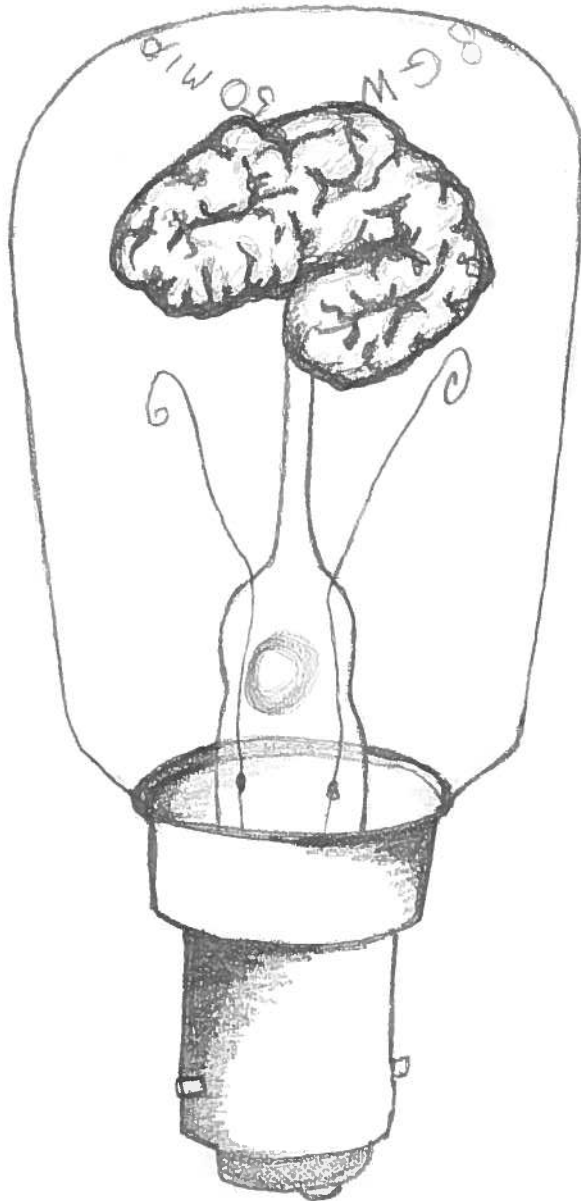


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Volume 4 Number 1

August 1989



EDITORIAL

Eliktronik Brane apologises unreservedly to its subscribers for the absence of Volume 3.

Eliktronik Brane

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*As Rupert tells the brainy pup
His news, the brisk trot warms them up.*

Europe picks its brain

THE EEC has awarded £700 000 to six research projects in artificial intelligence. The award forms the first phase of the Basic Research in Adaptive Intelligence and Neurocomputing (BRAIN) programme. This aims to develop computers capable of reason and learning through parallel processing and other processes characteristic of animal brains.

The programme is meant to compete with Japan's Human Frontier programme, which is also aimed at developing artificial intelligence and which, say sources in Brussels, could lead to a "brain drain" of European experts. □

NEW SCIENTIST
26/11/87

FISH NEWS LATEST!

Automaton stands in Local Elections.

Communiques from the Militant Fish Wing of the Robotic Fish Tendency (erstwhile housed with the Edinburgh Wave Tank project, see E.B. vol 1 issues 1-5) have been thin on the ground over the past year. It has emerged that the Finite Fish Automata involved in the takeover of the main outlet pipe from the Sellafield (aka Windscale, aka Leafy Meadow) nuclear processing plant have been carrying out controlled mutations to such an extent that they have now produced an intelligent Sea-Urchin from pieces of old sewage reclamation equipment, laboratory constructed DNA and slurry. F29/b, as the new entity is affectionately known, has stunned local 'scientists' and the worthy denizens of this unpleasant backwater of rural England by deciding to field itself as a candidate in the local elections. It is as yet unclear whether F29/b will be standing under the banner of the Robotic Fish Tendency, the People's Pelagic Automata or the Popular Oceanic Terminal Front. Recent factioning amongst our salt-water comrades has resulted in great confusion on this issue.

