Ami Pro 3.0 for Windows for Chemists

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INTRODUCTION

Lotus Development Corp. became a major player in the Windows word processing game with its acquisition of Samna Corp., the creator of Ami Pro. Ami Pro is a product developed exclusively for use in the MS Windows environment, thereby setting it apart fundamentally from its major competitors Winword[1] (Word for Windows) and WordPerfect for Windows[2] which began as DOS applications and were later adapted for Windows. As such, the release of Ami Pro 2.0 in 1991 under Lotus received rave reviews and high marks in word processing comparisons for its extensive graphics capabilities and other integrated features.[3,4] Although the general features and capabilities remain, the current release of Ami Pro 3.0[5] improves on the package with a number of enhancements aimed at improving overall performance.[6–9] This review will concentrate on the issues important to the creation of scientific documents.

GENERAL COMMENTS

Hardware and Software. Ami Pro is an impressive package which requires substantial "computational overhead" in order to perform well. The product's name, *Ami Pro for Windows*, points out the obvious need for MS Windows (version 3.*x* required). The User's Guide claims that Ami Pro will run on 286-, 386-, and 486-computers with either an EGA, VGA, SVGA, or Hercules graphics adapter. About 13 Mbytes of free hard disk space is required. For this review, Ami Pro was evaluated running under Windows 3.1. Attempts on two 286 machines, one with VGA and one with EGA graphics, served no purpose other than to illustrate that (a) Windows 3.1 does not support a Dell Computer EGA graphics card and (b) on a relatively standard 12.5-MHz 286 (Dell Computer Model 210, VGA graphics, 2.5 Mbyte RAM, 40 Mbyte hard disk with only MS-DOS 5.0, Windows 3.1, and Ami Pro 3.0 installed), Ami Pro 3.0 takes 3–4 min just to load. Although this performance could be accelerated somewhat by the addition of more RAM (Windows recommends a minimum of 4 Mbytes), Ami Pro is so disk intensive that the slow data rates afforded by the AT-style bus would still be prohibitive. Consequently, it is recommended that either a 386- or 486-machine is used with 4 Mbyte RAM and a fast hard drive. For the remainder of this evaluation, two computers were used with no noticeable difference in performance: (a) A 486DX/2, 50 Mhz, 8 Mbytes RAM, 210 Mbyte hard disk and (b) a 386DX 40 MHz, 6 Mbytes RAM, 260 Mbyte hard disk.

Graphical User Interface. Ami Pro is one of the many graphical user interface (GUI) word processors available today. The GUI capability produces a WYSIWYG (what you see is what you get) image on the computer screen, so the user can be sure of the document layout as it is being created without having to print it. Ami Pro has several levels of "WYSIWYG-ness" ranging from something that truly represents the printed document (*Layout* mode) to something that looks essentially like a simple ASCII file (*Outline* mode) where text attributes are represented but no line spacing/formatting is displayed. Text, equations, figures, etc., can all be edited in any mode. Additionally, any magnification of the text (*Full Page*, *Standard*, *Enlarged*, or *Custom* range 10–400%) can be displayed and edited. The tradeoff for the various modes, of course, is speed vs appearance. For the machines used for this performance evaluation, speed has not been an issue unless multiple Windows applications are running concurrently or unless a number of graphics images and/or equations also appear on the screen. A good compromise seems to be to use *Layout* mode with *Display as printed* turned "off" in the *View Preferences* dialog box. This allows all document characteristics (text enhancements, line spacing, justification, etc.) to be displayed without taking time to format each line and page exactly as it will be printed. The *Display as printed* can be turned "on" at anytime in order to preview the document.

FEATURES FOR TECHNICAL WRITING

A number of word processing characteristics are particularly important in creating and modifying scientific documents. Below are listed a number of these most important characteristics with a few comments.

Symbols and Equations. Ami Pro supports the full MS Windows *Symbol* font set on virtually any printer along with a number of additional operators and mathematical symbols. For printers which do not have the font resident, Ami Pro will generate the appropriate graphics images. Unfortunately, the symbol for angstrom is not supported except as ANSI character 197 on an capable printer. Ami Pro's equation tool generates a "frame" directly on the document page which contains the equation. This does seem to "feel" better than using an "equation editor" screen which then pastes the equation into a desired location (*e.g.*, as in WordPerfect[2]) because the equation can be created, edited, and positioned directly in the context of how it fits with the surrounding text of the document. Also, the equation is generated by typing letters and symbols directly from the keyboard using point-and-shoot element tools (*e.g.*, fractions and radicals) rather than typing command words that are translated into equation elements as is used in many other word processors. Viewing difficulty arose when creating equations directly on the text page because certain elements (superscripts and particularly super-superscripts) were too small to discern, but the *Enlarged* viewing mode expands the region of the page around the equation so that the individual elements are easy to see.

