

# A logo design tool based on procedural modeling of design elements



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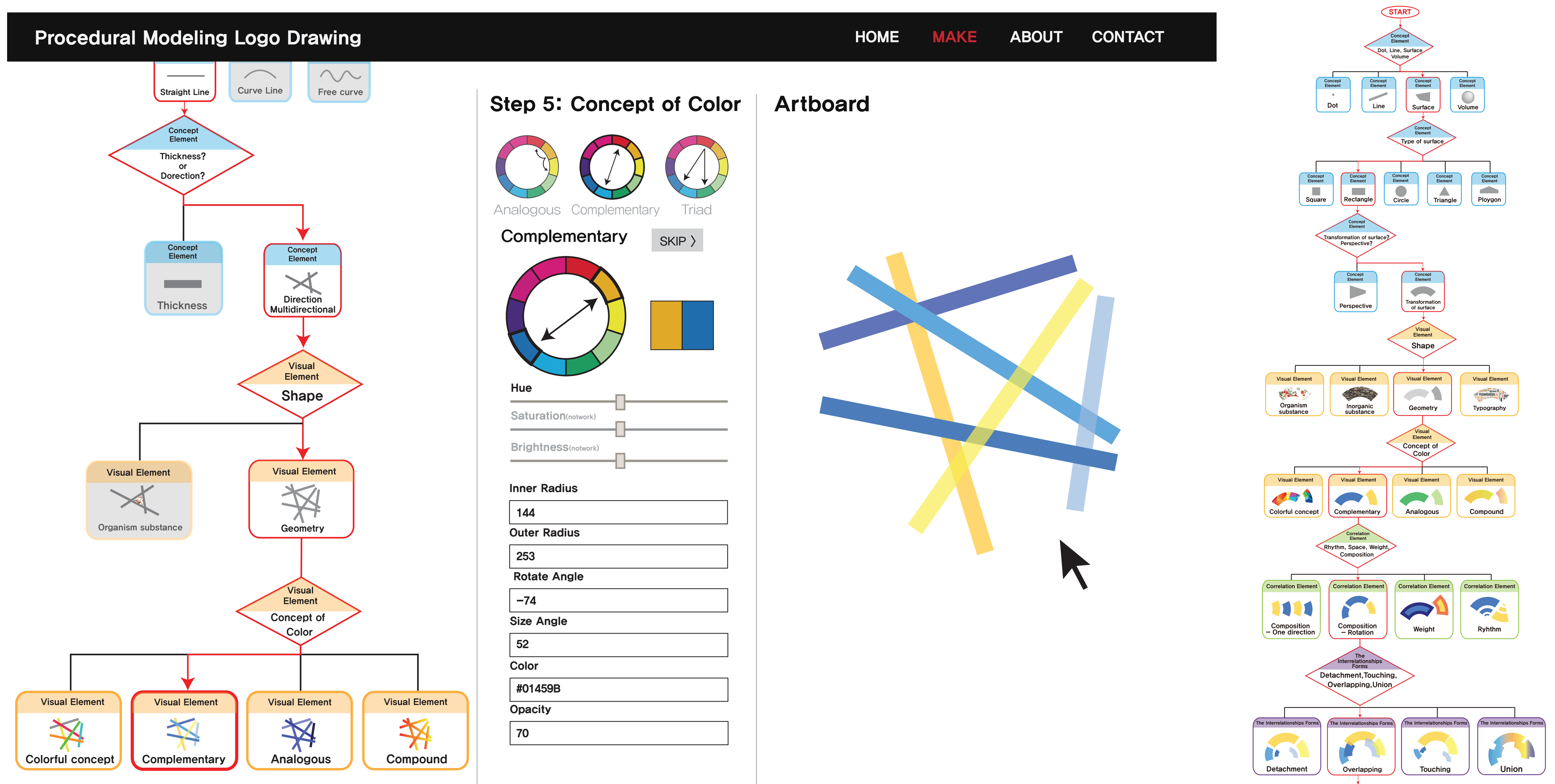


Figure 1. (left) Implementation of the logo design tool suggested in this study it assists efficient and optimized logo design based upon procedural modeling. (right) Logo design process in accordance with procedural modeling.

## Abstract

A myriad of individuals and companies devote much effort to discover the right logo to represent their image, since it greatly affects the overall visual identity such as brand image, product design or promotion design. While it is not an easy task to create an appealing and competitive logo, growing needs for a new logo design tool proved its necessity. This study thereby seeks to develop process criteria based on the classified formative characteristics of a logo, and provide a tool that allows users to efficiently design a logo under certain procedural modeling.

