

Hybrid writing editor for Cuneiform language

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Abstract

Many researcher, authors and writers in the Iraqi ancient civilization face problems in writing documents which include cuneiform symbols. In many cases they leave blanks for the cuneiform symbols for an artists to draw the symbols on the final copy of the document, which is a tedious and erroneous process.

This paper introduce special word processor for above purpose, gives the ability of inclusion the cuneiform symbols, the fundamental operations of a word processor like file manipulation (load and save) ,ordinary language font size, shape and type selection, the copy paste operations , and print operations.

To keep simple, The user have the ability to load files produced by the introduced word processor in one of the powerful word processors like XP word, and use this word processor for a final and more sophisticated preparation of the document.

Keywords

Cuneiform, editor, word processor, sumerians.

1. Introduction

The English language can be written using about 64 symbols- the 26 capital letters, the 26 lower case letters and about a dozen punctuation marks. Cuneiform writers used more than 2,000 different symbols, which made it difficult to learn and to write. The writers carefully carved records of business deals and other everyday matters into tablets of wet clay. These tablets were then baked hard, like pottery, to preserve the writing. Very important records, like Hammurabi's Code, were often carved directly into hard stone. [Kum03]

Almost all the researcher in cuneiform writing and even in ancient Mesopotamia civilization when they try to document their work or try to write a paper about the subject, faces the problem of inclusion the cuneiform symbols in their paper ,so in most of the cases they need the assist of an artist to draw the cuneiform symbols on the final copy of the document they are producing.

This paper introduces the system we invent to help in producing documents which include cuneiform symbols in it.

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2. The cuneiform symbol editor

An important part of the work is to prepare an image for each cuneiform symbol in a predefined size, these images are grouped in groups and subgroups as convenient so that the user of the editor find no difficulty in reaching to a specific symbol when he need to include it in the text he is producing. These images should be inserted in an image list which is used to build the cuneiform symbols tree which is displayed in the cuneiform editor as will be explained later. There is one image list for each size and type of the cuneiform symbols.

Note: the user of the editor has nothing to do with the work we have just explained, in a matter of fact the user will see the appropriate cuneiform symbols tree displayed at the start of his using of the editor, but we explained the work simply to give an idea of what have to be done in case there is a requirement for a different classification of the symbols other than that used by the designer of the editor.

2.1. The main frame of word processor

The developed word processors depends on four basic objects, the frame widow object, application object, document object and view object. These objects are related together as in figure (1) to offer a good working with fonts in texts, in addition to many tools that are used in various applications. The frame window object is the top-level window. It's containing a window with resizing border , a title bar, and a minimize, maximize, and close buttons. [Gerg97]

The object view is a child window sized to fit the frame window so that it becomes, for all practical purposes. The document object used to store the data. [Hah92]

In the diagram below the arrows represent data flow. The application object provides the message loop that pumps messages to the frame window and the view. The view object translates mouse and keyboard into commands that operate on the data stored in the document object, and document object provides the data that the view needs to render its output.

The representation of the text (Arabic and English text) depends on a structure, which is more effective (the rich edit control) and was used to make a fairly decent text editor.

