## Low-Level Liquid Types

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## Refinement type inference for low-level languages

 $str: \{v \mid v = s\}$ 

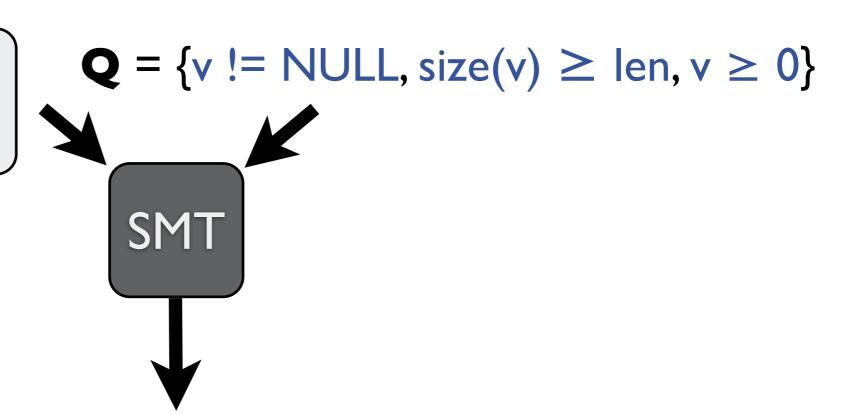
len:  $\{v \mid v = comma - s\}$ 

Just f

## All Fields

str: {v | p}

len: {v | *q*}



$$p = v != NULL \land size(v) \ge len$$
  
 $q = v \ge 0$ 

Isolate, strongly update, infer liquid refinement