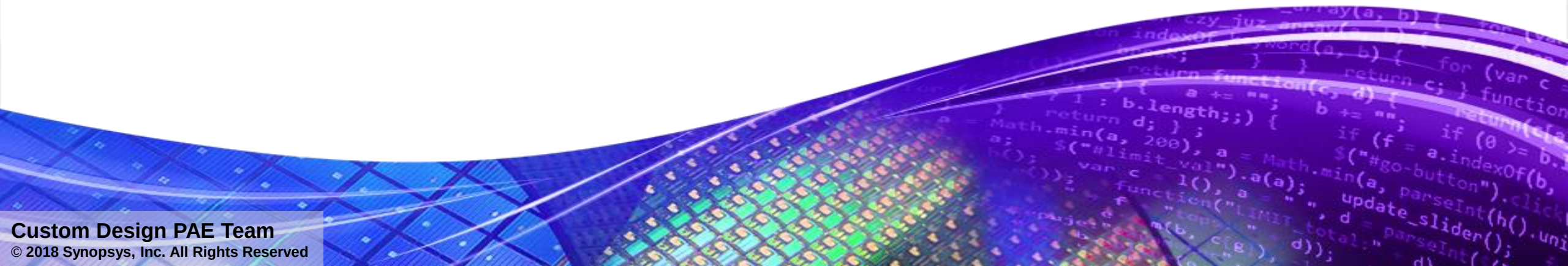
SYNOPSYS®
Silicon to Software™

# Custom Compiler

## Schematic Editor (SE)

## Symbol Creation

O-2018.09

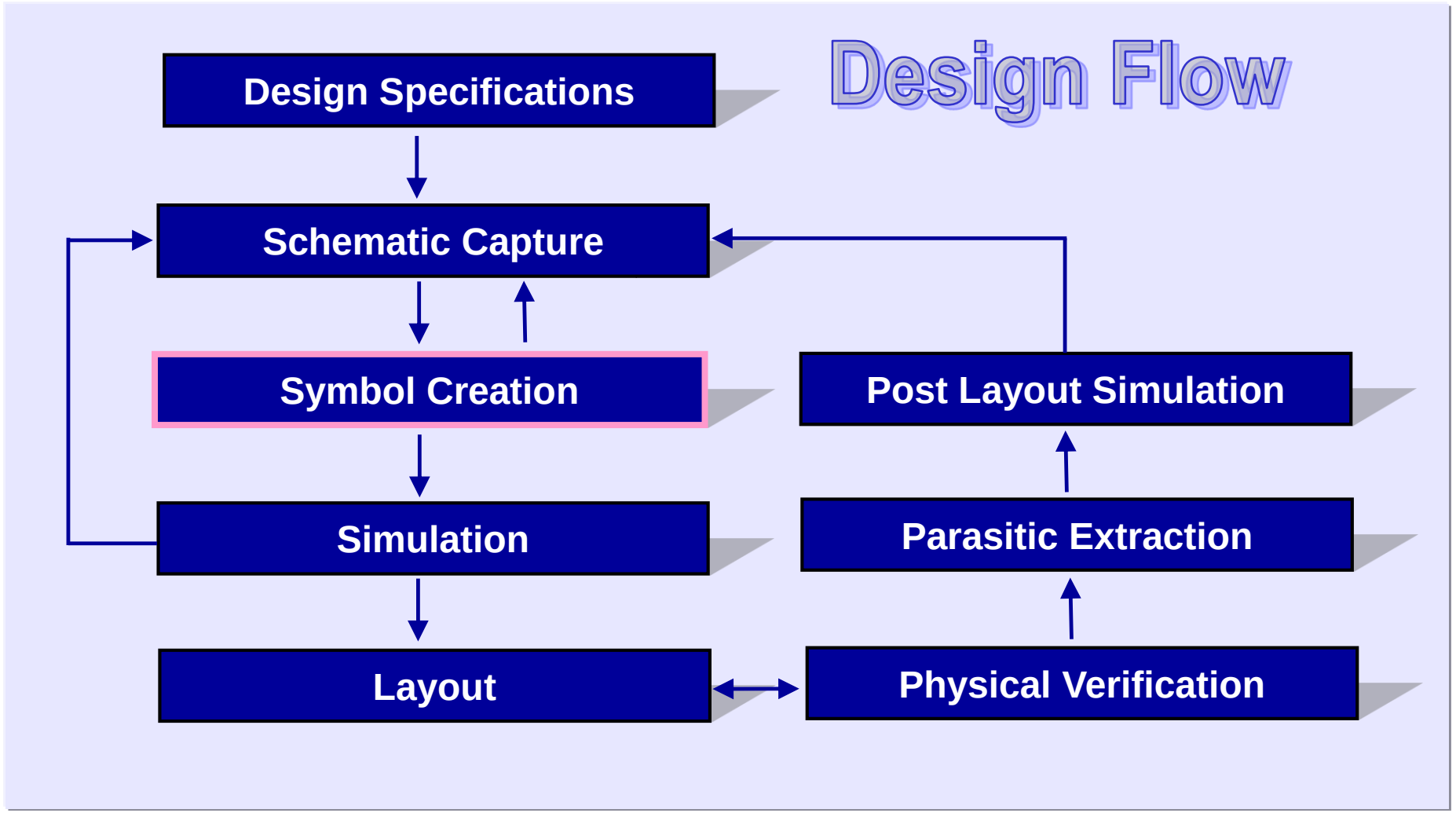


Custom Design PAE Team

# Unit Objectives

- **After completing this unit, you should be able to**
  - Understand the symbol generation flow
  - Create and Edit the symbol
  - Understand labels around the symbol
  - Add selection shape
  - Check the symbol
  - Save the symbol

