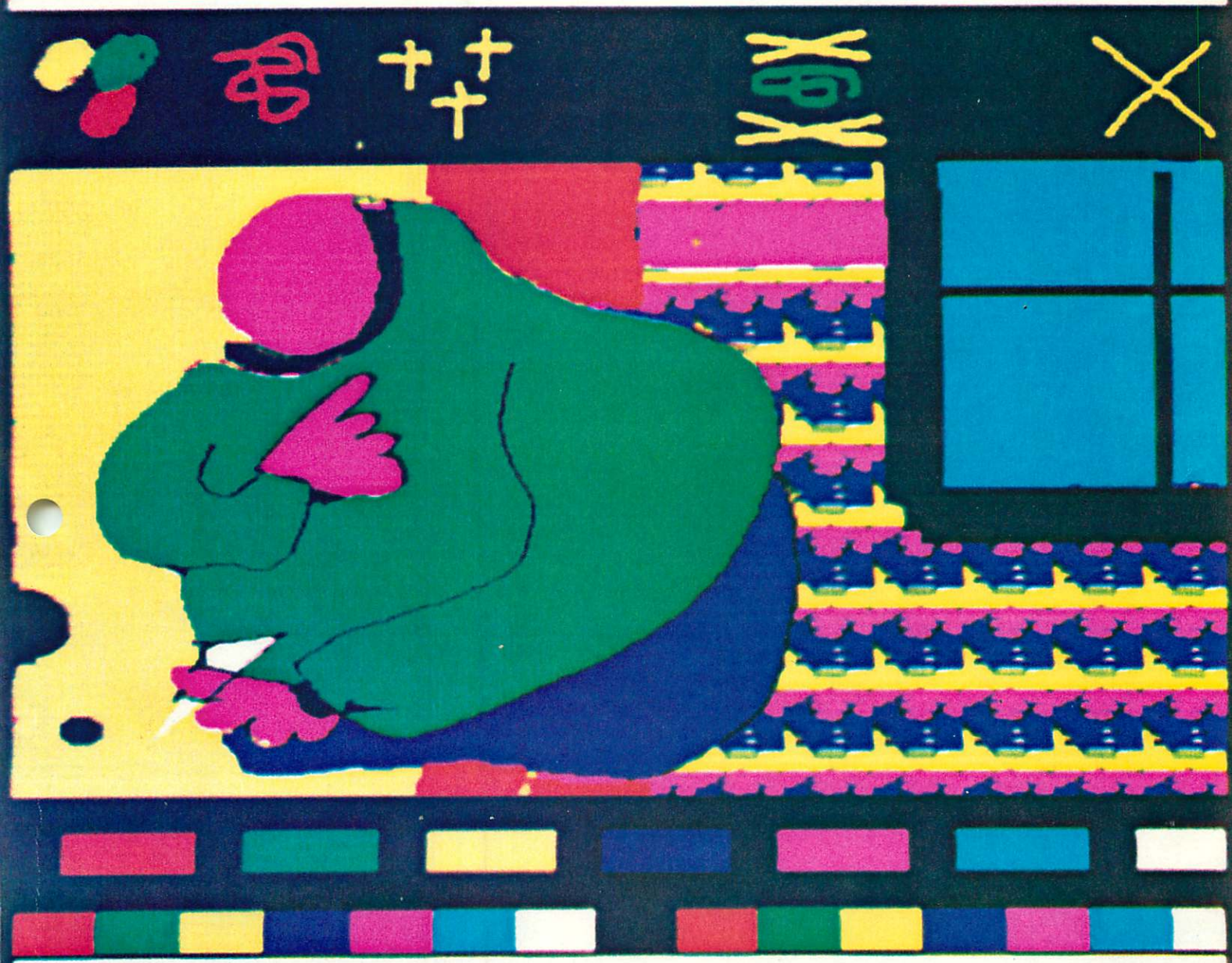
ARCHITECTURE MACHINATIONS

A weekly newsletter of the Architecture Machine Group, Department of Architecture, M.I.T., Room 9-518, Lee Nason, editor.



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Vol. II., No. 36. September 3, 1976

IN THIS ISSUE:

THIS WEEK AND BEYOND

Monday	Labor Day
Tuesday at 2:00 P.M.	Cognitive Information Processing Group Seminar will be held (see article).
also at 2:00 P.M.	We will host a visit from Proctor and Gamble.
Wednesday at 10:00 A.M.	We will have a visit from the new ONR resident representative, Jim Clark.
at 11:00 to 2:00	There will be a planning meeting with C. Herot, G. Weinzapfel, R. Bolt, and P. Pangaro in attendance.
Thursday at 2:30 P.M.	There will be a MAAS orientation meeting in Rm. 10-482.
and all day	We will be visited by Boeing.
Friday at 10:30	I.B.M. will visit and at 11:00 we will give them an 85 demo.

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VISIT TO NBC

We have been arguing that video-based computer graphics brings together three separate communities: computer graphics, picture processing, and broadcast industries (for example, as in our ILO symposium's theme). However, we have had little experience with the broadcast industries. We shall rectify this.

