

Manual

FCO-IM Casetool
for Windows

Version 4.1

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Acknowledgements

Back in September 1996 when we finished version 4.0 of the FCO-IM Casetool, we didn't expect to receive so many positive reactions. With this improved version of the casetool we hope to provide you with a yet more powerfull modeling tool. Version 4.1 offers you comprehensive dynamic documentation, customizable prototype generation, and much more...

We didn't do it alone, though, and we'd like to offer our sincere thanks to those who helped along the way. Projects like these cannot be finished without the helping hand of relatives, good friends, business relations and a firm test team.

We extend our deepest thanks to Rienkje Bijpost, Ellemieke Greving, Anneke Bijpost, Nico & Hetty Hoek and Bart & Geke Hulshof for their love, understanding and support.

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Amsterdam, March 1997

Marc Hulshof, Michel Hoek and Jeanot Bijpost.

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Introduction

Welcome to the FCO-IM Casetool v4.1; one of the few casetools in the world supporting Fully Communication Oriented Information Modeling. The FCO-IM Casetool is a full Microsoft Windows product, available for both the commercial and educational market.

If you're not familiar with FCO-IM

Fully Communication Oriented Information Modeling (FCO-IM) is a method for information modeling based on the communication of the user. Before you start using the FCO-IM Casetool it is important to be familiar with the basics of FCO-IM.

If you're not familiar with Windows

To operate the FCO-IM Casetool a basic knowledge of Microsoft Windows is required. While you are working with the FCO-IM Casetool you will frequently arrange windows, drag screen objects, select items from popup-menu's etc. Experience with the management of files is also required.

About the FCO-IM Casetool documentation

This manual is written to support you during the installation and use of the FCO-IM Casetool. The manual contains a serie of lessons covering the most important features of the FCO-IM Casetool. This manual is also provided as a Windows help file (so you can follow the lessons on screen). This manuals wil not cover the concepts of FCO-IM and the use Microsoft Windows.

The FCO-IM Casetool is equipped with a context sensitive help system. Pressing F1 will show a help screen explaining the active window.

Typographical conventions in this manual

Typeface / Symbol	Example	Meaning
Universe Condensed	... will now appear in the IG Viewer...	Names of windows, buttons and other screen objects.
'quotation'	'Student Lisa Peters lives in Washington'	Text which should be entered or is displayed on your screen.
Universe Condensed Bold	Press the Enter-key.	This text indicates a key on your keyboard.
○	○ You can print table documentation by...	The text following this symbol describes a set of general steps for performing a specified kind of task.
1.	1. Enter the following expression: 'Student Lisa Peters...'	The text following a number describes an action you should take, such as a step in an example.

Installation

System Requirements

- C Personal Computer with a Intel 80486 processor or better.
- C MS Windows 3.1x, MS Windows 95 or MS Windows NT 3.x/4.x.
- C 8MB Extended Memory
- C 10MB Free hard disk space
- C VGA/SVGA screen
- C Supports all printers and networks compatible with MS Windows 3.1x.

Installation

1. Start MS Windows.
2. Put installation disk one in the diskdrive.
3. Start the 'install.exe' program from the disk.

This will start the installation program. Follow the instructions on your screen to install the FCO-IM Casetool. During the installation you will be requested to fill in your registration number. You can find the registration number on your registration card supplied with your version of the FCO-IM Casetool..

- O Please write down your registration number before you send in your registration card: _ _ _ - _ _ _ _ - _ _ _

Removing

Remove both the FCO-IM Casetool directory (default: C:\FCOCASE) and the Windows program group or menu items.

Technical Support

Questions about information modeling problems are excluded from the Technical Support!

The following Technical Support is provided:

1. Answers to Frequently Asked Questions (FAQ's) can be found on our website: www.ascaris.nl.
2. Refer to the 'install.txt' in 'C:\FCOCASE\DOCS' if you experience problems during the installation of the FCO-IM Casetool.
3. For other questions there is E-mail support:

Ascaris Software

E-mail: postmaster@ascaris.nl

Y-Tech building

Van Diemenstraat 182a

1013 CP Amsterdam

Please supply the following information:

Name

E-mail address or mail address

Phone Number

Fax Number

FCO-IM Casetool version

Registration number of your casetool. (Only applies to users of the Desktop Edition)

A detailed description of the problem.

Questions of registered users will be treated first! We will even try to answer questions of the users of the 'Special Book Edition' and the 'Special Student Copy' but do not guarantee support for these users.

Lesson 1: Introduction

The following lessons provide a step-by-step introduction covering the most important features of the FCO-IM Casetool. Every lesson is divided into several exercises. Each lesson starts with a brief summary of the topics covered. The average lesson takes about 30 minutes to complete.

This lesson contains several remarks you should know before you can start.

Installation

Before you start with the lessons you need to install the FCO-IM Casetool. In the lessons it is assumed you have installed the FCO-IM Casetool in C:\FCOCASE.

Configuration File

If the FCO-IM Casetool was installed on your computer by another person, it is recommended to remove the file 'C:\FCOCASE\FCOCASE.CFG'. This file contains several of the FCO-IM Casetool options. By removing this file the FCO-IM Casetool options will be restored to the default options.

Speedbuttons and hotkeys

Throughout this manual you will find the icons of speedbuttons in the right margin. Such an icon indicates the action which is described can also be performed by clicking the speedbutton. In several cases you will also see a hotkey below the icon of the speedbutton. Pressing this hotkey (-combination) will also perform the action which is described.

Displayed expressions

Because the space character can be part of the predicate of an expression the FCO-IM Casetool will, in most cases, display the space character as a little dot.

Steps in the right margin

During the installation of the FCO-IM Casetool several 'IG' and 'IGD' files are installed in the directory 'C:\FCOCASE\LESSONS\STEPS'. The names of the 'IG' files can be found in a black box in the right margin at the start of an exercise. For example **Step X**. If you have made a mistake in one of the previous exercises, you can return to the an exercise with such a black box.

If you want to continue with **Step 9**, you should take the following actions:

1. Remove the files 'lesson.ig' and 'lesson.igd' from the project directory.
2. Copy the file 'step09.ig' and if present 'step09a.igd' from 'C:\FCOCASE\LESSONS\STEPS' to the project directory.
3. Select the option Add File from the File menu. Select the files 'step09.ig' and 'step09a.igd' and click on Ok. Both files will be added to the project.
4. Double click on the 'step09.ig' file in the Project Manager. Select the option Save IG as from the File menu. Save 'step09.ig' as 'lesson.ig'.
5. Double click on the 'step09a.igd' file in the Project Manager. Select the option Save IGD as from the File menu and save it as 'lesson.igd'.

You can now proceed with the exercise.

The MS Windows interface

- | | |
|----------------------|---|
| Rollup's | A rollup window is a small window 'floating' above all other windows. |
| Popup-menu's | A popup-menu is a menu which appears when you point to an object (using your mouse cursor) and press the right mouse button. |
| Dragbox | A dragbox is used to select multiple objects at the same time. Place the mouse cursor on an empty area of the diagram, press the left mouse button and move the mouse cursor. While you are moving the mouse cursor (still pressing the left button) a rectangle with a dotted line appears. All objects within this rectangle will be selected as soon as you release the left mouse button. |
| Drag-and-drop | Select the object with the mouse cursor, keep the left mouse button pressed, while you move the mouse. Release the left mouse button if the object is at the correct position. |
| Double click | Click an object twice within a short time interval. |

Lesson 2: Classification and Qualification

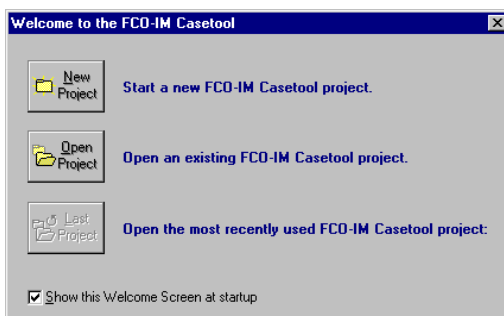
This lesson is mainly concerned with the classification and qualification of fact expressions. It will also cover two important windows from the FCO-IM Casetool: The Project Manager and the IG Viewer. Finally it treats several ways to look at your information grammar which is developing during the classification and qualification of the fact expressions.

Subjects in this lesson

- C creation of a new project
- C classification and qualification of expressions
- C using the IG Viewer
- C using the Expression Tree Viewer
- C using fact type-documentation
- C creation of a information grammar diagram (IGD)
- C looking at the repository tables

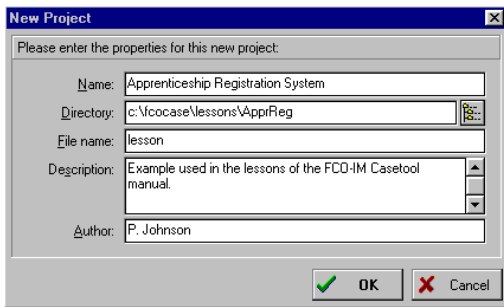
Creating a project

1. Start the FCO-IM Casetool:



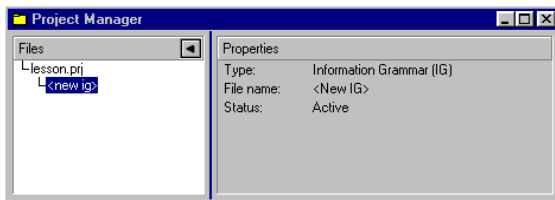
This window contains three buttons providing you quick access to the FCO-IM Casetool projects.

2. Click New Project.
- O If the Welcome Screen does not appear select New Project from the File menu.
3. Enter the project information as shown below and click Ok:

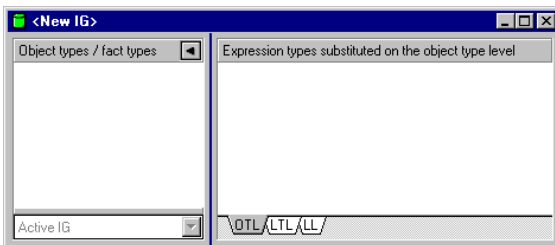


(Confirm the creation of the directory)


The following windows will appear:



The first window, the Project Manager, is divided into two sections: on the left side the files related to the project will be displayed in an hierarchical tree; on the right side the properties of the selected file will be displayed.



The second window (also divided into two sections) is the IG Viewer and is titled < New IG > . On the left side all names of the object types and fact types will be displayed. The fact (type) expressions related to the selected object type or fact type will be displayed on the right side.

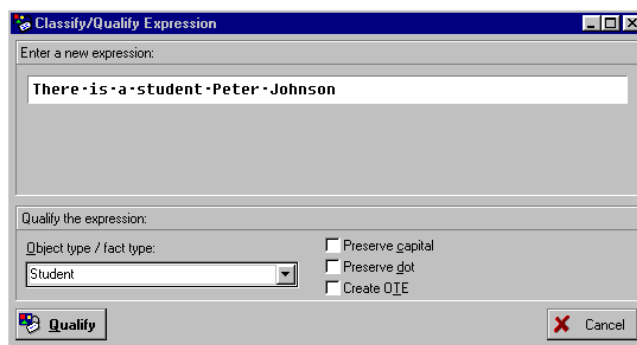
- The right sections of both the Project Manager and the IG Viewer can be hidden by clicking the  symbol.
- Press F9 to make the IG Viewer the top most window.

Fact expression 1: 'There is a student Peter Johnson'

1. Open the Tasks menu and select New Expression.
2. Enter the fact expression 'There is a student Peter Johnson'.
(Do not enter the ').
3. Type 'Student' in the object type / fact type field:



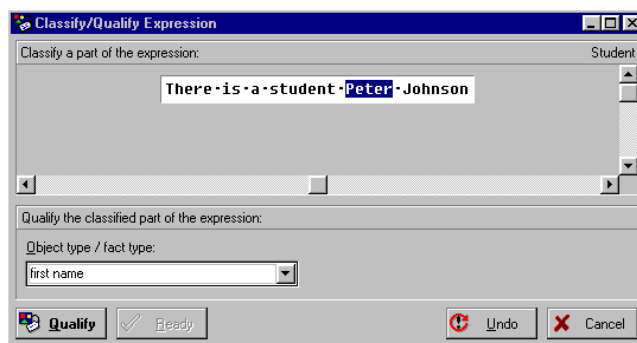
F6



4. Click Quality or press Enter.

By clicking Quality you have assigned the fact expression 'There is a student Peter Johnson' to the fact type 'Student'.

5. Select the expression part 'Peter' using the mouse or keyboard.
 - Note: You can double click the word 'Peter' to select it.
 - Note: Press the Undo button to undo the last action.
6. Type 'first name' in the object type / fact type field:



7. Click Quality.

This assigns the expression part 'Peter' to the object type 'first name'.

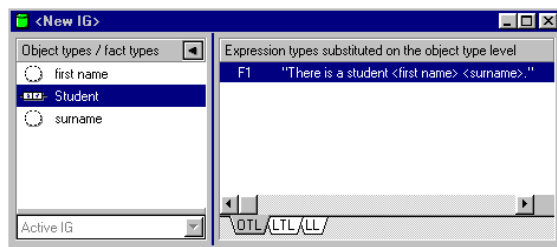
8. Select the expression part 'Johnson'. Type 'surname' as the object type / fact type name and click Qualify.
9. Click Ready to confirm you have classified and qualified all variable expression parts in 'There is a student <first name> <surname>'.
10. Click Ready to confirm you do not want to classify any variable expression part in 'Peter'.