# Full Custom Compiler Flow



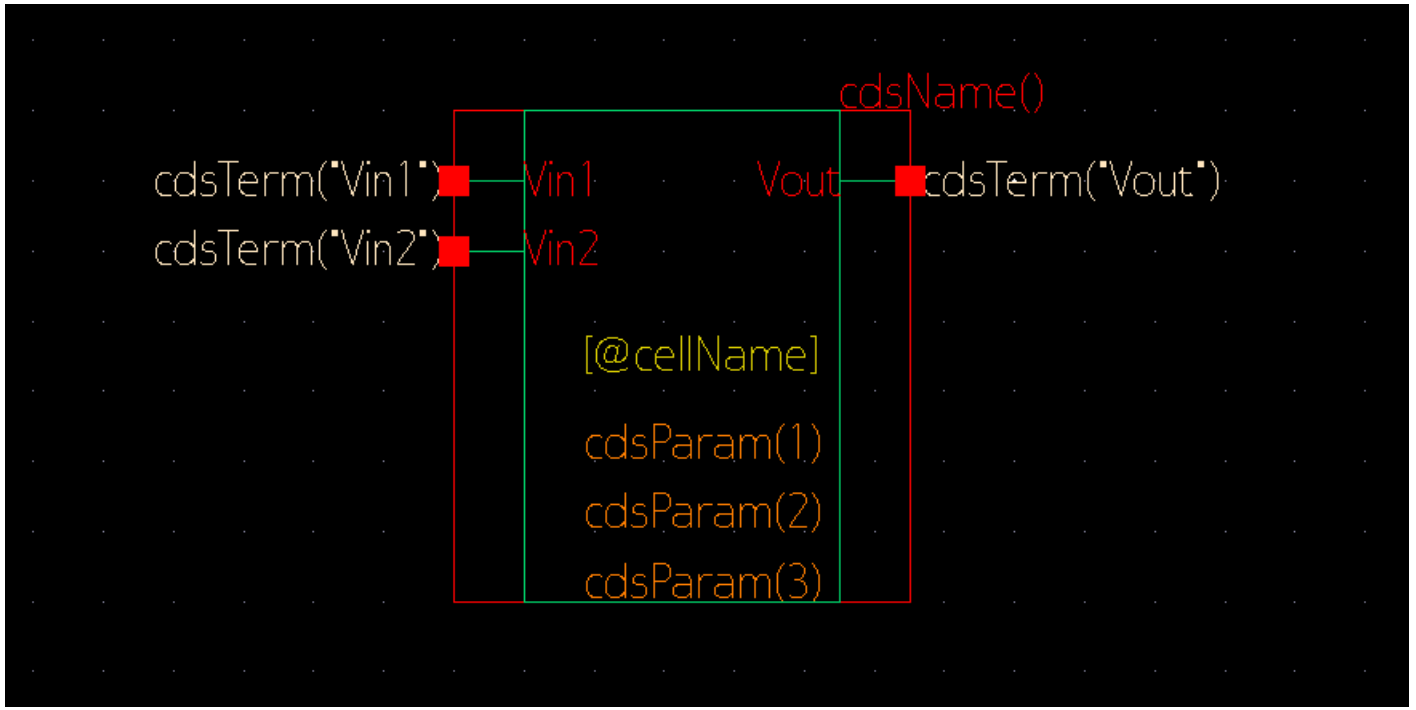
# Symbol and its Importance

- A symbol is a graphical representation of a hierarchical design.
- It has properties that describe characteristics of a model or schematic it represents.
- Useful for creating designs where it is impractical to show every transistor on the top level schematic
- Useful for creating test benches

