A methodology for making the mental manifest by measuring Mondrian’s masterpieces

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Cognitive Lunch, December 8, 2004
Visual Weight & Balance

Mondrian

What was Mondrian really up to?

Why study one mind?
According to Arnheim, we do not only perceive objects, colors, shapes, movements and sizes, but an interplay of directed tensions.

According to Arnheim, because these tensions have magnitude and direction they can be called *psychological forces*.
### Visual Weight

#### Some factors that affect visual weight, according to Arnheim

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Location</strong></td>
<td>An object in the center can be counterbalanced by smaller ones placed off-center. According to the lever principle, the weight of an element increases in relation to its distance from the center.</td>
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<tr>
<td><strong>Size</strong></td>
<td>The larger the object, the heavier it is perceived to be.</td>
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<tr>
<td><strong>Color</strong></td>
<td>Red is heavier than blue; bright colors are heavier than dark ones (a black area must be larger than a white one to counterbalance it).</td>
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<tr>
<td><strong>Interest</strong></td>
<td>Because of its formal complexity, intricacy, or other peculiarity, a visual area may look heavier.</td>
</tr>
<tr>
<td><strong>Isolation</strong></td>
<td>Increases weight; e.g., the moon in an empty sky.</td>
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</tbody>
</table>
An large object near the center can be counterbalanced by smaller ones placed further away from the center. According to the lever principle, the moment of an element increases in relation to its distance from the center.
Visual Weight

The weight of eight

The number 8
Visual Weight

The weight of eight
Mondrian — master of balance?

From the website of the Art Institute of Chicago

While Mondrian’s art may seem simple at first glance, it is the result of constant adjustment to achieve absolute balance and harmony.
Mondrian — master of balance?

From the website of the Art Institute of Chicago

While Mondrian’s art may seem simple at first glance, it is the result of constant adjustment to achieve absolute balance and harmony. In [Lozenge Composition], the artist turned the square canvas on edge to create a dynamic relationship between the rectilinear composition and diagonal lines of the work’s edges. 

^www.artic.edu/aic/collections/modern/70mac mondrian.html
Mondrian — master of balance?

From Meyer Schapiro’s *Mondrian: On the Humanity of Abstract Painting*

When studied closely, the barest works, with only a few units, reveal his canny finesse in shaping a balanced order; that variety in the sparse and straight is a ground of their continuing fascination.\(^a\)

\(^a\)Schapiro, 1978/1995, p. 26

Fox-Trot A: Lozenge w/ Three Lines, 1929–30
A single plane stands as a “form” in a vague space: $a$

Several planes determine the space more but not completely: $b$

Space completely determined (space and colors equivalent: thus unity): $c$
Mondrian — master of balance?

Single plane, no exact relationship, neither with space nor forms: $a$

Exact relationship between two planes and vague relationship with space: $b$

Exact relationship between forms and space: $c$
Fantastic relationship risks being unbalanced

\[ a: \text{can be only relatively balanced.} \]
\[ b: \text{can be equivalently (exactly) balanced.} \]

Mondrian

Still Life with Gingerpot 2, 1912
Composition with Oval in Color Planes II, 1914
Mondrian

Self-portrait, 1918
Mondrian

Composition with Gray & Light Brown, 1918
Composition with Color Planes & Gray Lines, 1918
Composition with Grid VII (Lozenge), 1919
Mondrian

Composition A, 1920

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Tableau I w/ Black, Red, Yellow, Blue, & Light Blue, 1921
Lozenge Composition w/ Yellow, Black, Blue, Red, & Gray, 1921
Mondrian

Composition w/ Large Blue Plane, Red, Black, Yellow, & Gray, 1921
Mondrian

Composition w/ Large Red Plane, Yellow, Black, Gray, & Blue, 1921
Mondrian

Composition w/ Red, Yellow & Blue, 1921
Composition No. 2, 1922
Composition w/ Blue, Yellow, Black, & Red, 1922
Lozenge Composition w/ Red, Gray, Blue, Yellow, & Black, 1924–5
Mondrian

Lozenge Composition with Red, Black, Blue, & Yellow, 1925
Mondrian

Tableau No. I: Lozenge w/ 3 Lines & Blue, Gray, & Yellow, 1925
Mondrian

Large Composition w/ Red, Blue, & Yellow, 1928
Mondrian

Fox-Trot A: Lozenge w/ Three Lines, 1929–30
Mondrian

Composition w/ Yellow Patch, 1930
Mondrian

Lozenge Composition w/ Two Lines, 1931
Composition III: White Yellow, 1935
Composition C (No. III) w/ Red, Yellow, & Blue, 1935
Composition with Blue, Red, & Yellow, 1935–42
Mondrian

Vertical Composition in Blue, Yellow, & White, 1936
Mondrian

Composition — Blanc, Rouge et Jaune: A, 1936
Composition de Lignes et Couleur, III, 1937
Mondrian

Place de la Concorde, 1938–43
Mondrian

Composition No. 8, w/ Red, Blue, & Yellow, 1939–43
Mondrian

New York City I, 1942
Mondrian

Victory Boogie Woogie, 1942–3
Mondrian

Broadway Boogie Woogie, 1943
An analysis

**Fox-Trot A: Lozenge w/ Three Lines, 1929–30**
An analysis

Fox-Trot A: Lozenge w/ Three Lines, 1929–30

Area = 6.2
Area = 5.7
Area = 8.2

Moment = 55.8
Moment = 33.7

Center of balance
1.89
An analysis

Algom et al., 1985

Perceived Area = Area^{0.73a}

An analysis

Fox-Trot A: Lozenge w/ Three Lines, 1929–30

Area = 8.2

Center of balance

Area = 3.8

Area = 3.56

Moment = 34.5

Moment = 20.8

Area = 0.73

Center of balance 1.82

Area = 0.73

Fox-Trot A: Lozenge w/ Three Lines, 1929–30
On balance . . .

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On balance . . .

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- To discover what balance might mean we can study the minds of experts.
- Standard way: study many experts.
- Complementary way: study the expert.
- We don’t know what he was doing.
- If we can infer that he was seeking balance.
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To discover what balance might mean, we can study the minds of experts.

Standard way: study many experts.

Complementary way: study the expert.

We don’t know what he was doing.

If we can infer that he was seeking balance,

then we will have a candidate for a theory of balance.