

Evolution Resilient Class Contours

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<https://mattiagiannaccari.github.io/>



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Svizzera
italiana

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Institute

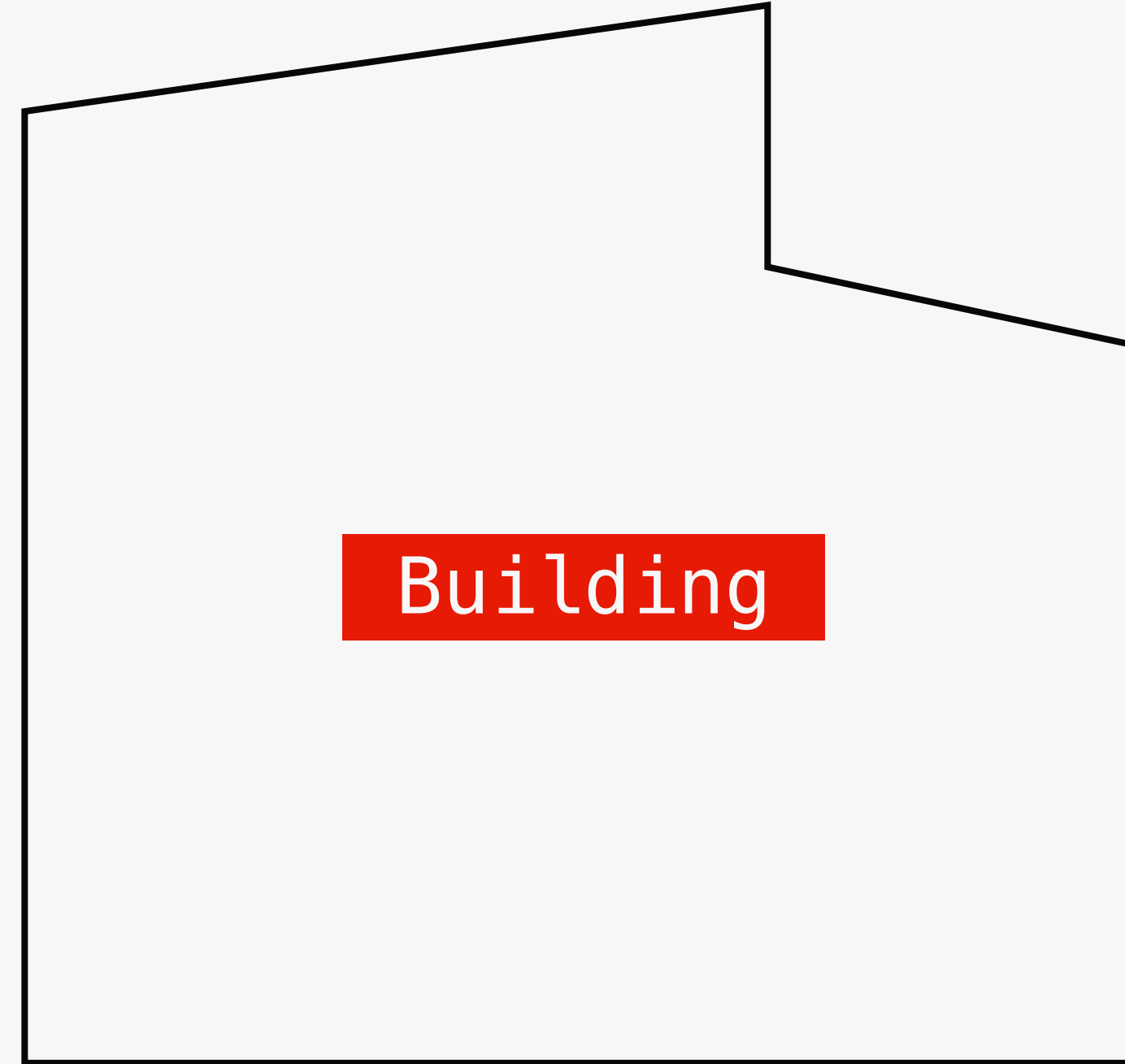
Class Contours



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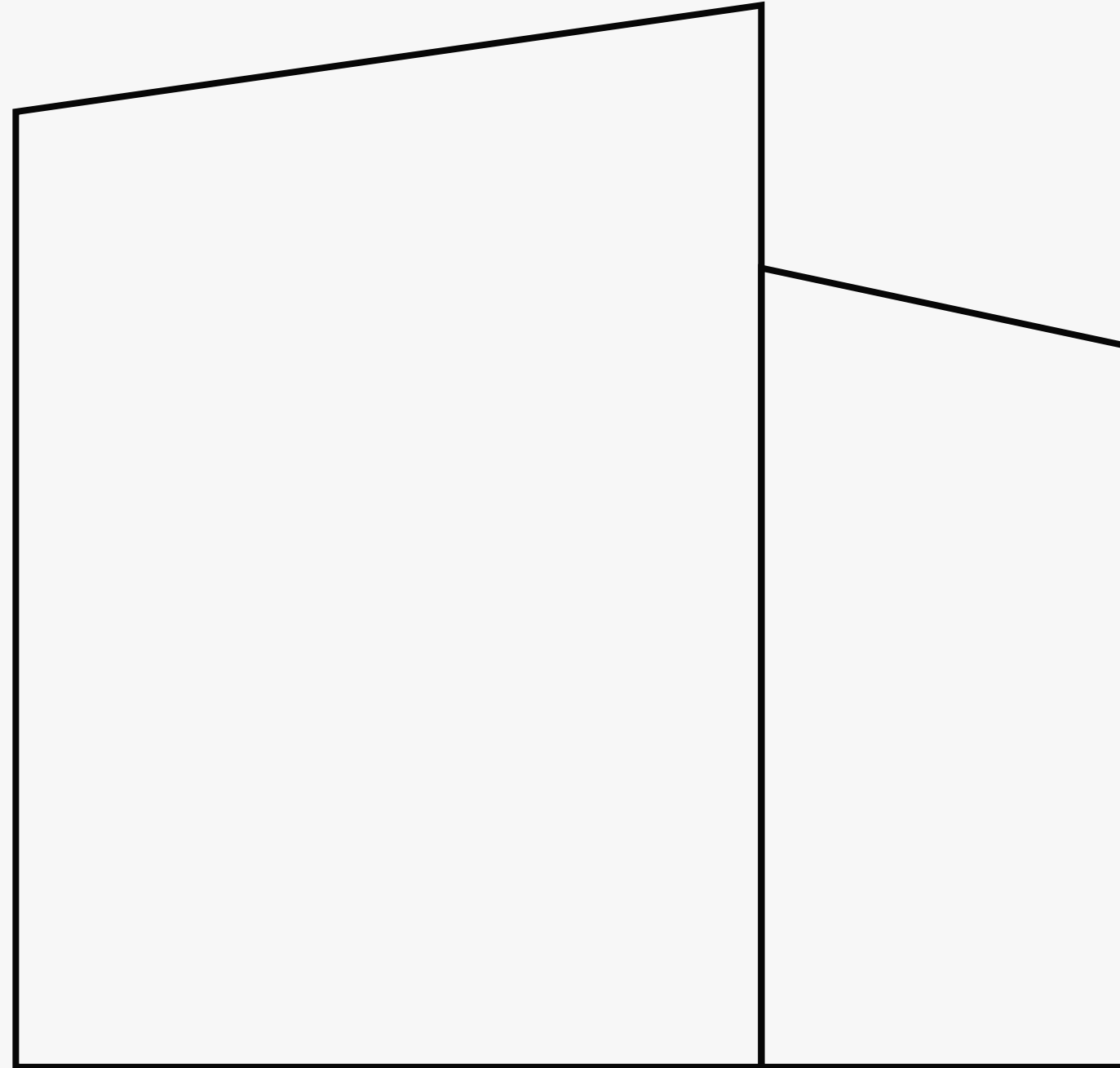
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Class Contour



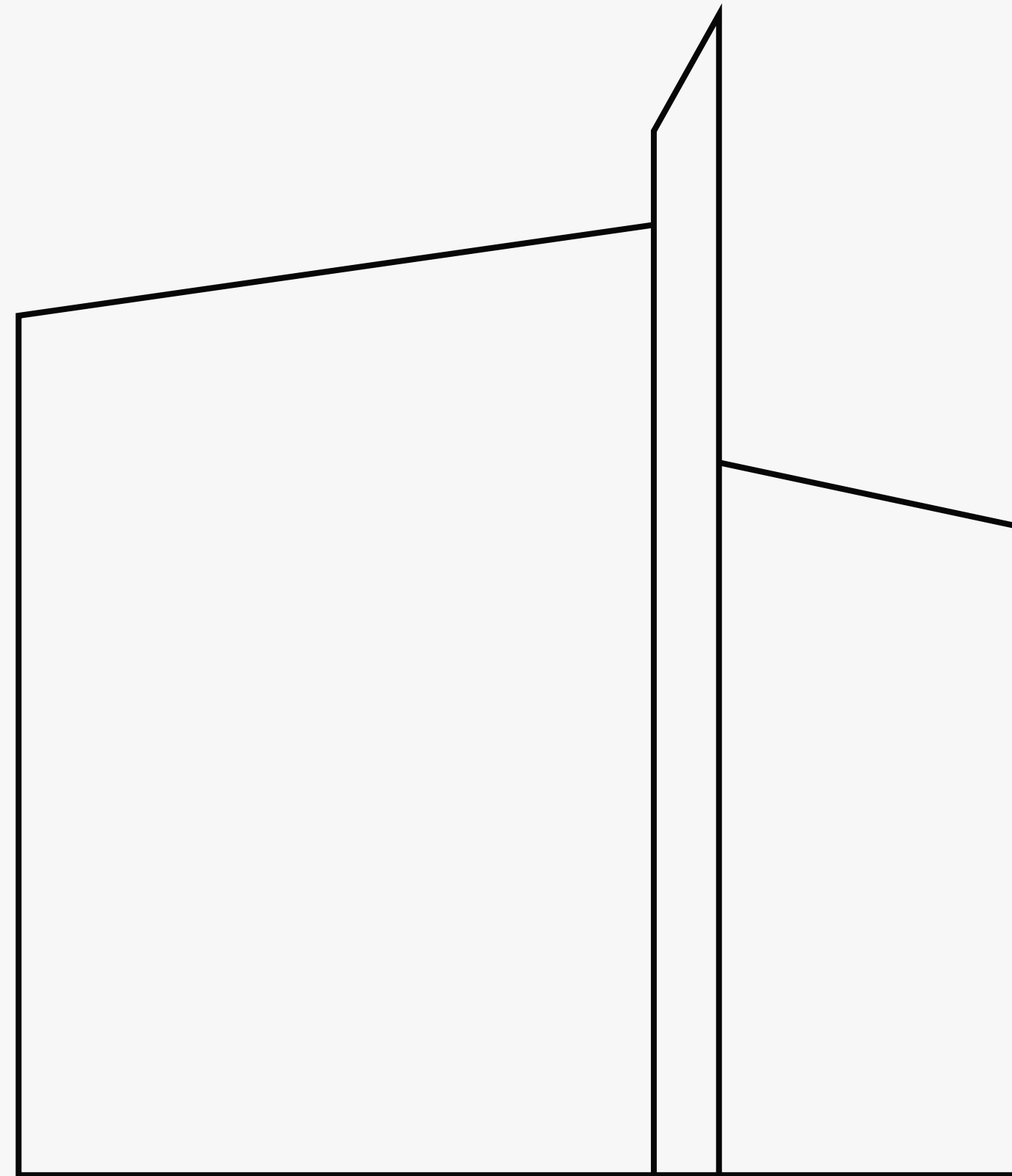
Class Contour

Instance side | Class side



Class Contour

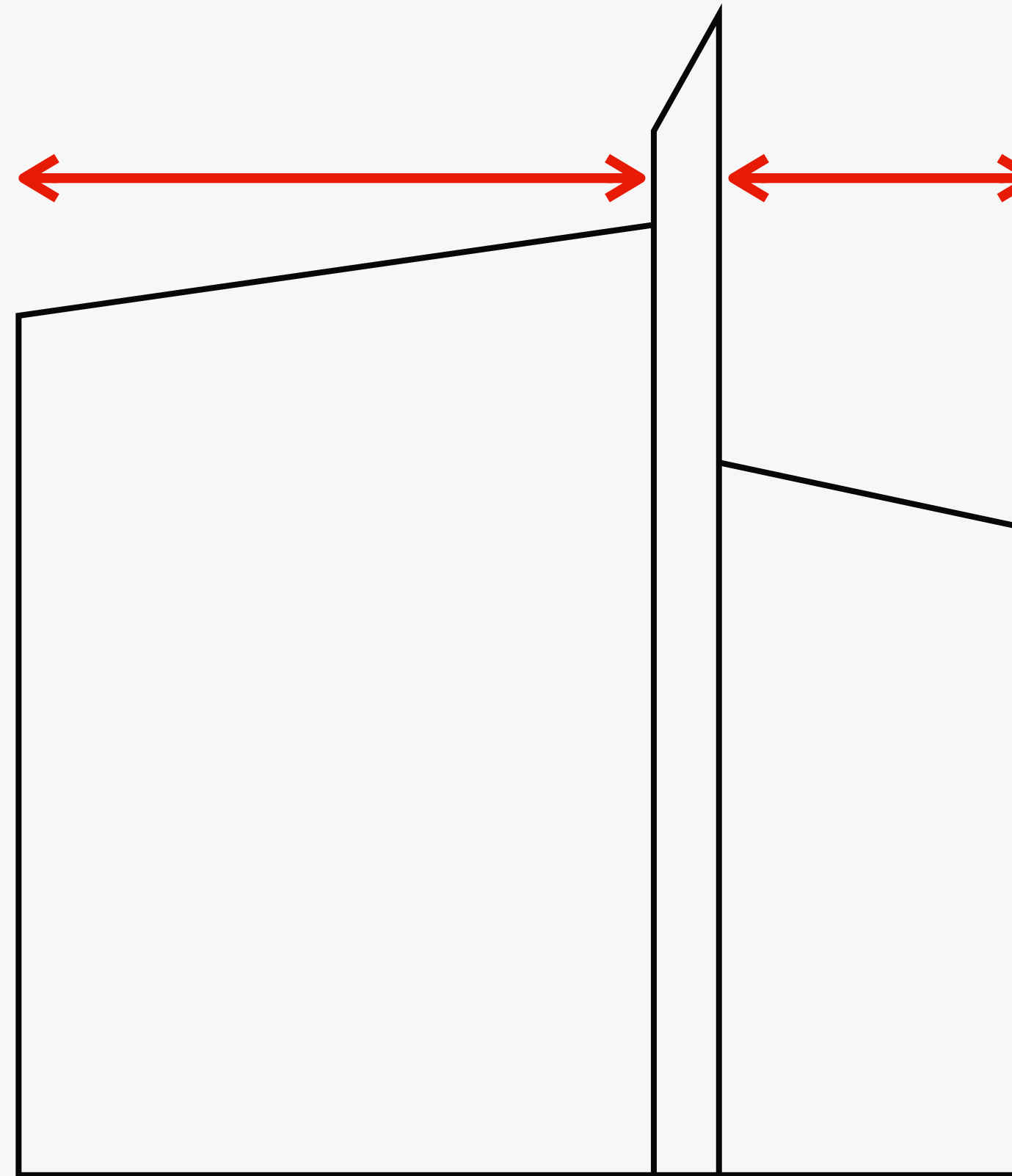
Instance side Chimney Class side



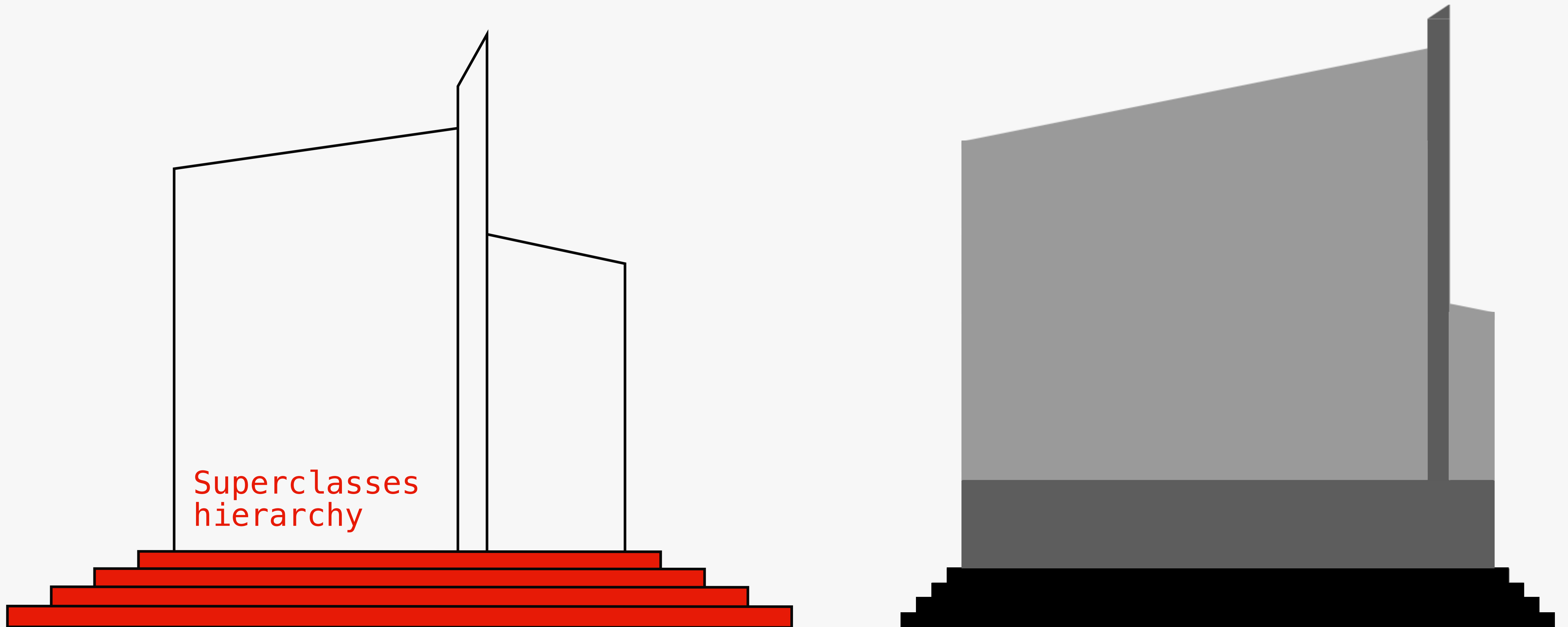
Class Contour

Instance side Chimney Class side

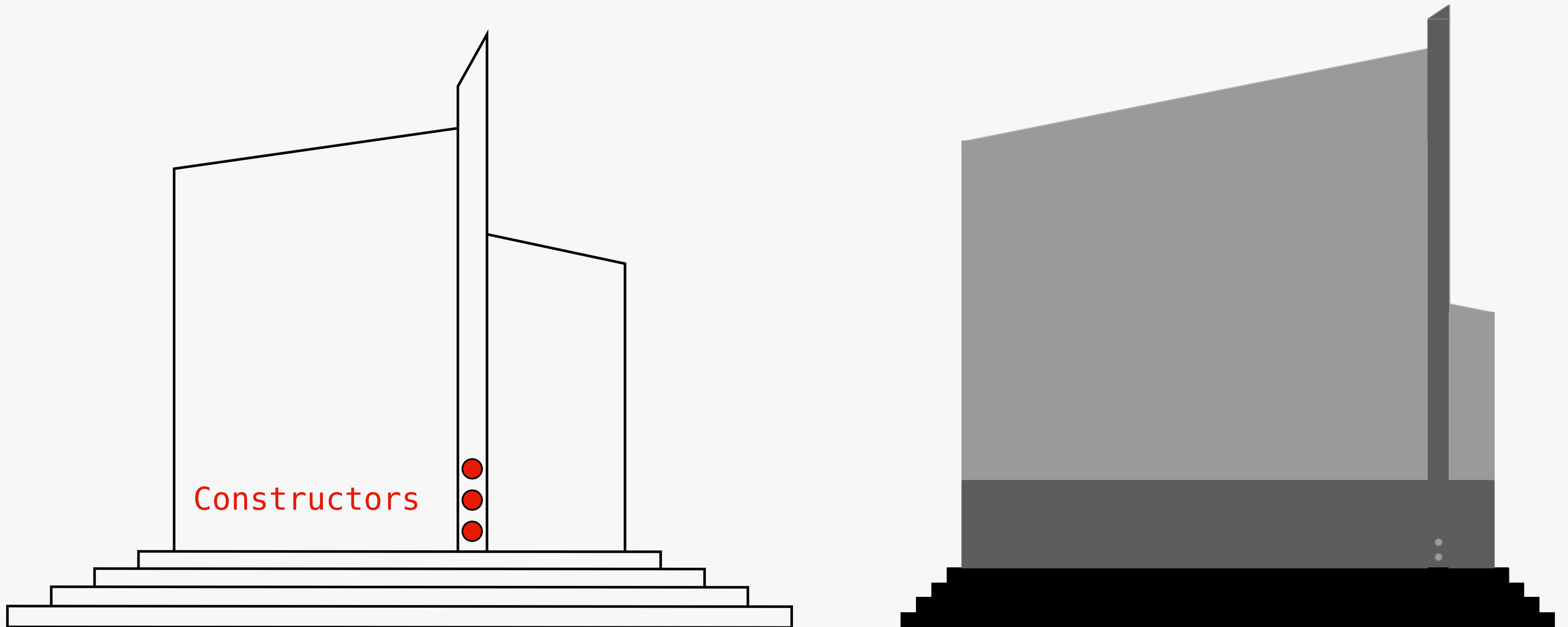
#LOC of the instance side ← → #LOC of the class side



