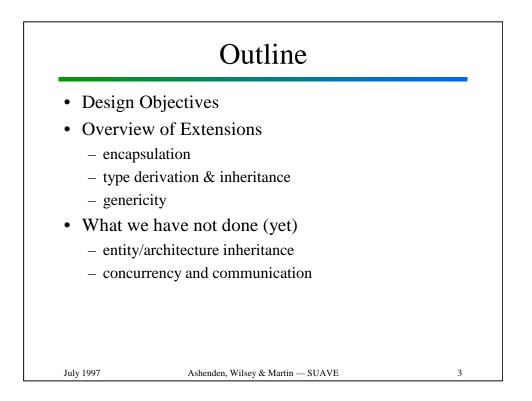
SUAVE: Extending VHDL to Improve Modeling Support

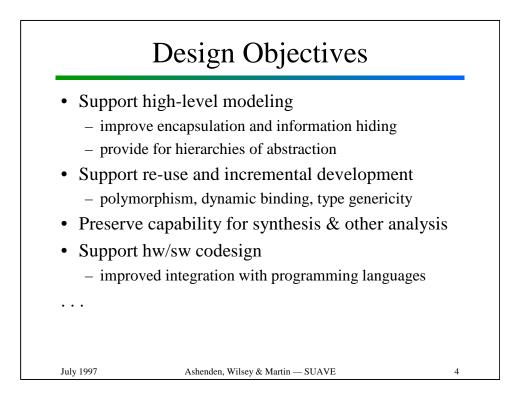
Peter J. Ashenden University of Adelaide

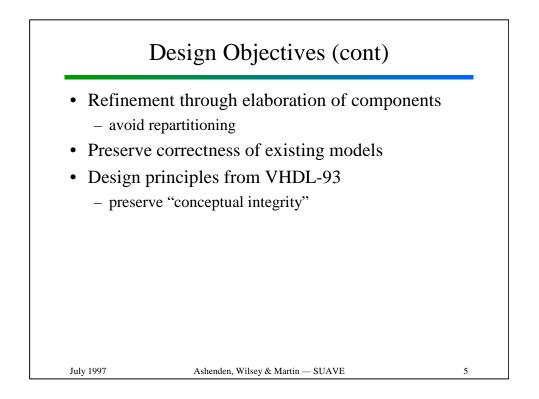
Philip A. Wilsey, Dale E. Martin University of Cincinnati

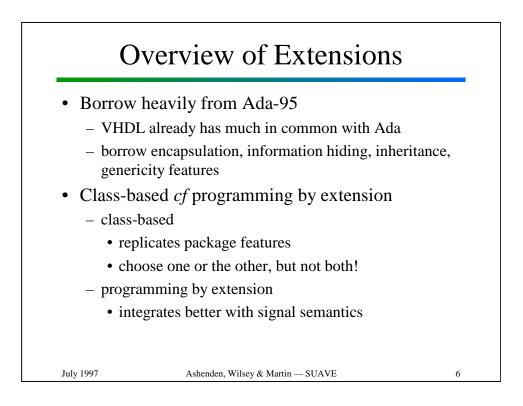
This work was partially supported by Wright Laboratory under USAF contract F33615-95-C-1638.

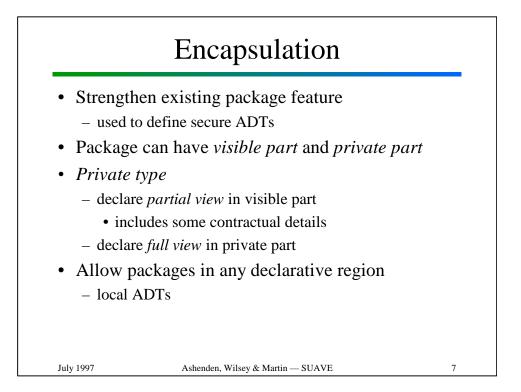
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	VHDL Extensions	
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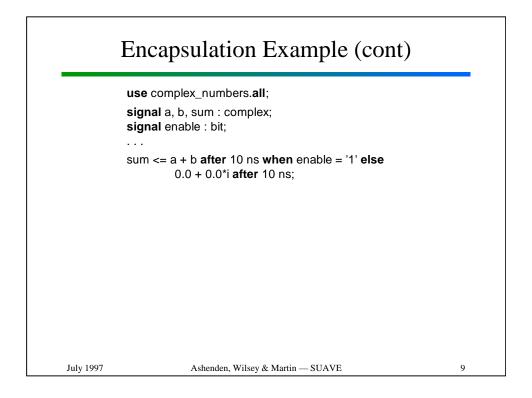


