



# Document Exploration and Linking Tool

## User Manual

for DELT/A Version 2.5.2

Technical Report, Asgaard-TR-2006-1



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# 1 Introduction

The *Guideline Markup Tool* (GMT) – the predecessor of DELTA/A – has been initially developed to support knowledge engineers in translating plain-text clinical guidelines (available as HTML files) to Asbru XML files by providing so-called *macros* each combining one or more Asbru elements together with their attributes. As a second main feature, it allows to establish and maintain connections (called links) between the original guideline and the Asbru representation. GMT 2.0 has been designed to additionally support any arbitrary XML language (in the context of the Protocure II project, these are be Asbru, MHB and KIV-XML) and to permit links also between two XML files. Besides this, GMT 2.0 is a full-featured XML editor (even with some special features, which no common XML editor provides).

To reflect the fact that this tool can now be used for any XML language (not only Asbru), it has been renamed to Document Exploration and Linking Tool, but since the resulting abbreviation DELT sounds not really nice, we have developed an Add-On (an Editor for DELTA/A macros) that allows us to name it now DELTA/A - Document Exploration and Linking Tool / Addons.

DELTA/A is a Java application and should therefore run on (almost) any system. It has been extensively tested on Windows (Windows 2000 and Windows XP) using Java 1.4, 1.5 and 1.6, but it should also run under Linux or MacOS, although I cannot guarantee that its behavior is the same on those systems.

## 1.1 Short Overview of Features

- Open two XML/HTML – Files at the same time
- Links between XML/HTML – Files
- XML – Macros
- Custom XML-Languages support
  - Convert original DTD to link-enriched DTD
  - Auto-recognize XML-Language on load of XML file
  - For each XML-Language Templates, Icons and the following special "Views" can be defined and applied:
    - Highlight result of XPath expression
    - Filter: Show/Hide result of XPath expression
    - Folding: Expand/Collapse result of XPath expression
    - Apply XSL-File for information extraction
- Project: combines two XML/HTML files and a macro file
- Standard XML-Editor Features:
  - Change, Add or Remove Attributes
  - Insert arbitrary valid XML elements (and comment and text nodes)
  - XML-Clipboard: Cut/Copy/Paste of XML-Nodes – also between two (opened) XML files
  - Validate XML-Documents against DTD
  - Change comment / text node value
- 4 Insert Modes when inserting with "Macro Insert", Paste or "Insertable Elements Dialog": Insert Into/As Child, Insert Before, Insert After, Replace; plus 2 additional insert modes for inserting elements: Convert and Wrap (see page 7)
- Undo / Redo of every action
- XPath-Bar: shows XPath expression for current XML node and allows easy evaluation of any XPath expression
- Treepath-Bar: "Jump-To" buttons for each element in the path to the current XML node

## 2 Installation

There are two ways of installing and running DELT/A, either (i) by downloading the necessary files and executing it locally or (ii) by using *Java Web Start* (JWS). For both, a properly installed *Java Runtime Environment* (JRE), version 1.4 or higher, is needed. If you have not installed a JRE yet, you have to first download and install the appropriate JRE setup from <http://java.com/>.

- **Install manually:** Download an archive containing all necessary files to start DELT/A plus some sample files from <http://ieg.ifs.tuwien.ac.at/projects/delta/>: [delta.zip](#) for Windows or [delta.tar.gz](#) for Linux, each has about 3.7 MB.

Then uncompress the downloaded package to a new directory. The directory will then contain the following files and folders:

- `delta.jar`, the DELT/A executable jar file,
  - `delta.bat` / `delta.sh`, shell scripts to start DELT/A,
  - `delta.state`, a config file that causes DELT/A to start up with a sample project,
  - a *samples* folder that contains sample HTML, XML, macros and project files,
  - a *xmlLanguages* folder that already contains definitions for MHB and Asbru and
  - a *licenses* folder that contains license text files that are demanded to be re-distributed by the used Java libraries.
- **Java Web Start:** When using JWS, you are always up-to-date, using always the latest DELT/A version. JWS is automatically installed together with the JRE. To start DELT/A with JWS, go to <http://www.asgaard.tuwien.ac.at/~peter/DELTA/download/install.html> and click on the **Launch DELT/A** button. JWS downloads all necessary `.jar`-files. Before DELT/A will be executed the first time, you will be asked if you grant DELT/A access to your computer's file system.

### 3 Getting Started

After DELT/A has been installed, it can be started using the enclosed batch script `delta.bat` (Windows) or `delta.sh` (Linux). After the first start, DELT/A loads a sample project *BC-Ch3-HTML-MHB* containing three sample files (*BC-Chapter3.html*, *mhb-ch3-sep20.xml* and *MHB-5.macros*). The user interface can be seen in Fig. 1.

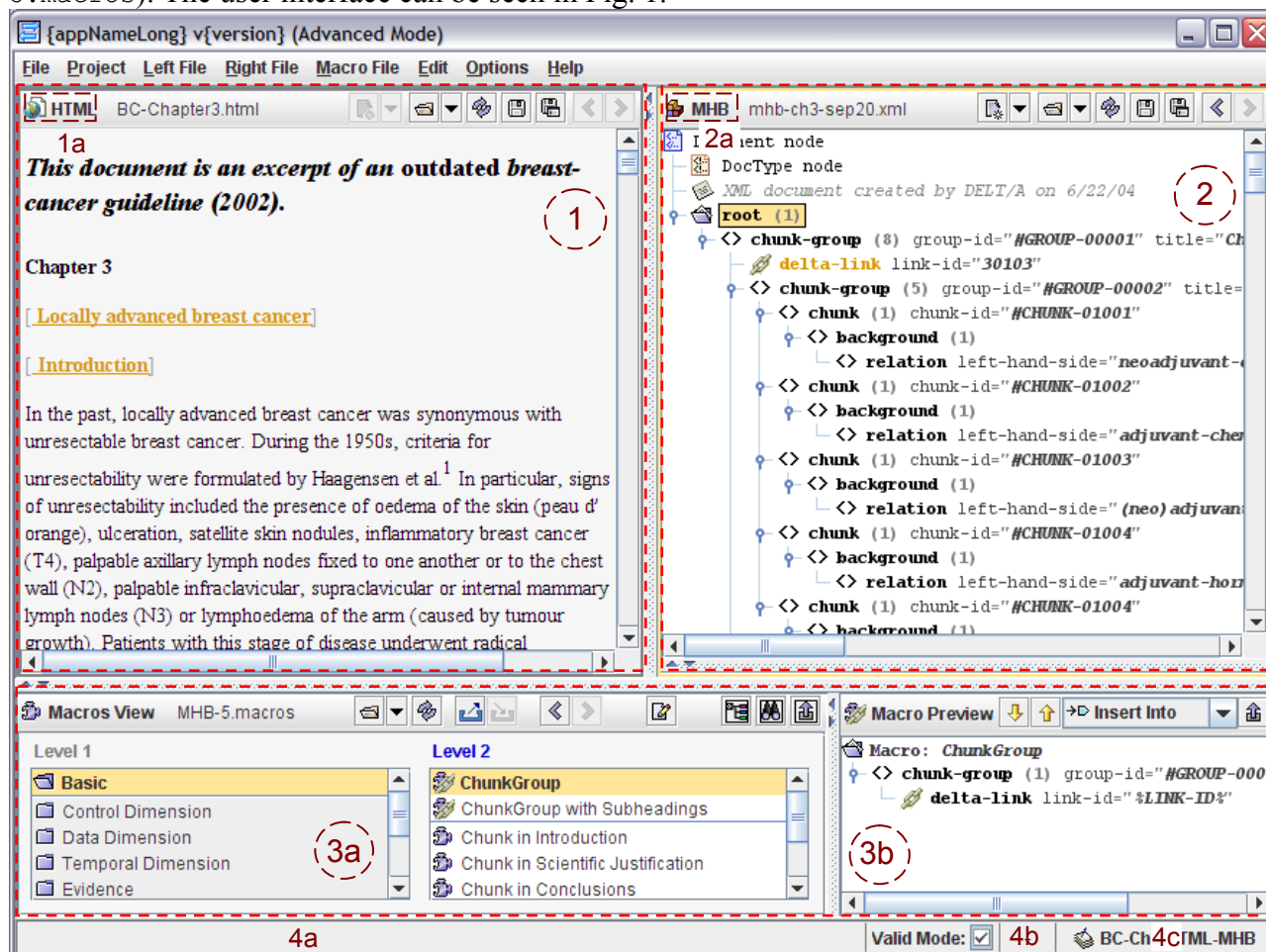






Fig. 1: Parts of Main Window<sup>1</sup>


Parts of DELT/A user interface:

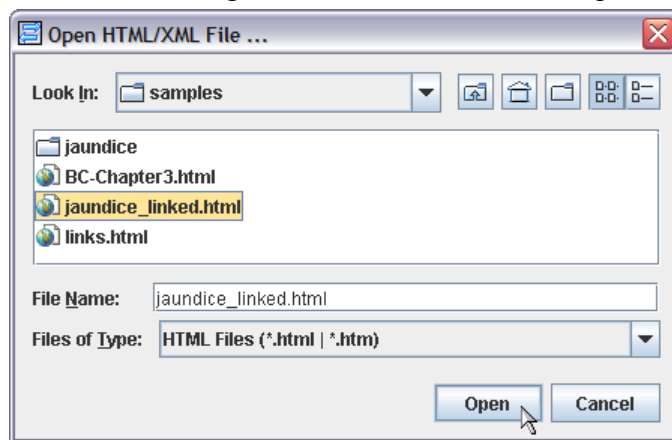
- ①, ②: equivalent Views to either edit XML files (see section 4) or show HTML files (see section 7), (1a)/(2a) shows the type of the file: “HTML” or the name of the current XML language – in Fig. 1 for example, the name of language of the document loaded on the right side is “MHB”,
- ③: Macros part (see section 0) – a) structure view, search view or insertable macros view, b) preview of the current macro
- ④: Status bar
  - a) info text box – shows information about menu items, buttons and current activities
  - b) clipboard information – shows the last clipboard action (copy or cut)
  - c) current project (see section 8.2) – double-click opens project properties dialog

*Note:* The size of the parts ①, ② and ③ can be easily changed by moving the divider (  or  ) – to fully maximize or minimize click on the little-arrow-buttons (  or  ).


<sup>1</sup> *Note:* The screenshots in this document have been produced using JRE 1.5.x under Windows XP. DELT/A may look slightly different using on Linux or MacOS.


To start translating a guideline (HTML) to an XML language like Asbru the following initial steps has to be performed as shown below: First, open an HTML file. The second step is either to create a new XML file or to open an existing one. Finally, open an appropriate macro file.


