

# Not only computing—also art

JOHN LANSDOWN

Visitors to BCS 79 at the Bloomsbury Centre Hotel, London in January next (for details, see elsewhere in this issue) will be able to see an exhibition of many of the art works I have discussed in these columns over the past few years. Slides, films and drawings will be on show, including some which can be seen for the first time (for example, Figures 1 and 2 by Marcus West of the University of Wales, Cardiff).

Those coming to the family day on Saturday can experience recorded performances of computer music as well as live performances of computer poetry, computer plays, and one or two surprises! In addition there will be microcomputers running interactive computer art programs with which visitors will be able to produce their own works. Members of the Computer Arts Society will be on hand to answer all the questions you have on creative computing but were afraid to ask.

You really shouldn't miss this opportunity.

## Rules and regulations

Architecture differs from virtually all the other arts by being subject to (I almost wrote submerged by) regulations of all sorts—I have a list of over 100 Acts of Parliament that might be relevant to the design of a particular building and each of these has many accompanying detailed regulations which could impose restrictions on the design.

Bob Kenyon, a long time member of the Computer Arts Society and now Director of the Computer Aided Design Research Unit at the Polytechnic of North London, has recently published results of his research on *A Language for Expressing Rules about the Arrangement of Objects in Space* which promises to be of considerable help to architects in unravelling some of the complications which arise. Essentially, the object of his work (carried out with Brian Tyler of the Medical Architecture Research Unit of the Polytechnic of North London for the Department of the Environment) is to show the feasibility of expressing sets of regulations as statements of a computer language and using these to test whether or not a particular design proposal conforms to the provisions of these sets.

After looking at existing computer language Kenyon and Tyler came to the conclusion that none of them quite fitted the bill so they devised their own, PREDICAT, based on first order classical predicate logic. Complex statements can be made in the language, for example: Town [boston] IMPLIES (In [boston,

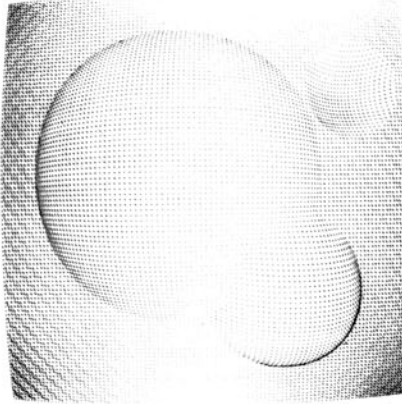


Figure 1

england] IMPLIES In [boston, lincolnshire])

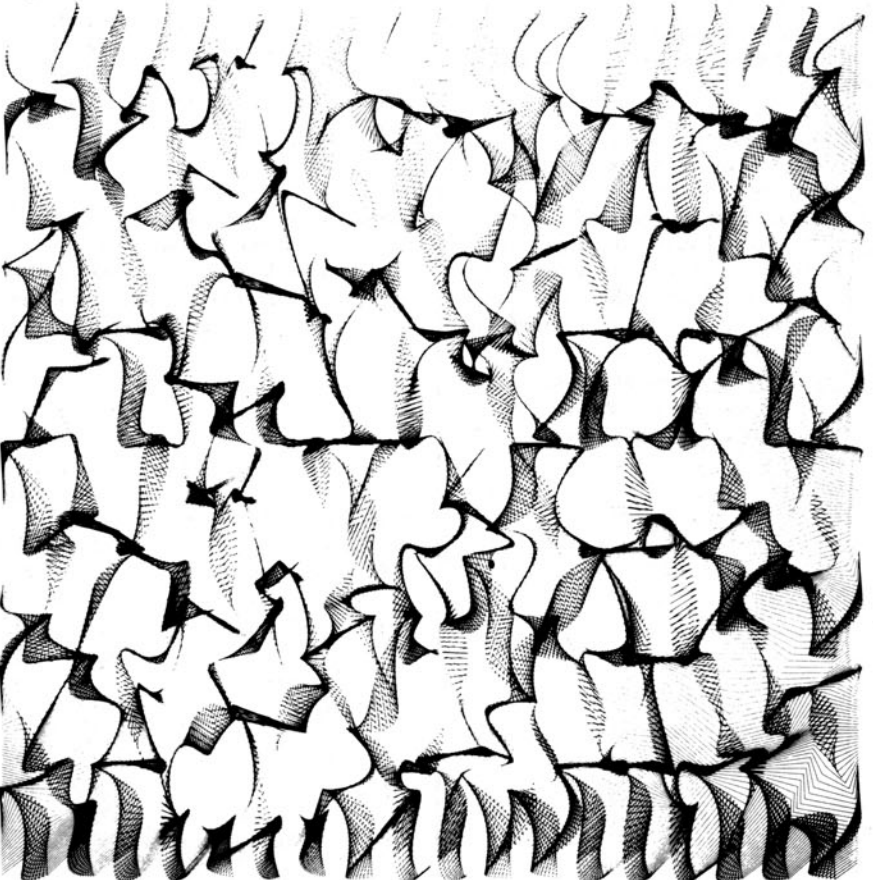
Which means 'If Boston is a town then if Boston is in England then Boston is in Lincolnshire'. (Doesn't this phrasing remind you of a Government Regulation?)

