

```
//
//  GRGradientButtonCell : ButtonCell
//
//  By Anders Bertelrud
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//
```

```
#import <dpsclient/psops.h>
#import <dpsclient/wraps.h>
#import <appkit/NXImage.h>
#import <appkit/View.h>
#import "GRGradientButtonCell.h"
#import "GRGradientFunctions.h"
```

```
//
//  GRGradientButtonCell class
//
@implementation GRGradientButtonCell
```

```
// Class globals
static NXImage *    GRBlankImage = nil;    // This is needed because of problems with IB.
```

```
////////// Private functions //////////
```

```
static inline void GRAdjustRectangle (NXRect * rectangle, float leftInset, float topInset,
                                     float rightInset, float bottomInset, BOOL viewIsFlipped)
// Adjusts the given rectangle by inseting each edge by the corresponding amount. If the
// flag ^viewIsFlipped^ is YES, the adjustments are appropriate for a rectangle in a flipped
// coordinate system; if it is NO, the adjustments will be correct only if the rectangle
// is in a non-flipped coordinate system.
{
```

```

if (rectangle)
{
    rectangle->origin.x += leftInset;
    rectangle->origin.y += (viewIsFlipped ? topInset : bottomInset);
    rectangle->size.width -= (leftInset + rightInset);
    rectangle->size.height -= (topInset + bottomInset);
}
}

```

```

static inline void GROffsetRectangle (NXRect * rectangle, float dx, float dy,
                                     BOOL viewIsFlipped)
// Offsets the given rectangle by the given amounts. If ^viewIsFlipped^ is YES, the offsets
// are appropriate for a rectangle in a flipped coordinate system; if it is NO, the offsets
// will be correct only if the rectangle is in a non-flipped coordinate system.
{
    if (rectangle)
    {
        rectangle->origin.x += dx;
        rectangle->origin.y += (viewIsFlipped ? -dy : dy);
    }
}

```

```

static inline NXImage * GRCreateDimmedImageWithZone (NXZone * zone, NXImage * image)
// Creates and returns a dimmed version of the given image by compositing it into a
// transparent image of the same size but with 50% alpha. The resulting image can be
// composited anywhere with NX_SOVER and will let half of the background show through.
// In our case the background is a gray gradient; the result is a dimmed effect. The
// NXImage is allocated in the given zone.
{
    NXImage *    dimmedImage;
    NXRect       imageBounds = {0, 0, 0, 0};

    [image getSize:&imageBounds.size];
    dimmedImage = [[NXImage allocFromZone:zone] initWithSize:&imageBounds.size];
}

```

```

if ([dimmedImage lockFocus])
{
    PSsetgray(NX_BLACK);
    PSsetalpha(0.5);
    NXRectFill(&imageBounds);
    [image composite:NX_SIN toPoint:&imageBounds.origin];
    [dimmedImage unlockFocus];
    return dimmedImage;
}
else
    return [dimmedImage free];
}

```

////////// Creating and destroying GRGradientButtonCells //////////

```

+ initialize
{
    // This is very ugly. It seems that IB cannot deal with button cells that have nil images.
    // We create a small blank image to use for "no image", and set it in -initIconCell:.
    if (self == [GRGradientButtonCell self])
    {
        NXRect    r = {0, 0, 1, 1};

        GRBlankImage = [[NXImage alloc] initWithSize:&r.size];
        if ([GRBlankImage lockFocus])
        {
            PSsetalpha(0.0);
            NXRectFill(&r);
            PSsetalpha(1.0);
            [GRBlankImage unlockFocus];
        }
    }
    return self;
}

```

```
}
```

```
- initWithCell:(const char *)iconName // d.i.
```

```
{
    self = [super initWithCell:iconName];
    dimmedWhenDisabled = YES;
    [self setImage:GRBlankImage]; // See comment in +initialize
    return self;
}
```

```
- initWithCell:(const char *)textString // d.i.
```

```
{
    // GRGradientButtonCells cannot display text. Sorry...
    return [self initWithCell:NULL];
}
```

```
- init
```

```
{
    return [self initWithCell:NULL];
}
```

```
- copyFromZone:(NXZone *)zone
```

```
{
    self = [super copyFromZone:zone];
    dimmedNormalImage = [dimmedNormalImage copyFromZone:zone];
    dimmedAlternateImage = [dimmedAlternateImage copyFromZone:zone];
    return self;
}
```

```
- free
```

```
{
```

```
[dimmedAlternateImage free];
[dimmedNormalImage free];
return [super free];
```

```
}
```

////////// Setting whether to dim when cell is disabled //////////

```
- (BOOL)isDimmedWhenDisabled
{
    return dimmedWhenDisabled;
}
```

```
- (void)setDimmedWhenDisabled:(BOOL)flag
{
    dimmedWhenDisabled = flag;
}
```