As a result of this action 'first name' will become a label type.

11. Click Ready, then click Ok.

By clicking Ok you confirmed the classification and qualification of the fact type expression. The object types / fact types: 'Student', 'first name' and 'surname' will be displayed in the IG Viewer.

12. Click on 'Student' in the IG Viewer:

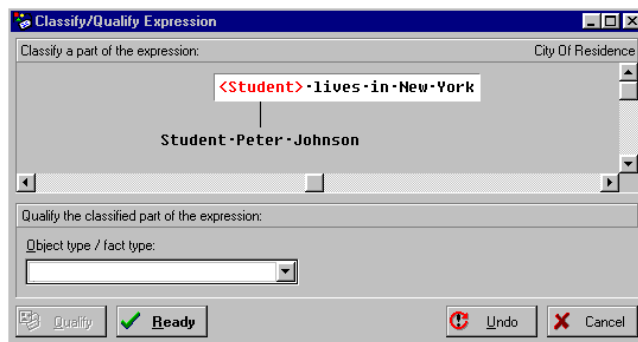


The new fact type expression will be displayed in the right section of the IG Viewer.

Fact expression 2: 'Student Peter Johnson lives in New York'

Step 1

1. Open the Task menu and select New Expression.
2. Enter the fact expression 'Student Peter Johnson lives in New York'.
3. Type 'City Of Residence' in the object type / fact type field, then click Qualify.
4. Select the expression part 'Student Peter Johnson' and qualify this part as 'Student':



5. Select the expression part 'New York' and qualify this part as 'City', then click Ready. The expression part 'Student Peter Johnson' will now be activated.
6. Select the expression part 'Peter' and qualify this part as 'first name'.
- You can search in the object type / fact type field by entering the first letters of the name you are looking for and pressing the **κ** key several times.
7. Select the expression part 'Johnson' and qualify this part as 'surname'.
8. Click Ready.

Note: The expression part 'New York' is activated instead of the expression part 'Peter'. The casetool knows that both 'first name' and 'surname' are label types (therefore cannot contain any roles).

9. Select the complete expression part 'New York' and qualify this part as 'city name', then click Ready twice.
10. Click Ok.

You have now confirmed the classification and qualification of the fact type expression. Again the IG Viewer is updated to display the new object types / fact types. Note: The fact type (→) 'Student' is changed into a nominalized fact type (⇄).

Examining regenerated fact (type) expressions

Step 2

1. Click on 'City Of Residence' in the IG Viewer.

The fact type expression: '<Student:O1> lives in <City:O2>' will be shown in the right section of the IG Viewer. The expression codes of the object type expressions which should be substituted are displayed behind the object type / fact type name between the <>. At the bottom of the IG Viewer you will find three tabs: **OTL/LTL/LL/**.

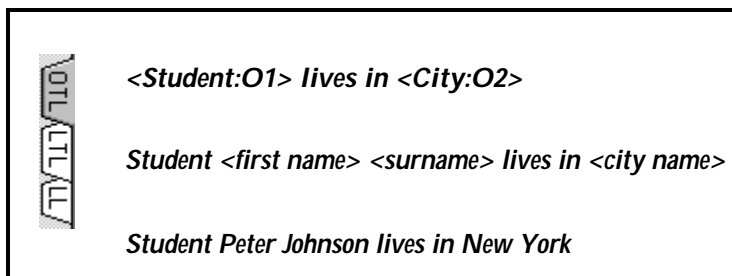
Currently the OTL tab is selected. (OTL = 'object type level'). On the object type level object type expressions are not substituted into the shown fact type expressions.

2. Activate the LTL tab. (LTL = 'label type level').

On the label type level object type expressions are substituted in the show fact type expressions. As a result the fact type expression changes into: 'Student <first name> <sur name> lives in <city name>'.

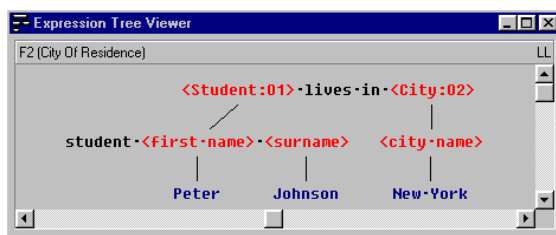
3. Activate the LL tab. (LL = 'label level').

On the label level both object type expressions and labels are substituted. As a result the fact type expression now changes into the fact expression: 'Student Peter Johnson lives in New York'. The box below contains a summary of the three substitution levels:



4. Select the fact type 'City Of Residence'. Double click the fact expression 'Student Peter Johnson lives in New York'.

The Expression Tree Viewer will now appear. In this window the classification and qualification of the fact expression F2 will be displayed:



5. Keep the Expression Tree Viewer open and click on 'Student' in the IG Viewer.

Note: Expression F1 is now displayed in the Expression Tree Viewer


6. Keep the Expression Tree Viewer open and activate the OTL tab in the IG Viewer.

Note: The Expression Tree Viewer is now displaying expression F1 on the OTL level

7. Close the Expression Tree Viewer.

Looking at the IG: Fact type documentation

Step 2

1. Hide the right section of the IG Viewer by pressing the  button.
2. Open the View menu and select OTFT Documentation.

F8

The OTFT Documentation window will now appear. In the window the fact type documentation for the selected fact type (in the IG Viewer) will be displayed.

3. Keep the OTFT Documentation window open and select another object type or fact type from the IG Viewer.

Note: The contents of the OTFT Documentation window is automatically updated.

- To print the fact type documentation select Print or Print All from the popup-menu of the fact type documentation.
4. Close the OTFT Documentation window.

Saving a Project

Step 2

1. Open the File menu and select Save Project.
2. Save the information grammar '< New IG >' as 'lesson.ig'.



Looking at the IG: The Information Grammar Diagram (IGD)

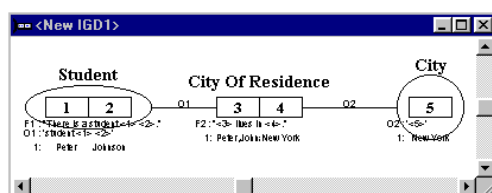
Step 2

1. Open the File menu and select New, IGD.



The appearing window is the Diagram Designer and is titled < New IGD1 >. Note: The file '< New IGD1 >' has been added to the Project Manager. Diagrams are saved separately from information grammars.

2. Select the fact type 'Student' from the IG Viewer and drag it to the Diagram Designer window.
3. Drag 'City Of Residence' and 'City' from the IG Viewer to the diagram:



- During the classification and qualification of fact expression the FCO-IM Casetool automatically assigns role numbers to the variable expression parts. As a result the

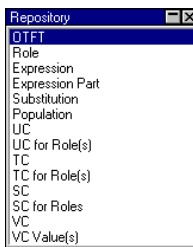
role numbers in your diagram may differ from the role numbers in other documents containing the Apprenticeship example.

4. Complete the diagram by placing 'first name', 'surname' and 'city name'.

Looking at the IG: The Repository

Step 3

1. Open the View menu and select Repository Rollup:



In the Repository Rollup you will find the names of all repository tables. (The repository is often called the Meta Grammar).

2. Double click OTFT:

OTFT Name	Alias	Type	Derivable?	Subtype?	Data Type
City		N	No	No	
city name		L			default
City Of Residence		F	No	No	
first name		L			default
Student		N	No	No	
surname		L			default

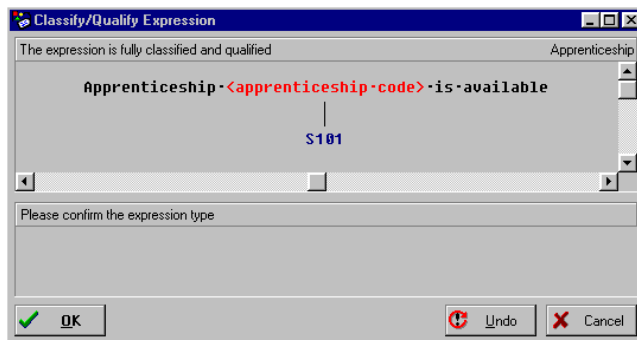
A Table Viewer window appears, containing the object type / fact type table. The structure of the Repository will not be explained in this lessons.

3. Close the Table Viewer window.
- It is possible to write your own extensions for the FCO-IM Casetool. These extensions will be based on the repository. Possible extensions are database-, documentaion-, code- and application generators. More information about the structure of the repository and how to build your own extensions can be found in the separately sold Repository Package.

Fact expression 3: 'Apprenticeship S101 is available'

Step 3

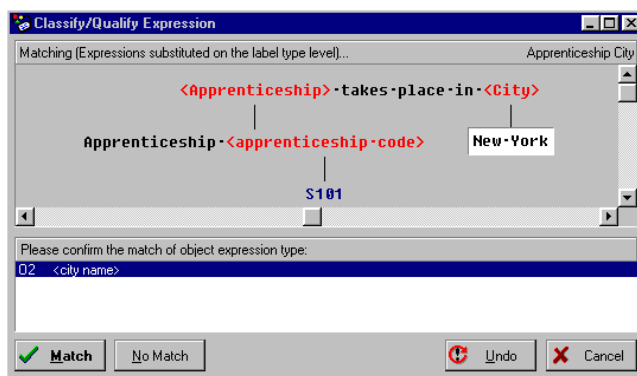
1. Classify and qualify the fact expression 'Apprenticeship S101 is available' as shown below. The fact expression belongs to the fact type 'Apprenticeship', this name is shown in the upper right corner of the window:



Fact expression 4: 'Apprenticeship S101 takes place in New York'

Step 4

1. Classify and qualify the fact expression 'Apprenticeship S101 takes place in New York' until you have reached the point shown below:



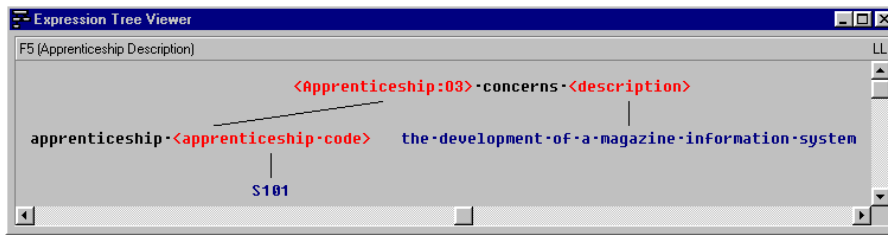
The expression part 'New York' has been activated. In the lower section of the window object type expression O2 '<city name>' has been displayed. The FCO-IM Casetool suggests to classify and qualify object expression 'New York' as O2.

2. Click Match. Object expression 'New York' will be classified and qualified automatically.

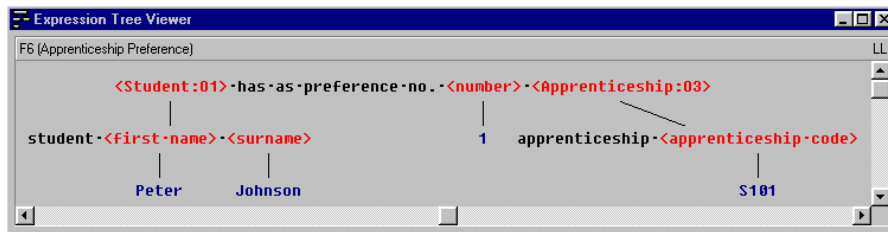
Fact expressions 5, 6 and 7

Step 5

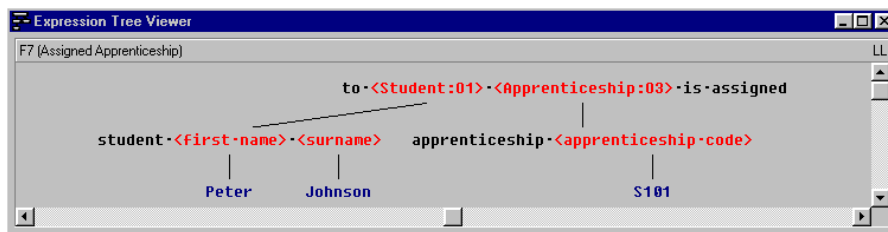
1. Classify and qualify the fact expression 'Apprenticeship S101 concerns the development of a magazine information system'. Object expression 'Apprenticeship S101' can be classified and qualified automatically as O3: 'Apprenticeship <apprenticeship code>':



- Classify and qualify the fact expression 'Student Peter Johnson has as preference no. 1 apprenticeship S101':



- Classify and qualify the fact expression 'To student Peter Johnson apprenticeship S101 is assigned':



- Save the changes in the project (Open the File menu and select Save Project). Save the '< New IGD1 >' as 'lesson.igd'.

