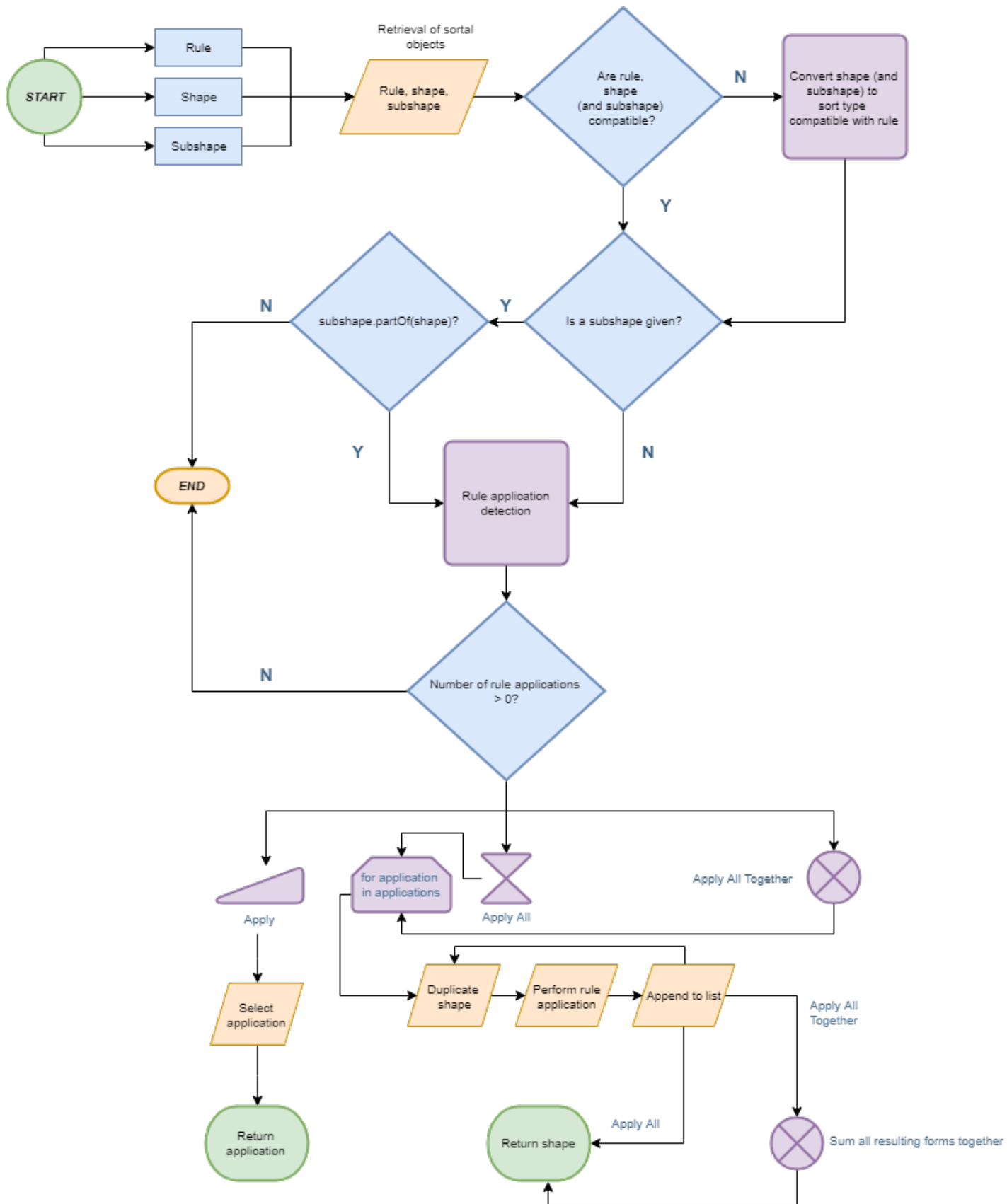


Rule Application: Flowchart and Pseudocode



The following flowchart elaborates on the general steps necessary to obtain rule applications. It further subdivides the process into the steps for:

- a. Apply: Apply a single rule application onto a shape
- b. Apply All: Generating all rule applications of a rule on a shape
- c. Apply All Together: Applying all rule applications on a shape

On the other hand, obtaining the match (sortal data structure) corresponding to each rule application as found in the shape happens after rule application detection. Each match is obtained from going through each rule application object in the list returned by detecting applications. The pseudocode for this is:

```
ruleAppns = ruleObject.detect(shape)
matchList = []
for appn in ruleAppns:
    matchList.append(appn.matchForm)
```

Alternatively, to obtain the result forms (sortal data structures):

```
for appn in ruleAppns:
    matchList.append(appn.resultForm)
```

An important step is obtaining the result after performing a rule application on a shape. The pseudocode is illustrated here:

```
ruleAppns = ruleObject.detect(shape)
resultList = []
for appn in ruleAppns:
    resultList.append(appn.perform(shape.duplicate()))
```

Depending on the prevailing operation (Either Apply All or Apply All Together), the succeeding code after this bit may be as follows:

- a. Apply All: directly return the list of rule applications results

```
return resultList
```

- b. Apply All Together: sum the list of rule application results first, then return the sum

```
sumShape = resultList[0].duplicate()
for item in resultList[1:]
    sumShape.sum(item)
return sumShape
```