Easy Development

We live in a period of accelerating linguistic change. Many new languages are now under development. And many languages developed in the recent past are now being employed around the world. The most obvious and numerous examples are computer, programming, and mathematical languages. Special purpose languages have also been developed for the blind, for the deaf, for stenographers and reporters, for beginning readers, and for other groups. A few new languages have been developed for general-purpose use, either simplified versions of natural languages (Basic English, for example) or artificial languages (such as Esperanto) to be used in lieu of natural languages. But none of the general-purpose languages has achieved the universality hoped for by their developers because few people have been sufficiently motivated to adopt them. Few prospective users have felt the benefits to be derived from their adoption would warrant the learning, translation, and other efforts that would be necessary. The limited number of publications available in the new general purpose languages – and the limited numbers of users – have also worked against their adoption.

Our natural languages are undergoing many changes, both in their nature and in how they are used. One very significant change is the growing use of English around the world. Mathematics is often characterized as the language of science, but among natural languages, English is clearly the language of science. Many more scientific and technical papers are now being published in English than in any other natural language. English has also become the primary language of international relations and commerce. Further, more creative and expository publications are being issued in English than in any other language. And, in most non-English-speaking nations, English is the principal foreign language that is studied. There is an increasing awareness around the world of the value of knowing English.

Some natural languages are undergoing planned and systematic efforts by governments, by educational institutions, by electronic or print media organizations, or by others in an attempt to stabilize, standardize, or simplify the languages. Such changes are being undertaken with Japanese, the Chinese dialects, and other languages. But most linguistic changes, particularly those in dynamic and widely used languages like English, come about simply because of the creative and/or careless manner in which individuals or groups happen to use the language.

While some natural languages and dialects are undergoing relatively rapid growth or change, others are dying and disappearing. There is a gradual decline in the number of

natural languages that continue to be used. The languages that don't have systems of writing are fading away – as are those in which little is published or broadcast. The users of the dying languages are themselves dying – or they and/or their children are learning and using other languages.

We are likely to see even more dramatic changes in languages – and in the way we use languages – in the near future. The number of natural languages in use will continue to decline – and at faster rates. Many of those that remain will be regularized and simplified. New computer languages will be developed that will be easier for humans to use. And new human languages will be developed that will be easier for computers to use.

In its research and development programs, The Mudoc Corporation will consider and test many techniques and procedures that might facilitate the assimilation of text by readers. Mudoc Corp's linguists, psychologists, and engineers will study many different languages. Each language will be examined and analyzed to determine how best to use the tools of the mudoc technology with that particular language. The findings of those studies may prove helpful to those who will be working toward the development of new and more effective languages. The findings may, in fact, help bring about the creation of a language like *Easy*, a new kind of human/computer language that will capitalize on all the advantages of interactive movable type.

Easy will be designed primarily as a language for readers. *Easy* will be a perceptually more-efficient language that will be easier to see and easier to understand than existing languages. In addition to being easier to read, *Easy* will be easier to learn, easier to use, easier to write, easier to speak, and easier to remember than any of the languages we now use. *Easy* will be easier because it will be a language designed, first and foremost, to fit the users of the language. *Easy* will be a language designed to take advantage of the prodigious perceptual and cognitive capabilities possessed by most human beings. And, just as importantly, it will allow for the widely varying capabilities and disabilities of individual members of our species.

Easy will be an artificial language, but it will be used in much the same way we use our natural languages. *Easy* will be a spoken language with which we can talk to each other, although it will be a kind of speech that can be readily understood by computers. Instead of the kind of monotonal speech that people tend to associate with computers, however, *Easy* will be a euphonic language that will be superbly suited for use by the poet, by the lyricist, by the dramatist – and particularly by the blind. Those with visual impairments will like *Easy* not just because it will sound better, but because it can be heard faster. *Easy* will be a highly compressible spoken language. (Compressed speech is speech that is speeded up or slowed down electronically without changing its pitch or tone.) Aural compressibility will be one of the principal

design factors that will be considered in developing *Easy* speech. Its compressible design will permit *Easy* speech to be heard at faster rates than is possible with present-day languages. The many special features that will be designed into *Easy* speech will simplify oral communication and reading for all users who can speak and/or hear.

