

Blend modes notes

These are my notes on blend modes, garnered from a range of sources, including a wide range of websites, various videos and books, plus the official Affinity Photo videos and personal notes from their producer, James Ritson.

– Dave (dmstraker)

Contents

About Blend Modes	3
History	3
Groups of Blend Modes	4
Basics of Blending	5
Ways of blending	5
Patterns and tricks	5
Normal category	6
Normal	6
Dissolve	6
Darken Category	7
Darken	7
Multiply	8
Colour Burn	9
Linear Burn	10
Darker Colour	10
Lighten category	11
Lighten	11
Screen	12
Colour Dodge	13
Linear Dodge (Add)	13
Lighter Colour	14
Contrast category	15
Overlay	15
Soft Light	17
Hard Light	18
Vivid Light	19
Linear Light	19

Pin Light.....	20
Hard Mix.....	20
Inversion category.....	21
Difference.....	21
Exclusion	21
Subtract.....	22
Divide	22
Component category	23
Hue	23
Saturation.....	23
Colour.....	24
Luminosity.....	24
Painting modes	25
Behind	25
Clear	25
Affinity adds	26
Average	26
Negation.....	26
Reflect	27
Glow	27
Contrast Negate	28
Erase.....	28
Group blending	28

About Blend Modes

History

The 19 original blends first appeared in Photoshop 3.0 in 1994 when Layers first appeared.

- Normal, Dissolve | Darken, Multiply, Colour Burn, Darken Colour | Lighten, Screen Colour Dodge, Lighter Colour | Overlay, Soft light, Hard light | Difference, Exclusion | Hue, Saturation, Colour, Luminosity

Five further blends added in Photoshop 7 in 2002.

- | Linear Burn | Linear Dodge (add) | Vivid Light, Linear Light, Pin Light | |

Another in Photoshop CS 2003

- | | | Hard Mix | |

And in Photoshop CS5 2010

- | | | | Subtract, Divide | |

Painting modes also include

- Behind, Clear

Overall, then, there are 27 PS blend modes:

- Normal: Normal, Dissolve, (plus Behind and Clear in paint tools only)
- Darken: Darken, Multiply, Colour Burn, Linear Burn, Darken Colour
- Lighten: Lighten, Screen Colour Dodge, Linear Dodge (Add), Lighter Colour
- Contrast (or 'Blend' or 'Grey'): Overlay, Soft light, Hard light, Vivid Light, Linear Light, Pin Light, Hard Mix
- Inversion: Difference, Exclusion, Subtract, Divide
- Colour: Hue, Saturation, Colour, Luminosity

Affinity Photo additions:

- Average
- Negation
- Reflect
- Glow
- Contrast Negate
- Erase

Groups of Blend Modes

Opposites:

- Darken – Lighten
- Multiply – Screen
- Colour Burn – Colour Dodge
- Linear Burn – Linear Dodge
- Darker Colour – Lighter Colour

Commutated:

Apply one to Blend layer or other to Base layer for same effect.

- Overlay – Hard Light
- Luminosity – Colour

Method

Blend modes that use similar methods:

- Contrast adjustment: Multiply, Colour Burn, Screen, Colour Dodge, Contrast Negate
 - + Contrast group: Overlay, Soft light, Hard light, Vivid Light, Linear Light, Pin Light, Hard Mix
- Brightness adjustment: Linear Burn, Linear Dodge, Linear Light

Special 8

Behave differently when Photoshop Fill is used vs Opacity.

- Colour Burn
- Linear Burn
- Colour Dodge
- Linear Dodge
- Vivid Light
- Linear Light
- Hard Mix
- Difference

Invisible colours

Blend groups have colour which is effectively invisible. Use to mask out areas.

- Darken blends: White
- Lighten Blends: Black
- Contrast blends: 50% grey

Basics of Blending

- Any item in layers panel can use blending modes, including pixel layers, adjustment layers and groups.
- Blends happen one pixel at a time, between top *blend* layer and bottom *base* layer, giving a *result* layer. Base + Blend = Result. (This is used in 'formula' below).
 - Blend layer also called 'composite' layer. Base layer also called 'image' layer.
- 8-bit pixel value is usually 0 (black) to 255 (white). 16 bit would be more. In formulae, the highest value is often normalised to 1 (this is done below). Any formula '1 – X' effectively inverts X (note this is not a 1/X mathematical inversion).
- Opacity often moderates the blend effect, allowing more of the base layer to be seen.
- A transparent Blend pixel will show an unaltered Base pixel.
- Many stronger blends work better at low opacity. Try changing this before giving up on a blend.
- Use masks to constrain effects.

Ways of blending

Before blending two layers together, you can create the blend layer with:

- *Self blend*: Duplicate the base layer, unchanged. Eg. Overlay deepening.
- *Inverted self-blend*: Duplicate the layer and just invert it. Eg. Colour washing.
- *Filtered self-blend*: Duplicate layer then filter it (eg. blur). Eg. Screen blur glow.
- *Selection blend*: New layer from selection. Optionally adjust this. Eg. Sharpened eyes.
- *Adjustment blend*: Add adjustment or filter layer. Eg. Darken unsharp (removed halos).
- *Fill blend*: Add a pixel layer. Fill it with a solid colour or gradient. Eg. Opacity grad filter.
- *Painting blend*: Add pixel layer. Paint on it. Eg. Soft Light dodge/burn.

Final blend effect can be moderated and changed with Opacity and constrained by masking and Blend Ranges (Blend If in Photoshop).

Patterns and tricks

- *Blur and blend*: Many methods like this. Duplicate, blur and blend. Bitty cartoon effect with Darkening. Create glow with Overlay or Soft Light. Detect edges with Difference. Orton Effect (see below).
- *Forcing to b/w*: Use Levels to make greys black or white. Eg. Blending texture with Screen or Multiply.
- *Orton Effect*: Three layers, bottom to top. Adjust with Opacity (try 20-30%):
 - Normal
 - Duplicate blurred until almost all detail is lost. Blend Mode: Screen.
 - Duplicate of second layer, then desaturated. Blend Mode: Lighten or Overlay. Overlay can be used for dodge/burn.