Of course, not all things that you can say simply in English can be said simply in PREDICAT, for example:

'Every building must have at least two doors' has to be expressed as:

ALL x  
< Building [x] IMPLIES

Figure 2

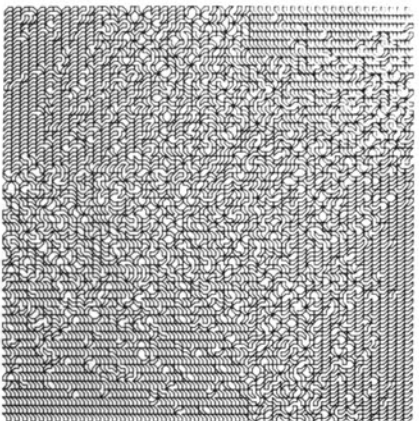
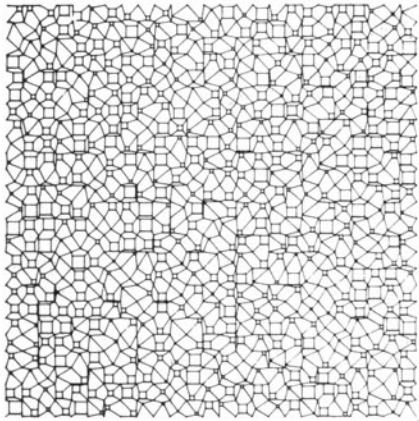


(EXISTS y; EXISTS z  
< Door [y] AND  
y ISNT z AND  
Inside [y, x] AND  
Inside [z, x] >>>

But the computer can do more with this statement than it can with the English. The main interest in this work from my point of view is that the automatic testing of computer aided architectural designs is considerably facilitated by such a language. It is perhaps too much to hope that those who frame regulations could use the language to make the sure that ambiguities and inconsistencies are removed before publication—although the DoE is sufficiently go-ahead to give this idea consideration.

## Belgian graphics

One of our Belgian members, Peter Beys, has sent me examples of his graphics produced on a Hewlett Packard 9830A with an incremental plotter (Figures 3 and 4). As with a number of artists, Peter is exploring the repetition and manipulation of small modules. Both drawings make use of controlled randomness to set up the relationships between the modules—in one case to



determine size and in the other to determine orientation. Once again we see here examples of how very simple patterns can be manipulated to produce drawings of considerable intrinsic interest.

### Drawing an orange

The August 1978 issue of *Computer Graphics* (volume 12, number 3) contains the Proceedings of the SIGGRAPH 78 conference held in Atlanta, Georgia. As usual this conference produced some magnificent examples of current graphics and, in particular, illustrates the state of the art in shaded and highlighted pictures. The work of James F. Blinn of Caltech/JPL is especially interesting in this respect. He shows illustrations of oranges, shaded, textured and highlighted to give a fair amount of realism and clearly is one of the leaders in this field. Another, but quite different, examination of texture is given by Fu and Lu, who show how tree grammars can be used to produce complex patterns. The whole 365 page volume is essential reading to those who want to know where the world has got to in computer graphics.

### Advertisement for myself

Perhaps I will be forgiven for drawing attention to an article of mine which appeared in the August 1978 issue of the IEEE Computer Society magazine, *Computer*. The issue is devoted to the computer and the humanities and has been edited by Paul Bratley and Serge Lustigan of the University of Montreal.

Apart from my contribution on The Computer in Choreography, other articles deal with Computation in History, Computer Aided Study of Literary Languages and Computer Music Composition. I like the editors' introduction in which they say:

*Computing in the humanities is a field dominated by amateurs, in the best sense of this word. Nothing forces a critic to put his texts on a computer; no composer is compelled to seek the aid of a machine; even the programmers employed on this kind of project are likely to be there by inclination rather than by accident. Economic motives are also largely absent: in general, nobody makes or saves any money by using computers for such applications, and only occasionally can the machine save time.*

*What, then, is the justification for our activities? Almost always, it lies in the fact that computers make new methods possible.*

### ECONOMICS *continued*

continued to drop. It is probably a sign of the strength of the computer services sector that firms are now keener to engage staff on a full time basis than on a part time one. A high proportion of the part time personnel consist of staff involved in data preparation and they account for 43 per cent of the total.

#### *Continued growth expected*

There is every indication that the expansion in the computer services industry will continue, particularly on the consultancy side. New computer installations are remaining at a high level and capital expenditure earmarked by many firms is still rising. It is possible that, for 1978, a growth of 20 per cent in computer billings will be recorded if current trends continue.

For 1979, however, some slowdown may be experienced as many companies may have cash flow problems and difficulties in maintaining profits. In addition, the economy could show limited growth during 1979 and, though this could affect computer billings, its impact is only likely to be temporary from the point of view of the consultancy and software companies.

### LETTERS *continued*

50 per cent of the unguaranteed cases the Magic Alkey routine has in fact identified the correct name and initials; in the remaining cases the key punch operator corrects the entry. A number of specially written software routines in the GCS key to disc system ensure that the edited surname is one of the groups of letters displayed in the actual name, and that the initials are initial letters in the actual name line, thus most misspellings and nonsensical entries are avoided, although the operator can override the routines where necessary. Finally the edited records are returned to a magnetic tape for input to the system to rejoin the guaranteed records.

One of the advantages of our approach is that all the exceptional cases such as:

Grey Owl, the Blankshire Brownies

Mary the Dowager Duchess of Albany

The Pastor of the Lutheran Community are presented for human editing so that commonsense can be applied. I understand that even the Bank of England have to treat such cases as this manually. We believe that our approach is cost effective but we gratefully acknowledge the fact that the Bank of England shared their experience with us

and so showed us how expensive it would be to develop a fully computer based solution. What has surprised us is how few unguaranteed records there are; the design of our input forms encourages this. We also note that our problems are not identical to the Bank's and no doubt their elegant horse suits their elegant course while we back Magic Alkey to win our particular point to point.

E. F. FERRABY Basingstoke

### NEW PUBLICATION

Extracts from *User requirements for data processing* will be published in the March issue and we hope this will spark off correspondence to ensure a thorough discussion of this topic within the Society.

*User requirements for data processing* was published on 29 November and is available from BCS headquarters at £15 (£10 for BCS members).