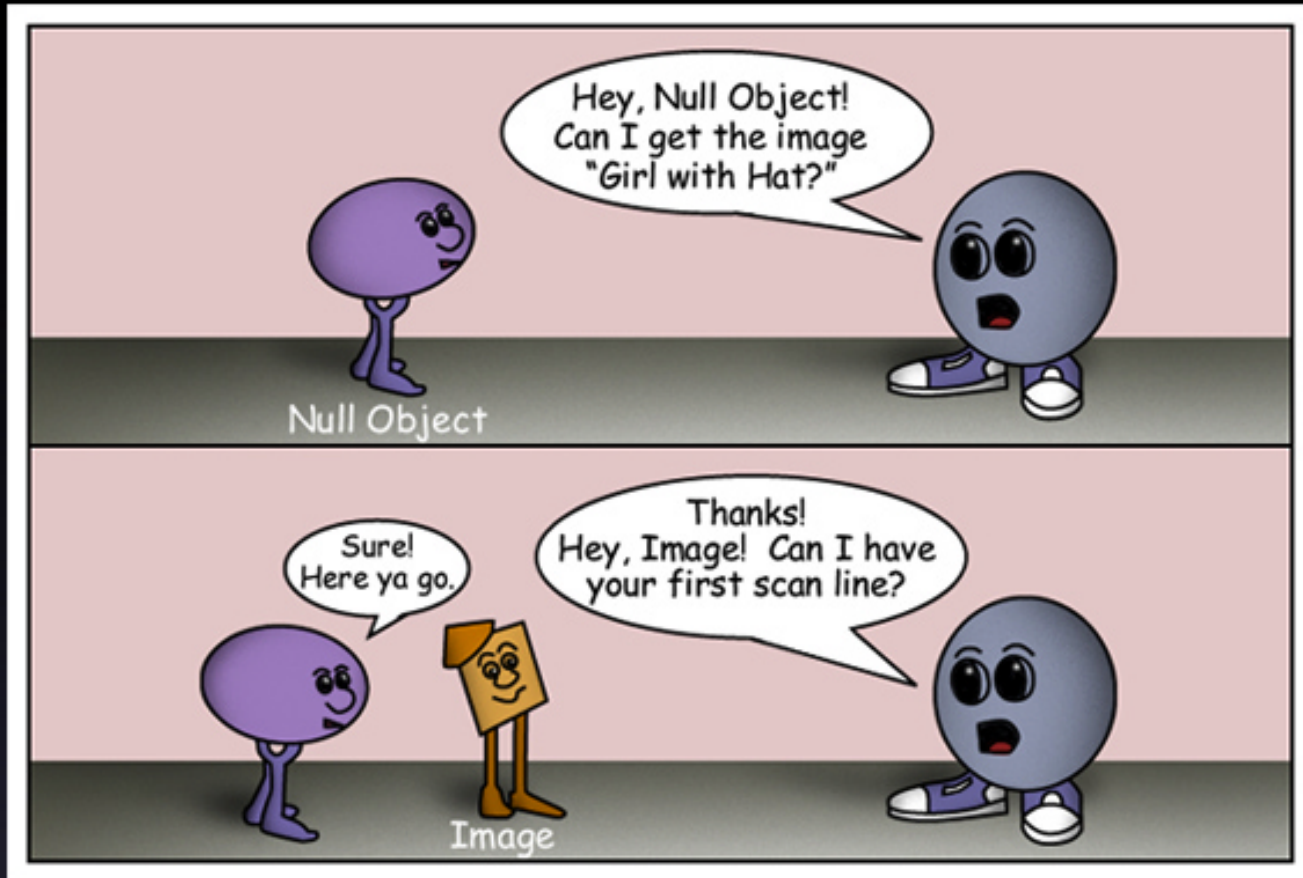


Resolving Objects

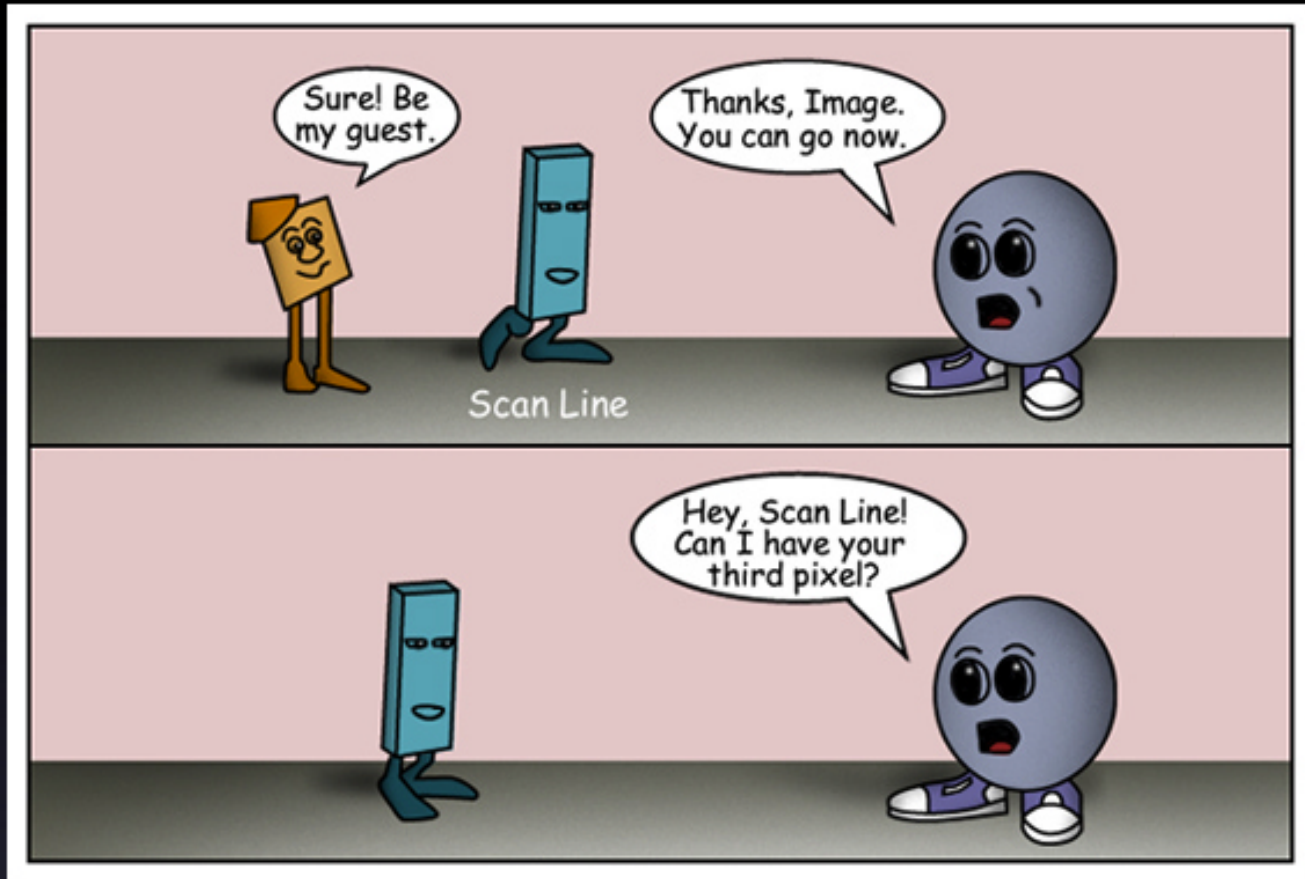
An Object Resolution



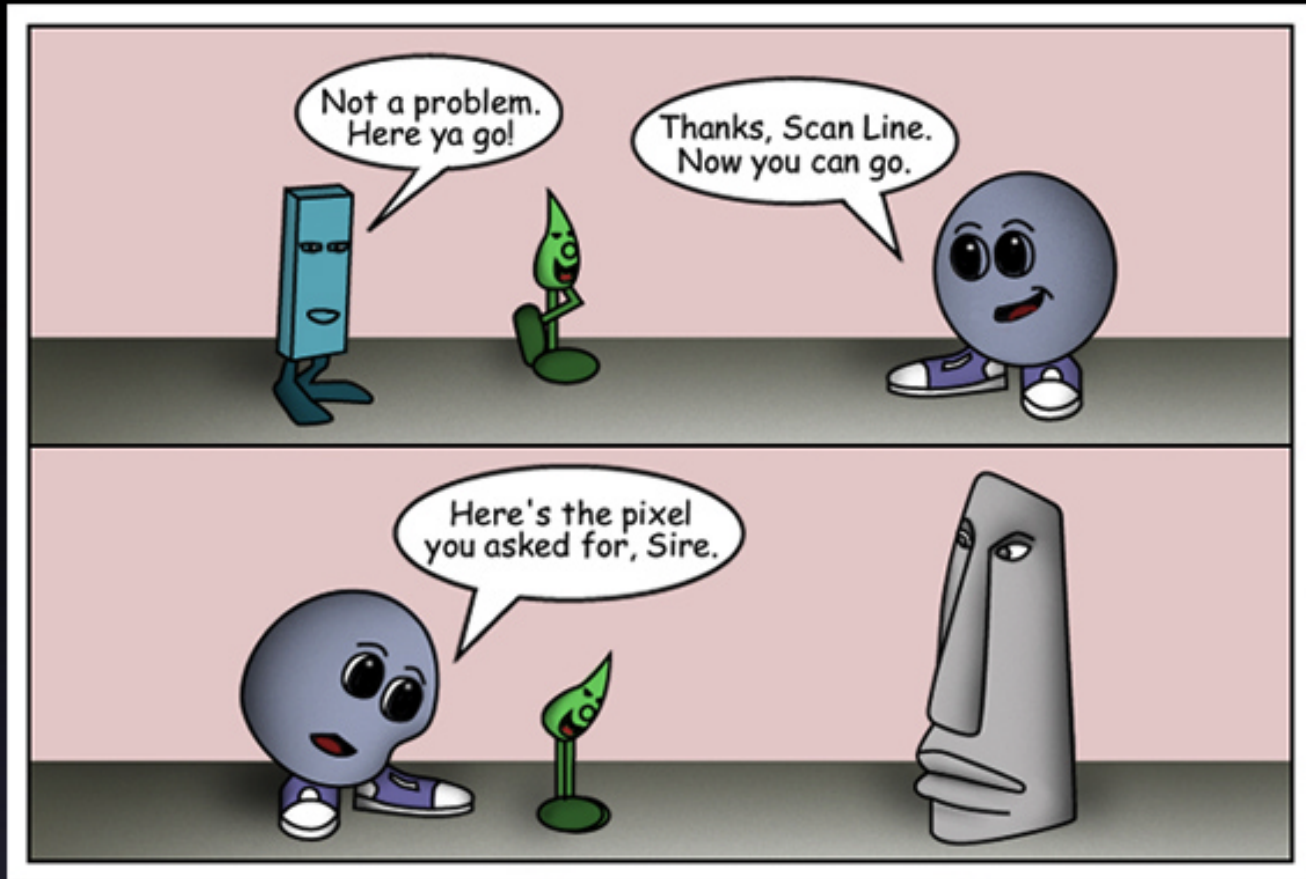
Resolving Objects



Resolving Objects



Resolving Objects



Resolving Objects

- Use the Object Support Library
 - Install object accessors
 - Call AEResolve
- Do it yourself
 - Faster than AEResolve
 - Possibly more work
- Combine both methods



Commands

- Sent as Apple events to the application
- Interpreted to perform actions
- Contain zero or more parameters
- Act upon application objects
- Can change state
- Can return results



Apple Event Support

- Install event handlers
- Call `AEHandleAppleEvent`
- Resolve objects in the handler
- Return requested results



Special Considerations

- Factor your application