Normal category

<i>Action</i>	Basic
<i>Effect</i>	
<i>Use</i>	

Normal

<i>Action</i>	Top blend layer only is visible except when transparent.
<i>Formula</i>	Result = Blend (Base only seen if Blend pixel is masked or <100% Opacity)
<i>Effect</i>	Layers below blocked.
<i>Use</i>	Use in merged layer that combines layers below. Adjusted selection: Select item. Cut-paste into new layer. Make adjustments to it. Reposition it. (feather edge if needed so it merges smoothly to layer below). Use in frequency separation portraits to blend out hotspots and uneven skin. Low opacity. Do before dodge/burn. Infra-red effect: Filters/Detect/Detect Edges. Black and White adjustment layer. Non-destructive painting: New pixel layer, Blend Mode: Normal. Paint on empty layer. Lets you play with Opacity, blend, etc. Invert variation: Duplicate. Invert. Changing opacity affects mix. 50% is all grey.

Dissolve

<i>Action</i>	Diffusion dither pattern based on random selection of Base or Blend layer pixels. High opacity selects more Blend pixels. Low opacity selects more Base pixels. No anti-aliasing is used, so result may appear harsh.
<i>Formula</i>	Result = random choice of Blend or Base.
<i>Effect</i>	Looks like Normal when 100% Opacity. Pixels are not blended. You get either a blend pixel or base pixel.
<i>Use</i>	To create granulated or grainy effects over an image or layer. Noise: Add pixel layer and fill with selected colour. Blend Mode: Dissolve. Odd effects: Duplicate layer. Adjust (eg blur). Blend Mode: Dissolve.

Darken Category

<i>Action</i>	Darker pixels on blend layer are visible. Lighter ones become translucent.
<i>Effect</i>	When Blend layer is white, Base layer pixels are unchanged (white is neutral colour). All other Blend layer colours darken the Base pixels.
<i>Use</i>	Create darker elements of image. Add darker objects on lighter background, such as birds, aeroplanes in sky. Use select, mask, Levels or Blend Ranges to remove unwanted show-through.

Darken

<i>Action</i>	Looks at luminance of blend and base pixels. Selects whichever is darker. Uses RGB channels separately (unlike Darker Colour).
<i>Formula</i>	In each RGB channel: $\text{Result} = \text{Minimum}(\text{Blend}, \text{Base})$
<i>Effect</i>	Black opaque. White transparent. Greys look kind of translucent (as individual pixels vary). Not very attractive.
<i>Use</i>	Often need to reduce Opacity. Creates a darkened/faded look at about 65% Opacity. Combine masks to create new mask that combines black areas from each mask. Use to cover up unwanted highlights. Sharpen without white halos: Duplicate layer. Sharpen the duplicate, allowing white halos. Blend mode: Darken. You keep the dark side of lines, but lose the white side as the darker original takes precedence. Use with Lighten to create a soft-focus effect. Blur two layers and apply Darken mode to one and Lighten mode to the other to do this. The Opacity of each layer can be adjusted for the best effect. Use with Unsharp Mask to 'thicken up' darker areas such as window frames. Also to increase contrast in underexposed images (radius slider right up). To remove halo after haze removal: Add Gaussian Blur, checking 'Preserve alpha', blend mode: Darken, radius about 20. This gives darkish halo. Then invert the Gaussian Blur layer (Layer/Invert). Then paint in white over any visible haloing (this uses built-in mask for all adjustments) to restore dark halo. Then reopen Gaussian Blur and reduce Opacity until halo disappears (dark halo is counterbalancing light halo). Replace washed out sky: Add new sky in new layer. Blend Mode: Darken (or maybe Multiply). Mask out (or erase) unwanted area over land. Glow effect: Duplicate layer. Gaussian Blur. Blend mode: Darken (works with other blend modes too). Adding text to image: When black text has white background, add as layer and use Blend Mode: Darken. Adding birds: Add layer with dark birds (on transparent or very light background). Blend Mode: Darken. Note: Multiply often better for general darkening.

Multiply

Action	<p>Multiplies base luminosity by blend luminosity to give result luminosity. So $0.5 \times 0.5 = 0.25$ (darker). White in blend layer has no effect. Darker greys progressively darken the image.</p> <p>Opposite of Screen. White is transparent.</p>
Formula	<p>In each RGB channel:</p> <p>Result = Base * Blend</p>
Effect	<p>Nicer version of Darken. Image looks more 'real' than Darken as colours are retained.</p> <p>The effect is similar to sandwiching two filmstrip layers.</p> <p>Creates more saturated colours. If colour is saturated (max value), it has no effect.</p> <p>Gives appearance of drawing on image marker pens.</p> <p>This mode is symmetric, so exchanging two layers does not change the result.</p> <p>If both layers have the same picture, the result is the same as a gamma correction, with gamma=2.</p>
Use	<p>25-75% Opacity often best. Generally good when adding gradients, vignettes, darkening skies, adding shadows and other darkening effects.</p> <p>Darken areas that are too light, especially if more detail is wanted in those areas.</p> <p>Duplicate layer and set the Blend mode of new layer to Multiply. Mask to constrain effect if needed.</p> <p>Two similar layers with Multiply result in darker image. Can be a useful trick to cope with under-exposure. Even better: Add curves or levels layer rather than duplicate image as this saves a lot on file size (and offers adjustment too).</p> <p>Multiply makes white disappear, so white page with black text on top of image shows image underneath. Opacity makes white page transparent.</p> <p>Blending darker object into a lighter background: Add as two layers and Multiply. Make sure dark object has light surroundings and light background has no dark areas. Select object and place on separate layer as needed.</p> <p>Darken background: Duplicate layer. Add curve and drag up left node to 25% of way up. Mask black this to focus area (like people). Blend Mode: Multiply.</p> <p>Fix too-bright sky: Layer/New Layer. Gradient tool (on left), draw up from horizon to top. Blend Mode: Multiply. Adjust with Opacity or by clicking on gradient end nodes to change From and To colours. Stick to grey for basic darkening, or use colour. Mask out unwanted effect over land.</p> <p>Vignette: Layer/New Layer. Gradient tool. Type: Elliptical. Draw from focus point outward. Adjust via gradient mid-point (vertical bar in gradient colour area), outer nodes to darker colour and use Opacity to control effect.</p> <p>Darken highlights: Duplicate layer. Constrain to highlights with Blend Ranges. Blend Mode: Multiply.</p> <p>Fix faded photo: Add Levels adjustment layer. Blend Mode: Multiply. Duplicate for deeper effect.</p> <p>Add texture: Add layer containing a texture. Blend Mode: Multiply. Decrease Opacity to suit. Crackled texture make picture look like an old master. Add noise this way too.</p> <p>Intensifying lighting: Duplicate lighting layer and set blend mode to Multiply. Increase Ambient, Specular and Shininess. Retweak Ambience on original layer and widen the cone a bit.</p>

