LINE, SPACE, SHAPE, AND FORM

I. LINE

A. Definition

An extension of a point, elongated mark, connection between two points, the effect of the edge of an object

B. Ways designers employ lines in a composition

1. to make a shape, contour, define a boundary
2. create variety by using angular, broken, bent, thick or thin lines
3. create rhythm with curved or straight lines, varied in length
4. simulate texture
5. passive lines created between the division of one color from another or mass from space
6. in perspective to create the illusion of depth
7. organized to express movement or motion
8. create focus through direction

C. Aspects

Lines are analyzed according to nine aspects:

1. Path
2. Thickness
3. Evenness
4. Continuity
5. Sharpness of the edge
6. Contour of the edge
7. Consistency
8. Length
9. Direction

D. Lines as design components

1. Lines in buildings

    a. Structural uses include columns, trusses, rafters, beams, planking, brick rows

    b. Decorative uses include moulding, wallpaper, color blocking
    c.

2. Lines in Clothing

    a. Structural uses include Seams, darts, shirring, silhouette, edges of collars, lapels, pockets, belts, sleeves, hems, openings, pleats, gathers, tucks, draping

    b. Decorative uses included braid, rickrack, piping, rows of buttons, insertions, binding, lace edgings, ribbon, soutache, topstitching, faggoting, ruffles, fringe, linear embroidery, beading or fabric patterns such as plaid, stripes, herringbones, checks, zigzags

3. Lines in Lighting

    Single beams of light, edge of shadows, template patterns

E. Physical and Psychological effects of line

1. The direction of the line is the strongest of the aspects because it leads the eye and creates focus

a. Vertical lines are awake, alert, defy gravity, rigid, firm, stable, strong

b. Horizontal lines are restful, yield to gravity, create quiet, repose, passivity, calmness, or serenity

c. Diagonal lines appear undecided, unstable, busy, active, dynamic, restless, dramatic, sporty, lengthening, and reduce horizontal or vertical shapes.

1. Often a diagonal line needs opposing diagonal to appear balanced.

2. If joining diagonal lines are pointing down they tend to lift up, or make object /wearer appear lighter, happier, more youthful

3. if they are pointing up the lines will have the opposite effect causing the object/wearer to appear older, heavier, somber, or droopy.

d. A horizontal line combined with a vertical line creates stillness, staticness, equilibrium. For example, the frame work of a building, telephone poles, branches of a tree.

F. Expressive power of lines

1. The choices made with respect to the aspects of the lines in a design can manipulate the viewer for example:

DANGER or DANGER

Which danger is more informative and gets the point across?

2. Mood can also be manipulated depending on how aspects are used

a. An assertive mood can be created with straight, solid, sharp, thick, even, smooth, bold, or vertical lines

b. A soft, or delicate mood would employ curved, thin, or continuous lines

c. A casual feeling would involve using lines that are zigzag, soft, broken, sharp, thin, porous

3. Moods can be modified by aspects as well

An assertive straight path can be modified with shaped, lacy, porous or fuzzy edges and become delicate or ephemeral

G. Reinforcement and countering with line aspects

1. Lines emphasis the direction in which the lines are going

    a. A horizontal line at the shoulder or hip visually widen the figure while a vertical line from the shoulder to the hip will visually lengthen the torso

    b. A thick horizontal line at the top of a low building, for example a row of bricks in a contrasting color will cause the building to look wider or squatty, while the placement of a contrasting line of bricks vertical will give the building more height

    c. Soften tall, angular, thin, line with countering curved lines

    d. Counter protruding round lines with straight lines and sharp corners

II. SPACE

Space can either be a flat area or have volume. An enclosed space is usually called "shape" while and unenclosed space is simply "space", but the two are inseparable and have a powerful and complementary relationship. Space/shape relationships can create illusions of depth or of foreground and background. In this relationship shape is known as figure, enclosed space, or positive space while space is called ground, background, or negative space. Empty space is also called open, unbroken, plain, or blank while filled space is closed.

Theatre is a three-dimensional space which requires that a designer always concentrate on how a design will look in a three-dimensional space.

Scenic designers create on the vertical plane of the proscenium, and on the horizontal plane of the stage floor.

Costume designers created on the vertical plane of the human figure in motion. Costumes take on the qualities of sculpture.

Lighting designers can create designs that will change the look of a scenic or costume design elements from a shape with volume to a flat space by changing the direction of the line of the light and shadows.

A. Definition

The two dimensional or three dimensional area into which all other elements of design are placed

1. Becomes shape, form, and pattern

2. Determines how all other elements relate

3. Surrounding unenclosed space should not be considered what is left over but a part of the overall design

4. Space is organized by introducing lines that subdivide, rearrange, push, pull, and otherwise manipulate

5. A line drawn around some space creates shape and a shape is simply enclosed space thus, space, line, and shape are inseparable

B. Descriptive terms for space/shape relationships

1. Inside space is a shape, figure, foreground, positive, internal space

2. Outside space is ground, background, negative, external, interstitial

   Interstitial space is between unconnected shapes

3. Empty space can be open, unbroken, plain, blank

4. Filled space can be closed, broken

C. Six cues that control visual perception of spatial effects

1. Size of spatial divisions
2. Overlapping
3. Closeness of shapes
4. Density of spatial divisions
5. Convectivity and concavity
6. Character of enclosing lines

D. Advancing or flattening cues

1. The cues that make enclosed space (shape) appear solid are **advancing cues.** These cues expand, create depth, and increase the apparent distance between foreground and background.

a. If sizes of shapes differ from each other and from the surrounding space the shape will be perceived as a solid on a background.

b. Overlapping spaces/shapes distinguish foreground from background

c. Closeness of shapes that are not touching cause them to be seen as in front of a background and isolated, not touching, floating

d. Density of space/shape filled w/texture pattern is perceived as solid

e. Convectivity or convex curves enclosing lines are perceived as shape, protrusion, pushing out, bumps

f. Line character that is thick and sharp make the enclosed space seem more solid, and dense, or further from the background.

2. Cues that reduce, minimize, make areas recede, seem hollow, or porous are **flattening cues.**

a. Similar sizes of areas create confusion between foreground and background

b. No overlapping lacks depth and all things are equal

c. If shapes are so close they are touching it suggest one surface

d. Empty, plain space is perceived as hollow, void, or without density

e. Concave curves are perceived as holes, indentations

f. The character of thin, fuzzy, broken, or blurred enclosing lines creates a flat airy feeling because space flows into and out of the area, weak

E. Space as Ground in a composition

Why is unenclosed space, or background, so vital in visual design? Ground, or interstitial space is a critical "captured space" and not just passive, empty distance between other parts, but a tool that gives vitality to relationships of shapes. Unenclosed space is complementary to enclosed space, or shape, and shape is complementary to space.

1. gives the object form, importance, identifies, isolates, defines, distinguishes

2. exerts pressure and locates or fixates an object in position, gives stability

3. provides distance to determine how shapes, lines, and spatial divisions relate

4. provides rest and relief in pattern, a visual interval similar to a rest in music, or a pause in speech

5. appears behind shape thus pushes shape forward

6. because it is less dense, more airy or hollow than the shape it surrounds it gives shape buoyancy

F. Space as volume

A three-dimensional volume of air "space" surrounds us as we move about the stage, and is critical to functional and structural, as well as visual design. In designing the organization of two-dimensional and three-dimensional shapes in space, the designer is also concerned with the relationship of the human form in that space. Together, the costumed human form in space and the arrangements of three-dimensional objects in space need to equal, or balance the volume of the stage space. The lighting of that space can either maintain, enhance, or destroy that balance.