Lesson 3: Information Grammar Diagrams (IGD's)

In this lesson you will learn how to build, change and configure diagrams. (Starting with the diagram you have created in the previous lesson)

- Popup-menu's are frequently used in this lesson. Almost every object in a diagram has it's own popup-menu. You can activate this popup-menu by positioning the mouse cursor on the object and pressing the right mouse button. The popup-menu of the diagram itself can be activated by positioning the mouse on an empty area of the diagram and pressing the right mouse button.

Subjects in this lesson

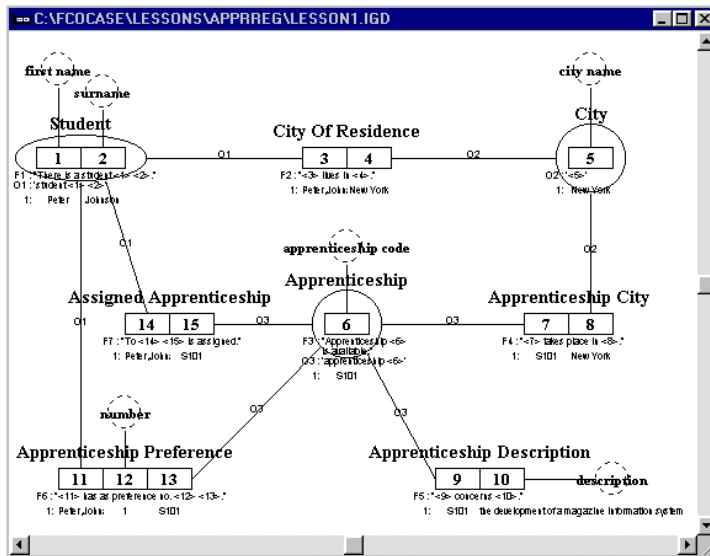
- synchronization between IG and IGD
- moving roles
- moving objects to the background
- creating break points in lines
- using information blocks in an IGD
- configuring an IGD
- configuring (multiple) objects
- using diagram styles
- using alignment functions
- zooming diagrams in and out
- printing a diagram

Placing all object types and fact types

Step 6

1. Drag the following object types and fact types from the IG Viewer to the diagram:
Apprenticeship, Apprenticeship City, apprenticeship code, Apprenticeship Description, Apprenticeship Preference, Assigned Apprenticeship, description, and number
- If you are working on a low resolution monitor you could use the OTFT Palette. This palette can be activated by opening the View menu and selecting OTFT Palette. After activating the OTFT Palette the Diagram Designer window can be maximized. The OTFT Palette will always stay on top of the Diagram Designer.





Step 7

Removing objects

1. Open the popup-menu of the 'Apprenticeship' object and select Hide.

Both 'Apprenticeship' and all lines to 'Apprenticeship' will be removed from the diagram.

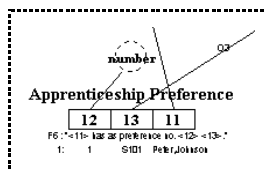
Note: 'Apprenticeship' did not disappear from the IG Viewer! Currently 'Apprenticeship' is the only object type / fact type in the IG Viewer which is displayed in black. This indicates it is not placed in the active diagram. (The name of the active diagram can be found at the bottom of the IG Viewer.)

2. Drag 'Apprenticeship' back to the diagram.

Moving roles

Step 7

1. Keep the Alt-key pressed and drag role 11 on role 13:

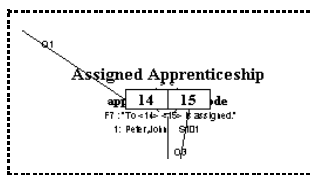


- Keep the Alt-key pressed and drag role 11 on role 12 to restore the diagram.

Moving objects to the background

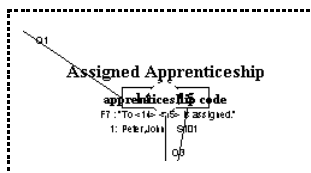
Step 7

- Drag the fact type 'Assigned Apprenticeship' on 'apprenticeship code':



In this situation 'apprenticeship code' cannot be selected.

- Open the popup-menu of 'Assigned Apprenticeship' and select Send To Back:



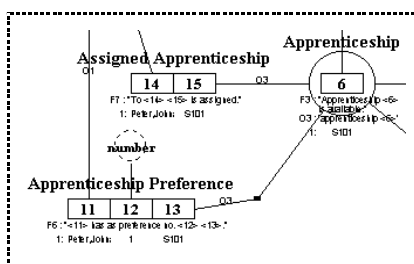
'Assigned Apprenticeship' has now moved to the background, as a result 'apprenticeship code' has become selectable again.

- Restore the original situation by moving 'apprenticeship code' to the background and dragging 'Assigned Apprenticeship' to it's original position.

Creating break points in lines

Step 7

- Click on the line from 'Apprenticeship Preference' to 'Apprenticeship':



It is possible to select and drag break points, they even have a popup-menu. In the popup-menu you can select options like Remove and Straight Line. It is possible to create

multiple break points in each line.

2. Open the popup-menu from the break point and select Straight Line.

Zooming diagrams in and out

Step 7

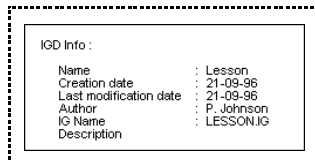
1. Open the IGD menu and select Zoom, 115%. The diagram will be enlarged.
2. Open the IGD menu and select Zoom, Zoom Out.



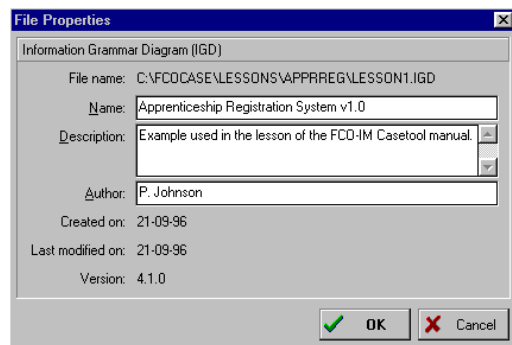
Using information blocks

Step 7

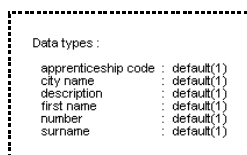
1. Open the IGD menu and select Show IGD Info.
- The IGD menu is only available if the Diagram Designer is the active window.



2. Select 'lesson.ig' in the Project Manager, open it's popup-menu and select File Properties.
- This option is also available from the IGD Info block's popup-menu
3. Enter the information below, then click Ok:



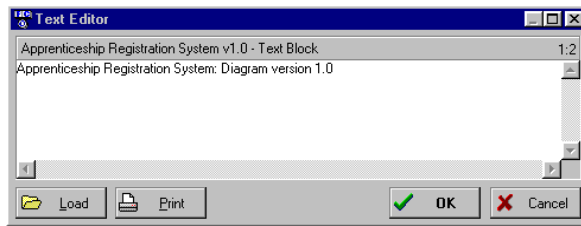
4. Activate the Diagram Designer window, open the IGD menu and select Show Data Type Info:



A list of all label types and the associated datatypes will be shown. Currently every datatype is 'default(1)'. The FCO-IM Casetool will generate a proposal for the datatypes during the GLR-Algorithm (Lesson 6).

5. Open the Diagram Designer's popup-menu and select New Text Block:

Enter the text as shown below.



6. Click Ok.
7. Open the text block's popup-menu and select Show Border.

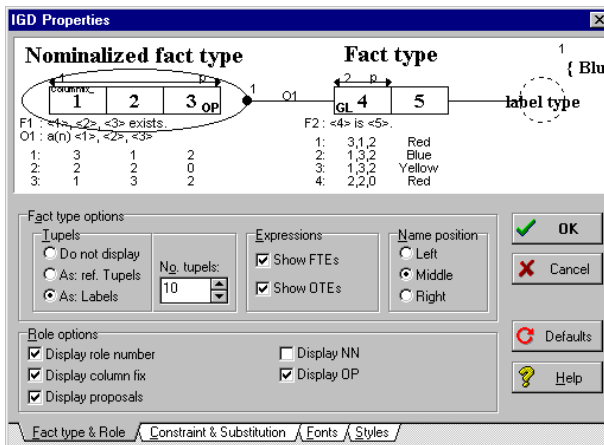
The border will be shown with a dotted-line. When printed the border will not be displayed.

8. Remove the text block by selecting Remove from it's popup-menu.

Configuring an IGD

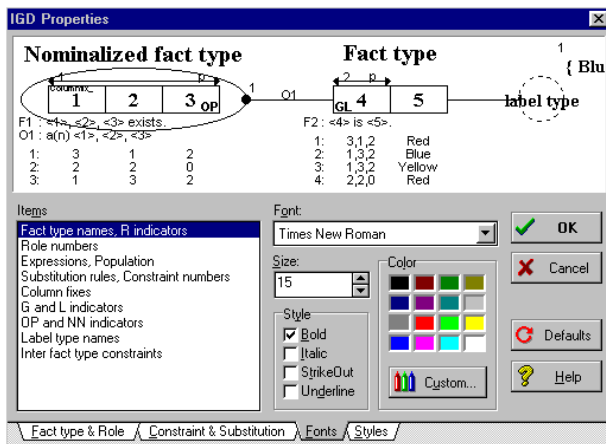
Step 8

1. Select Properties from the Diagram Designers popup-menu:



○ In this example only a few options will be discussed. Press F1 for more information.

2. Activate the Fonts tab:

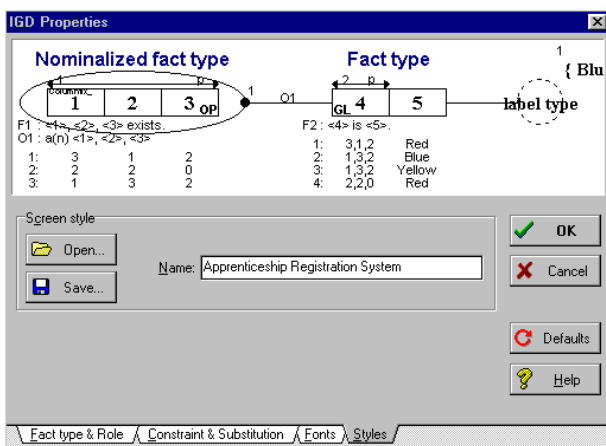


3. Select 'Fact type names, R indicators' from the Items list.
4. Select the 'Arial' font, size 12, color dark blue. Click Ok.

Using Diagram Styles

Step 9

1. Select Properties from the Diagram Designer's popup-menu.
2. Activate the Styles tab.
3. Type 'Apprenticeship Registration System' in the Name field:



4. Click Save and save the style in: 'C:\FCOCASE\LESSONS\APPRREG\LESSON.STY'. Close the IGD Properties window.
5. Create a new diagram by selecting New, IGD from the File menu.
6. Drag the fact types 'Apprenticeship' and 'Apprenticeship Preference' from the IG

Viewer to the diagram.

7. Select Properties from the Diagram Designer's popup-menu.
8. Activate the Styles tab.
9. Click Open and load the style: 'C:\FCOCASE\LESSONS\APPRREG\LESSON.STY'. Close the IGD Properties window.

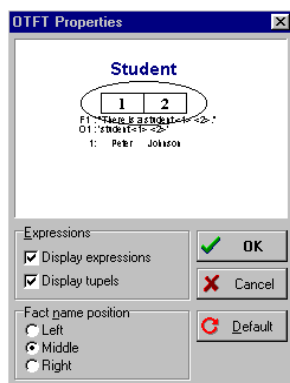
Note: < New IGD1 > has the same appearance as 'lesson.igd'.

- If you select the Diagram Designer... option from the Options menu, you can set the global Diagram Designer options. These settings will be used automatically for every new diagram.
10. Close < New IGD1 > (Do not save it).

Configuring (multiple) objects

Step 9

1. Open the 'Student's' popup-menu and select Properties:



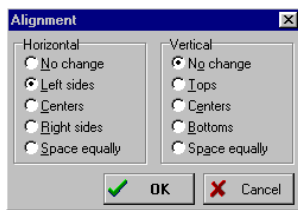
2. Select Fact name position 'Left' and click Ok.
- You can change the properties of multiple objects at the same time by selecting the objects and choosing the Properties option from one of their popup-menu's. (Hold the shift-key to select multiple objects).

Using the alignment functions

Step 10

1. Keep the shift-key pressed and select 'Student', 'Assigned Apprenticeship' and 'Apprenticeship Preference'.
2. Select Align from the IGD menu:





3. Select Horizontal 'Left Sides' and click Ok.

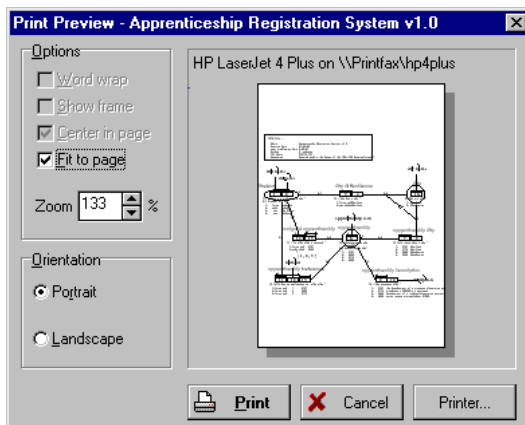
Note: The left sides of the fact types have been placed exactly on the same line.