My trip to NBC was the beginning of such. My host was Bruce Bassett, a unit manager at NBC. Since I did not know, let me explain what a unit manager is. He or she is the person who acts as the "official" between the producer (in this case NBC) and the director. As official, he has the final word on all elements of the production. In fact, that morning, coincident with my visit, Bruce had been called to work early to produce an Italian news special on yet another Lockheed scandal. A New York based Italian reporter discovered that a top Italian official had been involved in Lockheed affairs. The discovery was based on new evidence which was to be divulged on this special program shot live at NBC (i.e., 30 Rockefeller Plaza) and beamed to Rome, where it was recorded for the 7:00 P.M. news. Consequently, I had the opportunity to see a complete production in action. And, Andy lippman eat your heart out, 34 color monitors lined up on one wall alone!

The purpose of the trip was not a matter of general education. Instead it involves the existance of 100 hours of video tape material on the sculptor Jacques Lipchitz. This footage followed over 200 hours of audio recordings of conversations with Lipchitz. Lipchitz recently died. This material remains.

Bruce produced and directed to video "events", one at the Metropolitan Museum in New York and one at the Corcoran Gallery in Washington, D.C. Both were called "A Conversation with Lipchitz". This conversation was achieved by having a shelf-full of well-indexed cassettes in a back room. The audience would ask, for example, "How did Picasso affect your sculpture in the late 20's?". The human operator would scurry to the correct tape, advance it to the right place, and start the machine. On the television appears Lipchitz: "I am glad you asked me about Picasso, he ...."

This worked with uncanny success for several reasons. While not a leading sculpture in the eyes of many, Lipchitz was very articulate. Additionally, he spoke around topics, memorabilia, and anecdotes

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Vol. II., No. 36. September 3, 1976

VISIT TO NBC continued

in short bursts, knowing precisely how the material would be used ultimately. Answers, for example, ranged from 20 seconds to 4 minutes, averaging 1 minute. Of the questions asked at the Corcoran, Bruce was able to achieve a 95% "hit" on the answers. While we can argue about the true conversationality of this scenario, we cannot help but be attracted to the idea in general, if nothing else, as a new educational technology.

The problem: replace the human scurrying, with a computer system. Our interest is not in the indexing or natural language components, but in the random access video portion. Our goal is to have four hours of video on-line, randomly accessable. This goal is for the Lipchitz project, something four years off, i.e., to be installed in 1980. In the meantime we will attempt to build a 30 minute system, sufficient for our own animation needs as well as to test out the "Conversation" theory. Several industries and sponsors are interested in working with Bruce. We would be a sub-contractor, if anything, for the video part.

In looking into solutions I uncovered a company called Teletronix. They do electronic video editing. They achieve this with 6 Memorex 6600 disk drives and can handle up to 30 minutes of video. However, they can only handle black and white, and brace yourself, they throw out one interlace.

Nicholas Negroponte

SYSTEM 5.0

System 5.0 will be installed "officially" this weekend and will be running when you come in after Labor Day. The i/o processor will be the 7/32-C. The two user processors will be the 70 and the 7/32-A. Only Kazar should use the 7/32-C with 4.3a. Everybody else is hereby kindly requested to use 5.0, even if you are only using one of the user processors. We need to find the bugs through intensive usage before school starts. I am told that a single-user System 5.0 will only be 5% slower than the current 4.3. With the proper hand signals, a two-user system need be no more of a degradation.

ARCHITECTURE MACHINATIONS

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Vol. II., No. 36. September 3, 1970

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF

In recent weeks there has been a good deal of brainstorming centered around the issue of moving a designer from schematic diagrams (graphs - bubbles) to more "realistic" representations of plan shape and spatial form. This is an area which, to our knowledge, no one has yet addressed. Please note that we are speaking of transitions between forms of representation which are critical to transitions in the actual design process, i.e., moving from issues of space allocation to considerations of spatial quality or from "parti" (preliminary/conceptual) design to more developed states of design.

Of the numerous ideas which have been generated, three are especially interesting. These are described below in order to open a wider participation in what will become one of our more serious efforts during the coming year.

1. MOLDING SHAPES BY PUSHING BUBBLE BOUNDARIES by Rich Korf*

Most of the existing suggestions for drawing shapes seem to suffer from two drawbacks: they don't encourage creativity and they don't incorporate the previously specified constraints.

In response to these problems, I propose a "mold shapes" routine using the Imlac and the TSD. Consider the bubbles on the Imlac as a fish net made of elastic string that can be manipulated by your fingers. If you push on a wall, the "string" yields to your finger in a normal fashion. If you grab a section of wall with two fingers and pull apart slightly, the "string" straightens between your fingers. If you pull hard enough on a section of wall, the string breaks, creating an access of any size. Broken strings can also be pushed together and rejoined.

A recurring problem with existing draw shapes scenarios is that they are not provocative enough and the user is inhibited from

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*It is not clear that work on any of these specific approaches will be undertaken. Nor can it be inferred that should a particular approach be pursued that it will be pursued by its "author".

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Vol. II., No. 36. September 3, 1976

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF continued

proceeding. I claim that such would be the case with most laymen who have no drawing experience, myself included, if asked to sketch shapes on a data tablet or Imlac. Worse still, some proposals are absolutely intimidating. A six foot arm that whirs and clicks and is controlled by a joy stick is not my idea of intimate man-machine communication. A related problem is the difficulty in editing the shapes inherent in most of the suggestions. I claim that the easier it is for the user to change what he has done, the less inhibited he will feel about stating his intentions graphically.

I claim that the aforementioned model would provoke creative activity from the lay-user for several reasons. First, it would be fun to manipulate. Second, it would be familiar to the user in the sense that he could predict its actions since it is based on an actual physical model. Third, it would be very easy to change anything he has done.