G. Effects of Space

Space conveys both physiological and psychological effects. Physiologically, it contributes to illusion s of size. Filled space seems larger than empty space. Spatial distance through which lines travel, as well as their angles, contributes to inaccurate perceptions of their length. Psychologically, large, unbroken spaces are serene, yet bold and dramatic. Small, broken spaces suggest delicacy and complexity.

H. Spatial Effects

1. The designer incorporates spatial effects both structurally and decoratively.

a. Structural techniques control the distance between structural lines. Space can be either structurally open or closed.

b. Decorative techniques control distance between motifs, decorative construction details, or applied trims make shapes either decoratively open or closed.

c. Designers can create scenery and costumes or fill the stage with light that is

1. Structurally and decoratively open
2. Structurally and decoratively closed
3. Structurally open but decoratively closed
4. Structurally closed but decoratively open

2. Physical Effects

a. Divisions into long narrow vertical spaces will heighten, lengthen, slim

b. Divisions into horizontal sections will shorten and widen

3. Psychological Effects

a. Unbroken space is dramatic, sophisticated, bold, serene, calm, confident, certain, open, simple, straightforward like the little black dress or a Rothko painting

b. Somewhat (not extremely) unequally divided space is intriguing

c. Large broken space is closed-in, busy, complex, tight

d. Small, broken space is dainty, delicate, feminine, intriguing

III. SHAPE AND FORM

A line completely surrounding space creates something that a line dividing space does not which in turn creates potential effects that nothing else can

A. Definitions

1. Shape is a flat two-dimensional area enclosed by lines

2. Form is a three-dimensional area enclosed by a surface

    a. Hollow forms have volume
    b. Solid forms have mass

B. Type of shapes and forms

Variations of geometric shapes compose all buildings, works of art, and the human body

1. Equal sided

    a. Shapes – Square, circle, equilateral triangle, pentagon, hexagon, octagon, diamond, marquis, ogive, star

    b. Forms – sphere, cube

2. Unequal sided

    a. Shapes – oval, scalene and isosceles triangle, rectangle, parallelogram, trapezoid, heart, teardrop, paisley, club, spade, pear, kidney

    b. Forms – tube, cylinder, cone, pyramid, rectangular box, bell, dome, ovoid, egg, hourglass, trumpet, barrel

C. Attributes of Shape and Form

Shapes project the moods of the types and directions of lines enclosing them and the space within them.

1. Stable and confident – rectangles, squares
2. Less stable but more dynamic – triangles, pentagons, hexagons, octagons, trapezoids, parallelograms, cones, and pyramids

3. Visually interesting – unequal proportions
4. Less visually interest – equal proportions, circle, square, sphere, cube

5. Security – shapes that fit together tightly, squares, hexagons, ogives, diamonds, triangles, paisleys, parallelograms, rectangles

6. Variety – shapes that leave spaces, octagon, star, circle, etc.

D. Relationships between 2D shape and 3D form

1. The interplay of shape and form belongs to the world of the sculptor, architect, scenic designer, interior designer, fashion designer, costume designer

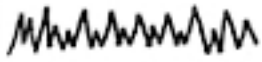
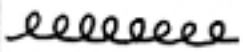
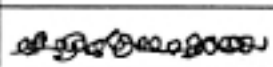
2. Because scenery exists on a three-dimensional stage and the appearance of the scenery will be viewed from different points in the theatre a scenic design must be concerned with what the scenic design will look like in terms of space, shape and form.

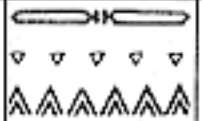
3. Because people move and turn on stage we must approach costume design in the same way a sculptor approaches a block of clay or stone.

4. It follows then that the lighting designer must be concerned with more than just lighting the stage from the front which would create a flat two-dimensional look. Lighting designers can enhance the three-dimensional aspects of the stage by including side, diagonal, back, and foot lighting into the lighting design.

5. Because we must “sell” our ideas to directors and actors we must also approach design as a painter and a sculptor.

CHART A-1

ASPECT	VARIATION	APPEARANCE	PHYSICAL EFFECTS	PSYCHOLOGICAL EFFECTS
PATH	Straight		Emphasizes angularity, counters rotundity, roundness; curves, rarely found in nature	Stiff, direct, rigid, precise, dignified, tense, unyielding, sure, masculine, austere
	Restrained curve		Slightly emphasizes curves	Soft, gentle, flexible but controlled, graceful, feminine, flowing, passive, subtle, loose; Generally more graceful if slightly irregular, not a geometrically perfect arc
	Full curve		Emphasizes curves, counters thinness and angularity	Dynamic, feminine, unrestrained, exuberant, youthful, active, forceful, unstable
	Bent		Combines straight and curved effects	This and the restrained curve are the lines most often found in nature: rivers, trees, hills. Can be both forceful and gentle, depending how used.
	Jagged		Emphasizes angularity	Abrupt, nervous, jerky, busy, unstable, erratic, spasmodic, excited
	Looped		Emphasizes roundness	Swirling, active, soft, feminine, busy, springy, unsure
	Wavy		Emphasized roundness, counters angularity	Feminine, undulating, soft, flowing, graceful, sensuous, flexible, uncertain
	Scalloped		Repeats roundness, counters angularity	Curves provide softness and femininity, sharp points provide crispness and liveliness, youth
	Zigzag		Emphasizes angularity, counters roundness	Sharp, busy, regular, masculine, jerky, abrupt, intense, stiff
	Crimped		Rough contour	Involved, complex, rough
Thickness	Thick		Adds weight	Forceful, aggressive, assertive, sure, masculine
	Thin		Minimizes weight	Delicate, dainty, feminine, passive, gentle, calm, subtle
Eveness	Uneven		Accents Bulges	Wobbly, unsure, unsteady, insecure, questioning
	Even		Smooth, reinforces smooth lines, emphasizes bumps and bulges	Consistent, definite, sure, flowing, firm, certain, elegant, smooth, A solid even line makes a direct statement of its path

ASPECT	VARIATION	APPEARANCE	PHYSICAL EFFECTS	PSYCHOLOGICAL EFFECTS
Continuity	Continuous, unbroken		Smooth, reinforces smooth lines, emphasizes bumps and bulges	Consistent, definite, sure, flowing, firm, certain, elegant, smooth
	Broken		May emphasize irregularities	Less Certain, Staccato, interrupted, casual, sporty, playful
	Dotted		May be spotty, carried	Also less certain, staccato, interrupted, playful, suggestive, casual
	Combinations		Varied	Innumerable combinations of solid and broken lines and dots are possible, and they will ten to convey a busy, "broken" effect. Many combinations can provide a casual crispness
Edge/Sharpness	Sharp		Emphasizes area as smooth or bumpy	Definite, precise, certain, assertive incisive, sure, hard
	Fuzzy		Gently increases area size, softens	Soft, uncertain, indefinite, suggestive
Edge/contour	Smooth		Reinforces smoothness or accents bumps	Suave, smooth, simple straightforward, sure
	Shaped		Varied according to kind of shape	Complex involved, busy, active, devious, intriguing, informal
Consistency	Solid, closed, smooth		Advances boldly	Smooth, sure, assertive, strong
	Porous		Advances little, may recede	Open, delicate, weak, less certain
Length	Long		Emphasizes it direction, elongates, smoothes	Length of line is usually perceived in relation to other lines or an area. A long line for one object may be a short line for another. Suggests continuity, smooth, graceful flow.
	Short		Breaks up spaces increases busyness	A line perceived as short in relation to others tends to give a more staccato, abrupt effect
Direction	Vertical		Lengthens, narrows	Dignity, strength, austerity, stability, rigidity, grandeur, alertness, poise
	Horizontal		Shortens, widens	Quietness, repose, rest, calmness, passivity, serenity
	Diagonal		Closer to vertical: lengthens Close to horizontal: widens 45°: Effects more dependence on influence of surrounding lines	Drama, restlessness, instability, activity, Interesting, off-balance