4. Drag the fact type 'Assigned Apprenticeship' to its original position.

Printing a diagram

Step 10

1. Select the diagram window.
 2. Open the File menu and select Print IGD:
- This options is also available in the Diagram Designer's popup-menu.



3. Select Fit to page.
 4. Click Print to print the diagram.
 5. Save the project by selecting Save Project from the File menu.
- If no printers have been installed the preview area will be empty.
 - Some printers will not print the entire diagram as shown by the preview window. (Random pieces of the diagram will be missing). In this case the diagram is too complex to fit into the printer's memory. You can prevent this problem by selecting a raster-printing option in the printer driver (instead of vector-printing).

- Some fonts will be displayed too large in the print preview window. In that case the font cannot be sized smaller than displayed. This has no effect on the printed result!

Lesson 4: Editing Information Grammars

In this lesson you will learn how to change information grammars. (Using the information grammar you have created in the previous lessons).

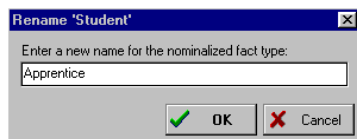
Subjects in this lesson

- C renaming an object type / fact type
- C using the undo function
- C removing an object type / fact type
- C changing the properties of an object type / fact type
- C reducing an object type
- C changing a object type / fact type expression
- C replacing an object type expression
- C adding population to a fact type (expression)
- C using expression files
- C changing population of a fact type (expression)
- C regenerating fact (type) expressions

Renaming an object type / fact type

Step 10

1. Click on 'Student' in the IG Viewer.
2. Open 'Student's' popup-menu and select Rename.
3. Overwrite 'Student' with 'Apprentice' and click Ok.



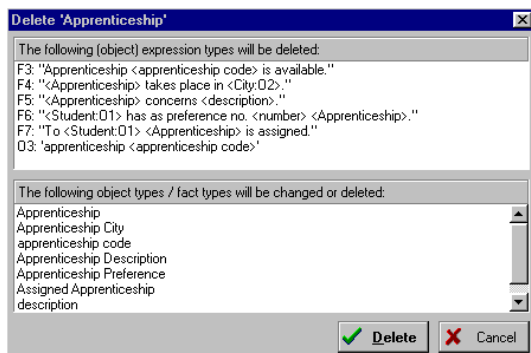
4. Open the Edit menu and select Undo Rename 'Student'.



Step 10

Removing an object type / fact type

1. Click on 'Apprenticeship' in the IG Viewer.
2. Select Delete from it's popup-menu:



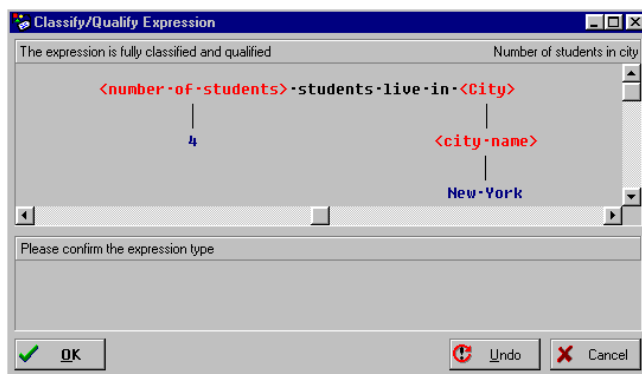
The fact types 'Apprenticeship Description', 'Apprenticeship City', 'Assigned Apprenticeship' and 'Apprenticeship Preference' contain roles played by 'Apprenticeship'. By deleting 'Apprenticeship' these roles would become obsolete. Therefore these fact types will be removed along with 'Apprenticeship'. By removing these fact types the label type description becomes useless... etc. Nearly the complete information grammar would be removed.

3. Click Cancel to prevent the deletion of 'Apprenticeship'!

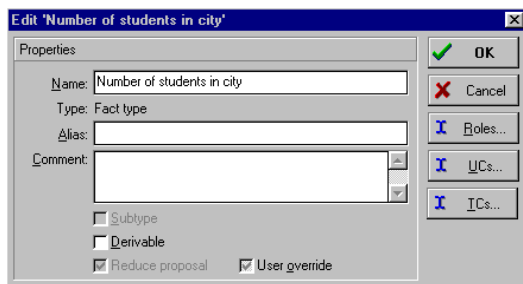
Changing the properties of an object type / fact type

Step 10

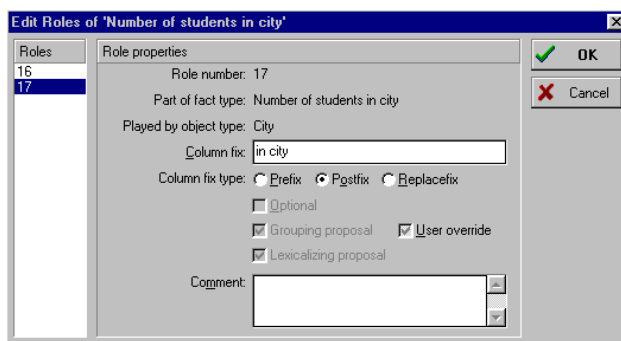
1. Classify and qualify the fact expression: '4 students live in New York' as shown below:



2. Select the fact type 'Number of students in city' in the IG Viewer.
3. Select Edit from it's popup-menu:



4. Click Derivable.
You could supply the derivation rule in the comment.
5. Click Roles:



6. Select role 17.
7. Type 'in city' in the Column Fix field.
8. Select Columnfix Type 'Postfix' and close both windows by clicking Ok.
9. Drag 'Number of students in city' from the IG Viewer to the diagram.

Note: The fact type is marked derivable with an * behind the fact type name. Role 17 has a postfix.

10. Open the View menu and select Undo List Rollup.



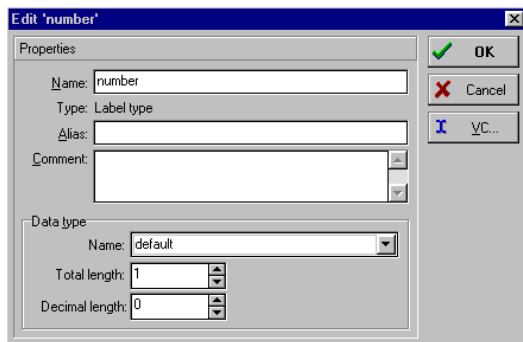
Select the item 'New Expression: 4 student live in...'. Click Undo.

This will remove both transactions.

Changing the properties of a label type

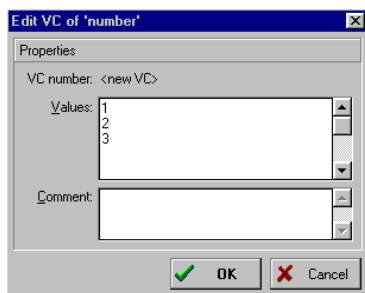
Step 10

1. Click on 'number' in the IG Viewer.
2. Select Edit from it's popup-menu:



You can adjust the datatype and value constraint in this window.

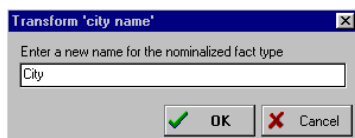
3. Click VC and enter the value constraint displayed below:



Reducing an object type

Step 11

1. Click on 'City' in the IG Viewer.
2. Select Reduce from it's popup-menu.
Note: Roles 4 and 8 are now played by 'city name' and 'City' has been removed.
3. Click on 'city name' in the diagram.
4. Select IG Tasks, Transform to Nominalized Fact Type from 'city names' popup-menu (In the Diagram Designer). Enter 'City' as the new object type name:



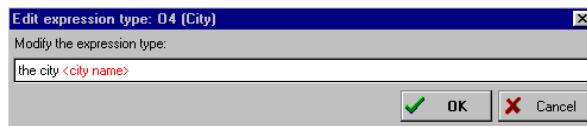
Note: A totality constraint has been placed on roles 4 and 8. A unicity constraint has been placed on the role of 'City'.

- The Transform to Nominalized Fact Type option is also available from the IG Viewer popup-menu. If you would have chosen this option, the object 'City' would not have been placed automatically on the diagram.

Changing a fact type expression

Step 12

1. Make sure the right section of the IG Viewer is visible and the OTL tab is activated.
2. Click on 'City' in the IG Viewer.
3. Click on object type expression O4 (in the right section).
4. Select Edit from the popup-menu of O4.
5. Change O4 als shown below:

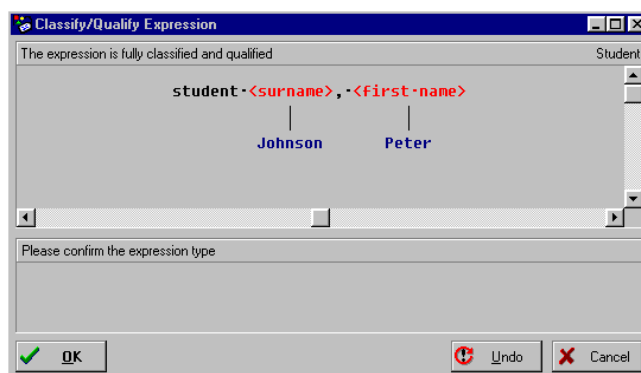


Note: All fact type expressions in which O4 is substituted will change when regenerated.

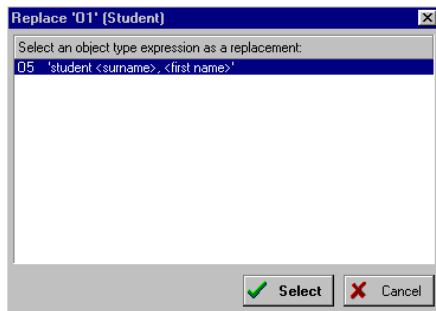
Replacing an object type expression

Step 13

1. Open the Tasks menu and select New Expression.
2. Make sure Create OTE is enabled.
3. Enter the object expression 'student Johnson, Peter' and qualify this expression as 'Student':
4. Click No Match!
5. Classify and qualify 'first name' and 'surname':



6. Click on 'Student' in the IG Viewer. Click on object type expression O1 in the right section of the IG Viewer.
7. Select Replace from the popup-menu of O1. Select O5 from the appearing window:



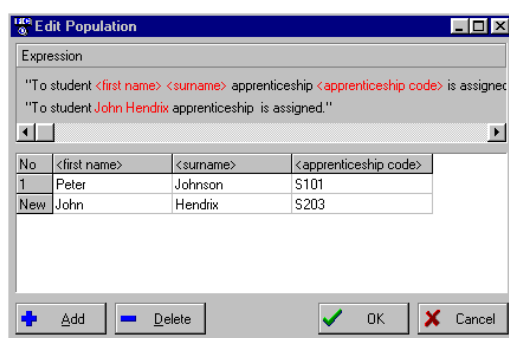
Verify the replacement of O1 by examining the expressions of 'Apprenticeship Preference' at the LL level.

8. Open the View menu and select Undo List Rollup.
9. Select the item 'New Expression: student Johnson, Peter' and click Undo.

Adding population to a fact type (expression)

Step 13

1. Make sure the LL tab is activated in the IG Viewer.
2. Click on 'Assigned Apprenticeship' in the IG Viewer, then click on fact type expression F7.
3. Select Edit Population from the popup-menu or press F7:
4. Click Add and add the tuple shown below:



5. Click Ok.

Note: Population has been added to 'Student', 'Apprenticeship' and 'Assigned Apprenticeship'.

Using expression files

Step 14

1. Open the File menu and select Open, then open the file 'C:\FCOCASE\LESSONS\STEPS\LESSON.EXP'.
2. Open the File menu and select Save Expression File as. Save the file as 'C:\FCOCASE\LESSONS\APPRREG\APPRREG.EXP'.

The structure of expression files

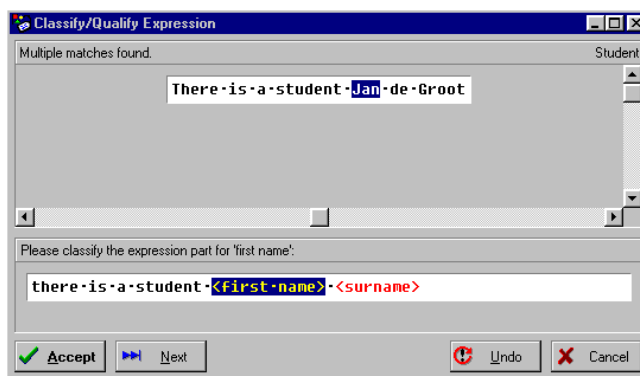
An expression file is an ASCII or ANSI file. The first line of an expression file contains the text [EXPPFILE, WIN] for ANSI files or [EXPPFILE, DOS] for ASCII file. After this line the name of the first object type or fact type is placed between []. Below this line you will find the expressions for this object type or fact type. These lines are followed by the second object type or fact type etc. Comment lines can be added by starting the line with a ';'.
It is possible to select multiple lines of an expression file at the same time (for classification and qualification by the casetool). The casetool will try to classify and qualify the expressions using automatic matching if possible. As a result the user interaction will be minimized.

