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/*
lc -bl -cfist -v -y -j73 relative
blink FROM LC:/lib/c.o relative.o TO relative LIB LIB:lc.lib LIB:amiga.lib
quit
*/
/*
* relative.c - shows custom gadget relativity
*
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* Preliminary and Confidential.
*
* custom gadget relativity allows a gadget to arbitrarily resize
* itself whenever the window changes size. This is a complete superset
* of the functionality of the old GRELWIDTH, GRELRIGHT, etc., features.
* This example shows a subclass of gadgetclass whose imagery comes
* from frameclass. This gadget's property is that it is always half
* the size of its domain, and centered within it. That is, it's always
* half as wide and half as tall as the inner area of its window, and
* centered within that area.
*/

#include <intuition/intuition.h>
#include <intuition/gadgetclass.h>
#include <intuition/imageclass.h>
#include <intuition/cghooks.h>
#include <intuition/classes.h>
#include <intuition/classusr.h>

#include <clib/alib_protos.h>
#include <clib/alib_stdio_protos.h>
#include <clib/exec_protos.h>
#include <clib/graphics_protos.h>
#include <clib/intuition_protos.h>

struct Library *GfxBase = NULL;
struct Library *IntuitionBase = NULL;
struct Window *win = NULL;
struct Gadget *gad = NULL;
Class *customrelclass = NULL;

Class *initCustomRelClass(void);
ULONG __saveds __asm dispatchCustomRel( register __a0 Class *cl,
                                         register __a2 Object *o,
                                         register __a1 Msg msg );

void renderCustomRel( struct Gadget *gad,
                     struct RastPort *rp,
                     struct GadgetInfo *gi );
void layoutCustomRel( struct Gadget *gad,
                     struct GadgetInfo *gi,
                     ULONG initial );
LONG handleCustomRel( struct Gadget *gad,
                     struct gpInput *msg );

void main(void)
{
    if ( GfxBase = OpenLibrary("graphics.library",39) )
    {
        if ( IntuitionBase = OpenLibrary("intuition.library",39) )
        {
            if ( customrelclass = initCustomRelClass() )
            {
                if ( gad = NewObject( customrelclass, NULL,
                                     GA_Left, 20,
                                     GA_Top, 20,
                                     GA_Width, 20,
                                     GA_Height, 20,
                                     GA_RelVerify, TRUE,
                                     GA_Immediate, TRUE,
                                     TAG_DONE ) )
                {
                    if ( win = OpenWindowTags( NULL,
                                                WA_Title, "Custom Relativity Demo",
                                                WA_CloseGadget, TRUE,
                                                WA_DepthGadget, TRUE,
                                                WA_DragBar, TRUE,

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WA_SizeGadget, TRUE,
WA_Gadgets, gad,
WA_Activate, TRUE,
WA_IDCMP, IDCMP_GADGETHELP | IDCMP_RAWKEY | IDCMP_CLOSEWINDOW |
            IDCMP_GADGETDOWN | IDCMP_GADGETUP,
WA_Width, 150,
WA_Height, 150,
WA_MinWidth, 50,
WA_MinHeight, 50,
WA_MaxWidth, ~0,
WA_MaxHeight, ~0,
WA_NoCareRefresh, TRUE,
TAG_DONE ) )
{
    BOOL terminated = FALSE;
    struct IntuiMessage *img;

    /* Turn on Gadget Help */
    HelpControl( win, HC_GADGETHELP );

    while (!terminated)
    {
        Wait (1 << win->UserPort->mp_SigBit);
        while (img = (struct IntuiMessage *) GetMsg(win->UserPort))
        {
            switch ( img->Class )
            {
                case IDCMP_CLOSEWINDOW:
                    terminated = TRUE;
                    break;

                case IDCMP_RAWKEY:
                    printf("RAWKEY %lx\n", img->Code);
                    break;

                case IDCMP_GADGETUP:
                    printf("Gadget Up\n");
                    break;