TEXTURE AND PATTERN

I. Texture

Texture appeals to the sense of touch, sight and hearing and thus the function of texture in an overall design is key. Since all surfaces have a texture ranging from smooth to rough, texture is both an integral part of any design and can not be left out or not considered.

A. There are three dimensions of texture

Tactile quality of surface
Tactile quality of manipulated three-dimensional substance
visual quality of surface and substance

B. Determinants of texture depend on the medium

1. Metal
   a. Sources – Iron, aluminum, nickel, zinc, nickel, copper, brass, etc.
   b. Form – bar, sheet, wire, extrusion, tube
   c. Finish – polished, rusted, weathered, painted, raw, die cut

2. Stone

   a. Sources – limestone, granite, marble, sandstone, fieldstone, etc.
   b. Form –
   c. Finish – natural, polished, weathered

3. Concrete

   a. Percentage and size of aggregate included in composition will change the surface appearance
   b. From --
   c. Finish – floated, unfloated, aggregate prominence, stained, painted

4. Masonry

   a. Content – concrete, clay, aggregate, straw, chemicals
   b. Form – concrete block, plaster, bricks, etc.
   b. Finish – porosity, fired, unfired, glazed, painted

5. Glass

   a. Source -- of all glass is essentially melted sand
   b. Form – sheets, tubes, objects,
   c. Finish – polished, etched, formed, pressed, extruded, embedded particles

6. Plastics

   a. Source – petrochemicals
   b. Form – same as glass
   c. Finish – same as glass, die cut

7. Wood

a. Species Source – oak, pine, elm, mahagony, cedar, Fir, spruce, etc.

Each species has a particular grain

b. Grade - grading of lumber is done by visual inspection and is a judgment of appearance and suitability to end-use. Natural characteristics and manufacturing imperfections are taken into account. Uniform grading assures the buyer of comparable properties regardless of manufacturer or log quality. Grading is a yardstick for determining relative lumber quality and used in specifying and identifying.

Natural Characteristics

Knots – classified by quality then according to form, size, and occurrence

Quality – soundness, firmness, tightness
Form – round, oval, spike
Occurrence – well spaced, well scattered or clustered

Manufacturing Imperfections

Defects, imperfections, blemishes or defacing caused by processing include

Torn Grain
Skip
Burns
Holes (pin, knot, grub, dot)
Bird's Eye
Pitch Streak
Decay

c. Grade Classifications

_ Select – used when the ultimate in appearance is essential
_ Finish – very good quality
_ Common -- widely used for paneling, shelving, fences, boxes, crating, etc.
_ Select Merchantable – intended primarily for use in housing and light construction
_ Construction – recommended for sub-floors, roof, and wall sheathing
_ Standard – general construction seldom left exposed
_ Utility -- general construction when appearance is not important
_ Economy – sheathing, crating, bracing, temporary construction

8. Fibers and Fabric

Fibers are manufactured into to yarn and yarn is manufactured into fabric. The texture of each element will contribute to the texture of the end product and each have a variety of factors

a. Fiber sources are either natural or from man-made materials

_ Natural = cotton, linen, wool, silk, ramie, alpaca
_ Man-made = rayon, acetate, nylon, polyester, acrylics, olefin

b. Yarn can be manufactured from fibers in various ways. Yarn structures vary from:
_ Long filament = smooth
_ Short filament = fuzzy

i. Elements of yarn structure can be altered mechanically

Degree of twist
Direction of twist
Number of strands/ply/filaments
Combing different types

c. Fabric structure

i. Fabric is manufactured by weaving, knitting, or felting

_ Woven Fabric surfaces varies according to thread count and weave

Thread count refers to number of warp and filling threads per square inch before any finishing process has been applied

Type of weaves include plain, basket, twill, herringbone, satin, and sateen

_ Knitted fabric surfaces vary according to method

Hand knitting is done with continuous yarn using plain stitch, purl stitch, and ribbed stitch creating ladder-like runs if a thread is snipped

Machine **filling** knit is similar to hand knitting with the same type of stitches

Warp knitting uses a series of yarns working sided by side interloping individual warp yarns into the loops of adjacent warp yarns. Types are similar to filling and hand knitted fabric and include plain, pearl, and rib, however the fabric is stronger, firmer and will not run if a single thread is snagged.

ii. Fabric finishes (luster) include:

Flocking	Calendering
Embossing	Napping
Glazing	Shearing
Moireing	

iii. Fabric can also be finished with construction techniques including:

Smocking	Slashing
Shirring	Appliqué
Gathers	Trims
Pleats	

9. Paper

a. Source – paper is formed from wood fiber pulp
b. Form – paste or sheets
c. Finishes – hot pressed, cold pressed, un-pressed, rolled, folded, embossed, embedded with other materials, die-cut, etc.

C. Aspects of Texture

1. Surface Contour is the deviation from smooth

— The greater the deviation the more visually textured

— The more textured a surface the larger the object appears, as it is perceived as a tiny pattern

— Coarse texture enlarges more than a fine one and can hide seams

2. Surface Friction is the resistance to slipping/slide

Wet looking, scratchy, clammy, sticky, rough, unbreathing

3. Thermal Character or how surface feels to the touch

— Elicits physical reactions and evokes psychological perceptions

Rough surfaces not only looks warm they evokes warmth
Shiny polished surfaces not only look cool they evokes coolness

4. Hand refers to the tactile qualities of a manipulated three-dimensional substance

— Flexibility = supple - rigid
Ability to drape softly or retain a shape

— Compressibility = response to crumpling
Ability to bend and fold

— Extensibility = ability to stretch and conform

— Resilience = ability to spring back or resist wrinkling

— Density = weight per volume

Described as thick, thin, coarse, fine, porous
Ranges from fine - coarse
Structurally open to compact
Measured in thickness -- thin or bulky/thick

D. Texture interaction with light according to degree of smoothness

Refraction, absorption, reflection
Transparent = refraction
Translucent = refraction and reflection
Opaque = absorption

E. Texture and Color

1. Color looks different reflected from different surfaces
   Ex. Red might appear dull pink if a napped fabric is turned with the nap yet rich red when viewed into the nap
2. Colors seem lighter on a shiny surface/ darker on a dull surface
3. Wet surfaces change color and some change transparent quality (paper & fabric)