- 1) **Open HTML file:** Click on the  button on either the left or right toolbar or select the "Open ..." menu item from the "Left"/"Right" menu, to show the file open-dialog:




**Fig. 2:** "Open HTML File" – dialog

Change the "Files of Type" combo box to "HTML Files", select the HTML file you want to open and click on the  button.

- 2) **New / Open XML file:** If you want to create a new empty XML file based on the current XML language, either click on the  button on the toolbar or select "New ..." from the "Left"/"Right" menu. A file dialog is shown where you can enter the name and choose the location of the new file. To create a new XML file based on another XML language, select the "New from other XML-lang." menu item from the "Left"/"Right" menu.

Otherwise, click on the  button on the toolbar or select the "Open ..." menu item from the "Left"/"Right" menu to open an existing XML file. There are three possibilities to narrow the list of XML files down: either change "Files of Type" to "XML Files", which will show only files with the extension ".xml", or switch to "Any XML Files", which will show all XML files regardless of their extension. Additionally, if XML-languages have already been defined in DELTA/A, the list of files can be narrowed to show only files of a specific XML-language (such as MHB or Asbru).

- 3) **Open Macro file:** Click on the  button on the "Macros View" (③a) in Fig. 1) toolbar or select the "Open ..." menu item from the "Macros" menu to show the macro file open-dialog.

DELTA/A provides two operating modes – "Normal Mode" and "Advanced Mode" – which differ in the set of available features. By default, DELTA/A starts in the normal mode, providing all common features, but hiding several additional features, thus keeping the menu structure simpler. To get access to the entire functionality of DELTA/A, you have to change to the advanced mode by opening the preferences dialog (see "Appendix B: Preferences") and checking the "Advanced Mode" checkbox. After restarting DELTA/A, the following features are available:

- "Show Insertable Nodes ..." (in the Edit main menu)
- "Show All Elements ..." (in the Edit main menu)
- "Show X-Path Bar" (in the View context menu)
- Applicable "Views" sub-menu of context menu for applying Filtering, Highlighting, XSL Transformations, ...
- Synchronize DELTA/A links (in the context menu)
- Comment/Uncomment Element (in the context menu)
- Validate XML (in the context menu)
- Show definition of current element (in the context menu)

## 4 XML View

If an XML file is opened on any side (either left or right), its content is shown in a tree view as used in many conventional XML editors (see Fig. 3).

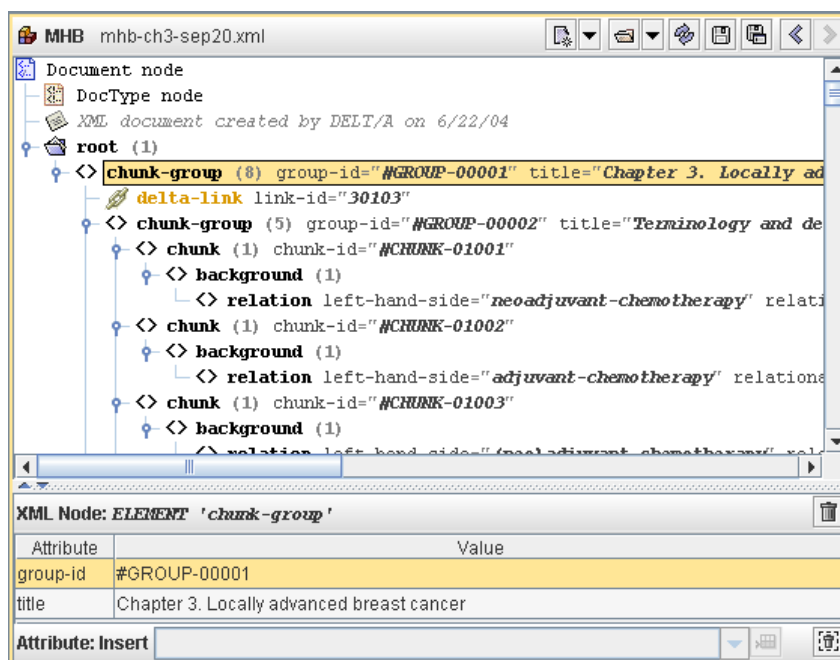




















Fig. 3: XML part: toolbar, tree view and attributes table

The name of the current XML file is shown in the middle of the toolbar (above the tree view). If the current file has been changed and not yet saved, the filename is displayed using an italics font. On the right side of the toolbar, a set of buttons provide quick access to some useful features:

- : Creates a new (empty) XML document. The arrow button shows a popup-menu with a list of pre-defined templates for the current XML language. This popup-menu also includes a "other XML-Languages" submenu that to create a new document of another XML language.
- : Shows the open file dialog to open any file (either XML or HTML); the arrow button provides quick access to recently opened files.
- : Reloads the current file (and tries to retain the current selection).
- : Saves the current file (is only enabled if changes have been made).
- : Saves the current file under a new name (Is only enabled if changes have been made).
- : "Go back" - Scroll to and select the previous selected element.
- : "Go forward" - Scroll to and select the next selected element after "Go back".

Note: during loading (or re-loading) of an XML document, the XML parser (Xerces) validates the content against the DTD. Elements, where the parser reports an error or a warning, get different icons (see below) – additional, the message reported by the parser is set as a tool-tip.

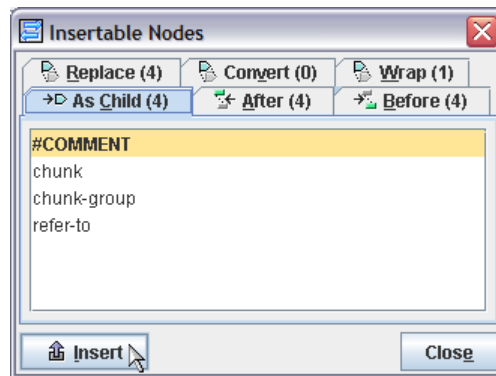
The XML tree view is able to represent all seven kinds of XML nodes:

- Document node: : root node of an XML document
- DocType node: 
- Element node: 
  - Top element: 
  - Link element: 
  - , if the XML parser reports an error, or  if the parser reports a warning
- Comment node: 
- Text node: 
- CDATA node: 
- Processing Instruction (PI) node: 

## 4.1 Standard XML-Editor Features

One design principle of DELT/A was to reduce the need of the user to switch to another application (especially an XML editor) while working with DELT/A. Therefore, DELT/A provides all standard features of common XML-editors.

- 1) **Insert Element:** Besides using macros, DELT/A can be used to insert any valid XML element in two different ways: either using the "Insertable Nodes Dialog" (see **Fig. 4**) or using the "All Elements Dialog" (see **Fig. 5**). The "Insertable Nodes Dialog" can be opened either by using the "Show Insertable Nodes" menu item in the "Edit" menu or by using the keyboard shortcut `Ctrl-I`.

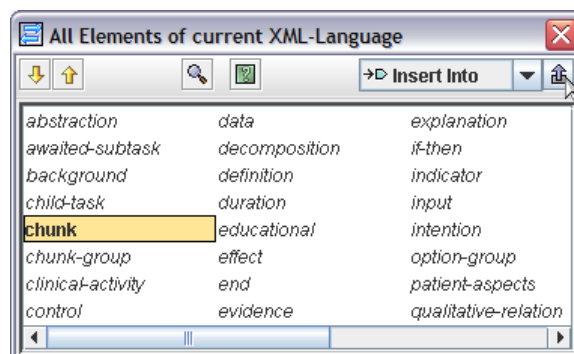


**Fig. 4:** Insertable Nodes Dialog

This dialog shows all nodes (elements plus comment and text nodes) that are valid to insert into the current XML document grouped by 6 different *insert modes*:

- **Insert As Child / Insert Into:** Inserts the selected node as a child into the current element (at the last possible position).
- **Insert After:** Inserts the selected node at the first possible position after the current node.
- **Insert Before:** Inserts the selected node at the first possible position before the current node.
- **Replace:** Replaces the current node with the selected node.
- **Convert:** Changes the old element to the new one retaining all child elements and attributes.
- **Wrap:** Surrounds the current element with the selected element, i.e. the new element will be inserted instead of the old element, which will become a child of the new element in return.



The "All Elements Dialog" (**Fig. 5**) can be opened either by using the "Show All Elements" menu item in the "Edit" menu or by using the keyboard shortcut `Ctrl-A`.




**Fig. 5:** All Elements Dialog

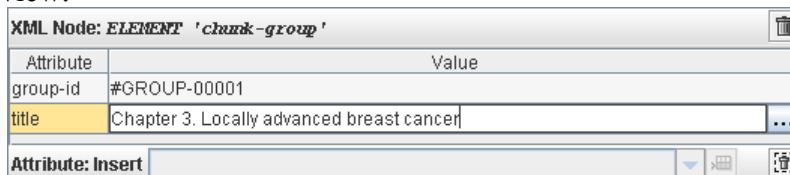
This dialog shows a list of all elements that are defined in the DTD<sup>1</sup> file. The selected element can be inserted based on the same 6 insert modes as described above. If the selected element is not allowed to be inserted regarding the current insert mode, it is crossed through. In addition,

<sup>1</sup> DTD ... Document Type Definition. A DTD file defines the elements and attributes of an XML language and how they are structured. If an XML file contains a valid DOCTYPE line pointing to an existing DTD file, DELT/A is able to retrieve and use information from the DTD (e.g. which elements are allowed to insert).

the next possible location, where the selected element can be inserted, can be searched using the  (search downwards) and  (search upwards) buttons.





*Note:* in both dialogs, a node can be inserted not only by clicking on the insert button, but also by either double-clicking on the selected list item or by pressing the Return key.

- 2) **Remove Node:** To remove an XML node, select the corresponding tree node in the XML tree view and click on the  button in XML node info toolbar below the tree view (alternatively the Del key or the "Remove Node"-menu item can be used). Note that this feature is only enabled if it is allowed to remove the current node according to the DTD (this validity check can be disabled using the "Valid Mode" button in the status bar).
- 3) **Attributes:** If the currently selected XML node is an element, its attributes are shown in a table below the tree view.