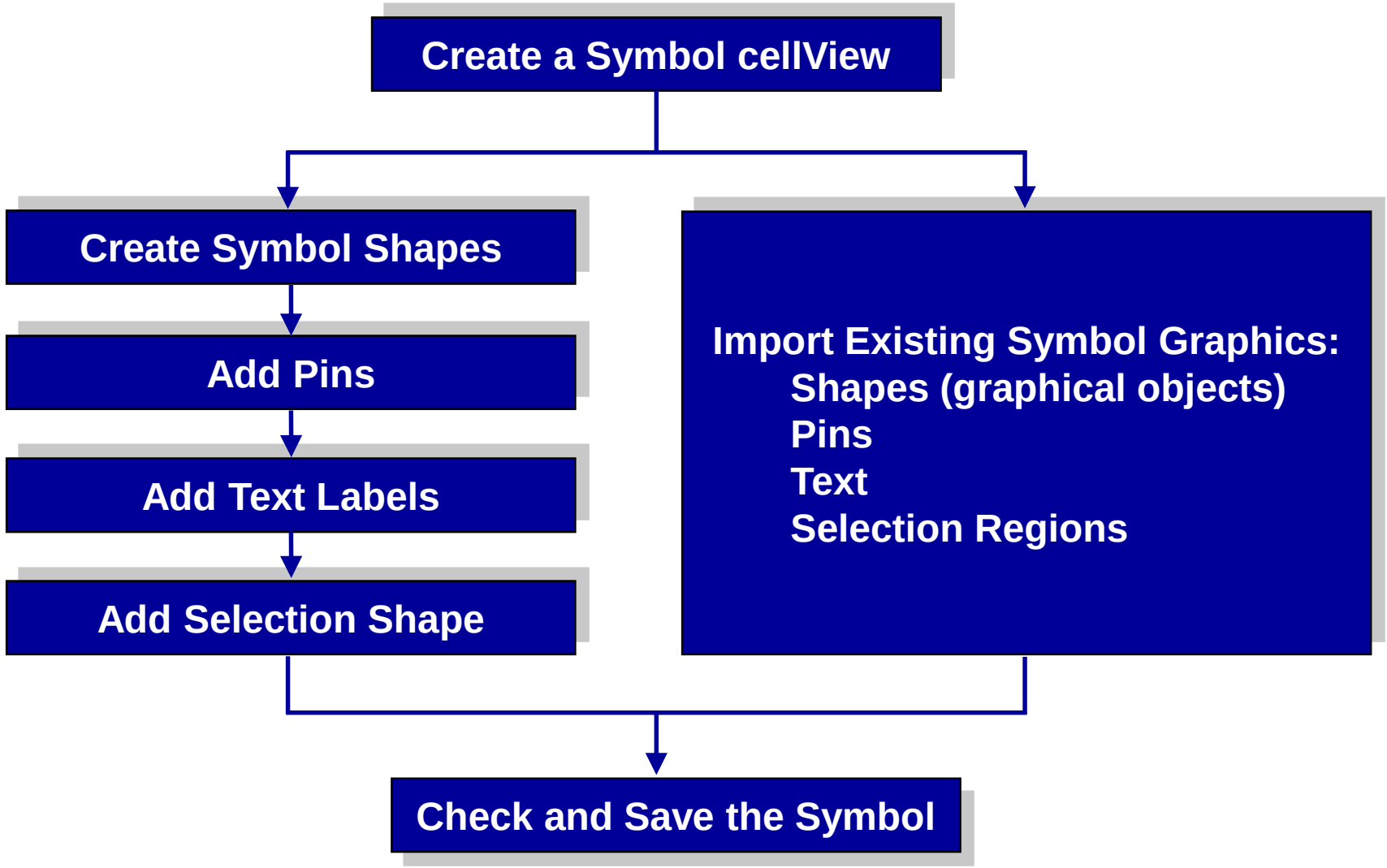
# Symbol Generation

**Manual Creation**

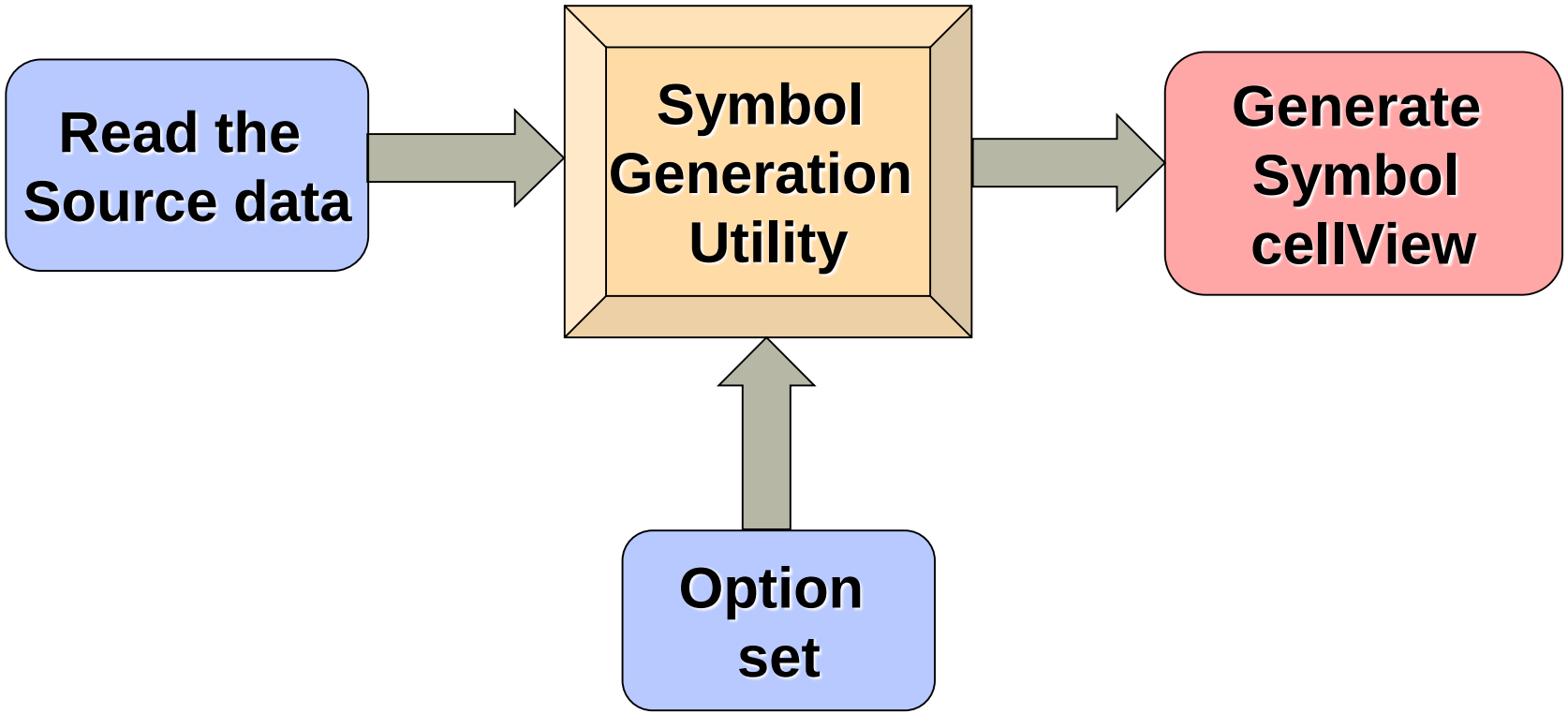
**Automatic Creation**



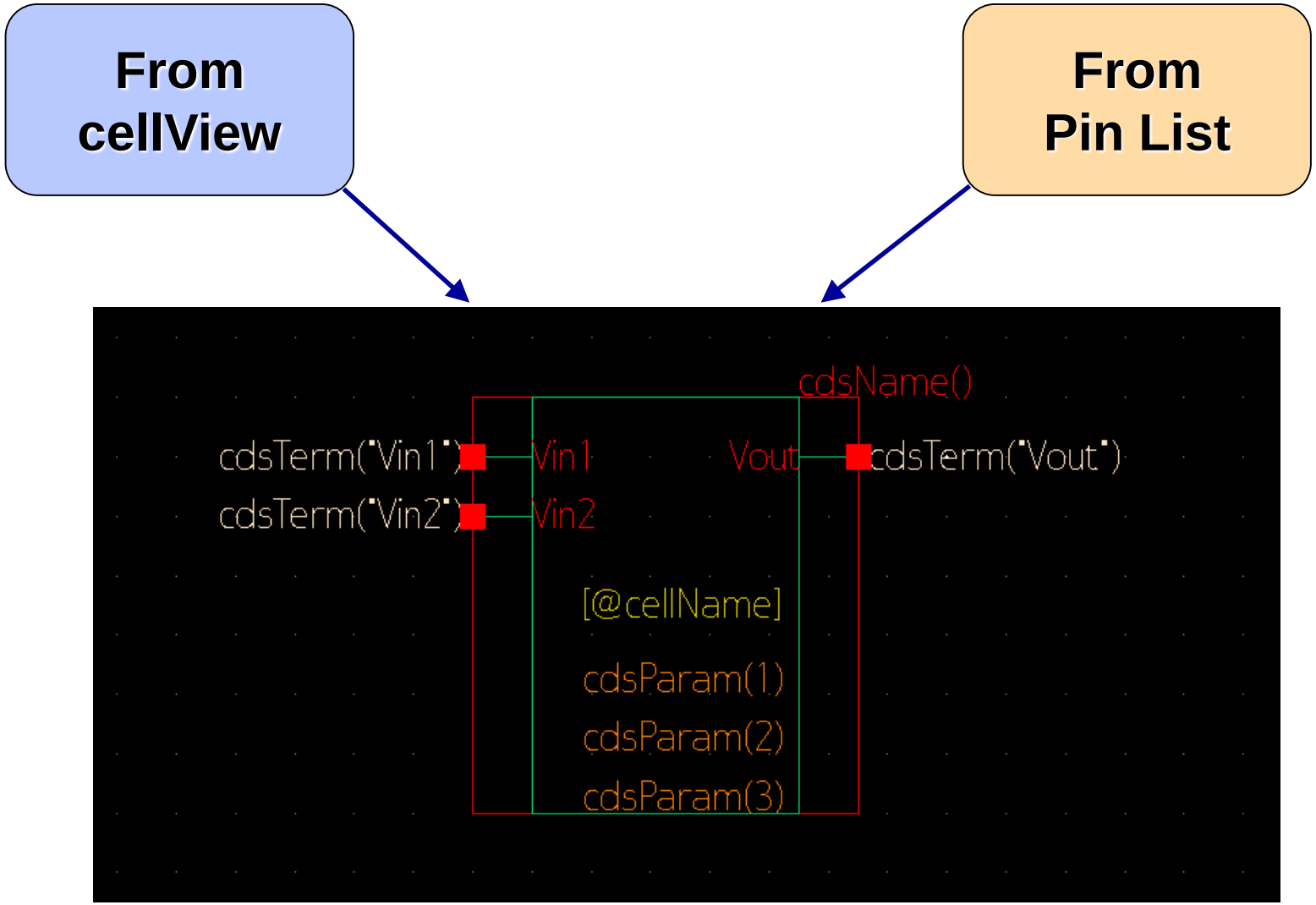
# Manual Symbol Generation Flow