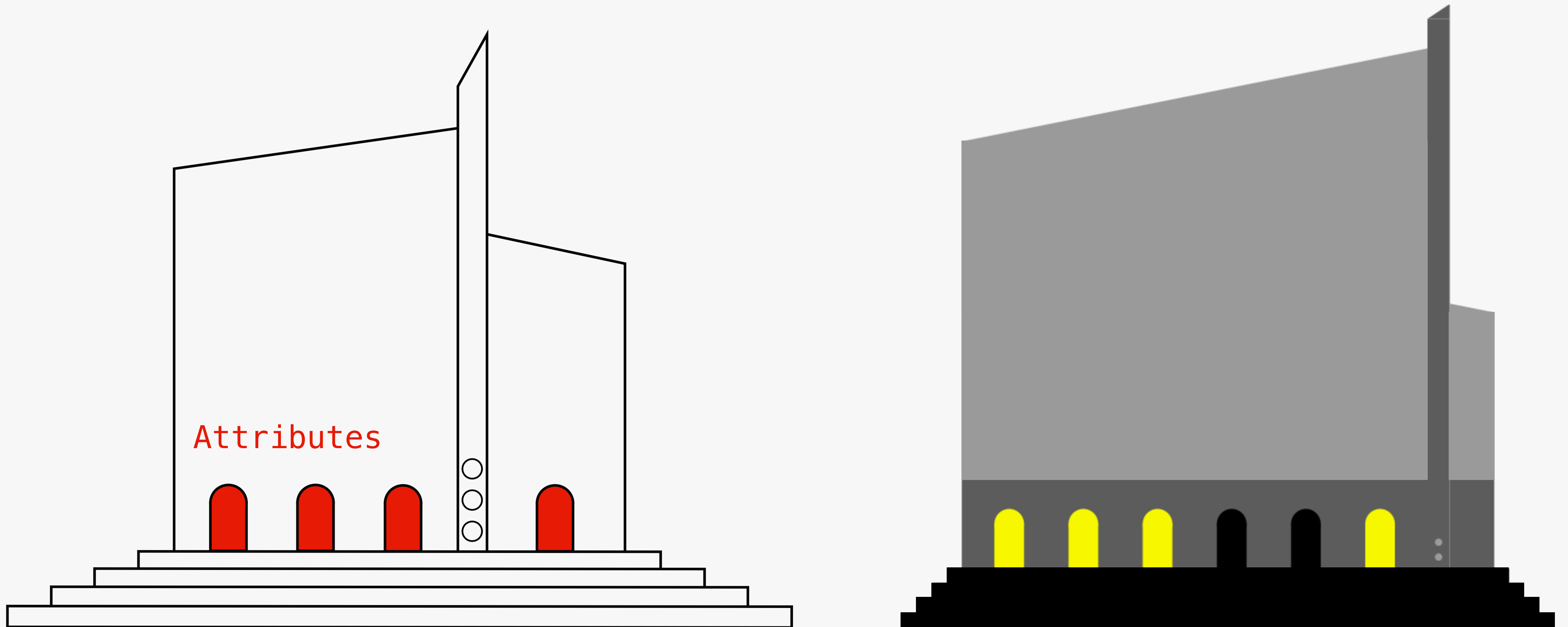
Class Contour



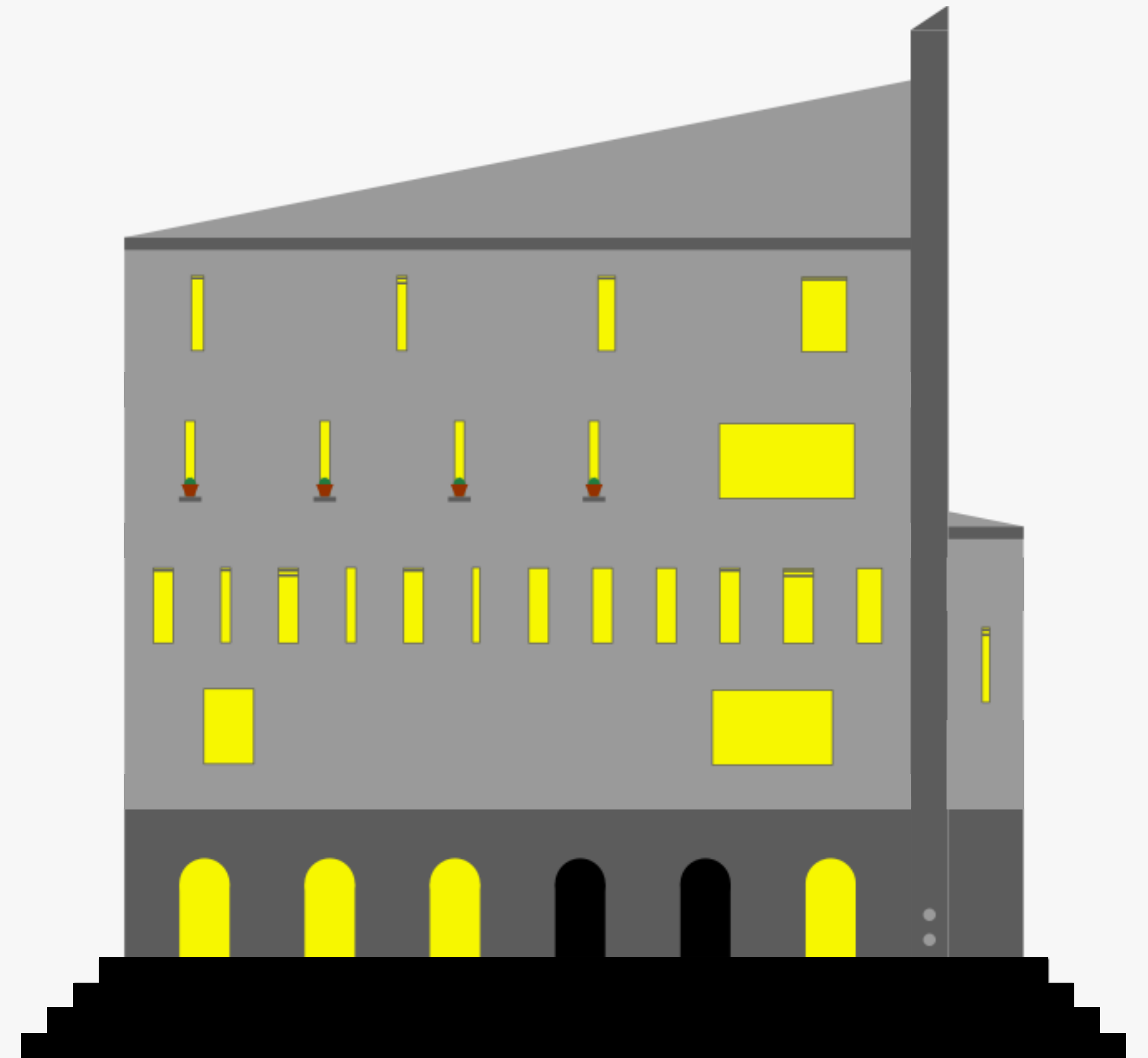
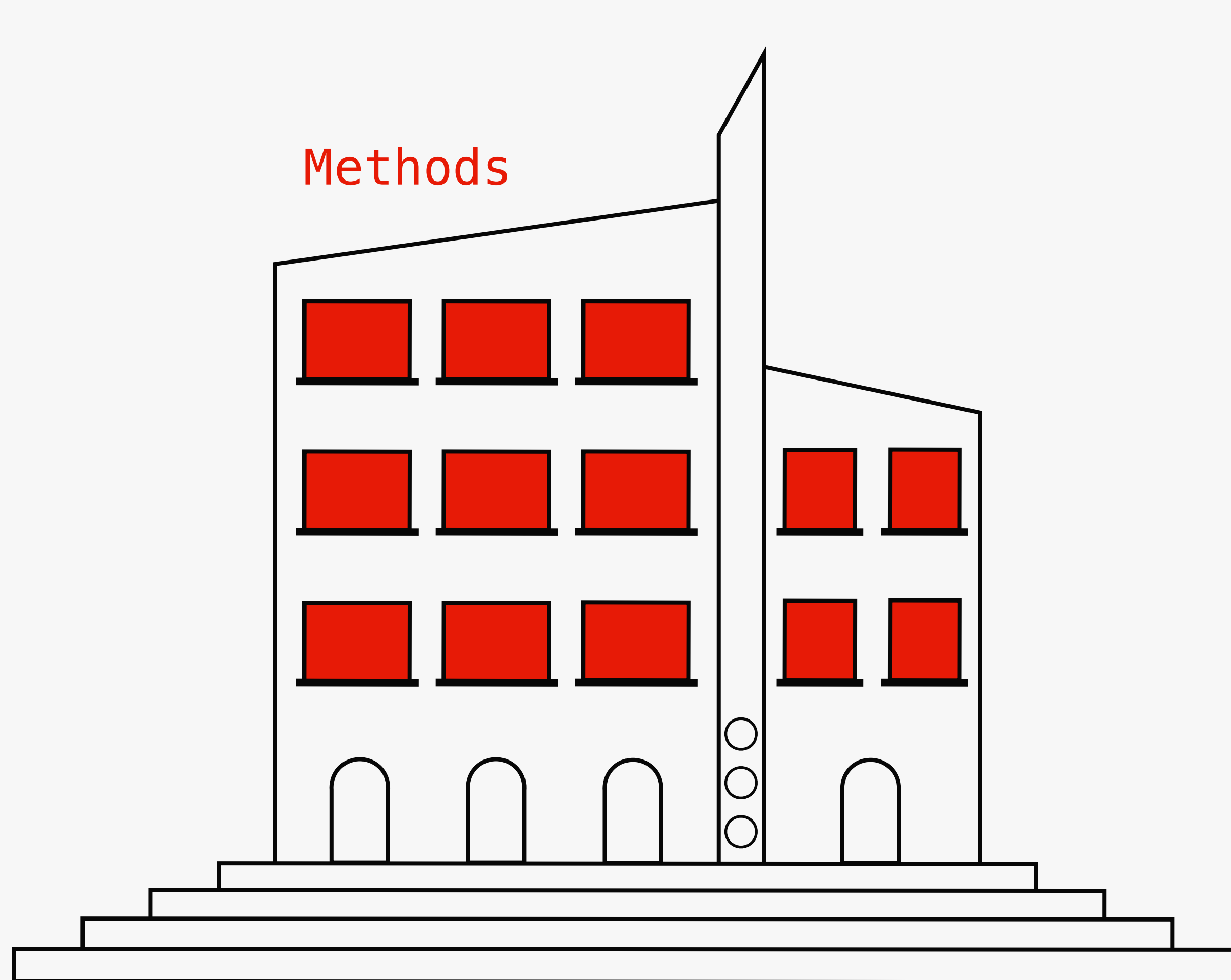
Class Contour



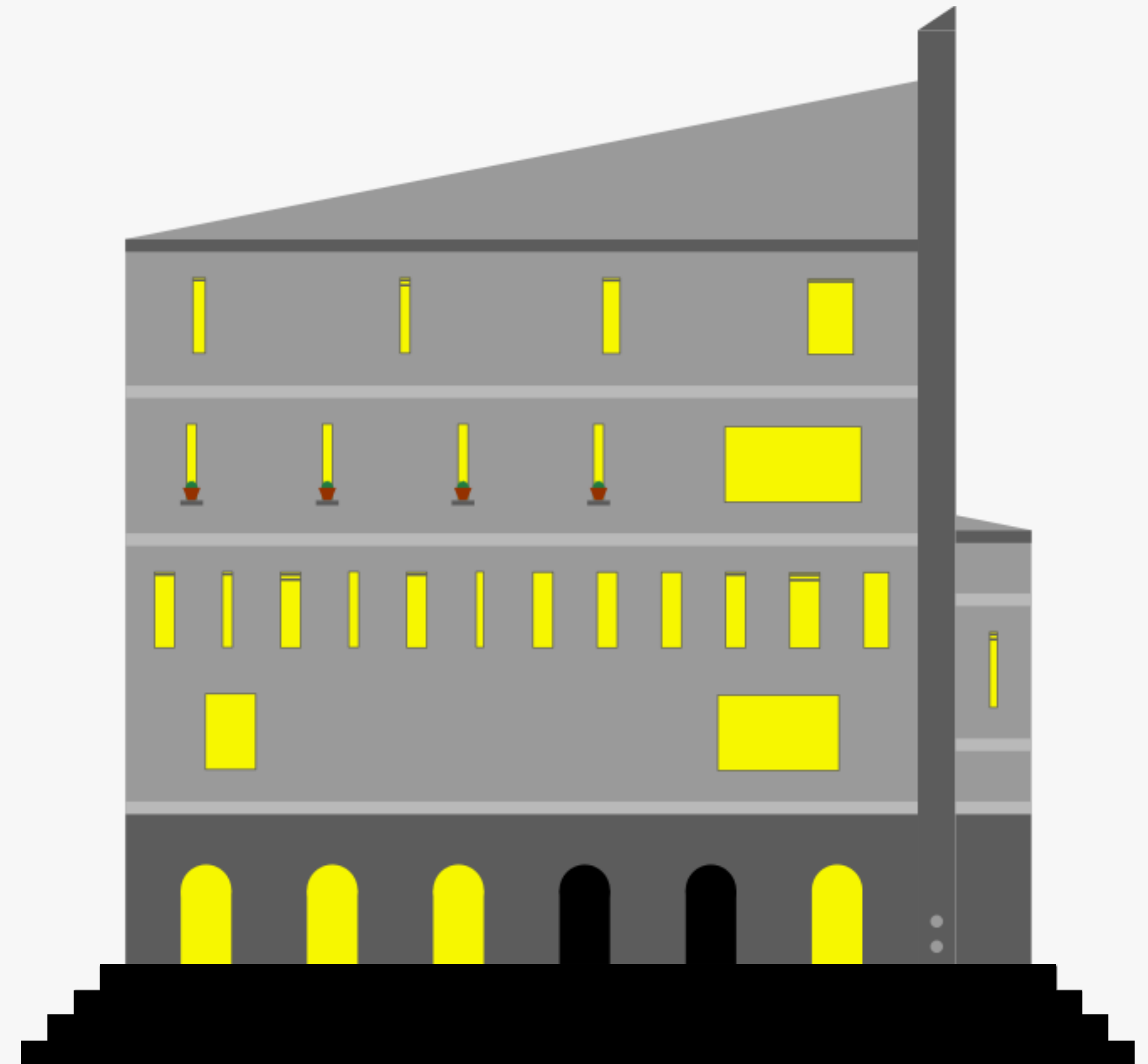
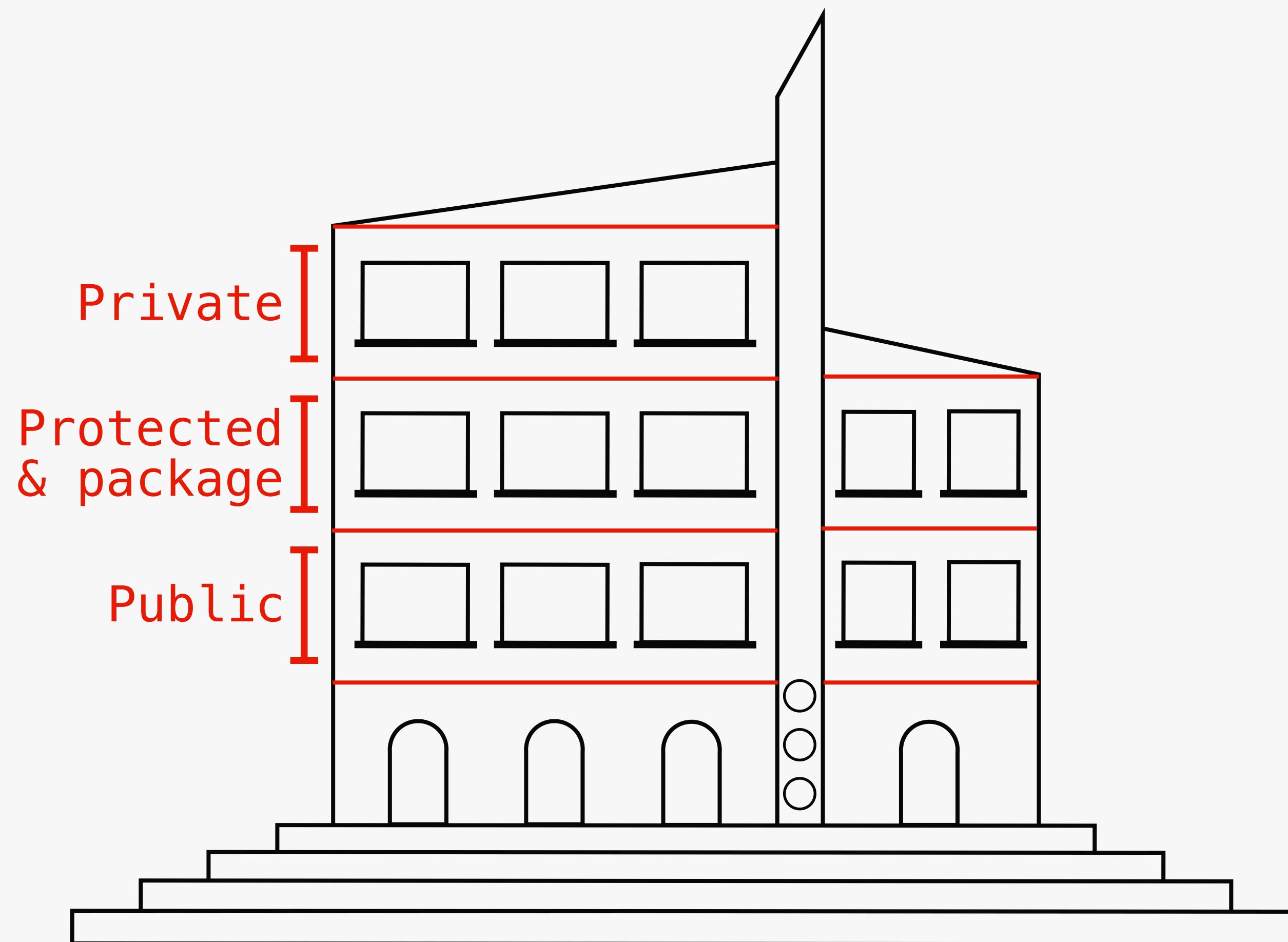
Class Contour



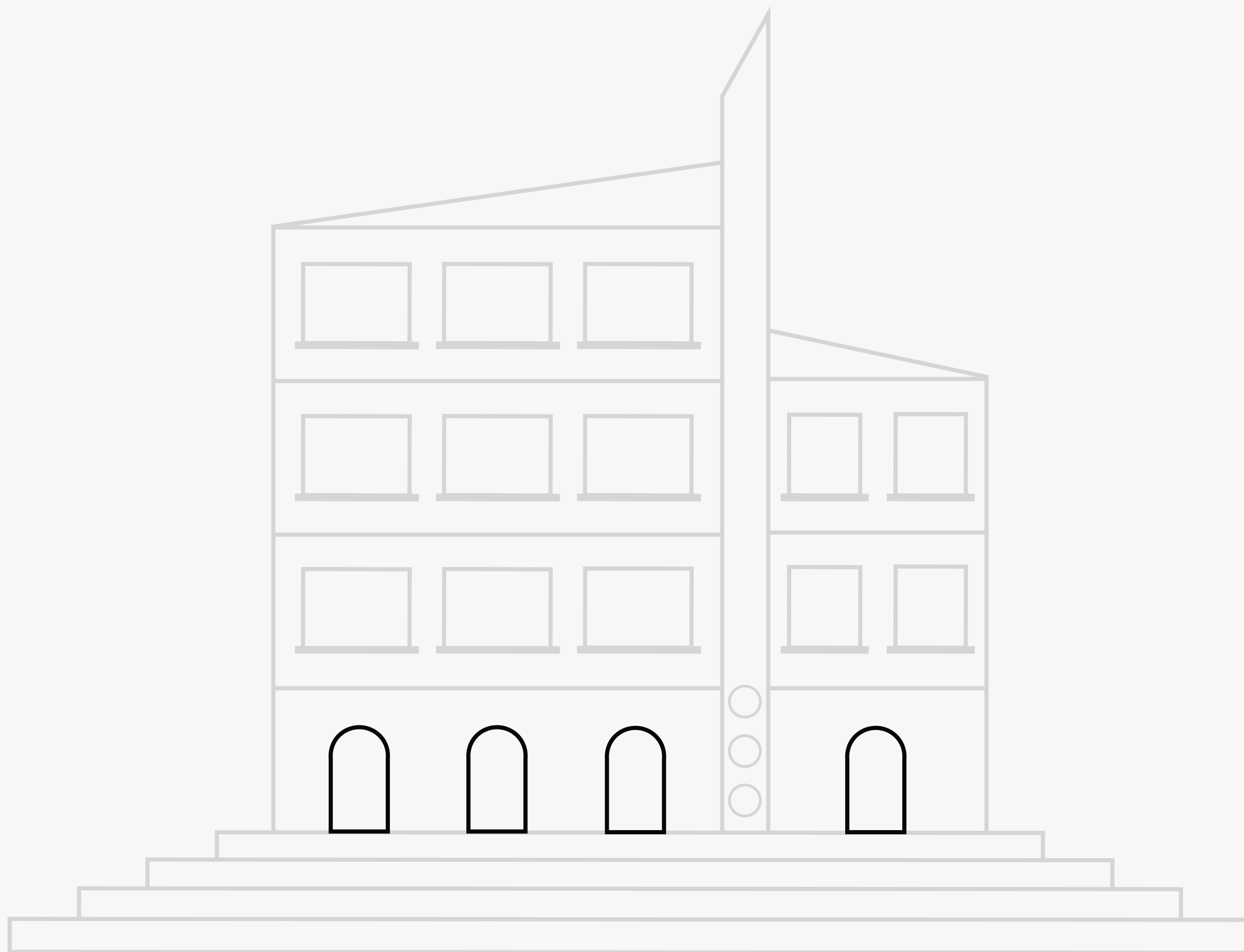
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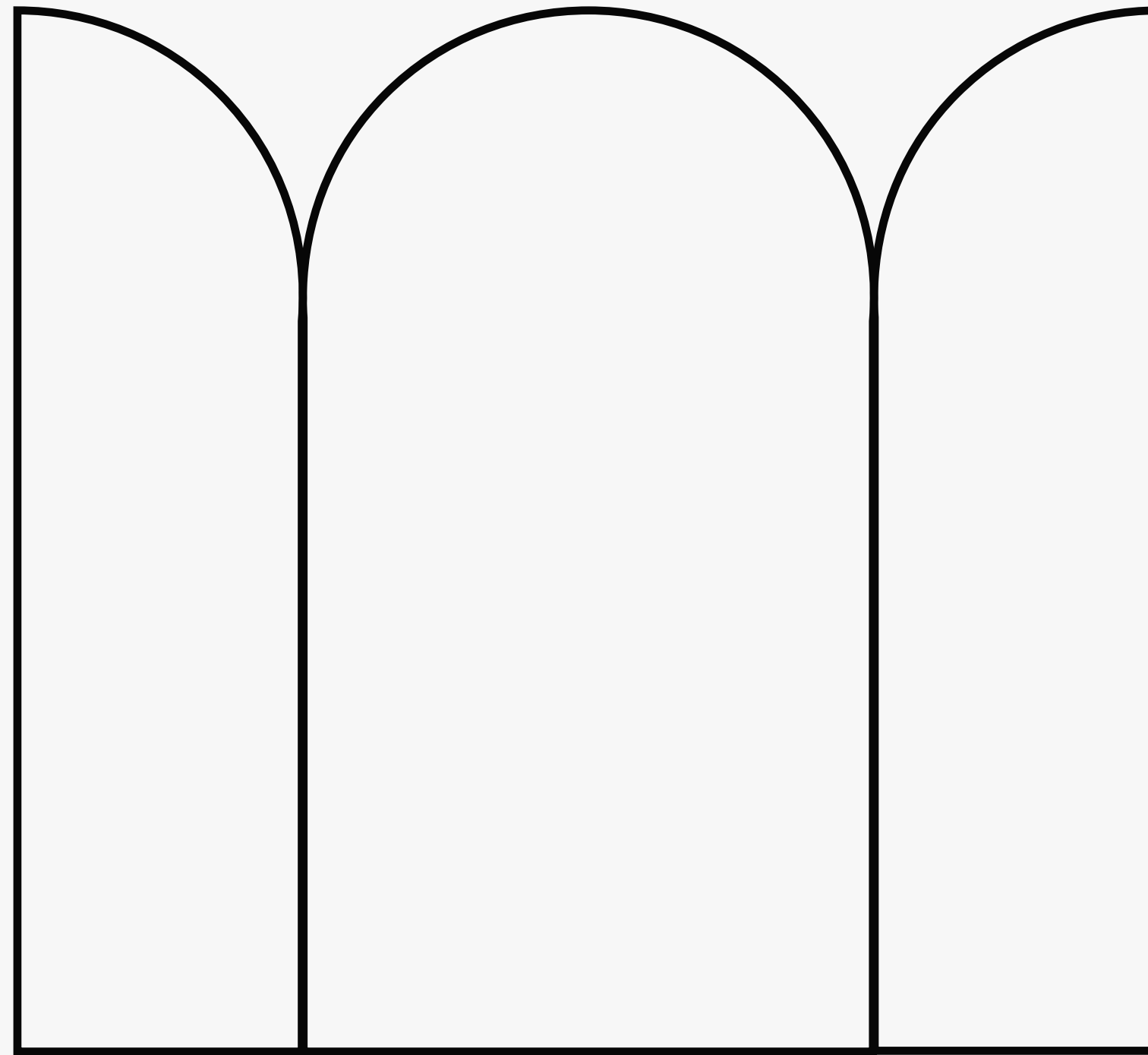
Class Contour



