

# CS738: Advanced Compiler Optimizations

## SSAPRE: Example

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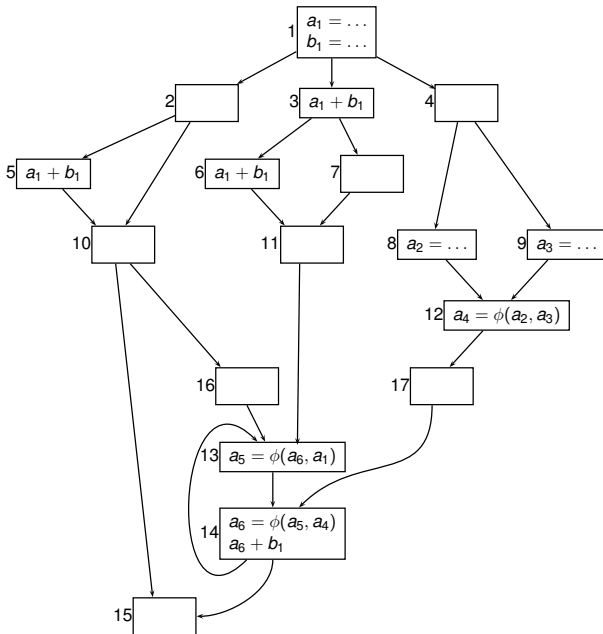
karkare@cse.iitk.ac.in