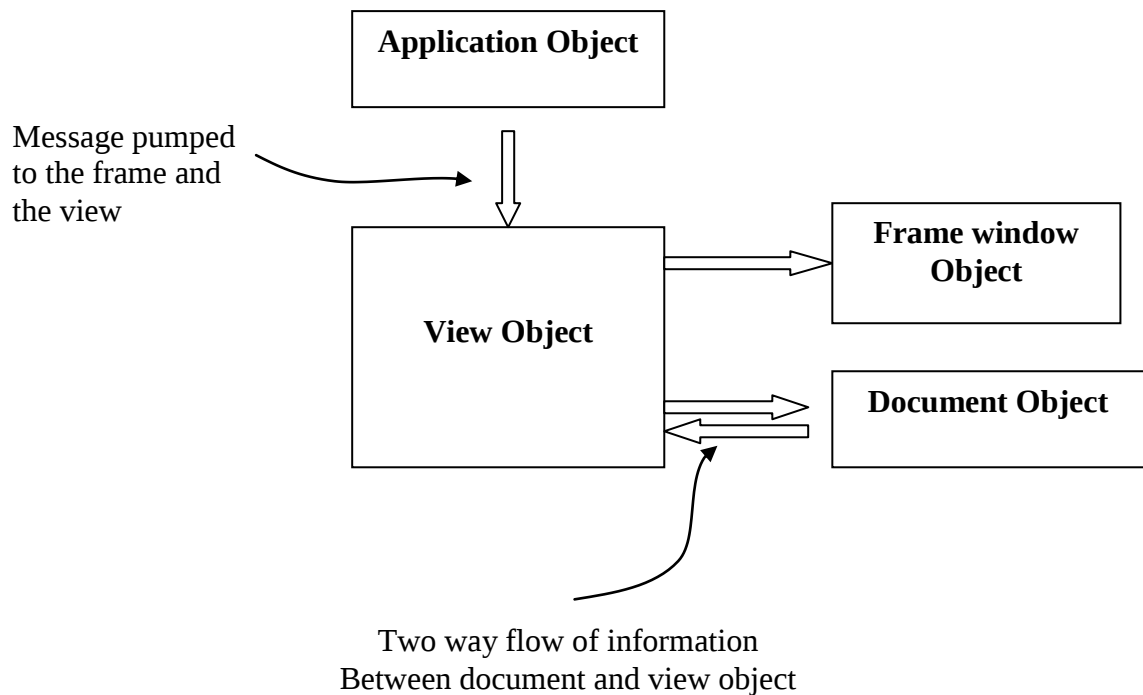


Figure (1) Word processor objects and relations

2.2 Using the cuneiform editor

When the editor is executed the screen shown in figure (2) below is displayed. The first action required is to load the cuneiform symbols, this should be done after selecting the type of the symbols required in the text (Assurian, Sumerian, Akkadian) the default is Assurian, and selecting the size of the symbols, as appropriate to the size of the font of ordinary text used (English or Arabic).

There are two main areas in the editor one for the editor it self where the user can input his texts and symbols, and the second to display the cuneiform tree.

The tree appear at first as in figure (3), showing only the main groups of the cuneiform symbols, then by pressing the '+' of the appropriate group the subgroup of it will be displayed as shown in figure (4), and by pressing the '+' of the appropriate subgroup the cuneiform symbols of that subgroup will be displayed as shown in figure (5), the require cuneiform symbol can be selected by clicking it, and can be inserted in the text using the insert command button. The groups and subgroups shown in figures 3 and 4 are used to simplify the search process for a particular symbol which is required to be inserted at certain

time, both the group and subgroup name and contents can be changed at the cuneiformists requirement.

