

Ref set

use

Var set

use

$x = \text{new}$

$x = y$

$x = y.f$

$x.f = y$

$p(y)$

$(\forall o \in p(y) \quad v[\sigma(o, f)]) \cup p(y)$ (ii)

$p(y)$

y

y

y

def

def

$x = \text{new}$

$x = y$

$x = y.f$

$x.f = y$

$p(x)$

$p(x)$

$p(x)$

$\forall o \in p(x) \quad v[\sigma(o, f)] \rightarrow \text{Not complete}$

iff $|p(x)| == 1$

x

x

x

$$\text{Live}_v' = (\text{Live}_v' - \text{def}_v) \cup \text{use}_v$$

$$\text{Live}_v' = (\text{Live}_0' - \text{def}_0) \cup \text{use}_0$$

$$(i) \text{Live}_v' = (\text{Live}_0' - \text{def}_0) \cup \text{use}_0$$



Q1. How to deal with for loops with an allocation site
if else statements

When starting with Ref set = \emptyset and add a reference using
Liveness

Q2. For solved example, mapping done to match references were
one on one; how to deal with matching of sets

caller foo(list) $p(\text{list}) = \{01, 02\}$

caller foo(11)

Base stack $p(11) = S$



Context sensitive
is fixed

If we incorporate context-sensitive, mapping is no longer needed

Context-sensitive or Context-insensitive.

Q3 Try an example with incorporated allocs, if statements & loops

Tried context insensitive for func with alloc in them

Not sure how to deal with mapping, thus idea Scrapped

Problems:

- (i) Check det for Ret set on examples
- (ii) Incorporate if & for loops

$x \rightarrow \{02, 03\}$ $(02, t) \rightarrow \{06\}$ $(03, t) \rightarrow \{08, 09\}$
 $x.t = \text{new } ()$ // 04
 $x \rightarrow \{02, 03\}$ $(02, t) \rightarrow \{06, 04\}$ $(03, t) \rightarrow \{08, 09, 04\}$

$(x \rightarrow \{02, 03\} \quad (02, t) \rightarrow \{06\} \quad (03, t) \rightarrow \{08, 09\})$

$t = \text{new } ()$ // 04 $(t \rightarrow \{04\} \quad ")$

$x.t = t$ $(x \rightarrow \{02, 03\} \quad (02, t) \rightarrow \{06, 04\} \quad (03, t) \rightarrow \{08, 09, 04\})$

We create one-one mapping for parameters

$t = \text{new } ()$

$ll.h2 = t$