<http://www.cse.iitk.ac.in/~karkare/cs738>

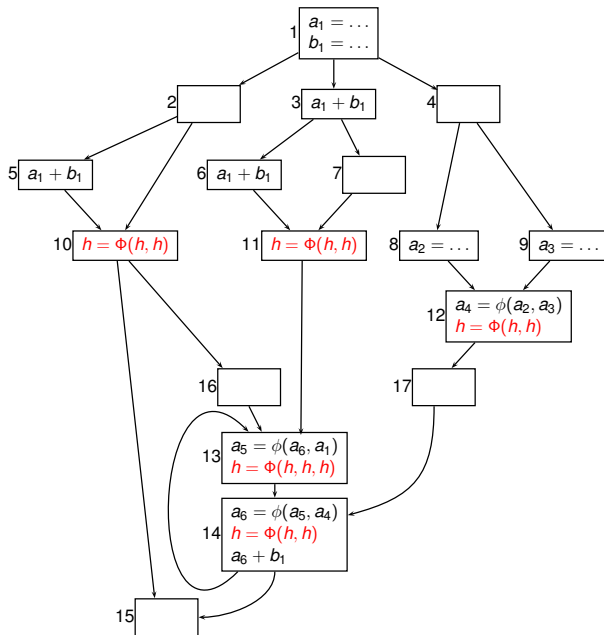
Department of CSE, IIT Kanpur



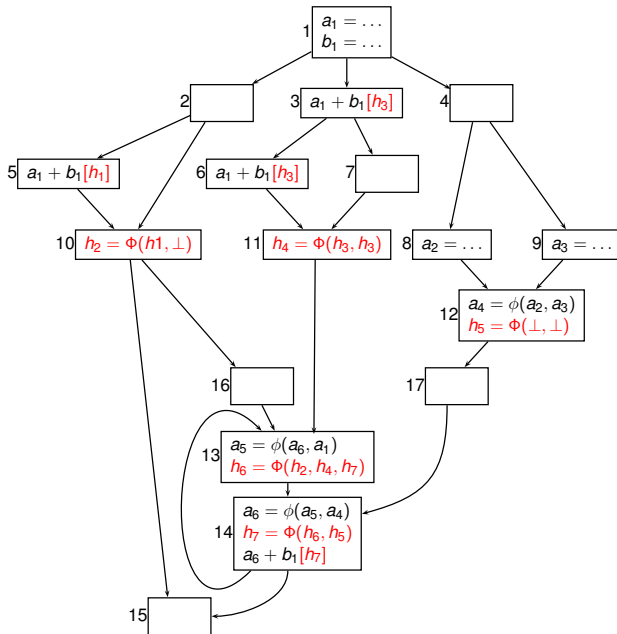
Example



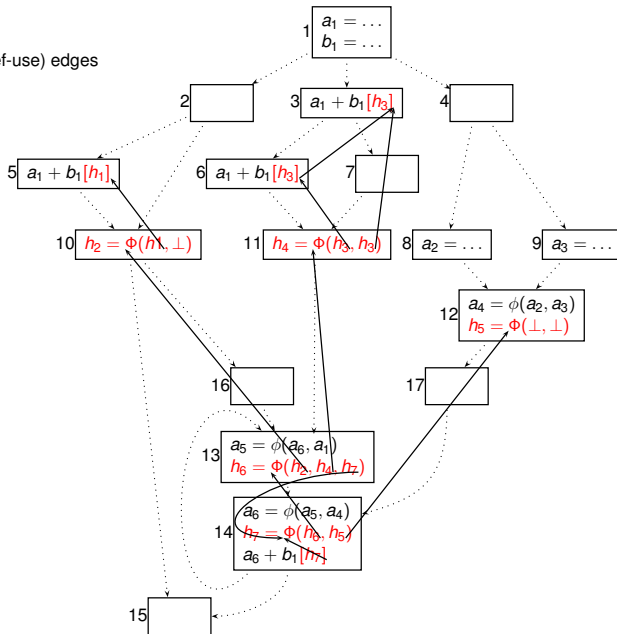
$\Phi$  insertion



