

P1500's Core Test Language

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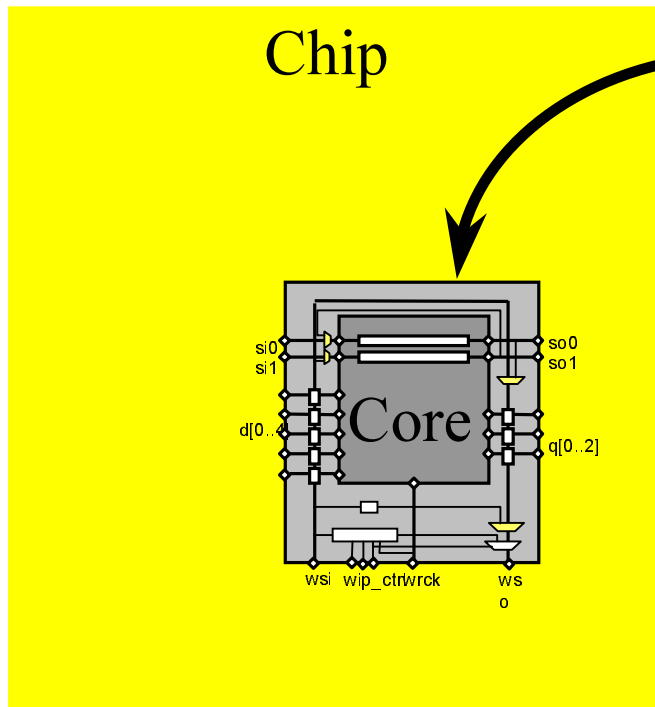
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Paul Reuter (Mentor)

Douglas Kay (Cisco)