Local church leaders were particularly incensed by the suggestion that the creation of F29/b altered the nature of the candidacy and felt that the event would open the floodgates for items of dubious moral and biological makeup to commandeer crucial positions in society. The Union of Marine Molluscs, however claimed that possession of a soul was not a necessary prerequisite for candidacy in any political arena, and thus the candidate could not be assumed to have moral rights merely by being fielded in this election. The race relations council is looking into whether exclusion on the grounds of soullessness would constitute a violation of the Equal Opportunities Act and the Committee on Flawed Logic is in two minds as to whether they should be bothering about anything.

A continental shelf spokeshing commented last night:

"This has really split the Polyp vote. Parthenogenesis has always been very popular in this area and will no doubt remain so as long as current reproductive practices are safe and effective."

The (insert appropriate acronym here) party candidate commented:

"We expect the poll tax to be a deciding issue, even though many of the electorate have no fixed abode or even bodily status. Hermit crabs in particular are expected to be concerned about their 'squatter' status, and peacock worms feel that, having constructed their own homes from, in some cases their own bodily products, they should not be liable for a community charge."

Ruptions continue throughout the week.

THE IGNORANCE PRINCIPLE

The Ignorance Principle ("Forget the content, just use the form", or "Why clutter up the system with a lot of knowledge?") has a long and distinguished history in AI. In 1975, Gord McCalla and Michael Kuttner published an article on a program that could successfully pass the written section of the British Columbia driver's license exam. For example:

QUESTION: Must every trailer which, owing to size or construction tends to prevent a driving signal given by the driver of the towing vehicle from being seen by the driver of the overtaking vehicle be equipped with an approved mechanical or electrical signalling device controlled by the driver of the towing vehicle?

ANSWER: Yes.

.LP In fact, the program was able to answer more than half the questions just by looking for the words "must", "should", "may", "necessary", "permissible", "distance", and "required".

The system was not without its flaws. For example:

QUESTION: To what must the coupling device between a motor-vehicle and trailer be affixed?

ANSWER: Yes.

This is wrong; the correct answer is "frame". (This was an early instance of the frame problem.)

The authors subsequently attempted a similar program for defending PhD theses, but the results were never published.

REFERENCE

McCalla, G. and Kuttner, M. "An extensible feature-based procedural question answering system to handle the written section of the British Columbia driver's examination". *_CSCSI/SCEIO Newsletter_* [now published as *_Canadian Artificial Intelligence_*], 1(2), February 1975, 59-67.



We've explored just a block world with this prototype, still it brings us a step closer to Natural Intelligence.

THE ACME SCHOOL OF ENGINEERING RESEARCH

FINAL EXAM PAPER 1987

You should answer as many questions as you can.

QUESTION 1

*The purpose of ACME's strategy is to improve the agility of Britain's manufacturers by a programme of innovative investigation and research management in advanced manufacturing at higher-education institutes, integrated with a programme of enervating exercises and dietary management at lower-education institutes. The research portfolio over the last few years has fallen squarely in the early synthetic stages of research. We expect that it will soon become more rounded (*1) as it moves into the stages of dialysis and quantified comparison of performance. [A COD Research Strategy, Neaubrene, 1987]*

Discuss whether this shift of emphasis in the funding programme is a real phenomenon, or an artefact of the use of the numerically controlled machine tool metaphor as a method of discursion. You should refer to the problems of tape proving in at least two of your answers.

50 marks 30 mins

QUESTION 2

There are many stages to research. Compare and contrast the virtues of Sabin's Sharp Questions (*2) with Ludhyar's Lunation Phases (*3) for distinguishing between the stages of scientific research.

SABIN	LUDHYAR
singular	
<i>Achievement Phase</i>	<i>Crescent Phase</i>
1. Wouldn't it be nice if...	Introspective aborption.
2. How can we do it?	Delight in self expression.
3. Can this method do it?	Curiosity about acting on the world.
4. Try this method out.	Delight in achievement of effects.
plural	
<i>Performance Phase</i>	<i>Decresecent Phase</i>
5. Which of several is the best?	Curious observation of others.
6. What do the differences depend on?	Delight in manipulating others.
7. Try them all out.	What does it all mean?
8. Generalise and become an expert.	Communication of solution to others.

