

Key Questions

- May ISS-compliant files include non-ISS files?
 - No
- What is to be parsed for legal ISS syntax?
 - Top-level "ISS" files only?
 - Top-level files and includes after flattening?
 - Any file?
- What parameter hierarchy is permitted?
 - Global or local (PARHIER=GLOBAL | LOCAL)?
- What subckt hierarchy is permitted?
 - Shall *only one* ISS file/structure/subckt be permitted to be called/instantiated by non-ISS netlists?
 - No; at least one subckt required, but max is unlimited

IBIS-ISS Structure Options

1. "Top-level" file must be wrapped in .subckt/.ends
 - Files are either "ISS", "ISS-compliant" or "illegal"
 - Top-level file is an "ISS" file
 - Nested subcircuits permitted
 - Includes are permitted only with ISS-compliant syntax
 - All files are combined and "flattened" before parsing
 - Parser returns warning for ISS-compliant but checking allowed
2. Same as (1), except..
 - Multiple non-nested .subckts allowed in top-level ISS file
3. Same as (2) except...
 - Parsing only allowed for top-level ISS files
4. All files either ISS or non-ISS
 - No top-level/include distinction; assuming top-level is what is parsed, multiple subckt definitions in ISS allowed
 - Any file may be parsed; warning/error if .subckt(s) not present
 - Flattening still applied to includes when parsing

PARHIER and Parameters

- 2010.03-SP1 Command Ref. for Synopsys HSPICE*
 - What does a call like this do?

```
Xexample 1 2 INV
```

.OPTION PARHIER (or) .OPTION PARHIE

Specifies scoping rules.

Syntax

```
.OPTION PARHIER= [GLOBAL | LOCAL]
```

Description

Use this option to specify scoping rules.

Examples

```
.OPTION parhier=<global | local>
.PARAM DefPwid=1u
.SUBCKT Inv a y DefPwid=2u DefNwid=1u
    Mpl <MosPinList> pMosMod L=1.2u W=DefPwid
    Mnl <MosPinList> nMosMod L=1.2u W=DefNwid
.ENDS
```

This example explicitly shows the difference between local and global scoping for using parameters in subcircuits.

* Other names and brands may be claimed as the property of others



PARHIER and Parameters

- Better example

```
* Simple test deck
.option parhier=local
.tran 10p 10n
.param DefPwid=1
.subckt myres a y DefPwid=2
Rdummy a y R='DefPwid'
.ends

Vdummy 1 0 DC=1
Xexample 1 0 myres DefPwid='Randy_param'

.print I(Vdummy)

.end
```

What is the value of the current when this is "local"?

If this is "global" what happens?

Global = -1.0 A

Local = -0.5 A