Attribute	Value
group-id	#GROUP-00001
title	Chapter 3. Locally advanced breast cancer

**Fig. 6:** XML Attributes Table

- a) **Edit:** To edit an attribute value, click inside the value column. Common copy-and-paste shortcuts can be used here – for example to copy text from an HTML file on the other side, select it there, press Ctrl-C and paste it here using Ctrl-V. The  button shows a small edit window for more convenient editing of longer attribute values. If there is a fixed list of attribute values defined for this attribute in the DTD, a combo-box containing these values is shown instead of the editing field.
  - b) **Add:** To add a new attribute for the current element, use the combo-box below the table and the  button beside it – an input dialog is shown to enter a value for the new attribute.
  - c) **Remove:** To remove the current attribute, use the  button or the Del key. This feature is only enabled if this attribute is not required according to the DTD (*Note:* required attributes are shown using a bold font for the attribute name).
- 4) **XML-Clipboard:** XML nodes can be copied or cut and then pasted somewhere else (even in another XML file in the other side) using either the *Edit* menu in the main menu bar or the *Edit* sub-menu in the context menu. There are 4 insert modes for pasting the content of the clipboard - *Paste Into*, *Paste After*, *Paste Before* and *Replace* – that act the same as the first 4 insert modes for inserting elements (see previous page). Note that when using cut the chosen node will not be deleted until paste is invoked. After invoking copy or cut, the selected node is greyed out (together with all its descendants). In the case of cut, these nodes will be additionally shown crossed out. *Note:* cut is only enabled if the current node may be deleted.
  - 5) **Duplicate Node:** To duplicate the current node, use the "Duplicate Node" menu item (in the main menu or in the context menu) or its shortcut Ctrl-D. Note that this feature is only enabled if the same node may be inserted directly after itself again according to the DTD.
  - 6) **Validate:** DELT/A makes use of two different methods for validating an XML document against its DTD: On the one hand, a validating XML parser is used that provides DELT/A with error messages about invalid nodes on loading. Those nodes will be shown with this  icon and the error messages will be presented using tooltips. On the other hand, DELT/A provides a validate feature (use either the menu item in the context menu or use the keyboard shortcut <F4>) that re-validates the internal representation of the XML document and highlight invalid nodes with red background color. This feature is only useful if the "Valid Mode" has been turned off.

## 4.2 XML View Special Features

Besides links and macros, DELTA/A provides some special XML features that were also not available in other XML editors:

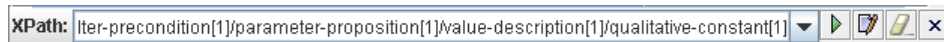
- **Treepath-Bar:** This feature – activated either using the menu item "Show Treepath-Bar" in the View-submenu of context menu or using the keyboard shortcut `Ctrl-Shift-T` – shows a special panel above the XML tree view that contains buttons for each ancestor element of the currently selected node. A sample of the treepath-bar, when an *Asbru plan* element is selected, can be seen in **Fig. 7**.




**Fig. 7:** Treepath-Bar

Click on one of these buttons causes the XML tree view to scroll to the particular element and select it. A right-click on such a button will show a popup-menu with a list of children of this element with a sub-menu for each element that has again children.

- **XPath-Bar:** Advanced users may use XPath to deeper investigate an XML document. The XPath-Bar can be used to apply any XPath expression to the current XML node. Expressions that result in one or more nodes (like the one seen in **Fig. 8**) cause the resulting nodes to get highlighted. Expressions, which result in a single value (e.g. `count(//delta-link)`, which results in the number of link endpoints in this XML document) are supported as well.





**Fig. 8:** XPath-Bar

- **Folding:** Folding means expanding or collapsing one or more XML tree nodes. There are actions for expanding / collapsing all nodes of the current document, expanding / collapsing only the nodes of the current sub-tree in the *View / Folding* sub-menu. Additionally, there are two menu items that can be used to expand / collapse only specific nodes using XPath. Such folding XPath expressions can be pre-defined for each XML language.
- **Highlighting:** The "Highlight result of XPath" menu-item in the *View / Highlight* sub-menu provides the same functionality as the XPath-Bar. Additionally, pre-defined highlight XPath-expressions can be recalled in this menu. Furthermore, there are two useful highlight features regarding links: one allows to highlight all link endpoints in the current
- **Filter:** Filters – accessible through the *View / Filter* sub-menu – can be used to show or hide specific nodes. Aside from standard filters to toggle the visibility of all types of XML nodes (except elements), XPath can also be used here to show or hide any arbitrary set of nodes. Additionally, custom filters can be defined for each XML language and recalled later here.
- **Summarize:** This feature has already been successfully integrated in a previous XML editor<sup>1</sup> developed at our institute. The idea behind it is that if an element tree-node is collapsed, the user has apparently no information about its sub nodes. The solution is to optionally display short information about the sub nodes instead of the attributes in the tree- node label while the element node is folded. XSL files are used to store the information which "data" should be extracted for which element. A list of such XSL files can be pre-defined for each XML language.
- **Icons:** The default icon for elements  may be replaced by user-defined icons for particular elements of a specific XML language (e.g. for better distinction from other elements every *Asbru plan* element may get a special icon). Multiple icon-sets can be arranged and toggled using the *View / Icon-Sets* sub-menu.

<sup>1</sup> See <http://www.asgaard.tuwien.ac.at/tools/pixee.html>

## 5 Links

A link<sup>1</sup> can have one or more endpoints in each side – all of them are internally marked with the same unique link ID number. This means that links constitute a **m:n**-relationship between two files. The link ID number is shown in the status bar, if the mouse cursor is moved over a link end point. If a link endpoint is activated by clicking on it, all endpoints on the other side with the same link ID number will be highlighted and the focus jumps to the first one. When the mouse cursor is moved over a DELT/A link endpoint (either in HTML or XML view), the cursor changes to  and the status bar shows information about this link (current link ID number and number of counterparts).

If this link endpoint has no counterpart in the other side,  is used for the cursor instead.

- 1) **Insert new Link:** For both sides, you have to select the position where the two link end points should be inserted. In case of an XML, select the XML element, which should receive the special link element and in case of an HTML file, select the piece of text that should become the endpoint of the new link. Then choose "*Create new DELT/A Link*" from the context menu. If a link is inserted into an HTML file, the selected text will be surrounded by pre-defined link delimiter characters (which can be specified in the preferences dialog – see **Fig. 18** – default values are '[' and ']', e.g. [3.3 \[Systemic treatment\]](#)).
- 2) **Insert new Endpoint:** Inserting only a new end point that belongs to an existing link is quite similar to inserting a new link as described above. If you first select an existing link in one side, then a target in the other side and then choose "*Create new DELT/A Link*", the created endpoint in the other side will have the same link ID number. To *select* an existing link in an HTML file, select text so that the HTML link (or only a part of it) is in the selection.
- 3) **Activate Link:** Activating a link by clicking on it highlights all link endpoints in the other side with green background color. Both XML and HTML view scroll to the first link endpoint. The XML view additionally selects the first link endpoint. To activate a link endpoint in the HTML view, click on the underlined text like in a conventional browser. For easier distinction from standard HTML links, the text of a DELT/A link end point is colored in orange instead of blue (this can be changed in appearances tab of the preferences dialog). In the XML view, simply click on the link element (this can be changed to double-click in the XML tab of the preferences dialog, see **Fig. 19**). If the same link endpoint is activated again, the opposite side scrolls to next link end point.  
It is also possible to activate more than one link at once by using the "Activate Links" menu item. In the HTML view, select a text that contains link endpoints from different links first. In the XML view, select an element before clicking on the "Activate Links" menu item and all those links will be highlighted in the other side that have counterparts somewhere in the subtree.
- 4) **Synchronize Links:** "Synchronize" in this context means to re-map an endpoint to another link. This is the only way of changing the link ID number of a link endpoint. Select one link endpoint in each side and then invoke "*Synchronize DELT/A Link(s)*" for the side on which the link ID has to be changed.
- 5) **Remove End point:** For an XML file, this is done the same way as removing any XML node (see section 4.1, p. 8, Remove Node). For an HTML file, you first have to select a link endpoint and then choose "*Remove DELT/A Link(s)*" from the context menu. In contrast to an XML file, it is possible to remove several DELT/A links in an HTML file together – do to so, first select text containing all the desired links. If you want to remove only one DELT/A link endpoint, you do not need to select text – right-click on the link and invoke "*Remove DELT/A Link(s)*" from the context menu.
- 6) **"Dead Links":** A *Dead Link* is a DELT/A link that has no counterpart on the opposite side. If two linked files are opened at the same time, it is possible, that DELT/A links become *Dead*

<sup>1</sup> Note: A link can either connect an XML file and an HTML file, two XML files or even two HTML files. In case of an XML and an HTML file, it is regardless in which side the HTML file and the XML file have been opened.

*Links* after removing link endpoints or synchronizing links. To remain consistency, DELTA/A checks for *Dead Links* after removing or synchronizing links and asks the user if the dead links should be removed immediately. This ensures that two corresponding files are always “in sync” regarding their links.

- 7) **Highlight Links:** There is a feature to highlight all link endpoints in the current HTML or XML document and another similar one to highlight all other link endpoints that have the same link id as the currently selected link endpoint. Both features ("Highlight all Links" and "Highlight same Links") can be found in the context menu of each side.
- 8) **Links Visualization:** This feature gives a good overview of the distribution of links inside an XML file. It can be activated in the View-submenu of the context menu. There are two different types of this feature - both use yellow as background color for link elements, cyan for parent elements of link elements, dark cyan for link related elements (depends on visualization type) and grey for all other elements.
  - a) Visualize "*DELTA/A-Links and ancestors*" (**Fig. 9**): All ancestor elements of every link element will be colored and any element that does not contain a link element in its entire sub-tree will be grey.
  - b) Visualize "*DELTA/A-Links and descendants*" (**Fig. 10**): All descendant elements of every element that is a parent of a link element will be colored and any element that has no link element as an ancestor will be grey.

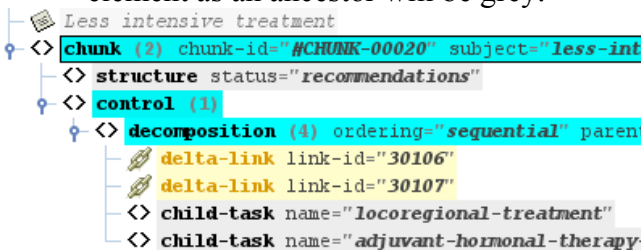


Fig. 9: Visualize "DELTA/A-Links and ancestors"

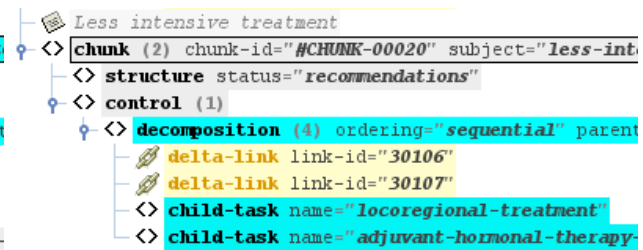



Fig. 10: Visualize "DELTA/A-Links and descendants"

## 6 Macros

A macro defines a structure of XML elements. Instead of inserting only single elements (as in conventional XML editors), the usage of macros provides the opportunity to insert more than one XML elements at once. A macro file is again an XML file based on a special-purpose XML-Language (see *Appendix D: The Macro Language*).

DELTA/A contains three different views for showing the contents of a macro file: *structure view*, *search view* and *insertable view*. After loading a macro file (either by using the  button or by using the "Open" menu item in the "Macros" menu), the hierarchical structure of the contained macros is shown in the structure view (see **Fig. 11**).

