

# ***PostScript***

## ***An Introduction to the PostScript Language***

Adapted from:  
Scott R. Abel  
Regional Systems Engineering Manager  
NeXT, Inc.

## *Language Objectives*

---

- ♦ Uniformity & consistency
- ♦ High-level interface
- ♦ Device independence
- ♦ Target: raster imaging devices

7 - 2

## *A Range of Applications*

---

- ♦ Document Preparation
- ♦ CAD output
- ♦ Line printer applications
- ♦ Bar code printing
- ♦ Other stuff ...

7 - 3

## *Requirements*

---

- ♦ Device independent
- ♦ High-level imaging model
- ♦ Extensible interface

7 - 4

## *Device Independence*

---

- ♦ Resolution from 72 dpi to 2400 dpi
- ♦ Pixel depth from 1 to 48 bits/pixel
- ♦ Uniform treatment of graphics elements, not just lines, but fonts and images can be transformed as well
- ♦ Make the capabilities or limitations of the underlying hardware transparent to the client (user) of the interface

7 - 5

## *Device Independence*

---

- ♦ Specify what to draw, not how to draw it
- ♦ Base all locations on user coordinate system
- ♦ Implicitly separate client from the server

7 - 6

## *High- Level Imaging Model*

---

- ♦ Appropriate graphic elements
- ♦ High-quality fonts
- ♦ Generalized Clipping
- ♦ Coordinate Transformations

7 - 7

## *Imaging Model*

---

- ♦ "Paint" through "Stencil"
- ♦ The paint (source) defines the "color"
- ♦ The stencil (path) defines the "shape"
- ♦ Paths are built up from lines, arcs, and splines
- ♦ The result is the "Source" pushed through the "Stencil" onto the paper
- ♦ Source may be a color or a scanned image

7 - 8

## *Imaging Model*

---

- ♦ Characters are a shorthand way of specifying a path
- ♦ Coordinate transforms apply to all elements (sources and paths)
- ♦ Typographic-quality characters

7 - 9

## *Imaging Model*

---

- ♦ 2D, right-handed coordinate system
- ♦ floating-point, 1/72 inch default, user-definable units
- ♦ All graphics elements scale and transform with coordinates

7 - 10

## *Extensible Interface*

---

- ♦ A programming language: provides procedures and operations on them
- ♦ Allows clients to define procedures for particular task
- ♦ These can be stored (cached) for efficiency
- ♦ Printing task is just a program in this language

7 - 11

## *Extensible Interface*

---

- ♦ Interface is an ASCII-based, interpreted language
- ♦ PostScript code can be generated by any computer, in any language
- ♦ Can be transmitted in any number of formats and mediums
- ♦ Easy to inspect, modify, and update

7 - 12

## *Extensible Interface*

---

- ♦ A protocol, independent of any language or operating system
- ♦ Extensible over time
- ♦ Extensible for particular devices
- ♦ Clients can optimize to their needs

7 - 13

# *Resources*

*PostScript Language Tutorial and Cookbook*, by Adobe Systems, Inc., Addison-Wesley, 1985. ("The Blue Book")

*PostScript Language Reference Manual, Second Edition*, by Adobe Systems, Inc., Addison-Wesley, 1991. ("The Red Book")

*Programming the Display PostScript System with NeXTstep*, by Adobe Systems, Inc., Addison-Wesley, 1991. ("The Purple Book")