## Introduction

This study aims to apply a logo design tool based on the pre-identified design elements, and facilitate users to design a logo through procedural modeling. Criteria to classify the formative characteristics for a logo were provided with reference to Principles of form and Design, which we implemented to develop a logo design process. The paper further describes a process to create a logo as desired by the user, on the basis of a process developed in this study.

## Data Processing

In order to simplify the logo design process, we needed to establish several basic formative principles. We thereby outlined the fundamental elements of a logo design referring to the criteria suggested in Principles of form and Design. Modeling elements were labeled as Concept element, Visual element, Correlation element, and Interrelationships of Forms and their subordinate attributes, as illustrated in Table 1[1].

| Basic element                   | Attribute  |
|---------------------------------|--|
| Concept element                 | Point, Line, Surface, Volume   |
| Visual element                  | Shape (Natural object, Artificiality, Typo), Concept of color, Texture                       |
| Correlation element             | Rhythm, Space, Weight, Direction   |
| The Interrelationships of Forms | Detachment, Touching, Overlapping, Penetration, Union, Subtraction, Intersection, Coinciding |

## Procedural modeling process

In this chapter, we aim to explore the process of logo design based upon the formative criteria as defined in Table 1. It thus suggests an easy-to-use and intuitive design tool with a flowchart structure, named as 'procedural model', in order to effectively create a logo[2].

We will assume that the desired logo is composed of two arc-shaped geometric layers that are geometric with complementary colors, where the layers are rotating and overlapped. Designing a logo meeting such conditions under our logical progress is represented as Figure 2~Figure 4. Upon initiating the design process, the first options include Point, Line, Surface, and Volume when selecting the concept element. Selecting Surface in order to create arcs will lead to choosing Type of Surface as subordinate attributes of Surface. Users will then be allowed to select Rectangle among Square, Rectangle, Circle, Triangle and Polygon, which is finalized after reshaping the arcs via Transformation of surface.