The second major problem with the existing scenarios, such as the present draw shapes routine, is that all previous constraints, such as size, adjacency, and arrangement, are completely suspended in the drawing process. As soon as the user draws a shape he will very likely violate at least one of these constraints and will quickly become frustrated if constantly reminded of it. Indeed, one of the major canons of the methodology is that the user deal only with one constraint at a time. In addition, the implementor is faced with the complex task of detecting these constraint violations and unobnoxiously informing the user of them. Another way of stating this problem is that more immediate and direct feedback on the constraints is required during shaping.

The string model would directly incorporate all the previous constraints in such a way that they couldn't be violated. Hence, neither the user nor the implementor need by concerned with them.

Shared walls would be represented by only one "string" and hence adjacencies would always be satisfied. Also, the resulting plan would have no holes or voids in it.

Spaces would always maintain their specified areas so that as one wall is pushed out, the others would pull in slightly to compensate.

ARCHITECTURE MACHINATIONS

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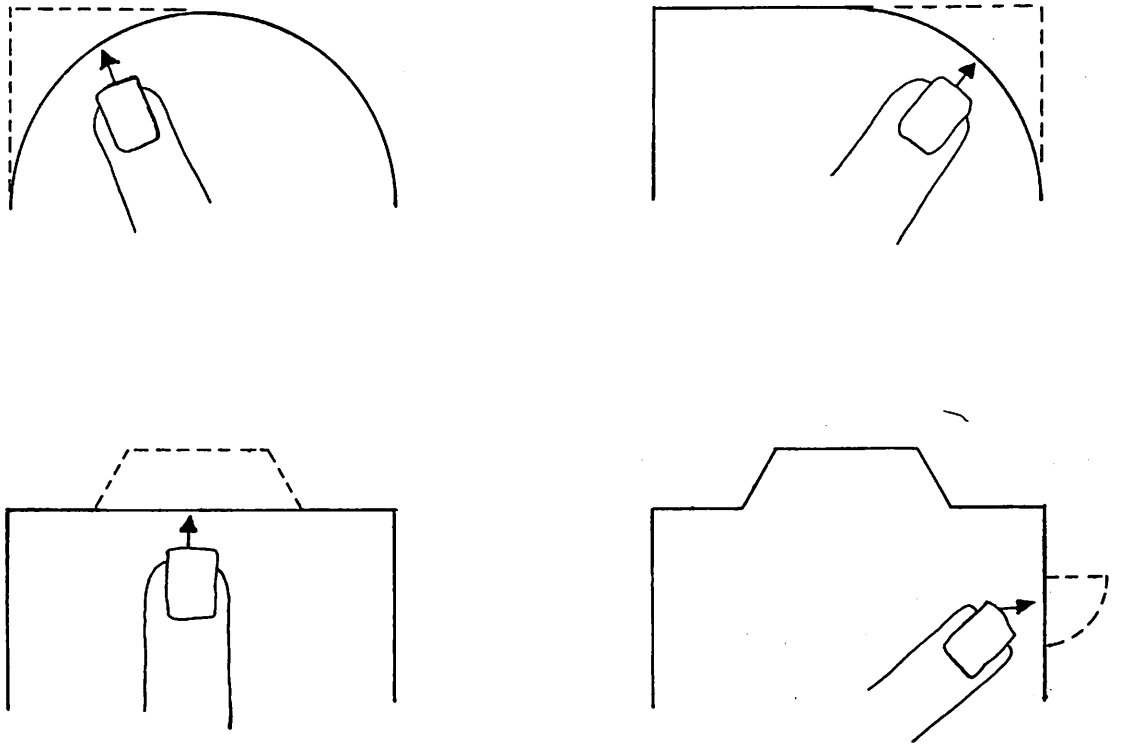
Vol. II., No. 36. September 3, 197[illegible]

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF continued

This would also prevent any overlaps.

Arrangement and orientation would also be preserved by the structure of the network.



Graphical illustration of a similar idea by Nicholas. A first step would be to do this with one finger ... with better TSD it will make sense.

ARCHITECTURE MACHINATIONS

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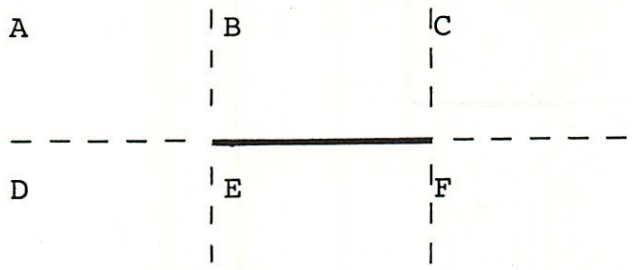
Vol. II., No. 36. September 3, 1976

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF continued

2. INFERRING SHAPE FROM SHAPE HIERARCHIES

This is Mark Gross' idea. Mark is a junior who has recently transferred from computer science to architecture and who has been working on our machines this summer under his own supervision and guidance. He came to us (Chris and Guy) with the idea, independent of any knowledge that we were interested in this specific area.

Mark proposes to define sets of "potential" spaces by projecting "boundaries" from the end points of sketched lines.



The sketched line (shown solid) implies boundaries (shown dotted) extending from its termini. These boundaries subdivide a region into "elemental" spaces (there are 6 in this example: A, B, C, D, E, and F) which in turn can be combined into more complex figures (i.e., AB + CFE + D).