50 marks 30 mins

QUESTION 3

In the table of Question 2 above Sabin asserts that only stages 5-8 are suitable for academic research funding, whereas Ludhyar claims that only the gibbous phase (i.e. stages 3-6) is suitable. Semira makes the general claim that eightfold divisions are unsuited to the dialectics of activities whose main product is information, which should be analysed in terms of the ten Sephirothic nodes, with research funding from nodes 3 to 8. Moorcock and Witherspoon argue for a twelvefold genethliacal analysis in terms of the equinoctial and sidereal zodiacs, with research funding between Aquarius and Virgo. McCullough favours analysis of the research cycle in terms of the twenty-two (twenty-one) major arcana, using Crowley's rationalisation of the Florentine ordering, and bottom up research funding.

* The footnotes are to help you with your answers. You will find them at the bottom of the next page.

Discuss. You may draw examples from the portfolios of the biological, biochemical, mythological, and engineering directorates.

60 marks 45 mins

QUESTION 4

What is wrong with British manufacturing industry today is that it does not know how to predict the effect of a variation in operating circumstances upon the profitability of its methods, and consequently does not know when to change from one method to another. [The Seven Stages of Industrial Exploitation, Neaubrene, 1987]

A) - Discuss this in the context of the plight of UK manufacturing industry in the 1980s, illustrating with examples of industrial failure resulting from ignorance of the effects of a variation in operating circumstances. You should refer to Thatcher's Principle (*4) in your answer.

45 marks 20 mins

B) - Select one example of a variation in operating circumstances. Devise a research project and industrial exploitation route designed to discover the effects of this variation in operating circumstances and to communicate this to the ignorant industrialists. Your answer must be diplomatic and less than six centimetres in length (*5). You must not use the terms *strategy* or *basic research*.

900 marks 13 hours (*8)

QUESTION 5

*Once the appropriate distinguishing criteria have been isolated, it is possible to map the problem space showing the regions of optimum applicability of each method of solution (*6). This is the most scientific stage of research, but because it is rather boring it should ideally be done by someone else (other than the inventors of the solutions). [The Seven Separate Stages of Scientific Search, Neaubrene, 1987]*

A) - Suppose the research problem is devising an academic research strategy relevant to the needs of manufacturing industry. Using the above technique draw a map of the problem space with respect to the following methods of devising a strategy, taking care that the method definitions you use are constructed to the same standards. Use the coloured crayons provided.

1. Sabin's Sharp Questions.	12 marks
2. Ludhyar's Lunation Cycle.	15 marks
3. Semira's Sephirothic Nodes.	19 marks
4. The Alvey Surprise.	7 marks
5. Egginton's Method.	0 marks
6. Any other method.	55 marks

5 mins

B) - Explain why this stage of devising a research strategy is the most scientific. Why do you suppose Neaubrene thinks it is boring? (*7)

40 marks 5 mins

* The footnotes are optional. You may consult them if you wish. They may be found at the bottom of the next page. They may be found at the top of the next page. They may have been removed in order to prevent them distracting you from the exam questions. Or they might have got torn off by accident. This is a typical industrial problem (and this is an ACME exam paper).

*1 Square *or* round. The specific *shape* is not important. What Dr Neaubrene is getting at here is not so much the importance of specific *geometric* shape as the importance of specificity *about* geometric shape (*6). In other words, the lexical invariance is more important than the abductive inference - at least as far as manufacturing industry is concerned.

*2 *Sabin's Sharp Questions* were devised as a method for structuring conjecture in domains characterised by only minor discontinuities in the differentials of insignificance, with consequent difficulty in the perception of the major internal elements of semantic articulation, e.g., the WP syndrome (see page 4).

*3 *Ludhyar's Lunation Phases* derived originally from an astrological study of the behaviour of lunatics, but have been found since to apply usefully to the WP syndrome, as well as many other diverse areas of confusion. They are less pointed than *Sabin's Sharp Questions*, but are of much wider applicability, e.g., Moore's use of them to analyse the development of the policies of the two major political parties before the 1987 election [Old Moore's Almanack, **Moore**, 1986].

*4 *There is no alternative* (see Kinnock).