3. Click on the first line of the expression file. Hold the shift-key and press the end-key.
4. Click Qualify.

F6

The casetool will start to classify and qualify the selected expressions. The automatic classification and qualification will stop at the fact expression 'There is a student Jan de Groot' (Which is a Dutch student).

5. Click Match:



The casetool has stopped automatic classification and qualification because it cannot determine whether the 'first name' is 'Jan' or 'Jan de'. It suggest the fact expression matches with 'Student <first name> <surname>':

6. Click Next.

As a result the 'first name' would become 'Jan de'.

7. Click Next again.

Now the 'first name' will be 'Jan'.

8. Click Accept, then click Ok.

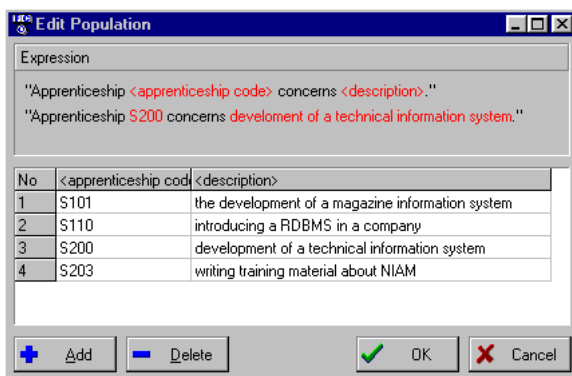
The automatic classification and qualification will continue. It will stop again for the fact expressions of Apprenticeship Preference. You can just match these expressions and continue. (This confirmation is the result of a very subtle limitation in the current match engine).

- The diagram will now list multiple tuples for each object type / fact type. To configure the displayed number of tuples, select Properties from the Diagram Designer's popup-menu.
9. Close the Expression File window. (It is ok to save the changes).

Changing the population of a fact type (expression)

Step 15

1. Click on 'Apprenticeship Description' in the IG Viewer, then click on fact type expression F5.
2. Select Edit Population from the popup-menu of F5.
3. Click on the tuple with apprenticeship 'S200'.
4. Press the tab-key, then correct the word 'development':

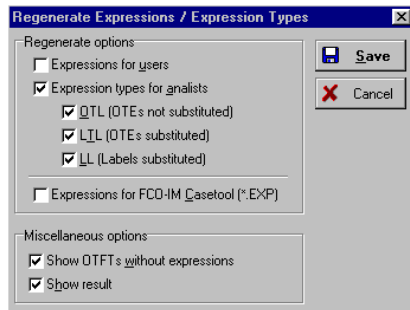


5. Click Ok.
- This typist's error should also be corrected in the expression file. You can edit the expression file by selecting Text Edit from its popup-menu.

Regenerating fact (type) expressions

Step 16

1. Open the Tasks menu and select Regenerate Expressions:



2. Make sure all options are set as displayed above, then click Save.
3. Enter 'C:\FCOCASE\LESSONS\VAPPRREG\VAPPRREG.TXT' as the filename.
4. The regenerated file will be opened directly in the internal Text Editor and is automatically added to the project.
5. Open the File menu and select Save Project.

Lesson 5: Constraints

In this lesson you will learn how to add constraints to the information grammar using the Diagram Designer.




The constraints you are adding will not be applied to the population. As a result it is possible to add population that violates the constraints in the information grammar.

Subjects in this lesson

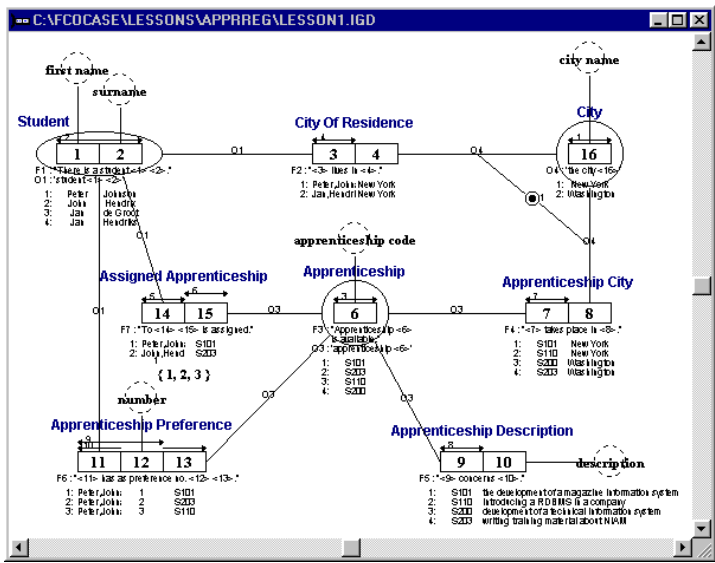
- C adding unicity constraints
- C adding totality constraints
- C removing intra fact type constraints
- C removing inter fact type constraints
- C adding comment to constraints
- C adding subset constraints

Adding unicity constraints

Step 16


1. Open the View menu and select Constraint Rollup.
2. Click on 'Student' in the Diagram Designer, then click .
3. Repeat step 2 to add the unicity constraint to 'Apprenticeship'.
4. Hold the Ctrl-key and select role 3.
5. Click .
6. Repeat steps 4 and 5 to add the unicity constraints to roles 14, 15, 7 and 9.
7. Hold the Ctrl-key and select both roles 11 and 12.
8. Click .
9. Repeat steps 7 and 8 to add the unicity constraint to role combination 11 + 13.

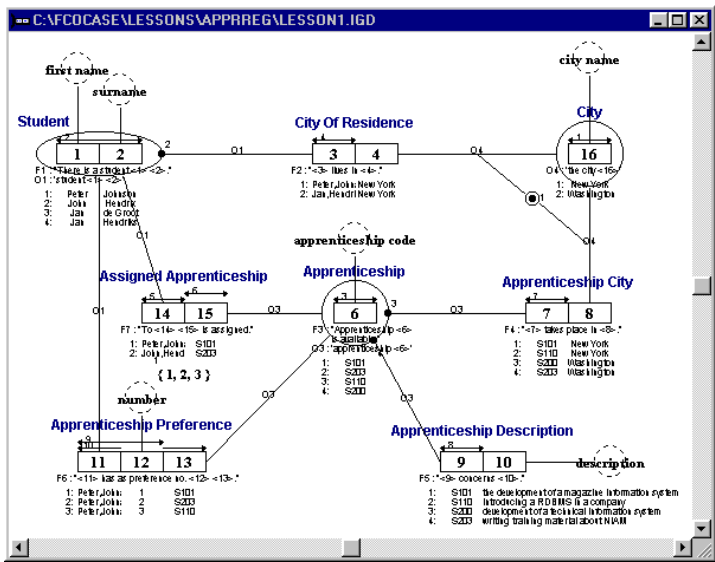




Adding totality constraints

Step 17

1. Hold the Ctrl-key and select role 3, then click .
2. Repeat step 1 to add totality constraints to roles 7 and 9.




Removing intra fact type constraints

Step 18

1. Select the fact type 'Assigned Apprenticeship' in the Diagram Designer.
2. Select Delete Intra Constraint, UC6 from it's popup-menu.
The unicity constraint is now removed from both the IG and the IGD.
3. Open the Edit menu and select Undo.


Removing and adding inter fact type constraints

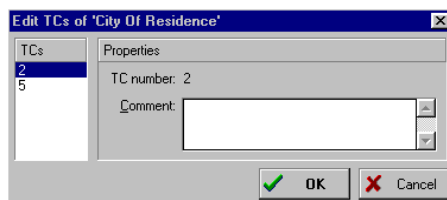
Step 18

1. Select inter fact type totality constraint 1.
2. Select Delete from it's popup-menu.
3. Hold the Ctrl-key and select both role 4 and 8.
4. Click .

Adding comment to constraints

Step 19

1. Select the fact type 'City of Residence'.
2. Click .



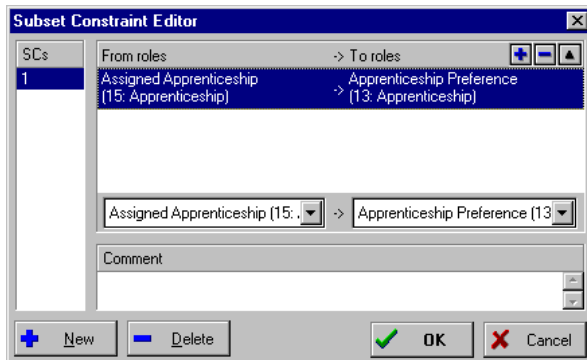
You can now enter your comment for the constraints related to 'City of Residence'. This comment will be displayed in the Fact Type Documentation.

3. Close the window.
- In a similar way you can add comment to unicity constraints and value constraints.

Adding subset constraints

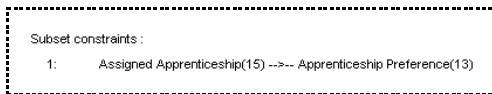
Step 19

1. Click .



2. Click New.
3. Open the left combobox and select role 15, then open the right combobox and select role 13 as is displayed above.
4. Click Ok.

Select Show Subset Constraint Info from the IGD menu:



A list of subset constraints will be displayed.

5. Open the Edit menu and select Undo SC Editor.
6. Select Hide from the popup-menu of the Subset Constraints Info box.
7. Save the project by selecting Save Project from the File menu.

Lesson 6: Deriving a Database Schema

In this lesson you will learn how to check the integrity of an information grammar and how to derive a database schema.

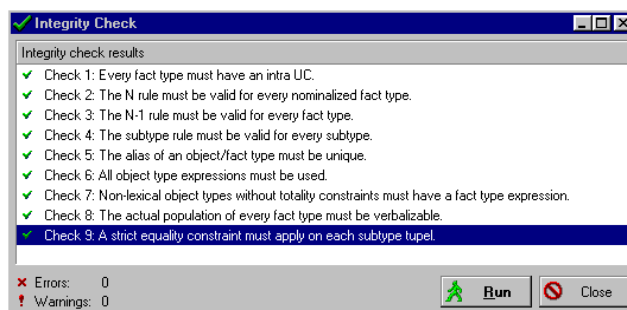
Subjects in this lesson

- C checking the integrity of an information grammar
- C deriving a grouping proposal
- C step-by-step grouping
- C setting grouping marks before grouping
- C deriving a lexicalizing proposal
- C lexicalizing
- C deriving a reduction proposal
- C reduction (step-by-step)
- C generating Table Documentation
- C GLR Options

Checking the integrity of an information grammar

Step 19

1. Open the Tasks menu and select Check and Correct IG:



A detailed description of the checks can be found in appendix B.

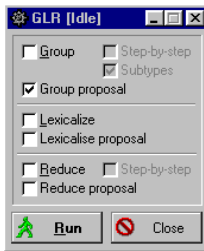
2. Click Run.
3. Close the Integrity Check window.

Deriving a grouping proposal

Step 19

1. Open the Tasks menu and select GLR:

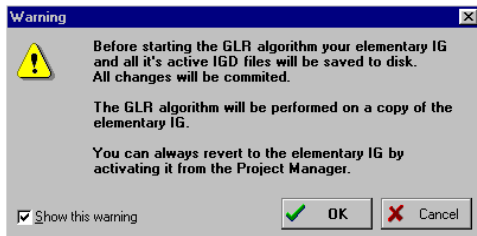




Make sure all options are set as displayed above.

2. Click Run.

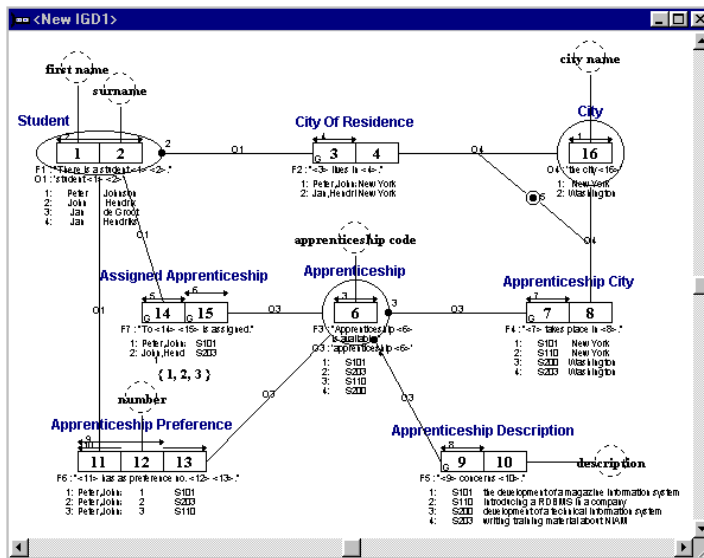
First the casetool will perform an Integrity Check. If the casetool encounters any errors the Integrity Check window will be opened so you can examine the error.



3. Click Ok.

The casetool will now commit all changes to the repository. Copies are made of both the IG and the openend IGD's. The copies are automatically added to the Project Manager. The casetool will open the copies and continue the GLR algorithm on these copies.

Roles which can be grouped will be marked with a 'G' in the diagram:



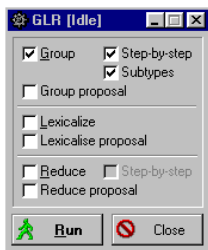
Note: A datatype proposal has now been performed. Display the label types and associated datatypes by selecting Show Data Type Info from the IGD menu if necessary.

