Defined by a tuple \((N, E, S, R)\), where
- \(N\) is a set of nonterminal symbols
- \(E\) is a set of terminal symbols
- \(S\) is the starting symbol
- \(R\) is a set of production rules:
  - \(S \to aSb\)
  - \(S \to \varepsilon\)

**Changes**
- order of rules execution
- rules become queries (any symbol subset)
- operator execution (each, all)
- symbol becomes a component (persistent)
- any operator

**Geometry Graph (CSG)**

**Operators**
- Split and slice
- Connection
- Extrusion
- Boolean

**Solution**
**Component**
- boundary and bounding box
- labels
- user attributes (inheriting)
- child components
- regions
- connector

**Program**
```plaintext
// Main component.
component(label="floor", size=[10, 2.5, 10])

// Creation of the apartments.
for c in query("floor") do
  split(c, "Z", [label="living space", rel=1],
       [label="corridor", abs=2],
       [label="living space", rel=1])
end

for c in query("living space") do
  split(c, "X", [label="apartment", rel=1],
       [label="apartment", rel=1])
end

// Creation of the elevator shaft (A).
component(
  label=['elevator', 'room'],
  size=[2, 2.5, 2],
  position=[4, 0, 2])

// Creation of rooms cut by the elevator shaft (B).
for c in query("apartment" or "corridor") do
  subtract(c, query("elevator"), [label="room"])
end

// Extrusion of room walls, with a color attribute (C).
var i = 0
for c in query("room") do
  i = i + 1
  for f in fquery(c, "SIDE" or "BOTTOM") do
    component(c, label="wall", boundary=f)
  end
  extrude(query(c, "wall"), -0.05, [label="iwall", color=i])
end

// Creation of doors by using regions (D).
for c in query("wall") and not parent("corridor") and occlusions("corridor") > 0 do
  region(c, label="door")
end
for r in query("door") do
  connect(componentFromFile("door01"), r)
end

// Creation of the actual geometry.
for c in query("iwall") do
  solidGeometry(c, c.color)
end
```

**Conclusion**
- Programming environment
- Flexible and powerful
- Complex task

**Future Work**
- Higher level interface
- Optimization of space partitioning