

the evaluation of one value of the function at a time and is consequently relatively slow. On the other hand the programme is very convenient and easy to use, with results automatically plotted out. It is also very economical in terms of the total hardware requirement.

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## Correspondence

To the Editor  
*The Computer Journal*

### Interpretation of limited entry decision table format

Sir,

A number of quite distinct issues were raised by Carrick (1970) in his brief comment on my recent paper (King, 1969). I should like to try and distinguish them and apologise for writing at rather greater length than he. Some of his rather minor points I will ignore.

First, let me contradict his statement that my view is that standards in data processing are undesirable because they are unnecessarily restrictive. I have *never* said this and it is most certainly *not* my view. In practical data processing work, standards are important and vital and the wider and more complex the scope of the work, the more important they become. It seems clear that Mr. Carrick and I are in complete agreement on this. The difficulty seems to be that he has not appreciated that the adoption of standards normally occurs in two phases: first, there comes a clear recognition that standards are necessary; secondly, there is the careful selection of the particular standards to be used. The recognition that standards must be adopted does not mean one should immediately grab the first ring binder to hand with the word 'Standards' on the cover and adopt its contents, any more than should the man, deciding that he wishes to get married, rush out into the street and embrace the first long haired person he encounters. It is, for example, particularly useful to have a standard programming language in an installation or over a group of installations. However, to decide *what* this language or languages should be is not easy—FORTRAN and COBOL or PL/1? In the conversation to which Mr. Carrick refers, my remarks were about *which* standards one should adopt. There are some doubtful ones. The remarks of Tully (1969)—see particularly his fifth paragraph—deserve a wider reading than they have hitherto received.

On the question of leaving entries in a decision table blank rather than using dash, I agree that this is undesirable. If Mr. Carrick would look again at the sentences to which he referred, he will not find I recommend it but merely comment that it is sometimes done. If he doubts this, I suggest he looks at p. 146 of the recent text based on the NCC systems analysis course (Daniels and Yeates, 1969). I hope that his attempt to remedy this particular matter by prayer will be successful.

To come to the main point—the use of decision tables and the conventions which should apply—Mr. Carrick is merely confusing things with his well intentioned but misguided attempt at oversimplification. He states, '... if we can agree that decision tables are a means of communication', without appreciating that this needs to be qualified by saying what is to be communicated.

One may want to communicate efficient algorithms (specifications of the necessary logical tests to achieve particular ends—'what it is *necessary* to do in order to decide...'). On the other hand, one may use a table as a tool for problem analysis; for the consideration of all combinations of states of the logical variable to decide what action is required in each circumstance and to ensure that no situation has been overlooked. This type of use leads to descriptive tables ('... what is true when...') which document the values of the logical variables in the various

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circumstances. These do not necessarily specify good problem solutions and may specify unnecessary activity. The table shown in Fig. 8 (p. 323) of my paper is meant to be a simple illustration of how this occurs.

It may well be that in some contexts the use of descriptive tables for the specification of algorithms is satisfactory since the time inefficiency introduced into the programs will not matter. I find it difficult to accept in general, however, Mr. Carrick's notion that it simplifies things to consider 'impossible situations' and then carefully specify 'impossible actions' in such cases for the sake of 'completeness'. I suspect he has little practical experience of working with tables with more than four or at most five conditions. With seven, eight or nine interrelated conditions, I doubt he will find his suggestions as simple as claimed.

I should make it clear that my view is that the hand checking of tables of any significant size is not a sensible way of proceeding at all since this is a tedious and error-prone activity which can easily be computer-aided. I would gladly demonstrate to him how this activity can be quickly and easily accomplished, using the normal and now widely available time sharing services. I consider it unreasonable that computer professionals concerned with systems analysis and design should not have such facilities at their elbow.

Rather than Mr. Carrick's, my own preference is for the approach recommended in the ICL systems procedures manual (ICL, 1969). The producers of this manual have carried out well the important but difficult task of taking the current state of development of a topic as exemplified by current papers in the literature and the discussions among those interested in the field, and reducing this to a set of recommendations for practical day-to-day use. A tool for the man who must get on with the job on hand and cannot be distracted by, and may not even be interested in, discussions and difficulties arising in the further development of such tools. As methodology for systems analysis and design develops it is clear that this type of activity will become increasingly important.

Yours faithfully,

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