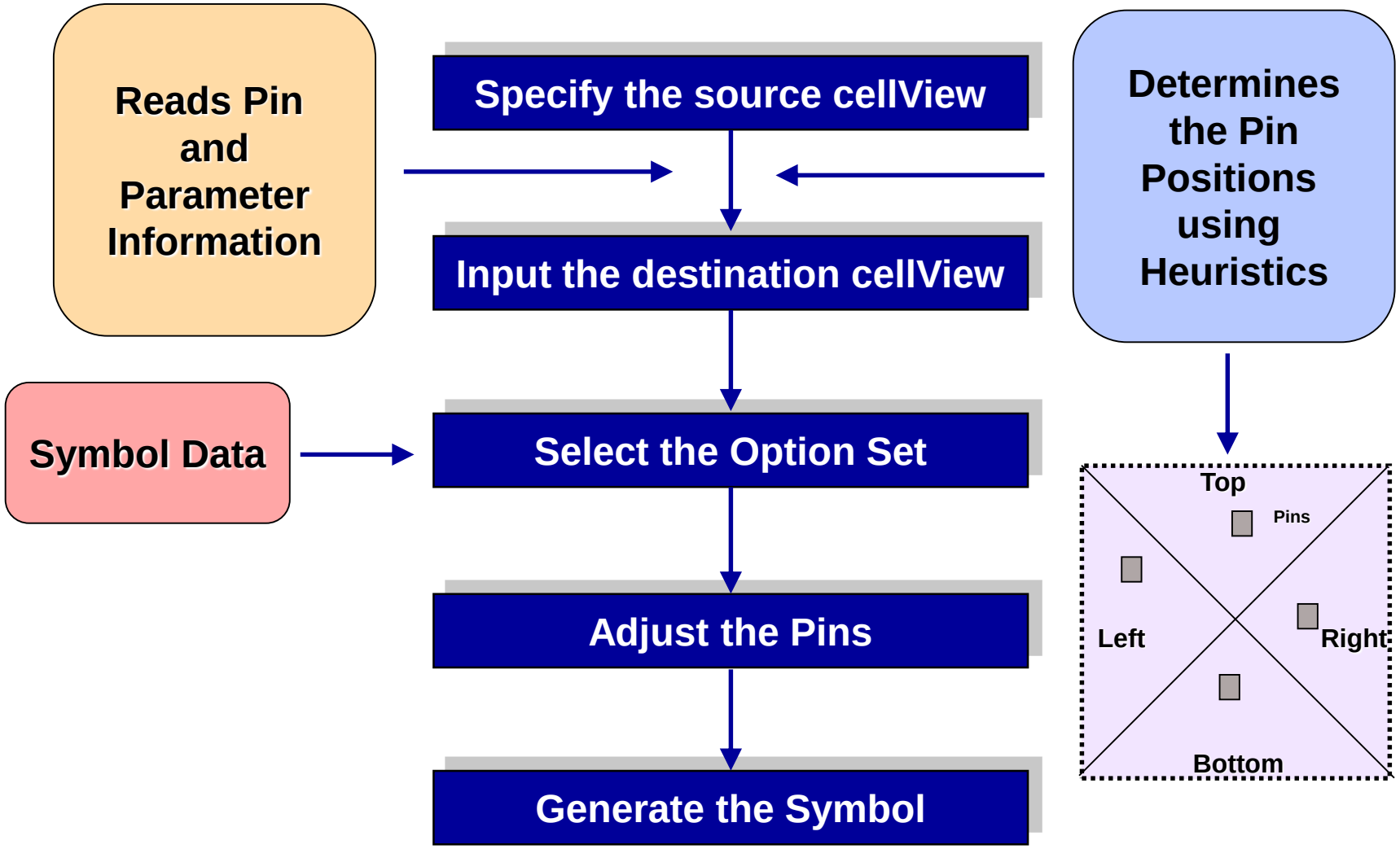
# Automatic Symbol Generation Flow



# Automatic Symbol Generation

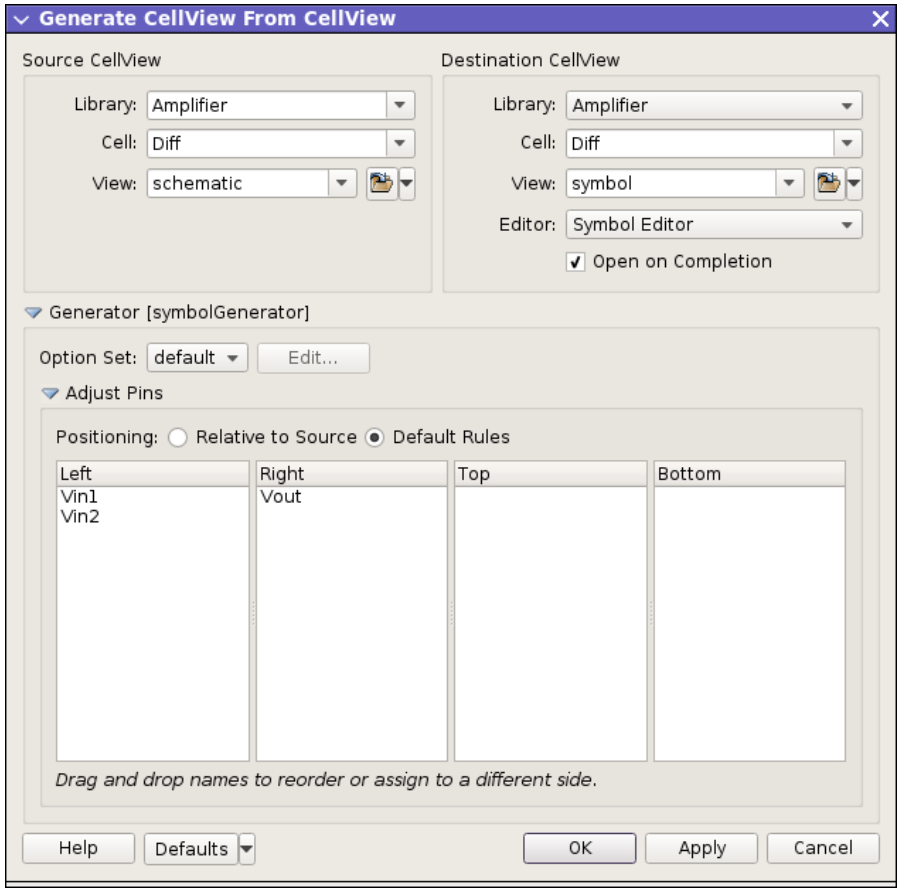


# Symbol Generation from CellView

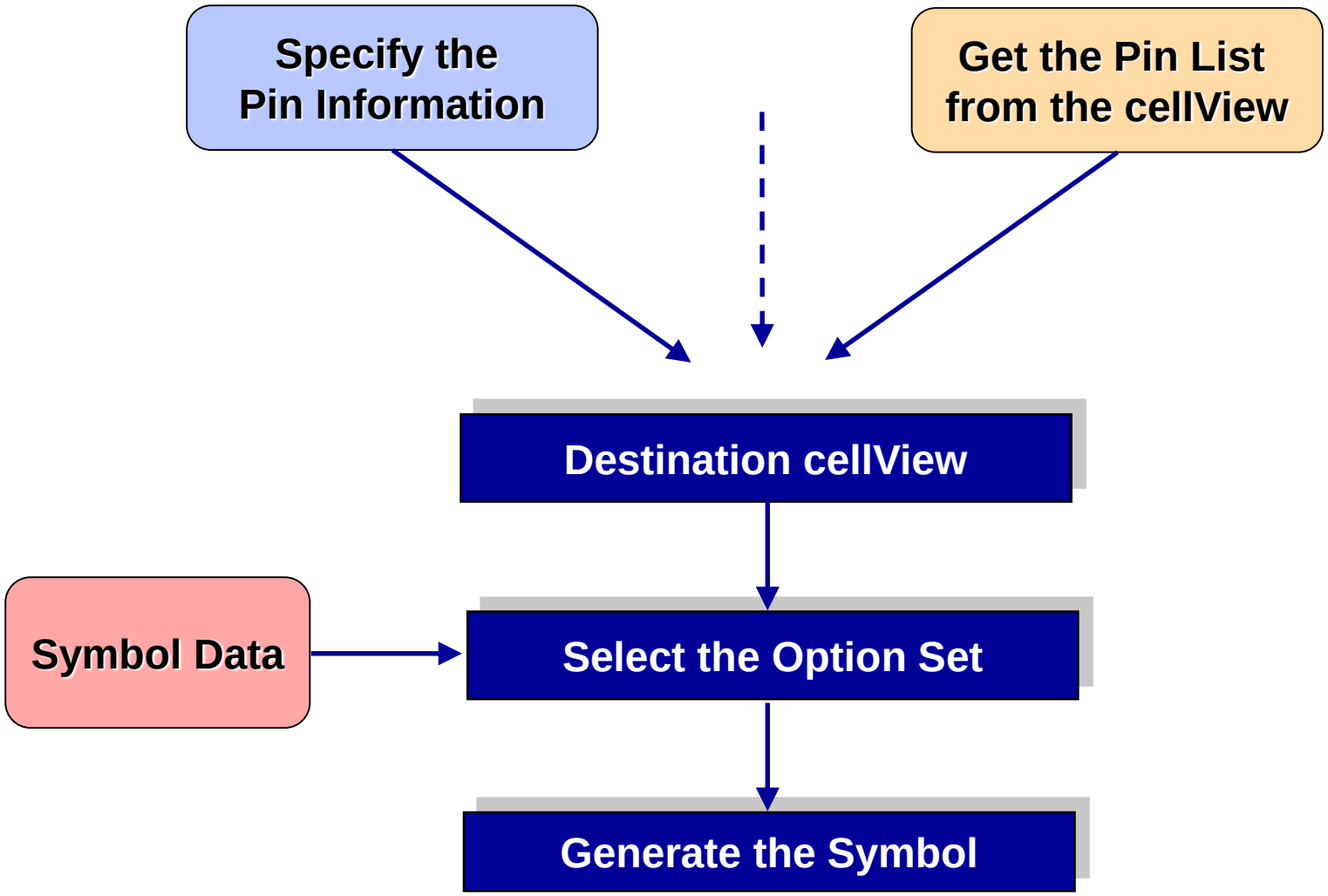