	<p>Add colour cast: Layers/New Adjustment Layer/Recolour. Change Hue to orange. Turn down saturation for faint brown (woody scene). Blend Mode: Multiply. Come back later to tinker with this if needed to take edge off orange hue.</p> <p>Add birds to sky: Cut/paste birds from another image with light sky as new layer. To remove any sky visible from bird layer, add Levels adjustment to this layer and drag up Black until only birds are visible.</p> <p>Graphics Blending: When you have solid colours, Multiply (and/or Screen) may work to combine images seamlessly.</p>
--	---

Colour Burn

<i>Action</i>	Darkens the base pixel to reflect the blend pixel by increasing the contrast between the two.
<i>Formula</i>	<p>For each RGB channel:</p> $\text{Result} = 1 - (1 - \text{Base})/\text{Blend}$
<i>Effect</i>	<p>Darker than Multiply. Increases the contrast between colours rather than brightness. Base layer becomes darker, more contrasty, and picks up more of the blend colour as the blend colour becomes darker.</p> <p>Darkens the bottom colour pixels relative to the values of the top colour pixels. More highly saturated mid tones. Reduced highlights. Looks very similar to using Burn tool.</p> <p>White pixels make no change to blended layers.</p> <p>Blending with inverted image gives black, except white pixels, which stay white (Result calculation is $(1-(1-0)/1)$, which is 0).</p> <p>Changes with Opacity.</p>
<i>Use</i>	<p>Often better at 50% Opacity.</p> <p>Use to boost saturation and contrast. Deepen colours.</p> <p>Use to adding colour while also bringing out texture.</p> <p>Compensate for dark ground and light sky: Duplicate layer. In duplicate, select only sky. Blend mode: Colour Burn. Blue of sky is deepened, but white clouds are unaffected.</p> <p>Darken light areas: Duplicate layer. Blend Mode: Colour Burn. Mask out shadows and darks.</p> <p>Test for burned out areas: Duplicate layer. Invert. Blend Mode: Colour Burn. Burned areas are white.</p> <p>Cartoon effect: Duplicate layer. Filters/Detect/Detect Edges. Layer/Invert. Blend Mode: Colour Burn. Add curves above it all and pull up midtones. (you can also make the layer black/white)</p> <p>Light tint b/w image: Add pixel layer. Fill with tint colour. Blend Mode: Colour Burn. Reduce Opacity to suit.</p>

Linear Burn

<i>Action</i>	Darkens base pixel, based on the value of the blend pixel colour. Acts on brightness rather than contrast.
<i>Formula</i>	For each RGB channel: Result = (Base + Blend) – 1 (the -1 effectively subtracts white from sum of colours)
<i>Effect</i>	Darker than Multiply and Colour Burn. Less contrast or saturated than Colour Burn. Creates the greatest contrast in dark tones than any other blend mode in this Darken category. White Blend does not change Base. Darker Blend intensifies effect. Note: Colour Burn increases contrast of Base as Blend gets darker. Linear Burn does not increase the contrast.
<i>Use</i>	Make tone and colour adjustments based on tone of Blend colour. Create washed-out effects and dark, vintage fades at about 75% Opacity. Intensify leaves: Duplicate background. Blend Mode: Linear Burn. Adjust Opacity.

Darker Colour

<i>Action</i>	Compares the total of all channel values for the blend and base colour and displays the lower value colour. Note: does not blend just pixels. Looks at composite of RGB channels, not individually (which Darken does).
<i>Formula</i>	Result = minimum(RGB sum(Base), RGB sum(Blend))
<i>Effect</i>	Very similar to Darken. Can be unattractive. Better than Darken when Darken changes colours incorrectly. No effect on self-blend. Partial effect on inverse blend. Harsh transitions in complementary blends.
<i>Use</i>	Compositing with subtle textures. Use with Blend Ranges and masking. Strong glow: Duplicate layer. Gaussian Blur of top layer. Blend Mode: Darker Colour. Adjust with Opacity. Adding sky: Add new layer with new sky. Mask for sky only as needed. Blend Mode: Darker Colour.

Lighten category

<i>Action</i>	Lightens parts of image.
<i>Effect</i>	Opposites of each Darken mode. Black on Blend layer results in unchanged Base layer colour. Black is hence neutral colour. All other Blend layer colours lighten Base colours.
<i>Use</i>	Selective lightening. Add light objects on darker background, such as stars, clouds, building lights. Use select, mask, Levels or Blend Ranges to remove unwanted show-through.

Lighten

<i>Action</i>	Looks at the colour information in each channel and selects the lightest base or blend colour. As with Darken, uses RGB channels separately.
<i>Formula</i>	For each of RGB: $\text{Result} = \text{Maximum}(\text{Base}, \text{Blend})$
<i>Effect</i>	Brighter tones are unchanged while darker ones blend with the colours and tones below. Opposite effect of Darken. No change in self-blend. Soft colours result from inverted blend. Looks a bit like a foggy day with increasing blend layer lightness. Dark is transparent, White just goes white.
<i>Use</i>	Use in frequency separation portraits to lighten areas such as under eyes. Use to lighten shadow areas. Combine masks to create new mask that combines white areas from each mask. Perk up dominant eye in portrait: Select background layer. Layer/New Live Filter Layer/Live Unsharp Mask layer. Radius 100. Blend mode: Lighten. Layer/Invert, then paint in white on eye to sharpen/brighten it. Ensure Opacity high enough. Add haze: Duplicate layer. Invert. Blend Mode: Lighten. Adjust with Opacity Add lights in buildings: Take daylight photo on tripod. Wait until lights come on and take another. Put second image on upper layer and Blend Mode: Lighten. Add car motion lights: Camera on tripod. Take one photo. Take another long-exposure photo to get car light lines along road. Blend Mode: Lighten. Add stars: Take night photo. Take star photo and put on second layer. Blend Mode Lighten. Mask out ground areas. Adjust with Opacity (or possibly gradient). Sharpen stars: Filters/Sharpen/Unsharp Mask. Blend Mode: Lighten. Radius right up.