                case IDCMP_GADGETDOWN:
                    printf("Gadget Down\n");
                    break;

                case IDCMP_GADGETHELP:
                    if ( img->IAddress == NULL )
                    {
                        printf("Gadget Help: Mouse not over window\n");
                    }
                    else if ( img->IAddress == (APTR) win )
                    {
                        printf("Gadget Help: Mouse in window, not over a gadget\n");
                    }
                    else
                    {
                        /* Detect system gadgets. Figure out by looking at
                         * system-gadget-type bits in GadgetType field:
                         */
                        LONG sysgtype =
                            ((struct Gadget *)img->IAddress)->GadgetType & GTYP_SYSTYPEMASK;
                        switch ( sysgtype )
                        {
                            case GTYP_SIZING:
                                printf("Gadget Help for window sizing gadget\n");
                                break;

                            case GTYP_WDRAGGING:
                                printf("Gadget Help for window drag-bar\n");
                                break;

                            case GTYP_WUPFRONT:
                                printf("Gadget Help for window depth gadget\n");
                                break;

                            case GTYP_WDOWNBACK:
                                printf("Gadget Help for window zoom gadget\n");

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Boops! in Release 3

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/*
void
layoutCustomRel( struct Gadget *gad, struct GadgetInfo *gi, ULONG initial )
{
    if ( gi->gi_ReqMaster )
    {
        /* Center it within the requester */
        gad->Width = gi->gi_Domain.Width / 2;
        gad->Height = gi->gi_Domain.Height / 2;
        gad->LeftEdge = gad->Width / 2;
        gad->TopEdge = gad->Height / 2;
    }
    else
    {
        /* Center it within the window, after accounting for
         * the window borders
         */
        gad->Width = ( gi->gi_Domain.Width -
            gi->gi_Window->BorderLeft - gi->gi_Window->BorderRight ) / 2;
        gad->Height = ( gi->gi_Domain.Height -
            gi->gi_Window->BorderTop - gi->gi_Window->BorderBottom ) / 2;
        gad->LeftEdge = ( gad->Width / 2 ) + gi->gi_Window->BorderLeft;
        gad->TopEdge = ( gad->Height / 2 ) + gi->gi_Window->BorderTop;
    }
    SetAttrs( gad->GadgetRender,
        IA_Width, gad->Width,
        IA_Height, gad->Height,
        TAG_DONE );
}

/* handleCustomRel()
 * Routine to handle input to the gadget. Behaves like a basic
 * hit-select gadget.
 */
LONG
handleCustomRel( struct Gadget *gad, struct gpInput *msg )
{
    WORD selected = 0;
    struct RastPort *rp;
    LONG retval = GMR_MEACTIVE;

    /* Could send IM_HITTEST to image instead */
    if ( ( msg->gpi_Mouse.X >= 0 ) &&
        ( msg->gpi_Mouse.X < gad->Width ) &&
        ( msg->gpi_Mouse.Y >= 0 ) &&
        ( msg->gpi_Mouse.Y < gad->Height ) )
    {
        selected = GFLG_SELECTED;
    }

    if ( (msg->gpi_IEvent->ie_Class == IECLASS_RAWMOUSE) &&
        (msg->gpi_IEvent->ie_Code == SELECTUP) )
    {
        /* gadgetup, time to go */
        if ( selected )
        {
            retval = GMR_NOREUSE | GMR_VERIFY;
        }
        else
        {
            retval = GMR_NOREUSE;
        }
        /* and unselect the gadget on our way out... */
        selected = 0;
    }

    if ( ( gad->Flags & GFLG_SELECTED ) != selected )
    {
        gad->Flags ^= GFLG_SELECTED;
        if ( rp = ObtainGIRPort( msg->gpi_GInfo ) )
        {
            DoMethod( (Object *)gad, GM_RENDER, msg->gpi_GInfo, rp, GREDRAW_UPDATE );
        }
    }
}

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        ReleaseGIRPort( rp );
    }
    return( retval );
}

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