Tables. Tables are quite easy to produce. A table is started by a point-and-shoot dialog box which defines the number of rows and columns. After initial creation, the column widths (and the row heights if desired) can be altered by clicking and dragging a mouse. Tables can include any variety of text, equations, and figures, but these elements cannot be mixed within any single table cell (however, text can be "mixed" with figures by incorporating text into the pictures using the drawing tools; see below). One potentially awkward point is that *frames*, which contain equations or figures, are forced to occupy the entire size of a given cell. Consequently, although text can be aligned any way in a cell (left, right, center, on-decimal, etc.) and figures can be positioned anywhere in the cell by moving objects around the corresponding drawing

frame, equations are forced to be left justified because equations can be only left justified in equation frames. Large tables can be made to span multiple pages.

Graphics and Graphics Support. Drawings are incorporated into documents using *frames* in a similar fashion to equations. Ami Pro includes a drawing mode for creating drawings directly in the document. The drawing capabilities are reasonably complete but are not as expansive as those available in dedicated drawing packages such as Lotus Freelance, DrawPerfect, or Harvard Graphics. Ami Pro also imports 16 different picture/drawing formats, including Freelance, DrawPerfect, HPGL, EPS, PCX, TIFF, CGM, AutoCAD, Lotus PIC, and Windows BMP and metafiles. The drawing tools are certainly adequate for most modifications that need to be made to the imported pictures.

Macros and Macro Programming. One of Ami Pro's proudest features is its extensive macro programming capabilities.[6] However, in order to take full advantage of the capabilities an additional manual must be purchased from Lotus Development. The reference manual supplied with the initial package explains only how to record keystroke (or mouse-click) sequences (macros) and how to name, connect to a keyboard accelerator, and save the macros for permanent incorporation into the program. Additionally, the saved macros can be editted, but no written information on the general use of individual commands is available without the optional manual.

Cross-Referencing. In this author's opinion, good cross-referencing capabilities are perhaps one of the most crucial properties of a word processor, and it is here that Ami Pro effectively "falls apart". With proper cross-referencing, numerical lists (*e.g.*, reference lists for manuscripts, equations, figures, etc.) can be labeled and addressed so that the software automatically renumbers the list *and all the textual references to the individual list items* when items are added or removed. Ami Pro does have cross-referencing capabilities, but they have obviously not been viewed as a priority by its developers. Footnotes and end notes cannot be cross-referenced. Additionally, cross-referencing in Ami Pro exhibits a number of odd characteristics, riddled with buglike problems. In other word processors, such as WordPerfect 5.1,[2] the Reference Manual's index contains a rather lengthy section on cross-references which then leads the would-be cross-referencer to the correct sections of the manual for instructions. In the Ami Pro manual, no mention of cross-references is made. Instead, so-called *Power Fields* with names such as *Bookmark* and *Sequential* lead at least this cross-referencer into calling Lotus technical support in order to find out that cross-referencing is, in fact, possible. The steps to cross-referencing are essentially the same as for WordPerfect 5.1: (a) An item in a sequential list is generated using the *Seq* power field, where *Seq* can be renamed and replicated so that different lists (*e.g.*, *SeqRef* for references, *SeqFig* for figures, etc.) can be maintained within the same document; (b) the *Seq* power field is then labeled as a *Bookmark* with a target name—for references one could use, for example, first author's name and year; and then (c) *Bookmarks* are inserted into the body of the text using the target name. Unfortunately, a number of inconveniences in Ami Pro's cross-referencing procedures make the capability almost more trouble than it is worth: *Bookmarks* are updated only on command (or automatically upon exiting), and with the update the cursor is repositioned back to the beginning of the document. The only way to check if a to-be-deleted list item is still cited by any bookmarks is to delete the item and perform a Power Fields Update. If the removed bookmark is cited, an error message appears, and either the bookmark must be reinstated from scratch or the text citation must be found manually and deleted (bookmarks cannot be searched). List items (*e.g.*, entries in a reference list) cannot be moved easily. To move an item it must be copied to a temporary clipboard, but the copying will not copy the bookmark name. Consequently, each item that is moved must be renamed. Also, textual citations cannot be copied or moved. The citation numbers in the text (such as those used with literature references) will appear to copy or move, but the power field characteristic is lost, so the numbers will not change during subsequent updates. An additional problem encountered during the preparation of the present review is that when textual bookmarks are superscript (as in literature citations) and normal text follows the bookmark within two character spaces, a power fields update changes all text following the bookmark to superscript until either another superscript character or a hard return is encountered. Thus a good deal of text must be selected and reformatted following the updates.

Technical Support. Another important feature of word processors, at least during the first few days of use, is telephone assistance with user problems. Lotus Development does offer technical support by phone which is quite helpful, but it has been notice that the level of helpfulness is technician dependent and no toll-free number is available unless the call originates in Canada. There is, however, a toll-free "TechFax" service which offers technical documents on selected topics via an automated Facsimile service (138 different documents, none of which concerned cross-referencing, were available at the time of this writing).

SUMMARY

Ami Pro 3.0 by Lotus Development Corp. is an ambitious word processing package complete with all the tools necessary for technical document preparation, including integrated drawing capabilities not found in other packages. However, its cross-referencing capabilities behave so erroneously that it may be easier to do cross-referencing tasks manually. The program is quite extensive in its other abilities and, as a result, does take some time to understand. One can begin producing documents relatively quickly using some of the supplied document styles already set up, but it would probably take a while (several days to a week) in order to become proficient at creating documents from scratch.

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