////////// Setting the icon //////////

```
- setImage:(NXImage *)image
{
    [dimmedNormalImage free];
    dimmedNormalImage = nil;
    if (image != nil)
    {
        //      ALAssert1([image isKindOfClass:[NXImage self]], "Image, if not nil, must be a kind of "
        //      "NXImage (but it's %s).", ALDS(image));
        dimmedNormalImage = GRCreateDimmedImageWithZone([self zone], image);
    }
}
```

```

    [super setImage:image];
    return self;
}

- setImage:(NXImage *)image
{
    [dimmedAlternateImage free];
    dimmedAlternateImage = nil;
    if (image != nil)
    {
        //      ALAssert1([image isKindOfClass:[NXImage self]], "Image, if not nil, must be a kind of "
        //      "NXImage (but it's %s).", ALDS(image));
        dimmedAlternateImage = GRCreatedDimmedImageWithZone([self zone], image);
    }
    [super setImage:image];
    return self;
}

```

//////////////////////////////////// Drawing and highlighting //////////////////////////////////////

```

- drawInside:(const NXRect *)cellFrame inView:(View *)view
{
    NXRect          inside;
    register NXImage *  image;
    register BOOL      viewIsFlipped;
    register BOOL      dwd;

    viewIsFlipped = [view isFlipped];
    dwd = dimmedWhenDisabled;
    inside = *cellFrame;
}

```

```

// If the button cell is bordered (which actually means "raised bezel" in the case of
// ButtonCells), we adjust the drawing rectangle accordingly.
if (bcFlags1.bordered)
    GRAdjustRectangle(&inside, 1, 1, 2, 2, viewIsFlipped);
image = (dwd && cFlags1.disabled) ? dimmedNormalImage : icon.bmap.normal;

// [@@] Still something wrong with this code: if a button whose state is 1 is pressed, the
// button isn't highlighted as it should. [fixa detta sÚ smÚningom]
if (cFlags1.highlighted)
{
    // Highlighted.
    if (bcFlags1.bordered && bcFlags1.pushIn)
        GROffsetRectangle(&inside, 1, -1, viewIsFlipped);
    if (bcFlags1.lightByBackground || bcFlags1.lightByGray)
        GRDrawGrayGradient(inside, (NX_LTGRAY+NX_WHITE)/2.0, NX_WHITE);
    else
        GRDrawGrayGradient(inside, (NX_DKGRAY+NX_LTGRAY)/2.0, (NX_LTGRAY+NX_WHITE)/2.0);
    // The state-checking below is to make change-by-toggle work right.
    if (bcFlags1.lightByContents && !(bcFlags1.changeContents && cFlags1.state))
        image = (dwd && cFlags1.disabled) ? dimmedAlternateImage : icon.bmap.alternate;
}
else if (cFlags1.state)
{
    // Alternate state.
    if (bcFlags1.changeBackground || bcFlags1.changeGray)
        GRDrawGrayGradient(inside, (NX_LTGRAY+NX_WHITE)/2.0, NX_WHITE);
    else
        GRDrawGrayGradient(inside, (NX_DKGRAY+NX_LTGRAY)/2.0, (NX_LTGRAY+NX_WHITE)/2.0);
    if (bcFlags1.changeContents)
        image = (dwd && cFlags1.disabled) ? dimmedAlternateImage : icon.bmap.alternate;
}
else
    GRDrawGrayGradient(inside, (NX_DKGRAY+NX_LTGRAY)/2.0, (NX_LTGRAY+NX_WHITE)/2.0);

// If it's an icon cell, draw the icon (for now always centered).
if (cFlags1.type == NX_ICONCELL && image != nil)

```

```

{
    NXSize    imageSize;
    NXPoint   pt;

    [image getSize:&imageSize];
    pt.x = NX_MIDX(&inside) - imageSize.width/2;
    if (pt.x < NX_X(&inside))
        pt.x = NX_X(&inside);
    if (viewIsFlipped)
    {
        pt.y = NX_MIDY(&inside) + imageSize.height/2;
        if (pt.y > NX_MAXY(&inside))
            pt.y = NX_MAXY(&inside);
    }
    else
    {
        pt.y = NX_MIDY(&inside) - imageSize.height/2;
        if (pt.y < NX_Y(&inside))
            pt.y = NX_Y(&inside);
    }
    [image composite:NX_SOVER toPoint:&pt];
}
bcFlags1.lastState = (cFlags1.state ? YES : NO);
return self;
}

```

//////////////////////////////// Reading from typed streams //////////////////////////////////

```

- read:(NXTypedStream *)stream
{
    self = [super read:stream];
    dimmedWhenDisabled = YES;
    if (cFlags1.type == NX_ICONCELL && icon.bmap.normal != nil)

```



```
        dimmedNormalImage = GRCreateDimmedImageWithZone([self zone], icon.bmap.normal);
if (cFlags1.type == NX_ICONCELL && icon.bmap.alternate != nil)
    dimmedAlternateImage = GRCreateDimmedImageWithZone([self zone], icon.bmap.alternate);
return self;
}
```

@end