As additional lines are drawn, (it is hypothesized that) sets of boundaries will begin to merge and that more accurate inferences of intended spaces can be made. (See diagram at top of next page.)

Two useful features would emerge from implementation of this idea:
(1) the approach lends itself to "on the fly" application, and
(2) a hierarchy of spaces is naturally implied by the method
(See diagram at bottom of next page.)

This hierarchy lends itself to inference rules which determine the most "likely" intentions of the user. Of course, development of those rules would require the major effort in a project drawn along these lines (pun intended). But even a cursory inspection of the idea reveals a great potential.

ARCHITECTURE MACHINATIONS

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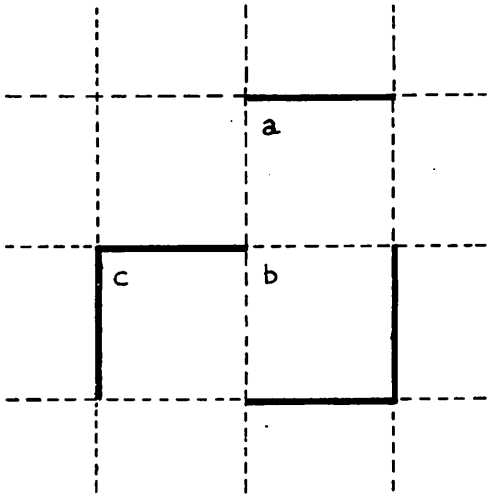
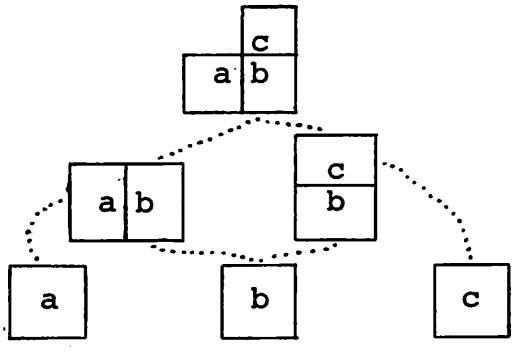
Vol. II., No. 36. September 3, 197

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF continued



In this more complete sketch, the number of potential spaces can be reduced to 9 (a, b, c, ab, bc abc, c extended, and a extended).



ARCHITECTURE MACHINATIONS

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Vol. II., No. 36. September 3, 1976

SKETCH AND SHAPE RECOGNITION FOR ARCHITECTURE BY YOURSELF continued

3. AN AUTOMATED YELLOW TRACING PAPER by Mazzie Madeira

The above proposals both grow from a "machine orientation". In Rich's case, an existing machine representation is simply extended to facilitate machine-aided manipulation. Mark's approach derives from an abstraction of the problem in terms of data structuring. Neither draws significantly from conventional design techniques. Yet many conventional techniques have withstood the test of time because they "work"; designers find their "search" for solutions well served by them.

One of the more powerful "tools of the trade" is tracing paper. By laying trace over previous sketches, a designer can alter a current scheme -- adding and deleting specific segments as he searches for finer tunings. He works with the full context of his previous drawing(s) to direct his thoughts. He does not lose the "creative inspiration" generated in his mind by previous work. A continuum is maintained throughout the evolution of the design.

It seems to me that the machine could be programmed to function much like yellow trace, but more -- a yellow trace which could amplify the designer's efforts by inferring some of his intentions. How might this work? One can imagine a designer sketching over a certain portion of his existing "top level" drawing, and rather than having the new lines "pile-up" or having the original lines disappear, the original section could simply drop to a "lower layer". Or perhaps the entire drawing is overlayed at the user's command; then, when he indicates (or the machine infers) completion of that "pass", the machine performs an intersection of the two states of the drawing and brings unmodified portions back to the top layer. These are only two possible forms of implementation. There are others. Each requires different sets of inferences. Each has different consequences for data storage and subsequent back-tracking. In short, there are so many options -- each pointing to different recognition and inference-making areas, that I feel the notion warrants far more than a cursory glance.

ARCHITECTURE MACHINATIONS

A weekly newsletter of the Architecture Machine Group, Department of Architecture, M.I.T., Room 9-518, Lee Nation, et 100.

Vol. II., No. 36. September 3, 197

ABY NEWS

Peter Clay has departed for three weeks prior to the onset of classes. He leaves behind a working version of the TSD/ABY system. To use it, login as LOOKING_GLASS. The startup exec will attach all the proper attachables and ask you to type ABY. Do so. You will then be asked to type the first TSD value, then the second, and so forth. These are noted on the TSD. They are 10, 50, 766, 750.

From that point onward you should be able to run just fine. This version of ABY, however, does not have the Bubble and Sketch Shapes loadmods implemented yet. If you wish to use those capabilities, please login as ABY_DEMO. Also, if the TSD itself is not working (you will observe this if the screen simply will not respond to your finger), then use the light-pen (Peter's version automatically calls the light-pen if the TSD is faulty). However, in the TSD version the light-pen cannot be used to slide the scale indicators around. So you may as well use the ABY_DEMO version if the TSD is down.

Peter also has written a little memo on the problems of identifying locations with an x/y comparitor routine. He is having special difficulty in locating arcs (this accounts for the absence of Sketch Shapes). His memo follows this entry. I am sure this is a problem others on the staff have given more thought to than have Peter or myself. Does anyone have a good solution? If so, please inform one of us.