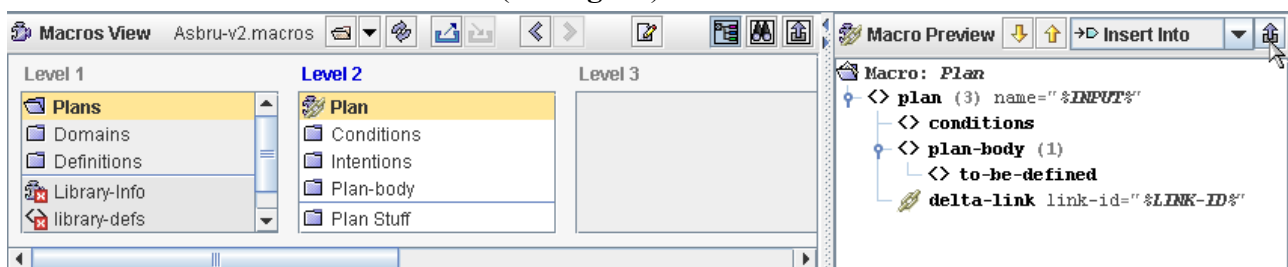








Fig. 11: Macros Structure View (& Macro Preview)

The structure view was designed as a replacement for a tree view, which is normally used for representing hierarchical data, simply because of layout reasons. If a group list item (/) is selected in the structure view, its child items are shown in the next list box to the right.

- 1) **Insert Macro:** First, select an element in an XML view, which should receive the contents of the macro. *Note: If the foreground color of a macro changes to red, when it is selected, this means the macro author has defined this macro as not complete, i.e. the macro is missing required child elements or attributes. This allows simpler macro files, but also produces invalid XML code – so the user has to insert the missing elements manually.* Second, select an appropriate macro in the macros structure view that has an  icon (or  if it contains a link). A macro is marked with a  icon (and a darker background) to indicate that it is not allowed to be inserted into the currently selected XML element. Optionally change the insert mode (see below). Then click on the insert macro button  (above the macro preview tree) or use the shortcut Ctrl-M. *Note that since it is possible to have two XML files open at the same time, DELT/A distinguish between active side (orange border) and inactive side (dark gray border) for determining in which side a macro will be inserted.*
  - a) **Insert Mode:** Like for inserting single elements (see section 4.1/1), several different insert modes are available for inserting macros. But since "Convert" and "Wrap" don't make sense regarding macros, the macro insert modes are: *Insert Into, Insert After, Insert Before, Replace*. If the current macro cannot be inserted according to the currently selected insert mode, DELT/A automatically switches to the next valid insert mode (if there is one).
  - b) **Attribute Input:** If a macro is inserted that contains elements with attributes containing a special value (%INPUT%, see *Appendix D: The Macro Language*), a dialog is shown containing a special XML attributes table (similar to the one that is shown below the XML tree) where the user can enter all such attribute values.

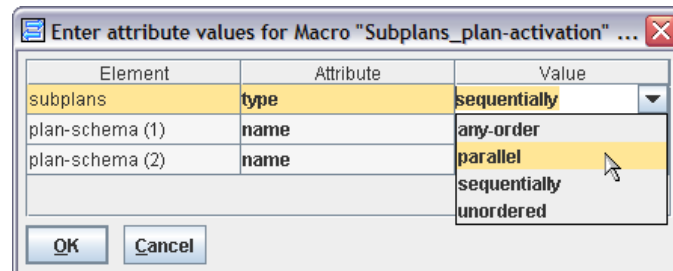







Fig. 12: Attributes Input Dialog

- 2) **Navigate:** There are several ways to "navigate" through the content of a macro file:
  - a) **Links:** A macro file may contain internal links to other groups (marked with a  icon), which can be activated either through double-clicking or by pressing enter.
  - b) **History:** The macros structure view provides a history mechanism like the HTML view and the XML view. This means that the previously used macros can be selected using the "Back"  and "Forward"  buttons. This feature can be very useful, especially after using a group-link  (see above).
  - c) **Search View:** Using the  button on the macros toolbar, the user can switch between the macros structure view and the macros search view (see Fig. 13). The search result lists all macros that contain the entered keyword in its name.

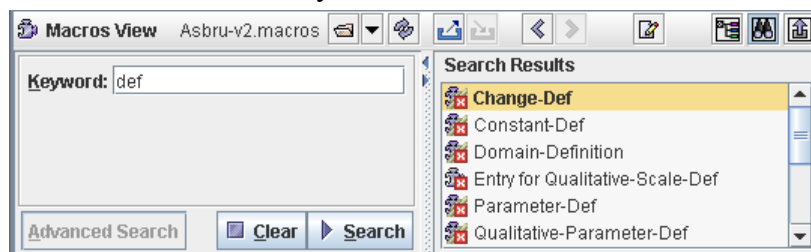

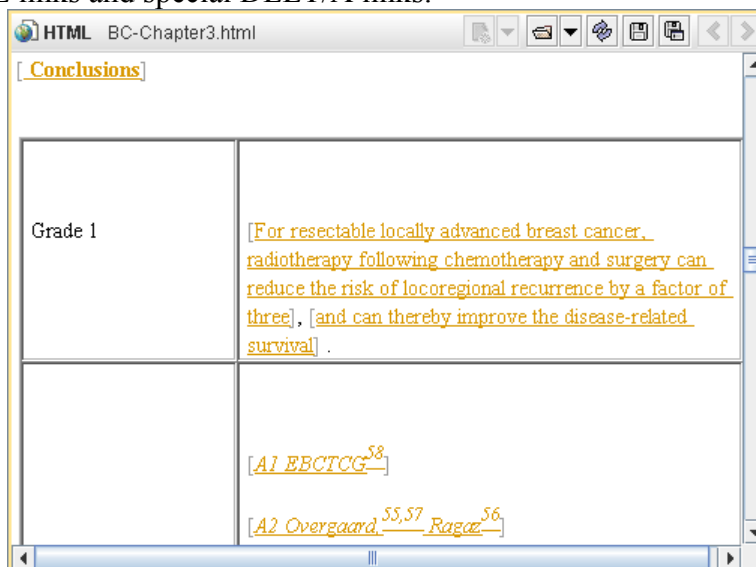


Fig. 13: Macros Search View

- d) **Insertable Macros View:** The  button on the macros toolbar switches to the "Insertable Macros View", which shows a list of all macros of the entire macro files that are insertable into the current XML document according to the currently selected macro insert-mode.

## 7 HTML View

The HTML view (see **Fig. 14**) is a simple HTML browser, which can distinguish between conventional HTML links and special DELT/A links.



**Fig. 14:** HTML View

There are a few limitations regarding the HTML view due to the really bad implementation of the Java HTML viewing component that is used:

- DELT/A seriously slows down, when loading large HTML files.
- DELT/A may hang, if the entire HTML file is selected and then "Remove Link(s)" is invoked.
- Multiple Undo/redo after creating or removing links does not work correctly sometimes if "Use DELT/A-Link delimiter" is activated in preferences.

## 8 Miscellaneous Features

### 8.1 Undo / Redo

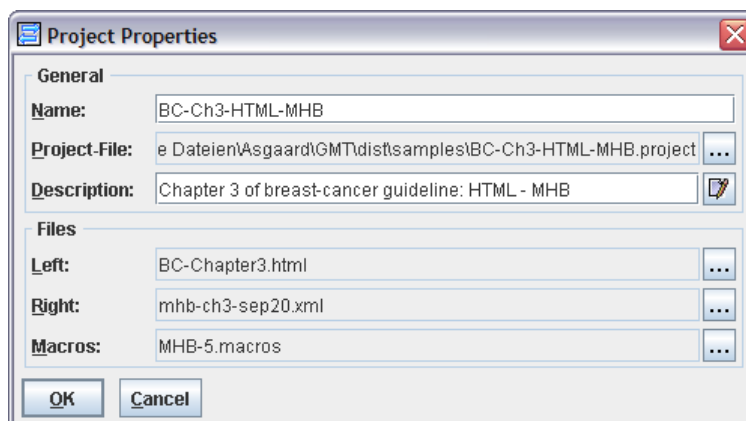
Every action in DELT/A that changes the content of one or both opened files (e.g. insert macro, remove XML node, ...) can be revoked using the Undo feature (found in the Edit menu, in the Edit sub-menu of the context menu, or using the keyboard shortcut `Ctrl-Z`). To do the undone action again (i.e. revoke undo) use the Redo feature (found in the Edit menu, in the Edit sub-menu of each context menu, or using the keyboard shortcut `Ctrl-Shift-Z`). There is no limit for undo that means you can use the undo feature an arbitrary number of times, but note that if a file is closed, another file is opened or a new file is created, all undoable actions regarding the previous file are removed from the internal list of undoable actions. Undoing an action that induced a change on both sides (like creating a link) will always undo the change on both sides synchronously.

### 8.2 Project

A project combines two XML / HTML files (one for the left and one for the right side) and a macro file and therefore, projects facilitate the work with often used files that belong together. If a project file is opened (using the File/Project/Open menu item), the files that are defined inside the project are loaded together. The name of the current project is always shown in the status bar (see **Fig. 1, 4c**).

DELT/A always maintains the correlation between the current project and the currently opened files. That means, if one filename of the opened files changes (either through saving under a new filename, creating a new file, opening another file or closing the current file), DELT/A either adjust the project, unsets the project (and keeps the files open), or closes the project (this behavior can be set in the preferences dialog, see **Fig. 17**).

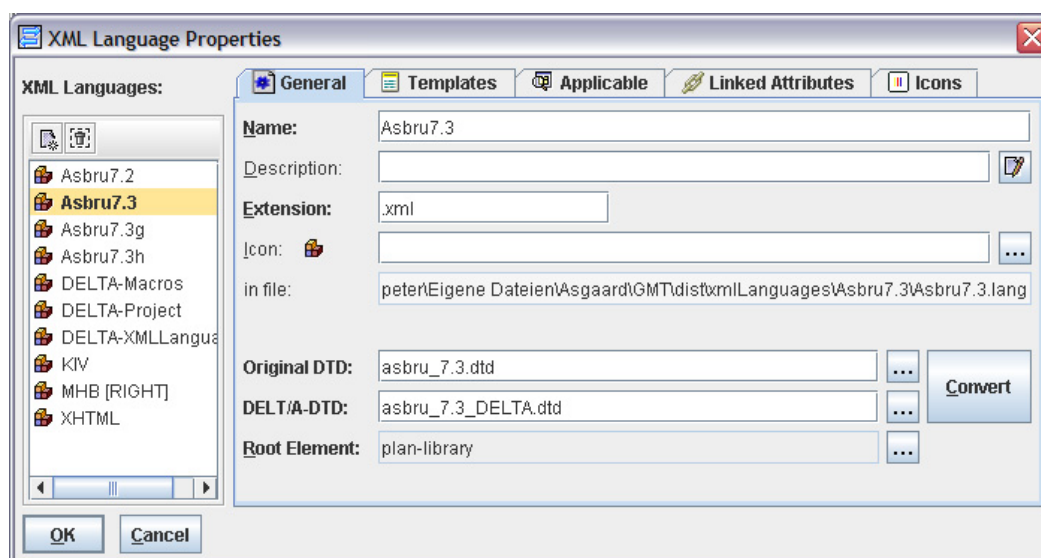
When creating a new project (using the File/Project/New menu item), the Project Properties dialog (see **Fig. 15**) is shown, whereas the fields for the left, right and macros file are already filled in with the currently opened files. To subsequently show the project properties dialog, double click on the project name label in the status-bar.



