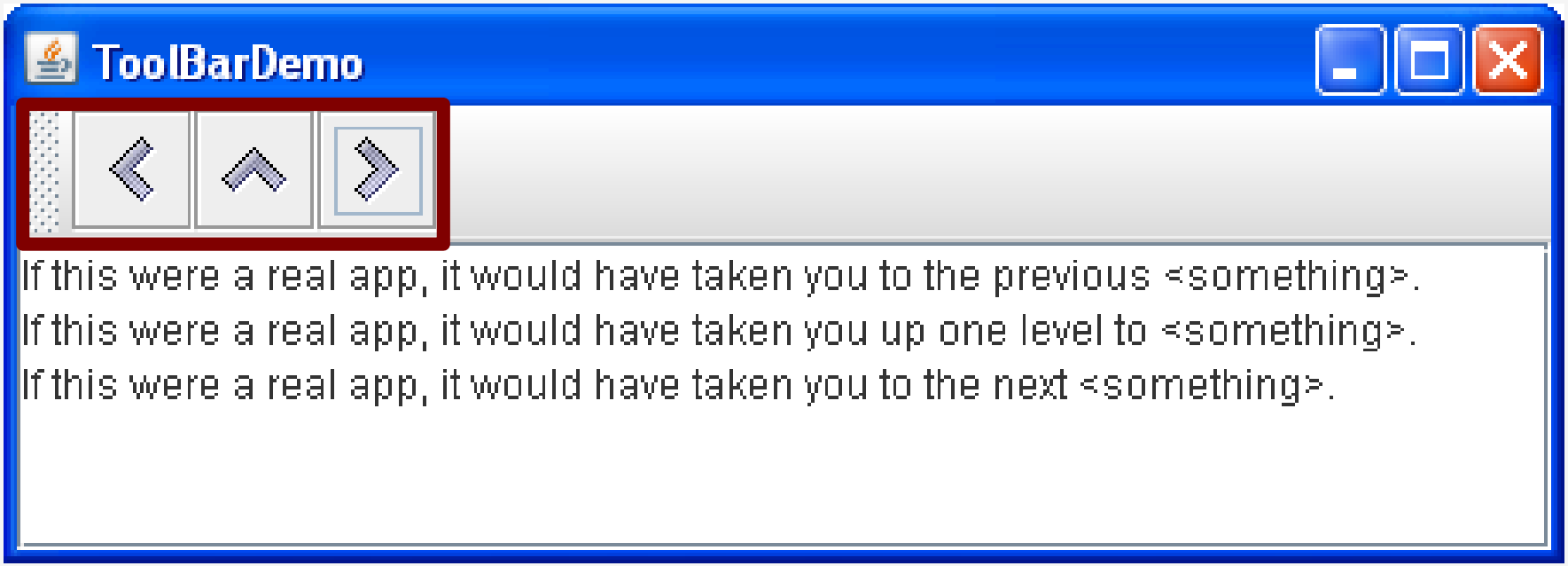
Barre d'outils
L'interface javax.swing.Action

Les barres d'outils

- En plus des menus, les logiciels offrent généralement une barre d'outils.
- En Java, l'objet qui gère ce type de composant graphique est *javax.swing.JToolBar*
- *JToolBar* est un composant classique (hérite de Jcomponent)
- Mais au contraire de *JMenu*, il peut être ajouté à tout autre container (pas seulement les containers de plus haut niveau).

Les barres d'outils



Les barres d'outils

- Exemple : ajout dans un Jpanel appelé ToolBarDemo :

```
public ToolBarDemo() {
    super(new BorderLayout());

    //Create the toolbar.
    JToolBar toolBar = new JToolBar("Still draggable");
    addButtons(toolBar);

    //Create the text area used for output.  Rec
    //enough space for 5 rows and 30 columns.
    textArea = new JTextArea(5, 30);
    textArea.setEditable(false);
    JScrollPane scrollPane = new JScrollPane(textArea);
    //Lay out the main panel.
    setPreferredSize(new Dimension(450, 130));
    add(toolBar, BorderLayout.PAGE_START);
    add(scrollPane, BorderLayout.CENTER);
}
```