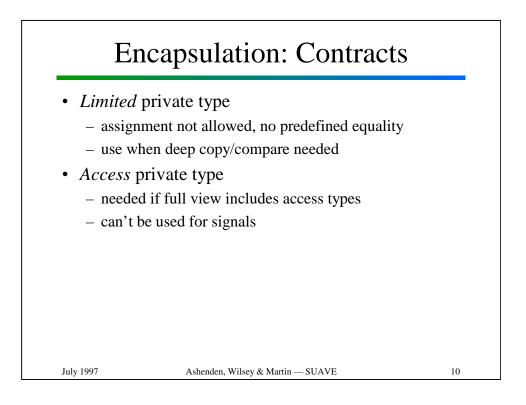


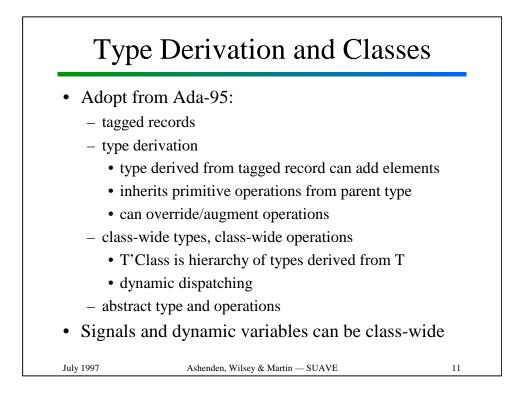


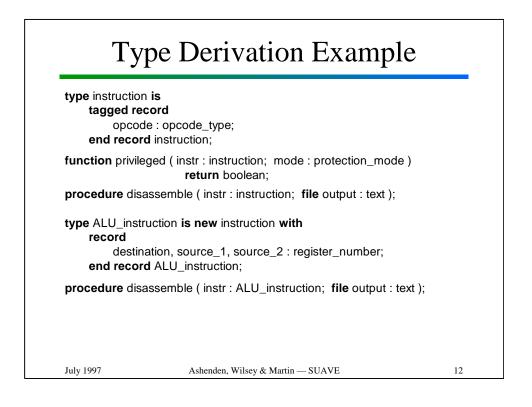


	Encapsulation Example			
	package complex_numbers is			
	type complex is private;			
	constant i : complex;			
	<pre>function re (C : complex) return real; function im (C : complex) return real; function "abs" (C : complex) return real; function arg (C : complex) return real;</pre>			
	function "+" (L, R : complex) return complex;			
	function "" (L, R : complex) return complex;			
	private			
	type complex is record re, im : real;			
	end record complex;			
	end package complex_numbers;			
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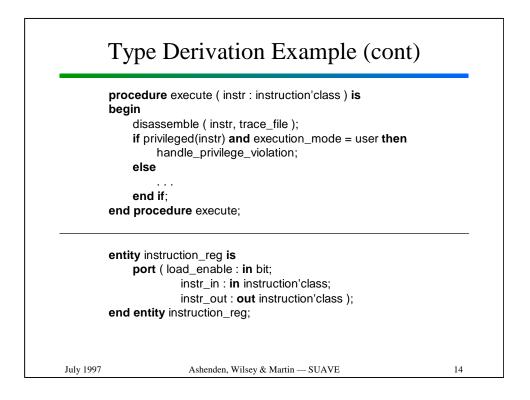


