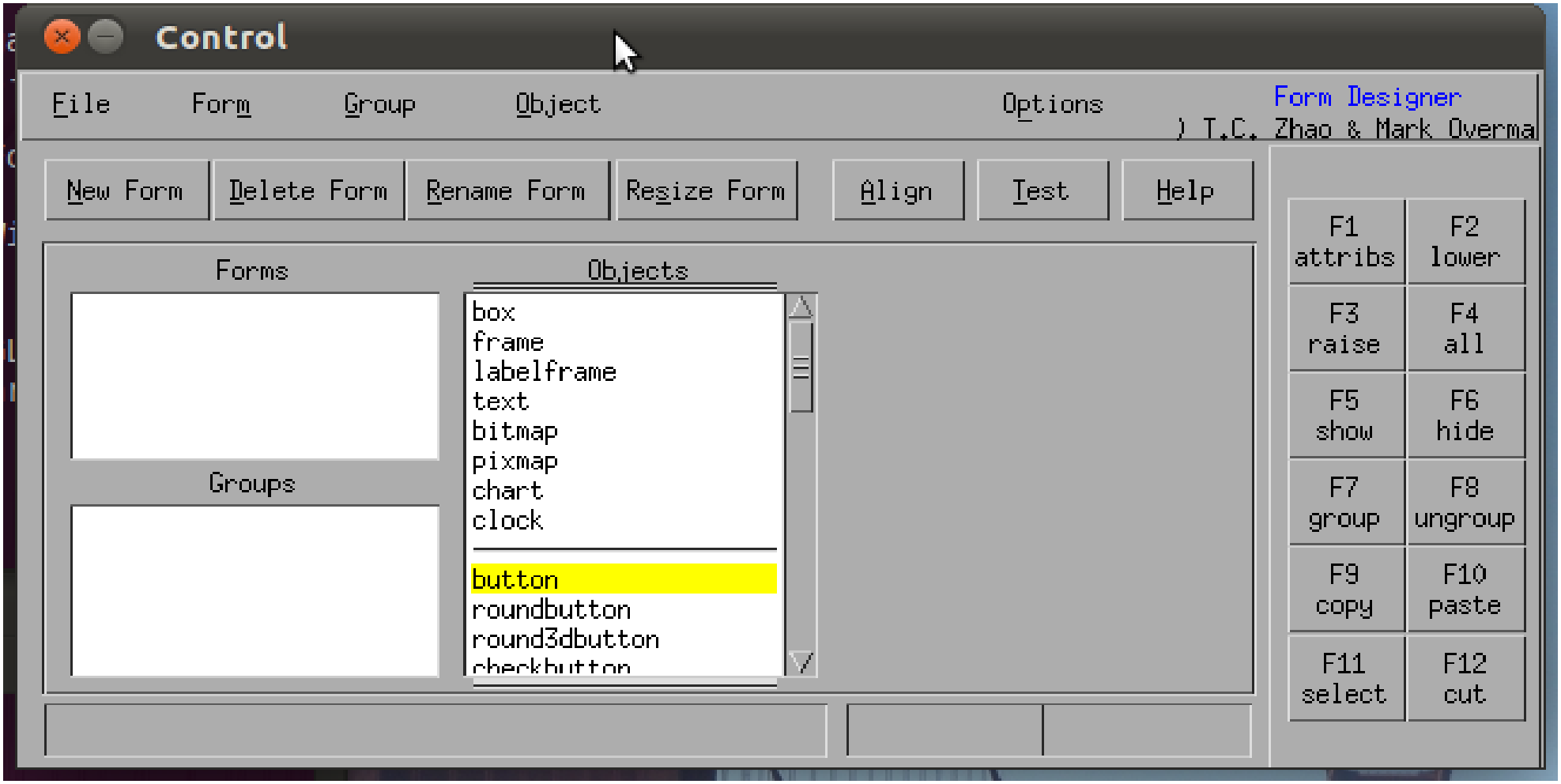
Graphische Benutzeroberfläche mit libforms

- Relativ einfache Programmierung
- Überschaubarer Vorrat an Controls
- Graphischer Designer verfügbar (fdesign)
  - Recht eigenwillige Bedienung
  - Generiert alle notwendigen Quellfiles
  - Eventhandling mit call-back-Funktionen
- Zu installierende Pakete (.deb)
  - libforms-doc, libforms-bin, libforms-dev
  - Doku unter
    /usr/share/doc/libforms-doc/html

Im Labor:

```
export LD_LIBRARY_PATH=/opt/xforms/lib64
 gcc -I gcc -I/opt/xforms/include/ -L/opt/xforms/lib64 f1*.c -lforms
```