**Fig. 15:** Project Properties Dialog

### 8.3 XML-Languages

DELTA/A has been designed to work with any XML language. The properties of an XML language can be defined in the "XML Languages Properties Dialog" (which can be shown using the menu item of the same name in the file menu).



**Fig. 16:** XML Languages Properties Dialog

See the integrated help file for more information about XML languages.

## 9 Future Work

Here is a list of features that are planned for future releases:

- Search & Replace in XML view and Search in HTML view
- Advanced Search for macros
- Drag-and-Drop of XML nodes
- Overlapping links in HTML view
- Links to / from images in HTML

## Appendix A: Keyboard Shortcuts

It has been tried to define keyboard shortcuts for all features, so in principle it should be possible to work almost without the mouse (except from activating links and selecting text in the HTML view).

- **I/O - Actions** (only available when XML-Tree or HTML-View has focus):
  - Open XML- / HTML – File ... **<Ctrl-O>**
  - Reload current file ... **<Ctrl-Shift-R>**
  - Save current XML- / HTML – File ... **<Ctrl-S>**
  - Save current XML- / HTML – File under new name... **<Ctrl-Shift-S>**
  - Create new empty XML document of current XML-Language... **<Ctrl-N>**
- **XML-Editor actions** (Actions available when XML-Tree has focus):
  - Remove current Node ... **<Del>**
  - Duplicate current Node ... **<Ctrl-D>**
  - Change value of Comment/Text-Node ... **<F2>**
  - (Re-)Validate current XML-Document ... **<F4>**
  - Show "Insertable Nodes" dialog ... **<Ctrl-I>**
  - Show "All Elements" dialog ... **<Ctrl-A>**
  - Show all Elements dialog ... **<Ctrl-A>**
  - Show/Hide XPath-Bar ... **<Ctrl-Shift-X>**
  - Show/Hide Treepath-Bar ... **<Ctrl-Shift-T>**
  - **Clipboard:**
    - Cut current XML-Node ... **<Ctrl-X>**
    - Copy current XML-Node ... **<Ctrl-C>**
    - Paste "XML-Clipboard" content as last child of current element ... **<Ctrl-V>**
    - Paste "XML-Clipboard" content before current node ... **<Ctrl-Shift-V>**
    - Paste "XML-Clipboard" content after current node ... **<Ctrl-Alt-V>**
    - Replace current node with "XML-Clipboard" content ... **<Shift-Alt-V>**
  - **Folding:**
    - Expand all descendants ... **<Ctrl-Alt-E>**
    - Collapse all descendants ... **<Ctrl-Alt-C>**
- **Navigation in any XML-Tree** (also Macro-Preview-Tree):
  - Go to node above ... **<Down>**, Go to node below ... **<Up>**
  - Scroll one page up and select topmost node ... **<PageUp>**
  - Scroll one page down and select bottommost node ... **<PageDown>**
  - Scroll to and select first node ... **<Home>**, Scroll to and select last node ... **<End>**
  - Select next node starting with specific character ... **<Any-character-key>**
  - Go to parent node and collapse ... **<Left>**
  - Go to next node (first child or next sibling) ... **<Right>**
  - Toggle folding ... **<Space>**
  - Go to parent element ... **<Alt-Up>**
  - Go to next sibling ... **<Ctrl-Down>**, Go to preceding sibling ... **<Ctrl-Up>**
  - Go to first sibling ... **<Ctrl-Home>**, Go to last sibling ... **<Ctrl-End>**
  - Go Back ... **<Ctrl-Alt-Left>** (only main XML view)
  - Go forward ... **<Ctrl-Alt-Right>** (only main XML view)

- **Navigation in any List-Box** (*Macros Structure View* and *Insertable Elements Dialog*):
  - Go to list entry above ... **<Down>**, Go to list entry below ... **<Up>**
  - Scroll one page up and select topmost list entry ... **<PageUp>**
  - Scroll one page down and select bottommost list entry ... **<PageDown>**
  - Scroll to and select first list entry ... **<Home>**, Scroll to and select last list entry ... **<End>**
  - Select next list entry starting with specific character ... **<Any-character-key>**
- **Macros Structure View List-Boxes:**
  - Insert current macro / Activate current group-link ... **<Enter>**
  - Go to left list-box ... **<Left>**, Go to right list-box ... **<Right>**
- **Change View actions:**
  - Switch to XML/HTML view ... **<F5>**
  - Switch to syntax-highlighted source view ... **<F6>**
  - Switch to plain-text source view ... **<F7>**
  - Available only for XML files with DocType entry:
    - Switch to DTD report view ... **<F8>**
    - Switch to syntax-highlighted DTD source view ... **<F9>**
    - Switch to plain-text DTD source view ... **<F10>**
  - Maximize (one step) current XML/HTML view ... **<F11>**
  - Minimize (one step) current XML/HTML view ... **<F12>**
  - Move divider of any split-pane:
    - activate ... **<Ctrl-F2>**
    - move ... cursor keys / **<Home>** / **<End>**
  - Activate and change focus to other side ... **<Tab>**
  - Change focus between XML-Tree and Attributes-Table ... **<Ctrl-Tab>**
- **Global shortcuts:**
  - Undo last action ... **<Ctrl-Z>**, Redo last action ... **<Ctrl-Shift-Z>**
  - Insert current macro in current XML-document according to insert mode ... **<Ctrl-M>**
  - Change macro insert-mode:
    - Switch to "Insert As Child" – mode ... **<Ctrl-Shift-M>**
    - Switch to "Insert Before" – mode ... **<Ctrl-Alt-M>**
    - Switch to "Insert After" – mode ... **<Alt-Shift-M>**
    - Switch to "Replace" – mode ... **<Ctrl-Alt-Shift-M>**
  - Save-All ... **<Ctrl-Shift-A>**
  - **Project:**
    - New-Project ... **<Ctrl-Shift-N>**
    - Open-Project ... **<Ctrl-Shift-O>**
    - Project-Properties ... **<Ctrl-P>**
  - Show XML-Language Definitions – Dialog ... **<Ctrl-L>**
  - Show Preferences – Dialog ... **<Ctrl-Shift-P>**
  - Quit DELT/A ... **<Ctrl-Q>**
  - Show Help ... **<F1>**
  - Refresh display (should solve display problems) ... **<Ctrl-Alt-R>**

## Appendix B: Preferences

DELT/A has been designed to be fully configurable. Using the Preferences dialog (shown by the menu item of the same name in the File menu or using Ctrl-Shift-P) the user can adjust the behavior and appearance. The preferences will be maintained in `delta.preferences`, a simple key-value text-file, in the DELT/A main directory. There are five different categories of preferences: general preferences (see **Fig. 17**), preferences regarding HTML (see **Fig. 18**), preferences regarding XML (see **Fig. 19**), preferences regarding macros (see **Fig. 20**) and preferences that affect the appearance of DELT/A (see **Fig. 21**).

