

***Setanta* - Developing an Irish programming  
language, learning environment, and an original  
parser generator for TypeScript**

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# Chapter 1

## Abstract

The world of programming languages is one dominated by the English language, practically all programming languages that are used today are designed to be used in English. English is established as the lingua franca of the programming world. Studies have shown that language affects the thoughts of the speaker[2]. How does it affect how we design our programming languages? In recent times Irish is often thought of as an academic, historical language. However, Irish is a language used by 73,000 people on a daily basis[1]. There is a large contingent of fluent Irish speakers who, if they want to learn how to program, have no choice but to learn in English. This project is an exploration of the design and implementation of a programming language (*Setanta*) from the ground up, to be written in a non-English language, namely Irish, and the effects that the "host" language has on its syntax and semantics. We aim to create a novel, expressive language, and an online environment where the language can be used and learned. In this project we create a modern, powerful Irish programming language *Setanta*. In the process of designing *Setanta* we discover syntactic constructs that are motivated by the Irish language. We develop and launch an online learning platform ([try-setanta.ie](https://try-setanta.ie)). When implementing an interpreter for *Setanta*, we find and fill gaps in the tooling available for creating a programming language to be executed in the browser. Specifically by creating an innovative parser generator (*tsPEG*) for the language TypeScript.

# Bibliography

- [1] CSO, *The Irish language*, 2017,  
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- [2] *Language regions of brain are operative in color perception*, Wai Ting Siok, Paul Kay, William S. Y. Wang, Alice H. D. Chan, Lin Chen, Kang-Kwong Luke, Li Hai Tan, Proceedings of the National Academy of Sciences May 2009, 106 (20) 8140-8145; DOI: 10.1073/pnas.0903627106