F. Textural Language

1. Terms that refer to surface quality

airy*		glassy	ridged*
blistered		glazed	rippled
bristly	grainy	grainy	rough
bubbly		granular	sandy
bumpy		gritty	satiny
cool		grooved	scaly
corrugated		hairy	scratchy
cracked		harsh	shaggy
creepy*		leathery*	shirred
curly		metallic	silky*
delicate		nubby	sleek
downy		pebbly	slick
embossed		pitted	slippery
feathery		pleated	undulating
fine		porous*	uneven
flaky		prickly	velvety
flocked		puckered	warm
furrowed		quilted*	waxy
furry		raspy	woolly
fuzzy		ribbed	

2. Terms that refer to hand (* terms in 1 above also refer to hand)

brittle	furry	shirred
bulky	hard	smocked
coarse	harsh	soft
compact	kinky	solid
crinkly	lacy	spongy
crisp	limp	springy
crumply	lumpy	stiff
delicate	meshy	stretchy
dense	nonstretchy	supple
even	open	thick
filmy	papery	thin
fine	perforated	tough
firm	pierced	uneven
flexible	pleated	unyielding
flimsy	pliable	wiry
fluffy	rigid	
foamy	rubbery	

3. Terms that refer to the visual quality of light reaction to texture

brassy	lustrous	shimmery
coppery	matte	shiny
crystalline	mottled	silvery
dull	opaque	sparkly
enameled	patina	translucent
glossy	pearly	transparent
golden	polished	unpolished
iridescent	sheer	

G. Psychological Effects

Texture of the surfaces in a painting, a room, a set, and costumes can change the mood conveyed to the view. The same structural design in three different textures can convey three different psychological moods. Moods can be as varied as dignified, soothing, lively, businesslike, sophisticated, seasonal, etc.

H. Audible effects of texture include:

taffeta rustles
leather crackles
woods clatters
metal clangs
crystal/glass rings
masonry/bricks thud

II. PATTERN

Technically pattern is not a design element because it equals line, space, and shape but we will treat it as one in practice because it has its own visual effects and independent life with psychological and physical effects

A. Aspects of Pattern

1. Sources = Nature, man-made objects, imagination, symbolism

2. Interpretation of source = realistic, stylized, abstract, geometric

3. Arrangement

a. All-over — same effect from any direction
b. Four-way — same effect in both directions 90 degree turn
c. Two-way — same effect when turned 180 degrees
d. One-way — same effect from only one direction
e. Border — main motifs along edge
f. Spaced — relationship to the area occupied
_ Accent one place
_ Follow and fill a part of object structure according to shape of part
_ Fill area of object in one single composition ex. Scarf, tablecloth, wallpaper, mural

B. Visual Effects of Pattern

1. Pattern accents and enlarges the part where used
2. The larger the motif size, the more enlarging the pattern
3. Extremes of pattern size emphasize extremes of object size
4. Directional patterns emphasize that direction
5. Extreme contrasts of color and line enlarge
6. Pattern adds visual interest to plain textures that might otherwise be boring
7. Pattern attracts attention away from object and can help distract viewer and hide flaws
8. Sharply edged motifs are more emphatic and enlarging than fuzzy-edged motifs making figure-ground distinction easier
9. Patterns susceptible to directional, figure-ground reversal, spontaneous change of position, or autokinetic illusions soon become distracting

C. Psychological Effects of Pattern

1. patterns combine the psychological effects of the elements of design that make up the pattern
2. Closely spaced motifs can create a crowded, pressured feeling
3. widely spaced motifs may seem spotty and loosely organized
3. Flattened motifs suggest simplicity and casualness
5. Motifs suggesting depth seem more complex and sophisticated
6. Plant, flower, flowing or shadowy abstracts may seem feminine and lighthearted
7. animal, geometric, man-made objects (not all) may have masculine associations
8. Recognizable motifs suggest specific places, e.g. gardening tools, vegetables
9. Large motifs and spacing are vigorous and bold
10. Tiny motifs seem dainty
11. All-over arrangements seem stead
12. Directional arrangements carry the psychological effect of their dominant direction

D. Pattern and structural design

1. Pattern that follows structural contours agrees most easily and logically with structural design
2. Pattern and structure compatibility allows harmony
3. Pattern can create motion ex. Pleated skirt in striped fabric
4. Location of motifs (especially large ones)
5. Size of motif should be used in relation to size of object or part
6. Combination of pattern and plain areas create simultaneous contrast
   _ Plain areas emphasize business of pattern
   _ Patterned areas emphasize empty space

E. Things to think about when combining patterns in one composition include:

1. compatible subjects, occasions, psychological effects
2. motifs of similar size and spacing (typically small and close together)
3. interpretations are comparable in detail
   flat, simplified vs. minutely detailed and shaded
4. have at least one color in common
5. color schemes are compatible with similar degrees of value and intensity contrasts

Light and Shadow

I. WHAT IS LIGHT AND HOW IS IT USED IN VISUAL DESIGN?

A. Light simply defined is electromagnetic energy that **makes objects visible** measured in degrees of Kelvin.

1. Sunlight is approx 5600 Kelvin
2. Candlelight is approx 1800 Kelvin
3. Stage lights range from 2800 – 3200 Kelvin

B. Visual perception depends on 3 factors – **wavelength, frequency, and intensity**

1. **Wavelength** = the distance between the highest point of one wave and the highest point of the next; only a small portion of light wavelengths are visible to the human eye. This portion is called the **visible spectrum**.

a. Visible wavelengths are between 400 - 700 nanometers
b. Visible spectrum is divided into colors according to wavelength

in fared (not visible)	above 700 nanometers
Red = longest visible	700-610 nanometers
Orange	610-590 nanometers
Yellow	590-570 nanometers
Green	570-500 nanometers
Blue	500-460 nanometers
Violet = shortest visible	460-400 nanometers
Ultraviolet (not visible)	below 400 nanometers

3. **Frequency** refers to how fast the wave vibrates
   Red = slowest
   Violet = fastest

4. Level of illumination or brightness/intensity depends on amount of radiated energy thus more energy = more light

C. We experience light two ways;

1. Direct = sun, stars, firelight, candlelight, lamp, etc.
2. Reflected = everything else we see people, clothing, objects etc.

D. Light and shadow

A shadow is the absence of light caused by objects that absorb or partially absorb (intercept) light waves. The presence of shadows requires light.

1. The quality of the edges of a shadow is determined by the quality of the source of the light.

2. The direction of a shadow is controlled by the position of an object in the path of the light wave from the source.

Scenic and costume designers can't control the light on stage but they can be aware of how light is perceived and use that in designs in collaboration with the lighting designer by choosing appropriate surfaces and colors to work with the set and lighting concepts

II. HOW IS LIGHT USED IN A VISUAL DESIGN?

A. Defines

1. External Shape is perceived as the edges of mass against a background

B. Locates

1. If there is no light – we can't see objects

D. Sculpts

1. Internal shape and texture are revealed because of highlights and shadows; thus light is what makes an object visible as three-dimensional

2. If there is too much light objects are washed out and we can't see details; shadows are obliterated and objects appear to be flat

3. Both light and shadow are necessary to identify shapes and clearly see details.

E. Can be manipulated according to the controllable qualities of light

1. Distribution

a. Direction -- front, back, side, up, down, diagonal
b. Quality – diffused, sharp, hard, harsh, soft, clear, crisp
c. Size and shape can be manipulated by scenery, templates, and shutters of instrument, or type of instrument.