Screen

<i>Action</i>	<p>Multiplies the inverse of the blend and base colours per RGB channel.</p> <p>Reduces contrast rather than brightness.</p> <p>Opposite of Multiply.</p>
<i>Formula</i>	<p>For each of RGB:</p> $\text{Result} = 1 - ((1 - \text{Base}) * (1 - \text{Blend})) / 1$
<i>Effect</i>	<p>Nicer version of Lighten. Black is transparent. White remains.</p> <p>Acts like projecting multiple images onto the same screen.</p> <p>Makes images look like they have been bleached.</p> <p>Affects self-blend. Produces soft transition between adjacent colours, though burning quickly happens.</p>
<i>Use</i>	<p>Popular blend mode. Creating brightened/faded look.</p> <p>Often used to lighten areas that are too dark.</p> <p>Use to add light gradients and vignettes.</p> <p>Screen makes Black disappear. So white text on black background on top of image.</p> <p>Reduce Opacity to make black background fade.</p> <p>Useful for blending image taken on black background into other images.</p> <p>Lighten dark areas (eg shadows): Duplicate layer. Set duplicate blend mode to Screen. Use Blend Ranges to constrain to darker areas. Mask as needed.</p> <p>Fade: Duplicate layer. Change to monochrome. Blend Mode: Screen.</p> <p>Perk up old photo: Add Levels layer. Blend Mode: Multiply. Add another Levels layer. Blend Mode: Screen.</p> <p>Brighten image: Duplicate layer. Blend Mode: Screen. Adjust with Opacity.</p> <p>Combine graphics: Put item on black background layer and set Blend Mode: Screen. Eg. white text, lens flare effect, smoke.</p> <p>Glow: Duplicate layer. Make black/white. Gaussian blur, very blurred. Blend Mode: Screen. Note: Can create halo, so use separated layers to constrain this.</p> <p>Brighten eyes: Select each eye area with oval marquees. Copy/paste to new layer. Blend Mode: Screen. Adjust with Opacity.</p>

Colour Dodge

<i>Action</i>	Brightens the base colour to reflect the blend colour by decreasing contrast between them. Opposite of Colour Burn.
<i>Formula</i>	In each of RGB: $\text{Result} = \text{Base} / (1 - \text{Blend})$
<i>Effect</i>	Similar to Dodge brush. Saturated mid-tones, blown-out highlights. Inverted blend makes everything white. Lighter tones create vibrant colours and increase contrast. Darker pixels have no effect.
<i>Use</i>	Brighten mid-tones and leave darks alone. Good for colouring metal that has lots of highlights. Bleach: Duplicate layer. Blend Mode: Colour Dodge. Adjust with Opacity. Enliven dull clouds with bright sun and dark foreground: Duplicate layer. Blend mode: Colour Dodge. Mask out highlights and whites. Heavy tinting: Add pixel layer with dark colour, such as crimson (or pick a dark shade from the image). Blend Mode: Colour Dodge. Adjust with Opacity.

Linear Dodge (Add)

<i>Action</i>	Brightens the base colour to reflect the blend colour by increasing the brightness.
<i>Formula</i>	In each of RGB: $\text{Result} = \text{Base} + \text{Blend}$ (clipped at white)
<i>Effect</i>	Stronger than Screen or Colour Dodge. Like Colour Dodge but no contrast adjustment. If blend colour is black, no effect is seen. If it is white, the result is white.
<i>Use</i>	Create bright/flat fade. Use instead of Screen when you want a more vivid effect. Useful mode for general lightening (control with Opacity). Useful when adding flare or other light to an image. Lighten area such as clouds: Duplicate layer. Blend Mode: Linear Dodge. Adjust with Opacity. Mask out areas where effect is not wanted. Light up a light: New layer. Paint new light area. Blend Mode: Linear Dodge.

Lighter Colour

<i>Action</i>	Compares the total of all channel values for the blend and base colour and displays the higher value colour. Opposite of Darker Colour.
<i>Formula</i>	Result = maximum ((sum of RGB in Base), (sum of RGB in Blend))
<i>Effect</i>	Similar to Lighten. No change in self-blend. Hard transitions in inverted blend.
<i>Use</i>	Not often. e.g. Put image of fire on top of person in dark coat. Lighter Colour blend makes fire replace coat.

Contrast category

<i>Action</i>	Use both lighten and darken to increase contrast. Compares against 50% grey. Darker uses darken mode, lighter uses lighten mode.
<i>Effect</i>	All modes in this category, except for Hard Mix, make 50% grey transparent.
<i>Use</i>	Change contrast of image.

Overlay

<i>Action</i>	<p>Uses Screen at half strength on colours lighter than 50% grey, and Multiply at half strength for colours darker than 50% grey. 'Half strength' does not mean 50% Opacity.</p> <p>This mode uses brightness of base layer. All other Contrast modes use the brightness of the blend layer. Overlay and Hard Light are 'commuted' as applying one to the blend layer has the same result as applying the other to the base layer and reversing the order of the layers.</p>
<i>Formula</i>	<p>For each of RGB:</p> <p>If Base > 0.5:</p> $\text{Screen: Result} = 1 - (1 - 2 * (\text{Base} - 0.5)) * (1 - \text{Blend})$ <p>Else (Base <= 0.5):</p> $\text{Multiply: Result} = (2 * \text{Base}) * \text{Blend}$
<i>Effect</i>	<p>Adds contrast. Dark blend colours shift mid-tones to darker colours. Light blend colours shift mid-tones to lighter colours.</p> <p>Generally tries to preserve Base pixel highlight and shadow.</p> <p>Similar to, but harsher than, Soft Light.</p> <p>Differs from Hard Light in the layers used as input and output (swapping layers has other effect).</p> <p>Increases saturation in self-blend, decreases it in inverted blend.</p>
<i>Use</i>	<p>Along with Multiply and Screen, this is a very popular mode.</p> <p>Increasing contrast: Duplicate layer (or add curves/levels layer). Set Overlay mode. Adjust with Opacity. Duplicate again for stronger effect. Add Gaussian blur to top layer for glow effect. Add HSL to adjust colouring effects.</p> <p>Sharpening: Use in High Pass Sharpen.</p> <p>Change saturation: Duplicate layer. For decreased saturation, invert. Blend Mode: Overlay. Adjust with Opacity.</p> <p>Enhance edges: Duplicate layer. Filter/Detect/Detect Edges. Layer/Invert. Blend Mode: Overlay. Adjust Opacity and Mask to suit.</p> <p>Dodge/burn: Add empty pixel layer. Paint with 10% opacity white or black. Build up in layers rather than trying to do everything at once. Use erase brush to remove effects.</p> <p>Colour intensification: Paint in black with Blend Mode: Overlay. Change strength of effect with Opacity.</p> <p>Add structure to sky: Paint texture brush, black, Blend Mode: Overlay.</p> <p>Diffuse glow: Layer/New Live Filter layer/Gaussian Blur. Check 'Preserve Alpha' [to stop image boundary blurring]. Increase radius (to about middle). Blend Mode: Overlay. Blend Ranges (cogwheel icon on layer): drag down left node. Uncheck Linear and drag down middle of left curve to apply effect only to highlights.</p>