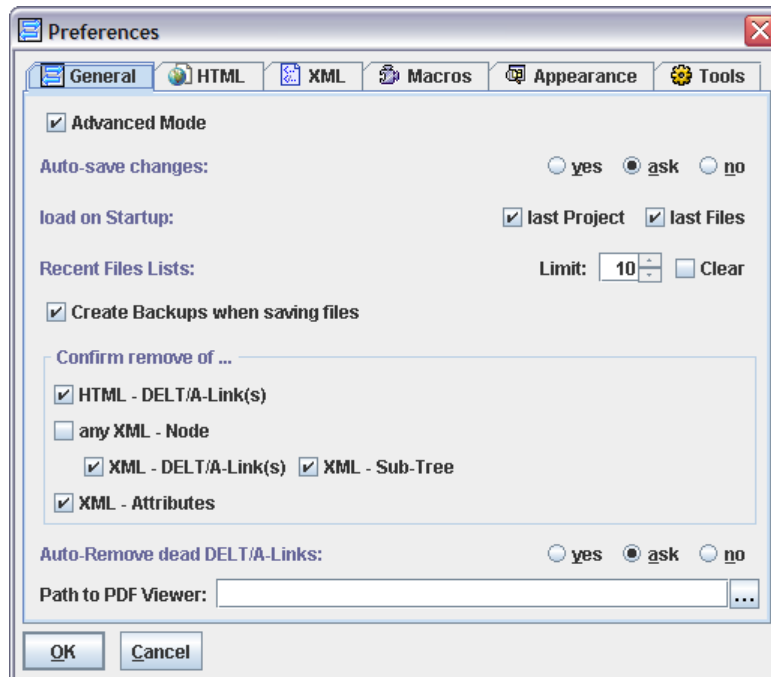


Fig. 17: Preferences Dialog – General Tab

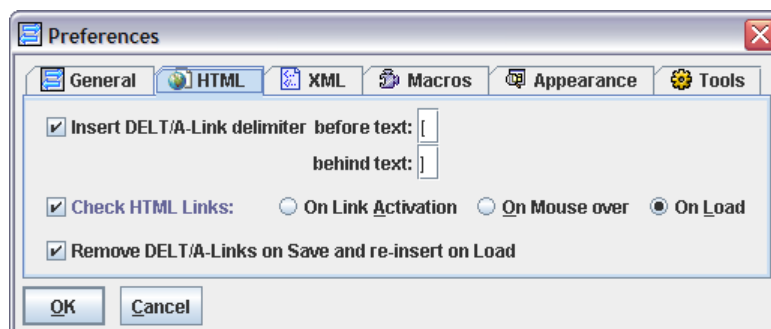


Fig. 18: Preferences Dialog – HTML Tab

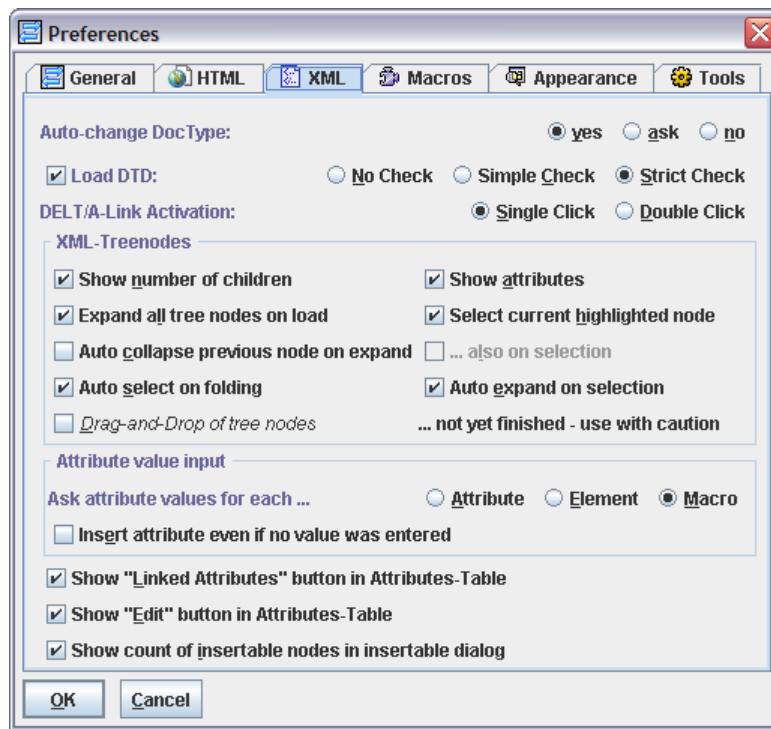


Fig. 19: Preferences Dialog - XML Tab

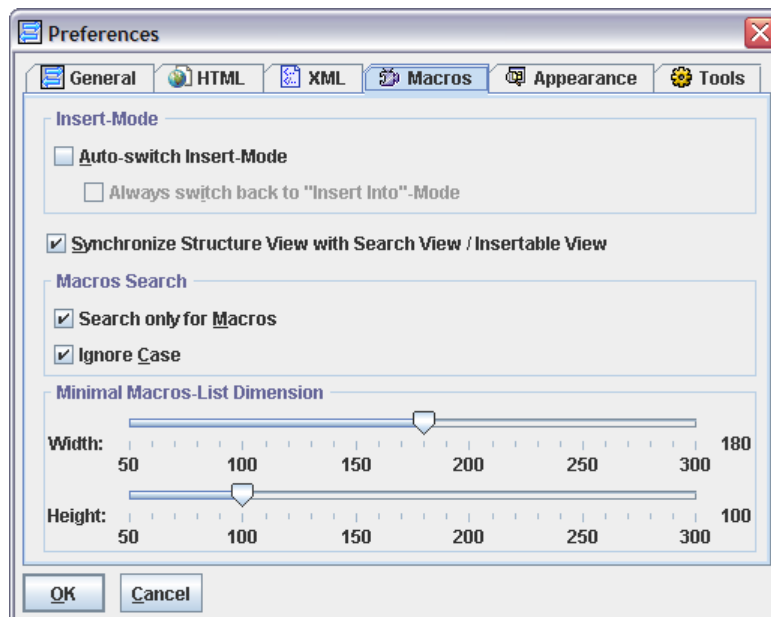


Fig. 20: Preferences Dialog - Macros Tab

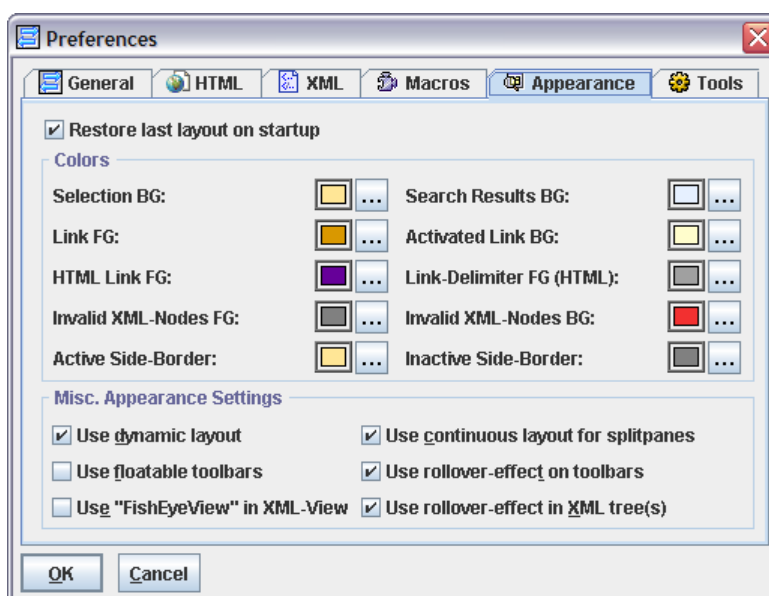
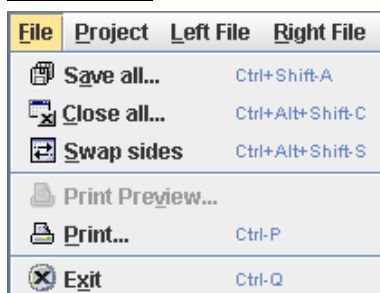


Fig. 21: Preferences Dialog - Appearance Tab

## Appendix C: Menus

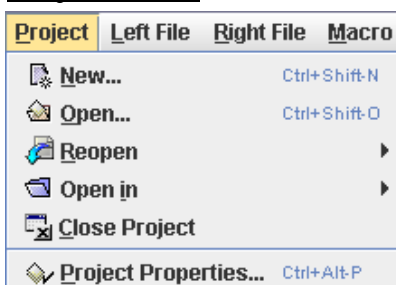
Since all features of DELT/A are available via the menu bar or the context menus, this section gives a good overview of all available features. Note that features, which appear multiple times – in menu bar, context menu or toolbar –, have always the same icon. The screenshots below show all DELT/A features including advanced features available only in *advanced mode*. Features available also through buttons on a toolbars are marked with (TB). Features that are still *work-in-progress* are marked with (BETA).

### • File Menu:














- Save all changed files.
- Close all open files (left side, right side and macro file)
- Swap content of left and right side.
- Show print preview (BETA).
- Print the current document (BETA).
- Exit DELT/A.

### • Project Menu:














- Create a new project using currently opened files.
- Show the project file Open-dialog.
- Show a list of previously opened project files.
- Show a list of previously used directories.
- Close the current project and all project files.
- Show the project properties dialog (see sect. 8.2).

- **Left / Right File Menu:**

Right File	Macro File	Edit	Options	Help
 New empty XML-File... <span>Ctrl-N</span>				
 New based on Template				
 New from other XML-Lang.				
 Open <span>Ctrl-O</span>				
 Reopen				
 Open in				
 Reload <span>Ctrl+Shift-R</span>				
 Revert				
 Close				
 Save <span>Ctrl-S</span>				
 Save As... <span>Ctrl+Shift-S</span>				





- Create a new empty XML file (*TB*).
- Create a new XML file based on a template (*TB*).
- Create new XML file based on other language (*TB*).
- Show the Open File-dialog (*TB*).
- Show a list of previously opened files (*TB*).
- Show a list of previously used directories.
- Reload the current file (*TB*).
- Load the last backup of the current file.
- Close the current file.
- Save the current XML file (*TB*).
- Save the current XML file under a new name (*TB*).

- **Macro File Menu:**




Macro File	Edit	Options	Help
 Open... <span>Ctrl+Shift-O</span>			
 Reopen			
 Open in			
 Reload			
 Close			
 Open as XML			
 Open XML in Macros View			
 Edit Macro File...			
 View			
 Insert Macro <span>Ctrl-M</span>			
 Macro Insert Mode			

- Show the Macros file Open-dialog (*TB*).
- Show a list of previously opened Macro files (*TB*).
- Show a list of previously used directories.
- Reload the current Macro file (*TB*).
- Close the current Macro file.
- Open current Macro file in active XML side (*TB*).
- Open current XML file in Macros View (*TB*).
- Open current Macro file in Macro-Editor.
- Macros / View submenu (see below).
- Insert the currently selected macro (*TB*).
- Change macro insert mode (*TB*).












- **Macro File / View submenu:**

 Macro Preview	→ Macro Preview submenu (see below).
 Structure View	→ Switch to Structure View (default).
 Search View	→ Switch to Macros Search View.
 Insertable View	→ Switch to Macros Insertable View.

- **Macro File / View / Preview submenu:**



 Tree View	→ Switch to tree pre-view (default).
 "HTML" Source	→ Switch to syntax-highlighted source pre-view.
 Plain Source	→ Switch to plain-text source pre-view.

- **Edit Menu:**

Edit	Options	Help
 <b>U</b> ndo		Ctrl-Z
 <b>R</b> edo		Ctrl+Shift-Z
 <b>C</b> ut		Ctrl-X
 <b>C</b> opy		Ctrl-C
 <b>P</b> aste		
 <b>F</b> ind		Ctrl-F
 <b>F</b> ind Next		F3
 <b>F</b> ind Previous		Shift-F3
 <b>H</b> ighlight search results		Ctrl-H
 <b>S</b> how Insertable Nodes		Ctrl-I
 <b>S</b> how all Elements		Ctrl-A



- Undo last action.
- Redo last undone action (= revokes last Undo-action).
- Cut current XML node to internal clipboard.
- Copy current XML node to internal clipboard.
- Submenu providing 4 paste actions (see below).
- Search for the occurrence of a keyword (BETA).
- Go to the next search result.
- Go to the previous search result.
- Mark all occurrences of a keyword (BETA).
- Show "Insertable Nodes" dialog.
- Show "All Elements" dialog.

- **Edit / Paste Submenu:**

 <b>P</b> aste Into	Ctrl-V
 <b>P</b> aste Before	Ctrl+Shift-V
 <b>P</b> aste After	Ctrl+Alt-V
 <b>R</b> eplace	Alt+Shift-V







- Paste last copied node as last child into current element.
- Paste last copied node before current node.
- Paste last copied node after current node.
- Replace current node with last copied node.

- **Options Menu:**

Options	Help
 <b>X</b> ML Language Definitions...	Ctrl-L
 <b>P</b> references...	Ctrl+Shift-P

- Show the XML-Language dialog (see section 8.3).
- Show the Preferences dialog (see Appendix B: Preferences).

- **Help Menu:**

Help
 <b>H</b> elp
 <b>W</b> WW Resources
 <b>C</b> heck for new DELTA/A Version
 <b>R</b> efresh GUI
 <b>R</b> eset Layout
 <b>A</b> bout
















- Show the built-in DELT/A help.
- Help / WWW submenu (see below).
- Check if a new version is available online.
- Re-Draw all components to solve graphic problems.
- Reset the layout to the default.
- Show the About dialog.

- **Help / WWW submenu:**






 <b>D</b> ELT/A Web-Site
 <b>D</b> ELT/A Online Manual
 <b>A</b> sgaard site

- Open the system-default browser with the DELT/A main site.
- Open the system-default browser with the DELT/A help site.
- Open the system-default browser with the Asgaard site.







