From He to Po
Addressing the Life Cycle of A Script Entering Computer Mediums

by Daniel Yacob

Introduction

The purpose of this paper is simply to look at different periods in the life cycle of a writing system in computer environments. The approach is to identify, roughly, what those periods are, what changes in life a script experiences then, what its needs are at that time, and finally a look to see if those needs are being met for Ethiopic.

We would all like to see Ethiopic have a healthy life in the computer world and see that its place be assured. A second purpose of this document is to spread awareness of ongoing efforts aimed at nurturing Fidel in its different life stages; as well as to point out areas where initiatives are needed. It is in the best interest of the script that these efforts by different individuals and organizations be coordinated and thought out wisely.

The attempt to break down the life cycle of a script (or anything for that matter) into discrete periods crosses into the realms of philosophy and even economics theory. For which the present writer is woefully untrained. Hence the following is not meant to be definitive by any means, it is partly in fun to formulate such periods. Truly the periods suggested are not at all discrete but will be overlapping and even concurrent.

Input is quite welcomed. This will be a growing document and will see updates and revisions as more people take an interest in the efforts discussed. This page is offered as a coordination center for on-going projects. Here projects may be listed as they fit into the big picture of the script's life cycle. Creating a "computational Ethiopics project map" avoids duplication of efforts. Interested parties should contact the author.

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Conception

This is the Genesis level where by force of need the writing system is conceived in the computer world. The child born comes from the dedicated individuals who would make it happen. The word processor by Dashen Engineering, created in the early '80s(?) is generally credited as the first entry of Ge'ez script onto PCs. The Goha Tibeb Word Perfect add-on was another early arrival. The Agafari operating system for PCs developed by The Ethiopian Science and Technology Commission affirms the arrival of Ethiopic script. Ethiopic fonts on Machintoshes occurred not long after PCs.

Conception in the Unix environments is more recent. The "Ge'ez-ASCII" font created in late 1993 for EthioTalk is recognized here as the first. The period of Conception has transpired for Fidel.

Foundation

It is difficult for the present writer to distinguish between some of the elements of Foundation and Ascension since the periods are coexisting when, under more idea circumstances, they would not be. The resources emerging from the two periods should relate as low level and high-level abstractions (such as the genetic and cellular levels in living organisms).

We restrict then the elements of Foundation to be those of the lowest level in Computational Ethiopics. At the lowest level it is required that humans and computers be able to understand Ge'ez script in a mutual sense. Only after this is made possible can we consider applications, built upon this understanding, such as file viewers, editors, spell checkers, email and other forms of simple and complex information exchange.

The primary computer-to-human interface is the monitor. Humans will understand Ge'ez script through visual inferences after meaningful glyphs have been rendered on the monitor's screen. Blind computers will understand Ge'ez script after numbers are associated with the glyphs. A collection of meaningful glyphs associated with numbers that provides mutual understanding between man and machine we know as a "font".

Information interchange requires Convention so that (He) on one computer, or in one software, is (He) on all computers and in all software. Computational Ethiopics has had Convention since August 12th 1996. However, the means for humans to understand Ethiopic remains notably absent. A Crusade is emerging to address this issue of fundamental importance through providing Ethiopic fonts in the public domain. The success of this project is of paramount importance to the future of Computational Ethiopics.

Convention

The inception of Fidel in the computer realm did not occur once, but numerous times as more people found it marketable to do so. Though similar at the surface these children can not communicate. In this period, occurring within Foundation, the need is realized to standardize the script's computer representation for information interchange. The recent Unicode effort demonstrates the open and close of this period for Fidel (though an "extended range" for Ethiopic will likely be added later).

Conventions for other orthographic needs of the writing system may also arise. For transliteration and transcription (SERA:- System For Ethiopic Representation in ASCII) for instance. A second transcription convention is now being considered by the ISO/TC46/SC2 work group.

Unification

Unification is a transitional period that may follow or overlap with Foundation. In Unification the standard coming out of Convention is accepted and software providers journey the migration. If not governed carefully this may be a period of turmoil as software vendors face forward and backward compatibility difficulties. Those who accelerate through this period may shift the market status-quo in their favour and have an opportunity to move into Empire.

Each software vendor will be required to produce tools to convert character codes from the old system to the new. Which inherently is a lot of duplicated effort. A paper proposing a project to

ease transcension of the Unification period was recently published by the Addis Ababa Computer Science Department.

Tentatively, a project is to begin in September '96 to produce an "ethioXfer" Unicode document converter in the Visual Basic programming language. Assistance is needed in this effort.

Ascension

Ascension marks childhood's end and should not be over lapping with Foundation (though for Ethiopic it will be). During Ascension it will be realized that additional resources, beyond those elements of Foundation and Convention (fonts and a standard) are required for an Ethiopic computer-to-human interface.

During the maturity period of Ascension developers begin to localize software for Ethiopic languages and develop entirely new applications. Private companies will build their own proprietary Ascension tools and widgets. Again, this may lead to the need for a second Convention period as vendors diverge in their solutions to localization. There is also duplication of efforts that could be avoided.