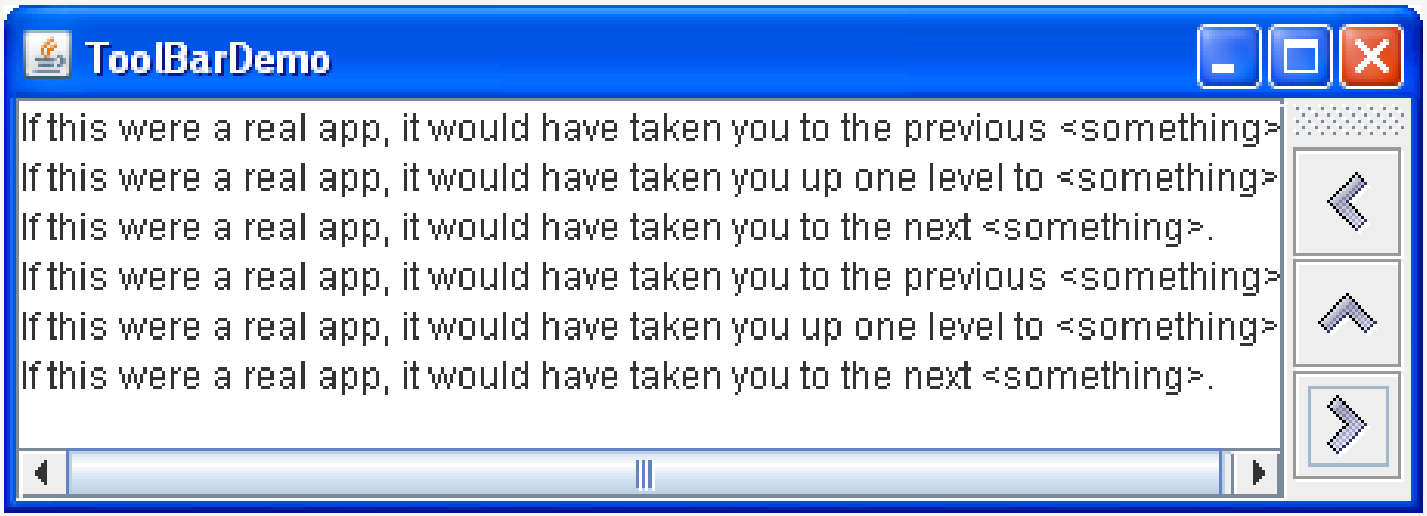
Création

Ajout des boutons à l'aide d'une méthode

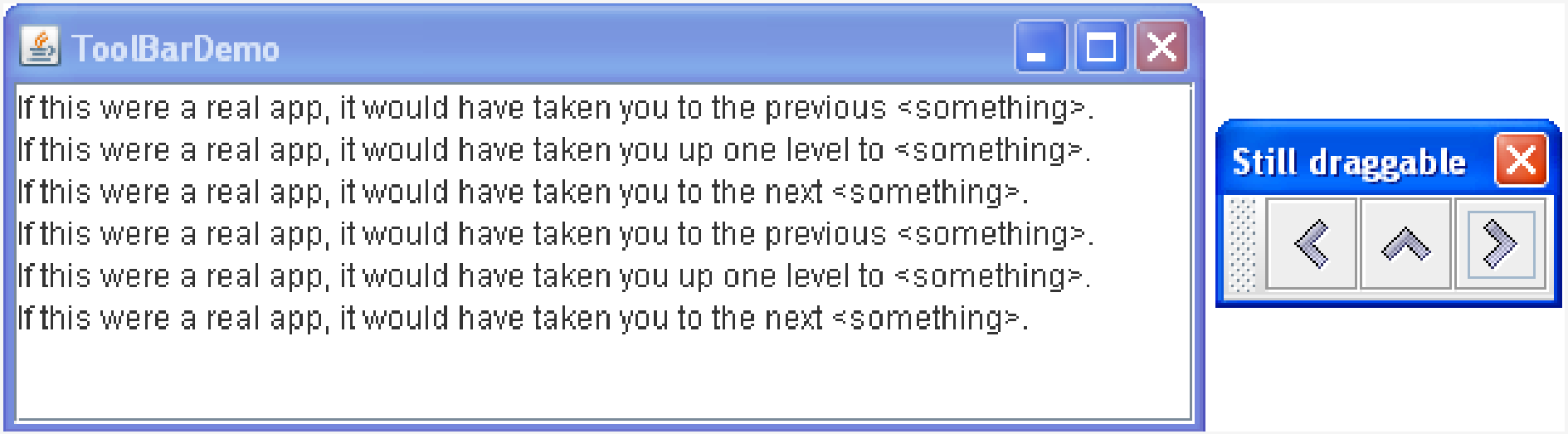
Ajout de la barre au composant

barres d'outils « draggable »

- Par défaut, une JtoolBar est « draggable »
- Cependant pour que cela fonctionne, il faut impérativement que :
  - le composant contenant la barre soit gérée par un *BorderLayout.*
  - que la barre ne soit pas initialement placée au centre du composant

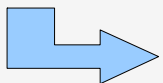


barres d'outils « draggable »

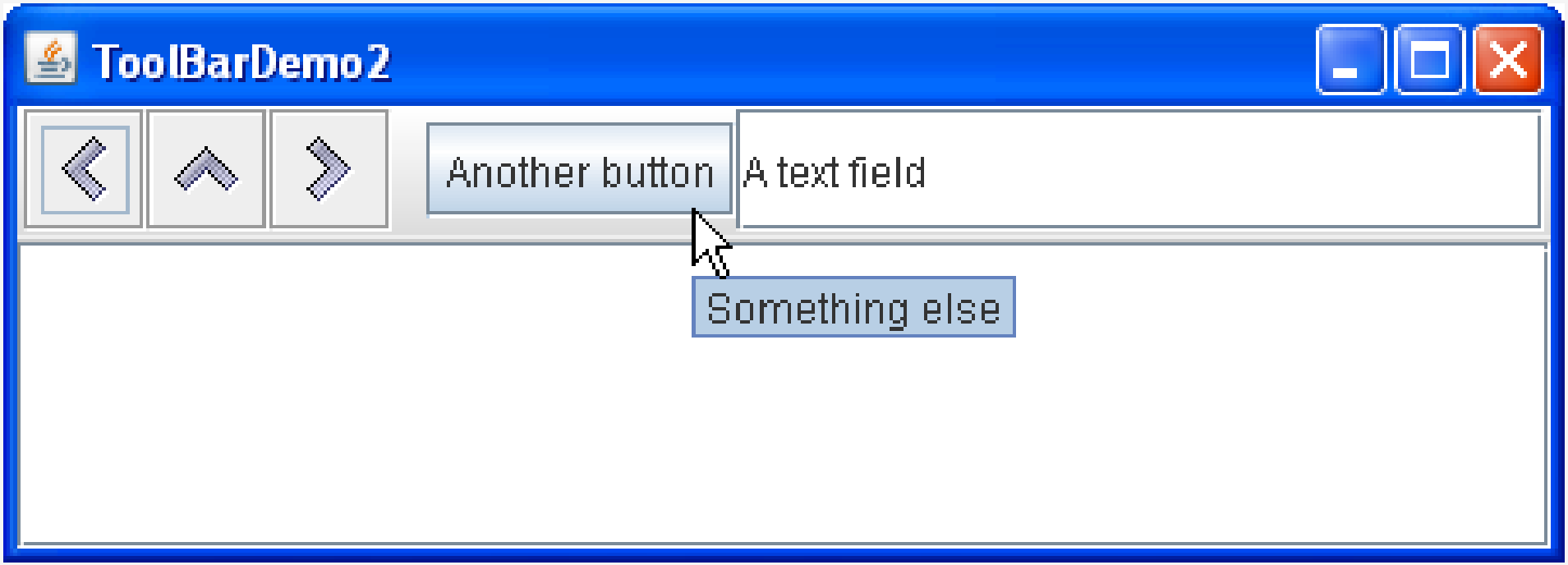


Personnalisation d'une toolbar

- ***toolBar.setFloatable(false);***
  - barre d'outils fixe (non draggable)
- ***toolBar.setRollover(true);***
  - sur lignage des boutons au survol de la souris
- ***toolBar.addSeparator();***
  - Insertion d'un espace dans la barre d'outils
- On peut ajouter autre chose que des boutons :
  - *button = new JButton("Another button");*
  - *toolBar.add(button);*
  - *JTextField textField = new JTextField("A text field");...*
  - *toolBar.add(textField);*



Personnalisation d'une toolbar



Gestion avancée des actions utilisateurs

Une fonction – n composants ?