What is CTL about



CTL {

This is the way to scan

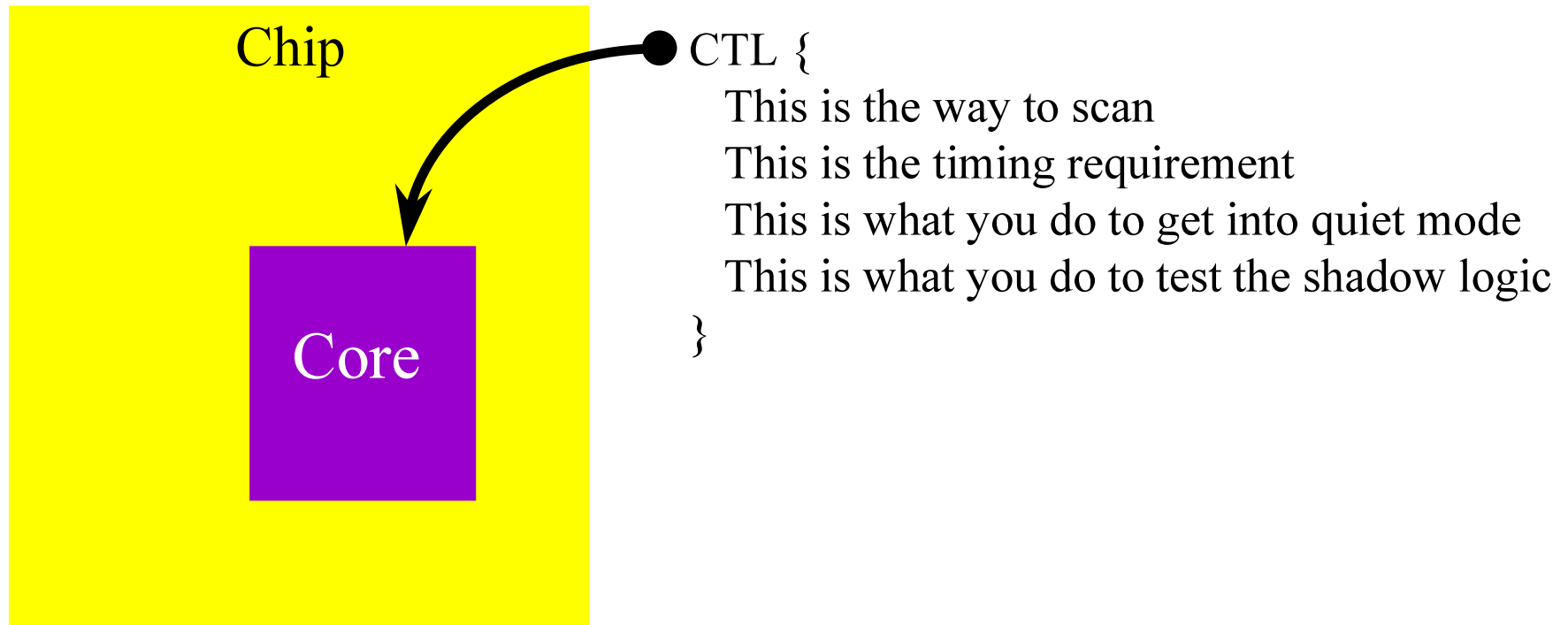
This is the timing requirement

This is what you do to get into quiet mode

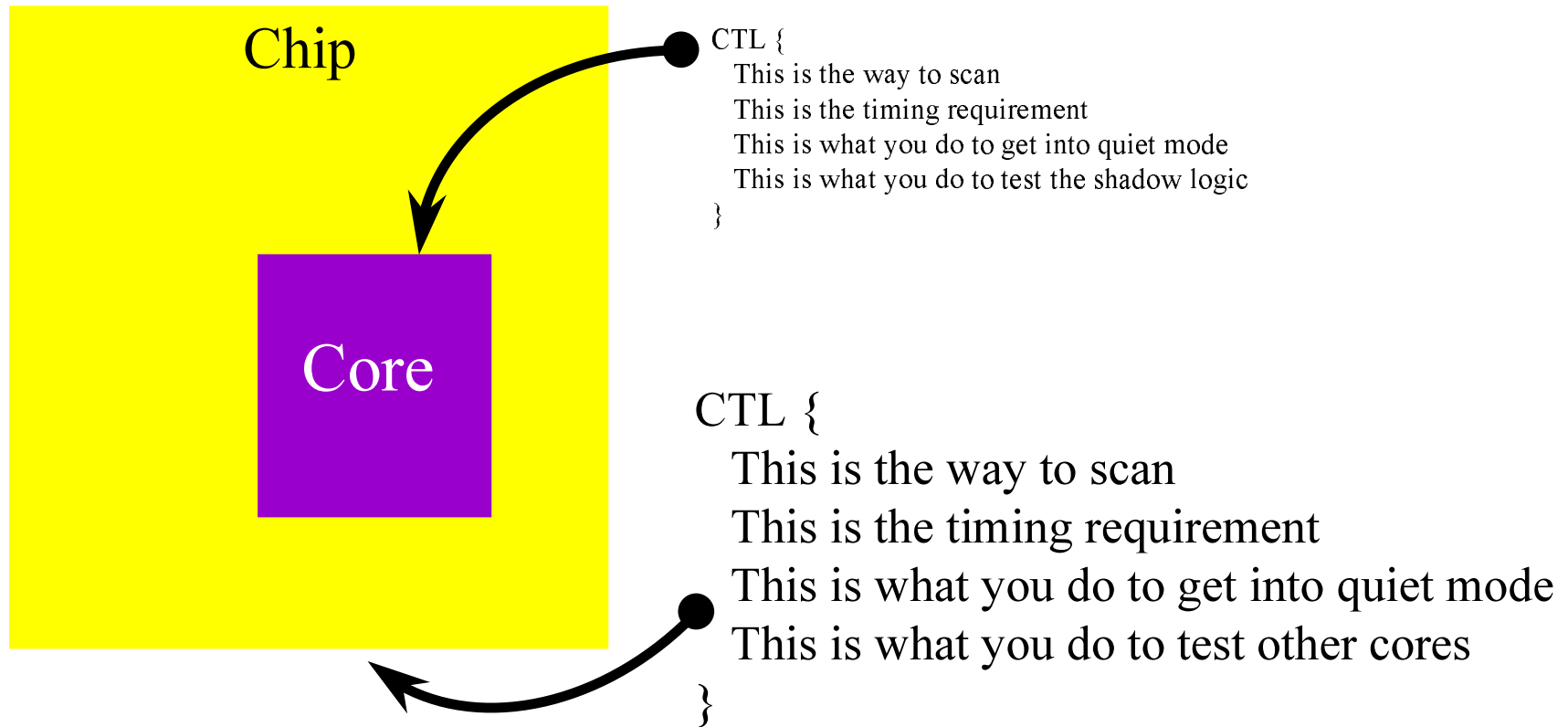
This is what you do to test the shadow logic

