THE UNIVERSITY *of* EDINBURGH

Defining and Verifying MLIR Operations with Constraints

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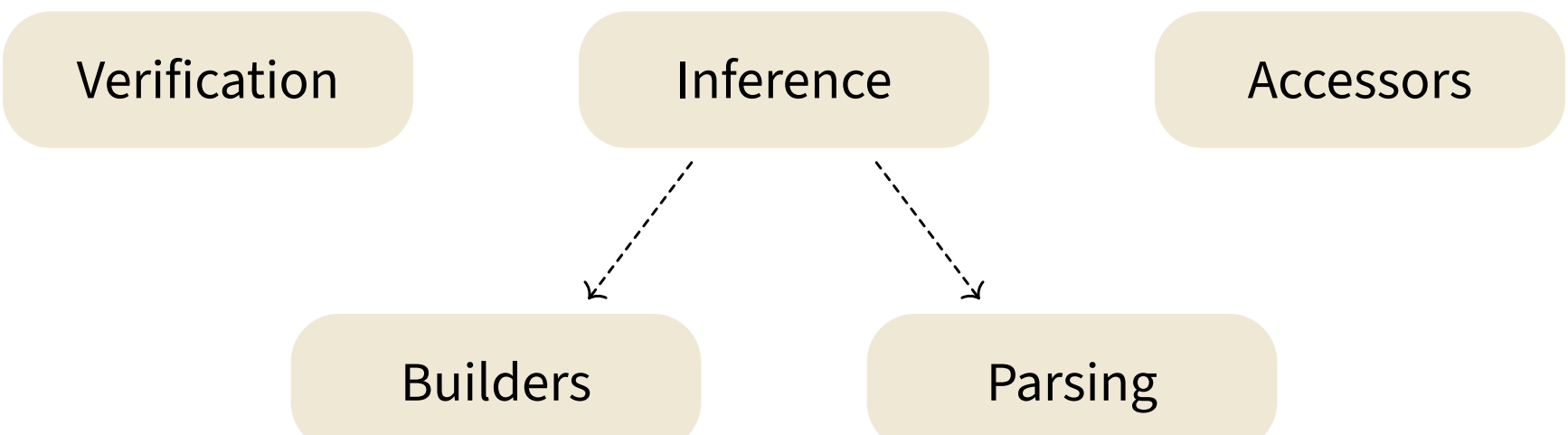
What do operation definitions do?



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Constraints for `arith.addi`

```
class AddIOp:
    _T: ClassVar = VarConstraint("T", signlessIntegerLike)
    lhs    = operand_def(_T)
    rhs    = operand_def(_T)
    result = result_def(_T)

    assembly_format = "$lhs `,` $rhs attr-dict `:` type($result)"
```

Towards more complex constraints

```
class InsertOp:
    name = "vector.insert"

    _T: ClassVar = VarConstraint("T", AnyAttr())
    _V: ClassVar = VarConstraint("V", VectorType.constr(_T))

    source = operand_def(VectorType.constr(_T) | _T)
    dest   = operand_def(_V)
    result = result_def(_V)
    ...
```