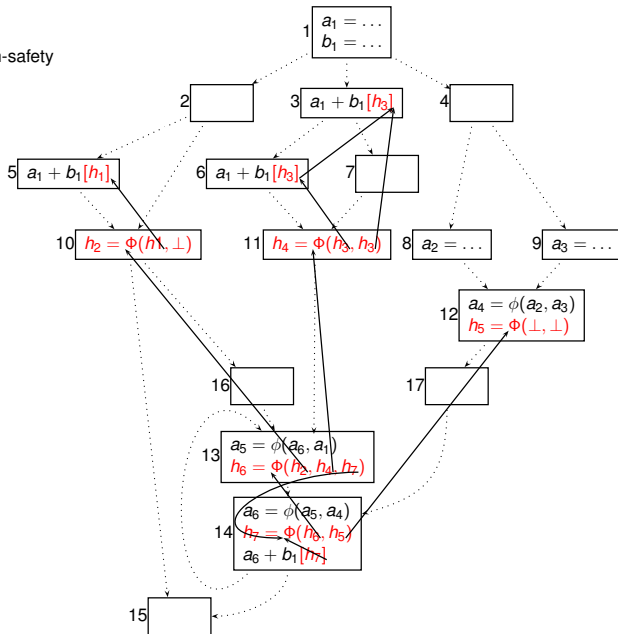
Rename



FRG (def-use) edges

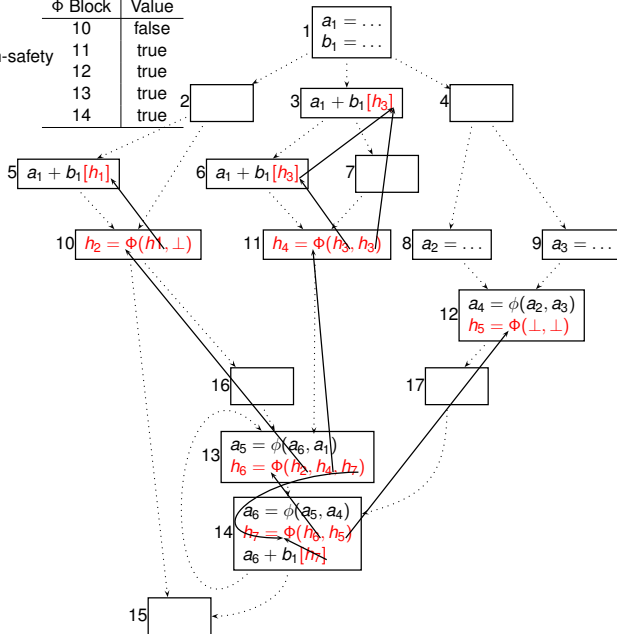


Down-safety

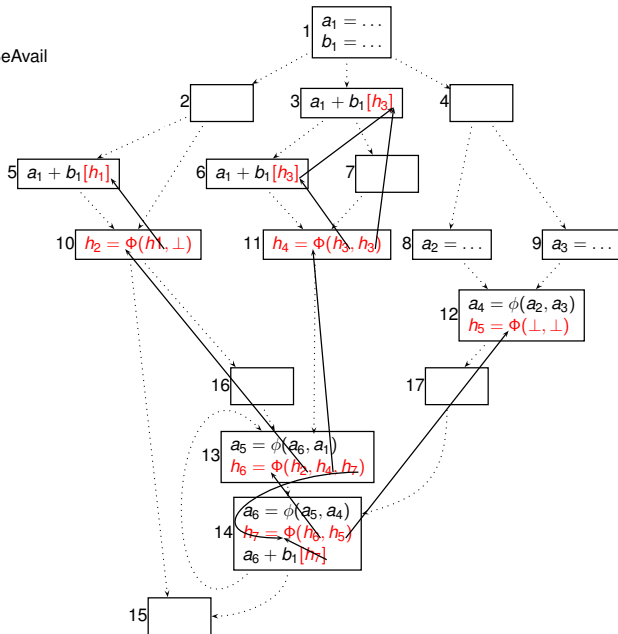


$\Phi$ Block	Value
10	false
11	true
12	true
13	true
14	true