}

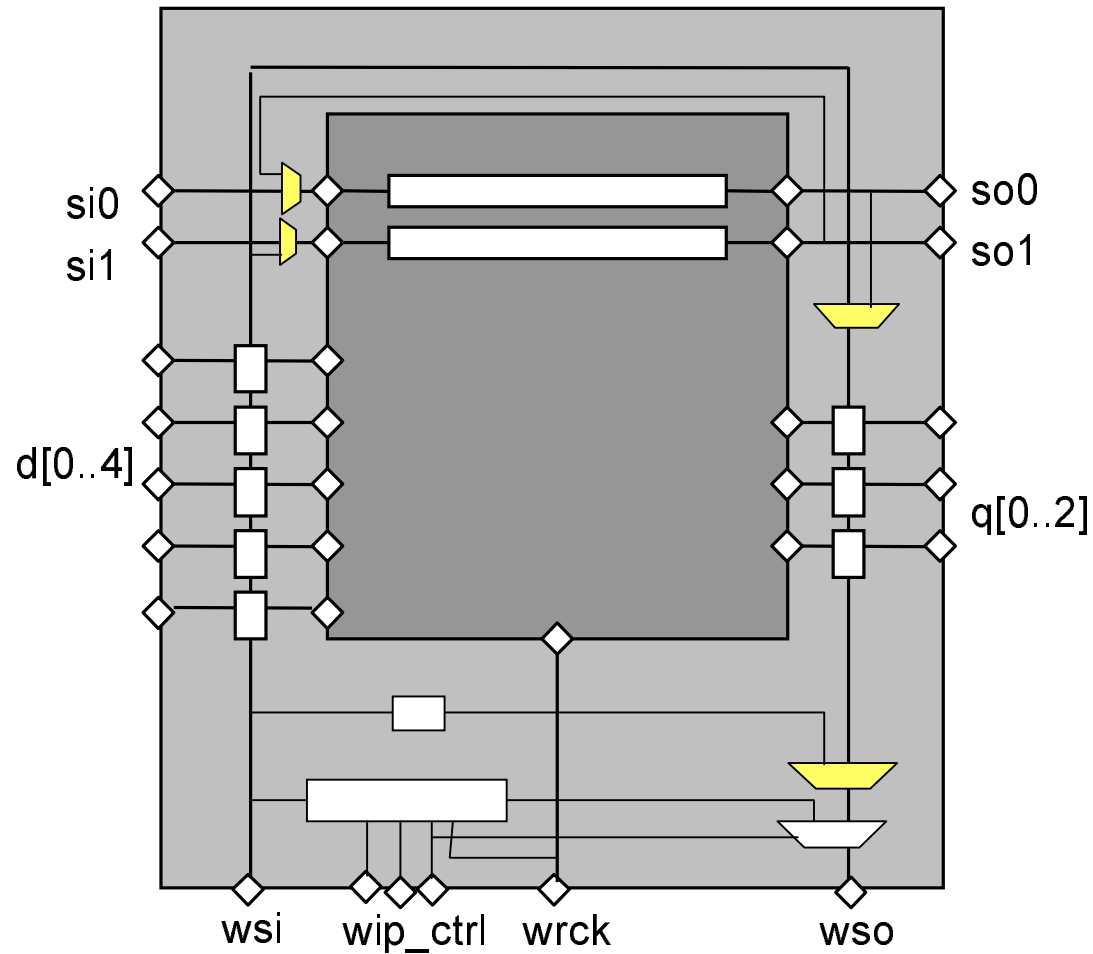
CTL allows black-boxing of a core