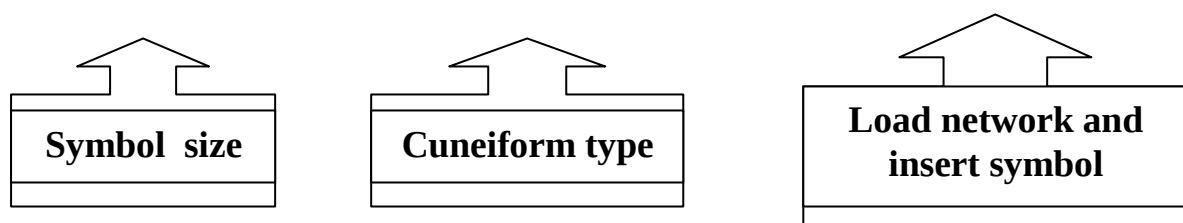
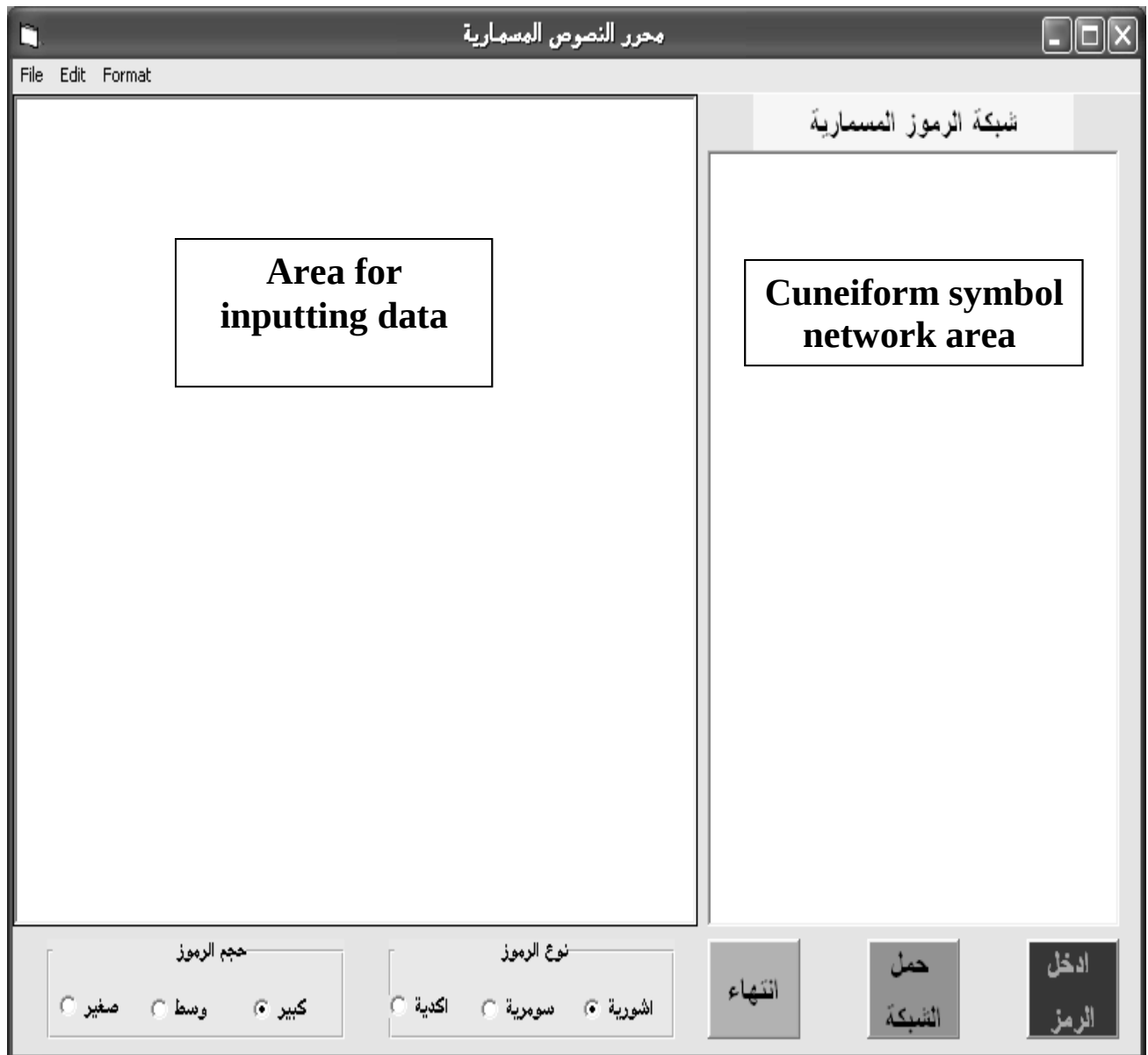