Ascension is a time of developing computational resources for solving the routine problems in Ethiopic information processing. These are the reusable utilities upon which bigger projects depend. A programming library of such routines is known as "LibEth" for ANSI C and Java languages. LibEth is growing but remains far from complete. Ethiopian to Gregorian date conversion routines, and a formal specification, are the primary elements needed for completion. LibEth is a public domain resource which anyone is welcome to use, extend, and distribute in public or commercial software.

As the resources become available to adapt computer work environments to the comforts of Ethiopian and Eritrean languages speakers, the need appears to formalize these developing conventions. Such a specification would be for an "**E**thiopic **L**anguages **U**ser **I**nterface" (ELUX). An ELUX specification would detail environment attributes from fontset choices, pull-down menu vocabulary, dialog box messages, command line vocabulary, date and time formats, and very importantly- keyboard input methods. LibEth would likely also be extended to house routines for ELUX. An ELUX specification would be one of the most valuable resources to multilingual developers during Propagation.

A current project that will become a part of the ELUX specification is to reproduce the Unix system messages in Amharic and other languages using Ethiopic script. This is being tried out under Linux and will be exported to other Unix systems later. Linux users are invited to join this effort now. Ethiopic fonts for Linux consoles (for kernels after 1.3) will be available by the end of October `96.

Other potential Ascension projects include applying ELUX elements to Solaris and SGI GUI environments, Unicode Xterm (uxterm), porting LibEth to DOS to serve as a DLL, supplying ELUX specified IM keyboard methods as a shareware utility, and applying NLS vocabularies on PC systems. "Ghostview" is slowly being updated to "Ge'ezview" (an Eview replacement) that will serve as an ELUX testbed. "Ge'ezview" will also be an "ethioXfer" interface to facilitate Unification.

A paper addressing issues for the Ascension period was recently published by the Addis Ababa Computer Science Department.

Propagation

During Propagation the script grows out of the niche Ethiopic developer community and sees support by mainstream software houses. Propagation should begin following Convention as multilingual developers become aware of Ethiopic through Unicode and ISO literature.

Propagation into the mainstream computer environments begins as more and more of the smaller non-Ethiopian/Eritrean I18N developers apply Foundation and Ascension resources to provide Ethiopic support in their software. This new work, with the old, gradually asserts pressure on the bigger companies to take Ethiopic seriously. At this point in time the period has reached its critical mass.

Initiation of the Propagation period will rely heavily on Information and awareness efforts.

Acception

At this level Propagation has reached fruition. The software industry no longer debates Ethiopic support in their products -it is provided as naturally as are the Roman and Greek scripts. Ethiopic language support may still mature of course.

The world now turns to a groovier beat...

Empire

Empires may form as companies burst in size and combat for market shares. Big companies swallow smaller companies, the smallest companies may simply fold when they are no longer able to compete. We see a trend towards larger but fewer companies selling software. This trend can have both positive and negative effects on innovation. But generally negative.

Examples of Empires forming in the traditional software market are of course the Goliaths Micro$oft and Novell. Companies that were large and promising but later swallowed were WordPerfect -its own company later bought by Novell then Correl. Will Correl become an empire? By all accounts Apple Computer is a collapsing empire. Apple was nearly purchased by Sun, yet another empire rising on top of its Java programming language, earlier this year. A look back at the software and computer companies around in the early '80s and those surviving demonstrates the rise of Empires. Amiga (aka Comodore) is still breathing, does Atari still sell computers?

It is too soon to look for Empires forming in the Ethiopics market. Empires often come from those companies you would least expect.

The Crusades

Crusades may occur at any time during the life cycle. A company on an extended campaign to take over a part of a market can be said to be on a crusade. In example; Microsoft's push to distribute its Windows user interface and its current drive onto the Internet.

A crusade may come from a user or developer backlash against negative trends in the commercial market or commercially against the haughty “establishment”. GNU and the Free Software Foundation provide examples of crusades against commercialism on computer mediums. The GNU

effort has been so successful that it has become a 2nd form of "the establishment" and has led to the formation of new backlash groups such as Not GNU.

The extensions to HTML by Netscape in the face of the governing bodies at NSCA and CERN is an example of a commercial crusade favorably going against establishment entities.

In the Ethiopics software arena, the effort by various bodies to produce and distribute public domain fonts may be considered a crusade.

Information

On a slightly different subject... It is assumed in the above that until the time of Propagation that all work is to be performed by native speakers, readers and writers of languages whose writing systems descend from Ge'ez script. For Ethiopic script to become a part of mainstream software and operating systems the knowledge and skills developed by the native speakers will have been made available to multilingual developers who have no functional knowledge of the script or languages. Many of these developers are in nations such as Japan, Israel, Germany, and other Asian countries.

This is a process of removing the "mystique" of Ethiopic information processing and providing, in simple form, the needs and expectations of Ethiopic. These are the rules of document formatting, character coding, transcription, and other issues discussed on this page. Providing this information, and the computational resources and utilities that makes Ethiopic information processing simple for the multilingual developer will be very important to Propagation.

A central location to serve as an information and resource center is needed on the Internet for this period of time. A center that would be a natural place for people to go for such information services. An FTP archive with a web interface housed at the Addis Ababa University CS department would be an ideal location.

Definition

Definitions of the terms used in the document, and other important to developers in Computational Ethiopics are provided on this page.