Guy Weinzapfel

PETER CLAY'S MEMO: DETERMINING PROXIMITY TO LINES AND ARCS

Given a point, how does one tell whether or not that point is near a line or an arc. Visually it is trivial. One looks and can tell instantly. Unfortunately, a computer does not have eyes. It deals in numbers of all kinds. Some method is needed to perform this operation that the computer can use, if the TSD is to have much usefullness. My initial reaction to the problem was to say, "That's ridiculously difficult" and ignore it. Eventually I sat down and thought about it. I have come up with two algorithms,

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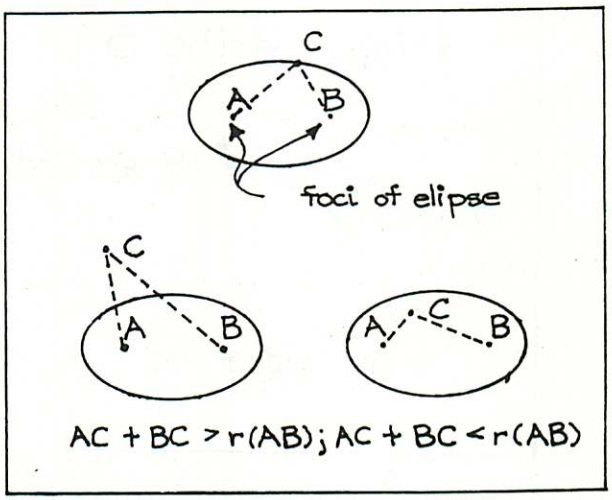
Vol. II., No. 36. September 3, 1976

PETER CLAY'S MEMO: DETERMINING PROXIMITY TO LINES AND ARCS continued

one for determining proximity to lines and one for determining proximity to arcs. No great or extensive research was performed; they are just what I think are the best ways.

The underlying principle behind my algorithm for finding lines is found in the equation of an elipse. That is AC + BC = r(AB) where r is any constant (see diagram). The area that is enclosed by the elipse can be notated as AC + BC < r(AB). If one takes the end points of a line as the two foci of the elipse (A,B), then it is possible to determine whether an input strike lies inside of or outside of some elipse drawn around the two foci. This elipse can be adjusted in size to fit the accuracy of the input.



This process seems quick enough that there should not be any problems using it on a real-time basis.

Arcs are more difficult. My algorithm for them springs partly from the data that I had to start with. It consists of the two endpoints, the arc midpoint, the radius, and the direction in which the arc is drawn. First a coordinate transformation is performed on all relevant points. The starting point of the arc becomes the origin; the line joining the starting and end points becomes the x-axis. Then the center of the circle which the arc is drawn on is computed. Then a check is made to see if the input strike falls in the overlap of two regions (see diagrams on next page).

Mathematically the regions are (1) r + a > SC > r - a where r is the radius and a is some constant, and (2) Sy * Cy < 0 where Sy is the y-coordinate of S and Cy is the y-coordinate of C.

As to how long this whole process will take the machine, I do not know. It may be totally impractical. I think that some thorough research is needed to go any further however. Somebody, somewhere must have thought about this problem. There is also the fact that a more relevant way of storing the data could be developed.

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Vol. II., No. 36. September 3, 197

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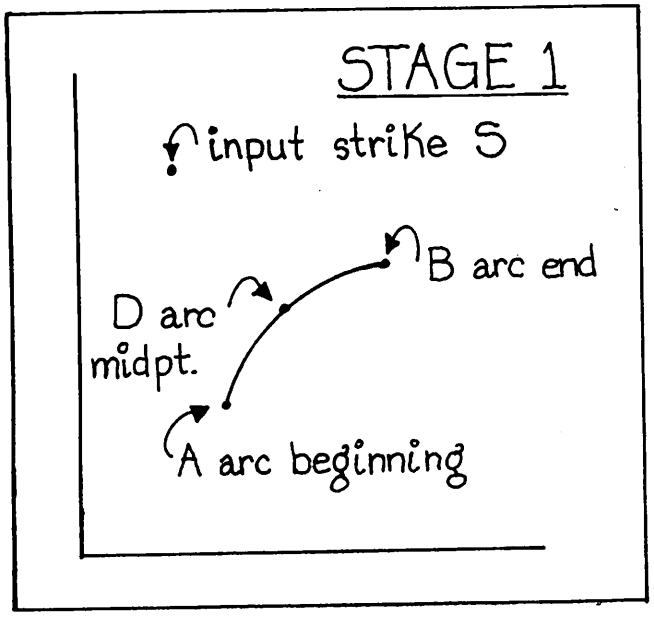

