

**A Century of FORTH: Issues and Trends Projected by
a Remarkably Parallel Spoken Language, ESPERANTO**

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Abstract

In 1887, one person developed a logical, efficient and expressive speaking language to offer the world a simple, non-political "second language" for all peoples. Since 1910, each year over a million people have used this international language effectively.

In and about 1970, one person developed a logical, efficient and expressive computer language to offer himself a better way to create a few more programs during his career. In the past 15 years, his "personal solution" has spread to many thousands of other programmers and continues to grow.

Forth introduces many opportunities each year, but its flexible nature and the lack of a central controlling organization also have weakened its acceptance by the general public. How flexible -- read non-standard -- should Forth be? Should any group attempt to arbitrate this matter? A century of Esperanto history offers some provoking insights into the future of Forth and Forth users.

Forth as a Walled City:

The previous speaker has suggested that Forth might be a religion, but of course he is wrong. Those of us who know, realize that Forth is **the** religion! Unfortunately, most "true religions" thrive best in medieval walled cities, and Forth has been no exception.

In a walled city, true believers normally see only themselves. If they do meet others who might question their ways, such potentially disturbing elements are branded as barbarians. For too many Forth programmers, the walls are up and the overwhelming number of barbarians can no longer be ignored. What's more, those "barbarians" are now seen to be the groups upon which Forth programmers depend for their recognition, Forth assignments, contract grants, and jobs. It's time to acknowledge those Forth-programmer walls, to analyze their nature, and to explore ways of relieving them with some appropriate doors and windows.

In this analysis, it will be helpful to consider a parallel model, another language with strong advantages and differences, but one which has been designed to minimize such walls between user and non-user.

Esperanto? (Forth?) What's That?:

In only the past three decades, more than 200 computer languages have been developed. Some are obvious "best-sellers". Others, Forth for one, seem to deserve a greater user base than they have yet achieved. Forth enthusiasts, while doing much to help, may also do much to hinder the acceptance of this unusual language.

The surprisingly parallel history of Esperanto stretches over ten decades. Ludwig Zamenhof, whose father was Poland's most distinguished linguist, invented it while still in high school. A long history of prior "engineered" languages had failed to win significant numbers of users, but his more rational approach to language design established a new and useful communication tool which has succeeded for over a century. Brierly, Esperanto sounds rather like Spanish or Italian, and it uses a "best" selection of root words from the major European languages. Each letter of the Esperanto alphabet has only one pronunciation, and it has only 16 grammatical rules with no exceptions! In other words, persons who find it difficult to assimilate such complex languages as English or who resist their use for political reasons can instead conduct business worldwide in a neutral, easy tongue. Even in America, where dual-language proficiency is at an all-time low, Esperantists have access to training, many books and periodicals, and continuous opportunities to write or visit other Esperantists worldwide. Esperanto, like Forth, has yet to become a best-seller; but even more than Forth, it has maintained its own strong group of users.

Esperanto - Continuity Vs. Change:

This continuing usage of Esperanto did not come easily or naturally. From its inception in 1887 for about two decades, Esperanto use grew first in Russia and Germany, then across Europe. Zamenhof published his still-followed **Unua Libro** ("The First Book"), which established both **the basis for the language and a consistent, conservative method to expand it** to include additional terms. About 1905 many of the leaders of the Esperanto movement, seeking official acceptance of their language, worked to establish a prestigious Language Academy consisting of prominent (and independent) academicians to recommend a best international language. Other languages were proposed but the Esperantists were assured that this was merely a necessary formality. The panel of experts, most of whom had many ideas but little practical interest in use of such a language themselves, eventually proposed Esperanto, but with modifications to incorporate some of its own members' perceived improvements. This brought about the Esperanto movement's most divisive event. Zamenhof and others maintained that **no change to the Unua Libro was permissible**, while a greater number of moderates attempted to gain the academic approval through diplomatic compromises. Eventually one of these Esperanto leaders anonymously published a proposal for a modified Esperanto named **Ido**, and attempted to gain the approval of the Esperanto community. Ido captured three-quarters of the Esperanto leadership, but less than 20% of Esperanto users. Ido never became a practical competitor to Esperanto. But even today Esperantists tend to deny its existence, and the few remaining Ido publications act as if it is the only international language.

