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by an \( n \)-bit index.
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<table>
<thead>
<tr>
<th>Index</th>
<th>Red</th>
<th>Green</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>296</td>
<td></td>
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    glBegin (GL_TRIANGLES);
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    glClear (GL_COLOR_BUFFER_BIT);
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For \texttt{alpha} to have any meaning, blending must be set.
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For *alpha* to have any meaning, blending must be set. This is done with `glEnable(GL_BLEND)`  

Next, the way the blending is to be done is specified. Basically, the colors of the incoming polygon (the source) are combined with the currently stored pixel value (the destination) to give a resultant pixel color as follows:
Transparency

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\[(R_sS_r + R_dD_r, G_sS_g + G_dD_g, B_sS_b + B_dD_b, A_sS_a + A_dD_a)\]
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where \((S_r, S_g, S_b)\) and \((D_r, D_g, D_b)\) are blending factors for the source and destination red, green, and blue components, respectively.
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where \((S_r, S_g, S_b)\) and \((D_r, D_g, D_b)\) are blending factors for the source and destination red, green, and blue components, respectively.

Blending factors have values between 0 and 1, and the resulting pixel values are clamped to \([0,1]\).
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The blending factors are set with the function...
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\((R_s S_r + R_d D_r, G_s S_g + G_d D_g, B_s S_b + B_d D_b, A_s S_a + A_d D_a)\)

where \((S_r, S_g, S_b)\) and \((D_r, D_g, D_b)\) are blending factors for the source and destination red, green, and blue components, respectively.

Blending factors have values between 0 and 1, and the resulting pixel values are clamped to \([0,1]\).

The blending factors are set with the function
glBlendFunc(GLenum sfactor, GLenum dfactor)
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where \((S_r, S_g, S_b)\) and \((D_r, D_g, D_b)\) are blending factors for the source and destination red, green, and blue components, respectively.

Blending factors have values between 0 and 1, and the resulting pixel values are clamped to \([0,1]\).

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The following table gives values for \texttt{s}\texttt{factor} and \texttt{d}\texttt{factor}:

<table>
<thead>
<tr>
<th>Constant</th>
<th>factor</th>
<th>blend factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{GL_ZERO}*</td>
<td>\texttt{s or d}</td>
<td>(0, 0, 0, 0)</td>
</tr>
<tr>
<td>\texttt{GL_ONE}*</td>
<td>\texttt{s or d}</td>
<td>(1, 1, 1, 1)</td>
</tr>
<tr>
<td>\texttt{GL_DST_COLOR}</td>
<td>\texttt{s}</td>
<td>((R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>\texttt{GL_SRC_COLOR}</td>
<td>\texttt{d}</td>
<td>((R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_DST_COLOR}</td>
<td>\texttt{s}</td>
<td>((1, 1, 1, 1) - (R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_SRC_COLOR}</td>
<td>\texttt{d}</td>
<td>((1, 1, 1, 1) - (R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_SRC_ALPHA}*</td>
<td>\texttt{s or d}</td>
<td>((A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_DST_ALPHA}</td>
<td>\texttt{s or d}</td>
<td>((A_d, A_d, A_d, A_d))</td>
</tr>
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<td>\texttt{s or d}</td>
<td>((1, 1, 1, 1) - (A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_DST_ALPHA}</td>
<td>\texttt{s or d}</td>
<td>((1, 1, 1, 1) - (A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>\texttt{GL_SRC_ALPHA_SATURATE}</td>
<td>\texttt{s}</td>
<td>((f, f, f, 1)), (f = \min(A_s, 1 - A_d))</td>
</tr>
</tbody>
</table>
The following table gives values for `sfactor` and `dfactor`:

<table>
<thead>
<tr>
<th>Constant</th>
<th><code>factor</code></th>
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<td>((A_s, A_s, A_s, A_s))</td>
</tr>
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</tr>
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<td>s or d</td>
<td>((1, 1, 1, 1) - (A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
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<td>s or d</td>
<td>((1, 1, 1, 1) - (A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
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<td>s</td>
<td>((f, f, f, 1), f = \min(A_s, 1 - A_d))</td>
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* — The most commonly used factors.
The following table gives values for `sfactor` and `dfactor`:

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</tr>
<tr>
<td>GL_DST_COLOR</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>$(R_d, G_d, B_d, A_d)$</td>
</tr>
<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td>$(R_s, G_s, B_s, A_s)$</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>$(1, 1, 1, 1) − (R_d, G_d, B_d, A_d)$</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_COLOR</td>
<td>d</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>$(A_s, A_s, A_s, A_s)$</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>$(A_d, A_d, A_d, A_d)$</td>
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<tr>
<td></td>
<td>$(1, 1, 1, 1) − (A_s, A_s, A_s, A_s)$</td>
</tr>
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<td>GL_ONE_MINUS_DST_ALPHA</td>
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</tr>
<tr>
<td></td>
<td>$(1, 1, 1, 1) − (A_d, A_d, A_d, A_d)$</td>
</tr>
<tr>
<td>GL_SRC_ALPHA_SATURATE</td>
<td>s</td>
</tr>
<tr>
<td></td>
<td>$(f, f, f, 1)$,</td>
</tr>
<tr>
<td></td>
<td>$f = \min(A_s, 1 − A_d)$</td>
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* — The most commonly used factors.

Blending can be disabled with
The following table gives values for `sfactor` and `dfactor`:

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<tr>
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<td>s</td>
<td>((R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
<td>((R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
<td>((1, 1, 1, 1) - (R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_COLOR</td>
<td>d</td>
<td>((1, 1, 1, 1) - (R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>GL_SRC_ALPHA*</td>
<td>s or d</td>
<td>((A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>GL_DST_ALPHA</td>
<td>s or d</td>
<td>((A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_ALPHA*</td>
<td>s or d</td>
<td>((1, 1, 1, 1) - (A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_ALPHA</td>
<td>s or d</td>
<td>((1, 1, 1, 1) - (A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>GL_SRC_ALPHA_SATURATE</td>
<td>s</td>
<td>((f, f, f, 1),) (f = \min(A_s, 1 - A_d))</td>
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Blending can be disabled with `glDisable(GL_BLEND)`
The following table gives values for `sfactor` and `dfactor`:

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<td>(1, 1, 1, 1)</td>
</tr>
<tr>
<td>GL_DST_COLOR</td>
<td>s</td>
<td>(Rd, Gd, Bd, Ad)</td>
</tr>
<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
<td>(Rs, Gs, Bs, As)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
<td>(1, 1, 1, 1) − (Rd, Gd, Bd, Ad)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_COLOR</td>
<td>d</td>
<td>(1, 1, 1, 1) − (Rs, Gs, Bs, As)</td>
</tr>
<tr>
<td>GL_SRC_ALPHA*</td>
<td>s or d</td>
<td>(As, As, As, As)</td>
</tr>
<tr>
<td>GL_DST_ALPHA</td>
<td>s or d</td>
<td>(Ad, Ad, Ad, Ad)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_ALPHA*</td>
<td>s or d</td>
<td>(1, 1, 1, 1) − (As, As, As, As)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_ALPHA</td>
<td>s or d</td>
<td>(1, 1, 1, 1) − (Ad, Ad, Ad, Ad)</td>
</tr>
</tbody>
</table>
| GL_SRC_ALPHA_SATURATE      | s       | (f, f, f, 1),  
                             |  
                             | f = min(As, 1 − Ad) |

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Blending can be disabled with `glDisable(GL_BLEND)`

The same effect can be achieved by using
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<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
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</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
<td>(1, 1, 1, 1) − (R_d, G_d, B_d, A_d)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_COLOR</td>
<td>d</td>
<td>(1, 1, 1, 1) − (R_s, G_s, B_s, A_s)</td>
</tr>
<tr>
<td>GL_SRC_ALPHA*</td>
<td>s or d</td>
<td>(A_s, A_s, A_s, A_s)</td>
</tr>
<tr>
<td>GL_DST_ALPHA</td>
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</tr>
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<td>s or d</td>
<td>(1, 1, 1, 1) − (A_s, A_s, A_s, A_s)</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_ALPHA</td>
<td>s or d</td>
<td>(1, 1, 1, 1) − (A_d, A_d, A_d, A_d)</td>
</tr>
<tr>
<td>GL_SRC_ALPHA_SATURATE</td>
<td>s</td>
<td>(f, f, f, 1), (f = \min(A_s, 1 − A_d))</td>
</tr>
</tbody>
</table>

* — The most commonly used factors.