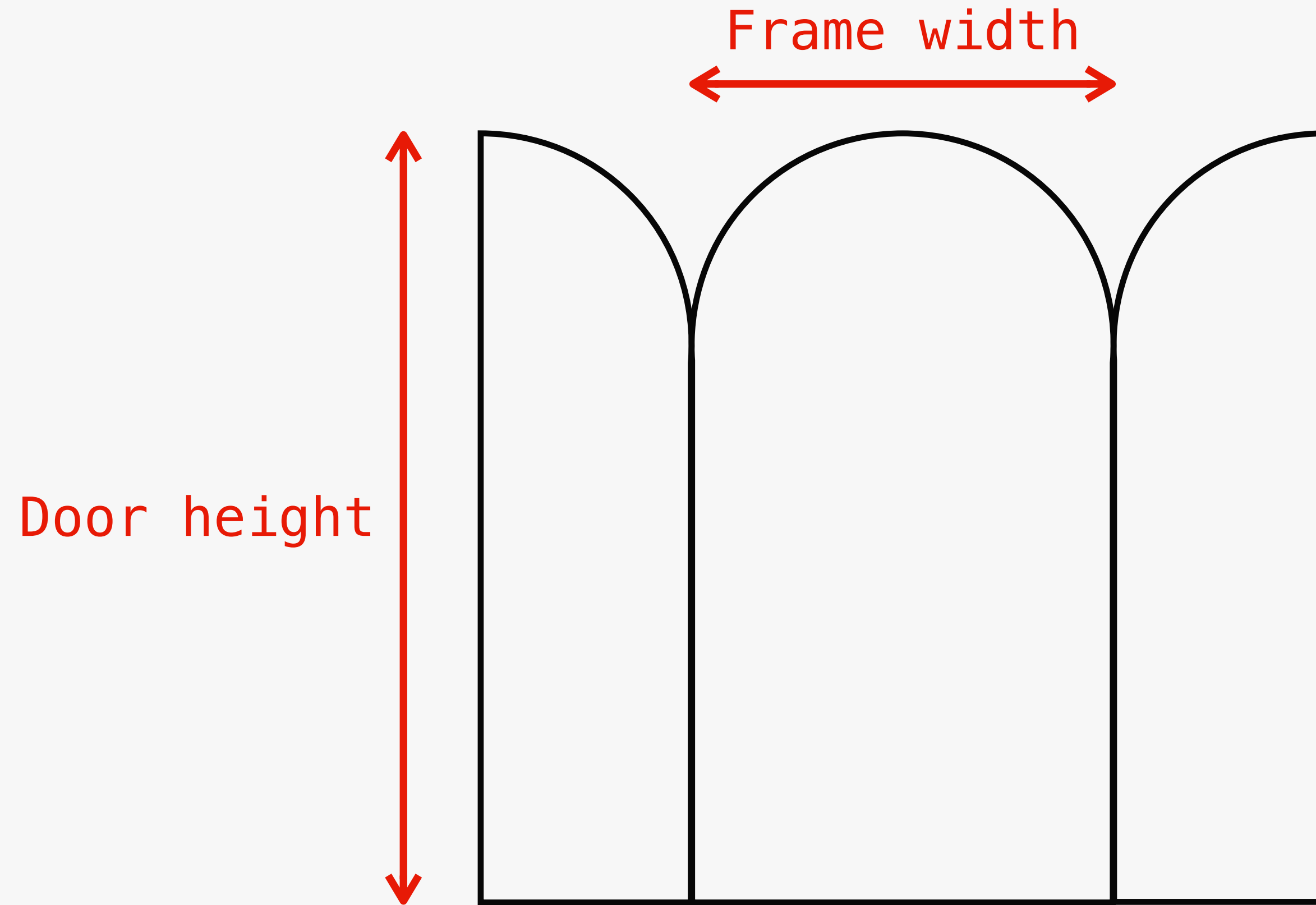
Class Contour



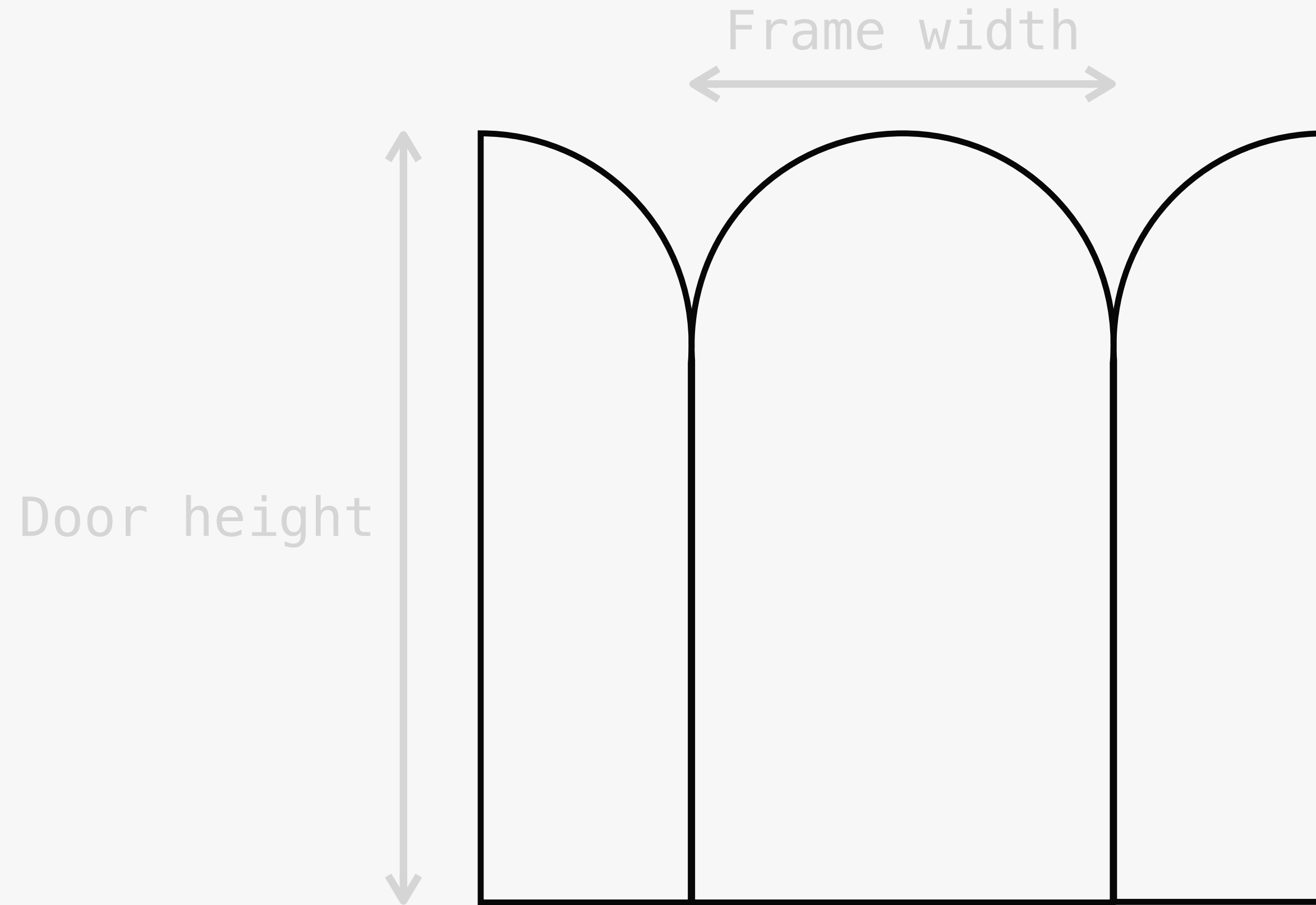
A Door Represents an Attribute



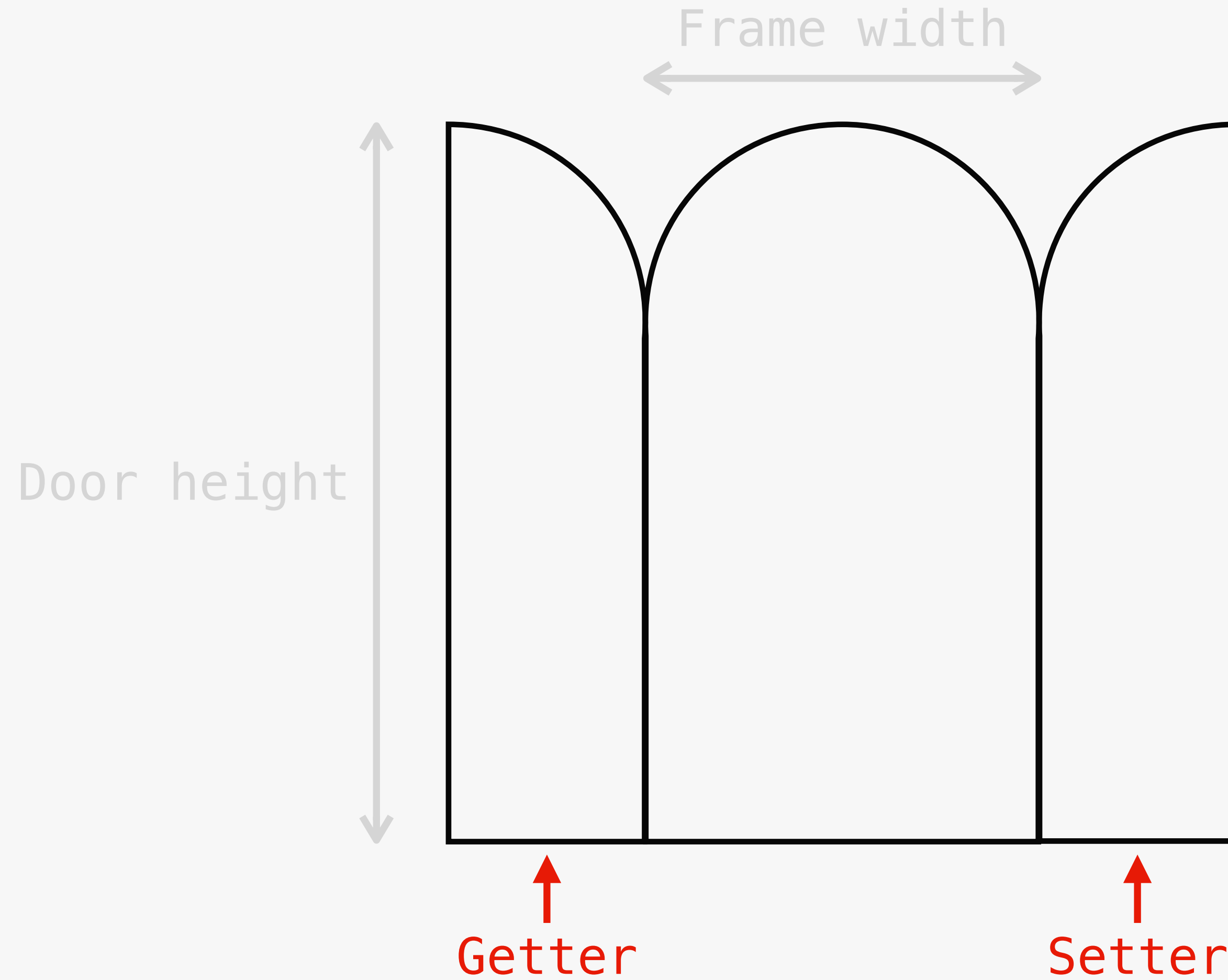
A Door Represents an Attribute



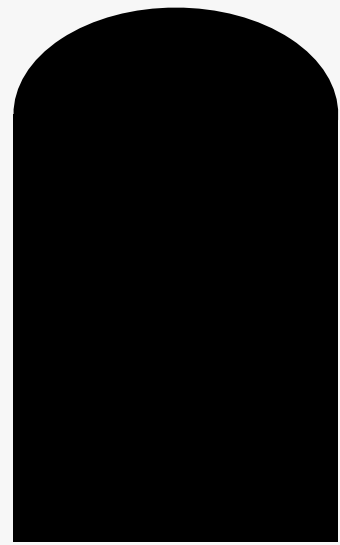
A Door Represents an Attribute



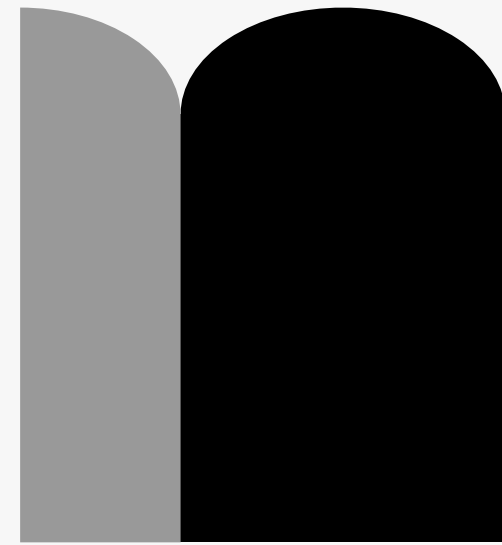
A Door Represents an Attribute



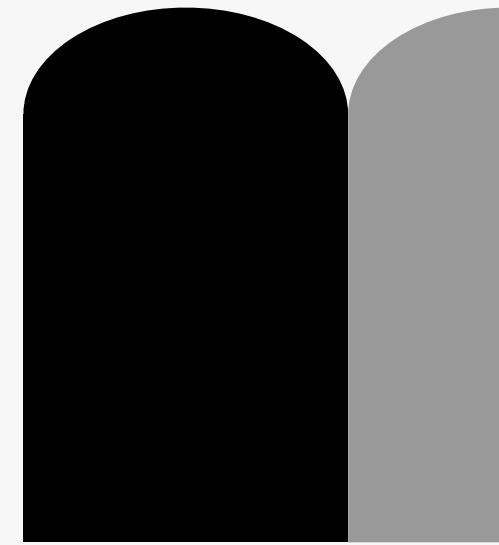
A Door Represents an Attribute



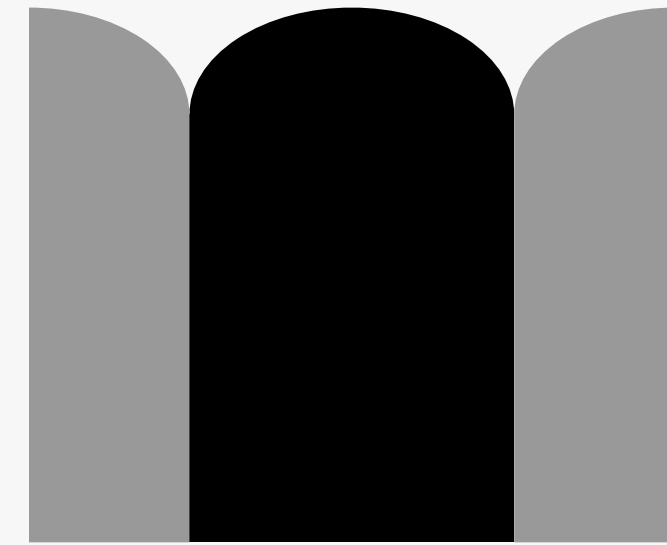
No accessors



Only getter

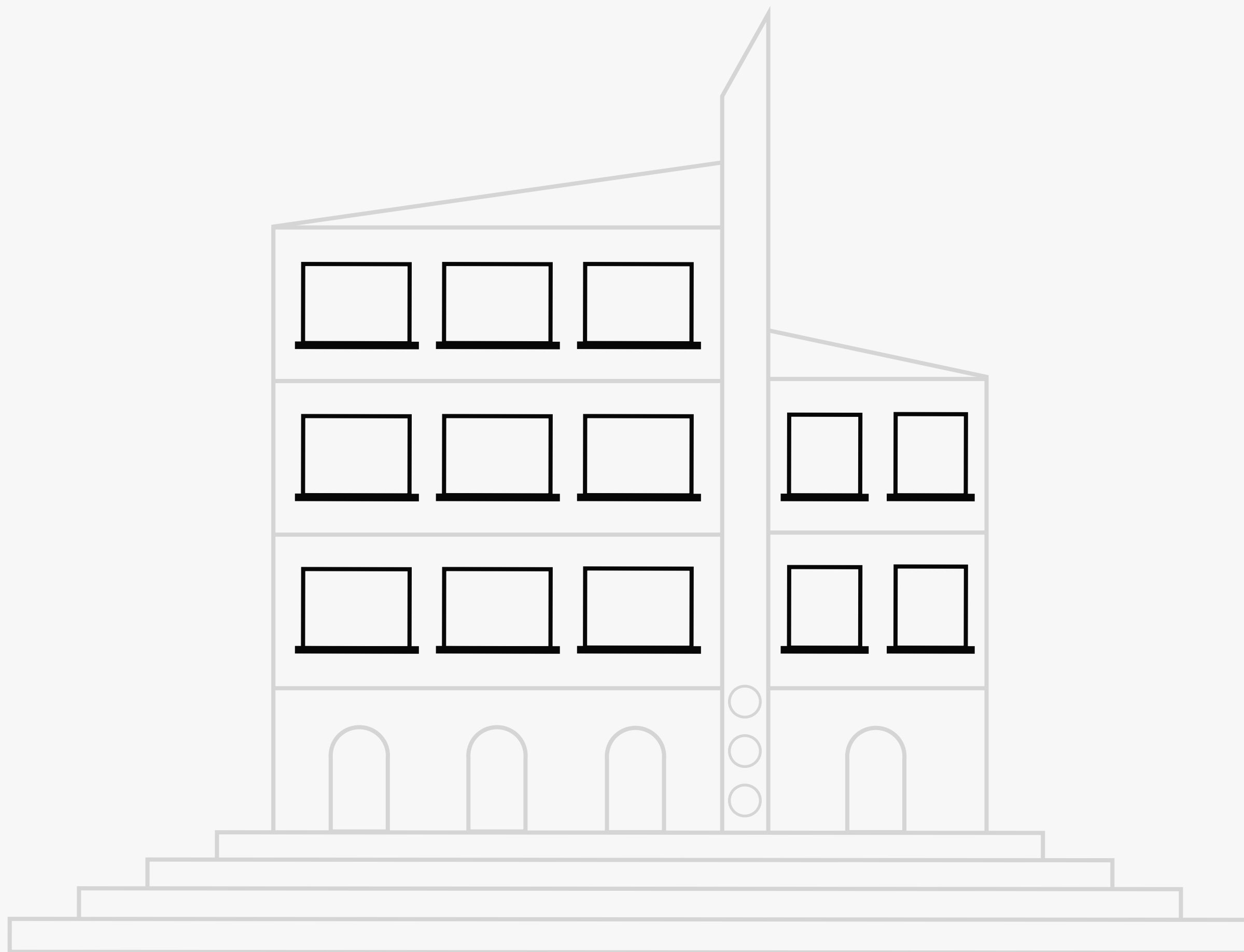