2. Intensity – brightness -- dim; measured as a percentage from 0 – 100

3. Movement -- created by;

a. Instrument on stage
b. Instrument off-stage
c. Cues or cross fades

4. Texture -- planned variation of the pattern of light and shadows on surfaces

1. Light react with surfaces in 3 ways

a. Reflection – the light waves are bounce back from the surface as the same angle of incidence.

Smooth, shiny, polished surfaces such as metal, satin, silk, or lame and glass surfaces reflect light

b. Refraction – light waves pass through a transparent or translucent (semi-transparent) object at a slightly different angle than incidence

Thin textiles such as gauze, chiffon, lightweight cotton and clear glass or water will refract light

c. Absorption – light waves are total absorbed by texture of surface and neither reflect or refract.

Dull, opaque textiles such as velvet, or velour, and rough surfaces such as carpet and flat paint will absorb light.

5. Color

1. All lighting sources have a color.

a. Incandescent is usually amber
b. Halogen is amber to white (almost)
c. Florescent can be blue or amber

2. The color of the light source can be manipulated with color medium (gels, glass) or by the percentage of the intensity with any dimmable source.

3. The color of an object can be affected by the color of the light source

III. PSYCHOLOGICAL EFFECTS OF LIGHT

Our moods and sense of well-being are affected by the qualities of light.

A. Lightness is associated with openness, clarity, awareness, alertness, and knowledge

1. Expressions of lightness include

"seeing the light"
" the age of enlightenment"
" a light went off in my head"
" and I have a bright idea"

2. Too much light is tiring

a. Too bright/high intensity
b. Illuminates too large of a surface
c. Illuminates too evenly, causes objects to look flat or 2D

B. Darkness is associated with gloom, mystery, quietness, seriousness, depression, threat, fear of the unknown, ignorance, age, sophistication, and experience

1. Expressions of darkness include

" the dark ages"
" don't leave me in the dark"

2. Not enough light is tiring and make the viewer work too hard to see. The older the viewer the more light is required to see as the eyes age. Hearing clearly can also be affected by the ability to see what is making the noise or who is talking.

III. PHYSICAL EFFECTS OF LIGHT

A. The quality of light, which is determined by the source, can accent, distort, subordinate, minimize, and rearrange contours of shape

1. Small sharp source will create

    a. Bright highlights,
    b. Sharp or hard edges of the beam of light and the objects illuminated,
    c. Darker shadows with defined edges,
    d. Accents differences,
    e. Stresses 3d qualities,
    f. Heightens drama

2. Broad diffused source will

    a. Softens shadows and highlights,
    b. Flatten shapes,
    c. Smooth textures

3. The angle of incidence of light is equal to the angle of reflection

    a. Sharp focus/low angle on shiny fabric creates
        -- more bounce toward audience/viewer
        -- flattens objects
        -- causes objects to appear bright

    b. Sharp focus/high angle on shiny fabric will reflect more light reflected back to viewer causing colors to appears brighter

    c. Sharp focus/high angle on dull fabric will be absorbed causing colors to appear duller.

4. The intensity of the light source changes the perception of density

    a. A dim source will cause all surfaces to appear more opaque than they are

    b. A bright source will cause transparent or semi-transparent surfaces to appear non-existent or more transparent than they are

5. Temperature is both a physical and psychological attribute of light

    a. Shiny surfaces are cool to the touch and reflect light making the viewer feel cold

    b. Dull surfaces are warm to the touch and absorb light making the viewer feel warm

Color Theory

Color Theory is a topic that could easily fill a semesters study. In fact, truth told, one could study color for a lifetime and constantly discover new things. Obviously we don't have that much time. The following outline will at times disagree with your textbook and while I don't know Mr. Gillette's exact background in regards to color, I do know that the information in this handout represents my fifteen years of extensive study of color, color theory, and it's uses with the last six years concentrated on the theatre. By understanding the principles of color and color theory we can manipulate it's illusions to suit our purposes.

I. COLOR DEFINITIONS

Color is both an **external occurrence** and an **internal sensation** of three basic **dimensions** – **hues** and their relative **values** and **intensities**.

A. External Occurrence

1. The range of visible light wavelengths measured in nanometers visible on surfaces which selectively reflect or absorb light stimulating brain receptors

Violet has a short wavelength at one end of the spectrum while red has a long wavelength at the opposite end. See figure 6.2 pg. 82 in your text.

2. As an external scientific principle in theory the number of different colors is infinite however the human eye can only discriminate about 10,000 of the 30,000 identifiable colors including but not limited to:

160 pure hues
200 grey values
20 levels of brightness

3. The human eye focuses different wavelengths at different points in relation to the retina. So, if you are looking at something that juxtaposes both long and short wavelength in one object the eye must constantly refocus. This can be physically uncomfortable in prolonged viewing and explains why it literally hurts to look at a pattern with clashing bright colors too long.

B. Internal Sensation

We receive the visual stimulation of color as a mental perception which causes emotional, psychological, and physiological reactions.

C. Hue

1. A hue is a pure **pigment** and the basic quality that distinguishes one "color" from another. Here is one place that I disagree with your text. Saturation is not separate from hue and chroma is not another word for saturation. Chroma is synonymous with hue and the more saturated a color is the closer it is to being a pure hue. The word color actually only applies to a hue mixed with another hue which results in a color.

2. A pigment is derived from the earth in rocks, plants, minerals. Pigments can be obtained in dry powder form which are then mixed with a medium (oil, egg, water) and become paint.

3. There are as many hues as there are sources to grind into powder, e.g. tobacco, indigo, cobalt, raw umber, ochre, bitumen, gem stones, or coal just to name a few.

D. Value

The lightness or darkness of a hue can be altered by the addition of black or white pigment

1. Tints are hues that have white added

2. Shades are hues that have black added

3. Pastels are hues that have black and white added and can vary from very light to very dark

Note: Gillette refers to these as tones in error and further complicates the discussion by incorrectly stating that a complementary hue tones a color, but more about that in the next point.

4. The addition of white to black will create a “gray-scale” from barely gray to almost black

Note: Not all grays are only black and white which explains why grays, whites, and blacks are so hard to match in different paints, textiles, etc. For example, warm gray, cool gray or French gray.

E. Intensity

The relative brightness or dullness of a hue. The closer to pure hue the brighter a color is.

1. Adding complimentary hues changes the intensity of the hue (more on the concept of complimentary in a moment) thus we call the resulting color an **Intensity**

2. Adding black to an intensity will still create a shade

3. Adding white to an intensity will still create a tint

4. Adding both white and black to an intensity will still create a pastel

5. At some point between the two complementary hues you will reach a point where one more drop of either color will push that color into the opposite saturation thus you have reached a **neutral** intensity

Note: Don’t worry I have color charts and graphs to demonstrate all of this in detail. Now you can begin to understand how we arrive at 30,000 identifiable colors.