# Symbol Generation from CellView User Interface

- **Invoke from Design → New CellView → From CellView**

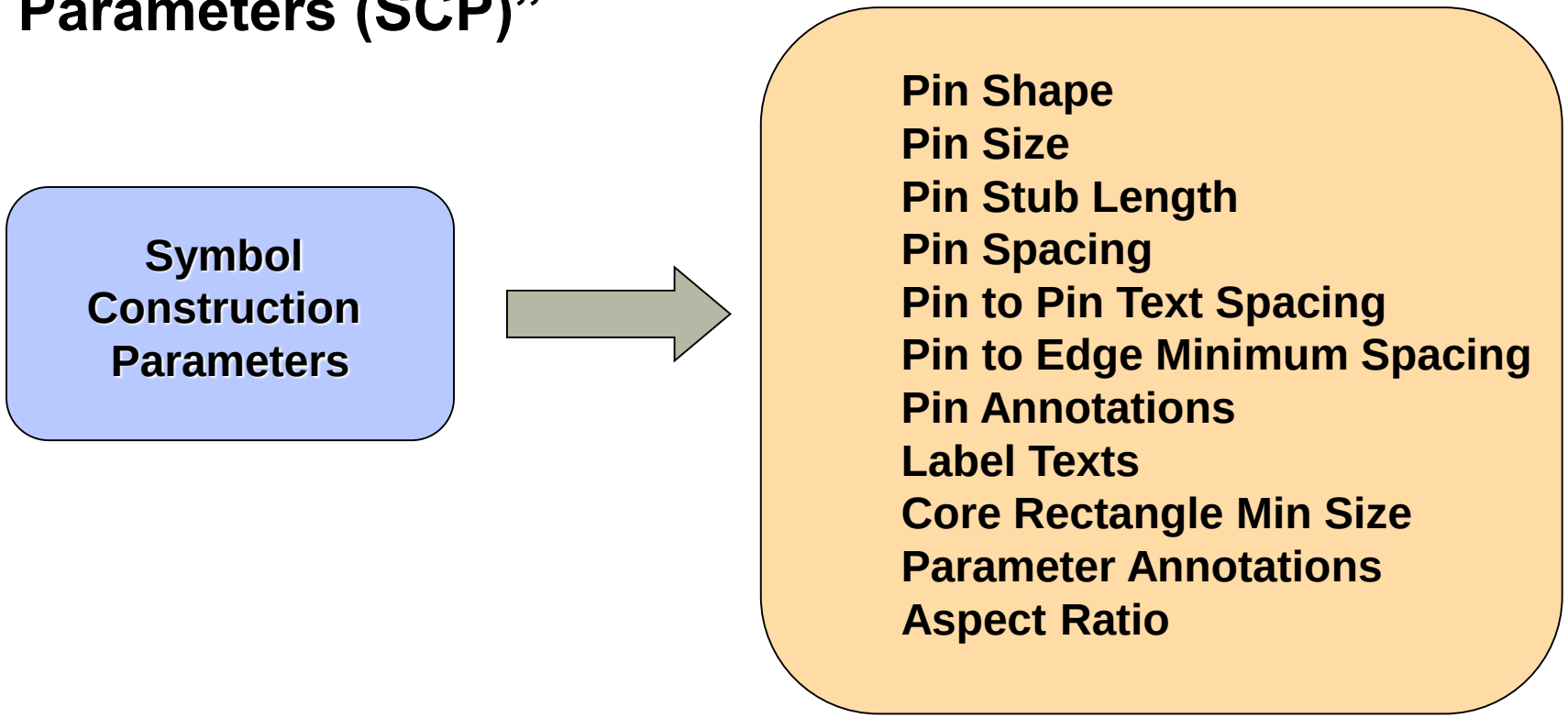


# Symbol Generation from Pin List

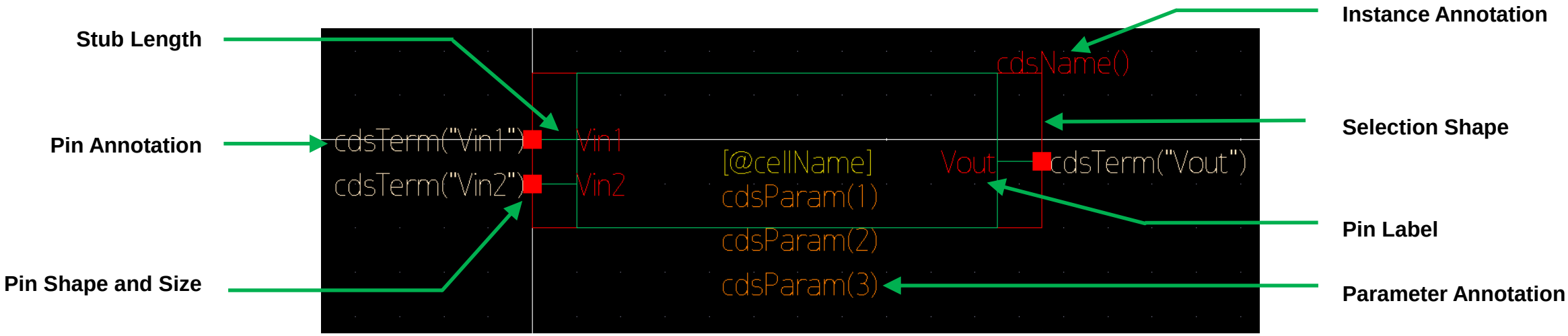