Only setter

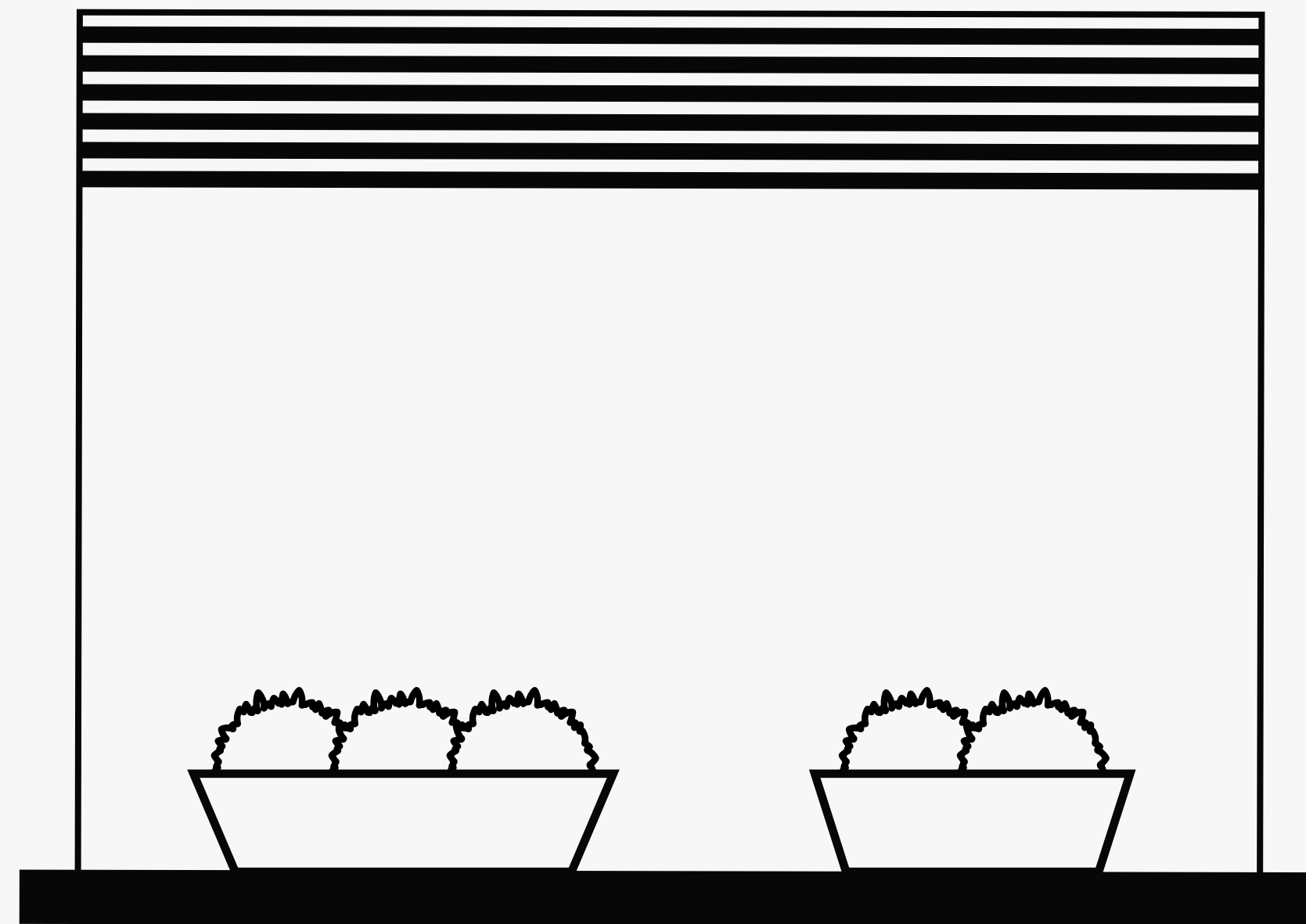


Both accessors

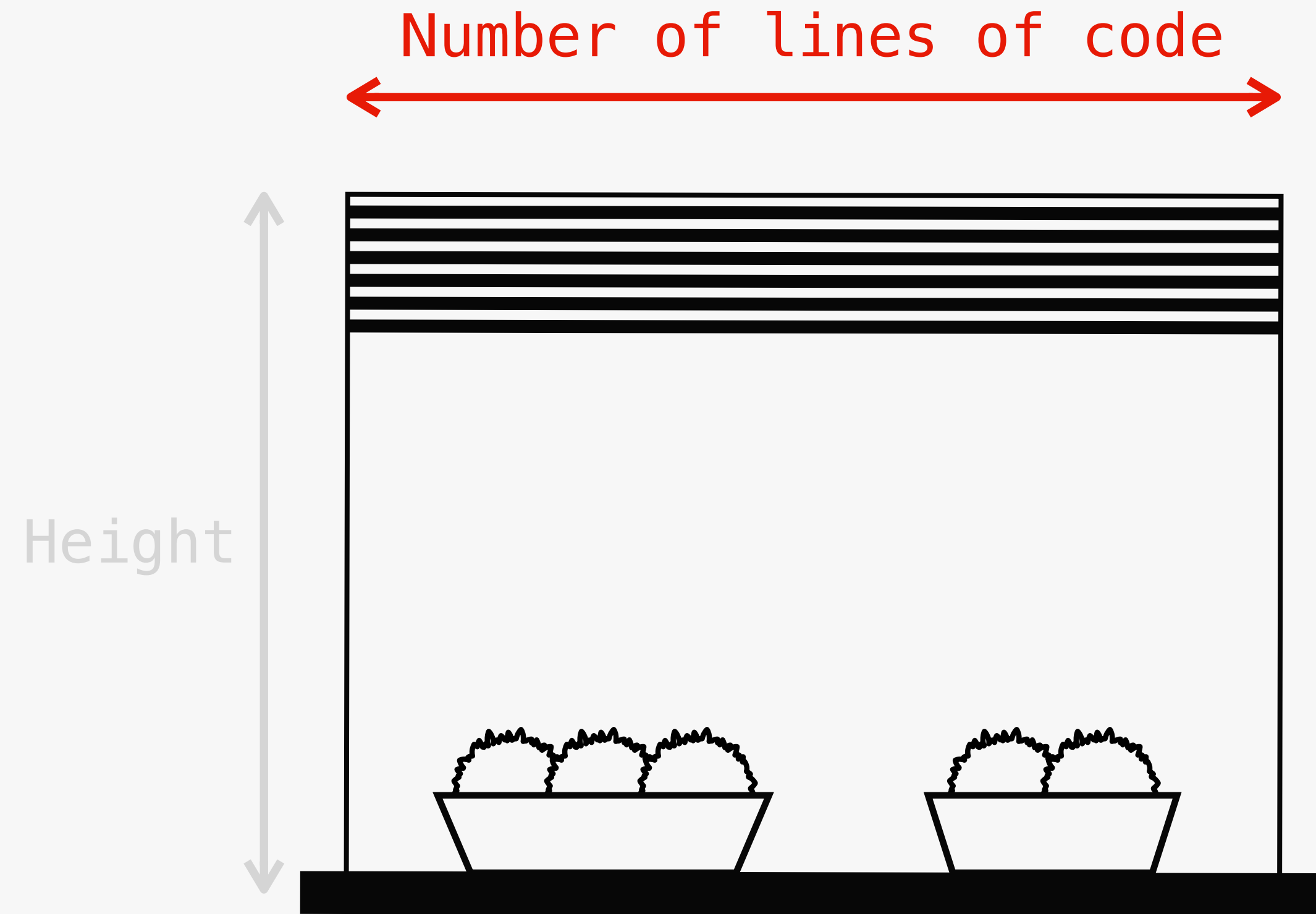
Class Contour



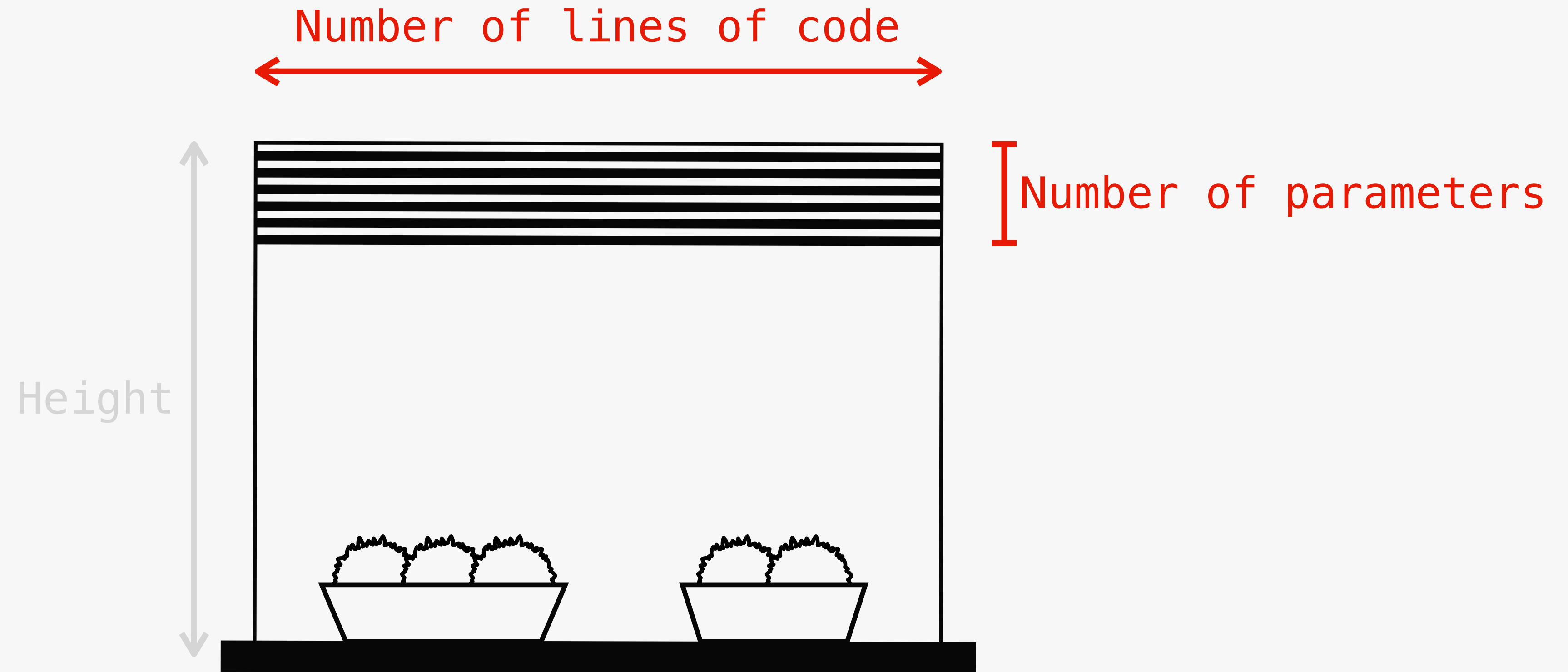
A Window Represents a Method



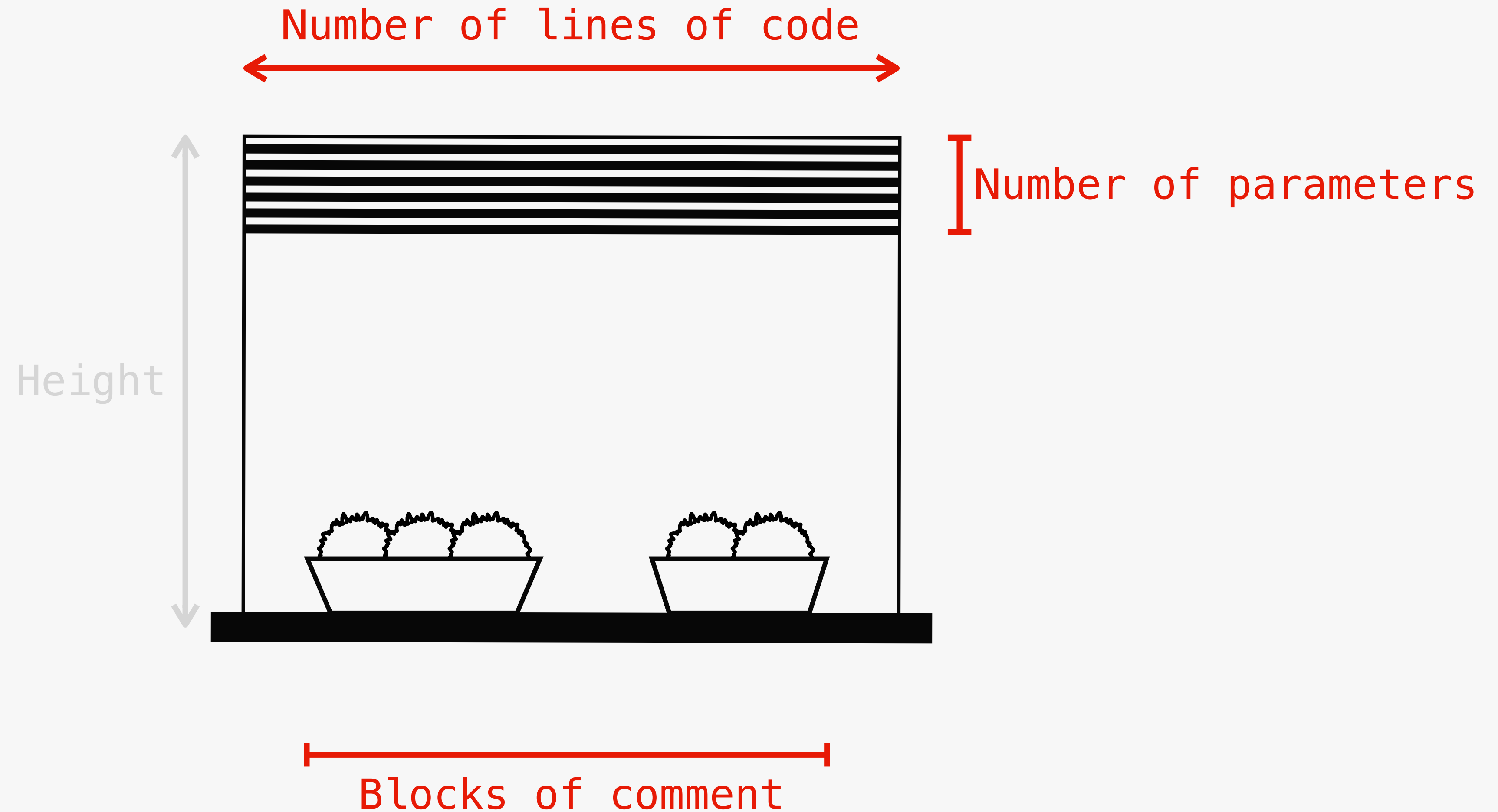
A Window Represents a Method



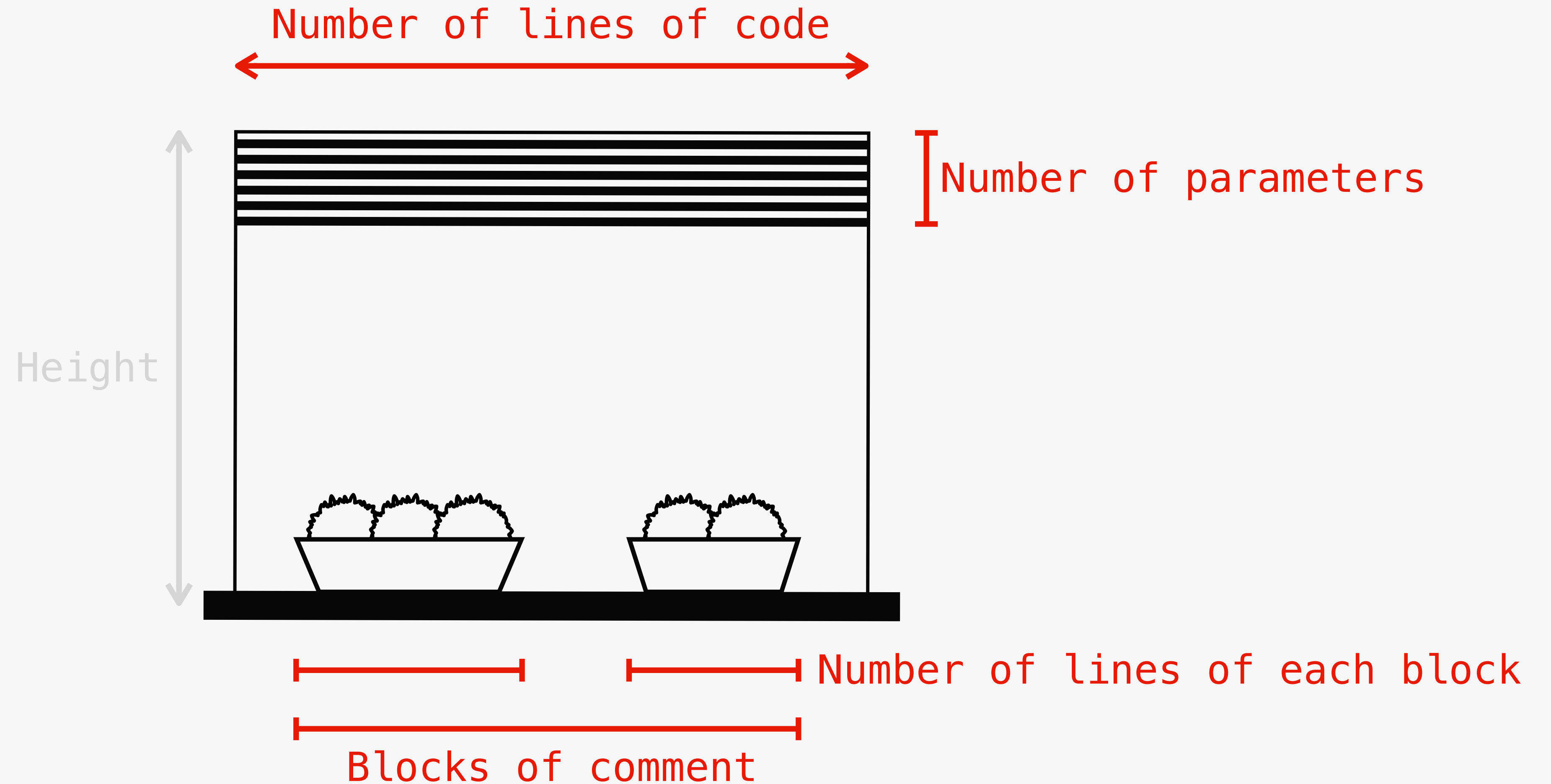
A Window Represents a Method



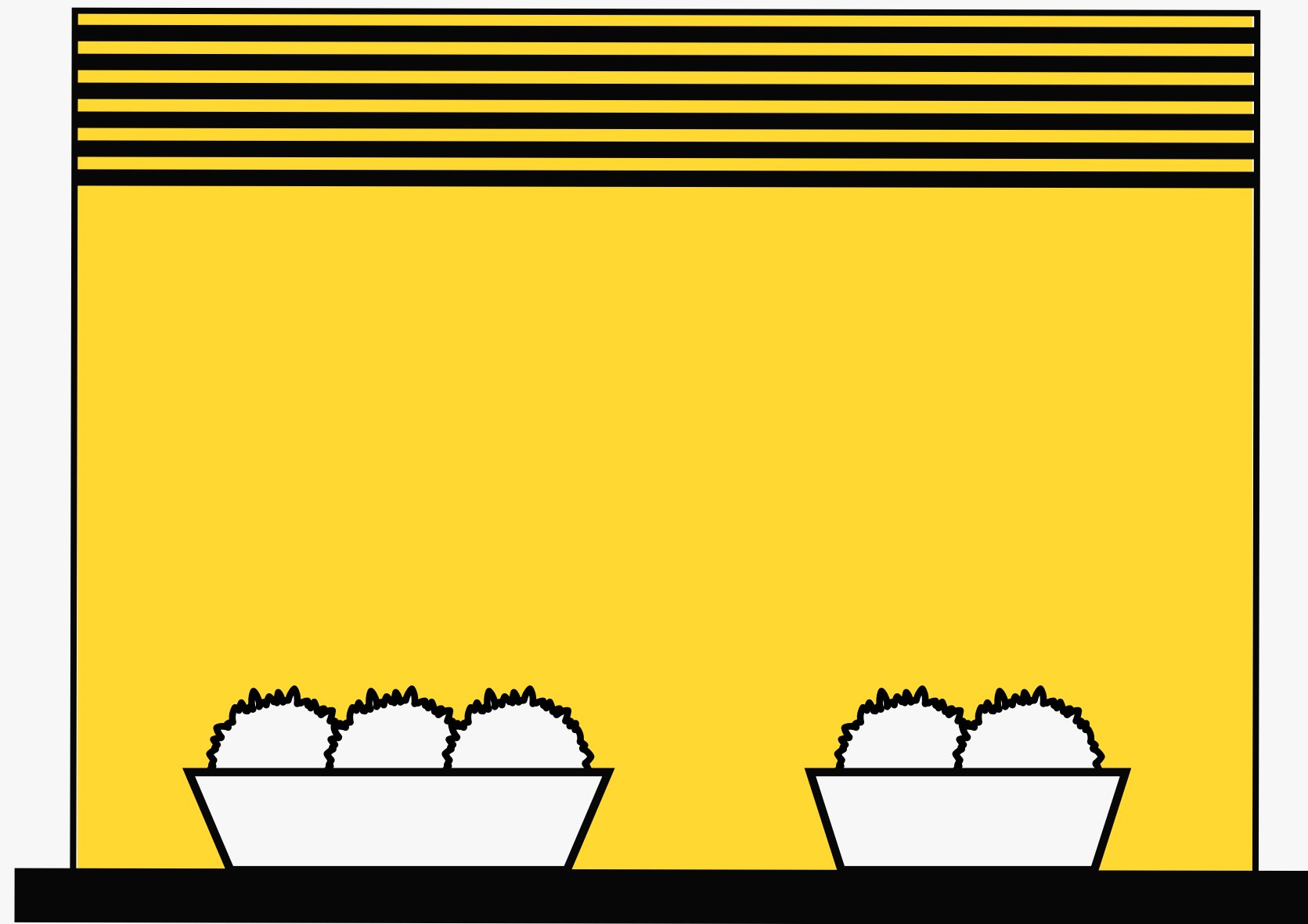
A Window Represents a Method



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A Window Represents a Method