Der Designer



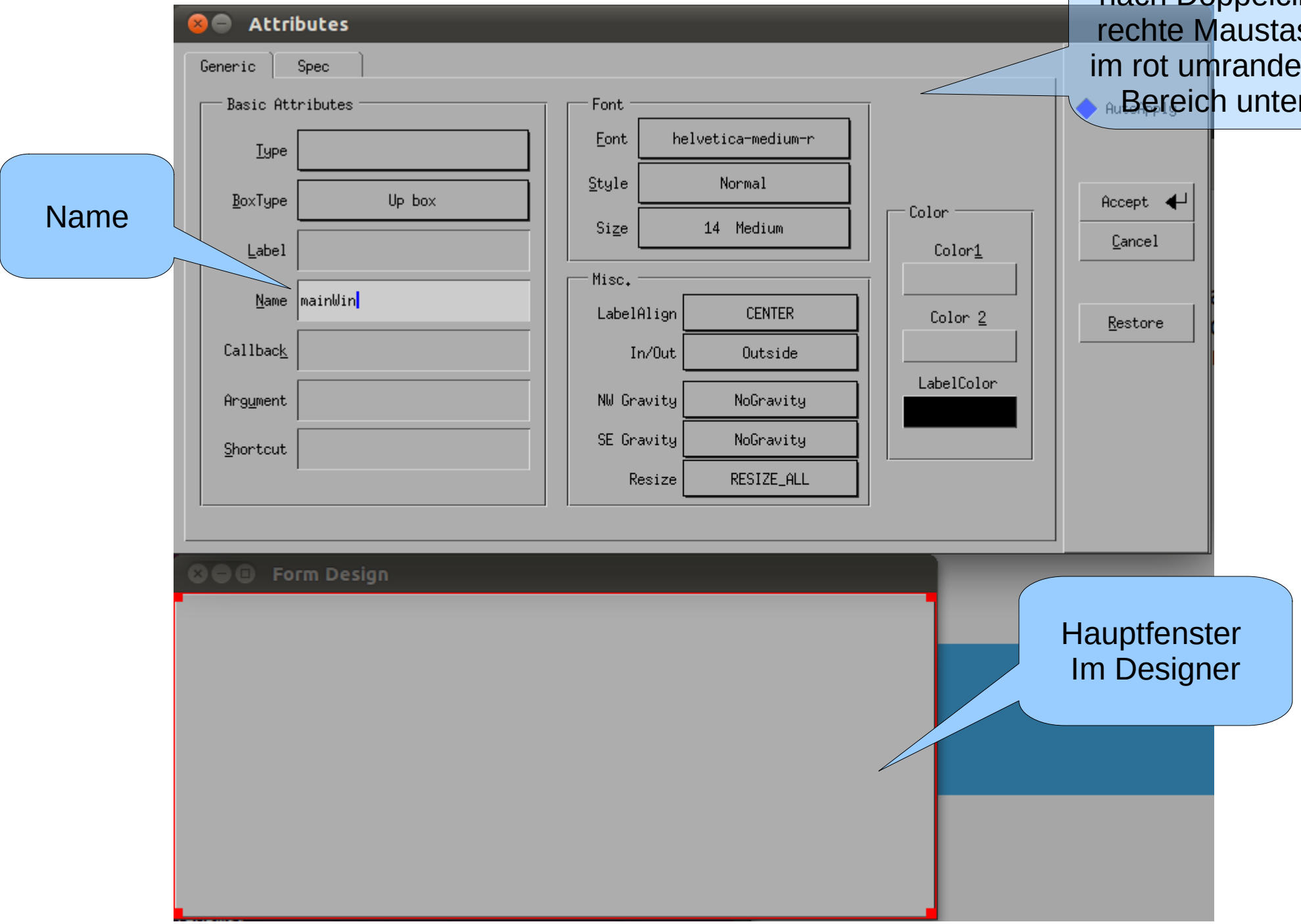
Voreinstellungen

- Zu Beginn im Hauptfenster unter Options selektieren:
  - emit Main
  - emit emit Callback
  - emit C UI Code

- Nach save kann fdesign geschlossen werden.
- Soll an der Oberfläche nachträglich geändert werden, so sollten nachfolgende Optionen wieder deselektiert werden.
  - emit Main
  - emit emit Callback

Arbeitsschritte

1. new Form
   TheApp (Name eintragen in Dialogfeld),
   Das Hauptfenster wird sichtbar.
   Doppelclick **rechts!!**
   Dialog öffnet sich:
      Name eintragen (theApp)
      REZIZE_ALL auswählen
      Fontgröße wählen