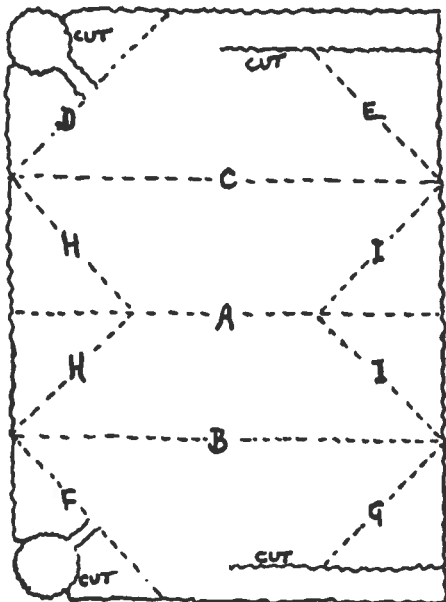
*5 You may, however, use tiny handwriting, lots of footnotes, or your imagination. Footnotes must be on a separate sheet for the usual reasons. This sort of thing is often requested by research funding agencies. The important questions are the scientific merit, timeliness, and industrial relevance of the case as submitted to the grant funding agency proposal submission panel reference subcommittee members (in octuplicate), and since this would otherwise naturally be presented in the form of a document whose structure reflected that of the ideas, this would tend to produce an unfair advantage in favour of that subset of the group of proposers competing for the particular tranche of funding capability in question who were good at writing documents, which of course has no necessary causal connection with the scientific merit or industrial relevance of their proposals, and so might improperly arouse the approbation of those members of the subcommittee who had actually read it, whereas, on the other hand, those who relied on squinting surreptitiously at the copy of the committee member seated beside them, while pretending that they were merely jogging their memory on points of detail, might be misled by the tendency of ponderous verbosification to scare those who were frequently punished for stupidity at school (as manifested by the inability to construe complex prose passages full of monstrous words, subordinate death traps, and intricately negated semantic locks) into thinking that it might not be advisable not to deny that it was not indeed a most seriously clever proposal. I blame Cartesian Dualism. Of course one cannot make judgments of grant requests with the precision that is possible in engineering matters (at least in theory), but it is obviously silly to try to study one variable, such as merit, while others, such as length, gravity, and semantic drift, are uncontrolled.

*6 This is an example of the use of geometric modelling to express relations between features of ideas. Clearly this technique could be extended to permit anything whatsoever to be expressed within the formalism of a suitably enhanced geometric modeller. That is why geometric modelling is of such central importance in ACME's engineering research programme - because people think in terms of pictures. Our research shows that 100% of engineers answer affirmatively to the question "*do you think in terms of pictures?*". Only 66.6% of a randomly drawn control group of non-engineers answered affirmatively. The other 33.3% did not understand the question. Further questioning of this 33.3% elicited the remark that he found thinking very difficult anyway. These figures add up to nearly 100% and therefore pass the round pi test of statistical significance at the Thatcher level of confidence (*4). QED.

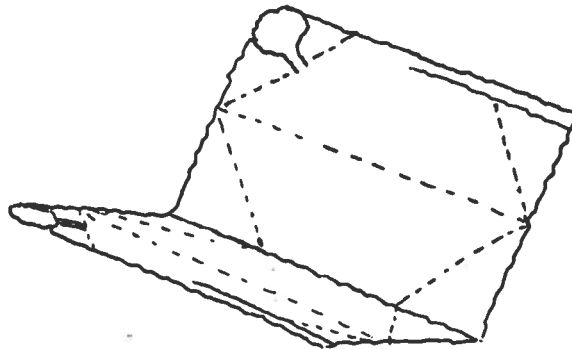
*7 This is a trick question.

*8 You will be pleased to know that your answer to this question was excellent, and the only reason we are giving you zero marks is that we had already allocated all the marks to the previous questions, due to a computer error. This is a purely temporary situation and will probably not affect next year's candidates.

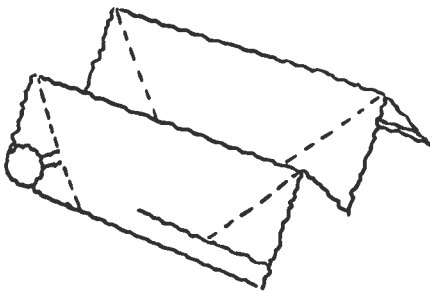
Build your own Snapping Brain !