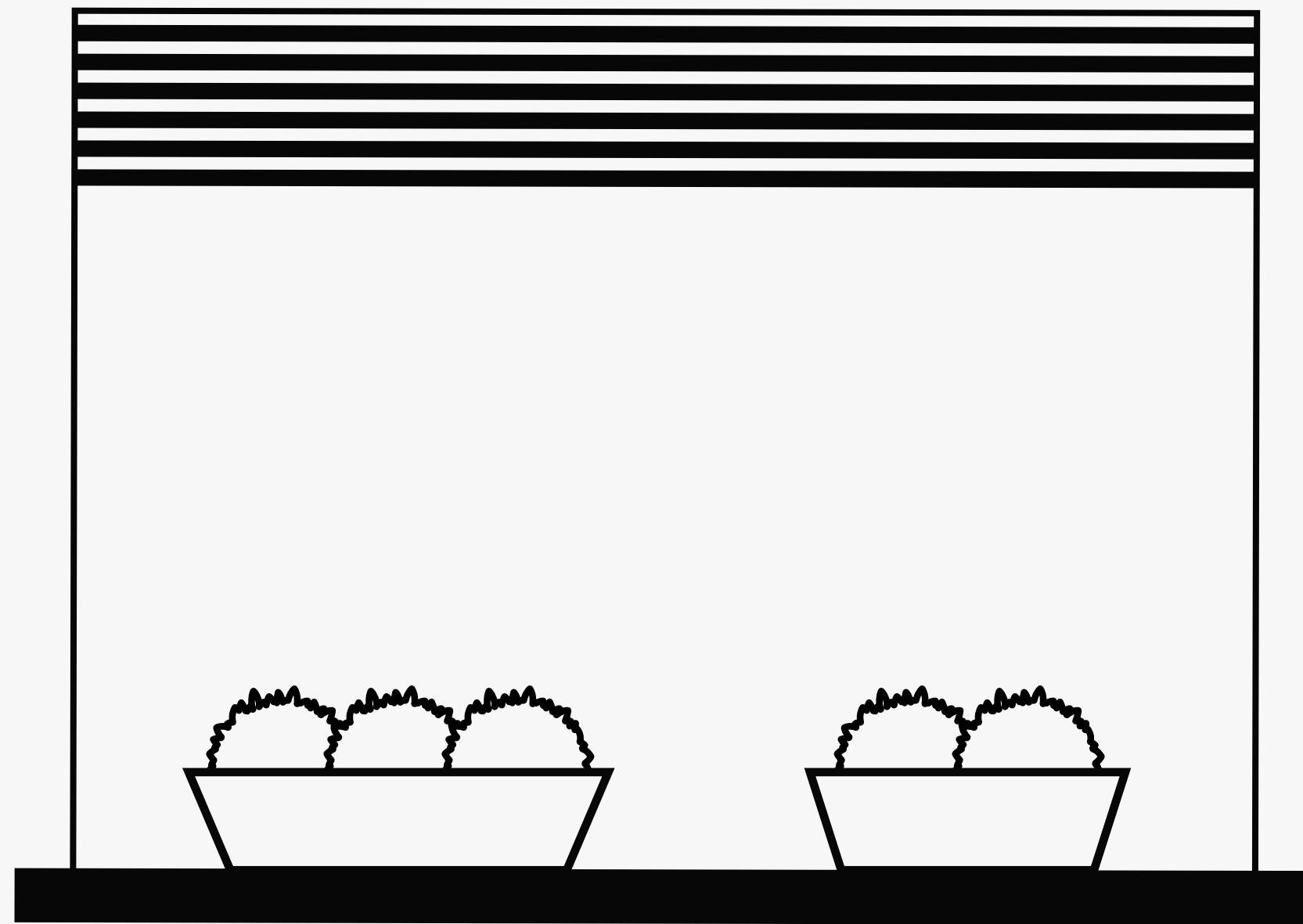


Returns a variable value

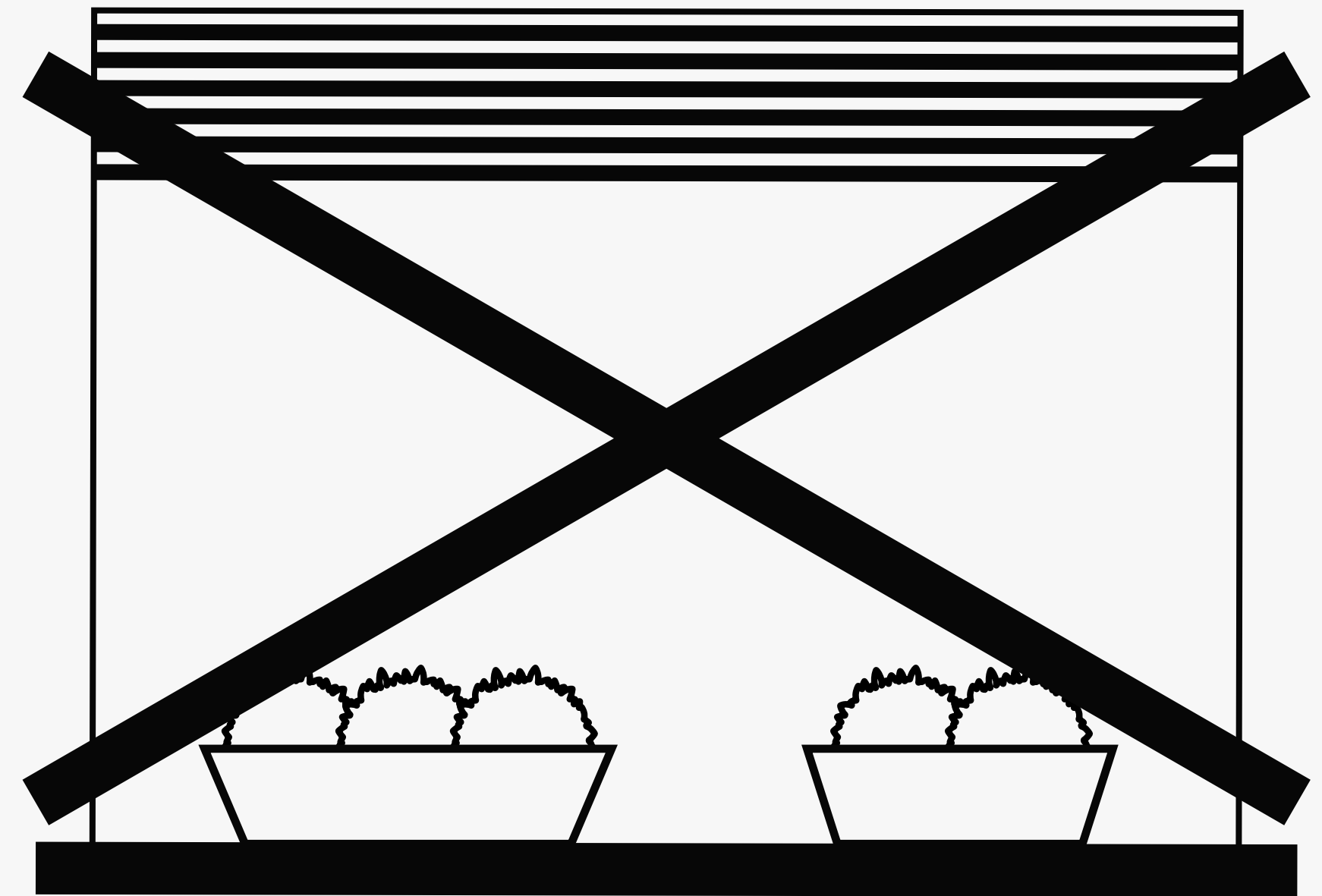


Returns a constant value

A Window Represents a Method



Unbarred



Barred



Class Contours in the Small

What Kind of Class is This?

PersonProfile
- firstName : String - lastName : String - age : int - gender : String - email : String - phoneNumber : String - address : String - city : String - state : String - country : String - postalCode : String - occupation : String - salary : double - isMarried : boolean - nationality : String
+ getFirstName() : String + setFirstName(firstName : String) : void + getLastName() : String + setLastName(lastName : String) : void + getAge() : int + setAge(age : int) : void + getGender() : String + setGender(gender : String) : void + getEmail() : String + setEmail(email : String) : void + getPhoneNumber() : String + setPhoneNumber(phoneNumber : String) : void + getAddress() : String + setAddress(address : String) : void + getCity() : String + setCity(city : String) : void + getState() : String + setState(state : String) : void + getCountry() : String + setCountry(country : String) : void + getPostalCode() : String + setPostalCode(postalCode : String) : void + getOccupation() : String + setOccupation(occupation : String) : void + getSalary() : double + setSalary(salary : double) : void + isMarried() : boolean + setMarried(married : boolean) : void + getNationality() : String + setNationality(nationality : String) : void

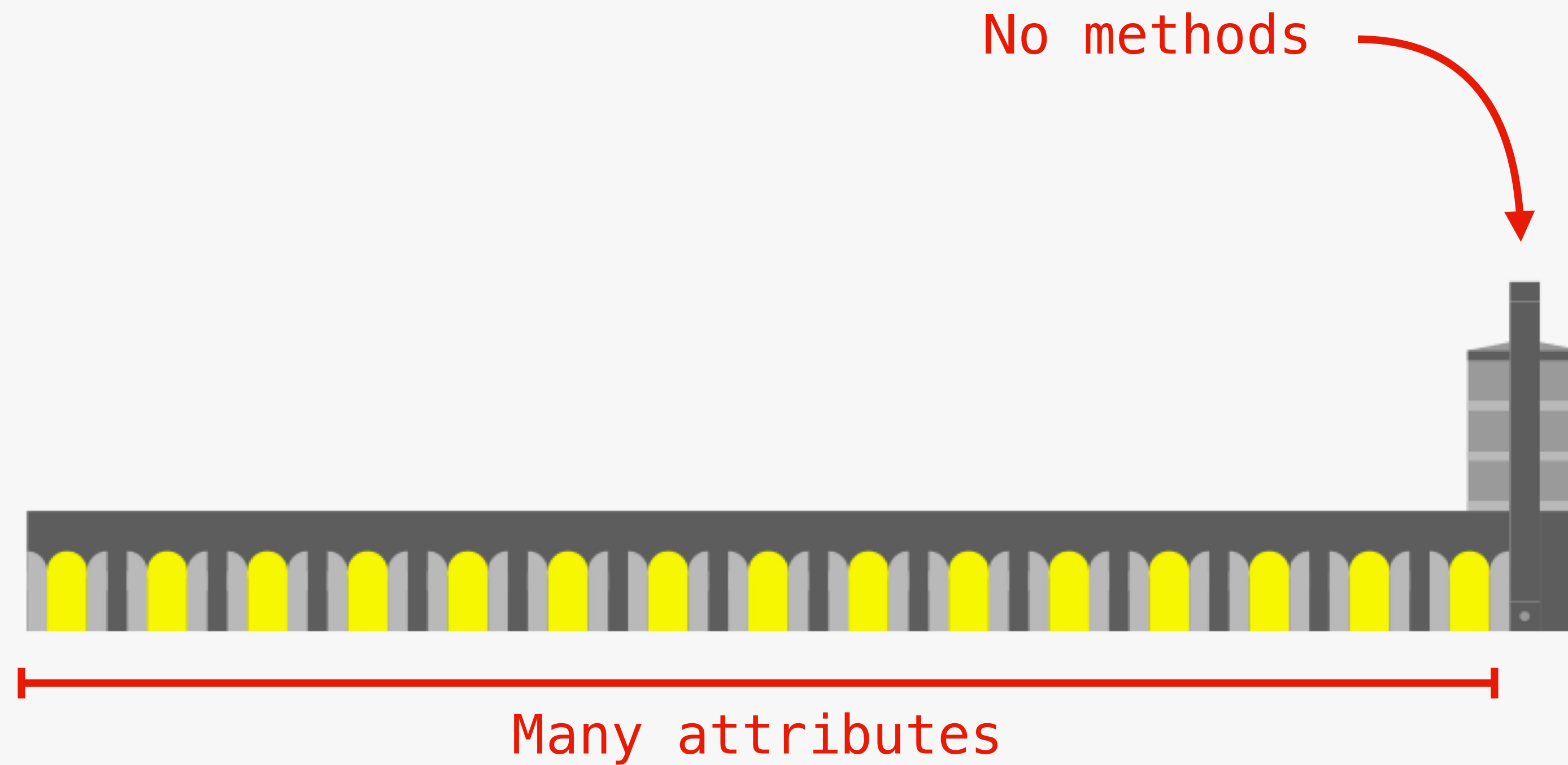
Identifying Patterns: Class Contour of a *Data Class*



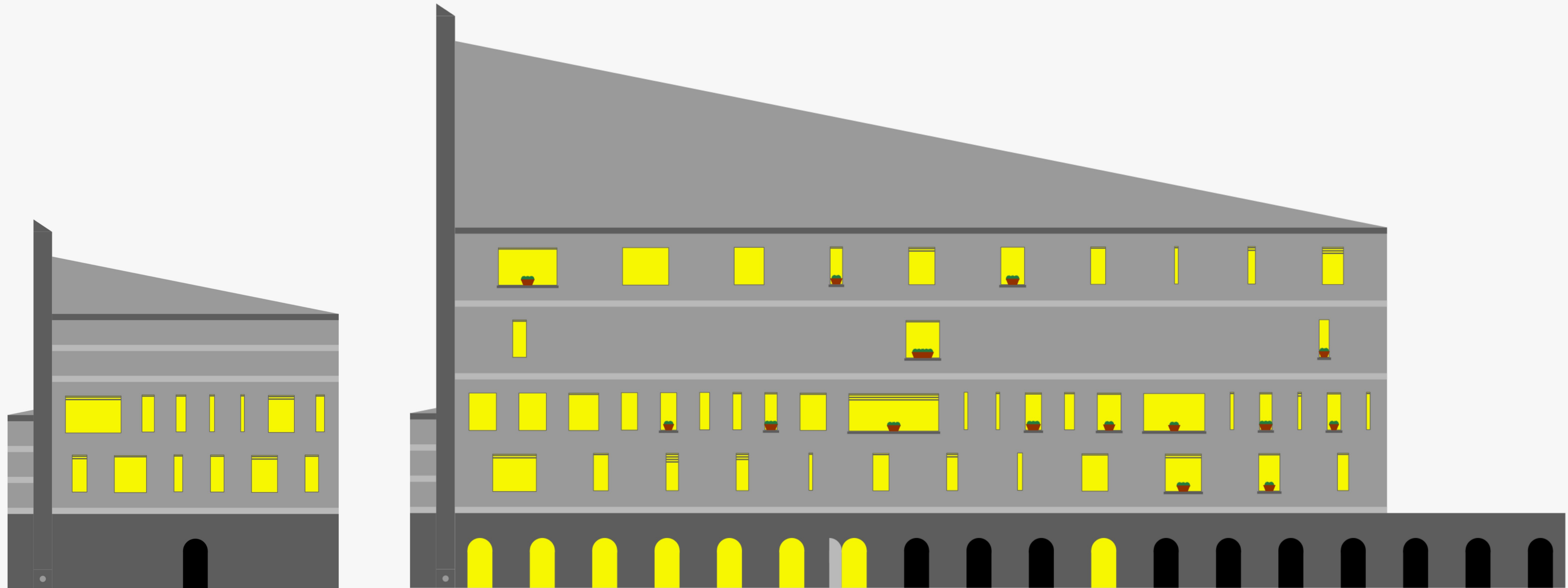
Identifying Patterns: Class Contour of a *Data Class*



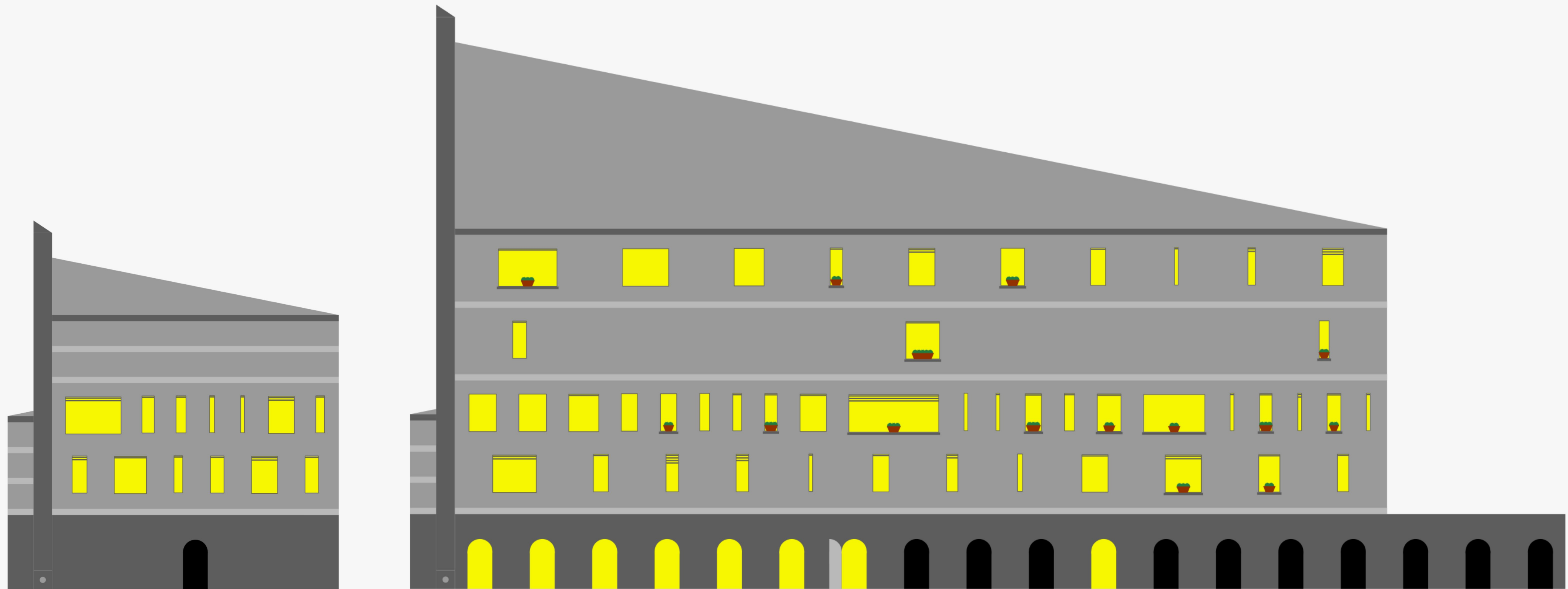
Identifying Patterns: Class Contour of a *Data Class*



Identifying Patterns: Class Contour of a *Utility Class*



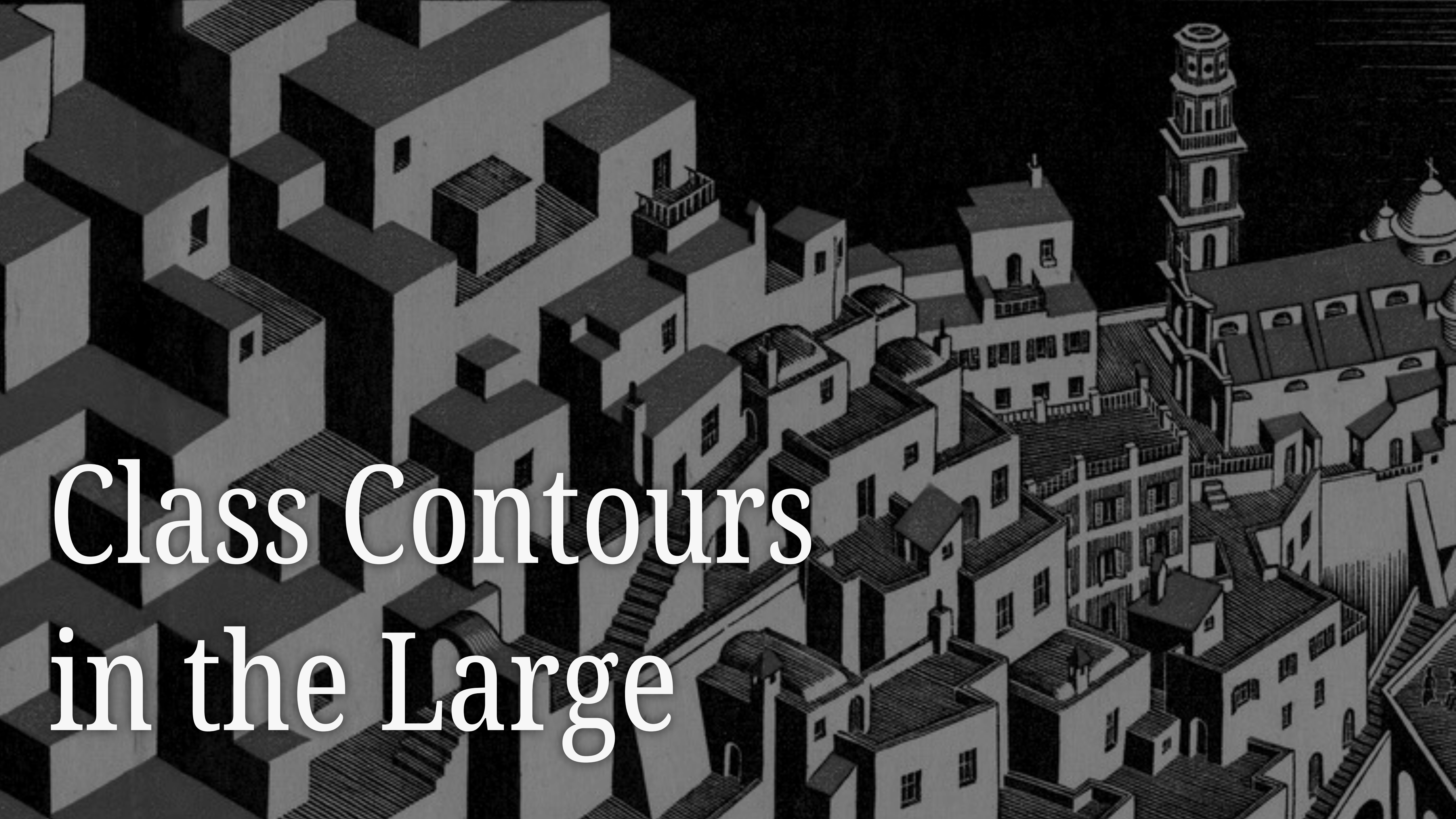
Identifying Patterns: Class Contour of a *Utility Class*



No instance
methods

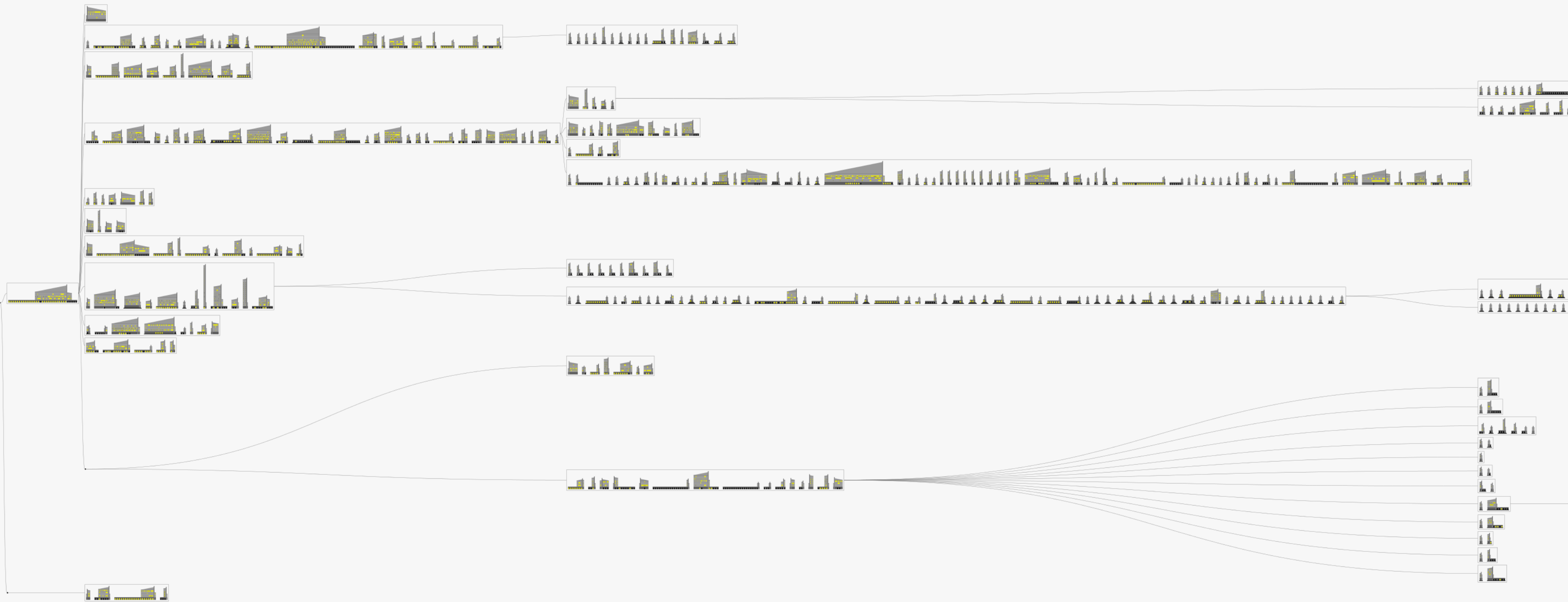
Identifying Patterns: Class Contour of a *Utility Class*