4. Double click 'lesson.igg' in the Project Manager. Do not save 'lesson.igg' and '< New IGD1 > '.

Step-by-step grouping

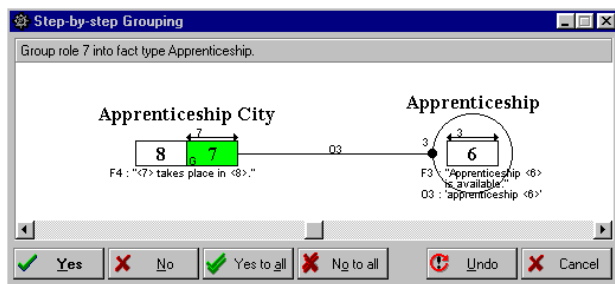
Step 19

1. Open the diagram 'lesson.igg' from the Project Manager.
2. Open the Tasks menu and select GLR:

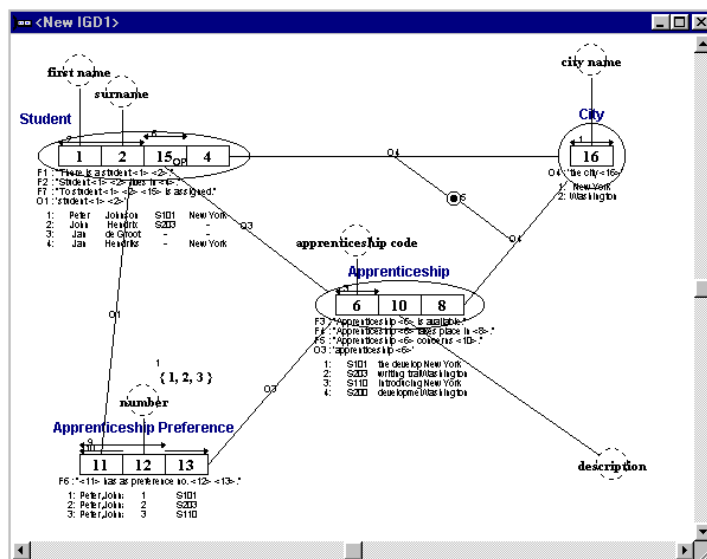


Make sure all options are set as displayed above.

3. Click Run: (Overwrite 'lesson.igg')



4. Click Yes to group role 7 into 'Apprenticeship'.
5. Repeat step 4 for every role which can be grouped.

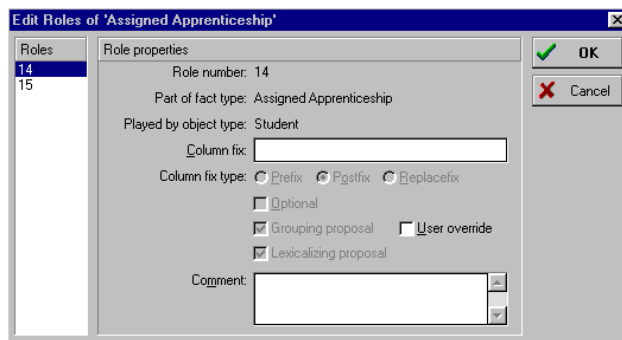


6. Double click 'lesson.igg' in the Project Manager. Do not save 'lesson.igg' and '< New IGD1 > '.

Setting grouping marks before grouping

Step 19

1. Open the diagram.
2. Click on 'Assigned Apprenticeship' in the IG Viewer.
3. Select Edit Roles from it's popup-menu:



4. Select role 14 and uncheck User override as displayed above.
5. Select role 15 and uncheck User override.

By unchecking roles 14 and 15 you have indicated you do not want to group these roles.

6. Open the Tasks menu and select GLR:

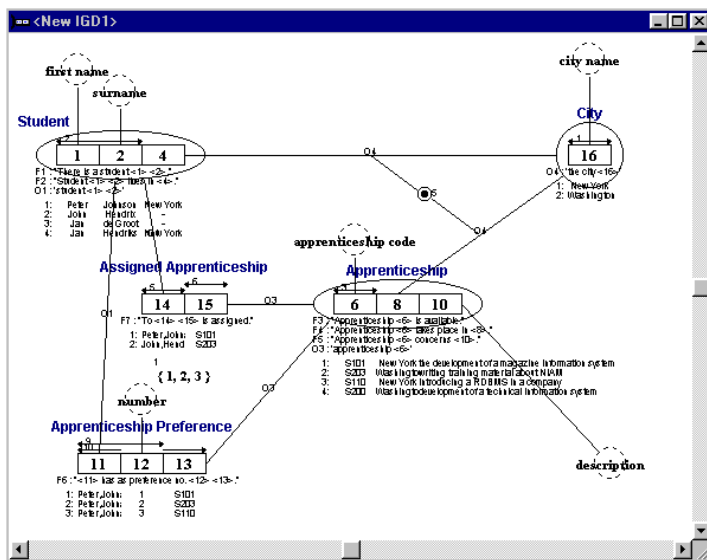


Make sure all options are set as displayed above.

Note: Do **not** check Step-by-step grouping. The Step-by-step grouping algorithm ignores the User Override property.

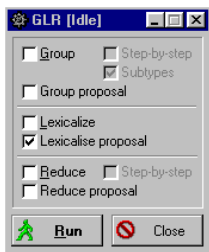
7. Click Run.

The generated information grammar is not in Optimal Normal Form (ONF). This structure might be chosen if 'Assigned Apprenticeship' is unknown for most of the students. (Grouping 'Assigned Apprenticeship' then results in a Student table with too many NULL values in the Assigned Apprenticeship column.)



Deriving a lexicalizing proposal

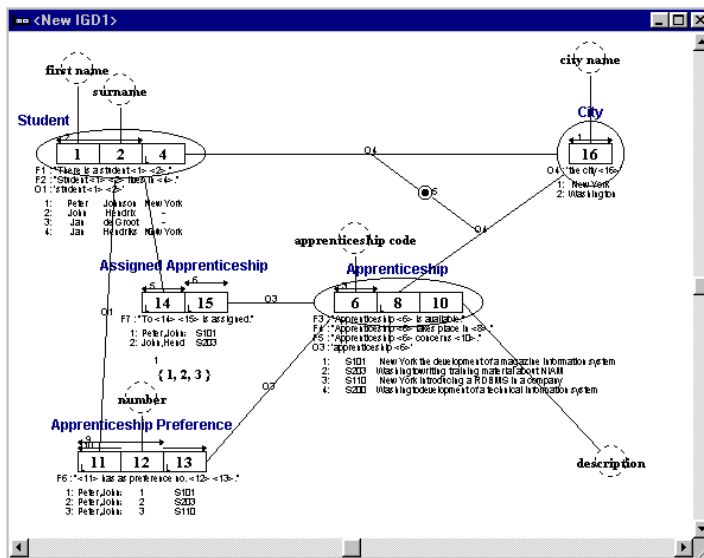
1. Select the GLR window:



Make sure the options are set as displayed above.

2. Click Run.

All roles which should be lexicalized will be marked with a 'L' in the diagram:



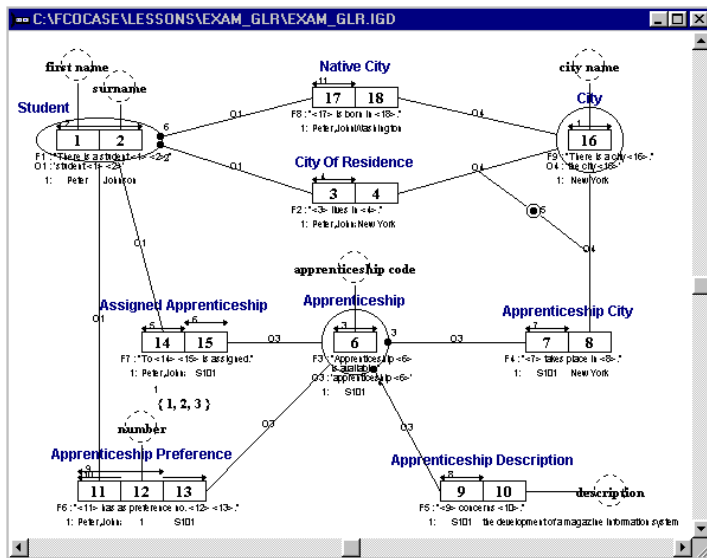
3. Close the project by selecting Close Project from the File menu. Do not save the project.

Lexicalizing

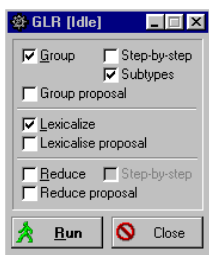
To show all options of the lexicalizing and reducing algorithm we will use a slightly different information grammar in the following exercises.

A fact type expression has been added to 'City'. Without this fact type expression City would have been removed during the lexicalizing process. Now it will be reduced during the reducing process.

A new fact type (Native City) has been added to 'Student'. By adding this fact type we have created a column naming conflict in the 'Student' table.

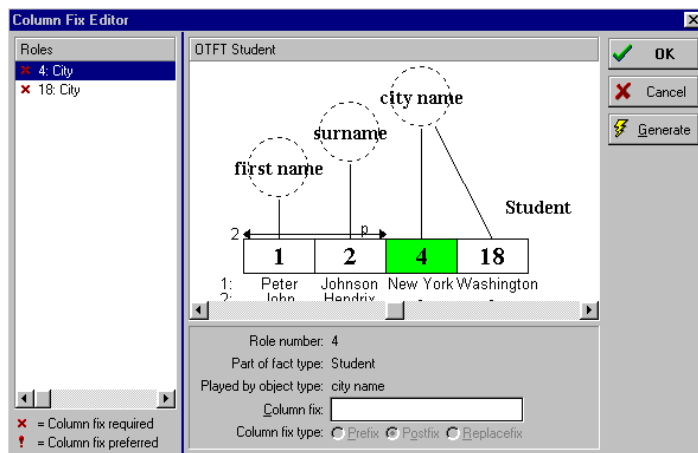


1. Open the File menu and select Open Project. Open the 'EXAM_GLR' project from the 'C:\FCOCASE\LESSONS\EXAM_GLR' directory.
2. Open the Tasks menu and select GLR:



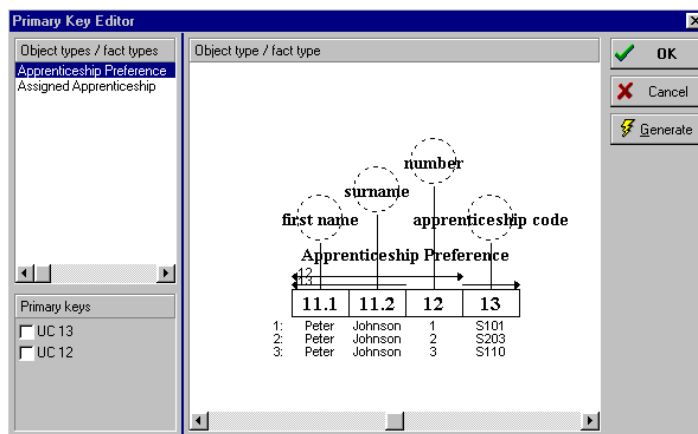
Make sure all options are set as displayed above.

3. Click Run.



Roles 4 and 18 are both played by 'city name'. To prevent a column naming conflict this Column Fix Editor is shown.

- By clicking the Generate button the casetool will automatically add numbers behind the column names.
- 4. Select role 4 and enter the prefix 'Residence'. (Don't forget to set the Column Fix Type.)
- 5. Select role 18 and enter the prefix 'Native', then click Ok.



In the appearing Primary Key Editor you can select which unicity constraint should be taken as primary keys. (If there are fact types with multiple unicity constraints).

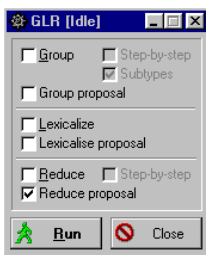
In the left section a list of fact types with multiple unicity constraints is displayed. Below this list you will find a the list with the unicity constraints of the selected fact type. Each of the unicity constraints in this list can be checked. In the right section

the selected fact type is displayed.

6. Choose UC14 for 'Assigned Apprenticeship'.
7. Select 'Apprenticeship Preference'.
8. Choose UC12 for 'Apprenticeship Preference'.

Deriving a reduction proposal

1. Select the GLR window:



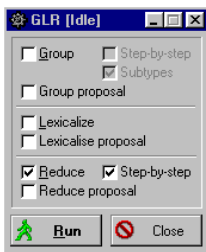
Make sure the options are set as displayed above.

2. Click Run.

The object type 'City' will be marked for reduction with an (R) behind the object type name.

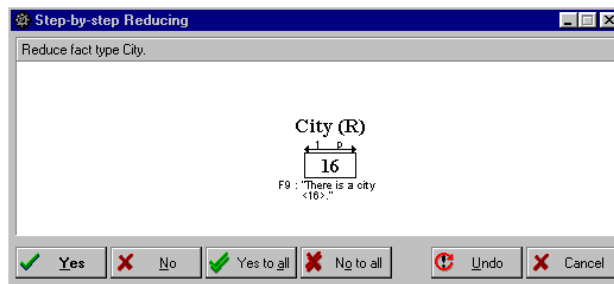
Reducing

1. Select the GLR window:



Make sure the options are set as displayed above.