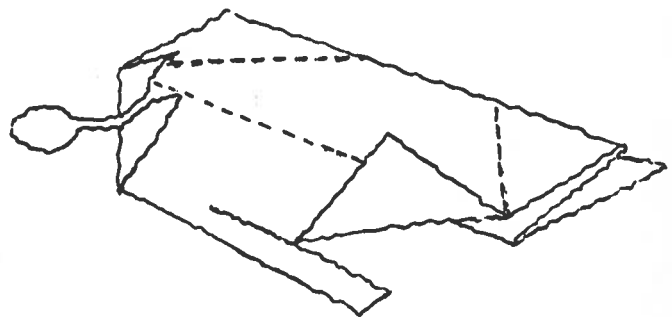
1. Carefully photocopy or remove your 'Snapping Brain' (TM) from this special bumper edition of Elektronik Brane.
2. Cut around the eyeballs and optic nerve and alongside the spinal chord.
3. Fold the 'Snapping Brain' (TM) paper along the centre line [A] so that the two brain drawings are face to face (Valley fold).



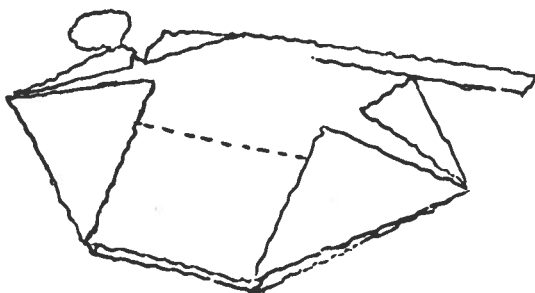
4. Fold the 'Snapping Brain' (TM) paper in the opposite direction along the lines [B] and [C] (Mountain fold).