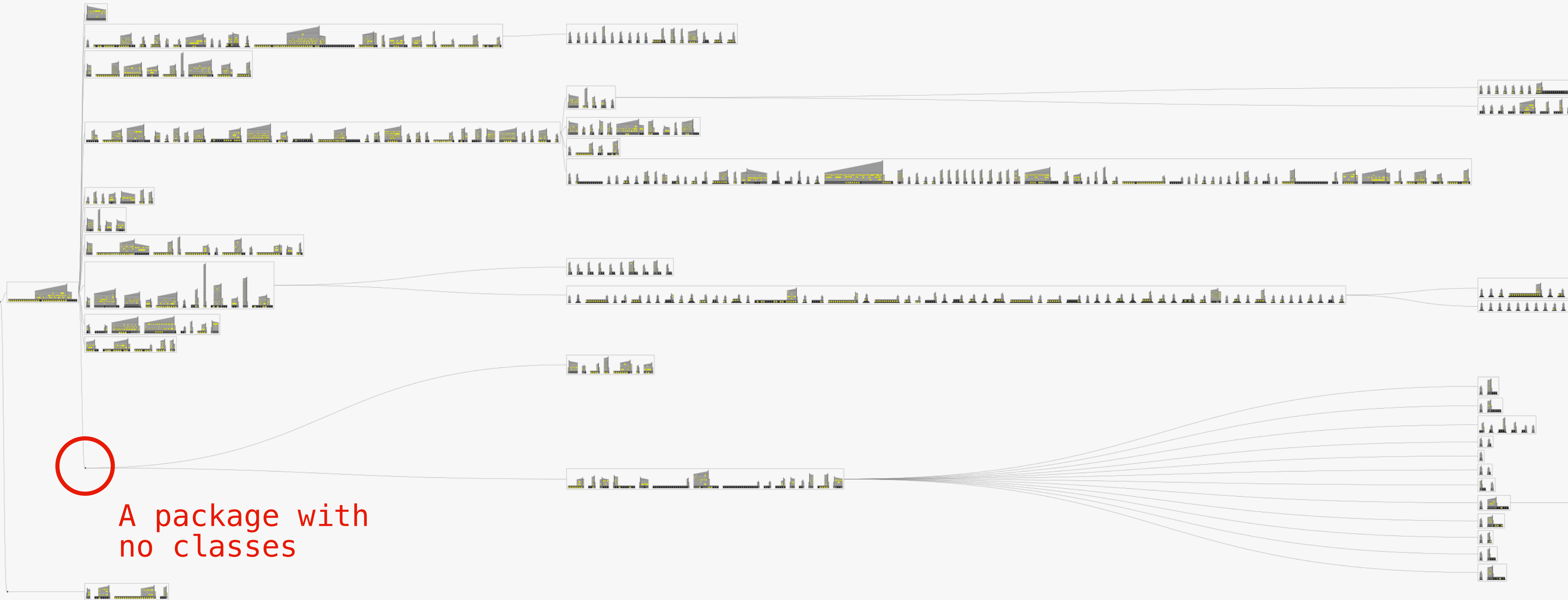


Class Contours in the Large

Visualizing the ANTLR Codebase



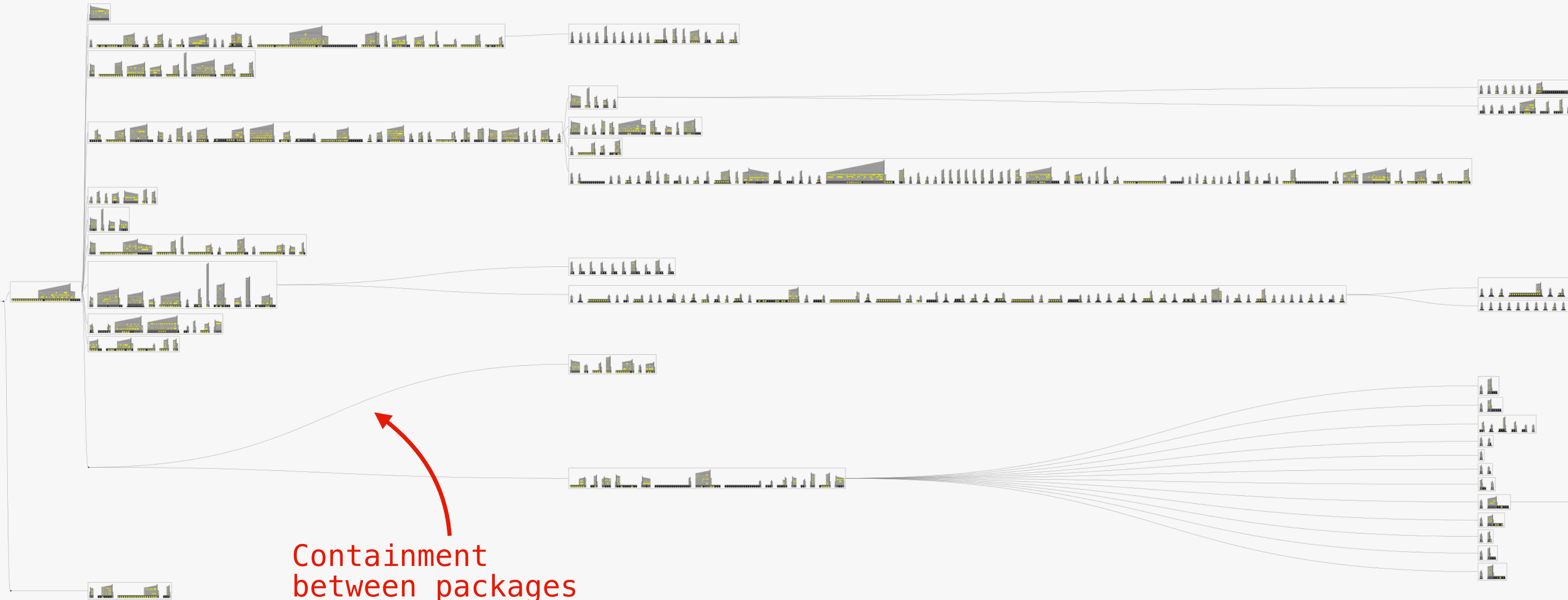
Visualizing the ANTLR Codebase



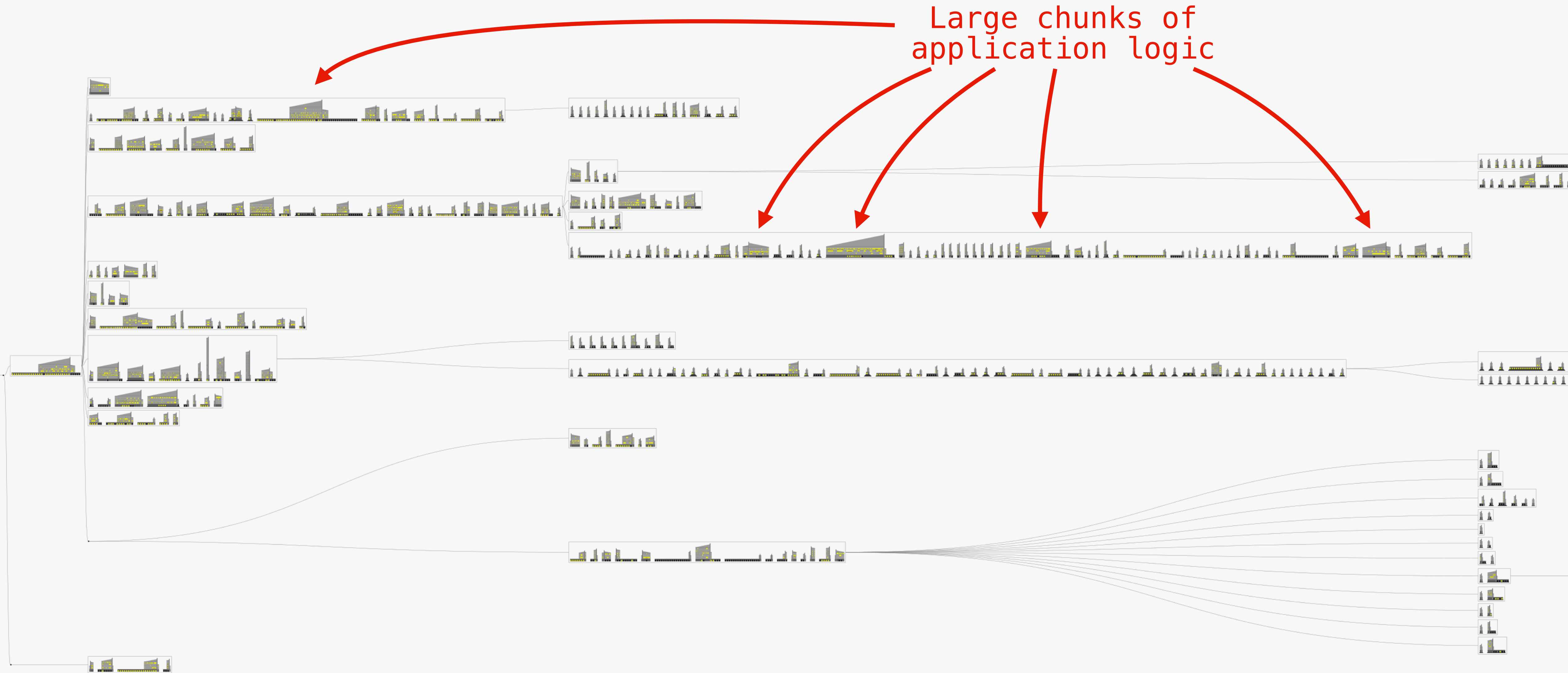
Visualizing the ANTLR Codebase



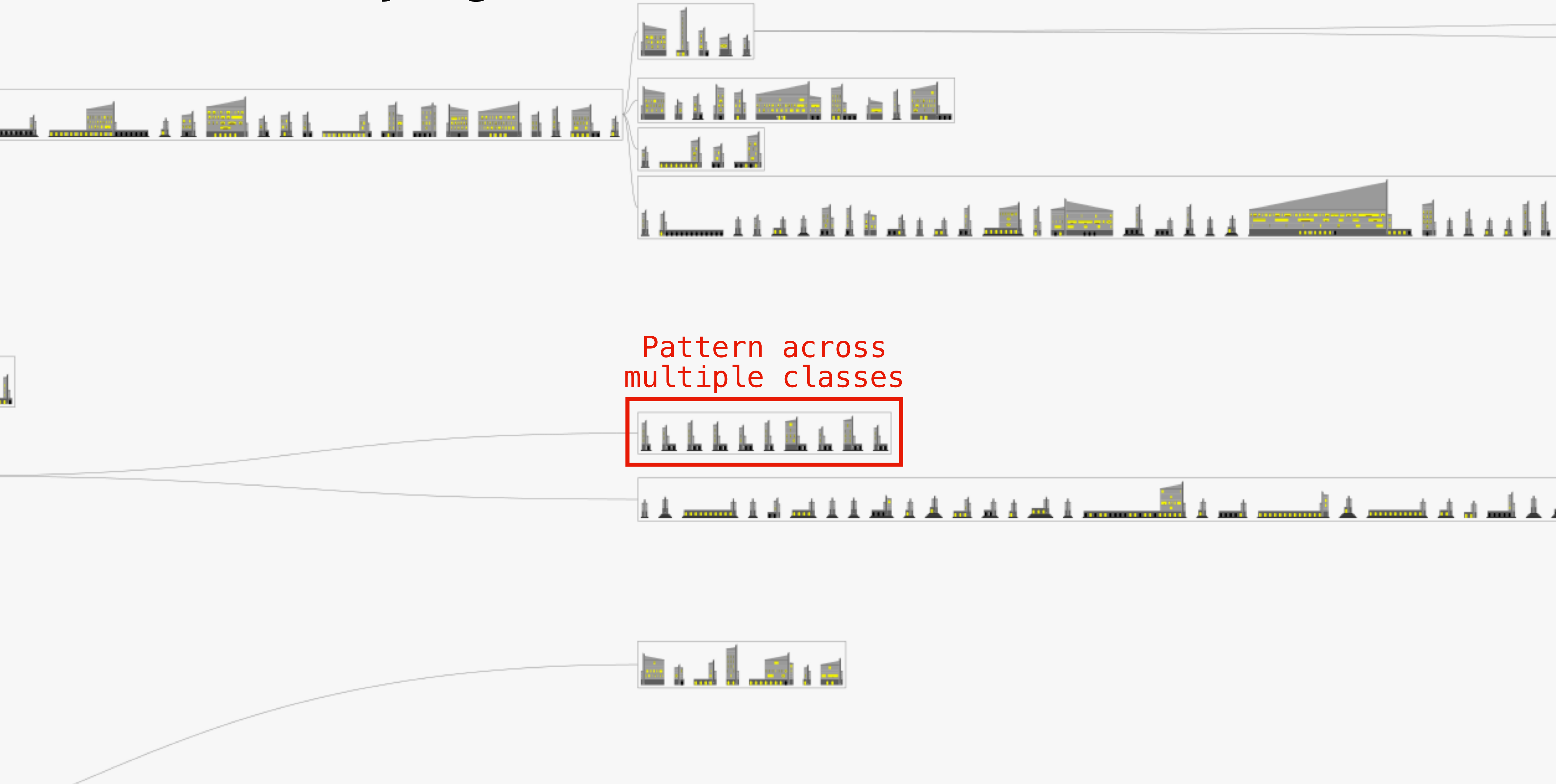
Visualizing the ANTLR Codebase



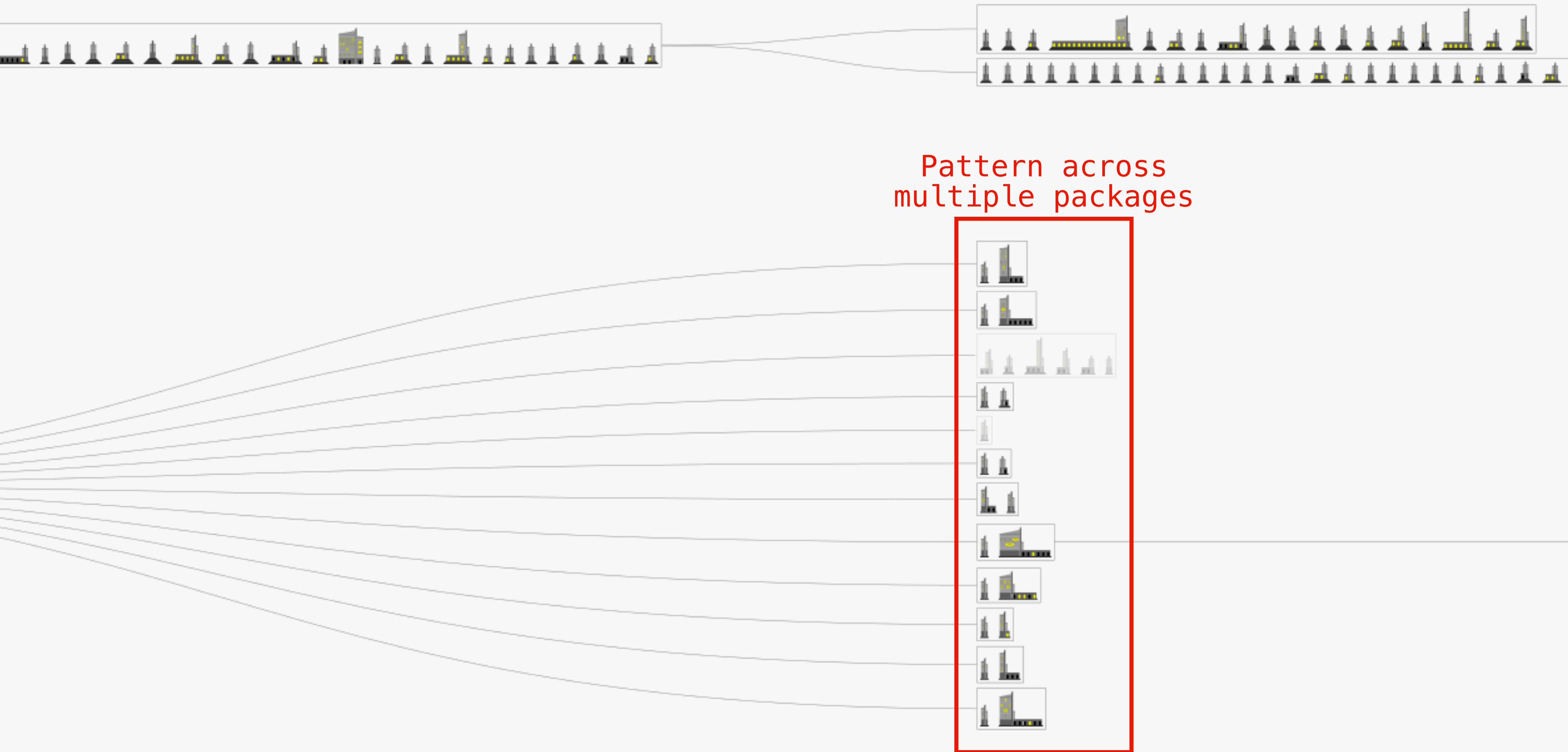
Identifying *Patterns* in the ANTLR Codebase



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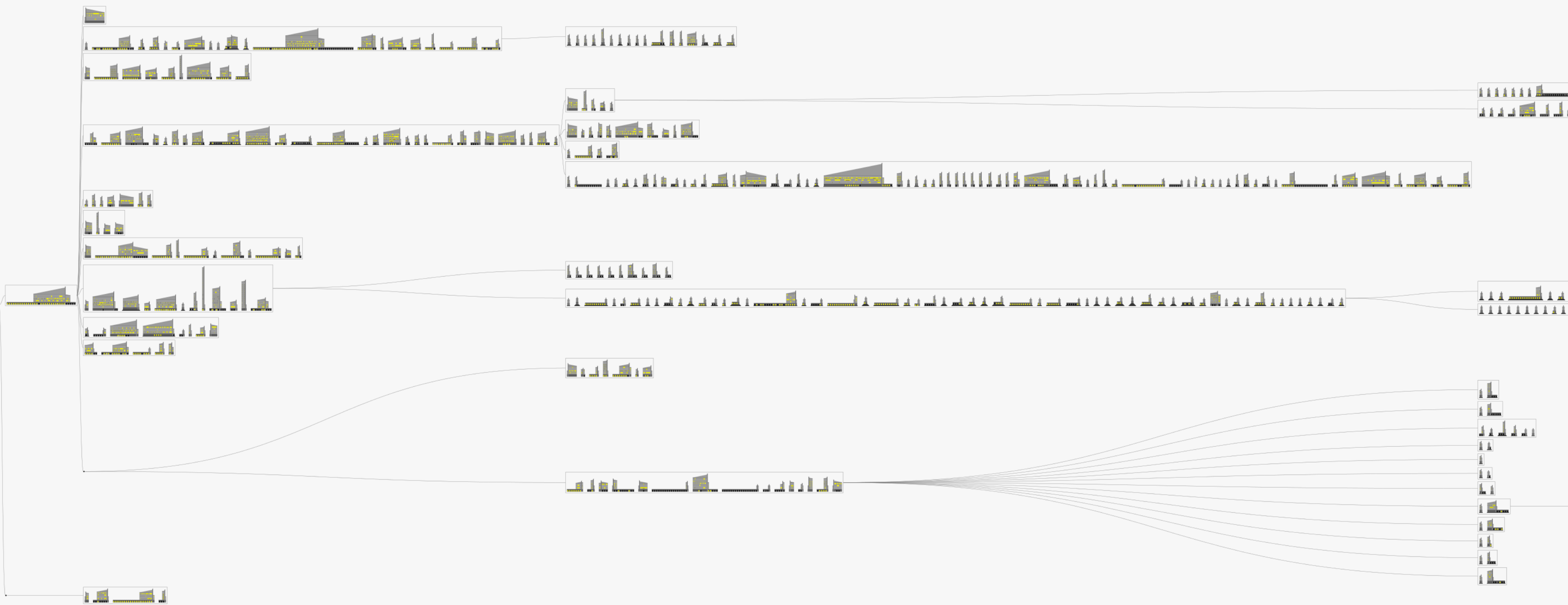


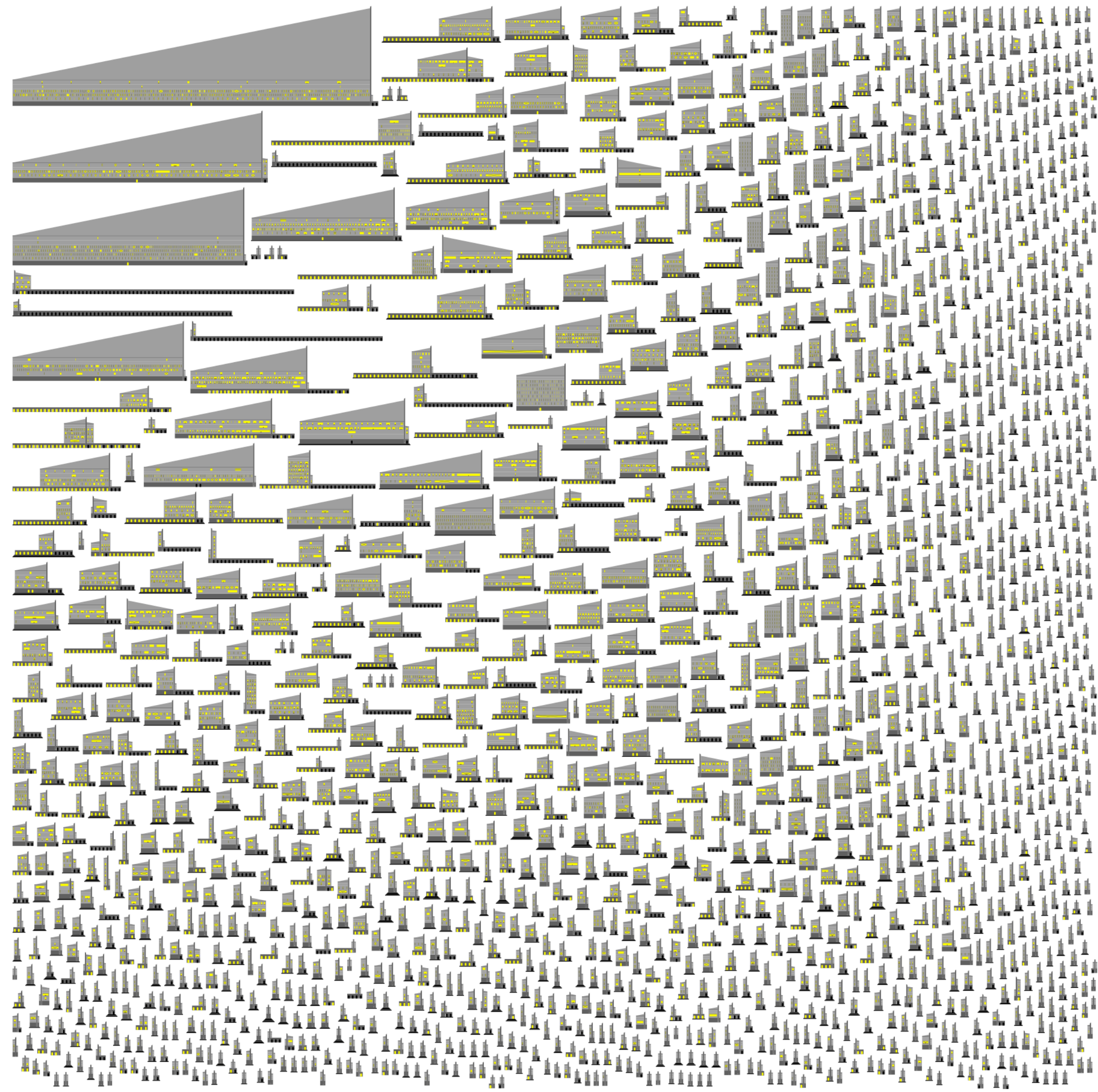
Identifying *Patterns* in the ANTLR Codebase