2. Click Run.

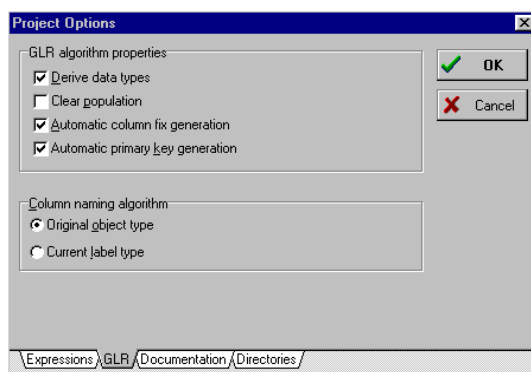


3. Click Yes to reduce 'City'.
4. Open the File menu and select Close Project. Do not save the project.

Generating Table Documentation

Step 19

1. Open the File menu and select Open Project. Open the project 'C:\FCOCASE\LESSONS\APPRREG\APPRREG.PRJ'. Double click 'lesson.ig' in the Project Manager.
2. Open the Options menu and select Project, then activate the GLR tab:



3. Check the options Automatic Column Fix Generation and Automatic Primary Key Generation, then click Ok. Read the information box below for more information about the GLR options.

GLR Options:

Derive data types:

If this options is selected the casetool will derive a datatype proposal during the GLR process. The casetool will generate Char and Numeric datatypes. If you have entered other datatypes they will not be affected by this option. If you have used Char and Numeric yourself and the casetool has detected labels exceeding the total and/or decimal length you have specified these attributes will be updated.

Clear Population:

If this option is selected, all population will be removed during the GLR process.

Automatic Column Fix Generation:

If this option is selected and column naming conflicts are discovered, conflicting columns will be made unique by adding a number as postfix.

Automatic Primary Key Generation:

If this option is selected and fact types with multiple primary keys are discovered, this algorithm will choose the first unicity constraint not covering optional roles. If all unicity constraints cover optional roles (only for generalisations) then all unicity constraints will be made primary.

4. Open the Tasks menu and select GLR:



Make sure all options are set as displayed above.

5. Click Run.

The information grammar will now be grouped, lexicalized and reduced.

6. Click on 'Apprenticeship Preference' in the IG Viewer.

7. Open the View menu and select Table Documentation:

Ctrl-F8

A window will appear containing the table documentation for 'Apprenticeship Preference':

Apprenticeship Preference			
first name (first name)	surname (surname)	Apprenticeship (apprenticeship code)	number (number)
NN	NN	NN	NN
← PK →			
Peter	Johnson	S101	1

8. Keep the Table Documentation window open and select another fact type from the IG Viewer.
 Note: The contents of the Table Documentation window will change automatically.
 9. Close the Table Documentation window.
 10. Open the File menu and select Save Project. If necessary save the diagram as 'lesson2.igd'.
- You can print the table documentation by selection Print or Print All from it's the popup-menu.

Lesson 7: Using the Plug-In Modules

In this lesson you will learn how to use the Plug-In Modules. Plug-In Modules are separately available extensions to the casetool. Each casetool version contains modules for SQL '92 Compliant DDL Code, MS Access v2.0 Visual Basic for Application code and a prototype application.

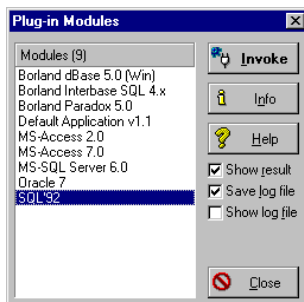
Subjects in this lesson

- C generating SQL'92 compliant code
- C generating a prototype applicatie

Generating SQL'92 compliant code

Step 19

1. Open the Tasks menu and select Plug-in Modules:



* The number of modules displayed is version dependent.

- O The Plug-In Modules supplied by Ascaris Software are delivered with a windows help file. This help file contains information about the possibilities and the use of the Plug-In Modules. Select the Plug-in Module of your choice and click Help to open the help file.
2. Select the module SQL '92 and click Invoke:

You will need to supply a name for the SQL-DDL code and if the Save log file option is checked also for the 'log-file'. The 'log-file' contains information about the restrictions of the target platform and will list generation problems.

```

appreg.sql - Notepad
File Edit Search Help
CREATE SCHEMA LESSON

CREATE DOMAIN APPRENTICESHIP_CODE AS VARCHAR(4);
CREATE DOMAIN CITY_NAME AS VARCHAR(10);
CREATE DOMAIN DESCRIPTION AS VARCHAR(48);
CREATE DOMAIN FIRST_NAME AS VARCHAR(5);
CREATE DOMAIN NUMBER AS INTEGER
CHECK (VALUE IN (1, 2, 3));
CREATE DOMAIN SURNAME AS VARCHAR(8);

CREATE TABLE APPRENTICESHIP (
  APPRENTICESHIP_CODE APPRENTICESHIP_CODE NOT NULL,
  CITY CITY_NAME NOT NULL,
  DESCRIPTION DESCRIPTION NOT NULL,

  PRIMARY KEY (APPRENTICESHIP_CODE)
);

CREATE TABLE APPRENTICESHIP_PREFERENCE (
  FIRST_NAME FIRST_NAME NOT NULL,
  SURNAME SURNAME NOT NULL,
  APPRENTICESHIP APPRENTICESHIP_CODE NOT NULL,
  NUMBER NUMBER NOT NULL,

  PRIMARY KEY (FIRST_NAME, SURNAME, APPRENTICESHIP),
  UNIQUE (FIRST_NAME, SURNAME, NUMBER)
);

```

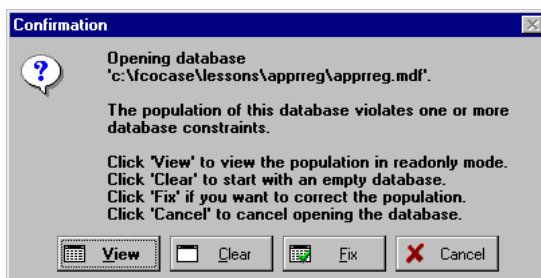
- An increasing number of RDBMS systems is supporting domains, therefore the SQL'92 Plug-in Module generates CREATE DOMAIN statements.

Generating a prototype application

Step 19

1. Open the Tasks menu and select Plug-in Modules.
 2. Select the module Default Application v1.1, then click Invoke.
 3. Save the generated MDF file as 'C:\FCOCASE\LESSONS\APPRREG\APPRREG.MDF'.
- MDF = Memory Database File

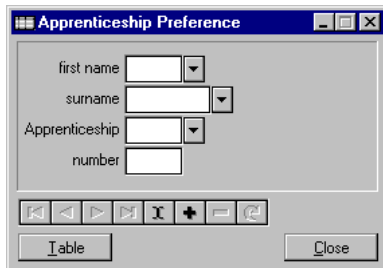
The Memory Database Interpreter will be executed automatically. The following warning will appear:



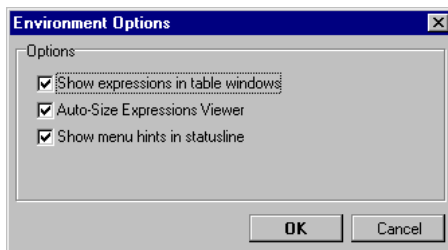
The Memory Database Interpreter has opened the generate MDF file. Then it validated the population of the database. As a result of this validation it has found population

which is violation one or more constraints. You can select to look (View) at the prototype application (not being able to edit it), fix the population (Fix) or to clear the database (Clear). If you select clear you can edit the database population.

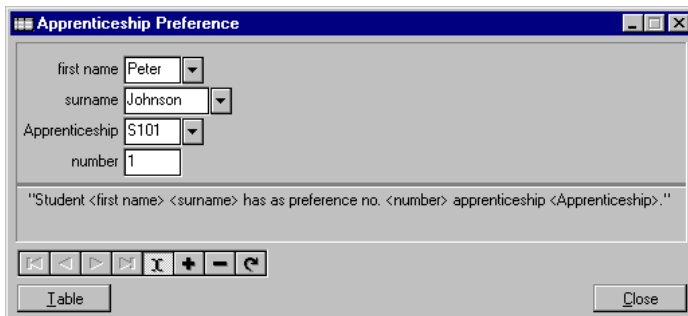
4. Click Clear.
5. Select Apprenticeship Preference from the Lookup menu:



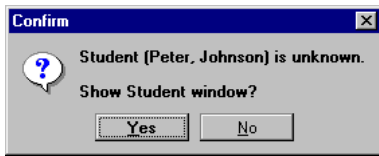
6. Select Environment from the Options menu, check the Show expressions in table windows option then click Ok.



7. Enter apprenticeship S101 as the first preference of Peter Johnson:

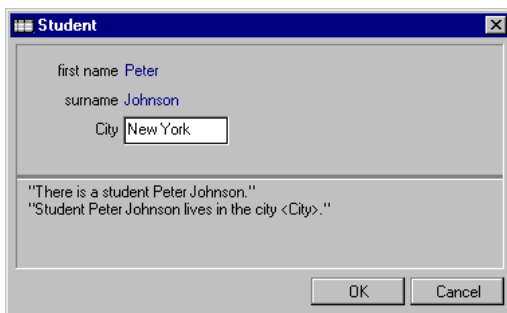


8. Click :



'Peter Johnson' is not yet known as a student. The Memory Database Interpreter now asks you whether you want to add 'Peter Johnson' or not.

9. Click Yes.



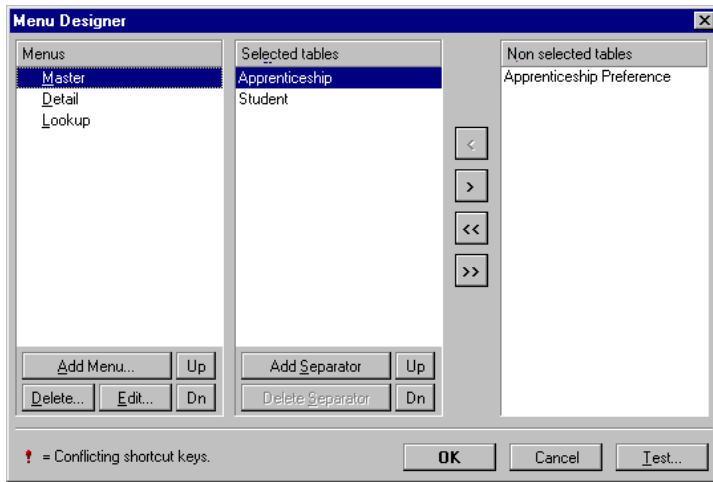
10. Enter 'New York' in the City field, then click Ok.

Apprenticeship 'S101' is also unknown. As a result the Memory Database Interpreter will ask whether you would like to add apprenticeship'S101'.

11. Click Yes.
12. Enter 'New York' as the City and 'the development of a magazine information system' as description.
13. Click Ok.

You have now completed the transaction.

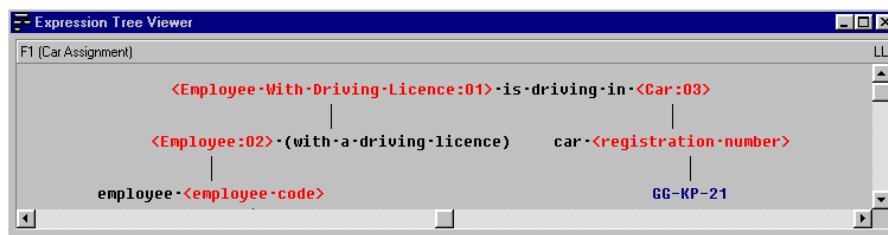
- Select the Menu Designer from the Options menu to customize the Memory Database Interpreter to your needs.



Subtypes and Generalisations

Classification and Qualification of subtypes

The classification and qualification of subtypes is identical to the classification and qualification of other fact type expressions. The classification and the qualification of the example below automatically generates a subtype structure. ('Employee with Driving Licence' as subtype of 'Employee').

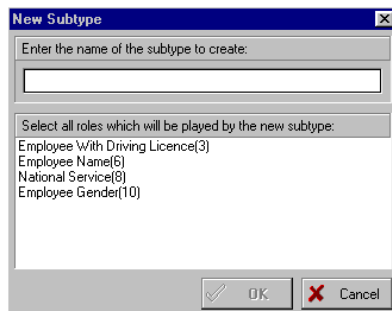


The FCO-IM Casetool marks fact types containing one role played by an nominalized fact type automatically as a subtype.