# Option Set

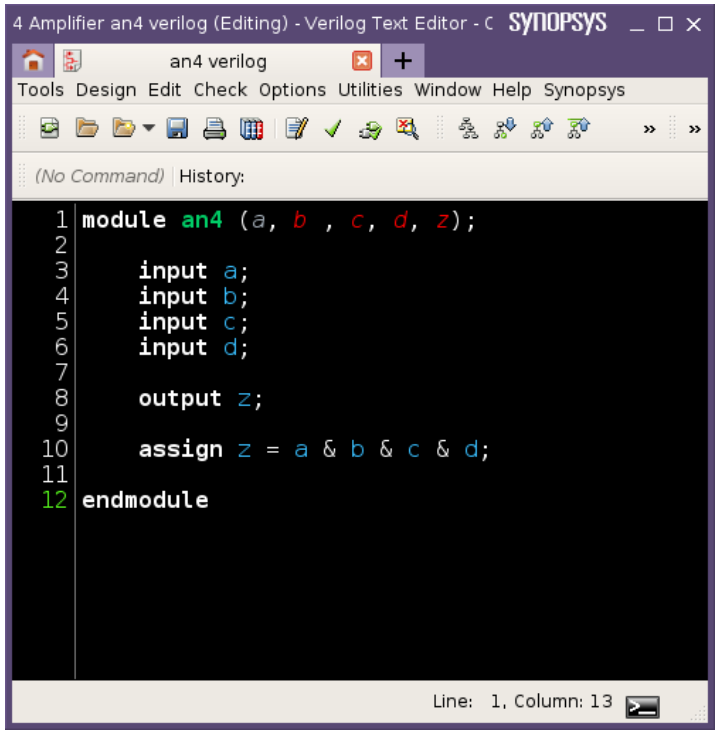
- Contains the list of symbol data available for user control.
- Construction of the symbol data is controlled by a list of settings called “Symbol Construction Parameters (SCP)”