	<p>Diffuse glow alternative: Select highlights: Select/Tonal range/Highlights. (or Ctrl-Shift-click on pixel layer icon.) Layer/New Live layer/Lens Blur. Check 'Preserve Alpha'. Increase radius (to about middle). Blend Mode: Overlay. Tweak radius to suit.</p> <p>Graduate flat sky: Add pixel layer. Add graduated grey filter. Blend mode: Overlay.</p> <p>Bring out lights: New pixel layer. Blend Mode: Overlay. Soft brush. Colour: white (sliders all right) with tweaks downwards (typically yellow, to bring out lights). Opacity about 40%. Paint over areas where there are lights or are lit, to bring out light more.</p> <p>Intensify colours: New pixel layer. Blend Mode: Overlay. Opacity about 25%. Click-drag colour dropper on colour panel to pick up common mid colour (eg orange) and click small circle by dropper to assign to brush colour. Tweak colour sliders to add drama. Paint over the areas where the colour is prevalent, particularly to strengthen key areas for visual attention. [Experiment with final tweak with Opacity]</p> <p>Colour toning: Rather than use adjustments, start with a white vector rectangle (LH toolbar) drawn over the image. Blend Mode: Overlay. Play with colour sliders to tint image.</p> <p>Reflect lights onto buildings: Add pixel layer. Blend Mode Overlay. Opacity 20-30%. Colour is light version of illumination colour (eg. Blue) and single-click paint hints of light on buildings or surroundings.</p> <p>Darken background: Layer/New Fill Layer. This starts with Gradient Tool selected. Set gradient to separate background from subject. Blend Mode: Overlay. Right gradient node a dark grey. Opacity right down to decrease white node effect.</p> <p>Intensify eyes: New pixel layer. Blend Mode: Overlay. Opacity 50%. Soft Paintbrush. Alt-click to pick up main colour in eye. Then vary this on the colour panel to something stronger. Paint around iris. Adjust with Opacity.</p> <p>Match composite images: Duplicate Base layer. Filters/Blur/Average. Drag above add-in layer. Blend Mode: Overlay. Adjust Opacity to suit.</p> <p>Adjust local colour cast, brighten: Duplicate layer. Gaussian Blur live filter (1000px, typed in), Preserve Alpha. Invert. Blend Mode: Overlay. Adjust Opacity and Blur.</p> <p>Add clouds to blue sky: Add clouds layer. Blend Mode: Overlay. Mask out foreground area.</p> <p>Note: Most things in Overlay can also be done in Soft Light, for gentler effect.</p>
--	--

Soft Light

<i>Action</i>	<p>If the blend colour (light source) is lighter than 50% grey, the image is lightened as if it were dodged. If the blend colour is darker than 50% grey, the image is darkened as if it were burned in.</p> <p>Uses Blend pixels to dodge and burn Base pixels.</p> <p>Uses gamma adjustment to darken or lighten. Pure black or white produces a distinctly darker or lighter area, but does not result in pure black or white.</p>
<i>Formula</i>	<p>For each of RGB:</p> <p>If Blend > 0.5:</p> $\text{Dodge: Result} = 1 - (1 - \text{Base}) * (1 - (\text{Blend} - 0.5))$ <p>Else (Blend <= 0.5):</p> $\text{Burn: Result} = \text{Base} * (\text{Blend} + 0.5)$ <p>Note: There are several different algorithms used to create soft light.</p>
<i>Effect</i>	<p>Like to Overlay, but softer and without the harsh contrast. Similar to shining a diffused spotlight on the image.</p> <p>Reduces contrast. If Base and Blend are both black, the result is dark grey. If Base and Blend are both white, then result is off-white.</p> <p>Soft transitions across brightness and colours. 'Translucent' effect in shadows.</p>
<i>Use</i>	<p>Create soft contrast.</p> <p>Reduce harsh shadows.</p> <p>Darken over-bright areas.</p> <p>Face enhancement: Use to accentuate and sculpt. New pixel layer with Blend mode: Soft Light. Paint on it with black/white (or colour) and soft brush. Adjust with Opacity.</p> <p>Use for gentle High-Pass Sharpen.</p> <p>Portrait tweak: Duplicate layer. Black and White. Blend mode: Soft Light.</p> <p>Tint: Add a pixel layer and make it a bold colour. Blend Mode: Soft Light. Reduce Opacity to shade tint down to desired level.</p> <p>Gentle Dodge and Burn: Add pixel layer, filled with 50% grey. Blend Mode: Soft Light. Paint with white to Dodge, and black to Burn. Control effect with Opacity and softened brush. Alternative: use empty pixel layer and paint with low opacity black or white brush. Do dodge and burn on separate layers.</p> <p>Soften: Add texture layer with Soft Light to create subtle texture. Control with Opacity.</p> <p>Brighten area (eg sunset): Add pixel layer. Paint in light colour with soft brush and mid Opacity. Blend Mode: Soft Light. Stronger effect with Overlay.</p> <p>Easy eye enhancement: Select each eye area with oval marquee. Copy/paste to new layer. Blend with Overlay, Soft Light or Screen. Adjust with Opacity. Add another pixel layer, Blend Mode: Soft Light. Dab white over middle of eyes. Lower Opacity.</p>