Blending can be disabled with `glDisable(GL_BLEND)`

The same effect can be achieved by using `GL_ONE` for the source and `GL_ZERO` for the destination.
The following table gives values for *sfactor* and *dfactor*:

<table>
<thead>
<tr>
<th>Constant</th>
<th>factor</th>
<th>blend factor</th>
</tr>
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<tbody>
<tr>
<td>GL_ZERO*</td>
<td>s or d</td>
<td>(0, 0, 0, 0)</td>
</tr>
<tr>
<td>GL_ONE*</td>
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</tr>
<tr>
<td>GL_DST_COLOR</td>
<td>s</td>
<td>((R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
<td>((R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
<td>((1, 1, 1, 1) - (R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_COLOR</td>
<td>d</td>
<td>((1, 1, 1, 1) - (R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>GL_SRC_ALPHA*</td>
<td>s or d</td>
<td>((A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>GL_DST_ALPHA</td>
<td>s or d</td>
<td>((A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_SRC_ALPHA*</td>
<td>s or d</td>
<td>((1, 1, 1, 1) - (A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_ALPHA</td>
<td>s or d</td>
<td>((1, 1, 1, 1) - (A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>GL_SRC_ALPHA_SATURATE</td>
<td>s</td>
<td>((f, f, f, 1),)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(f = \min(A_s, 1 - A_d))</td>
</tr>
</tbody>
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Blending can be disabled with `glDisable(GL_BLEND)`

The same effect can be achieved by using `GL_ONE` for the source and `GL_ZERO` for the destination.

(In fact, this is the default setting when blending is enabled!)
The following table gives values for \texttt{sfactor} and \texttt{dfactor}:

<table>
<thead>
<tr>
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<td>\texttt{GL_ZERO}*</td>
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</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_DST_COLOR}</td>
<td>\texttt{s}</td>
<td>((1, 1, 1, 1) - (R_d, G_d, B_d, A_d))</td>
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<tr>
<td>\texttt{GL_ONE_MINUS_SRC_COLOR}</td>
<td>\texttt{d}</td>
<td>((1, 1, 1, 1) - (R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_SRC_ALPHA}*</td>
<td>\texttt{s or d}</td>
<td>((A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_DST_ALPHA}</td>
<td>\texttt{s or d}</td>
<td>((A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_SRC_ALPHA}*</td>
<td>\texttt{s or d}</td>
<td>((1, 1, 1, 1) - (A_s, A_s, A_s, A_s))</td>
</tr>
<tr>
<td>\texttt{GL_ONE_MINUS_DST_ALPHA}</td>
<td>\texttt{s or d}</td>
<td>((1, 1, 1, 1) - (A_d, A_d, A_d, A_d))</td>
</tr>
<tr>
<td>\texttt{GL_SRC_ALPHA_SATURATE}</td>
<td>\texttt{s}</td>
<td>((f, f, f, 1), f = \min(A_s, 1 - A_d))</td>
</tr>
</tbody>
</table>

* — The most commonly used factors.

Blending can be disabled with \texttt{glDisable(GL_BLEND)}

The same effect can be achieved by using \texttt{GL_ONE} for the source and \texttt{GL_ZERO} for the destination.

(In fact, this is the default setting when blending is enabled!)

The program \texttt{glSandBox} is useful for illustrating blending.
The following table gives values for \texttt{s\_factor} and \texttt{d\_factor}:

<table>
<thead>
<tr>
<th>Constant</th>
<th>factor</th>
<th>blend factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL_ZERO*</td>
<td>s or d</td>
<td>(0, 0, 0, 0)</td>
</tr>
<tr>
<td>GL_ONE*</td>
<td>s or d</td>
<td>(1, 1, 1, 1)</td>
</tr>
<tr>
<td>GL_DST_COLOR</td>
<td>s</td>
<td>((R_d, G_d, B_d, A_d))</td>
</tr>
<tr>
<td>GL_SRC_COLOR</td>
<td>d</td>
<td>((R_s, G_s, B_s, A_s))</td>
</tr>
<tr>
<td>GL_ONE_MINUS_DST_COLOR</td>
<td>s</td>
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</tr>
<tr>
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</tr>
<tr>
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<td>GL_ONE_MINUS_DST_ALPHA</td>
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| GL\_SRC\_ALPHA\_SATURATE       | s      | \((f, f, f, 1),
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