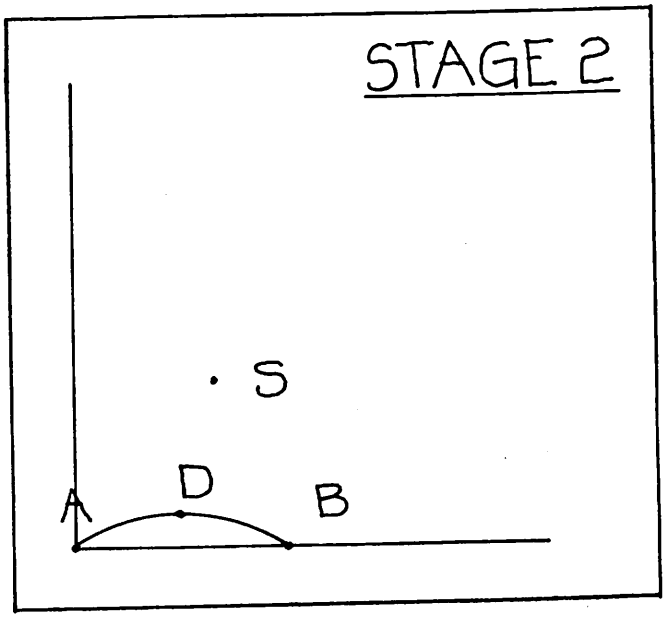

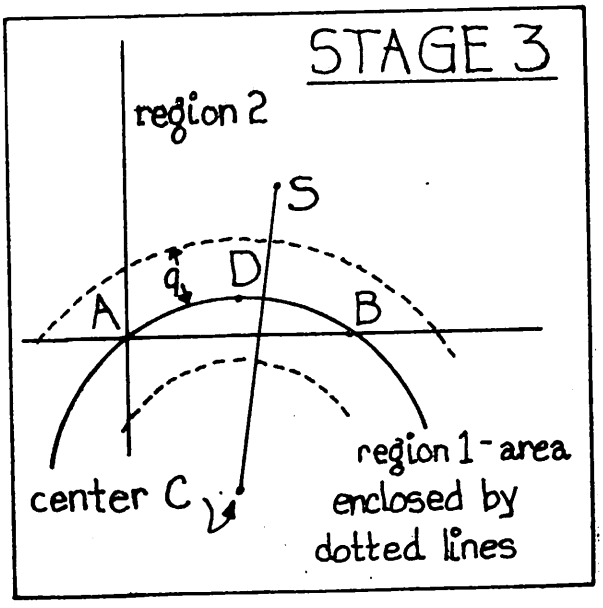

ARCHITECTURE MACHINATIONS

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Vol. II., No. 36. September 3, 1976

LARRY STEWART'S EUREKA DEPARTURE

Imagine hosting a visit for the Industrial Liaison office at 5:00 P.M. Friday, to review some of our work in Graphical Input Techniques. Then imagine that this serious occasion finds Larry Stewart standing on a table blowing bubbles, a chocolate cake of gourmand proportions, and a room full of delighted people. It was not hard to explain this seemingly bizarre and childish behavior to our visitors simply by handing them what was by then the 10th or 20th sheet of color hard copy, i.e., the infamous Xerox original in color.

Remember the Lou Mailloux story. Larry, somewhat embarrassed by that particular Thursday, used the subsequent days to debug the abortive demo and succeeded in printing color copy with a consistant, by unexplainable misregistration. Pouring over the code with such luminaries as Steinberg, the bug remained uncovered and, in fact, we capitulated to the extent of presuming it was software and assuming that somebody like McCann would unearth it later or redo the whole package. At 3:00 P.M. on Larry's last day, walking down Massachusetts Avenue, Larry was hit by the answer, implemented the fix by 4:00 P.M., and hence the color copy in time for our ILO visitors.

Nicholas Negroponte

COLOR HARDCOPY STRAIGHT FROM RASTER SCAN TO XEROX

The cover of this week's Machinations is evidence that Larry Stewart, on the very eve of his departure, succeeded in achieving color hardcopy output. This gives us the capability to go straight from an 85 system, as in this case PAINT, to the Xerox 6500. The current configuration is seven colors plus white, though grey tones and half-toning is in the works to achieve a more continuous range of colors.

Larry's window controls the frame buffer memory, scrolling the image past the slit on the xerox with a black-and white monitor, three times, one for each toner pass of the xerox. The original that you have on this copy was done by Robert D'Ancona from the Center for Advanced Visual Studies, one of the artists currently using the 85.

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Vol. II., No. 36. September 3, 1976

COLOR HARDCOPY STRAIGHT FROM RASTER SCAN TO XEROX continued

This hardcopy feature is particularly attractive since the production of hundreds of copies is merely sixty-seconds away (30 seconds for the software transition from PAINT to XEROX, and 30 seconds for the first copy from the Xerox). Note: the standard daily configuration of our Xerox machine will be for hardcopy output from the 85, and everyone is encouraged to try it. This does mean that we will rarely print slides and normal copy. It is finally a color XGP. It sounds good, but actually having color graphics in your hand just a minute after you produce it, is exciting.

Nicholas Negroponte

THE PLACE OF HOUSES

The Place of Houses by Charles Moore, Gerald Allen, and Donlyn Lyndon is now available in Guy Weinzapfel's library. The following is a reprint of the Foreword of this book.

Good taste, we are told, is a singularly important factor in the design of a house. We are usually told this by someone who is assumed to possess it, and who generally makes a considerable point of the rest of the assumption: that there are people who don't have it, that that includes you, and that you will have to pay dearly to be suitably worked over. We submit that all of this is arrant nonsense. Our traditions are far less confining than the "taste-makers" would have us believe. Traditions have great power precisely because they present us with possibilities and guides that can support invention (Thou Shalt ...), while good taste seeks to intimidate us with rules and limitations that stifle personal choice (Thou Shalt Not ...).

The main premise of this book is that any one who cares enough can create a house of great worth -- no anointment is required. If you care enough you just do it. You bind the goods and trappings of your life together with your dreams to make a place that is uniquely your own. In doing so you build a semblance of the world you know, adding it to the community that surrounds you.