While *Easy* will facilitate reading and interaction with computers by the unsighted, it will benefit sighted users even more. *Easy* will be designed to capitalize on Homo sapiens' dominant sense, vision. As a visual language, *Easy* will have two written forms, a linear form and a planar form. Visual *Easy* will employ a perceptually more-efficient kind of symbolization, as described in "Languages of the Future," Chapter IV of *The Mu Primer*. The linear form will be written much as we now write our present-day languages. Text in the planar form will be displayed in the mu format. But, *Easy* mutext will generally contain more information per muglyph (and per page) than mutext in a language like English. Most *Easy* muglyphs will be equivalent to the kind of meaning units that, in English, we call sentences, clauses, and phrases. Because perceptually more efficient symbols will be used, sighted readers will be able to perceive more information with each fixation. The higher content of *Easy* muglyphs will permit readers to assimilate text at faster rates than is possible with existing languages. Because there is usually a positive correlation between readers' efficiency and their comprehension, *Easy* readers should not only get it faster, they should get it better.

When reading *Easy* text and *Easy* muvies, readers will have the option of having the text displayed at either an aural display rate (in phones per second) or at a visual display rate (in muglyphs per second). If the reader specifies an audio rate, the duration of exposure of each muglyph will depend on the number of phones in the muglyph. For example, if the reader specifies an audio display rate, a muglyph with 12 phones will be exposed twice as long as a muglyph with six phones. Many muvie readers will choose to have the text displayed at an audio rate even though they are not having the text presented as simultext (that is, muglyphs presented with audible speech sounds). Some muvie readers will simply prefer to have the variable duration exposures of muglyphs running at an aural display rate instead of the fixed duration exposures provided when a visual display rate is set.

Easy will borrow from many languages. Because English is more widely used than any other natural language, and because it is one of the most effective natural languages, *Easy* will probably borrow more from English than from any other language. The extensive use of elements of the English language will make it easier for those who know English to learn *Easy* than for those who don't. But the "unfair" advantage given to English speakers will be largely offset by the ease with which others will be able to learn and use the new language. *Easy* will be much easier to learn than English or any other natural language. Few individuals will have difficulty

learning *Easy* because the design of the language will simplify learning and because most learners will use low-cost telereader terminals to learn the language. Having a telereader to learn *Easy* will be like having a full-time tutor that can provide any help or practice needed to learn and master the language.

Although *Easy* will be designed primarily as a language for human beings, it will also possess many of the characteristics of high-level computer languages. Such characteristics will enable computers and other electronic devices to display, manipulate, and transmit *Easy* information more readily than is possible with any natural language. The computer language characteristics of *Easy* will simplify the display of text in any of its three forms (that is, planar, linear, or spoken). *Easy*, in any of its forms, will also be more easily understood by computers than are any of our natural languages. The increased ease with which computers will be able to understand *Easy* will greatly facilitate human/computer interaction, even for individuals with mental, motor, manual, or visual impairments.

Easy will be the kind of language that might be given to human beings by a benevolent linguist from a more advanced planet (as suggested in http://mudoc.com/mpmspost.htm, the postface of *The Mu Primer* – which, when published, may become its preface).

The development of *Easy* will be a collective effort by people from many different nations and many different language backgrounds. The Mudoc Corporation will, through its extensive research in the display and conversion of planar, linear, and spoken information in natural languages, lay much of the groundwork for *Easy*. To carry through the effort, The Mudoc Corporation will, in each nation that has a mudoc consortium in operation (see "International Development Program"), help organize and finance a not-for-profit linguistic research institute that will collaborate in the development of *Easy*. The coordinating organization for this effort will be The Center for Advanced Study in Linguistics (CASL – pronounced "castle"), whose main facilities will be in either Tempe or Tucson, Arizona, or possibly in Palo Alto, Tokyo, or Bangalore. The Mudoc Corporation will, through a legal and financial mechanism that will be devised later, endow the CASL with a block of its stock or a portion of its revenues or profits.

Although *Easy* will not be developed as a proprietary product, it could benefit The Mudoc Corporation in many ways. First, because of its role in the development of the new language, The Mudoc Corporation will be associated with *Easy* and credited, to some extent at least, with its development. Further, *Easy* will enable readers to consume more publications per capita and should increase the volume of The Mudoc Corporation's sales of mudocs. *Easy* will increase the effectiveness of all the other products of the mudoc technology and should increase use and sales of those products.

The linguistic tools developed through the *Easy* development program should prove valuable to everyone who wants to know more and wants to communicate more effectively. With *Easy*, individuals will be able to acquire and use greater quantities of information. With *Easy*, the average person will be able to read more than any person can today – and in less time – and with less effort – and at less cost. The Mudoc Corporation's primary mission is to make *Easy* and the other products of the mudoc technology available to everyone in every nation – to provide all individuals with the opportunity of sharing more fully in the wealth of information and knowledge that is being produced around the world.

To "Languages of the Future," Chapter 4 of *The Mu Primer*

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