II. COLOR THEORY

A. There are two basic types of color theories

1. Light – (we will deal with the details of color theory in Light later in the semester)

a. Additive – combining of colors give “white” light; individual hues transmitted together perceived by our eyes as a secondary color

b. Subtractive – the result of using color filters (gels) in front of a full spectrum light source

2. Pigment – considered to be subtractive because combining of colors results in black

B. History (the one minute version)

In the past the phenomenon of color has been akin to alchemy with its secrets closely held by its initiates. Painters mixed their own paints from pigments derived from the minerals, rocks, and plants of the earth combining them with a medium such as egg, water, or oil. They often took the secret of their special colors to their graves. Some passed these secrets on to trusted apprentices. By the early part of the eighteenth century artists and scientist were both studying the principles of color in an attempt to control and codify the results of their experiments. The impressionists, post-impressionist, Nabis, and Blaue Riter Group, were groups of artist who advanced the study of color with color-studies and experiments. It was these artists who were the first to use ready-made hues in metal tubes without relying on mixing paint from complicated formulas allowing them for the first time to paint in plein-air or out-of-doors near the source of their inspiration. These artist’s experiments with the effect of light on color (Monet, Manet, etc.) and the ability of the eye to mix juxtaposed colors into an entirely different color fill art museums today (pointillism -- e.g. Seurat’s “Sunday in the Park on the Island of La Grande Jatte”).

C. Practical Color Theories In Use Today

1. Prang (yes, just like the paint company)

This theory of color was first experimented with in 1831. It is simple and practical with easily repeatable results based on a few simple precepts. It is the color wheel theory that most of us are familiar with and the one we will be using for this course. It identifies three primary hues, three secondary hues, and six tertiary hues between the primaries and secondaries.

a. Primary Hues

There are three primary hues in this system: red, blue, yellow

b. Secondary Hues

There are three secondary hues created by mixing two (and only two) primary hues

1. Red + Blue = violet

(not purple, that is a marketing name in a crayola box like fire-engine red, hot-pink, salmon, forest green)

2. Red + Yellow = Orange

3. Blue + Yellow = Green

Saturation is a term that would apply to secondary hues. If you mix more red than blue to create violet the resulting hue would have a higher saturation of red.

Because certain hues are stronger than others the formula for creating the secondary hues is not 50/50 and one must rely on a keen sense of color (which you can develop over time) to determine if you have reached a true secondary color that is not visually perceived as either one or the other hue in use.

c. Tertiary Hues

There are six tertiary hues created between one primary hue and one secondary hue which are referred to by the primary hue first and then the secondary hue.

1. Red + Orange = Red-Orange
2. Red + Violet = Red-Violet
3. Blue + Violet = Blue-Violet
4. Blue + Green = Blue-Green
5. Yellow + Green = Yellow-Green
6. Yellow + Orange = Yellow-Orange

Saturation is a term more appropriately used to refer to tertiary hues. Red-orange for example can have either more saturation of red or orange and still be called red-orange.

2. Munsell

At the turn of the 20th century Munsell was the first theorist to attempt to codify color with notations that eliminated the guesswork from color mixing and standardized the language of color. This changed the notion of marketing type names to letters and numbers. This system is widely used in the commercial industry so that a designer can choose a color in the U.S. and wind up with the same color when a fabric is dyed in Italy, China, etc. This is also the system being used when you order a can of paint from the paint or hardware store. The labels in the Munsell system are also simple using a letter to denote the hue and the numbers 1 - 10 to denote the value as follows.

Red = R and can range from R1 to R10 with any number in-between (R1.5, R2, R2.5 and so on)

The Munsell system identifies five “principal” hues (all of his hues are not primary), intermediate hues between every two principal hues all arranged on a central pole or axis for value. Although the system is accurate, well known, and widely used, the execution of his system creates a 100 hue wheel and thus not very practical at this stage of your career, so I will leave further investigation to you. I do however, have some examples of this system to share with you in class.

Incidentally, Munsell is probably where Gillette got the term chroma for an intensity but in reality “chroma” derives from the Latin word for color in general.

D. Color Schemes

There are two basic types of color schemes

1. Related

a. **Monochromatic** – based on one hue

1. may use any tint, shade, or pastel of that hue and the addition of any **achromatic** or non-color

2. Achromatics include white, black, clear, and gray (but only if purely white + black or gray with the same hue added.

b. **Analogus** – based on two to four hues

1. Must be adjacent hues on the color wheel

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

2. Contrasting

a. Complementary – based on two hues

1. Must be opposite each other on the color wheel

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

3. May also include intensities of the two hues being used and any tint, shade, or pastel of those intensities

b. Double complementary – based on the four hues

1. Includes two adjacent hues and their complements

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

3. May also include intensities of the complement hues being used and any tint, shade, or pastel of those intensities

c. Adjacent complementary - based on three hues

1. Includes a pair of complementary hues and one hue adjacent to one of the other hues

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

3. May also include intensities of the complement hues being used and any tint, shade, or pastel of those intensities

d. Single Split Complementary – based on three hues

1. Includes one hue and the hues on either side of it's complement

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

e. Double Split Complementary – based on four hues

1. Includes the hue on each side of two complements

2. May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

f. Triad - based on three hue equidistant apart on the color wheel

May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

g. Tetrad – based on four hues equidistant apart on the color wheel

May include any tint, shade, or pastel of the hues being used and the addition of any achromatic

II. PHYSICAL EFFECT OF COLOR

A. Simultaneous Contrast

1. Actual differences between colors appear exaggerated when colors are juxtaposed

2. Dominate color pushes or manipulates the smaller area of color

3. Depending on the dominate background color

   a. Identical colors may appear to be different

   b. Different colors may appear to be the same

B. After Image

After extended exposure one will see a ghost negative image of the complement or contrasting value

e.g. a green wall with white trim will appear to have pink trim if the viewer stares long enough (about 1 minute) at the wall and then focuses on the trim.

C. Motion

1. Edges of adjoining hues change in size or sharpness

   a. Hues that are adjacent on the color wheel merge when touching each other or white
   b. Hues that are adjacent on the color wheel will stand out against a black background
   c. White pulls colors together
   d. Black separates colors

2. Advancing

   Warm hues, light tints, bright intensity

3. Receding

   Cool hues, dark shades, dull intensities

4. Spread outward

   Warm hues

5. Shrink inward

   Cool hues

6. Vibration

   Bright intensities used together

7. Distance

   Colors that advance also enlarge and suggest nearness

8. Colors that recede also decrease and suggest farness

D. Irradiation

1. Light values advance and enlarge causing objects to seem larger and closer
2. Dark values recede and reduce causing objects to seem smaller and more distance

E. Visual Mixtures

Related hues merge into their intervening hue

1. Primary hues close together will visually mix into secondaries
2. A primary hue and a secondary hue close together will visually mix into a tertiary

III. PSYCHO-PHYSICAL EFFECT OF COLOR

A. Temperature

Color is associated with temperatures from warm to cool

1. Warm = red, yellow, orange, the secondary and tertiary hues derived from these and dark values

2. Cool = blue, green, violet, the secondary and tertiary hues derived from these and light values

3. The tertiary hues, yellow-green and red-violet , can fall into either warm or cool depending on their value and saturation

B. Density

1. Dark values suggest greater density and make things appear heavier

2. Light values appear to weigh less

C. Sound

1. Loud

Warm hues, bright intensities, light values

2. Quiet

Cool hues, dark values, dull intensities

IV. PSYCHOLOGY OF COLOR

A. Emotional associations are strong depending on the viewers background and experience. How often have you heard some of these phrases

Pea green with envy
I have the blues
Yellow-belly coward
Red devil
He is a shady character
We are in the red (need money)

B. Color suggests or encourages action

1. Stimulating, active colors are warm hues, light values, and bright intensities

think about the kinds of colors you see most often in a fast food chain in opposition to an expensive or exclusive restaurant