ARCHITECTURE MACHINATIONS

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Vol. II., No. 36. September 3, 1976

THE PLACE OF HOUSES continued

This is not at all to minimize the importance of expertise, only to discredit its mysteries. Certainly, expertise does inform choice. If you care about snuff boxes, brass hinges, or Chippendale chairs, you will soon develop a capacity for distinguishing the real from the fake, the superior from the ordinary. You have no need to be told whether your taste is good or not. If you are moved by the light from a particular window, or by the shape of the opening, you will learn to note its dimensions and orientation and compare them with others. You become expert by caring and working, not by the receipt of any gift from on high.

In areas where you don't care enough to develop expertise, the chances are that other traditional limits will quite automatically assert themselves. If, for instance, chairs are your passion you already know which ones mean the most to you -- antique Etruscan ones, maybe, or fine classic modern ones that please your eyes and your body, or incredibly ingenious ones that employ surprising principles of balance. If, on the other hand, chairs are not your passion, why fake it? You can buy extraordinarily comfortable ones made of canvas on a folding frame for under twenty dollars, and save your money and time for something you do care about.

This book is based on the assumption that your house is of great interest and importance to you. We discuss things we know about in order that you may augment your expertise and gain confidence in your own observations and experience as a suitable basis for creating a house that is your own. If our assumption is wrong, and you do not care all that much, we can be of no help. You should then find a suitable furnished apartment and forget it.

We started out to write a pattern book for houses, inspired by the nineteenth-century pattern books that described a set of houses for people to emulate. We began with the premise that houses built today are mostly careless and terrible, that they had been built well in the past, and that pattern books had helped make them so. Therefore, a new pattern book was called for, and we set about devising one. As we considered what a new pattern book might include and how it might be helpful, we realized that it was not so much the patterns themselves that mattered but the way in which they were useful in focusing energy. The crucial ingredient is concern, care for the way that a house is built and the shape that it gives to

ARCHITECTURE MACHINATIONS

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Vol. II., No. 36. September 3, 1976

THE PLACE OF HOUSES continued

your life. Pattern books had helped in the past by setting out the range of decisions to be made, directing attention to the several aspects of the house deemed most critical: roof, floor-plan and window types, usually, and the general stylistic trappings of the whole. For the nineteenth centry this may have been, and for some people it still is, enough. But our experience as architects leads us to believe that houses can and should be more completely suited to the lives of their inhabitants and to the specific places where they are built. No simple or even complex set of house patterns, however ingenious and skillful, would do.

People who consciously attempt to extend their lives by caring for their house would not be served by a book that offered whole house patterns for the taking. Tract builders already do that, with dismaying results. They substitute stereotype for personality, relentlessly casting the house buyer into a minimal exchange with his surroundings. They offer the inhabitant little, and he asks less, till finally the buyer's interest in making a house the center of his own world is reduced to nothing. We are writing for those of you who still think it important to make a place of your own and who have the energy to struggle with the problems of making it, whether with your own hands, or with the aid of an architect and builder, or by renovating a place already built. Our task, now, is to clarify choices, to focus your energy so that it will not all be spent trying to find a way through the muddle of building decisions, but instead can be used to bring your own personal concerns to bear. We are certain by now that care, liberated by knowledge and confidence and invested in a house, is an investment returnable with interest. As with long-standing beliefs about bread cast on the waters, this confidence is an act of faith. We believe that the contents of this book sustain that faith and describe the decisions that would translate needs and dreams, even follies and pretensions, into patterns of choice about your house.

The first chapters of the book describe three towns we admire greatly, each quite different, yet each enjoying a very special quality of shared architectural purpose. We look closely at these to see how they came to be, what lessons they offer, and where they fail. All three places are American; Edgartown on Marth's Vineyard has a clarity that comes from three centuries of general agreement among the inhabitants about what a good town might be like, as they made

ARCHITECTURE MACHINATIONS

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THE PLACE OF HOUSES continued

their separate houses; Santa Barbara, California, has an eccentric specialness consciously established during one moment in time when the inhabitants agreed to invent a form for the town that would connect it with a synthetic, romantic past; and Sea Ranch on the northern California coast is the product of an agreement among developers and consultants about the nature of the site, an agreement contrived before any inhabitants were present.

These three places, together with some individual houses that we've designed, set the stage for the central part of the book, our attempt to delineate the three conceptual building blocks from which houses are made: rooms to live in, machines that serve life, and the inhabitants' dreams made manifest.

We detail the finite number of ways that rooms can be assembled, be related to machines, and fitted to the land. We also discuss, with examples, some of the nearly infinite number of ways in which rooms can be adjusted for the special interest of those who inhabit them. A checklist is then included to help reveal to you the patterns of living your house must accommodate and to set you on the path to organizing the place that your house may become.

So this is a pattern book after all, but not in the sense we had first imagined. This one describes patterns that help you think about houses; we are not trying to impose shapes. If we put any new limits on your search for a good house then we will have failed. But if we have managed to make your search easier, or even more interesting, we can count our purpose achieved.

SYMPOSIUM ON COMPUTER GRAPHICS

M.I.T. has recently announced it 1976 Fall Series Industrial Liaison Symposia (I.L.O. sponsored) and Nicholas has been named to chair a session on Computer Graphics on Tuesday, November 23. The abstract from the ILO brochure is reprinted here for your enjoyment.