Hard Light

<i>Action</i>	<p>If the blend colour is lighter than 50% grey, the result is lightened. If the blend colour is darker than 50% grey, the image is darkened.</p> <p>Uses Blend pixels to Multiply and Screen Base pixels.</p>
<i>Formula</i>	<p>For each of RGB:</p> <p>If Blend > 0.5:</p> $\text{Screen: Result} = (1 - (1 - \text{Base}) * (1 - 2 * (\text{Blend} - 0.5)))$ <p>Else (Blend <= 0.5):</p> $\text{Multiply: Result} = \text{Base} * (2 * \text{Blend})$
<i>Effect</i>	<p>Like Soft Light taken to extremes.</p> <p>Effectively combines Screen and Multiply modes.</p> <p>Similar to shining a harsh spotlight on the image.</p> <p>This is the 'reverse' of Overlay. It is not related to Soft Light. Reverse order of layers and it will look like Overlay.</p> <p>Contrast increases in self blend, with mid-tones going black. Inverted blend gives brighter, less saturated effect than Soft Light.</p>
<i>Use</i>	<p>Useful for adding highlights.</p> <p>Reducing Opacity is often needed to get useful results.</p> <p>Strong Dodge and Burn: Add pixel layer, filled with 50% grey. Blend Mode: Hard Light. Paint with white to Dodge, and black to Burn. Control effect with Opacity and softened brush. Beware of colours getting a grey tinge.</p> <p>Put image of fire on top of person in dark coat.</p> <p>Bringing out water detail: Layer/New Live Filter Layer/High Pass filter. Monochrome. Radius 30-40 px. Select just HP layer. Right-click Invert (inverts mask). Soft paintbrush. Paint white to restore HP over water. Don't worry about a bit of overspill. Blend Mode: Hard light. Adjust opacity.</p> <p>Lighting glow: Add glow with Gaussian Blur, check 'Preserve alpha', radius 9, Blend Mode: Hard light. Layer/Invert. Soft paint brush, Opacity 50%, paint where light is hitting most strongly. Opacity 25%, paint the blur into darker areas at edges. Note that Hard Light glow is more contrasty than Overlay glow.</p> <p>Colour pop: White balance adjustment. Tweak. Blend Mode: Hard light. Pops colours, increases contrast.</p> <p>High Pass sharpening: Use for hard sharpening effect.</p> <p>Adding fog or haze: Add pixel layer. Draw fog: Gradient tool. Shift-drag down from top of screen to paint grey gradient. Ease off on darks: Blend Mode: Hard light. Blend ranges: pull down left side of left graph.</p>

Vivid Light

<i>Action</i>	If the blend colour is lighter than 50% grey, the image is lightened by decreasing the contrast. If the blend colour is darker than 50% grey, the image is darkened by increasing the contrast.
<i>Formula</i>	For each of RGB: If Blend > 0.5: Colour Burn: $\text{Result} = 1 - (1 - \text{Base}) / (2 * (\text{Blend} - 0.5))$ Else (Blend <= 0.5): Colour Dodge: $\text{Result} = \text{Base} / (1 - 2 * \text{Blend})$
<i>Effect</i>	Extreme version of Overlay or Soft Light. Base layer contrast changed.
<i>Use</i>	Add punch, lifting flat images. Reducing Opacity is often needed to get useful results. Changing Fill also changes the effect. Mask to target area as needed.

Linear Light

<i>Action</i>	If the blend colour is lighter than 50% grey, the image is lightened by increasing the brightness. If the blend colour is darker than 50% grey, the image is darkened by decreasing the brightness. Uses Linear Dodge on lighter pixels and Linear Burn on darker pixels. Like Vivid Light, but acts on brightness rather than contrast.
<i>Formula</i>	For each of RGB: If Blend > 0.5: Linear Dodge: $\text{Result} = \text{Base} + 2 * (\text{Blend} - 0.5)$ Else (Blend <= 0.5): Linear Burn: $\text{Result} = \text{Base} + 2 * \text{Blend} - 1$
<i>Effect</i>	Extreme contrastive effects. Even more so than Vivid Light. Inverted blend give complementary colours.
<i>Use</i>	Adds punch, lifting flat image. Reducing Opacity or Fill is often needed to get useful results. Bringing out water detail: Layer/New Live Filter Layer/High Pass filter. Monochrome. Radius 30-40 px. Select just HP layer. Right-click Invert (inverts mask). Soft paintbrush. Paint white to restore HP over water. Don't worry about a bit of overspill. Blend Mode: Linear light. Adjust Opacity. Sharpen eye more: Select background. Add High Pass filter layer. Select Monochrome. Radius 2px. Select High Pass layer. Layer/Invert. Paint white over eye to expose High Pass. Blend Mode: Linear Light. Sharpening: Duplicate main layer. Filters/Sharpen/High Pass. Change radius to select amount of high frequency data to sharpen. To stick to smaller details, the mask will look less obvious. Blend Mode: Linear Light. Also used in frequency separation.

Pin Light

Action	If the blend colour is lighter than 50% grey, pixels darker than the blend colour are replaced, and pixels lighter than the blend colour do not change. If the blend colour is darker than 50% grey, pixels lighter than the blend colour are replaced, and pixels darker than the blend colour do not change.
Formula	For each of RGB: If Blend > 0.5: Result = maximum(Base, (2 * Blend – 0.5))) Else (Blend <= 0.5): Result = minimum(Base, (2 * Blend))
Effect	Blotchy. Removes all mid-tones.
Use	Special effects. Edge effect: Unlock background. Filters/Detect/Detect Edges. Blend Mode: Pin Light. Add pixel layer beneath. Flood fill with chosen colour.

Hard Mix

Action	Adds the red, green and blue channel values of the blend colour to the RGB values of the base colour. If the resulting sum for a channel is 255 or greater, it receives a value of 255; if less than 255, a value of 0. Therefore, all blended pixels have red, green, and blue channel values of either 0 or 255.
Formula	For each of RGB: If (Base + Blend) >= 1 Result = 1 (white) Else (Base + Blend) < 1 Result = 0 (black)
Effect	Changes all pixels to RGB, CMY, white, or black. Consequent solarizing effect.
Use	Creating half tones or other geometric patterns or textures. Noisy image: Duplicate layer. Filter/Noise/Add Noise. Full up. Invert image. Blend Mode: Hard Mix. Woodcut effect: Make image black and white. Duplicate. Invert duplicate layer. Gaussian Blur duplicate layer. Blend mode: Hard Mix. Reduce Opacity for useful results.

Inversion category

<i>Action</i>	Blends layers based on difference between two layers.
<i>Effect</i>	
<i>Use</i>	Various uses not related to changing final image (more for temporarily highlighting aspects image).

Difference

<i>Action</i>	Subtracts either the blend colour from the base colour or the base colour from the blend colour, depending on which has the greater brightness value (uses absolute value of the difference).
<i>Formula</i>	For each of RGB: Result = Absolute(Blend – Base) In other words, subtraction any minus sign is removed.
<i>Effect</i>	White inverts colour. Black has no effect. Two identical images will appear black. When both Base and Blend are the same, Result is black. When they are opposite, result is white. All-white Blend layer results in negative. All-black Blend layer results in normal Base colours.
<i>Use</i>	Aligning image stack pairs – any lack of alignment is seen clearly as non-black areas. Temporarily increase brightness of top layer a bit to see the images. Make text visible: Add white text and Blend Mode: Difference. Part of image shows through text. See effect of adjustment: Duplicate layer. Make adjustment. Blend Mode: Difference. Weird negative: Duplicate layer. Invert. Blend Mode: Difference. Isolate edges: (Adjustment), Invert, Levels (Black ~70%), Black & White. Adjustment can be Sharpen, Blur. Possibly Posterise. Good Unsharp Mask settings: Radius 2, Factor 2, Threshold 10. Good blur: Gaussian, Box. To use this, Duplicate, set adjustments, blend mode: Darken. Adjust opacity to suit.