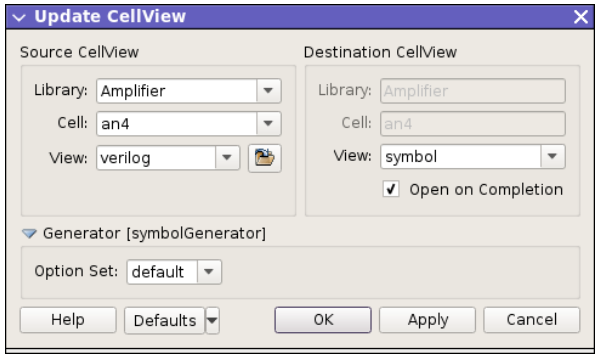


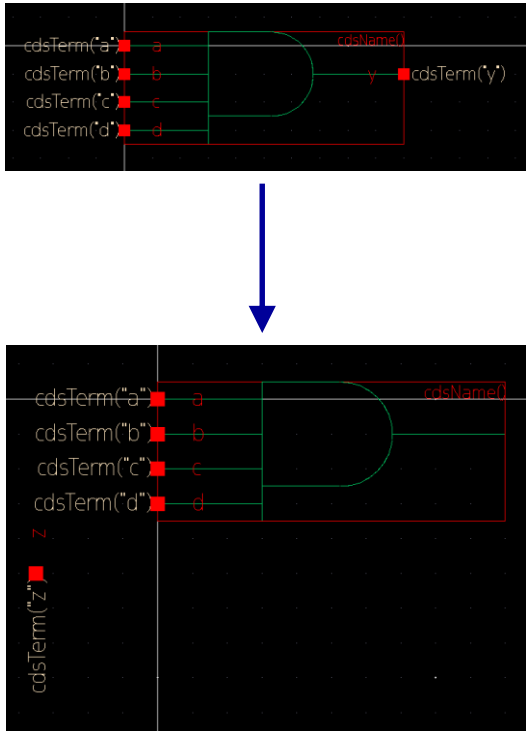
# Generated Symbol View



# Update Symbol View



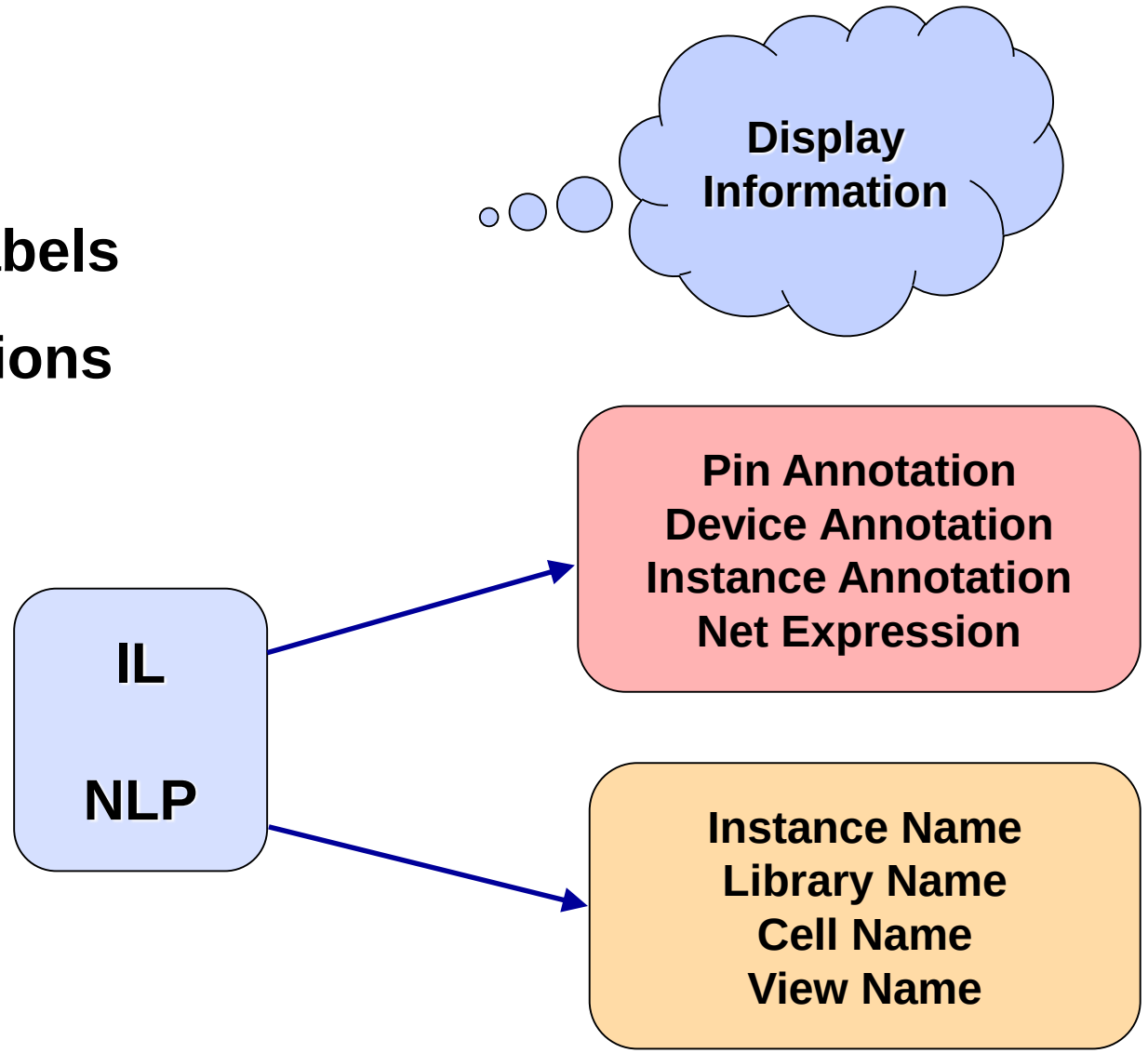




- **Deleted pins are removed**
- **New pins are placed at the bottom of the symbol**

