OPENGL - COLOR

- A visible color can be characterized by the function C(λ)
- Tristimulus values – responses of the 3 types of cones to the colors.

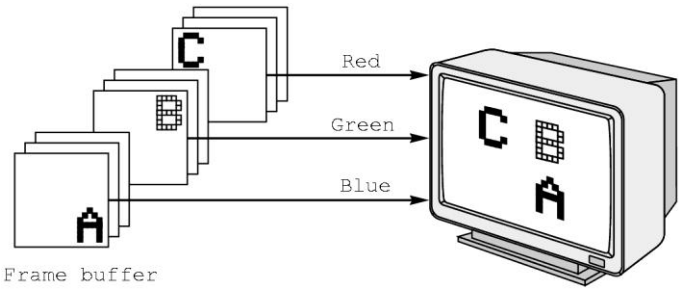
- 3 color theory – "If 2 colors produce the same tristimulus values, then they are visually indistinguishable."

- Additive color model – Adding together the primary colors to get the percieved colors. E.g. CRT.

- Subtractive color model – Colored pigments remove color components from light that is striking the surface. Here the primaries are the complimentary colors : cyan, magenta and yellow.

  RGB color

  - Each color component is stored separately in the frame buffer
  - Usually 8 bits per component in buffer
  - Note in **glColor3f** the color values range from 0.0 (none) to 1.0 (all), whereas in **glColor3ub** the values range from 0 to 255



The color as set by **glColor** becomes part of the state and will be used until changed

  – Colors and other attributes are not part of the object but are assigned when the object is rendered

- We can create conceptual *vertex colors* by code such as

glColor

glVertex

glColor

glVertex

RGBA color system :

- This has 4 arguments – RGB and alpha

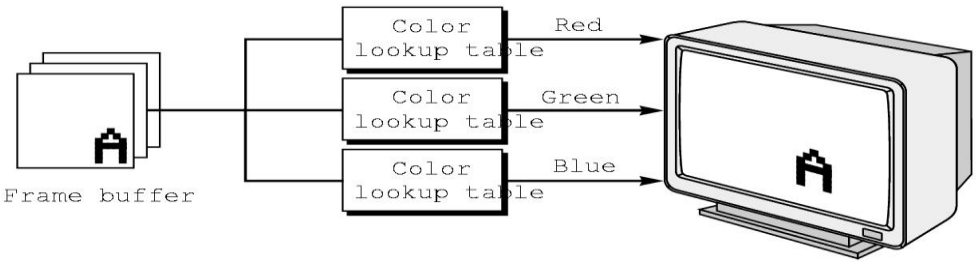
alpha – Opacity.

glClearColor(1.0,1.0,1.0,1.0)

This would render the window white since all components are equal to 1.0, and is opaque as alpha is also set to 1.0

Indexed color

- Colors are indices into tables of RGB values
- Requires less memory
    - indices usually 8 bits
    - not as important now
        - Memory inexpensive
        - Need more colors for shading



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