Handout # 7
(Lack of) Register Allocation

Code generated for i+1 < j

lw    $a0  20($fp)       ; load i into $a0
sw    $a0  0($fp))      ; spill it
la    $a0  int_lit8     ; load 1 into $a0
jal   Any.clone         ; copy it
lw    $t1  0($fp)       ; unspill i
lw    $t1  12($t1)      ; get its true value
lw    $t2  12($a0)      ; get 1 into $t1
add   $t1  $t1  $t2      ; compute i+1
sw    $t1  12($a0)      ; store it in object
sw    $a0  0($fp)       ; spill result
lw    $a0  16($fp)      ; get j into $a0
lw    $t1  0($fp)       ; unspill i+1 object
lw    $t1  12($t1)      ; get i+1 into $t1
lw    $t2  12($a0)      ; get true value of j
la    $a0  boolean_lit1 ; maybe result true?
blt   $t1  $t2  L21       ; compare them
la    $a0  boolean_lit0 ; no, it’s false
L21:

Questions:
• Why is i stored as soon as it is loaded?
• Why is the object for i+1 spilled?
• Why are we loading at offset 12 from int_lit8 when we know the answer is 1?