- Interfaces utilisateur classiques : une même fonction est souvent à plusieurs endroits de l'interface (menus et toolbar).
- Comment faire en Java ?
- Première solution : Utiliser le même listener pour plusieurs composants.
- Problème : on ne réutilise pas toutes les informations communes (tooltip, actif ou non, etc.)
- On définit un objet qui regroupe ces informations en implémentant l'interface ***javax.swing.Action***

javax.swing

Interface Action

All Superinterfaces:

ActionListener, EventListener

- Sous interface de **ActionListener** et de EventListener

Method Summary

void	**addPropertyChangeListener**(PropertyChangeListener listener) Adds a PropertyChange listener.
Object	**getValue**(String key) Gets one of this object's properties using the associated key.
boolean	**isEnabled**() Returns the enabled state of the Action.
void	**putValue**(String key, Object value) Sets one of this object's properties using the associated key.
void	**removePropertyChangeListener**(PropertyChangeListener listener) Removes a PropertyChange listener.
void	**setEnabled**(boolean b) Sets the enabled state of the Action.

javax.swing

Interface Action

Field Summary

static String	**ACCELERATOR_KEY** The key used for storing a KeyStroke to be used as the accelerator for the action.
static String	**ACTION_COMMAND_KEY** The key used to determine the command String for the ActionEvent that will be created when an Action is going to be notified as the result of residing in a Keymap associated with a JComponent.
static String	**DEFAULT** Not currently used.
static String	**LONG_DESCRIPTION** The key used for storing a longer String description for the action, could be used for context-sensitive help.
static String	**MNEMONIC_KEY** The key used for storing a KeyEvent to be used as the mnemonic for the action.
static String	**NAME** The key used for storing the String name for the action, used for a menu or button.
static String	**SHORT_DESCRIPTION** The key used for storing a short String description for the action, used for tooltip text.
static String	**SMALL_ICON** The key used for storing a small Icon, such as ImageIcon, for the action, used for toolbar buttons.

putValue

```
void putValue(String key,
              Object value)
```

Sets one of this object's properties using the associated key. If the value has changed, a PropertyChangeEvent is sent to listeners.

Parameters:

key - a String containing the key
value - an Object value

javax.swing

Class AbstractAction

java.lang.Object
  └ javax.swing.AbstractAction

All Implemented Interfaces:

ActionListener, Serializable, Cloneable, EventListener, Action

Direct Known Subclasses:

BasicDesktopPaneUI.CloseAction, BasicDesktopPaneUI.MaximizeAction,
BasicDesktopPaneUI.MinimizeAction, BasicDesktopPaneUI.NavigateAction,
BasicDesktopPaneUI.OpenAction, BasicFileChooserUI.ApproveSelectionAction,
BasicFileChooserUI.CancelSelectionAction, BasicFileChooserUI.ChangeToParentDirectoryAction,
BasicFileChooserUI.GoHomeAction, BasicFileChooserUI.NewFolderAction,
BasicFileChooserUI.UpdateAction, BasicInternalFrameTitlePane.CloseAction,
BasicInternalFrameTitlePane.IconifyAction, BasicInternalFrameTitlePane.MaximizeAction,
BasicInternalFrameTitlePane.MoveAction, BasicInternalFrameTitlePane.RestoreAction,
BasicInternalFrameTitlePane.SizeAction, BasicSliderUI.ActionScroller,
BasicTreeUI.TreeCancelEditingAction, BasicTreeUI.TreeHomeAction, BasicTreeUI.TreeIncrementAction,
BasicTreeUI.TreePageAction, BasicTreeUI.TreeToggleAction, BasicTreeUI.TreeTraverseAction,
MetalFileChooserUI.DirectoryComboBoxAction, TextAction

