A cut of an LLVM function that serves as the specification in Minotaur's synthesis procedure

```
define <4 x i1> @src(<4 x i32> %x, <4 x i32> %y) {
entry:
  %0 = icmp eq <4 x i32> %x, %y
  %1 = icmp ne <4 x i32> %x, %y
  %2 = shufflevector <4 x i1> %0, <4 x i1> %1, <4 x i32> <i32 0, i32 5, i32 2, i32 7>
  ret <4 x i1> %2
}
```


generate candidate

generate candidate

many more candidates

no literal constants
run translation validation

return value mismatch
candidate is discarded

has literal constant
emit exist-forall query

∃ %literal, ∀ %x, %y. src => tgt

find model

%literal = <i1 0, i1 1, i1 0, i1 1>

rewrite

Synthesized LLVM function that refines the original cut

```
define <4 x i1> @tgt(<4 x i32> %x, <4 x i32> %y) {
entry:
  %0 = icmp eq <4 x i32> %x, %y
  %1 = xor <4 x i1> %1, <i1 0, i1 1, i1 0, i1 1>
  ret <4 x i1> %1
}
```