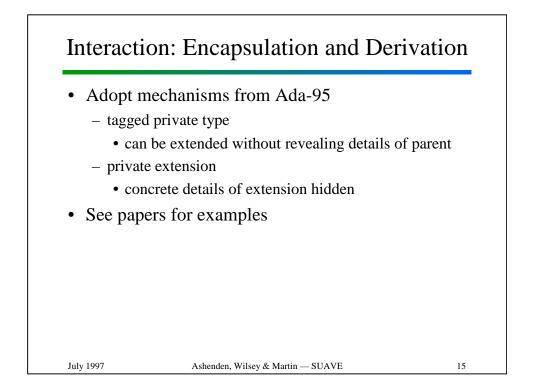


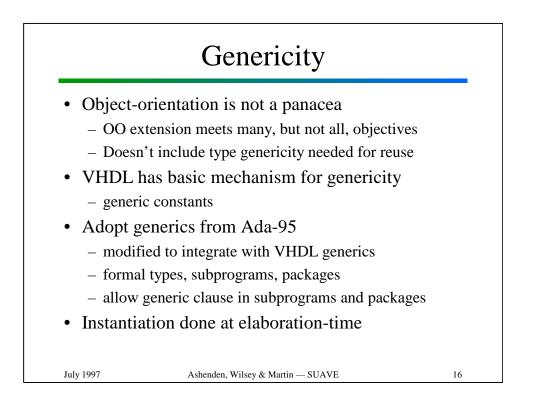


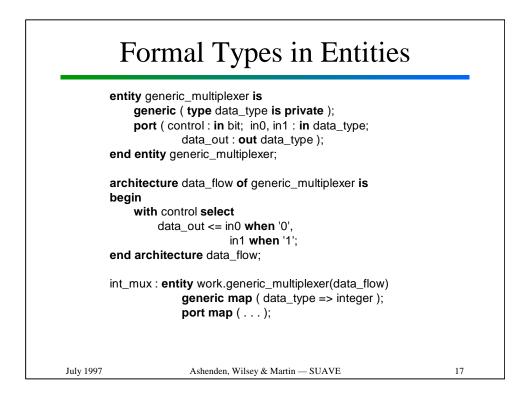


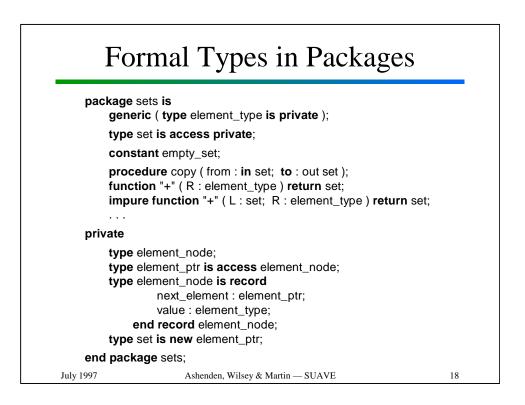
Type Derivation Example (cont)			
base : re offset : i	<pre>struction is abstract new instruction with record egister_number; nteger; memory_instruction;</pre>	1	
function effective	e_address_of(instr:memory_instruction) retur	n natural;	
procedure perfor	rm_memory_transfer (instr : memory_instruction) is abstract;	
destinati	tion is new memory_instruction with record on : reg_number; oad_instruction;		
procedure perfor	rm_memory_transfer (instr : load_instruction);		
source :	ction is new memory_instruction with record reg_number; store_instruction;		
procedure perfor	rm_memory_transfer (instr : store_instruction);		
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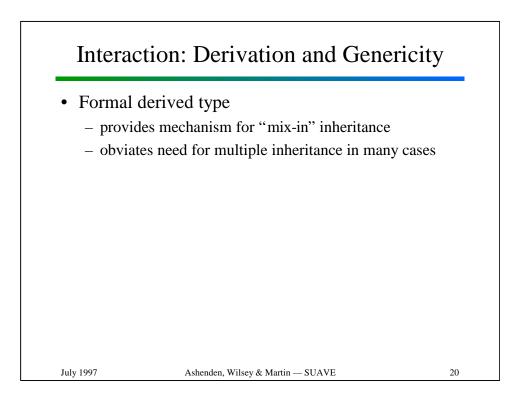








Formal Types in Packages (cont)			
package to new s	ets eneric map (element_type => test_vector);		
variable te	ests_to_perform : test_sets.set := empty_set;		
test_to_pe	rform := test_to_perform + new_test;		
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Deriv	Derivation and Genericity Example				
	<pre>package indexed_addressing_mixin is generic (type parent_instruction is abstract new instruction with private);</pre>				
in	<pre>type indexed_instruction is new instruction with record index_base, index_offset : register_number; end record indexed_instruction;</pre>				
function e	ffective_address (instr : indexed_instruction) re	turn address;			
end package in	end package indexed_addressing_mixin;				
destin	uction is abstract new instruction with record ation : register_number; d load_instruction;				
new index	<pre>package indexed_loads is new indexed_addressing_mixin generic map (parent_instruction => load_instruction);</pre>				
alias indexed_l	alias indexed_load_instruction is indexed_loads.indexed_instruction;				
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