
CS 201, Winter- Assignment 4

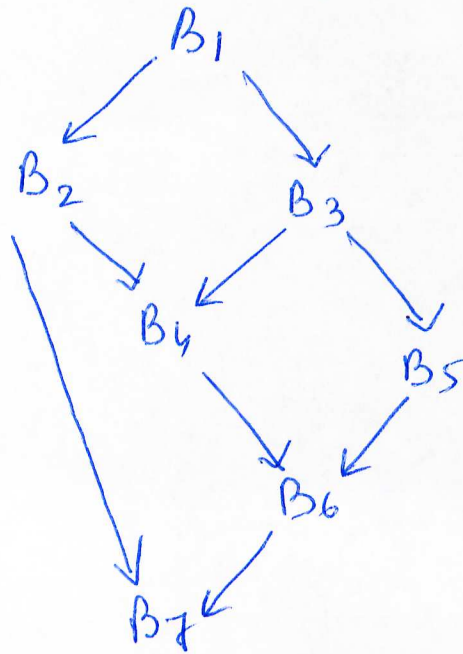
KAMALIKA PODDAR



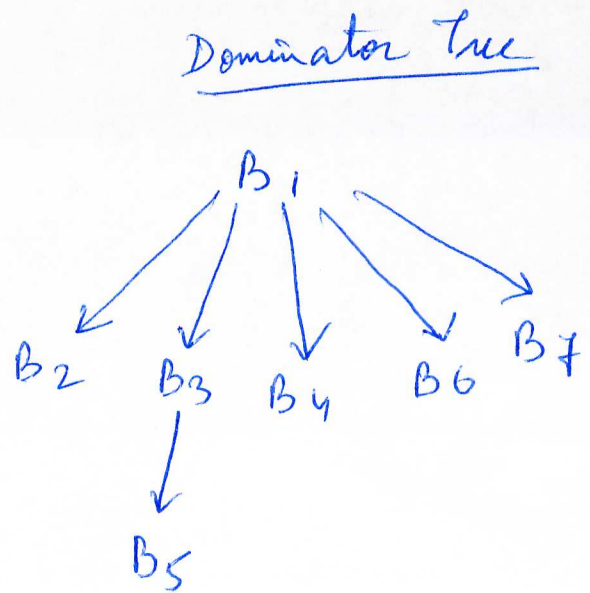
UNIVERSITY OF CALIFORNIA, RIVERSIDE

Wednesday 28th February, 2018

Problem: Compute the Dominance Frontier (DF) set for each block in the following CFG (2 points)



<u>Blocks</u>	<u>Dominator</u>	<u>IDom</u>
B ₁	B ₁	—
B ₂	B ₁ , B ₂	B ₁
B ₃	B ₁ , B ₃	B ₁
B ₄	B ₁ , B ₄	B ₁
B ₅	B ₅ , B ₃ , B ₁	B ₃
B ₆	B ₆ , B ₁	B ₁
B ₇	B ₇ , B ₁	B ₁



There are three joining nodes — B₄, B₆ & B₇

For B_4

Predecessor of B_4 are - B_2, B_3

Dominance frontier - DF

$$DF(B_2) = B_4$$

$$DF(B_3) = B_4$$

For B_6

Predecessor of B_6 are - B_4, B_5

$$DF(B_4) = B_6$$

$$DF(B_5) = B_6$$

$$DF(B_3) = B_6$$

For B_7

Predecessor of B_7 are - B_2, B_6

$$DF(B_2) = B_7$$

$$DF(B_6) = B_7$$

Therefore Dominance Frontiers of all the blocks are:-

$$DF(B_1) = \phi$$

$$DF(B_5) = B_6$$

$$DF(B_2) = B_4, B_7$$

$$DF(B_6) = B_7$$

$$DF(B_3) = B_4, B_6$$

$$DF(B_7) = \phi$$

$$DF(B_4) = B_6$$

DF