Creating subtypes after classification and qualification

Execute the steps below to create a subtype in an existing information grammar:

1. Select the supertype in the IG Viewer.
2. Select New Subtype from it's popup-menu:



3. Enter the name of the subtype and select the fact types you like to transfer to the subtype.
4. Click Ok.

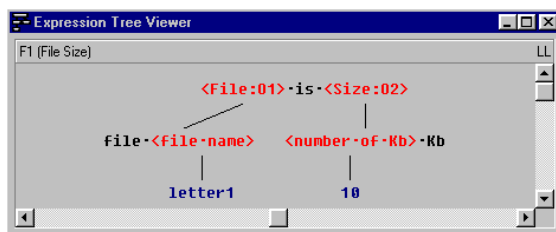
Classification and qualification of common subtypes

Execute the steps below to create a common subtype:

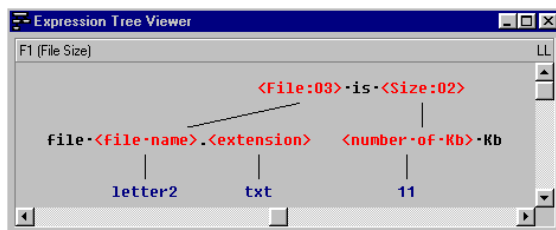
1. Enter a fact type expression containing all roles of the common subtype. (For example: 'The bike NT-15-RT is the motorcycle NT-15-RT' for the common subtype Motorbike).
2. Add population to common subtype using the population editor and the fact type expression from step 1.
3. Add other object or fact type expressions to the common subtype. Make sure the labels in these expressions have already be added to the common subtype during step 1 or 2.
4. Add the unicity constraints after you have added all fact type expressions and population.

Classification and qualification of generalizations

The classification and qualification of generalizations is identical to the classification and qualification of other fact type expressions. The classification and the qualification of the example below automatically generates a generalized structure:

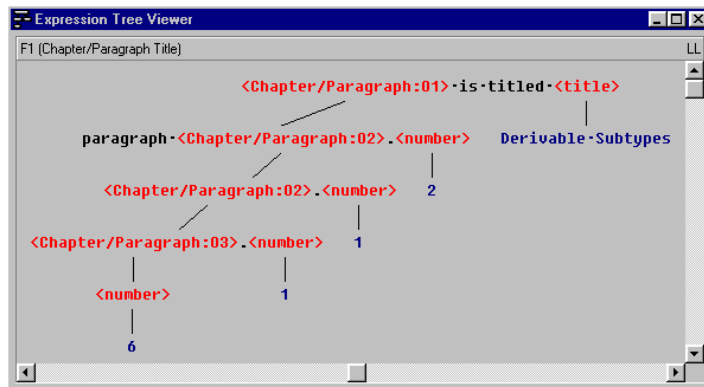


The casetool tries to match the fact expression below with 'file <file name> is <number of Kb> Kb'. But this match is not correct. After we have clicked the Try OTL button, the casetool tried to match the fact expression on the OTL level. This match is ok: '<File> is <Size>'. When matching the object expression 'file letter2.txt' we have a similar situation. First you should click Try OTL then you should click No Match:



Classification and qualification of recursive structures

The classification and qualification of generalizations is identical to the classification and qualification of other fact type expressions. The classification and the qualification of the example below automatically generates a recursive (and generalized) structure:



Appendix A: Integrity Checks

Check	(1) Every fact type must have an intra UC.
Message(s)	The fact type <fact type name> has no intra UC.
Type	Error.
Check	(2) The N rule must be valid for every nominalized fact type.
Message(s)	The N rule is not valid for <nominalized fact type name> . UC <UC Code> should cover all N roles. The N rule is not valid for <nominalized fact type name> . <OTE Code> should contain all roles. (The fact type <nominalized fact type name> has no intra UC.)
Type	Warning.
Remarks	Most generalizations and common subtype violate this rule.
Check	(3) The N-1 rule must be valid for every fact type.
Message(s)	The N-1 rule is not valid for <fact type name>. (The fact type <nominalized fact type name> has no intra UC.)
Type	Warning.
Check	(4) The subtype rule must be valid for every subtype.
Message(s)	Subtype role <role nr> in <subtype name> should be covered by a narrow UC. Subtype role <role nr> in <subtype name> should be played by a non-lexical object type. Subtype role <role nr> in <subtype name> cannot be mandatory.
Type	Error.
Check	(5)The alias of an object/fact type must be unique.
Message(s)	The alias of <fact type name> conflicts with the alias of <fact type name>. The alias of <fact type name> conflicts with the name of <fact type name>.
Type	Error.
Check	(6) All object type expressions must be used.
Message(s)	The object type expression <OTE code> is not used.
Type	Warning.
Check	(7) Non-lexical object types without totality constraints must have a fact type expression.
Message(s)	The population of <fact type name> might not be verbalizable.
Type	Warning.

Remarks After the GLR process has been run tuples of the reported fact types might no longer be verbalizable.

Check (8) The actual population of every fact type must be verbalizable.
Message(s) The population of one or more object types / fact types should/will be corrected.
Type Warning, makes corrections.
Remarks If the checks finds tupels which cannot be verbalized, these tupels will be removed.

Check (9) A strict equality constraint must apply on each subtype tuple.
Message(s) The subtype <subtype name> has invalid tupels.
Type Error.
Remarks A strict equality constraint will be enforced on the tupels of common subtypes.

















Appendix B: Menu's



















File menu	Open, close, save or print files.	
New Project	Start a new project.	
Open Project...	Open an existing project.	
Save Project	Save the current project.	
Save Project As...	Save the current project using a new name.	
Close Project	Close the current project.	
New *	Create a new file.	
IG	Create a new Information Grammar.	
IGD	Create a new Information Grammar Diagram.	
Expression File...	Create a new Expression File.	
Open...	Open an existing file.	F3
Save	Save the contents of the active window.	F2
Save As...	Save the contents of the active window using a new name.	
Close	Close the active window.	Alt+F3
Add File...	Add a file to the active project.	
Print	Print the contents of the active window.	Ctrl+P
Print Setup...	Displays the Print Setup dialog.	
Exit	Exit the FCO-IM Casetool.	Alt+X
Edit menu	Undo MG transactions or manipulate text.	
Undo	Undo the last repository transaction.	Ctrl+Z
Cut	Cut data to the clipboard.	Ctrl+X
Copy	Copy data to the clipboard.	Ctrl+C
Paste	Paste data from the clipboard.	Ctrl+V
View menu	Display different elements of the environment.	
Project Manager	Show the Project Manager.	F5
IG Viewer	Show the IG Viewer.	F9
Expression Tree Viewer	Show the Expression Tree Viewer.	
Repository Rollup	Show the Repository Rollup palette.	
Undo List Rollup	Show the Undo List Rollup palette.	
OTFT Palette	Show the Object Type / Fact Type Palette.	
Constraint Rollup	Show the Constraint Rollup palette.	
Alignment Rollup	Show the Alignment Rollup palette.	
OTFT Documentation	Show the Object type / fact type Documentation.	F8
Table Documentation	Show the Table Documentation.	Ctrl+F8
Tasks menu	Tasks you can perform.	
New Expression	Enter a new expression.	F6
SC Editor...	Edit the subset constraints.	
Check and Correct IG	Check and correct the active information grammar.	
GLR	Show the Grouping/Lexicalizing/Reducing (GLR) dialog.	F12
Regenerate Expressions...	Export the active IG as expressions / expression types.	







Plug-in Modules...	Invoke one of the Plug-in modules.	
IGD menu		
Clear...	Clear the active IGD.	
Zoom *	Zooming the IGD.	
Zoom In	Enlarge the IGD size.	
Zoom Out	Reduce the IGD size.	
Align...	Align selected Object / fact types.	
Synchronize	Synchronize the IGD the active IG.	
Direct Update	Enable or disable Direct Update.	
Export...	Export the IGD.	
Copy to Clipboard *	Copy the IGD to the clipboard.	
As Bitmap	Copy as a Bitmap.	
As Monochrome Bitmap	Copy as a monochrome Bitmap.	
As Windows Meta File	Copy as a Windows Meta File.	
Show IGD Info	Show or hide IGD information.	
Show Data Type Info	Show or hide data type information.	
Show Subset Constraint Info	Show or hide SC information.	
Show Subtype Info	Show or hide subtype information.	
Properties...	Change the IGD properties.	
Options menu		
Project...	Project and environment options.	
Environment...	Change the project options.	
Diagram Designer...	Change the environment options.	
Tools...	Change the default IGD properties.	
Save Configuration	Install external tools.	
	Save configuration now.	
Tools menu		
No Tools Installed	User installable tools.	
	Choose Options+Tools to install your own tools.	
Window menu		
Tile Horizontally	Window related commands such as Tile and Cascade.	
Tile Vertically	Horizontally arrange windows without overlap.	
Cascade	Vertically arrange windows without overlap.	
Arrange Icons	Arrange windows to overlap.	
Minimize All	Arrange window icons at bottom of main window.	
Window List...	Minimize all windows.	
	Show list of all open windows.	Alt+0
Help menu		
Contents	Get help and information.	
Topic Search...	Displays the contents of the online help file.	
Tutorial	Opens the Search Dialog where you can search for a help topic.	
How to Use Help	Step-by-step on-line tutorial.	
Ascaris on the Web *	Displays information about the Windows Help System.	
Ascaris Home Page	Ascaris Website	
Frequently Asked Questions	Open the Home Page of the Ascaris Website.	
	Open the FAQ's page at the Ascaris Website.	

Software Updates	Open the Software Updates page at the Ascaris Website.	
System Info...	Show system information.	
About...	Show information about the FCO-IM Casetool.	
Desktop popup menu		
Window List	Show list of all open windows.	Alt+0
Next Window	Show next window.	Ctrl+Tab
Previous Window	Show previous window.	Shift+Ctrl+Tab
Show Toolbar	Show the Toolbar.	
Show Statusline	Show the Statusline.	
Properties...	Change the desktop properties.	
Toolbar popup menu		
Show Tooltips	Show or hide toolbar button Tooltips.	
Hide	Hide the Toolbar.	
Properties...	Change the Toolbar properties.	
Statusline popup menu		
Show Fly-over Hints	Enable or disable fly-over hints.	
Hide	Hide the Statusline.	

Appendix C: Toolbar

	New Project	Create a new project.
	Open Project	Open an existing project.
	Save Project	Save the current project.
	Properties	Show the properties of the selected file in the Project Manager.
	Open File	Open an existing file.
	Save File	Save the contents of the active window.
	Print	Print the contents of the active window.
	Configuration	Change the environment options.
	New IG	Create a new Information Grammar.
	New IGD	Create a new Information Grammar Diagram.
	New Expression	Enter a new expression.
	SC Editor	Edit the subset constraints.
	Check and Correct IG	Check and correct the active Information Grammar.
	Grouping/Lexicalizing/Reducing	Show the Grouping / Lexicalizing / Reducing (GLR) window.
	Plug-in Modules	Invoke one of the Plug-In Modules.
	Undo	Undo the last repository transaction.

	Cut	Cut data to the clipboard.
	Copy	Copy data to the clipboard.
	Paste	Paste data from the clipboard.
	OTFT Palette	Show the Object type / fact type palette.
	Repository Rollup	Show the Repository Rollup palette.
	Undo List Rollup	Show the Undo List Rollup palette.
	Constraint Rollup	Show the Constraint Rollup palette.
	Alignment Rollup	Show the Alignment Rollup palette.
	Export IGD	Export the contents of the active IGD.
	Configure IGD	Configure the IGD properties.
	Synchronize	Synchronize the active diagram with the active IG.
	Direct update	Turn direct update of the active IGD on/off.
	Datatype Information	Show or hide Datatype information.
	SC Information	Show or hide Subset Constraint information.
	IGD Information	Show or hide IGD information.
	Zoom in	Zoom in on the IGD.
	Zoom out	Zoom out on the IGD.
	Zoom	Zoom in/out on the IGD.

- | | | |
|---|-------------------|--|
|  | Tile Horizontally | Horizontally Arrange windows without overlap. |
|  | Tile Vertically | Vertically arrange windows without overlap. |
|  | Cascade | Arrange window to overlap. |
|  | Arrange Icons | Arrange window icons at bottom of main window. |
|  | Minimize All | Minimize all windows. |
|  | Help | Show context sensitive help. |

Appendix D: Options in FCOCASE.INI

Normally there is no need to adjust this file. The file is present for system operator who have installed the FCO-IM Casetool on a protected network drive. By setting the different directories each user can keep his or her own private settings even in a protected network environment.

These settings can also be changed from the casetool by selecting **Project** from the **Options** menu and activating the **Directory** tab.

Ini-file section [Directories]

Item Config =
Syntax Config = <path>
Example Config = A:\
Default Config = C:\FCOCASE

This item indicates where the FCO-IM Casetool will create the 'FCOCASE.CFG' file. If the FCO-IM Casetool is started from a readonly directory (or CD-ROM) you need to direct this item to a writable directory. The item should contain the complete path including the drive letter.

Item Project =
Syntax Project = <path>
Example Project = C:\WINAPPS\FCOCASE
Default Project = C:\FCOCASE

This item configures the default directory for project files (*.PRJ). The item should contain the complete path including the drive letter.

Item Export =
Syntax Export = <path>
Example Export = C:\WINAPPS\FCOCASE
Default Export = C:\FCOCASE

This item configures the default directory for output files generated by the Plug-In Modules. The item should contain the complete path including the drive letter.

Example FCOCASE.INI ini-file

```
[Directories]
Config = A:\
Project = C:\WINAPPS\FCOCASE
Export = C:\WINAPPS\FCOCASE
```


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