The unyielding stand of the Esperantists was considered anti-progressive by the Idoists. However, it was argued then and probably is true that **language must maintain historic continuity in written and spoken form if it is to grow and succeed.** Changes to the fundamental concepts have never been allowed for this reason. Esperanto has spread around the world, is taught in many classrooms, and may well have become a major second language already if not for the extraordinary hardships its supporters endured in Hitler's Europe and Stalinist Russia.

Parallel Issues:

There are many similarities between Esperanto and Forth, but one critical difference. Although each inventor shared his idea with the world, Charles Moore has taken the position that **he** will use Forth **his** way and others can use it **their** ways. Ludwig Zamenhof's goals necessarily were less independent in nature. Desiring to establish a new level of communication and thus to improve cooperation between mistrusting peoples, he felt it imperative that controls be established to safeguard this new language against changes. Although a Forth International Standards Team did establish the first generally-accepted standard among diverging varieties in 1979, this standard was undercut with a new one as early as 1983 (at a meeting to clarify some inconsistencies in the current one!). Consideration of yet another standard is already being proposed. Forth programming under these various standards is, as might be expected, incompatible. Thus commercial users are loath to finance and risk repeated learning curves, while new users are put off by the moving target and by the various factions which tout each new flavor. While computer science moves ahead continuously, the Esperanto human language and most popular computer languages have found ways to adapt to new requirements at far less expense to their general user group than is experienced with Forth. I am not suggesting that Forth should discourage extensions. But if its leaders wish to remove Forth's greatest debit, they too must learn how to **stabilize their "standard"** despite the continuing search for new features.

Conclusions:

For many Forth users, the existence of such a flexible and rewarding language is enough. Indeed, its current state of confusion is unusually selective of this highly independent type of user. But those who would assure Forth's future success must establish a conscious commitment to bettering the entire Forth community. The lessons gleaned from the similar, century-old Esperanto movement recommend a more thoughtful approach to such issues as **continuity of standards, a policy as to the spread of Forth, and a user group which is dedicated to the promulgation of one standard Forth** rather than, or at least as the base for, more exotic varieties.

As a first step, this author urges every Forth programmer to recognize "The Forth Wall" and to contribute to a less exclusionary Forth future.

Credits & References:

The credit for Forth rests principally with its inventor, Charles Moore, and secondarily with the hundreds of Forth programmers who constantly change it.

The credit for Esperanto rests principally with its inventor, Ludwig Zamenhof, and secondarily with the millions of Esperanto users who have added **without** changing it.

The unusual synergy between Forth and Esperanto was first suggested to me by Dr. Glen Haydon. I was lucky enough to be chairing a panel in which he presented a simple Esperanto "flash-card" program written in Forth; later, Jill Miller adapted it to help us and other friends to learn Esperanto. Read about it in: "Esperanto and Computer-Aided Instruction", by Glen B. Haydon, 1982 FORML Conference Proceedings, pp. 269-279 (Forth International Standards Team).

Among the thousands of books and magazines published in Esperanto, there exist detailed accounts of the history and internal issues in the development of the language and movement. An excellent English-language book both for content **and** for further references is: The Esperanto Movement, by Peter G. Forster (Mouton Publishers, London and New York, 1982).

Esperanto itself is easy to learn, and Esperanto organizations exist in most major cities. [Three additional Esperantists identified themselves from among the attendees at this Forth conference.] I have brought a few introductory Esperanto brochures and will be pleased to share them with interested listeners. For more information contact: The Esperanto League for North America, P.O. Box 1129, El Cerrito, CA 94530.

Esperantists who wish to learn more about Forth can also find many articles and books on the subject. I particularly recommend two books: Forth: A Text and Reference, by Mahlon Kelly and Nicholas Spies (Prentice-Hall, Englewood Cliffs N.J., 1986). Thinking Forth, by Leo Brodie (Prentice-Hall, Englewood Cliffs N.J., 1984).