2. Relaxing, quiet colors are cool hues, dark values, and dull intensities

What type of colors do you most often see in hospitals

C. Color suggests gender

1. Western Culture

a. Warm hues, light values, and dull intensities are often associated with femininty and softness while,

b. Cool hues, dark values, and bright intensities are associated with strength and masculinity

c. Boys wear blue, girls wear pink

d. Brides wear white, grooms wear black

2. Oriental cultures

a. Light values are masculine

b. Dark values are feminine

c. Brides wear red

D. Color suggest drama

Warm hues, bright intensities, extreme contrasts “shout” for attention

E. Color suggest age or degree of sophistication

1. Bright intensity – simple
2. Dull intensity – sophisticated
3. Children wear tints and their rooms are often decorated in bright intensities and saturated hues

F. Color is seasonal

1. Summer – light values, bright intensities, warm hues
2. Winter – dark values, dull intensities, cool hues
3. Autumn - dark values, dull intensities, warm hues
4. Spring – light values, cool hues

DIRECTIONAL PRINCIPLES

There are eight directional principles of design which include:

_ Repetition
_ Parallelism
_ Sequence
_ Alternation/Variation
_ Gradation
_ Transition
_ Radiation
_ Rhythm

A. REPETITION

Use of the same thing arranged in different locations; the simplest and most fundamental of all design principles.

1. Visual Effects:

   a. Eye moves from one use of an element to the next which emphasizes the direction of movement
   b. Repeat in the direction you want to emphasize

2. Two basic types of repetition

   a. regular = identical elements including spacing; steady, predictable strong direction
      Regular vertical spacing of horizontal lines will be perceived as a strong vertical direction and reduce the widening effect of the horizontal line

   b. irregular or varied spacing weakens direction
      Ex. Irregular spacing of horizontal lines in a vertical direction retains the widening effect of the horizontal lines

3. Uses of repetition

   1. repeats in several directions leads the eye from one to another in an attempt to relate and minimize direction; pulls composition together
   2. widely scattered repetitions look spotty and may seem unrelated
   3. well-arranged repetitions lead the eye smoothly — things seems to belong in their relationship
   4. repetition of line path, thickness, continuity, consistency, edge, direction reinforces effects.
   5. repetition of opposing line paths modifies effects
   6. horizontal repetition of spacing between lines invites the eye across
   7. Several directions of repeats of texture help unify the overall design
   8. Periodic repeats of arrangements as well as use in several parts lead the eye vertically

4. Psychological effects of repetition

    a. Regular repetition is soothing and reassuring
    b. Irregular repetition helps things relate subtlety

B. PARALLELISM

Use of lines lying on the same plane equidistant at all points and never meeting or having the potential of meeting

1. Direction is always perpendicular to the direction of the parallel repeats
2. The more parallel the lines the weaker the directional effect of each individual line
3. Applies to only line, space, shape, and the combination of same in a pattern
4. Can be used with straight or curved lines
5. Necessarily involves repetition

C. SEQUENCE

Following of differing things one after another in a particular order, regular succession

1. Each item must have its own meaning and thus repetition is not needed
    e.g. 2,4,6,8
2. Without its own meaning there is no sequence unless there is repetition
    e.g. A row of random colors
3. Psychological Effects

    Builds to a climax, releases,

D. ALTERNATION

Repeated sequence of two and only two things that change back and forth in the same order; a specific combination of repetition and sequence

1. Uses include:

    a. Alternating line path only
    b. Alternating line path, thickness, continuity, and length
    c. Alternating direction e.g. a zigzag
    d. Alternating shape size and contour
    e. Alternating space and shape within a line, and alternating distance of spacing between shapes
    f. Alternating texture e.g. thick and opaque with thin and sheer
    g. Alternating two patterns
    h. Alternating a pattern with a plain area

E. GRADATION

Sequence of adjacent units usually alike in all respects except one that changes consistently and distinctly in steps from one unit to the next.

1. Needs more than two steps to be more than a comparison
2. Progression must continue consistently

   E.g. if consecutively longer lines are interrupted by a short one gradation and climax is destroyed

   a. Progression may build to a climax and stop or
   b. Progression may build to a climax and begin again or
   c. Progression may build to a climax and reverse to beginning

3. Gradation effects:

   a. Stronger if used in a single long series rather than in short repeated sets
   b. The longer the graduated sequence the greater the climax
   c. Evokes illusions of depth
   d. Sweeps the gaze to a final statement
   e. Larger shapes enlarge objects while smaller shapes make the object seem tinier than it is
   f. Small shapes are usually needed near objects that need to appear small while large shapes are needed near the larger end or side of an object
   g. Greater changes between each step accent differences
   h. Slight changes lessen apparent differences

4. Gradation psychological effects:

   a. Strengthen effect of element used since changes invite comparison and contrast
   b. Builds intensity of feeling if neatly ranked suggesting decisiveness; assurance
   c. Suggests assertiveness and straightforwardness

5. Gradation uses

   a. Graduation of line path from straight to wavy or curved, each line more curved than the preceding
   b. Line thickness increases progressively while spacing stays constant
   c. Length of line increases consistently with each successive line
   d. Line direction changes gradually as each line becomes more horizontal
   e. Spaces between lines become progressively narrower
   f. Contour of shapes become successively rounder
   g. Size of each next shape decreases or increases consistently with contours held constant
   h. Space in shapes increase consecutively, changing shape's proportions
   i. Colors progressively become lighter, darker
   j. Textured surface of successive layers of material gradually increase opacity
   k. Motif size of a pattern increase with each repeat
   L. motifs identical throughout one section increase in size in the next section
   m. Motifs in a pattern that overlap as well as reduce in size consecutively can create a felling of depth

F. TRANSITION

A smooth, flowing passage from one condition and position to another with no break point, step or distinct place to pinpoint the change. (Gradation is distinct transition is gradual and subtle) Transition is a linear principle, emphasizing its direction on the object.

1. Visual effects

   a. Emphasizes the direction in which it is going on the body
   b. Power comes from subtlety
   c. The eyes seek a breakpoint that doesn't exist causing the view to "see" the entire area

2. Psychological effects

   Creates a smooth, graceful, sinuous, flow

3. Using transition

   a. A line path gently changes from straight to curved
   b. A thin line gradually thickens into a shape
   c. A fuzzy line fades off into nothing
   d. Areas between line smoothly increase or decrease
   e. Shapes smoothly widen as they lengthen

G. RADIATION

The feeling of movement steadily bursting outward in all directions from a visible or suggested central point — the emission of rays from a central source

1. Radiation effects:

   a. Must be used sparingly because it controls attention powerfully
   b. If lines all go one direction then that direction will dominate
   c. Close lines thrusting out from opposite sides of central point strengthen dominant direction
   d. Lines that fan out in several directions make the area near the point seem smaller
   e. Lines that burst out in a circle attention is led out in all directions
   f. A suggested central point heightens interest — where will lines converge?
   g. Primarily outward thrust in direction though some will see inward
   h. Repetition of radiation lines leads the eye from one line to the next
   i. Be aware that whatever is at the end of the radiating line will be the focus of attention
   j. Lines radiating from both sides of an axis suggest a convergence
   k. Closed outer ends of radiating lines create stable, self-contained shapes
   l. Radiating lines in a pattern motif enlarge outer edges, yet seem coherent

H. RHYTHM

The feeling of organized movement or an arrangement of internally organized motion. Rhythm can be staccato, syncopated, clearly stated, subtly suggested, repeated, vaguely similar, etc. Rhythm does not require repetition but gains strength from it.