Exclusion

<i>Action</i>	Like Difference except that the contrast is lower.
<i>Formula</i>	Result = (Blend + Base) – (2 * Base * Blend)
<i>Effect</i>	Similar but lower contrast than Difference. White inverts, Black no effect. Mid-tones: 50% grey shows 50% grey. Self blend is very desaturated but not grey. Inverted blend similar to Hard Light.
<i>Use</i>	A neat use: Exclusion duplicate layer twice. B/W. Invert. Gives soft grey mono picture. Blend back with original. Several modes work, such as Multiply (play with Curves), Colour Burn (reduce Opacity) Soft Light, Colour (interesting mono). Tint image: Add pixel layer. Fill with tint colour. Blend Mode: Exclusion. Reduce Opacity to suit. Similar effects with several other blend modes (try them all). Use to align images, like Difference. But you can always see the picture as well as the distinct non-overlapped areas.

Subtract

<i>Action</i>	Subtracts the blend colour from the base colour. Negative values are clipped to zero.
<i>Formula</i>	For each of RGB: If Blend < Base: Result = 0 Else Result = Base - Blend
<i>Effect</i>	Progressively darkens by subtracting brightness.
<i>Use</i>	Sharpening: Duplicate layer. Filters/Detect/Detect Edges. Blend Mode: Subtract. Strong sharpening effect. Correct colours with HSL layer (nest under pixel layer) and turn Saturation right down. Add Gaussian Blur layer under pixel layer, small blur (.7). Inverse sharpening: Duplicate layer. Layer/Invert. Filters/Detect/Detect Edges. Blend Mode: Subtract. Add Curves above everything, pulling up midtones for brightening.

Divide

<i>Action</i>	Divides the blend colour by the base colour.
<i>Formula</i>	For each of RGB: Result = Blend / Base
<i>Effect</i>	Opposite to Subtract.
<i>Use</i>	Brightening photos if the color is on grey or less. Remove a tint: Create layer that is the colour tint to remove. Blend Mode: Divide.

Component category

<i>Action</i>	Use combination of HSL to create blend. One/two of HSL from Blend layer and others from Base layer.
<i>Effect</i>	Subtle HSL effects
<i>Use</i>	Control just one of HSL.

Hue

<i>Action</i>	Creates a result colour with the luminance and saturation of the base colour and the hue of the blend colour.
<i>Formula</i>	$\text{Result} = \text{Hue}(\text{Blend}) + \text{Saturation}(\text{Base}) + \text{Luminance}(\text{Base})$
<i>Effect</i>	Colour change effect. Creates mono image with any mono blend layer. Blend layer hues have weird psychedelic action. Monochrome on Blend layer has no effect. Mid-grey base not affected.
<i>Use</i>	Change hues while maintaining tone and saturation: New pixel layer. Select colour. Paint on pixel layer. Control with Opacity. Blend Mode: Hue. Use mask to restrict the hue to target areas. (Note: You can also try this with Colour blend mode, though this takes both hue <i>and</i> saturation from the top pixel layer). Eye colour change: Add new colour in pixel layer above eye. Blend Mode: Hue.

Saturation

<i>Action</i>	Creates a result colour with the luminance and hue of the base colour and the saturation of the blend colour.
<i>Formula</i>	$\text{Result} = \text{Hue}(\text{Base}) + \text{Saturation}(\text{Blend}) + \text{Luminance}(\text{Base})$
<i>Effect</i>	Blend colour changes effect. Creates mono image with any mono blend layer. No effect when colour is 50% grey.
<i>Use</i>	Good for isolating areas of colour. Works well for fading and intensifying colour. Colour pop: Duplicate layer. Select item to pop. Invert Selection. Fill with 50% grey. Blend Mode Saturation. Opacity changed to suit. (Variation: use gradient on grey). Saturation curve: Add Curves adjustment. Blend Mode: Saturation. Now adjusting curve adjusts saturation across luminosity range. S-curve enhances, reverse-S washes. Fade down unwanted dominant items: Add new layer. Paint over unwanted items with white. Blend Mode: Saturation. Adjust with Opacity.

Colour

<i>Action</i>	Creates a result colour with the luminance of the base colour and the hue and saturation of the blend colour.
<i>Formula</i>	$\text{Result} = \text{Hue}(\text{Blend}) + \text{Saturation}(\text{Blend}) + \text{Luminance}(\text{Base})$
<i>Effect</i>	Preserves base layer luminosity. Colour comes from blend layer. Opposite of Luminosity.
<i>Use</i>	<p>Colouring monochrome image: New layer. Paint over area to colour. Blend Mode: Colour.</p> <p>Whole image tint: New fill layer. Fill with desired colour. Blend Mode: Colour. Adjust with Opacity.</p> <p>Washout: Duplicate layer. Invert. Blend mode: Colour. Adjust with Opacity.</p> <p>Colour change: New layer. Paint over existing colour area (eg. car) with new colour. Blend Mode: Colour. (Constrain by selecting/refining area first). Turn down Opacity for tint.</p> <p>Use in frequency separation portraits to smooth out skin.</p> <p>Eye shadow: Add new pixel layer. Blend Mode: Colour. Select colour and paint it in with soft brush.</p> <p>Remove Colour Cast: Duplicate layer. Filters/Blur/Average. Invert. Blend Mode: Colour. Adjust Opacity.</p> <p>Tone down unwanted dominant items: Add new layer. Paint over unwanted items with white. Blend Mode: Colour. Adjust with Opacity.</p>

Luminosity

<i>Action</i>	Creates a result colour with the hue and saturation of the base colour and the luminance of the blend colour. Reverse (commuted) effect of Colour mode.
<i>Formula</i>	$\text{Result} = \text{Hue}(\text{Base}) + \text{Saturation}(\text{Base}) + \text{Luminance}(\text{Blend})$
<i>Effect</i>	Preserves colour of base layer. Luminosity comes from blend layer. Blended layer on top takes on the colours of the layer below. Opposite of Colour blend mode.
<i>Use</i>	<p>Useful for sustaining colour. Used in colour correction and colour toning.</p> <p>Good for use with Levels or Curves when addressing luminosity issues, to avoid affecting hue or saturation.</p> <p>Colour intensity: Duplicate layer. Convert to Black/white. Blend Mode: Luminosity. Now colour picture again. Change blue in b/w layer to change sky. Great for darkening skies (and playing with other colours). Adjust overall colour with Vibrance layer. Use b/w layer colour sliders to change colours.</p> <p>Sharpening without halos: Sharpen on separate layer. Blend mode: Luminosity. (Only luminosity is used in sharpening in final image – colour comes from original image).</p> <p>Darken unwanted dominant items: Add new layer. Paint over unwanted items with black. Blend Mode: Luminosity. Adjust with Opacity.</p>

Painting modes

<i>Action</i>	
<i>Effect</i>	
<i>Use</i>	Only available in paint brush modes.