Down-safety



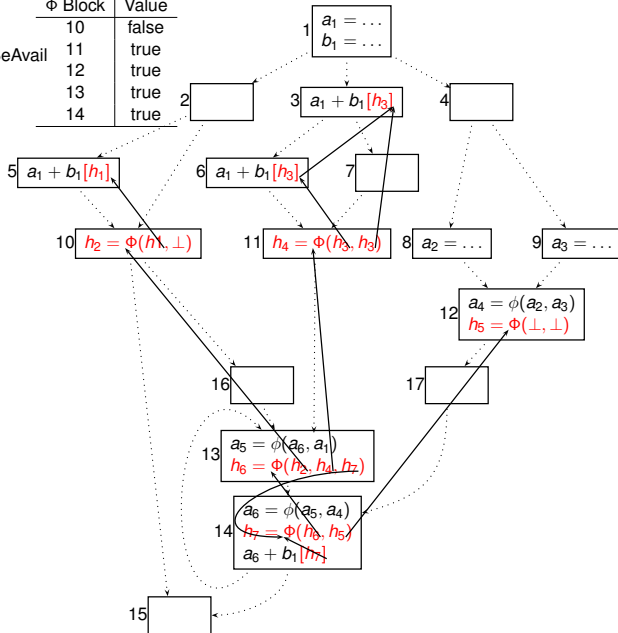
CanBeAvail



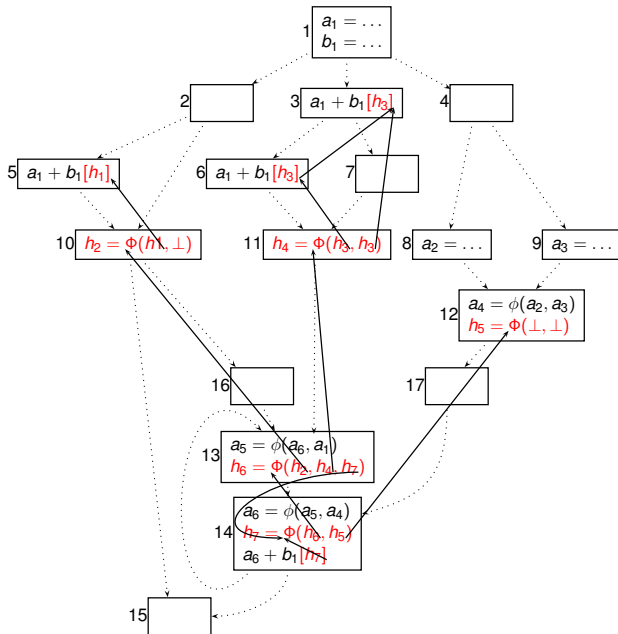


CanBeAvail

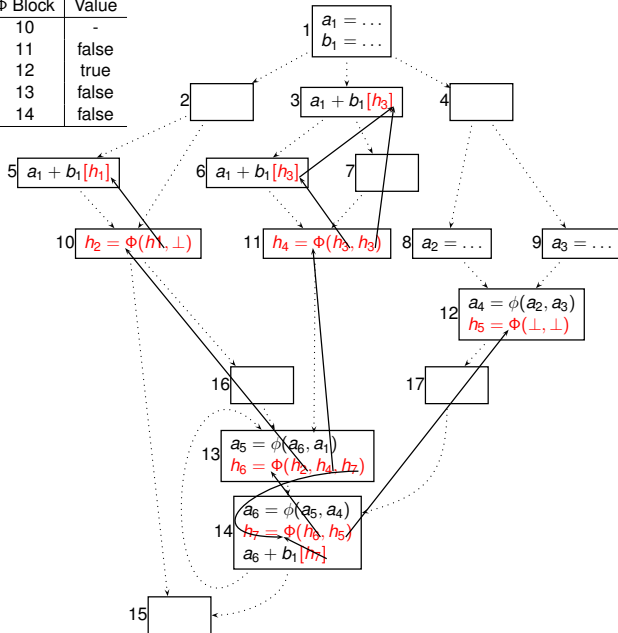
$\Phi$ Block	Value
10	false
11	true
12	true
13	true
14	true