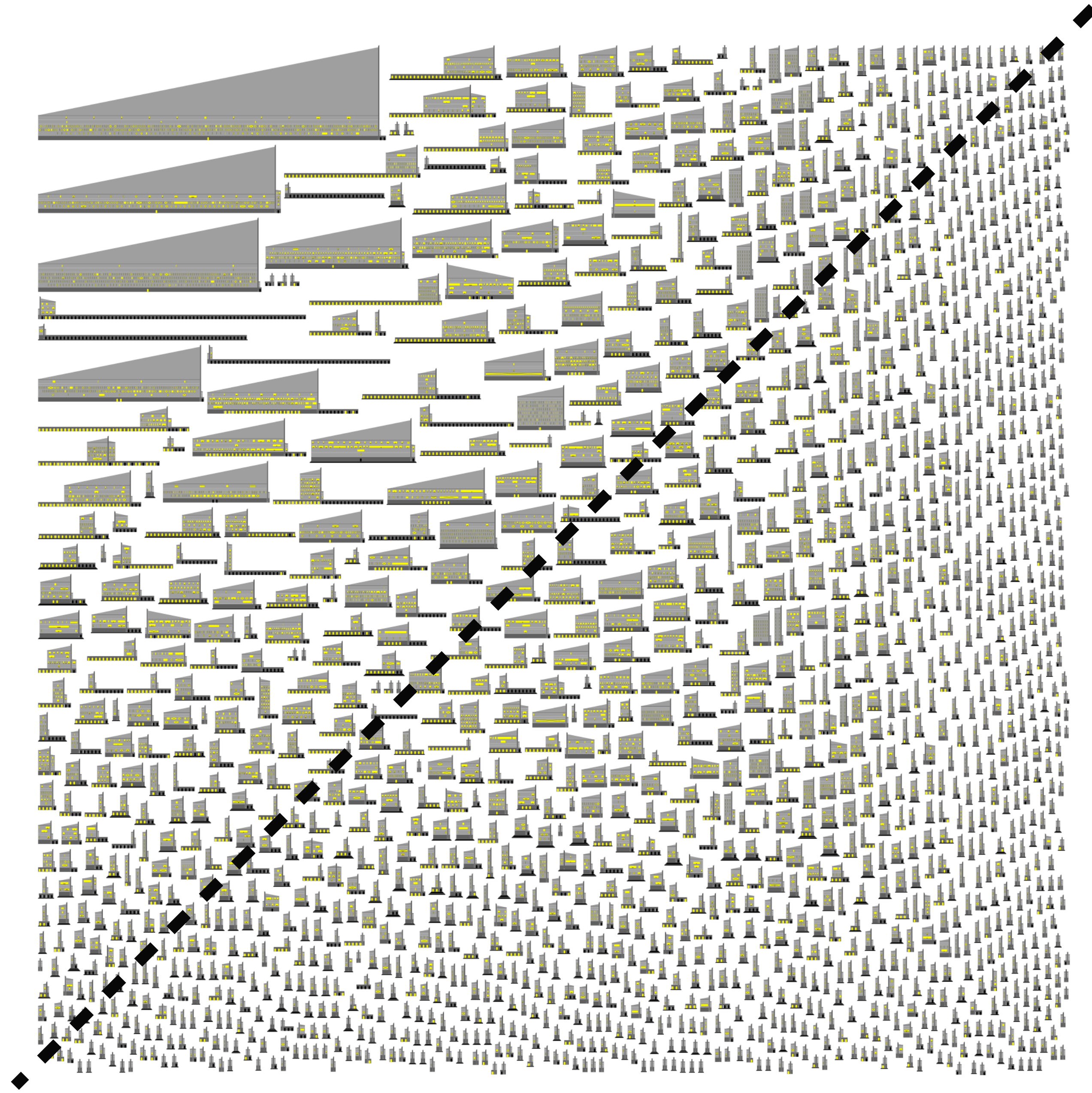


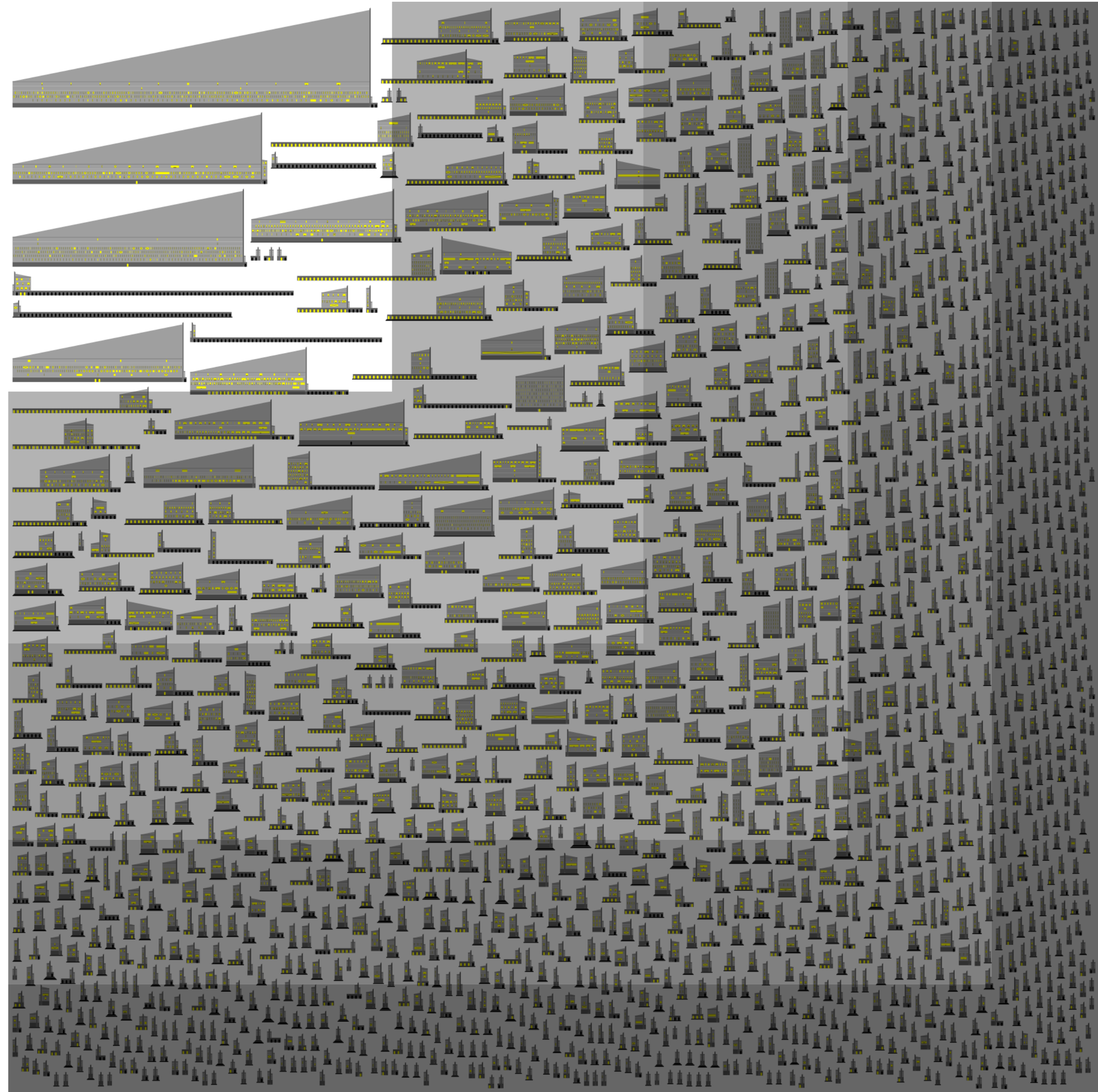


Evolving Class Contours



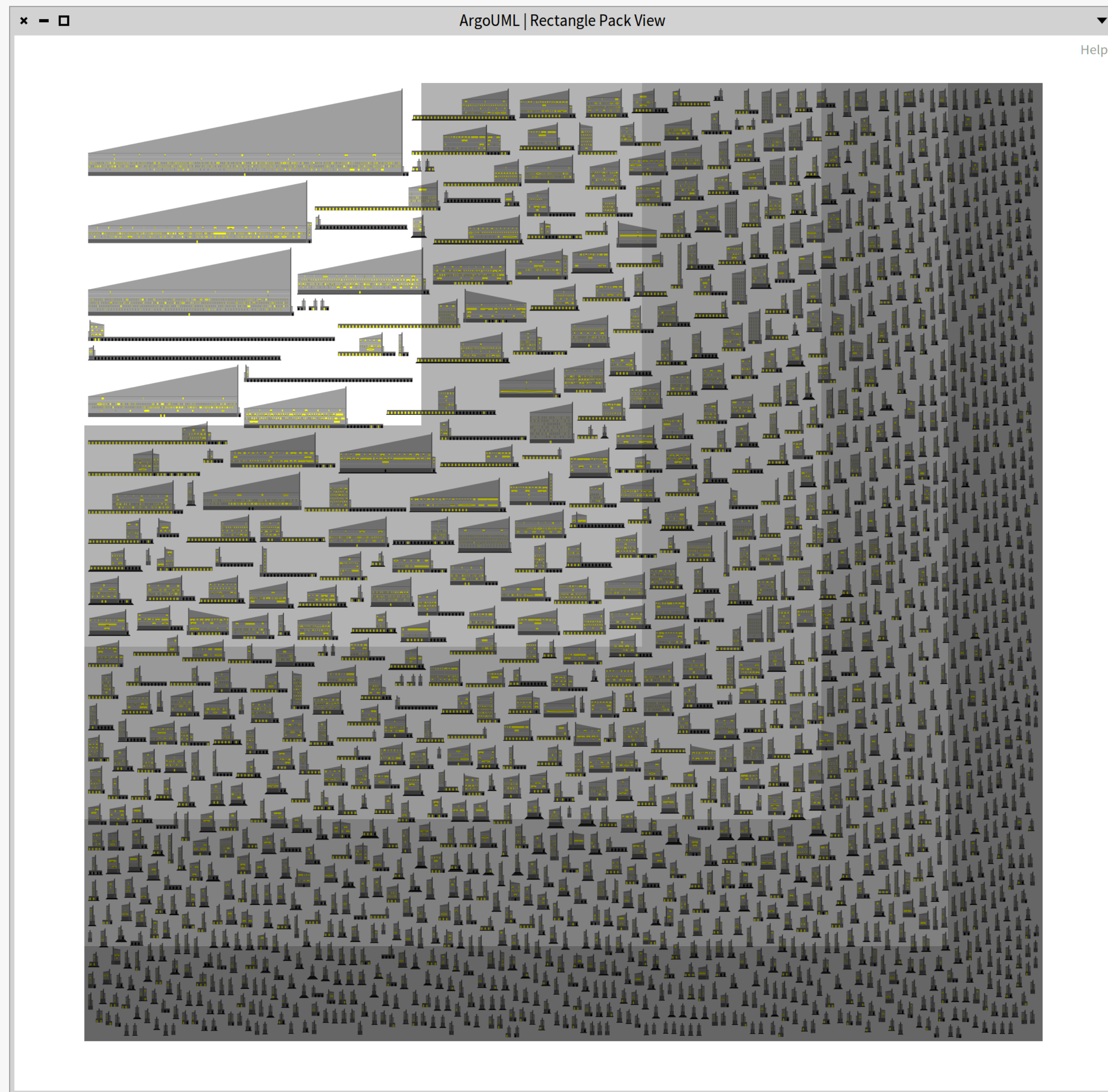




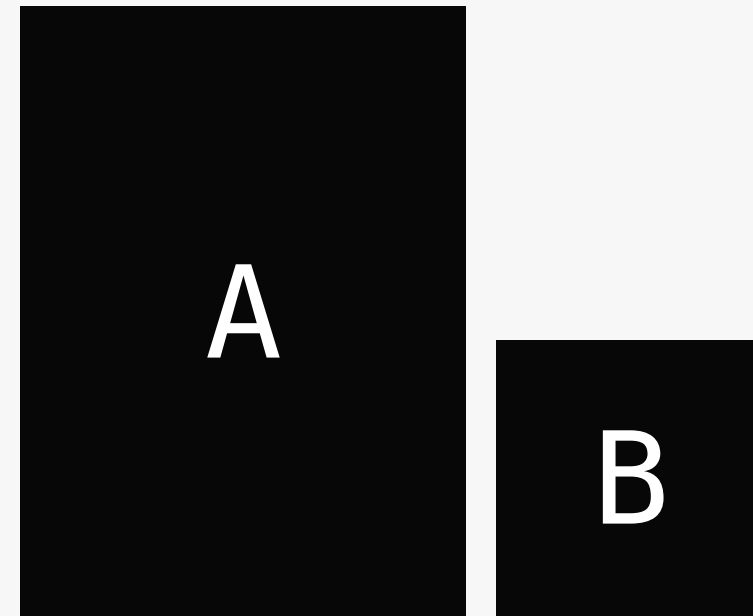


Too large

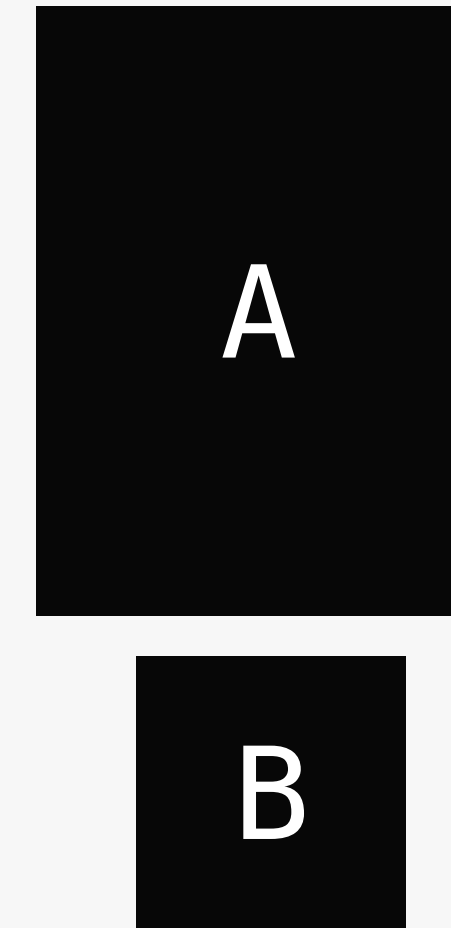
Too small



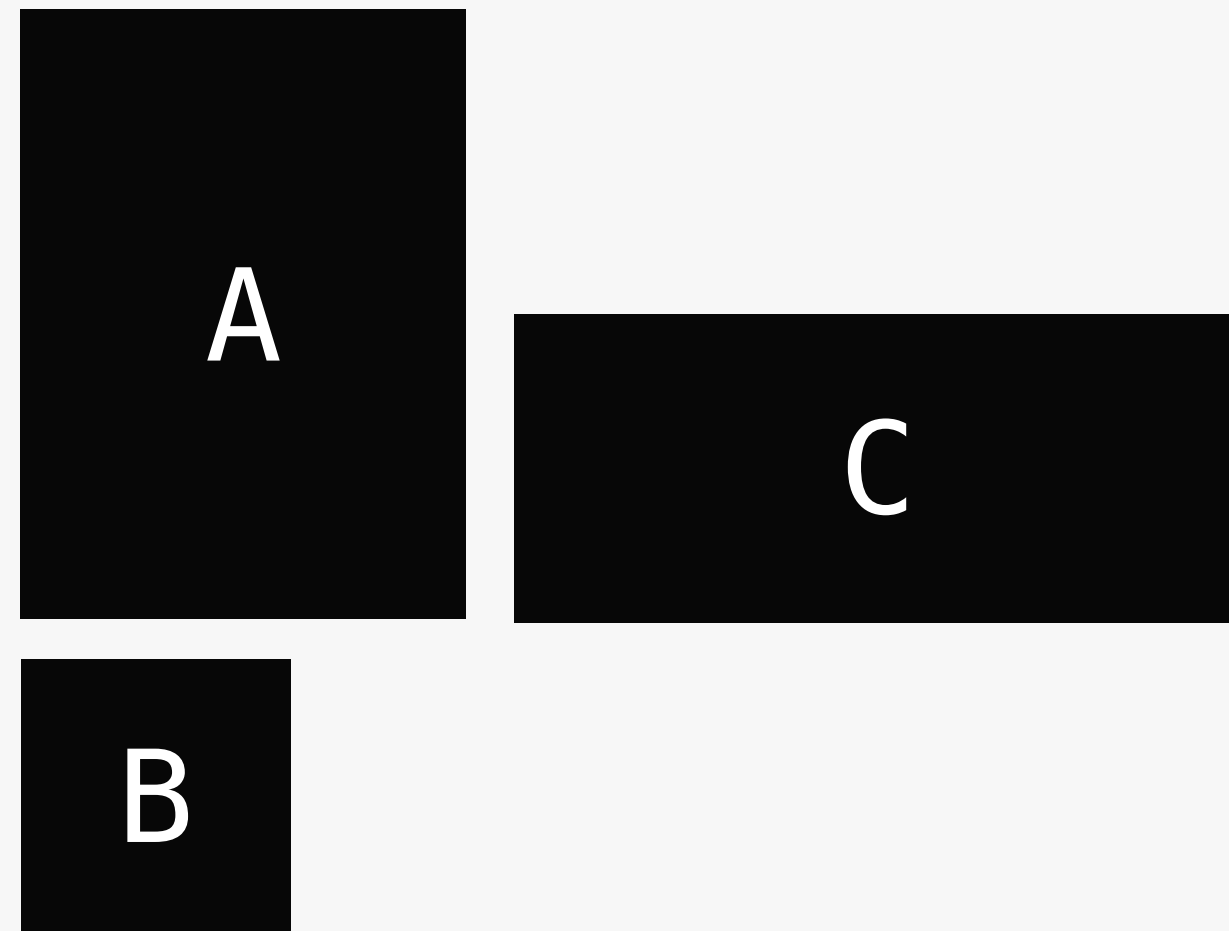
Current Layout



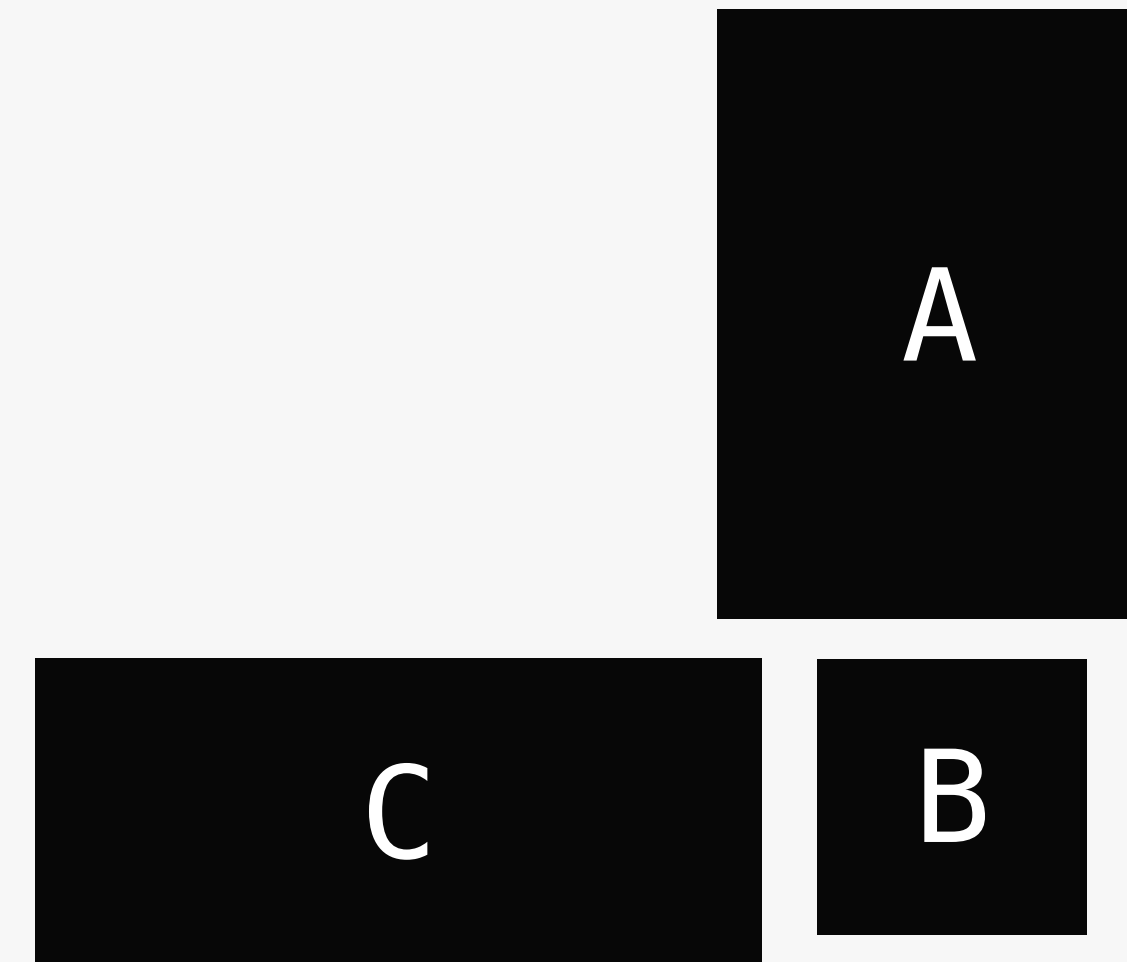
Evolution Resistant Layout



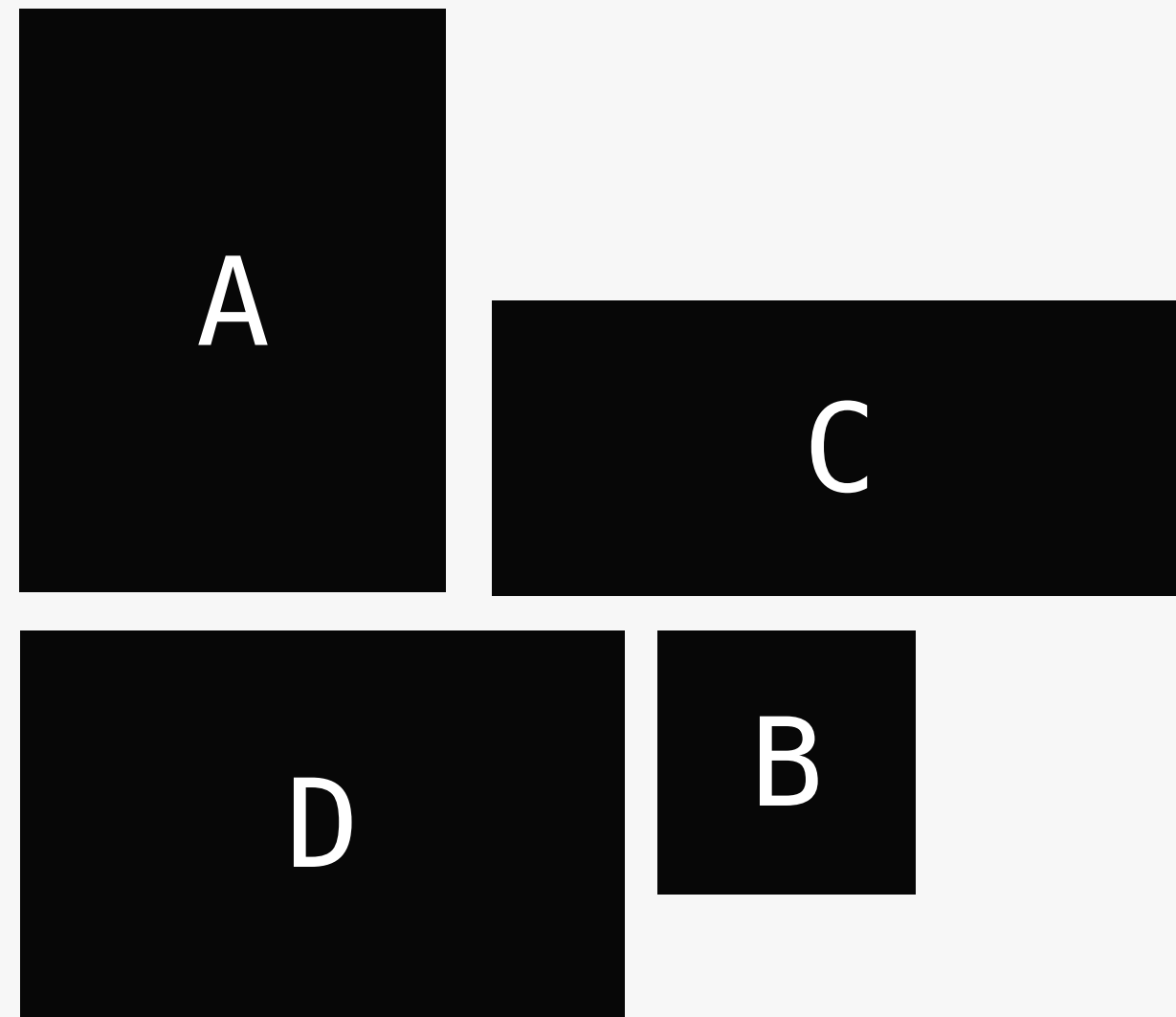
Current Layout



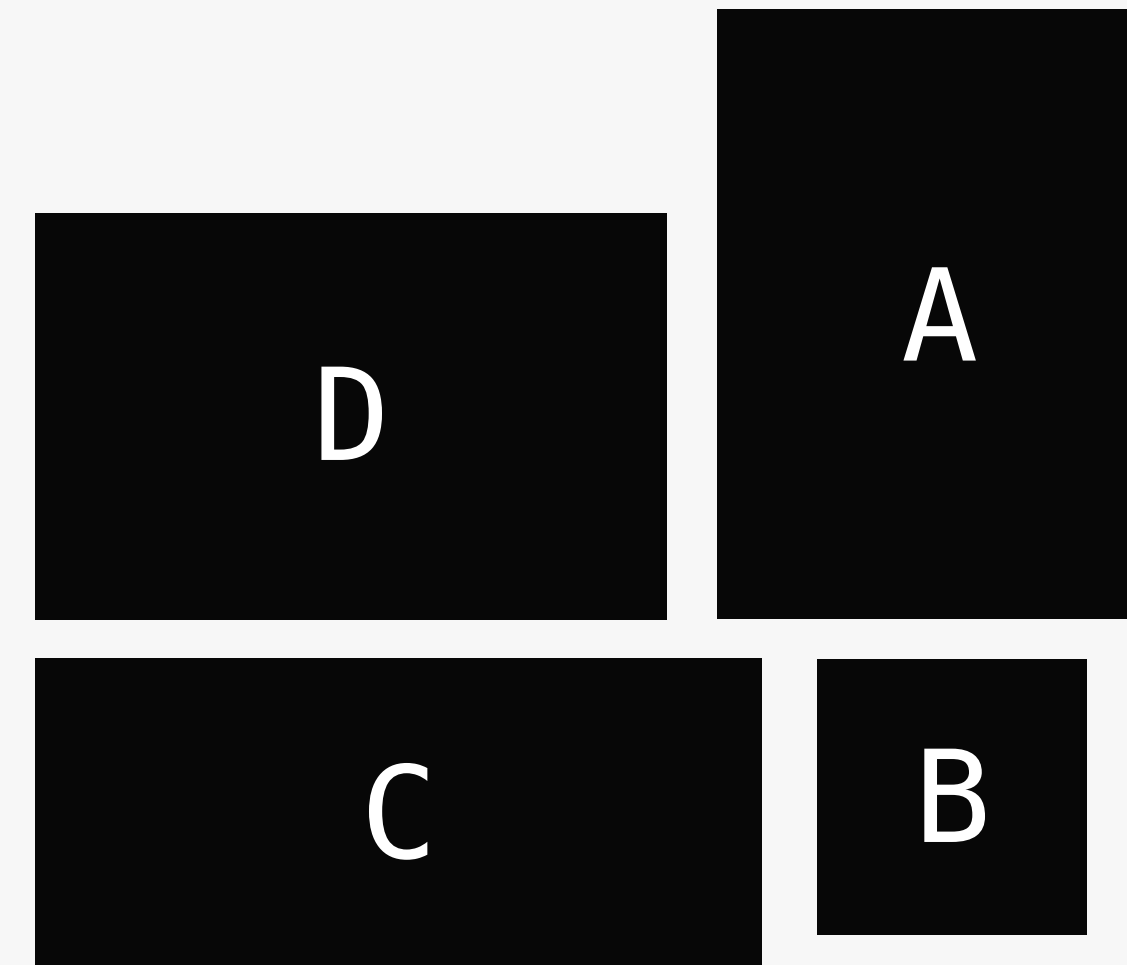