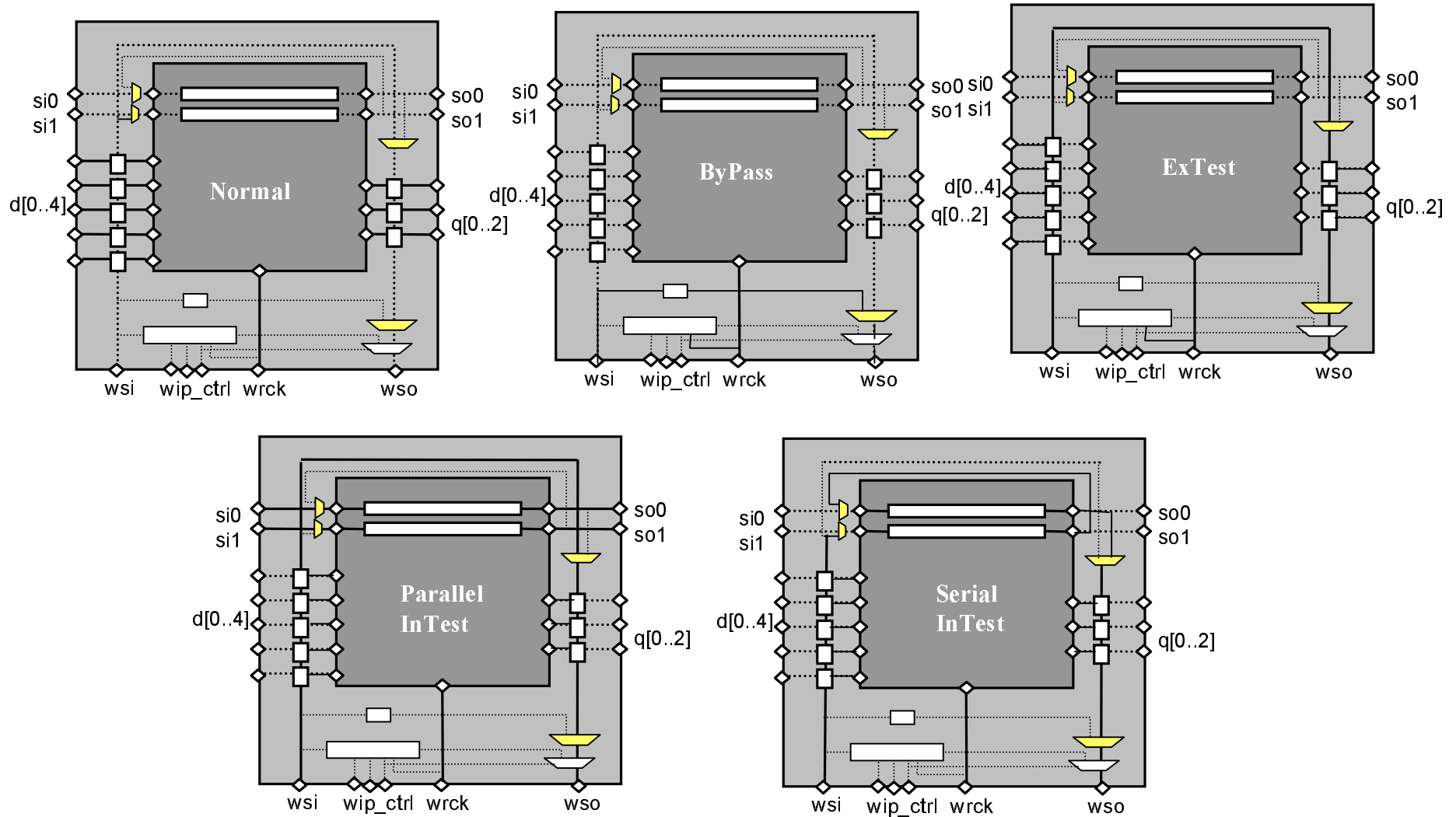
CTL can be described at any hierarchical level