During the decade following its birth in the early 'sixties, Computer

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SYMPOSIUM ON COMPUTER GRAPHICS continued

Graphics found little application. With the exception of the storage tube, hardware developments showed little promise of being cost effective. Following SKETCHPAD, developments in software were most often gratuitous efforts of little impact. This is presently changing dramatically. In part, this is because of radical drops in hardware costs, particularly memory. In part, this results from a movement away from time-sharing, a notoriously bad host to graphics. And in part, this is happening because three previously separate communities of research are merging: computer graphics, picture processing, television production. The morning of the symposium will concentrate on developments in hardware and software, for the frequently ignored input techniques as well as picture making processes. The afternoon will comprise a series of applications, including: Art, Architecture, Planning, Computer-Aided Instruction, Experimental Psychology, Command and Control.

WEEK IN CALIFORNIA

I had three purposes for traveling West of New York: Boeing, Ramtek, and Xerox.

My visit to the Boeing Commercial Airplane Company followed in the footsteps of Chris and Bill. Boeing manufactures over 50% of all commercial airplanes and "manufacture" means, more often than not, assemble. Unlike their competitors (i.e., Lockheed and MacDonald-Douglas) they did not embark upon CAD in the late sixties in the style of Ford and General Motors. While they did have very early developments (the work of Fetter, for example), they did not pursue these in the high risk years. This conservative position has paid off handsomely.

They are currently embarking upon a mini-computer based, distributed computing scheme.

Their in-house team has grand schemes that may have the winning feature of being timely in terms of where our technology is. I do not want to give the wrong impression. They have not been doing nothing; they have massive batch CAD programs. For example, one

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WEEK IN CALIFORNIA continued

set uses APT as a graphics language by specifying a tool of zero radius. This may be old hat to some. But, observe that drawing a part becomes synonymous with machining it.

The purpose and result of my visit to Ramtek have appeared in different guises already. One detail that has escaped other commentary is that the system will have a 19" 1000 line color tube. This will be in the Mitsubishi monitor, of which only prototypes are in the country, and will be driven at standard rates. What is important is that the tube will be 1800 triads across. If you approximate the horizontal to be 18", this is 100 triads per inch. Or, as Myron Tribus observed, 100 lines per inch of chrominance information, but almost 300 lines per inch of luminance information.

The overall system is best described by the two diagrams that followed Andy's entry last week in Machinations (II., 35.). We have opted for the grey channel to follow the matrix. Additionally the PROMs fix the cursor color; hence, we selected one to be white and are in the process of finding out whether the second can be a complement cursor or not. Note that only 10 of the 12 planes go into the matrix.

My last stop, Xerox, was in large part motivated by the fact that Ramtek is only a couple of miles from PARC. The theme of the visit was animation. The results may surface in a bound volume some years hence.

Nicholas Negroponte

COGNITIVE INFORMATION PROCESSING GROUP SEMINAR

A Cognitive Information Processing Group Seminar will be held at 2:00 P.M., Tuesday, September 7, 1976 in Rm. 36-428. The speaker will be Mario Schaffner whose talk is entitled "A Language Particularly Effective for Pattern-Recognition Programs". An abstract of this seminar follows.

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COGNITIVE INFORMATION PROCESSING GROUP SEMINAR continued

Pettern recognition typically requires a large amount of parallel processing, and often necessitates a variety of strategies which can be formulated only with difficulty in a single formal language.

Significant results have been obtained by using a language for a particular type of "abstract machine". In this language, a program consists of an organized society of abstract machines (AM). The plurality of AM permits a natural expression of parallelism. The features of these AM permit an easy implementation of a variety of strategies. The formulation of these AM is presented, and the way to organize them is outlined.

The production of this language can be implemented by conventional computers through translation, or they can be implemented directly by processing machines that have a structure closely related to that of the language. In this second case, very fast execution, and an easy man-machine interaction are obtained. Results are shown in real-time processing of radar signals for recognition of meteor echoes of different types, and for measurements of characteristics of weather-echo patterns which can be related to characteristics of the associated weather events.

SYSTEM 6.0'S NAMES

While someplace (like Greece), Paul Mackapetris and Steve Gregory concocted the idea of Mockapetris And Gregory Interactive Computers, hence: MAGIC. We have lived with this name of our operating systems for six years. 6.0 is so dramatically new, we need a new name. Submit your ideas to Lee for next week by Thursday at 5:00 P.M. An anonymous jury of qualified etiologists and etymologists will pick the winning name and the winner. Prize and incentive will be one (1) bottle of 1966 Chateau Margaux (Premier Grand Cru Classe) which is currently on display on Anne's desk.

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DOCUMENTATION

The PL/1 INTERNAL DOCUMENT has just recently been released. Unfortunately, Seth already has a number of new sections for it and it is already about to undergo a major revision. So, if you decide to take a copy, beware....

The new updated version of the PL/1 MANUAL now has Appendix I -- a list of error messages. Also newly revised is the MAGIC PL/1 SUBROUTINES (mostly minor changes).

The notion of a naive user's guide seems to be defunct for lack of a patient writer. Please think about it.

The next manuals scheduled for updating are MAGIC COMMANDS, MAGIC FORTRAN SUBROUTINES, MAGIC INTERNAL DESCRIPTIONS, and MAGIC MAINTENANCE COMMANDS. If you have any updates you want slipped into this priority list, please contact me soon.

Lee Nason

CARTOON:

THE PERSONALIZED MACHINE