Evolution Resistant Layout



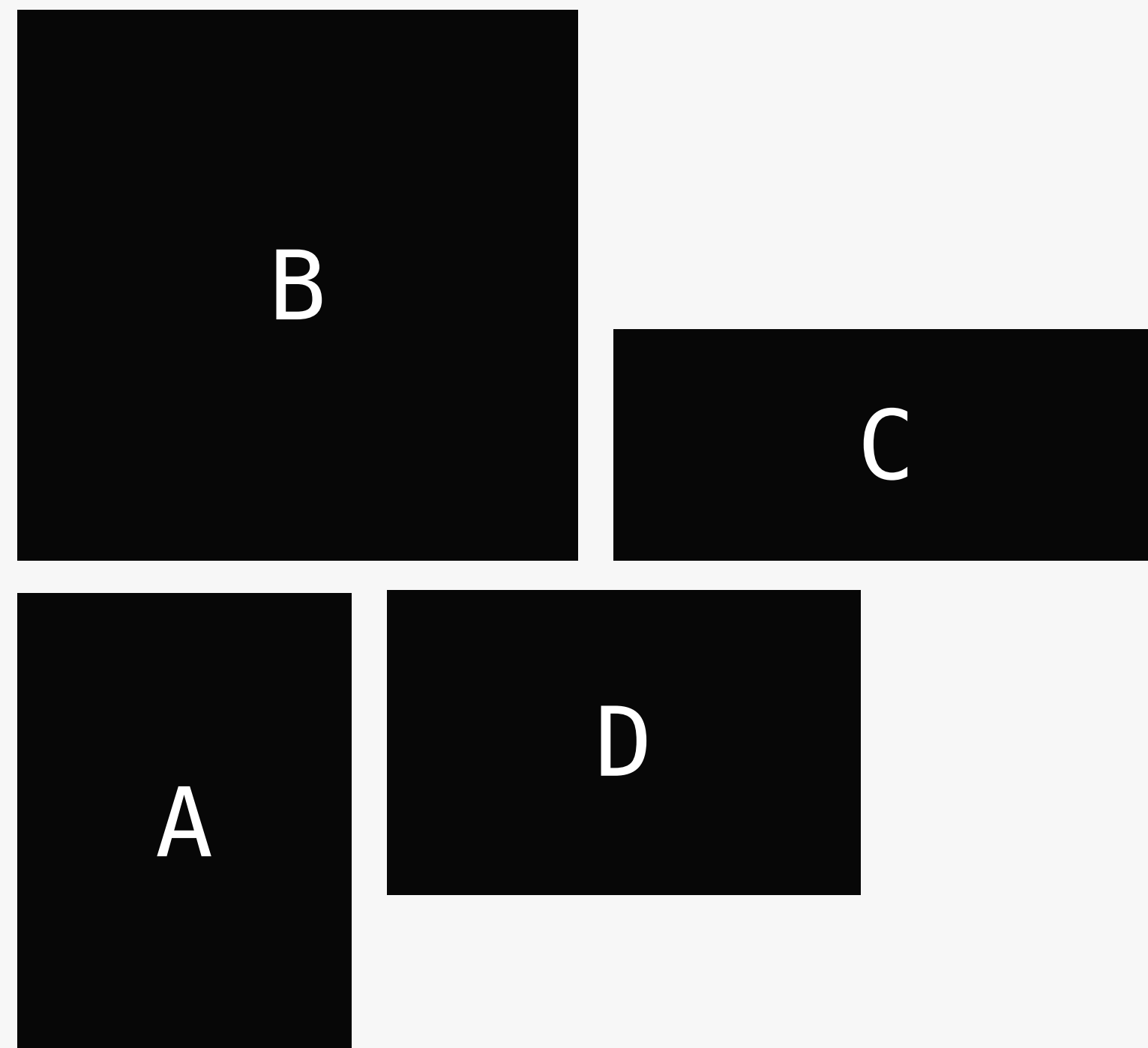
Current Layout



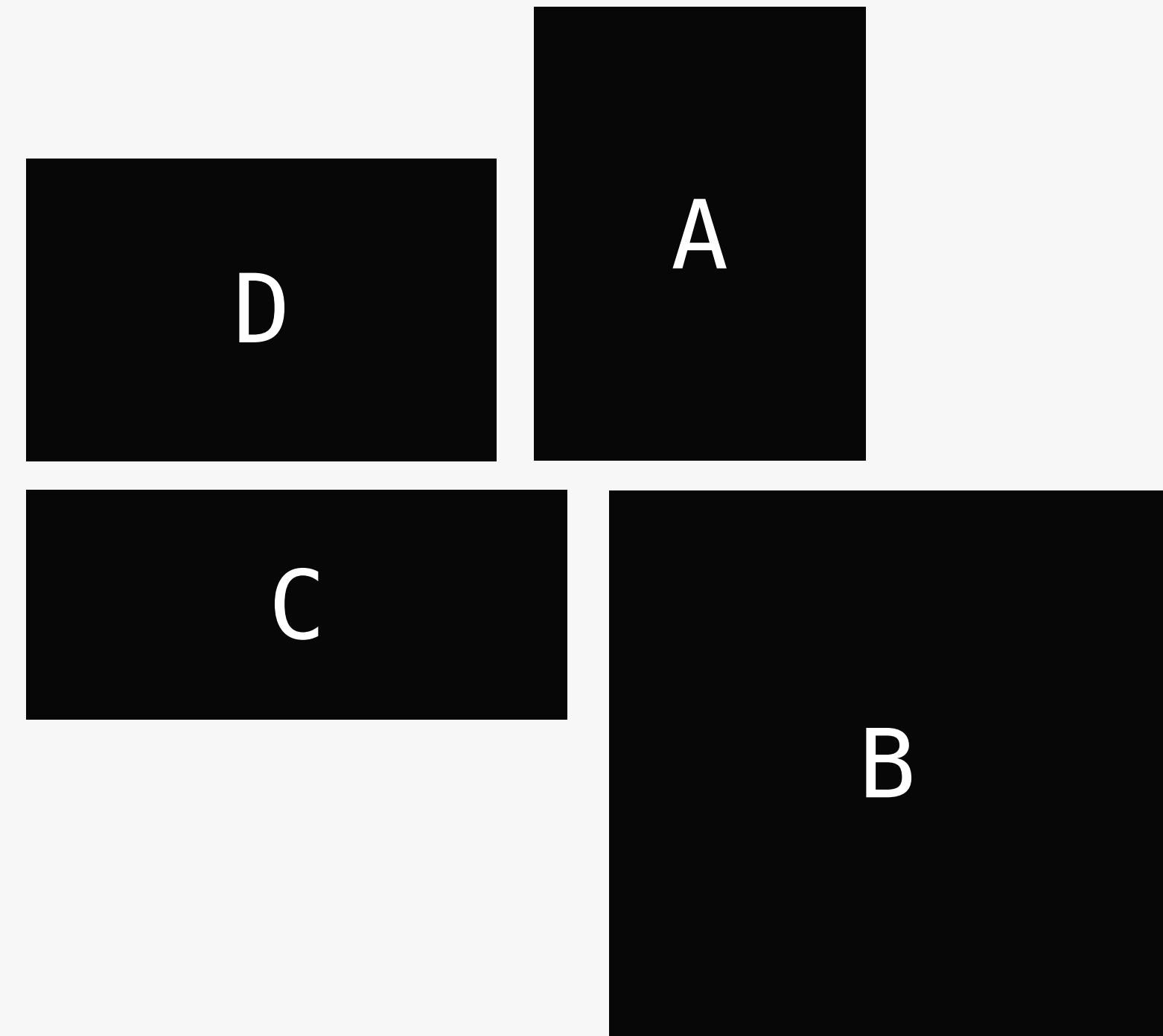
Evolution Resistant Layout



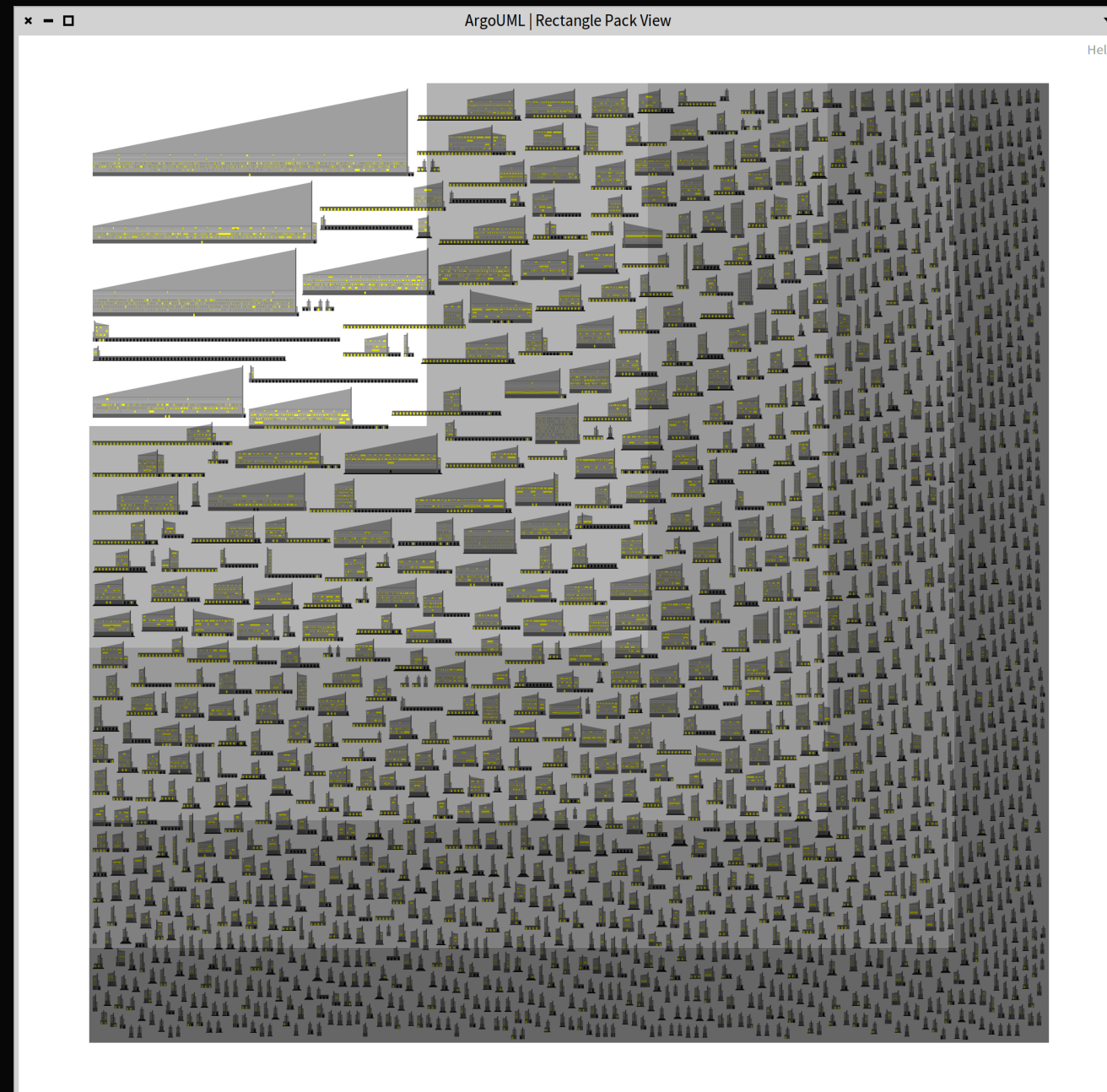
Current Layout



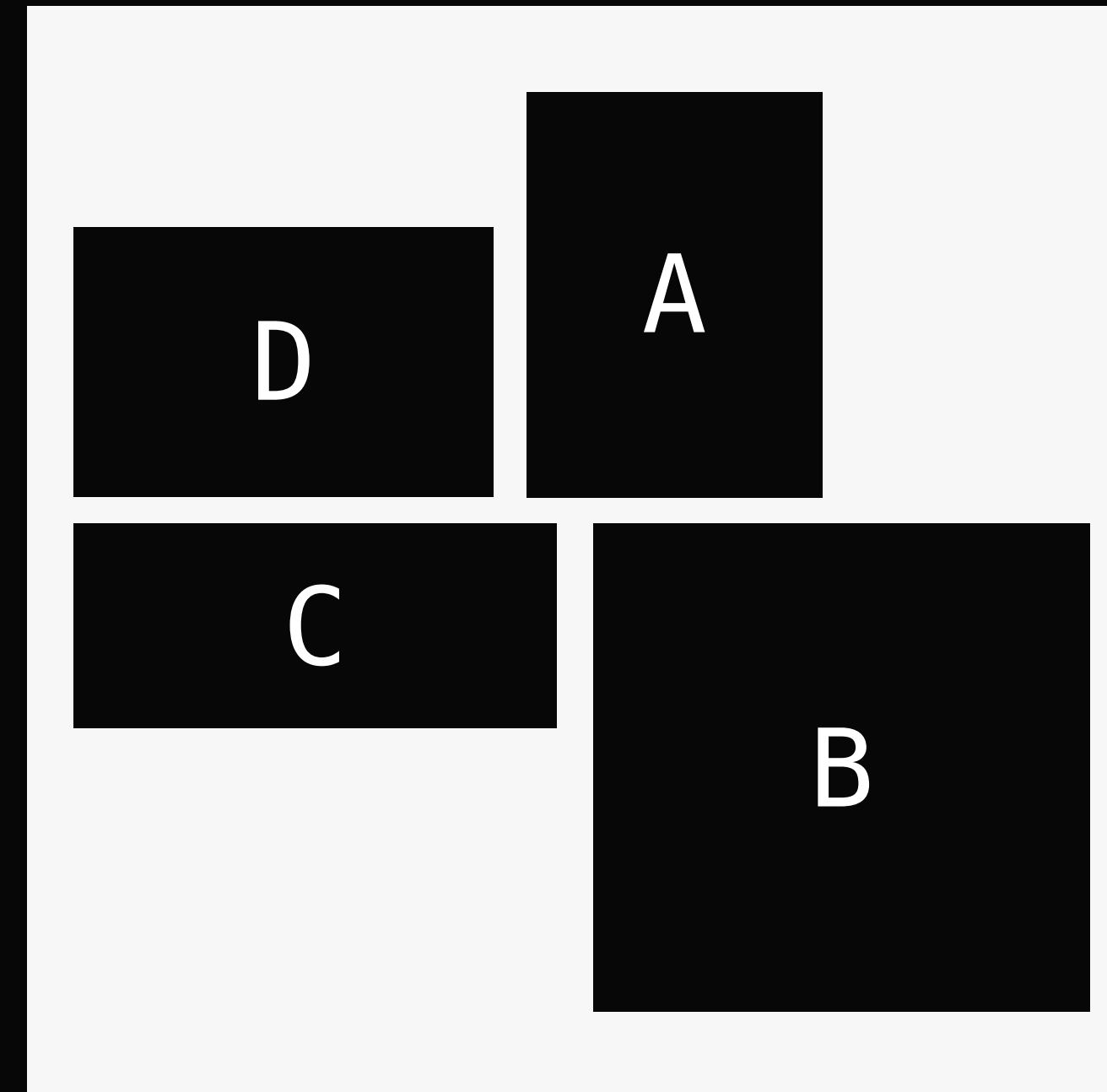
Evolution Resistant Layout



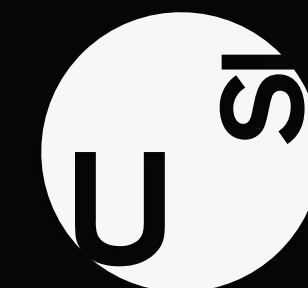
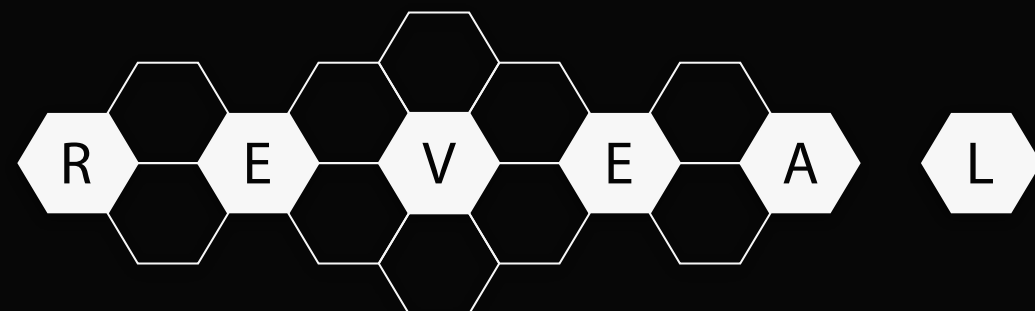
Evolution Resilient Class Contours



Scaling



Positioning



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