Example Core To Be Described in CTL



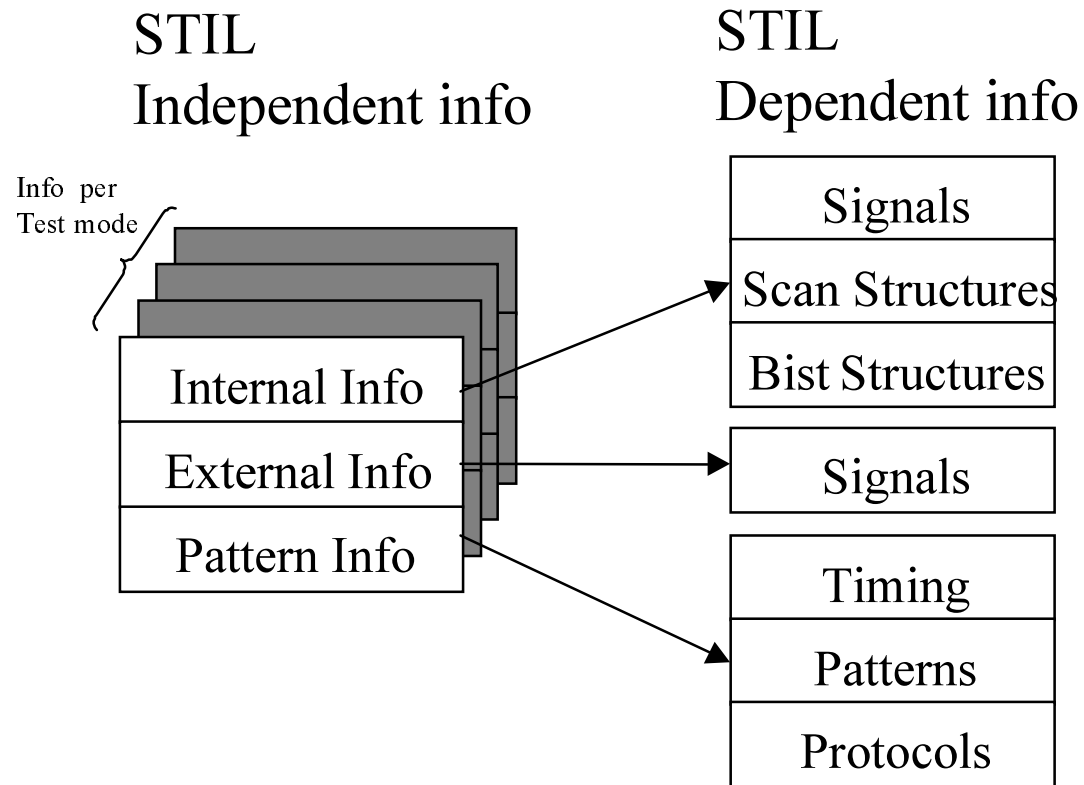
A Core Has Many Modes



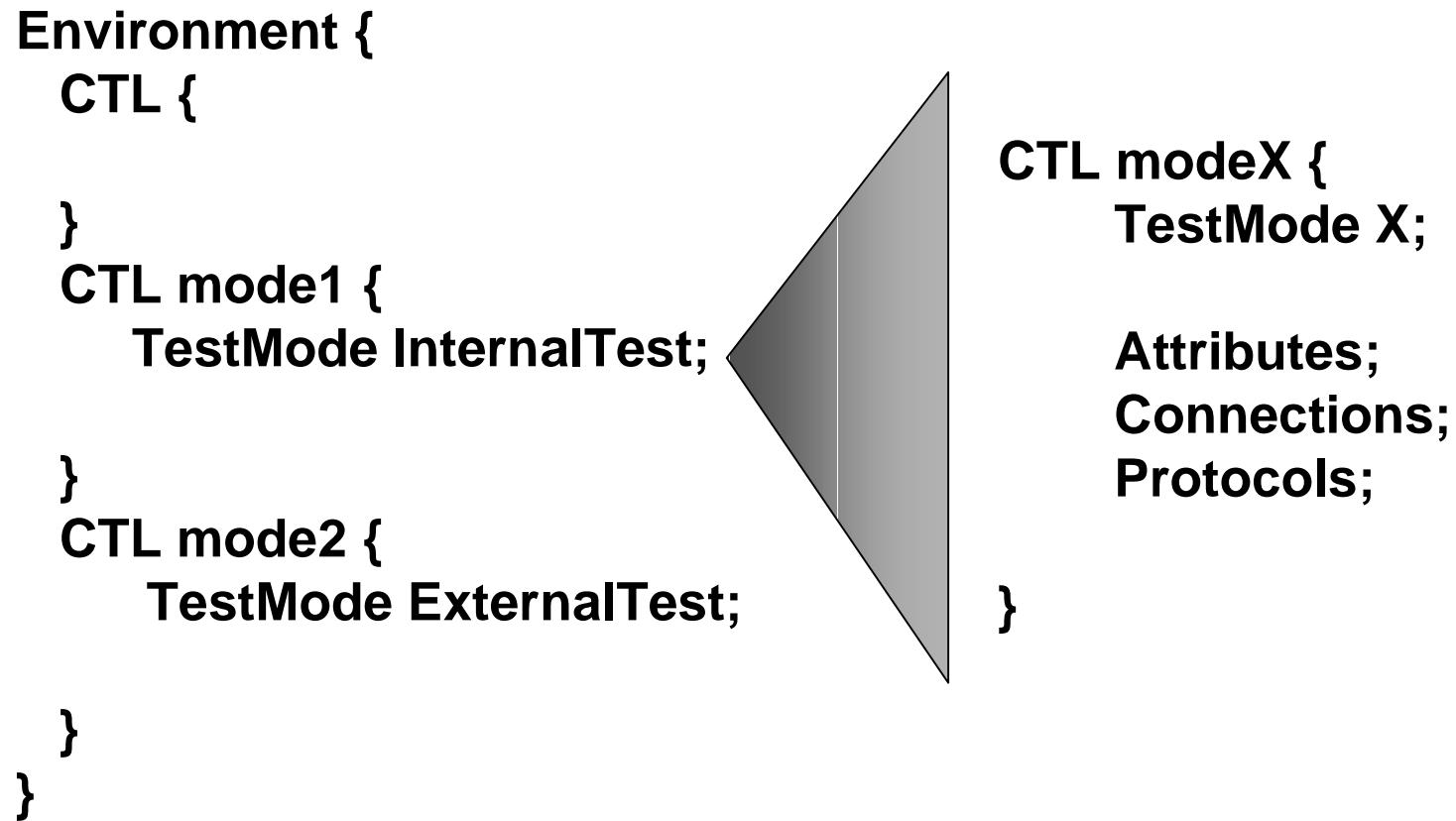
Things That Need To Be Described

- For Each Mode:
 - Connections
 - Protocols
 - Attributes on a signal by signal basis
- General Info
- All Test Methods

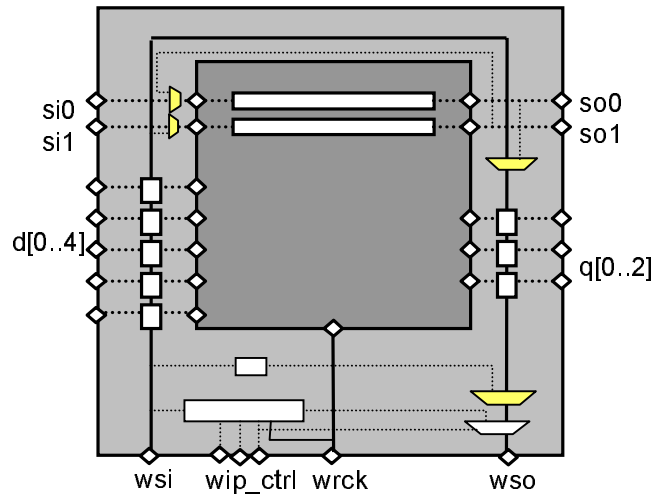
CTL Structure



Framework for the Information



Connections



IsConnected
&
IsEnabledBy

ScanStructures
&
ControlObserve Macros

Protocols

A sequence of events described by Vectors.

```
Macro {  
    Vector { ..... }  
    Vector { ..... }  
    Shift { ..... }  
    Vector { ..... }  
}
```

Some special protocols are identifiable

- Initialization of the Mode
- Control, Observe, ControlObserve
- Instruction

Attributes on Signals

- **DataType**
 - Set, Reset, ScanIn, ScanOut, Clock, Read, Write, ScanEnable, TestData, TestMode ...
- **DataRate**
 - Events, Vectors, Patterns
- **Properties**
 - LevelSensitive, ScanStable, Transitions, Pullup, PullDown, DriveAccuracy, StrobeAccuracy, ElectricalProperties.
- **Relationships between signals**
 - Differential, Unique, Port, Scan, Equivalent
- **Standardized names of Pins and Cells**

Status

- Most of the Syntax and Semantics are complete (pending changes during review).
- Test Constraints portion of the CTL is the most susceptible to changes.
- Definition of CTL compliance is yet to be ironed out.
- Introduction to CTL is yet to be written.