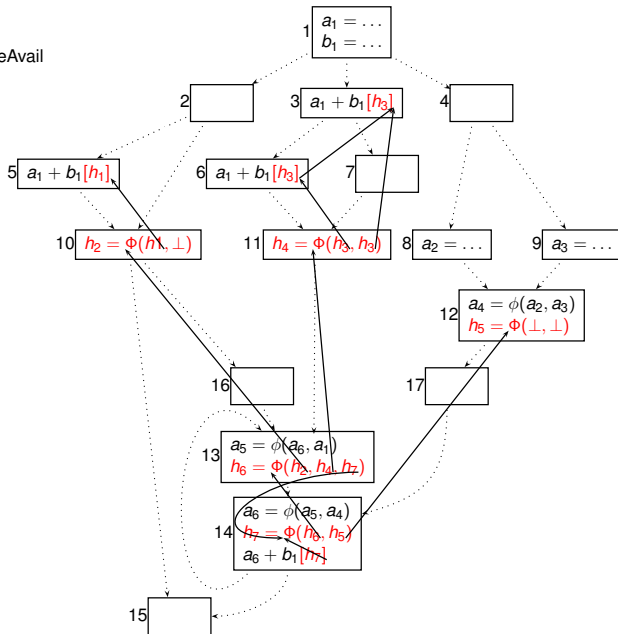
Later



	$\Phi$ Block	Value
	10	-
Later	11	false
	12	true
	13	false
	14	false

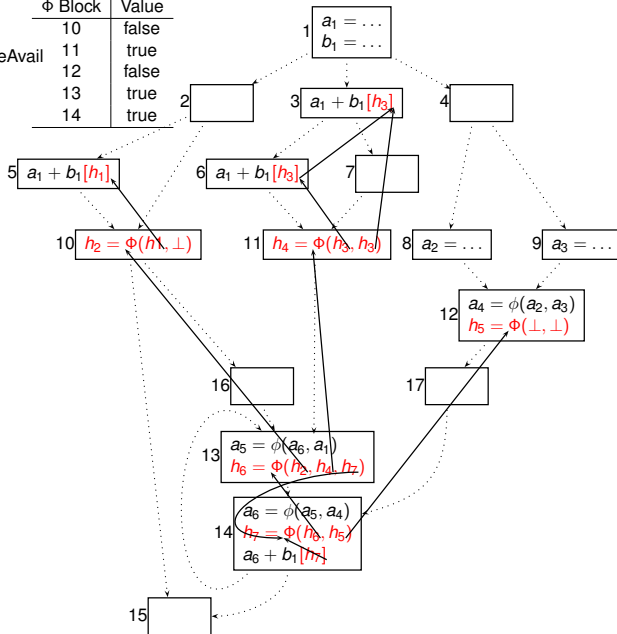


WillBeAvail

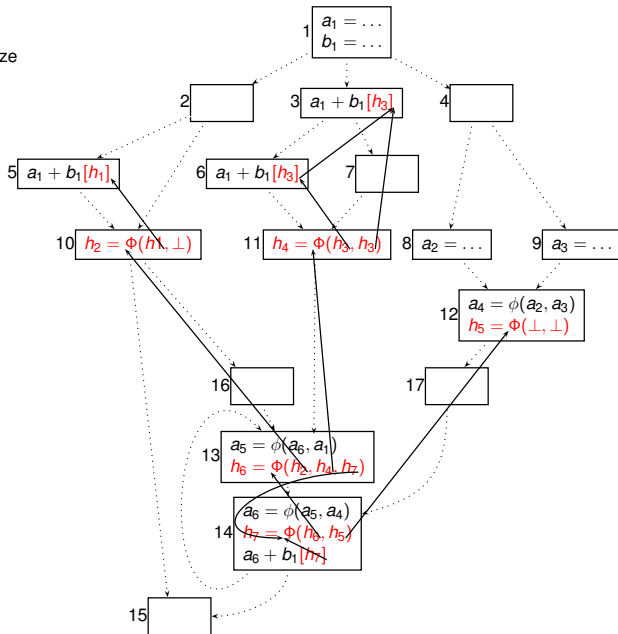


$\Phi$ Block	Value
10	false
11	true
12	false
13	true
14	true

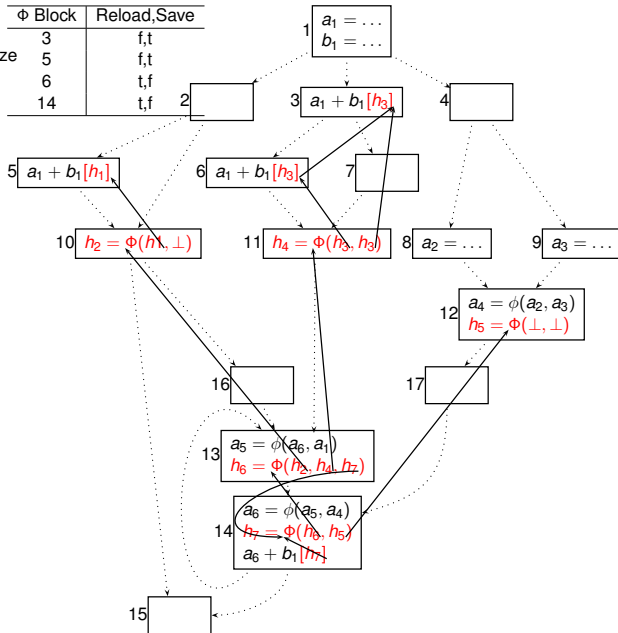
WillBeAvail



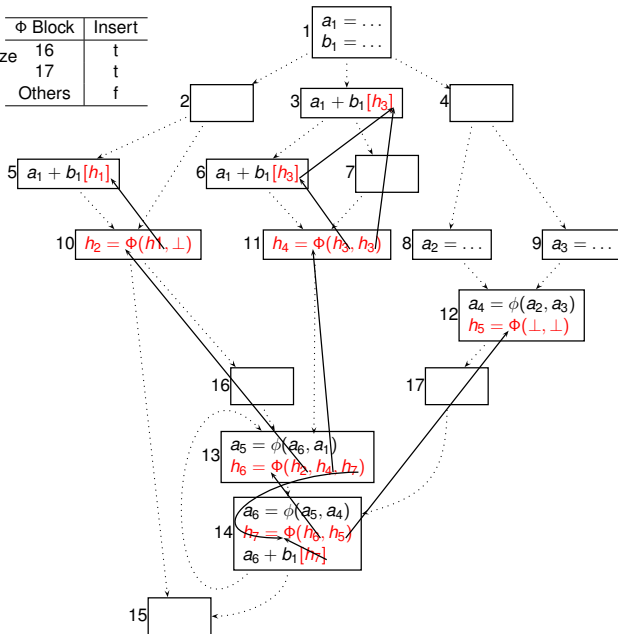
Finalize



	$\Phi$ Block	Reload, Save
Finalize	3	f,t
	5	f,t
	6	t,f
	14	t,f



	$\Phi$ Block	Insert
Finalize	16	t
	17	t
	Others	f





## Code Motion

