1 Computing Local Information

- Similar to that of available expressions.
- Iterate from bottom of block to top.
- Copy(i) is a set of quadruples \( \langle u, v, i, \text{pos} \rangle \) such that \( u \leftarrow v \) is a copy in block \( i \) at position \( \text{pos} \) and neither \( u \) nor \( v \) is assigned to later in the block (i.e., the copy reaches the exit).
- Kill(i) is a set of quadruples killed by the block.

2 Propagating Information

- An copy is available only if it is available from each predecessor.
- Similar to that of available expressions.

\[
CP\text{in}(n_0) = \emptyset
\]

\[
CP\text{in}(n) = \bigcap_{m \in \text{pred}(n)} (\text{Copy}(m) \cup (CP\text{in}(m) \setminus \text{Kill}(m)))
\]

3 Propagating copies

- At each use, if a copy is available, use the copied variable.
c ← a + b
f ← c
c ← a − f
p ← f * 3
u ← e + f
d ← x + y
u ← e + f
x ← e + f
f ← a + 20
u ← f − x
x ← e + f
e ← b + 18
x ← y + 3
z ← f + h