**XML Context Menu** (is shown on right-click on XML editor):

 <b>Edit</b>	→ <i>Edit</i> sub-menu (see below).
 <b>Navigation</b>	→ <i>Navigation</i> sub-menu (see below).
 <b>View</b>	→ <i>View</i> sub-menu (see below).
 <b>Applicable "Views"</b>	→ <i>Applicable views</i> sub-menu (see below).
 <b>Remove Node</b> <span>Delete</span>	→ Remove the currently selected XML node.
 <b>Duplicate Node</b> <span>Ctrl-D</span>	→ Duplicate the currently selected XML node.
 <b>Add Required Content</b> <span>Ctrl-Plus</span>	→ Add required content (only for empty elements).
 <b>Change Text Value</b> <span>F2</span>	→ Change the text value of the current node.
 <b>Create new DELT/A link</b>	→ Creates a new DELT/A link.
 <b>Synchronize DELT/A link(s)</b>	→ Synchronize this link with link in other side.
 <b>Activate Links</b>	→ Activate all "selected" links.
 <b>/* Comment/Uncomment Element</b> <span>Ctrl+Shift-C</span>	→ Comment/Uncomment current element.
 <b>Validate</b> <span>F4</span>	→ Validates the current element and its descendants.
 <b>Go to Definition (Report)</b> <span>Ctrl+Shift-G</span>	→ Show definition of current element in DTD report.
 <b>Go to Definition (Source)</b> <span>Ctrl+Shift-G</span>	→ Show definition of current element in DTD source.












▪ **XML Context Menu / Edit Sub-menu:**

 <b>Undo</b> <span>Ctrl-Z</span>	→ Undo last action.
 <b>Redo</b> <span>Ctrl+Shift-Z</span>	→ Redo last undone action (= revokes last Undo-action).
 <b>Cut</b> <span>Ctrl-X</span>	→ Cut current XML node to internal clipboard.
 <b>Copy</b> <span>Ctrl-C</span>	→ Copy current XML node to internal clipboard.
 <b>Paste</b>	→ Submenu providing 4 paste actions (see above).






▪ **XML Context Menu / Navigation Sub-menu:**

 <b>Go Back</b> <span>Ctrl+Alt-Left</span>	→ Go to previous selected XML node ( <i>TB</i> ).
 <b>Go Forward</b> <span>Ctrl+Alt-Right</span>	→ Go to next selected XML node ( <i>TB</i> ).
 <b>Goto Parent Node</b> <span>Alt-Up</span>	→ Go to parent XML node.
 <b>Goto Next Sibling Node</b> <span>Ctrl-Down</span>	→ Go to next sibling node.
 <b>Goto Previous Sibling Node</b> <span>Ctrl-Up</span>	→ Go to previous sibling node.
 <b>Go to Line ...</b> <span>Ctrl-G</span>	→ Go to node corresponding to line number.



▪ **XML Context Menu / View Sub-menu:**

 <b>Change View</b>	→ Change View sub-menu (see below).
 <b>DELTA/A-Links Visualization</b>	→ Links Visualization sub-menu (see below).
 <b>Show Formatted Source</b> <span>F8</span>	→ Show formatted source of current document.
 <b>Show Plain Source</b> <span>Shift-F8</span>	→ Show plain source of current document.
 <b>DTD - Show Formatted Source</b> <span>F9</span>	→ Show formatted source of current DTD.
 <b>DTD - Show Plain Source</b> <span>Shift-F9</span>	→ Show plain source of current DTD.
 <b>DTD - Show Report</b> <span>Alt-F9</span>	→ Show formatted report of current DTD.
 <b>Set Root-Treenode</b> <span>Alt+Shift-R</span>	→ Change top treenode of XML editor.
<input type="checkbox"/>  <b>Show XPath-Bar</b> <span>Ctrl+Shift-T</span>	→ Show/Hide XPath-Bar.
<input type="checkbox"/>  <b>Show TreePath-Bar</b> <span>Ctrl+Shift-X</span>	→ Show/Hide Treepath-Bar.
<input type="checkbox"/>  <b>Show AutoXPath-Bar</b> <span>Ctrl+Shift-A</span>	→ Show/Hide AutoXPath-Bar.







– View / Change View Sub-menu:

 <b>XML Editor</b> F5	→ Switch to XML editor (default).
 <b>HTML Output</b> F6	→ Switch to HTML output.
 <b>Text Output</b> F7	→ Switch to plain-text view.
 <b>Maximize View Size</b> F11	→ Maximize current view stepwise.
 <b>Restore View Size</b> F12	→ Minimize current view stepwise to default.







– XML / View / DELT/A-Links Visualization Sub-menu:

 <b>DELT/A-Links and ancestors</b>	→ Highlight all links and all descendants of their parents.
 <b>DELT/A-Links and descendants</b>	→ Highlight all links and all ancestors of their parents.










▪ XML Context Menu / Applicable views sub-menu:

 <b>Highlight</b>	→ Highlight sub-menu (see below).
 <b>Filter</b>	→ Folding sub-menu (see below).
 <b>Folding</b>	→ Filter sub-menu (see below).
 <b>Summarize</b>	→ Summarize sub-menu (see below).
 <b>Apply Transformation</b>	→ Sub-menu with all pre-defined XSL Transformations.
 <b>Icon-Sets</b>	→ Icons sub-menu (see below).








– XML Context Menu / Applicable views / Highlight Sub-menu:

 <b>Highlight all Links</b>	→ Highlight all links in current XML file.
 <b>Highlight dead Links</b>	→ Highlight all dead links.
 <b>Highlight same Links</b>	→ Highlight all links with same link id as current link.
 <b>Highlight result of XPath...</b> Ctrl+Alt+Shift-P	→ Highlight result of XPath expression.
 <b>Highlight result of XQuery...</b> Ctrl+Alt+Shift-Q	→ Highlight result of XQuery expression.
 <b>XML-Language pre-defined</b>	→ Show list of pre-defined Highlight-definitions.

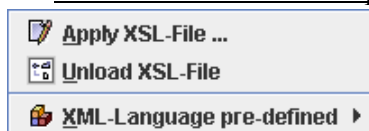
– XML Context Menu / Applicable views / Filter Sub-menu:

<input checked="" type="checkbox"/>  <b>Show document node</b>	→ Show/Hide document node (= root node).
<input checked="" type="checkbox"/>  <b>Show comment nodes</b>	→ Show/Hide comment nodes.
<input checked="" type="checkbox"/>  <b>Show Text nodes</b>	→ Show/Hide text nodes.
<input checked="" type="checkbox"/>  <b>Show CDATA nodes</b>	→ Show/Hide CDATA nodes.
<input checked="" type="checkbox"/>  <b>Show PI nodes</b>	→ Show/Hide processing-instruction nodes.
 <b>Show only result of XPath ...</b>	→ Show only those nodes that are matched by XPath-expr.
 <b>Hide result of XPath ...</b>	→ Hide those nodes that are matched by XPath-expr.
 <b>Show all tree nodes ...</b>	→ Cancel any previously set filter.
 <b>XML-Language pre-defined</b>	→ Show list of pre-defined filters.

– XML Context Menu / Applicable views / Folding Sub-menu:

 <b>Expand All</b>	→ Expand all nodes.
 <b>Collapse All</b>	→ Collapse all nodes.
 <b>Expand All descendants</b> Ctrl+Alt+E	→ Expand all descendants of current node.
 <b>Collapse All descendants</b> Ctrl+Alt-C	→ Collapse all descendants of current node.
 <b>Expand only result of XPath ...</b>	→ Expand only result of XPath expression.
 <b>Collapse result of XPath ...</b>	→ Collapse only result of XPath expression.
 <b>XML-Language pre-defined</b>	→ Show list of pre-defined Folding-definitions.

– XML Context Menu / Applicable views / Sumarize Sub-menu:

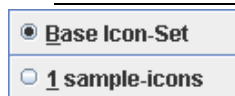


→ Apply XSL file with information extraction instructions.

→ Unload previously applied XSL file.

→ Show list of pre-defined XSL files.

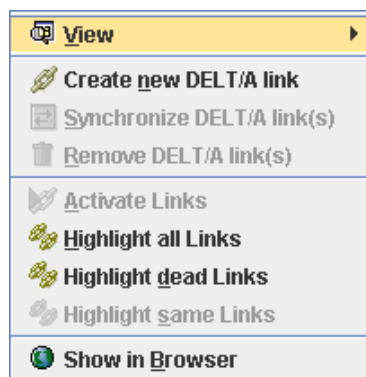
– XML Context Menu / Applicable views / Icon-Sets Sub-menu:



→ Switch back to default tree node icons.

→ Use icons from directory "sample-icons".

**HTML Context Menu** (is shown on right-click on HTML view):



→ View sub-menu (see below).

→ Create new DELT/A link.

→ Synchronize selected DELT/A links with other side.

→ Remove the currently selected DELT/A link(s).

→ Activate all selected DELT/A links.

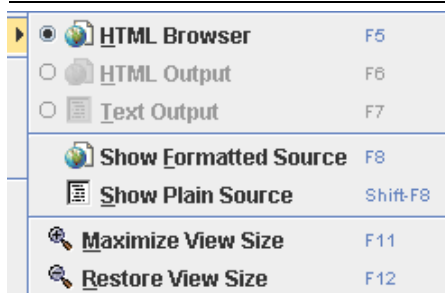
→ Mark all DELT/A links.

→ Mark all *dead* DELT/A links.

→ Mark all DELT/A links with the same link-id as the current link.

→ Show current HTML file in system-default browser.

▪ HTML Context Menu / View sub-menu:



→ Switch to the HTML view (default).

→ Switch to HTML output (to see formatted source).

→ Switch to text output (to see plain source).

→ Show formatted source of current HTML document.

→ Show plain source of current HTML document.

→ Maximize current view stepwise.

→ Minimize current view stepwise to default.

## Appendix D: The Macro Language

This section gives only a short overview about the macro language. If you want to write your own macro file, have a look at the macro page<sup>1</sup> of the DELTA/A website.

