In this chapter, an aesthetic system which contains interpretations which refer to non-representational, geometric paintings specifiable by generative specifications (see Chapter 3) is outlined. An aesthetic system has four parts: (i) a set of interpretations $I_A$ defined by an algorithm $A$, (ii) a reference decision algorithm $R$, (iii) an evaluation algorithm $E$, and (iv) an evaluation comparison algorithm $C$. For the aesthetic system given for paintings having generative specifications, the algorithm $A$ (and hence the set of interpretations $I_A$) is defined indirectly by a description of allowable $\alpha$ and $\beta$ in interpretations; a reference decision algorithm having the form indicated in Figure 5-2a is assumed implicitly; and the evaluation algorithm $E_z$ and the evaluation comparison algorithm $C_z$ are used. This aesthetic system is defined to deal with the internal coherence of paintings having generative specifications. The paintings Anamorphism I-VI and Bridgework I-VI shown in Figures 3-6 and 3-9 respectively are used as examples. Interpretations which refer to these paintings are given and these interpretations are evaluated and ranked.

An interpretation in the set $I_A$ has the form $<\alpha, \beta>$ where $\alpha$ is the input to the algorithm $A$ resulting in the output $\beta$. In the aesthetic system for paintings having generative specifications, $\alpha$ is given by a generative specification and $\beta$ consists of shape,
color, and occurrence tables. Since the reference decision algorithm used in this aesthetic system is assumed to have the form indicated in Figure 5-2a, $\alpha$ is considered as rules of construction for the description $\beta$ of the painting to which the interpretation $<\alpha,\beta>$ refers.

Now $\alpha$ occurring in interpretations is a generative specification. Recall that a generative specification consists of a shape specification, which determines a class of shapes, and a material specification, which determines how these shapes are represented materially. A shape specification consists of a shape grammar and a selection rule. A shape grammar is defined over an alphabet of shapes and provides for the recursive generation of shapes. A selection rule selects shapes from the language of shapes defined by a shape grammar and provides a halting algorithm for the shape generation process. A material specification consists of a finite list of painting rules and a limiting shape. Painting rules indicate how the areas contained in a shape are colored by considering the shape as a Venn diagram. The limiting shape has the property of a camera viewfinder, determining what part of a painted shape occurs on a canvas of given size and shape and in what orientation and scale. Paintings are material representations of two dimensional shapes generated by shape grammars.

The generative specification for the painting Anamorphism I is given in Figure 3-7; the generative specifications for Anamorphism II-VI are given using the shape rules of Figure 3-8. The generative specification for the painting Bridgework I is given in Figure 3-10;