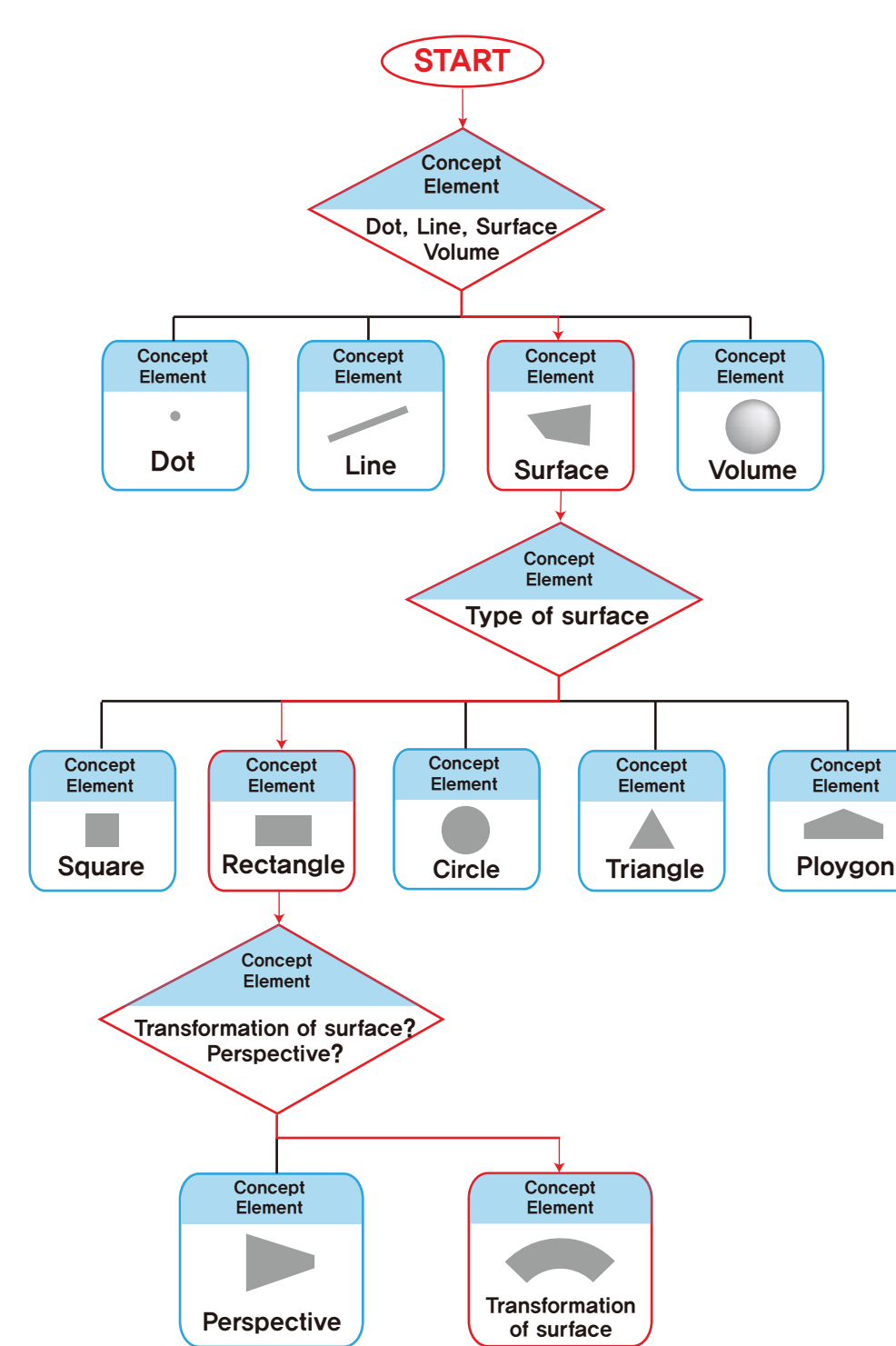


Figure 2. "Concept element" Logo design process in accordance with procedural modeling.

Next, Visual element, guides users to visualize the arc as the user intended, by adjusting Natural object and Artificiality. Selecting Geometry will bring about additional layers so as to form geometric patterns. Finally, in Concept of color, Complementary will be selected to represent complementary colors as desired in our example.

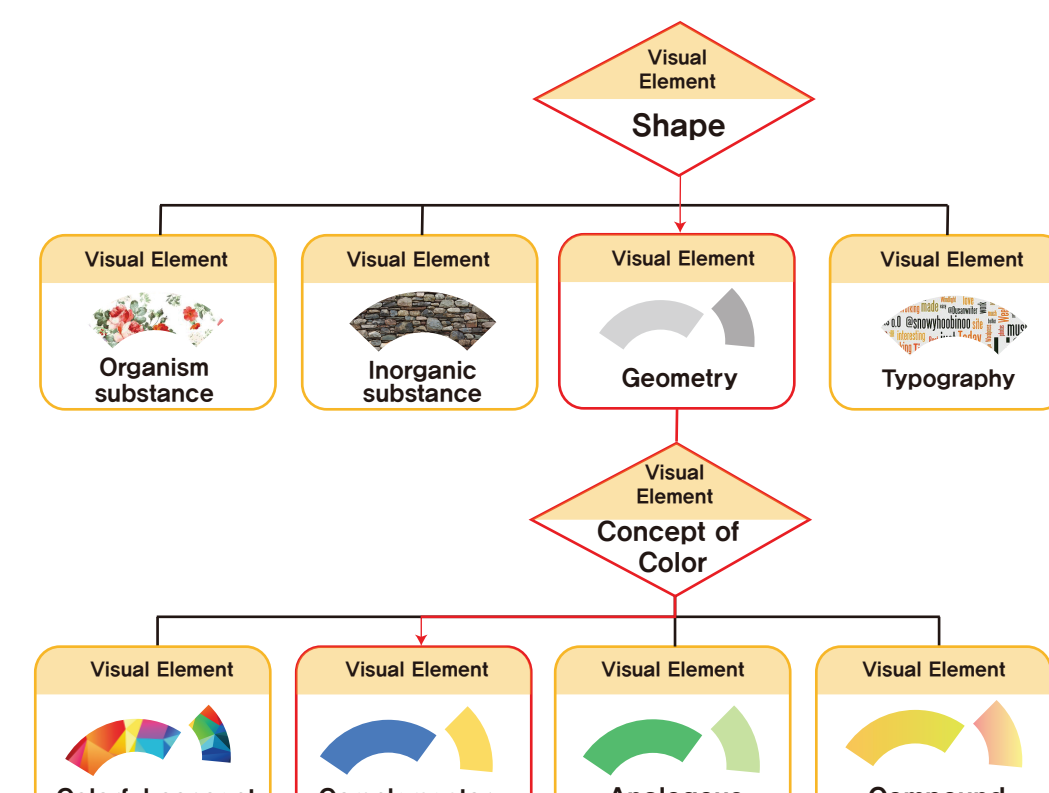


Figure 3. "Visual element" Logo design process in accordance with procedural modeling.

Eventually, in Correlation element, the user will select Rotation under Composition among Rhythm, Space, Weight and Composition to give a sense of rotation with the layer composition. This logo will be finalized when the layers are overlapped with each other after the user selects Overlapping under The Interrelationships of Forms.

The result of our framework is presented in Figure 1. It consists of four main fields; a logo design process flowchart, design element options upon following the procedure, Artboard where the actual logo is presented as being created, and the control board to adjust the details of a layer.