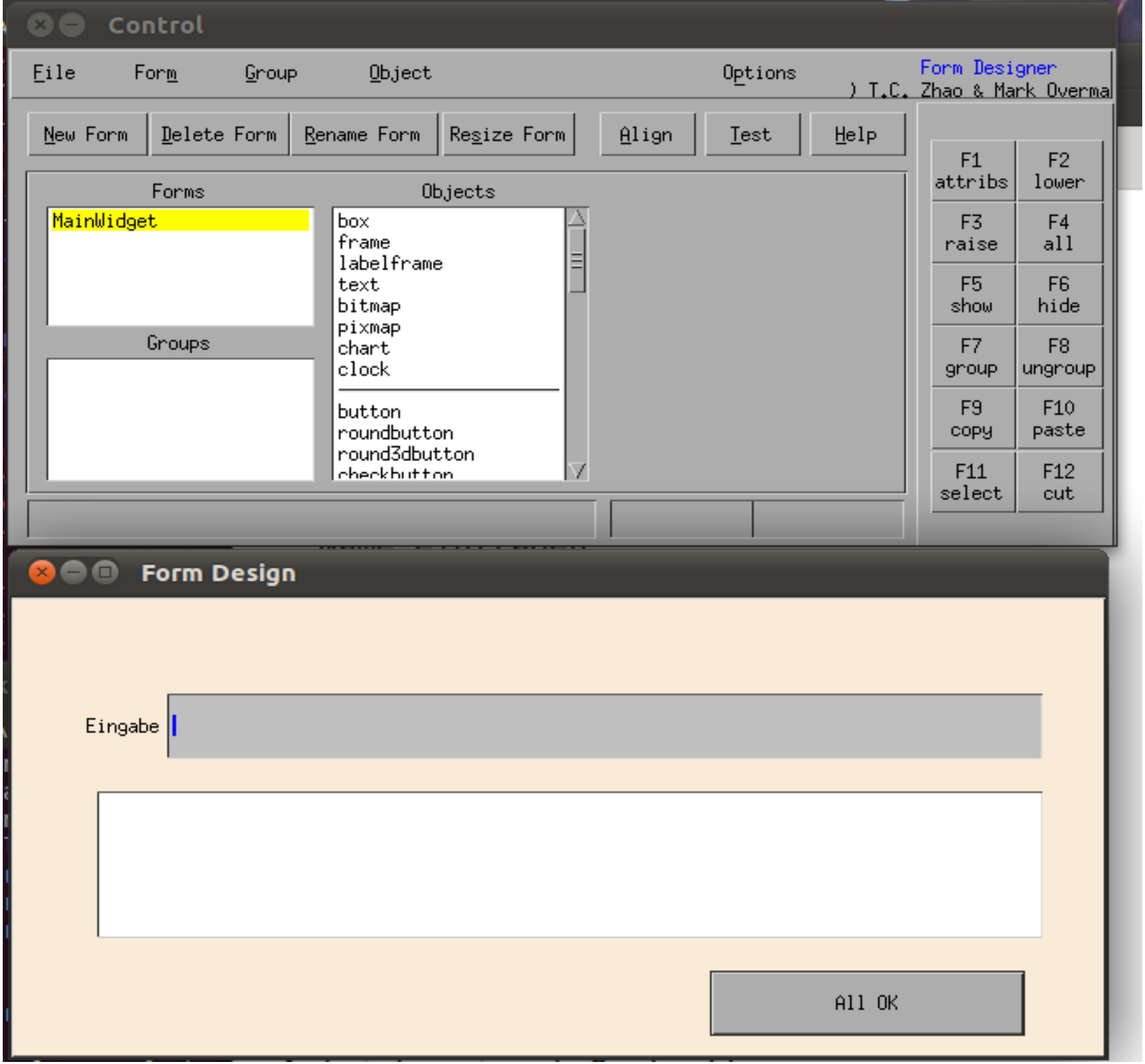

Dialog öffnet sich nach Doppelclick rechte Maustaste im rot umrandeten Bereich unten
Name
Attributes
Generic
Spec
Basic Attributes
Type
BoxType
Up box
Label
Name
mainWin
Callback
Argument
Shortcut
Font
Font
helvetica-medium-r
Style
Normal
Size
14 Medium
Misc.
LabelAlign
CENTER
In/Out
Outside
NW Gravity
NoGravity
SE Gravity
NoGravity
Resize
RESIZE_ALL
Color
Color1
Color 2
LabelColor
Accept
Cancel
Restore
Form Design
Hauptfenster
Im Designer

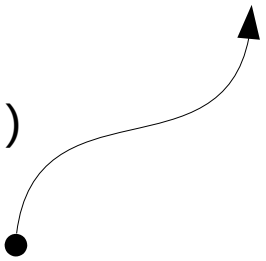
Einfügen weiterer Controls/ Widgets

2. input selektieren in Objects
   Click in Form Designer
   Aufziehen input Control
   Doppelclick re (oder Button F1 Attribs)
      Name eintragen
      Callback eintragen
      ev. Font eintragen