### D.1 The Document Type Definition (DTD)

```
<!-- delta-macros is the root element - it must have exactly 2 children:
macro-def and structure-def (=the top level group) -->
<!ELEMENT delta-macros (macro-def, structure-def)>
<!-- This attribute is not used in the current release. It is intended to
specify the XML-Language. -->
<!ATTLIST delta-macros lang-id CDATA #IMPLIED>
<!-- This attribute is not used in the current release. It can be used to
specify a description of this macros file. -->
<!ATTLIST delta-macros description CDATA #IMPLIED>

<!-- Macros definition part: -->

<!-- the macro-def element contains all macro definitions: at least one
macro-group or one macro -->
<!ELEMENT macro-def ((macro-group | macro)+)>

<!-- with the macro-group element macros - which belongs together - can be
combined; macro-group's are currently not shown in the macros view of DELTA/A
- they are only useful when editing a macros file in a XML editor -->
<!ELEMENT macro-group ((macro-group | macro)+)>
<!-- name of the macro-group -->
<!ATTLIST macro-group name CDATA #IMPLIED>
<!-- description of the macro-group -->
<!ATTLIST macro-group description CDATA #IMPLIED>

<!-- the macro element defines a macro (i.e. a structure of XML elements
which belongs together); a macro may contain one or more references
to elements, other macros or to the special link-def "macro" -->
<!ELEMENT macro (constant-def*, (element-ref | text-node | comment-node |
macro-include | DELTA-LINK | DELTA-LINK_EXT)+)>
<!-- the name of this macro -->
<!ATTLIST macro name ID #REQUIRED>
<!-- an optional description for this macro - it will appear in DELTA/A as
a tooltip when the mouse is over the list element in the structure view -->
<!ATTLIST macro description CDATA #IMPLIED>
<!-- indicates if the XML document stays valid after this macro is inserted
(true) or if further macros/elements have to be inserted to this macro (false)
-->
<!ATTLIST macro standalone (true | false) "true">

<!-- with the element-ref element you can define an element which
may have attributes and can contains other elements; in the current version
DELTA/A will not check if this is an valid element -->
<!ELEMENT element-ref (attribute-ref | element-ref | text-node | comment-node
| macro-include | DELTA-LINK | DELTA-LINK_EXT)*>
<!-- the name of the referenced element -->
<!ATTLIST element-ref name NMTOKEN #REQUIRED>

<!-- with the attribute-ref element you can define an attribute for the
element which is defined with the surrounding element-ref element; DELTA/A will
not check if the name and the value of this attribute is valid for the element
-->
<!ELEMENT attribute-ref EMPTY>
<!-- the name of this attribute -->
<!ATTLIST attribute-ref name NMTOKEN #REQUIRED>
<!-- the value of this attribute - currently there are special "text-macros"
for attributes (and text-/comment-nodes) interpreted by DELTA/A:
%INPUT% - the user is asked for a value - if the user cancels the input,
the attribute won't be inserted;
```

<sup>1</sup> <http://www.asgaard.tuwien.ac.at/~peter/DELTA/macros/>

```

    %TEXT% - if text in the other side is selected the selected text will be
            used as the value, otherwise the attribute won't be inserted,
    %DATE% - will be replaced with the current date,
    %TIME% - will be replaced with the current time,
    %USER% - will be replaced with the current user (is not fully supported
yet),
    %LINK-ID% - will be replaced with the (next) link id, which will also be
            used in the HTML link in the HTML view - is used in link-def
    $CONST_NAME$ - will be replaced with the text-value of string constant
CONST_NAME; the first time a constant is accessed user input is required; if
its is in upper case characters it is a global constant, otherwise it is local
(only valid in current macro)
    #COUNTERNAME# - will be replaced with "#COUNTERNAME{successive number}",
e.g. #A-000# = #A-001, #A-002, #A-003; ## = #1, #2, #3
    {XPath-Expression} - will be replaced by the result of the XPath
expression applied to the selected element in the current file
    [XPath-Expression] - will be replaced by the result of the XPath
expression applied to the selected element in the other file -->
<!ATTLIST attribute-ref value CDATA #REQUIRED>
<!-- defines a default value - makes only sense if used together with
'%INPUT%' as value -->
<!ATTLIST attribute-ref default-value CDATA #IMPLIED>

<!-- creates a text-node (PCDATA) -->
<!ELEMENT text-node EMPTY>
<!-- the value of this text-node; see attribute-ref for special values -->
<!ATTLIST text-node value CDATA #REQUIRED>
<!-- defines a default value - makes only sense if used together with
'%INPUT%' as value -->
<!ATTLIST text-node default-value CDATA #IMPLIED>

<!-- creates a comment-node -->
<!ELEMENT comment-node EMPTY>
<!-- the value of this comment-node; see attribute-ref for special values -->
<!ATTLIST comment-node value CDATA #REQUIRED>
<!-- defines a default value - makes only sense if used together with
'%INPUT%' as value -->
<!ATTLIST comment-node default-value CDATA #IMPLIED>

<!-- defines a string constant which can be used inside the value-attribute of
attribute-ref, text-node and comment-node elements using $CONST_NAME$ or
$const_name$ -->
<!ELEMENT constant-def EMPTY>
<!-- name of the constant to be defined -->
<!ATTLIST constant-def name CDATA #REQUIRED>
<!-- value of the constant; see attribute-ref for special values -->
<!ATTLIST constant-def value CDATA #REQUIRED>

<!-- copies the content of the referred macro into the current macro -->
<!ELEMENT macro-include EMPTY>
<!-- name of the referred macro -->
<!ATTLIST macro-include name IDREF #REQUIRED>

<!-- will be replaced by <delta-link link-id="%LINK-ID%"/> -->
<!ELEMENT DELTA-LINK EMPTY>
<!-- will be replaced by <delta-link link-id="%LINK-ID%" comment="%INPUT%
%TEXT%" created-at="%DATE%", %TIME%" created-by="%USER%"/> -->
<!ELEMENT DELTA-LINK_EXT EMPTY>

<!-- Structure definition part: -->

<!-- structure-def contains the root-group of the macros structure as shown in
DELTA/A's structure view -->
<!ELEMENT structure-def (group | group-include | group-link | macro-ref |
single-element-ref | separator | label)+>
<!-- a group contains one or more sub-groups, group-refs, macro-refs or
single-element-refs -->
<!ELEMENT group (group | group-include | group-link | macro-ref | single-
element-ref | separator | label | macros-group-include)*>
<!-- the name of this group -->
<!ATTLIST group name CDATA #REQUIRED>

```

```
<!-- an optional description for this element - will appear in DELT/A as a
tooltip when the mouse is over the list element in the structure view -->
<!ATTLIST group description CDATA #IMPLIED>

<!-- with macro-ref you can refer to an existing macro; if a macro-ref element
is used in a macro definition(i.e. in a macro or element-ref element), the
macro-ref element will be replaced with the contents of the referred macro -->
<!ELEMENT macro-ref EMPTY>
<!-- the name of an existing macro -->
<!ATTLIST macro-ref name IDREF #REQUIRED>
<!-- the optional label attribute can be used to define a different label
(instead of the name) for the list-item in the structure view of DELT/A -->
<!ATTLIST macro-ref label CDATA #IMPLIED>

<!-- with group-include you can include an existing group (i.e. defined
somewhere else in the structure definition part); in DELT/A it looks the same
as the referred group (it seems that the referred group is defined twice) -->
<!ELEMENT group-include EMPTY>
<!-- the name of an existing group -->
<!ATTLIST group-include name CDATA #REQUIRED>
<!-- the optional label attribute can be used to define a different label
(instead of name) for the list-element in the structure view of DELT/A -->
<!ATTLIST group-include label CDATA #IMPLIED>

<!-- inserts a new group with containing the macros of referenced macros-
group; convenient way to quick add new macros -->
<!ELEMENT macros-group-include EMPTY>
<!-- name of macros-group to be included -->
<!ATTLIST macros-group-include name CDATA #REQUIRED>

<!-- represents a link to a group -->
<!ELEMENT group-link EMPTY>
<!-- the name of an existing group -->
<!ATTLIST group-link name CDATA #REQUIRED>
<!-- the optional label attribute can be used to define a different label
(instead of name) for the list-element in the structure view of DELT/A -->
<!ATTLIST group-link label CDATA #IMPLIED>
<!-- description for this group-link - will be shown as tooltip -->
<!ATTLIST group-link description CDATA #IMPLIED>

<!-- unlike element-ref a single-element-ref is used to define only a single
element it's the same as a macro-ref referring to a macro with only a single
element-ref; if you want to define attributes with to single element, you have
to use macro-ref/macro -->
<!ELEMENT single-element-ref EMPTY>
<!-- the name of the element -->
<!ATTLIST single-element-ref name NMTOKEN #REQUIRED>
<!-- an optional description for this element - will appear in DELT/A as a
tooltip when the mouse is over the list element in the structure view -->
<!ATTLIST single-element-ref description CDATA #IMPLIED>
<!-- indicates if the XML document stays valid after this element is inserted
(true) or if further macros/elements have to be appended to this element
(false) -->
<!ATTLIST single-element-ref standalone (true | false) "true">

<!-- inserts a separator (line) - use this to group macros/elements which
belong together -->
<!ELEMENT separator EMPTY>

<!-- inserts a label - useful together with separator to describe a part of a
group -->
<!ELEMENT label EMPTY>
<!-- the text of the label -->
<!ATTLIST label text CDATA #REQUIRED>
<!-- description for this label - will be shown as tooltip -->
<!ATTLIST label description CDATA #IMPLIED>
```

## D.2 Sample Macros

Some samples taken from the MHB macro file:

Macros Source	Result (in MHB)
<pre>&lt;macro name="ChunkGroup"&gt;   &lt;element-ref name="chunk-group"&gt;     &lt;attribute-ref name="title" value="%TEXT%"/&gt;   &lt;/element-ref&gt; &lt;/macro&gt;</pre>	<pre>&lt;chunk-group title="..."/&gt;</pre>
Note: %TEXT% will be replaced with the currently selected text in the other side.	
<pre>&lt;macro name="Chunk"&gt;   &lt;element-ref name="chunk"&gt;     &lt;attribute-ref name="chunk-id"       value="#CHUNK-00000#"/&gt;     &lt;macro-include name="Structure"/&gt;   &lt;/element-ref&gt; &lt;/macro&gt;</pre>	<pre>&lt;chunk chunk-id="#CHUNK-..."&gt;   &lt;structure status="..."/&gt; &lt;/chunk&gt;</pre>
Note: #CHUNK-00000# will be replaced with #CHUNK-00001, #CHUNK-00002, #CHUNK-00003#, ...	
<pre>&lt;macro name="Structure"&gt;   &lt;element-ref name="structure"&gt;     &lt;attribute-ref name="status"       value="%INPUT%narrative"/&gt;   &lt;/element-ref&gt; &lt;/macro&gt;</pre>	<pre>&lt;structure status="..."/&gt;</pre>
Note: %INPUT%narrative will be replaced with a user-entered value; defaults to narrative.	
<pre>&lt;macro name="definition"&gt;   &lt;element-ref name="definition"&gt;     &lt;attribute-ref name="name" value="%INPUT%"/&gt;     &lt;attribute-ref name="description" value="%TEXT%"/&gt;     &lt;DELTA-LINK/&gt;   &lt;/element-ref&gt; &lt;/macro&gt;</pre>	<pre>&lt;definition name="..."   description="..."&gt;   &lt;delta-link link-id="..."/&gt; &lt;/definition&gt;</pre>
Note: <DELTA-LINK/> will be replaced with the DELT/A link element.	