Figure (2) Main screen of the word processor

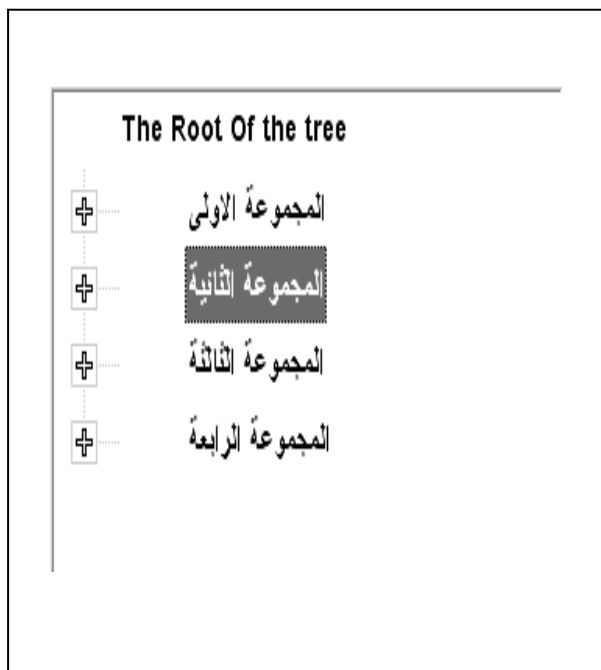


Figure (3)
Main groups of
cuneiform
symbols



Figure (4)
Subgroups of
cuneiform
symbols

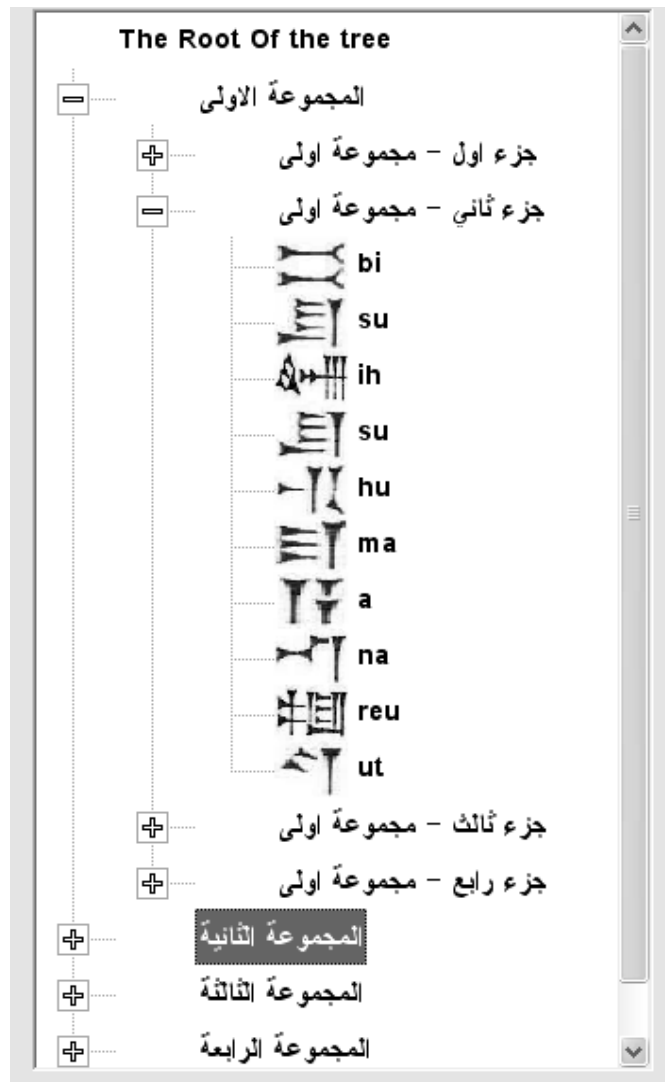


Figure (5) A sample of cuneiform symbols in a subgroup

Figure (5) shows a sample of the lowest level of the tree the cuneiform symbols appear on the tree, with each symbol one or more English letter appear which represent the voice of that specific symbol.[LAB76]

While inputting the text you can use any of the file commands shown in the drop list in figure (6), or any of the edit commands shown in drop list in figure (7), or any of the format commands shown in the drop list in figure (8).