1. Rhythm effects:

   a. Emphasizes the direction in which the movement flows
   b. Influences apparent object size by its own size
      — The more lively the unity the more attention it commands

2. Psychological effects:

   a. Satisfying if predictable
   b. Shorter or smoother is calming
   c. Barely suggested is more sophisticated
   d. The longer the development to climax the more exciting
   e. Understatement is more potent
   f. Too much is upsetting and unbalanced
   g. Rhythm established with lines:
      _ scalloped lines give a lilting effect
      _ regular broken lines suggest staccato
      _ irregular = syncopated
      _ thick = martial
      _ thin - lightly tripping, dainty
      _ curved = sea waves
      _ jagged/zigzag = jerky vibration
   h. Rhythm established with shape:
      _ space between allows arrangement to breathe
      _ small enough space directs gaze from one unit to the next
      _ a long spatial pause loses rhythmic beat
      _ space injects vitality or tranquility
      _ unequally sided shapes = dynamic rhythm
         Ex. Paisleys, teardrops, bells, free forms

3. Rhythmic Terms:

   Any term that describes the rhythm of music can also be used to describe the rhythm of visual design including the following not necessarily musical terms:

bouncing	lurching	sweeping
bounding	marching	swinging
fanning	regimental	swirling
flowing	sedate	syncopated
jerky	staccato	undulating
lilting	stately	vibrating
looping	swaying	whirling

HIGHLIGHTING PRINCIPLES

I. CONCENTRICITY

A progressive increase in size of layers of the same shape, each with the same center e.g. Bull's eye target

A. Effects:

1. Visual

a. forces the focus of attention to a central point and the part of an object on which it appears

b. directional attention leads the eye inward to center

2. Psychological

a. bold and demanding, not subtle
b. casual
c. also has the same effect of the aspect of the lines used and space between lines

B. Practical uses include but are not limited to

1. squares and rectangle best on straight-edged objects
2. if not small on costumes actor may resemble a walking target
3. spacing between lines can vary
4. freeform shapes are difficult but striking
5. in a pattern can be powerful

C. Concentricity is perpendicular to radiation

1. concentricity moves the eye in the opposite direction from radiation

a. concentricity leads the eye from the outside toward the center
b. radiation leads the eye from the inside to the outer edge

II. CONTRAST

A feeling of distant differences with the accent on the differences

A. Effects:

1. Physical

a. juxtaposition of opposites heightens differences and creates simultaneous contrast

1. defines and stabilizes the way an element is used at that point
2. emphasizes and enlarges the area where it occurs

2. Psychological

a. contrast is invigorating and dramatic

b. the stronger a contrast the more assertive the effect
c. a bold contrast overwhelms a delicate mood
d. no contrast could be bland or boring
e. Too much similarity is monotonous
f. Too much contrast is confusing

B. Samples of Contrast

1. Color

a. light/dark
b. bright/dull
c. complementary, triad, tetrad color schemes
d. warm/cool

2. Line

a. continuous/broken
b. thick/thin
c. fuzzy/sharp
d. smooth/shaped
e. solid/porous
f. short/long
g. vertical/ horizontal

3. Texture

a. sheer/opaque
b. smooth/rough
c. harsh/slippery
d. stiff/supple
e. porous/compact
f. coarse/fine
g. shiny/dull

4. Space

a. open/closed
b. wide/narrow

5. Shape

a. large/small
b. round/square

III. EMPHASIS

Creation of a focal point, center of interest to which all others are subordinate, the dominance of one feature

A. Effects

1. Physical

a. attention is focused on part where it occurs
b. diverts attention from other areas
c. in costume designer must determine if the actor or the costume is the focus; is the person wearing the clothes or are the clothes wearing the person and if the effect serves the character
d. in scenery the designer must determine if the focus is being drawn away from the actors and if so is that the desirable effect

2. Psychological

a. designer must determine if there needs to be harmony between the cultural significance of what is being emphasized and how it is being emphasized and the occasion for which it is in use e.g. a wedding scene in different cultures and religions

B. Usage

1. usually does not employ several elements at once
2. aspects of an element in use will apply
3. structural edges emphasize neighboring object part

SYNTHESIZING PRINCIPLES

I. PROPORTION

The relationship of distances, sizes, amounts, degrees, or parts in relation to each other.

A. Works on any or all of four levels

1. Within one part e.g. length and width
2. Among parts e.g. area of one part to area of adjoining one
3. Part to whole
4. Whole to the environment

What makes proportion beautiful or ugly?

B. Though most guidelines are based on mathematical formulas, strict adherence to formula could be boring.

1. A design should have enough variety for interest but not overwhelming
2. A proportion of _ is the least interesting for most observers
3. Extreme relationships force one area into dominance and can be boring
4. The golden mean or golden section (2/3 or 3/5) is a proportion that "feels" comfortable and looks "right" This is the proportion used for many of the most famous buildings e.g. the Parthenon in Athens, Greece. Neither length nor width is overpowering. It is a proportion that invites repeated comparison, analysis, and reflection, holding the viewers attention. Rigidly sticking to a golden mean in design, however, would also be boring. Proportions must be appropriate to the function.

II. SCALE

Consistent relationship of sizes to each other and to the whole regardless of shapes compares only sizes not other qualities

A. Effects:

1. Visual

a. size of accent should take into consideration side of object on which it occurs.
b. tiny accessories enlarge a large person but a very large accessory emphasizes size by repetition
c. large accessories minimize a small person but a very large accessory emphasizes size as well
d. pattern as filled space enlarges more than plain area
e. large motifs overpower a small objects by contrast and emphasize or enlarge a large object or person by repetition
f. the larger the motif the more it enlarges a figure

2. Psychological

a. large shapes are bold, aggressive, assertive, straightforward, and casual
b. small shapes are fragile, delicate, and dainty

III. BALANCE

The feeling of evenly distributed weight, equilibrium, steadiness, repose, stability, rest.

A. There are four types of balance

1. horizontal balance is between the right and left sides

a. formal horizontal balance is symmetrical
b. informal horizontal balance is asymmetrical

2. vertical balance is between the upper and lower portions of an object

a. prevents top heavy or bottom heavy appearance

3. radial balance integrates the whole around a center of gravity; think of it as a concentration of weight near center

B. Effects

1. A strong sense of balance will give a feeling of security and stability

a. Formal balance is stately, regal, dignified as well as obvious, passive, static
b. Informal balance is casual, dynamic, complex, subtle but also capable of elegance, less rigid, lively, rhythmic, and conducive to creativity
c. Radial balance provides control, stability, and authority
d. Radial imbalance creates instability or a lack of discipline
e. Imbalance creates disturbance (often difficult to pinpoint and analyze but is felt or sensed intuitively)

IV. HARMONY

Agreement in feeling, consistency in mood, pleasing combination of all parts relating

A. Culturally subjective

B. Time period subjective

V. UNITY

Sense of oneness, coherence, totality, quality of being whole and finished, sense of completeness; all parts add up to a whole

A. There can be harmony without unity

B. There cannot be unity without harmony