- Handle the launch command
- Expect objects for any parameter
- Return results as requested type



Object Model Support

- Application use
- Terminology
- Implementation



Application Use

- How do customers use it?
- Are there repetitive tasks?
- Where does data come from?
- What happens inside the application?
- Where do the results go?



Terminology Design

- Write command sentences
- Create a terminology resource ('aete')
- Write scripts against the terminology
- Repeat



Implementation

- Event dispatching and object resolution
 - Event first
 - Object first
 - Table based





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What's in
It for You?

Developer Value

- Automated testing
- Factored application
- Client/Server possibilities
- Scriptable Plug-ins



Customer Value

- Automated testing
- Automate repetitive tasks
- Produce consistent results
- Integration into work-flow solutions
- New uses for your application
- Results that are greater than the sum of the parts



Roadmap

Extending AppleScript

For the new Standard Additions mechanism and Folder Actions

Hall B
Thur., 1:00pm

AppleScript Feedback Forum

For interactive feedback and discussion with the team

Hall C
Thur., 4:00pm

AppleScript Birds of a Feather

For community-building with other developers

Hall C
Thur., 5:30pm



AppleScript Kitchens

London, U.K.:

June 15 through 17, 1999

Cupertino, CA:

August 17 through 19, 1999

For more information:

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Q&A



Think different.TM



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