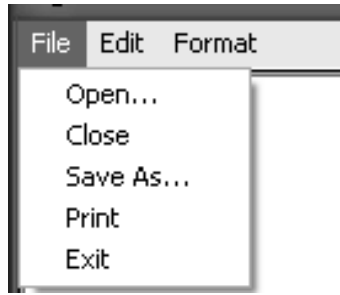


Figure (6)
A file drop list

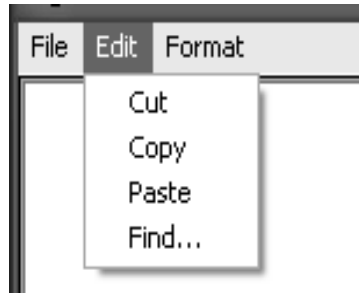


Figure (7)
An edit drop list

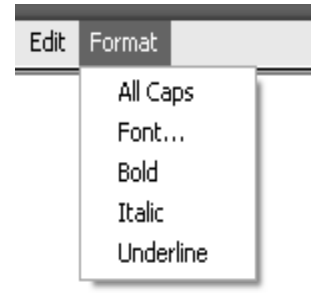
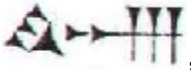


Figure (8)
A format drop

A sample of text prepared by the editor is shown in figure 9. It can be noticed that both English and Arabic language are used in the text to show the flexibility of the editor. This format and the shape of the text document shown can be modified by loading its file in one of the sophisticated word processor like XP word processor and manipulate the file as required, which is recommended step to modify the final output, without complicating the cuneiform language editor.

This editor can include the cuneiform symbols easily in any place within the text you are inputting, symbols like  and  can be added with any comment and you can add more like  and , the text itself can be changed to **bold**, *inclined*, underlined and **in any size**.

At the same time Arabic text can be added in the same document as

إن هذا المحرر يمكن من خلاله إدخال الرموز السومرية في أي موقع خلال النص الذي يتم إدخاله فالرموز  و  يمكن إضافتها وكذلك يمكن إضافة المزيد مثل  و  . إن النص نفسه يمكن كتابته بخطوط عريضة أو مائلة أو تحتها خط و بأي حجم.

Figure (9) A sample of text prepared by the developed word processor

3. conclusion

1. The editor we introduced in this paper, can be a very useful and simple tool to be used by those who need to include cuneiform symbols in a document they are preparing.
2. Different shapes and sizes are available in the editor for each cuneiform symbol to fit the user requirements.
3. The basic file commands, editing commands and formatting commands are available in the introduced editor such that all basic requirements of the user are available for preparing the initial document.
4. By loading the file produced by the editor in a sophisticated word processor like the XP word the final format of the document can be prepared.

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محرر نصوص مركب للغة المسمارية

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الخلاصة

العديد من الباحثين و المؤلفين و الكتاب في مواضيع الحضارة العراقية القديمة يواجهون مشاكل في كتابة وثائقهم التي تتضمن الرموز المسمارية . في العديد من الحالات تترك فراغات للعلامات المسمارية حيث يقوم الرسامون بإضافتها على النسخة النهائية من الوثيقة. وهذا عمل صعب ومعرض للخطأ ويعقد عملية التعديل.

هذا البحث يقدم معالج كلمة يخدم الغرض أعلاه. حيث يعطي القابلية لتضمين الرمز السومري في الوثيقة. كما يقوم بالوظائف الأساسية لمعالج الكلمة مثل التعامل مع الملفات (التحميل و الحفظ) واختيار حجم الكتابة الاعتيادية وشكلها و نوعها ووظائف استنساخ المقاطع وعملية الطباعة.

يستطيع المستخدم تحميل الملفات التي ينتجها معالج الكلمة المعروف في أحد معالجات الكلمة المتطورة مثل XP Word ويستخدم المعالج الأخير في الإعداد النهائي و الأكثر تعقيدا للوثائق المطلوبة.

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