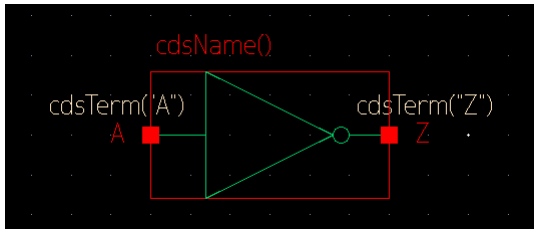
# Labels

- Static labels
- Interpreted labels
- NLP Expressions

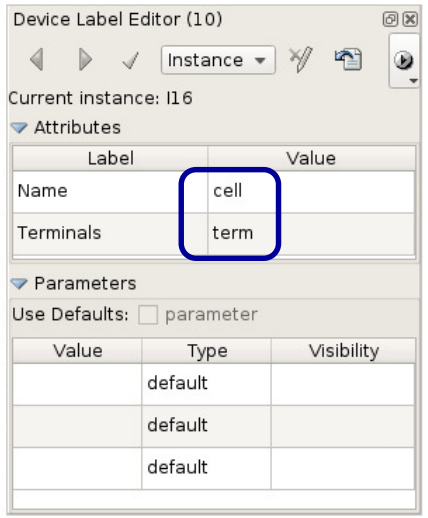


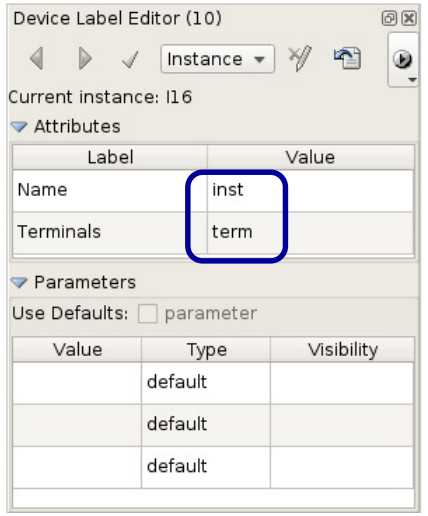
# Device Label Editor Assistant

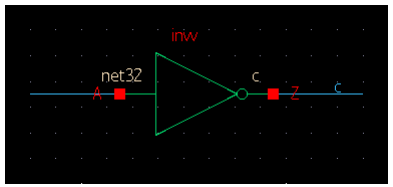
- **Select interpretation of IL labels**
- **Select interpretation scope**
  - Instance
  - Master
  - Library
  - Design

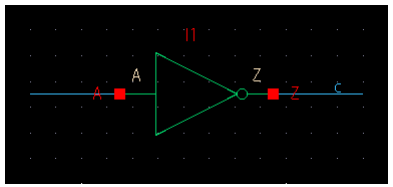



**cdsName()** →
**cdsTerm("T")** →



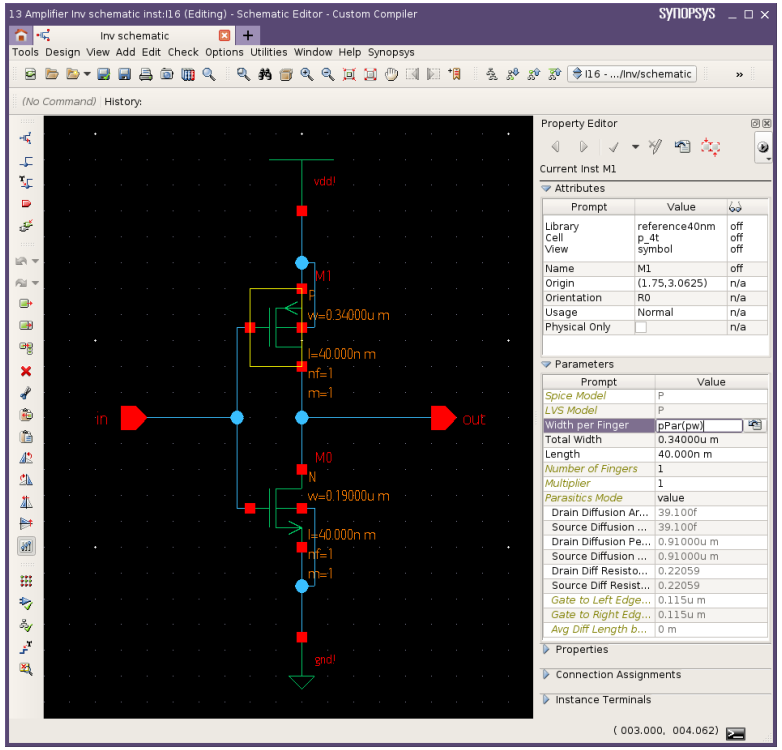



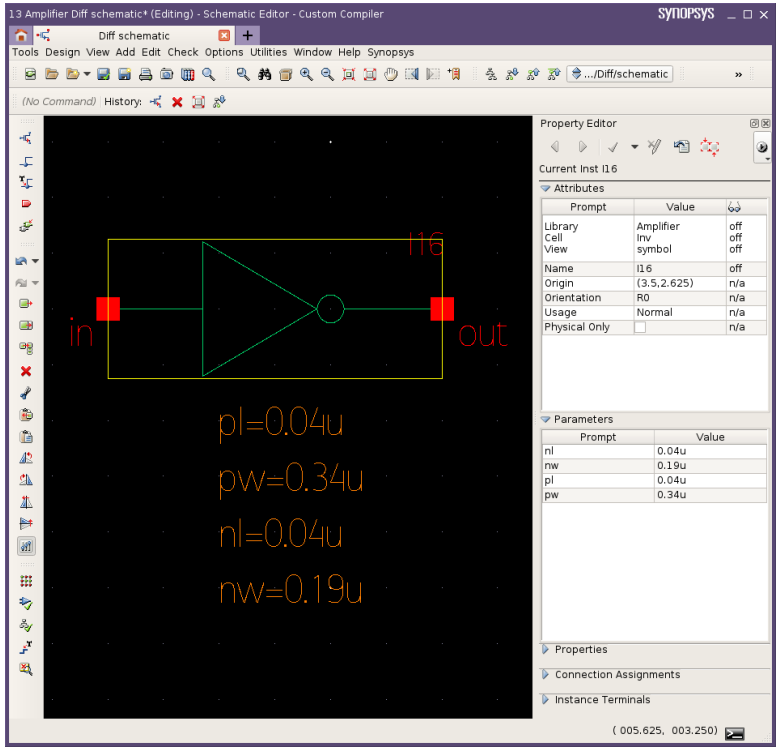



# Passing Parameters Through Symbol

- Pass parameters to lower level circuitry
- Enables reuse of same circuit with different parameter values
- Use pPar(<parameter name>) as values of device parameters



# Test for Understanding


- **What is the necessary and sufficient information to create the symbol ?**
- **Labels are used to display _____**
- **Choose the correct statements:**
  - Symbols are used to create hierarchical designs.
  - Heuristics are used to identify the pin size.
  - The option set contains the list of symbol data.
  - Labels are used to verify the connectivity.

# Lab 1: Symbol Creation

**30 minutes**

## Goals:

- To understand the symbol generation flow in the Custom Compiler Environment