class in javax.swing.plaf.basic

- Implémente les méthodes de l'interface Action
- sauf actionPerformed (classe abstraite)
- sera reliée à un composant à sa création via le constructeur

exemple

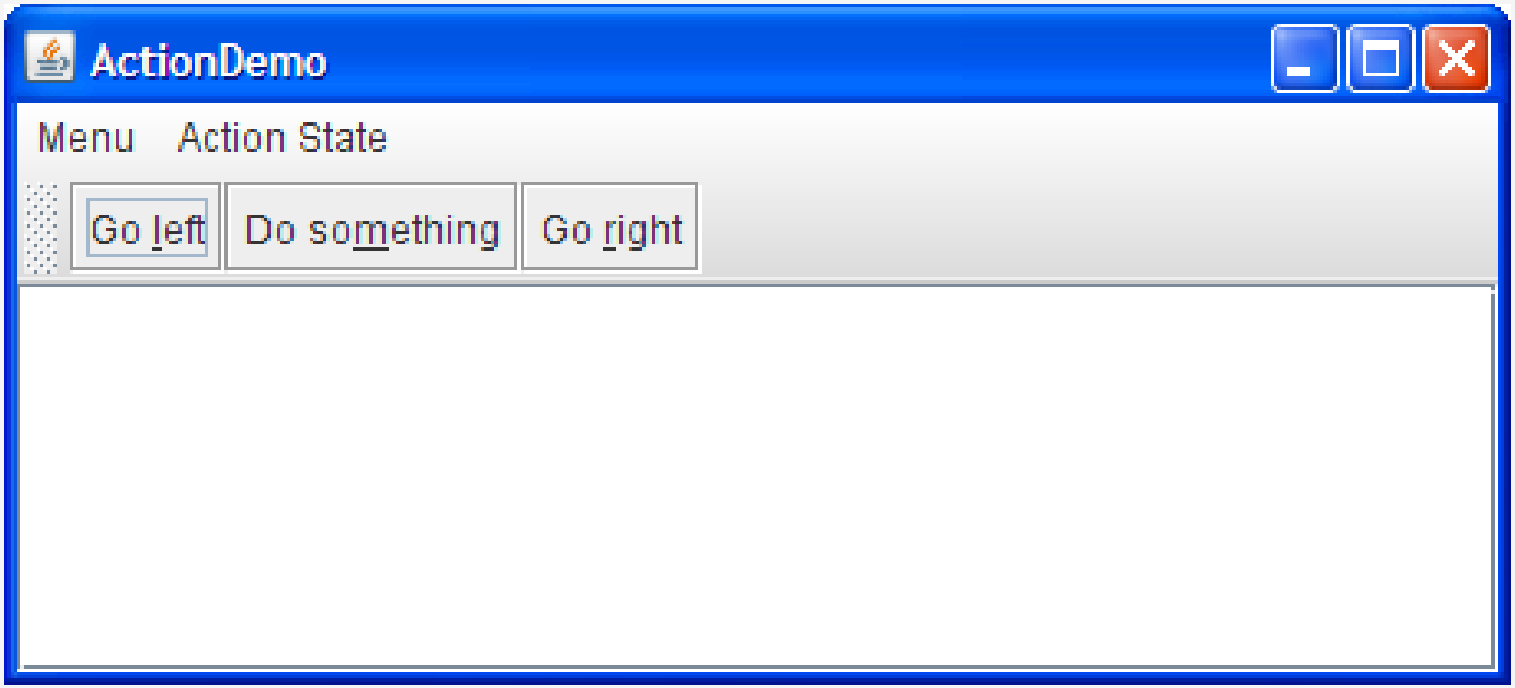
```
public class LeftAction extends AbstractAction {
    public LeftAction(String text, ImageIcon icon,
                      String desc, Integer mnemonic) {
        super(text, icon);
        putValue(SHORT_DESCRIPTION, desc);
        putValue(MNEMONIC_KEY, mnemonic);
    }
    public void actionPerformed(ActionEvent e) {
        displayResult("Action for first button/menu item", e);
    }
}
```

```
public class ActionDemo extends JPanel
                        implements ItemListener {
    protected JTextArea textArea;
    protected String newline = "\n";
    protected Action leftAction, middleAction, rightAction;
    protected JCheckBoxMenuItem[] cbmi;

    public ActionDemo() {
        super(new BorderLayout());

        //Create a scrolled text area.
        textArea = new JTextArea(5, 30);
        textArea.setEditable(false);
        JScrollPane scrollPane = new JScrollPane(textArea);

        //Lay out the content pane.
        setPreferredSize(new Dimension(450, 150));
        add(scrollPane, BorderLayout.CENTER);

        //Create the actions shared by the toolbar and menu.
        leftAction =   new LeftAction(  "Go left",
                                        createNavigationIcon("Back24"),
                                        "This is the left button.",
                                        new Integer(KeyEvent.VK_L));
        middleAction = new MiddleAction("Do something",
                                        createNavigationIcon("Up24"),
                                        "This is the middle button.",
                                        new Integer(KeyEvent.VK_M));
        rightAction =  new RightAction( "Go right",
                                        createNavigationIcon("Forward24"),
                                        "This is the right button.",
                                        new Integer(KeyEvent.VK_R));
    }
```

```
public void createToolBar() {
    JButton button = null;

    //Create the toolbar.
    JToolBar toolBar = new JToolBar();
    add(toolBar, BorderLayout.PAGE_START);

    //first button
    button = new JButton(leftAction);
    if (button.getIcon() != null) {
        button.setText(""); //an icon-only button
    }
    toolBar.add(button);

    //second button
    button = new JButton(middleAction);
    if (button.getIcon() != null) {
        button.setText(""); //an icon-only button
    }
    toolBar.add(button);

    //third button
    button = new JButton(rightAction);
    if (button.getIcon() != null) {
        button.setText(""); //an icon-only button
    }
    toolBar.add(button);
}
```

```
public JMenuBar createMenuBar() {
    JMenuItem menuItem = null;
    JMenuBar menuBar;

    //Create the menu bar.
    menuBar = new JMenuBar();

    //Create the first menu.
    JMenu mainMenu = new JMenu("Menu");

    Action[] actions = {leftAction, middleAction, rightAction};
    for (int i = 0; i < actions.length; i++) {
        menuItem = new JMenuItem(actions[i]);
        menuItem.setIcon(null); //arbitrarily chose not to use icon
        mainMenu.add(menuItem);
    }

    //Set up the menu bar.
    menuBar.add(mainMenu);
    menuBar.add(createAbleMenu());
    return menuBar;
}
```