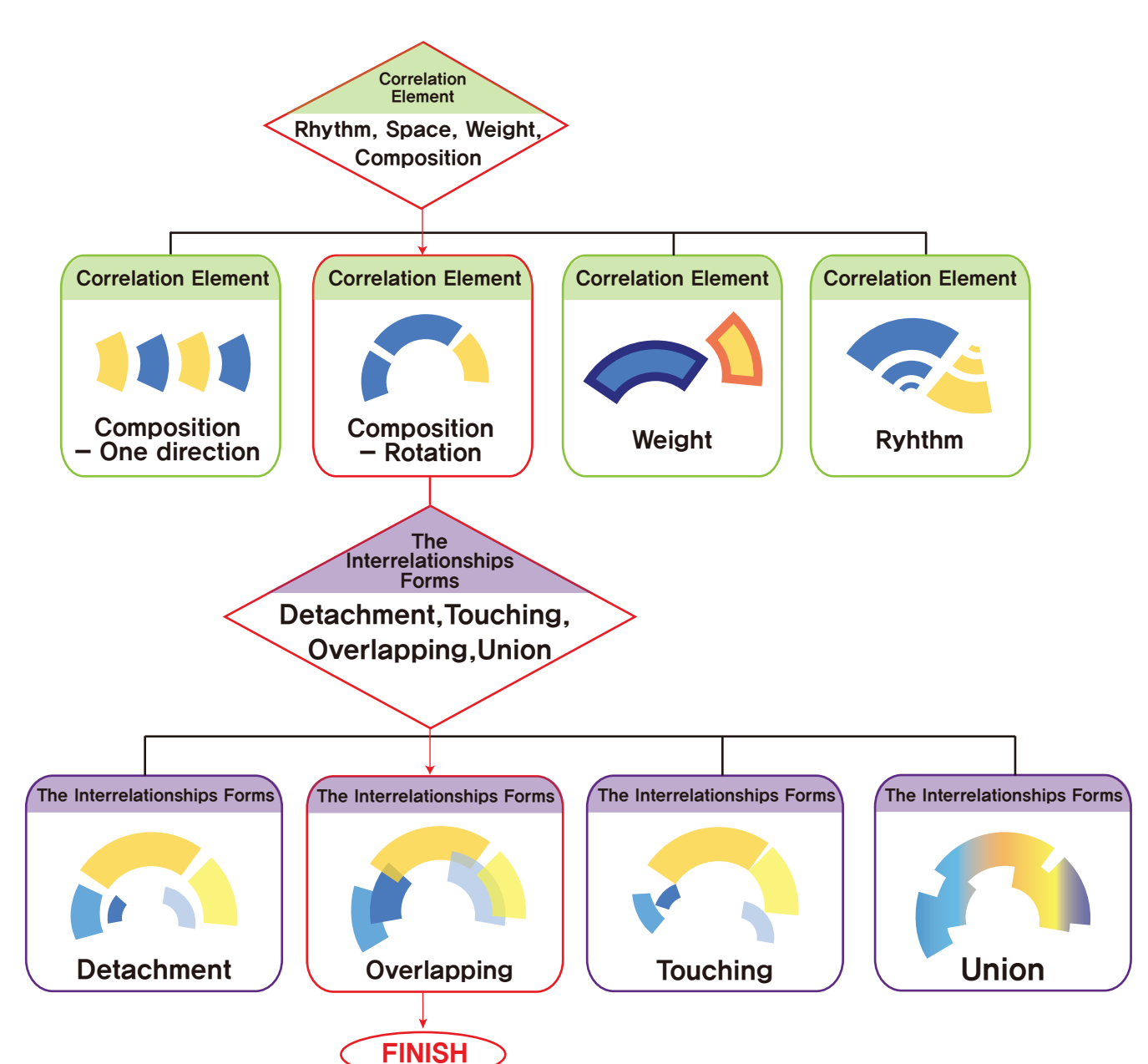


Figure 4. "Correlation element & The Interrelationships of forms" Logo design process in accordance with procedural modeling.

## Conclusion

This study proposed a tool allowing users to easily create a logo under certain process based upon the formative characteristics of logo design. It can perform as a step-by-step guide to navigate the directions when designing a logo, and is also significant that this tool could effectively reduce the cost and time to create a logo. The study further aims to demonstrate a map reflecting the logo trend which can be associated with the logo design tool presented in this research, seeking a more efficient method to create a trendy logo.

## References

- [1] Wucius, W., 1993. Principles of Form and Design. John Wiley & Sons Inc, New York, USA.
- [2] Schwarz, M. and Mueller, P., 2015. Advanced procedural modeling of architecture. Proceedings of ACM Transactions on Graphics. Los Angeles, USA, 107, pp. 1-12.