Behind

<i>Action</i>	Only lets you paint on transparent pixels.
<i>Formula</i>	
<i>Effect</i>	
<i>Use</i>	Useful for preserving image while painting in holes, borders, etc.

Clear

<i>Action</i>	Painting deletes pixels.
<i>Formula</i>	
<i>Effect</i>	
<i>Use</i>	Much like eraser tool.

Affinity adds

<i>Action</i>	These are blend modes added by Affinity Photo.
<i>Effect</i>	
<i>Use</i>	

Average

<i>Action</i>	Takes the mathematical average of Blend and Base layers.
<i>Formula</i>	For each of RGB: Result = Average (Blend, Base)
<i>Effect</i>	As Blend and Base are in the range 0-1, the result will always be in the same range and lower than the original. Higher (brighter) Blend values will have less of a reducing effect than lower (darker) ones. Often similar effect to setting Blend layer opacity to 50%.
<i>Use</i>	Moderated curve: Add Curve with strong S-shape. Blend Mode: Average. Good at keeping blue in sky while allowing detail in shadows. Faded look: Duplicate layer. Black and White. Blend Mode: Average.

Negation

<i>Action</i>	Adds the Base to the Blend. Values are clipped at 1.
<i>Formula</i>	For each of RGB: Result = Integer(Base + Blend)
<i>Effect</i>	Colours are brightened if they are on both layers. Easy to burn out colours when Blend + Base > 1. Invert a duplicate layer and blend with negation gives all white. This is kind of reverse of Difference mode, which subtracts values. Blending a white layer has the same effect as Contrast Negate on a duplicate layer.
<i>Use</i>	Lighten shadows: Select/Tonal Range/Select Shadows. Copy/Paste (creates new layer with just shadows. Blend Mode: Negation. Adjust with Opacity. (For more control over shadows: Duplicate layer. Click Blend Ranges 'gear' icon. Pull down middle of left chart. Then Negation blend mode). Weird negative: Duplicate layer. Blend Mode: Negation. Gives orange skies but greys are similar. Pastel effect: Duplicate Layer. Filters/Detect/Detect Edges. Black and White adjustment layer. Blend Mode: Negation.

Reflect

Action	Darkens image using values from Blend layer.
Formula	
Effect	Darkens
Use	<p>Good for selectively enhancing parts of image like reflection or layers of light.</p> <p>Changing eye colour: New pixel layer. Blend mode Reflect. 25% opacity. Darken colour of brush. Paint over eyes again to give more depth. Experiment with Opacity and blending of two pixel layers.</p> <p>Improve stone texture: Layer/New Adjustment Layer/Recolour. Orange. Lower saturation. Blend Mode: Reflect.</p>

Glow

Action	Brightens image using values from blend layer.
Formula	
Effect	<p>Reverse of Reflect, exchanging the layer order so Blend layer is used as the brightener.</p> <p>Widens the radius of artificial lights and makes them more intense.</p>
Use	<p>Radial blend to create glowing punch: New pixel layer. Set radial gradient centred on focal point in image. In gradient colour (top context toolbar towards left) darken outer (right) colour. Blend Mode: glow. Darken white end of gradient to improve visibility in image. Re-adjust gradient nodes on photo.</p> <p>Improve stone texture: Layer/New Adjustment Layer/Recolour. Orange. Lower saturation. Blend Mode: Glow. Adjust opacity.</p> <p>Add radiance to lights: Add another pixel layer. Colour: light version of illumination colour (eg blue). Blend Mode: Glow. Opacity about 20%. Paint around illuminated areas of same colour to spread light, including reflections. Use cautiously as this doesn't blend as subtly as Overlay blending.</p>

Contrast Negate

Action	<u>Seems to</u> invert the pixel values of the composite layer based on the image layer's content.
Formula	<p>Seems like:</p> <p>RBM and GYC form opposite (O) groups (Red opposite to Green, etc). RBM is primary (P), GYC is secondary (S).</p> <p>Result =</p> <p>If Blend = Base then Opposite colour, O(Blend)</p> <p>If Blend and Base are Opposites, then Base, else Blend</p> <p>For each of RGB:</p> <p>Result = 1 - Integer(Base + Blend)?</p> <p>(inconclusive so far)</p>
Effect	<p>Causes a form of inversion of Blend layer colours depending on Base.</p> <p>Contrast Negate on a duplicate layer has the same effect as Negation on a white new pixel layer.</p>
Use	Make text visible: Add text layer over image. Blend Mode: Contrast Negate.

Erase

Action	The transparency/opacity of the Blend layer is applied to the Base layer. Colour and luminosity values of the blend layer are not used.
Formula	<p>Result colour = Base colour.</p> <p>Result opacity = Base opacity * (1 – Blend opacity)</p> <p>(where fully transparent is 0 and fully opaque is 1).</p>
Effect	<p>Blend layer acts as mask, 'punching through' Base. Only the opacity of the Blend layer is used.</p> <p>Makes layer <i>below</i> Base layer visible where Blend layer is non-opaque.</p>
Use	Use pixel layer as mask: Duplicate layer. Perform adjustment to it. Add pixel layer above. Blend Mode: Erase. Paint on pixel layer with varying opacity to block adjustment and let original layer show through.

Group blending

Action	Group has default of pass-through blending mode, which does nothing. Change this and (a) layers in group are blended by their rules, <u>then</u> (b) the group composite is blended with layers below according to the group blend mode.
Formula	
Effect	Adds another blend action after layers in group are blended.
Use	Useful in compositing. Make group mode 'Normal'. Apply weird effect within group (eg. zany curves). Effect only happens to group. Copying group copies this effect to second group.