Résultat



modifications d'une propriété

- Dans la classe ActionDemo:

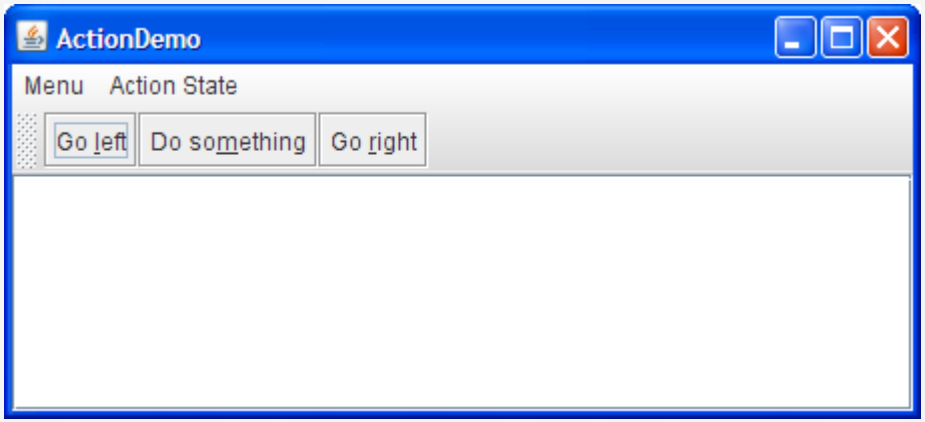
```
protected JMenu createAbleMenu() {
    JMenu ableMenu = new JMenu("Action State");
    cbmi = new JCheckBoxMenuItem[3];

    cbmi[0] = new JCheckBoxMenuItem("First action enabled");
    cbmi[1] = new JCheckBoxMenuItem("Second action enabled");
    cbmi[2] = new JCheckBoxMenuItem("Third action enabled");

    for (int i = 0; i < cbmi.length; i++) {
        cbmi[i].setSelected(true);
        cbmi[i].addItemListener(this);
        ableMenu.add(cbmi[i]);
    }

    return ableMenu;
}
```