3. Browser selektieren in Objects
   Click in Form Designer
   Aufziehen input Control
   Doppelclick re (oder Button F1 Attribs)
      Name eintragen
      Callback eintragen
      ev. Font eintragen

4. Button selektieren in Objects
   Click in Form Designer
   Aufziehen input Control
   Doppelclick re (oder Button F1 Attribs)
      Name eintragen
      Callback eintragen
      ev. Font eintragen


Control
File
Form
Group
Object
Options
Form Designer
) T.C. Zhao & Mark Overma
New Form
Delete Form
Rename Form
Resize Form
Align
Test
Help
Forms
MainWidget
Groups
Objects
box
frame
labelframe
text
bitmap
pixmap
chart
clock
button
roundbutton
round3dbutton
F1 attribs
F2 lower
F3 raise
F4 all
F5 show
F6 hide
F7 group
F8 ungroup
F9 copy
F10 paste
F11 select
F12 cut
Form Design
Eingabe
All OK



```
#include "v1.h"
FD_MainWidget *fd_MainWidget;
int
main( int    argc,
      char * argv[ ] )
{
    FD_MainWidget *fd_MainWidget;
    fl_initialize( &argc, argv, 0, 0, 0 );
    fd_MainWidget = create_form_MainWidget( );

    /* Fill-in form initialization code */

    /* Show the first form */

    fl_show_form( fd_MainWidget->MainWidget, . . . . . "MainWidget" );

    fl_do_forms( );

    if ( fl_form_is_visible( fd_MainWidget->MainWidget ) )
        fl_hide_form( fd_MainWidget->MainWidget );
    fl_free( fd_MainWidget );
    fl_finish( );

    return 0;
}
```

```
/* Header file generated by fdesign on Mon Jan 30 17:07:12 2012 */

#ifndef FD_MainWidget_h_
#define FD_MainWidget_h_

#include <forms.h>

/* Callbacks, globals and object handlers */

extern void callIn1( FL_OBJECT *, long );
extern void callButt1( FL_OBJECT *, long );


/* Forms and Objects */

typedef struct {
    FL_FORM   * MainWidget;
    void      * vdata;
    char      * cdata;
    long        ldata;
    FL_OBJECT * Mywidget;
    FL_OBJECT * In1;
    FL_OBJECT * Butt1;
    FL_OBJECT * MyBrowser;
} FD_MainWidget;

extern FD_MainWidget * create_form_MainWidget( void );
extern FD_MainWidget *fd_MainWidget;
#endif /* FD_MainWidget_h_ */
```

```
/* Form definition file generated by fdesign */

#include <stdlib.h>
#include "v1.h"


/***************************************
 ***************************************/

FD_MainWidget *
create_form_MainWidget( void )
{
    FL_OBJECT *obj;
    FD_MainWidget *fdui = fl_malloc( sizeof *fdui );

    fdui->vdata = fdui->cdata = NULL;
    fdui->ldata = 0;

    fdui->MainWidget = fl_bgn_form( FL_NO_BOX, 627, 284 );

    fdui->Mywidget = obj = fl_add_box( FL_UP_BOX, 0, 0, 627, 284, "" );
    fl_set_object_color( obj, FL_ANTIQUEWHITE, FL_BISQUE );

    fdui->In1 = obj = fl_add_input( FL_NORMAL_INPUT, 90, 60, 500, 40, "Eingabe" );
    fl_set_object_callback( obj, callIn1, 0 );
    fl_set_object_return( obj, FL_RETURN_END_CHANGED );

    fdui->Butt1 = obj = fl_add_button( FL_NORMAL_BUTTON, 400, 230, 180, 40, "All OK" );
    fl_set_object_lalign( obj, FL_ALIGN_CENTER );
    fl_set_object_callback( obj, callButt1, 0 );

    fdui->MyBrowser = obj = fl_add_browser( FL_NORMAL_BROWSER, 50, 120, 540, 90, "" );
    fl_set_object_return( obj, FL_RETURN_CHANGED | FL_RETURN_SELECTION | FL_RETURN_DESELECTION );

    fl_end_form( );

    fdui->MainWidget->fdui = fdui;

    return fdui;
}
```

```
#include <stdlib.h>
#include "v1.h"

/* Callbacks and freeobj handles for form MainWidget */

/*****************************************
 *****************************************/

void callIn1( FL_OBJECT * ob,
        long        data )
{
    /* Fill-in code for callback here */
    const char * p=fl_get_input(ob);
    printf("callIn1   called: %s\n",p);
    fl_add_browser_line(fd_MainWidget->MyBrowser,p);
    fl_set_input(ob,"");
}


/*****************************************
 *****************************************/

void callButt1( FL_OBJECT * ob,
        long        data )
{
    /* Fill-in code for callback here */
        exit(0);
}
```