
Abstract
ET: Enhanced Tool
The effectiveness of <spreadsheets> in supporting the design of <worksheets> has been demonstrated. An enhanced tool / method is described for the design of <general applications by end users> based on <blending object-oriented and spreadsheet programming paradigms>. Examples are provided confirming the effectiveness of its support for <general programming> in design.

Why ET?
This researcher has blended some elements of object-oriented programming with some elements of spreadsheet programming. He did not invent either, but simply enhanced each with the other.

Question - [Method/means of development]
How can we leverage end users’ spreadsheet skills to give them the ability to write general purpose programs?

Results - [Tool / notation]
This new tool, Penguims, addressed how to marry the spreadsheet paradigm of function-directed dataflow with aspects of the object-oriented paradigm. The result allowed end users to group together cells and to treat them as attributes of objects. As usual, the value of each cell could drive from a formula driven by the values in other cells. To reach this goal without sacrificing too much usability, the creators of Penguims decided on a prototype-based inheritance scheme, since they believed that end users would struggle too much with the traditional class-centric inheritance scheme inherent to normal object oriented programming systems. Thus, in Penguims, specifying that several objects were “like” one another, and reusing structure among them, required first defining a prototype object and then indicating that the other objects derived from that prototype. Each derived object could then be modified arbitrarily. Finally, Penguims provided a variety of widgets for representing values from attribute cells of data. To achieve this linkage, end users were obligated to learn a small imperative language.

Validation – [Experience]
The author mainly relied on examples to prove that his system works. I was not able to find any evidence to suggest that this new tool was “better” than existing tools, except that you could do more with it. The validation would have been appropriate if the author had been going after feasibility, but given the question he was asking, the external validation definitely came up short.