

## Special Effects and Color

## Review – Halftones

- Print or not print
- Continuous tone photo converted to dots
- Optical illusion
- Highlight areas – small dots – 5%
- Middletone areas – 50% dots
- Shadow areas – large dots – 95%

## Duotones

- Two halftones
  - Screens must be angled 30 degrees
  - Moiré results otherwise - p. 305
- Full duotone - two complete halftones
- Fake duotone - one halftone and one tint screen

## Color theory

- White light shown through a prism
  - Color spectrum
  - Primaries - red, blue, green

## Overlapping colors

- Red and blue = magenta
- Blue and green = cyan
- Green and red = yellow
- Red + blue + green = white
  - Light has been recomposed from the three primaries to white light



## Subtractive primaries

- Cyan, magenta and yellow

- Cyan + magenta = blue

- Cyan + yellow = green

- Yellow + magenta = red

- Cyan + magenta + yellow = black

- Not quite black, brown

- Black is necessary in printing due to deficiencies in filtration and inks

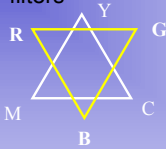


## White light = red + blue + green

- Reflected off of white paper
- Primary colors p. 165
- White light strikes magenta ink
  - Red and blue reflected
  - Green absorbed

## Color separation

- Colors are separated by passing light through the primary filters



- Red filter for Cyan printer

- Cyan composed of blue and green

- Minus red (Subtractive)

## Separation Methods

- From photo CD's
- From digital cameras
- Scanning p. 213-217
  - Flatbed Scanner
  - Drum Scanner

## Screen angles

- When angling screens, Moiré still a problem

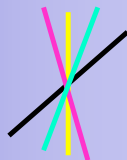
- Must have 30 degree separation

- Impossible with four angles

- Yellow only has 15 degrees

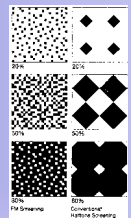
- Moiré with cyan and magenta

- Yellow is light enough so it will not be noticed



## Stochastic

- Amplitude modulated
  - RIP generated
  - Evenly spaced dots
- Frequency modulated
  - Dots are placed at random
    - Computer generated
    - Used for color work
    - Works well with waterless printing



## Differences

- AM Screening has variable size dots with equal spacing
- FM screening has same size dots with variable spacing