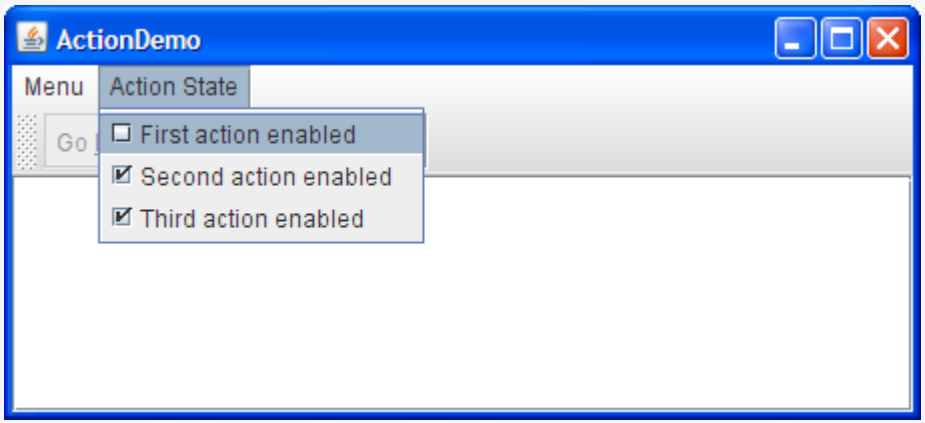
modification d'une propriété

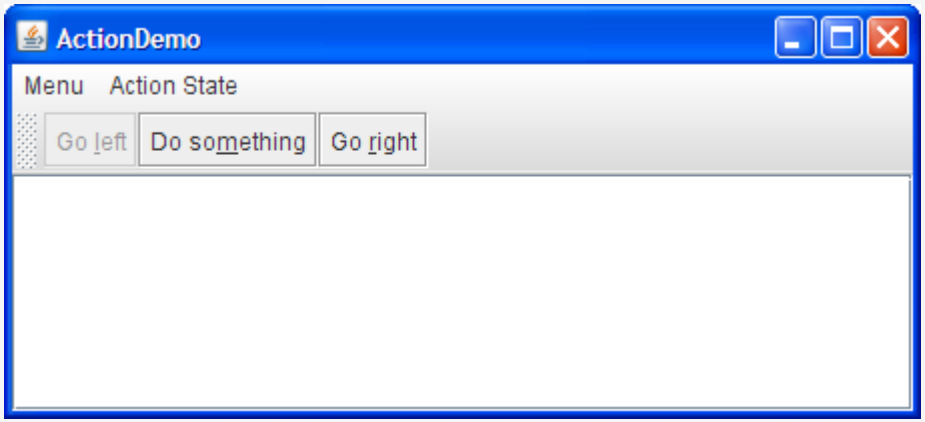
- Dans la classe ActionDemo:

```
public void itemStateChanged(ItemEvent e) {
    JCheckBoxMenuItem mi = (JCheckBoxMenuItem)(e.getSource());
    boolean selected =
        (e.getStateChange() == ItemEvent.SELECTED);

    //Set the enabled state of the appropriate Action.
    if (mi == cbmi[0]) {
        leftAction.setEnabled(selected);
    } else if (mi == cbmi[1]) {
        middleAction.setEnabled(selected);
    } else if (mi == cbmi[2]) {
        rightAction.setEnabled(selected);
    }
}
```

Résultat


ActionDemo
Menu
Action State
Go left
Do something
Go right


ActionDemo
Menu
Action State
First action enabled
Second action enabled
Third action enabled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