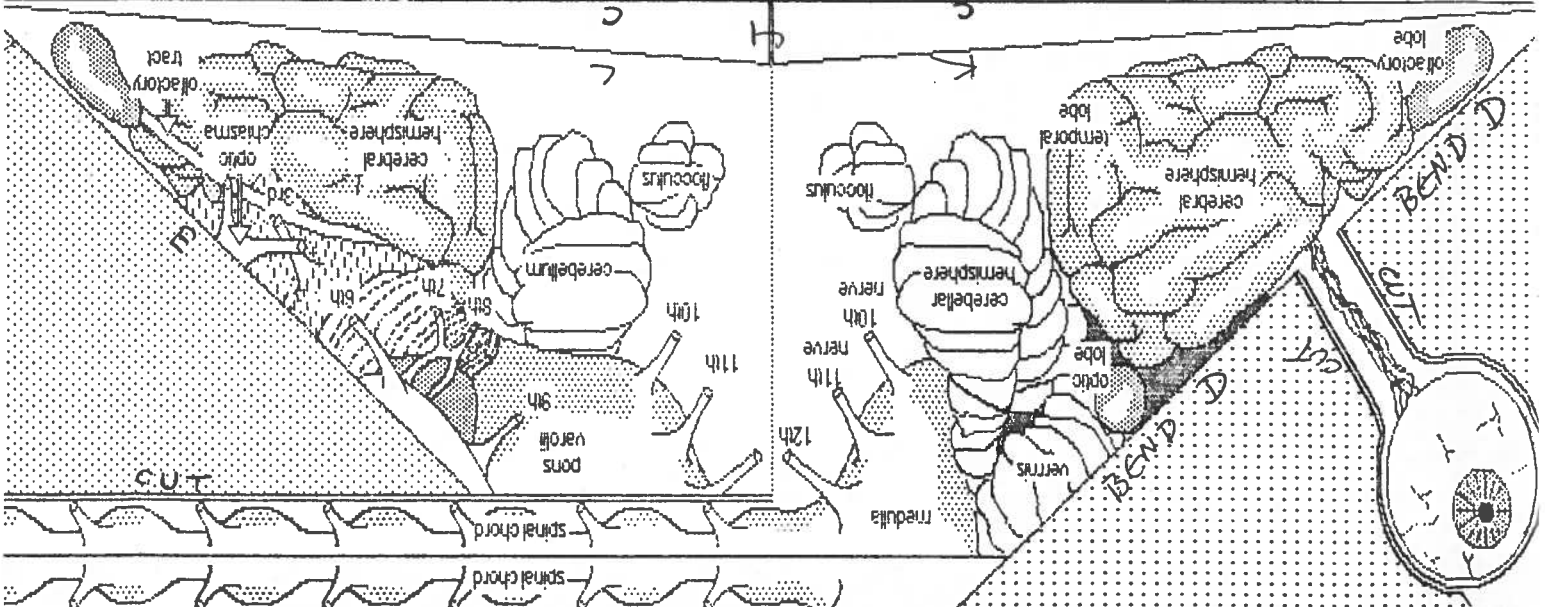
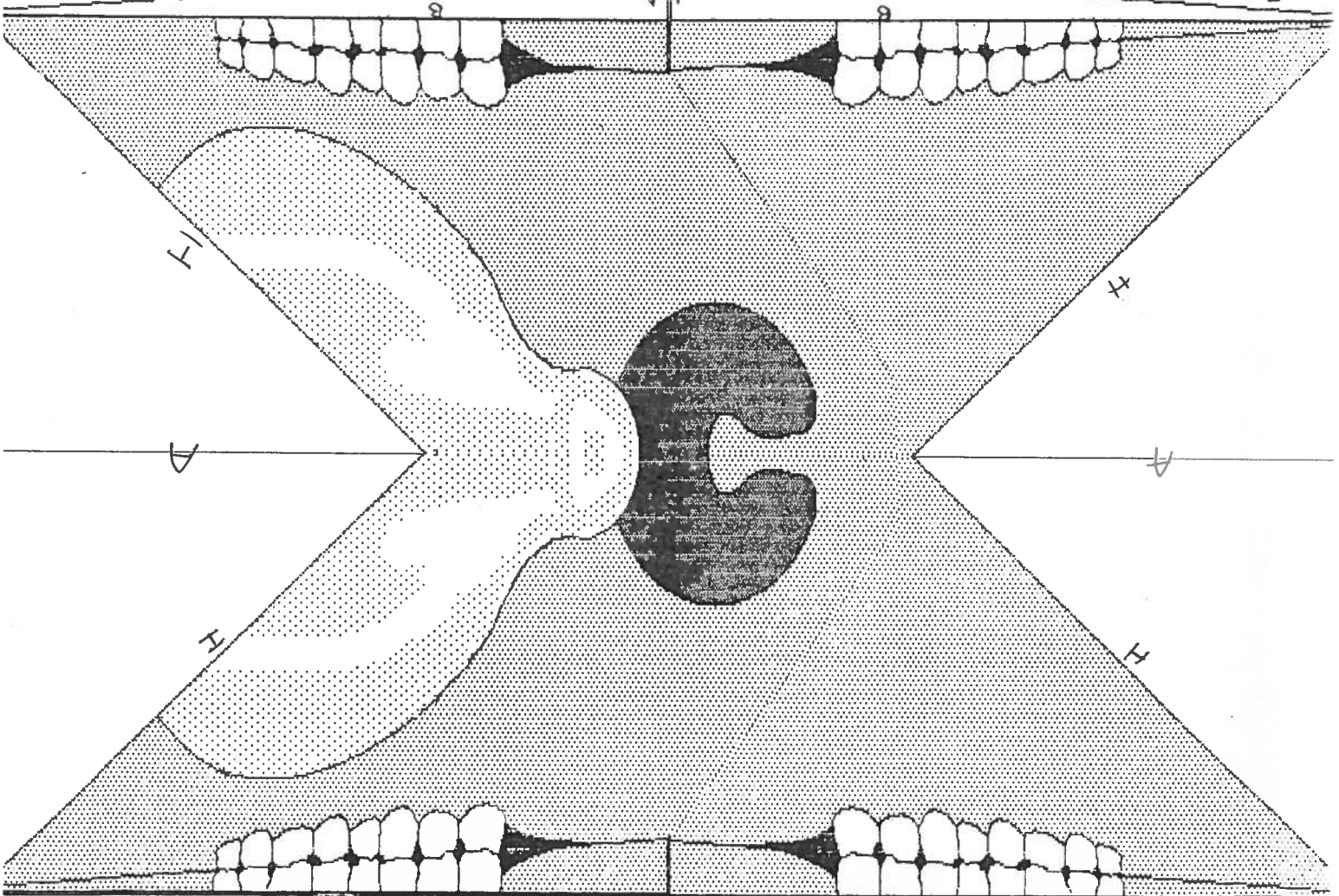
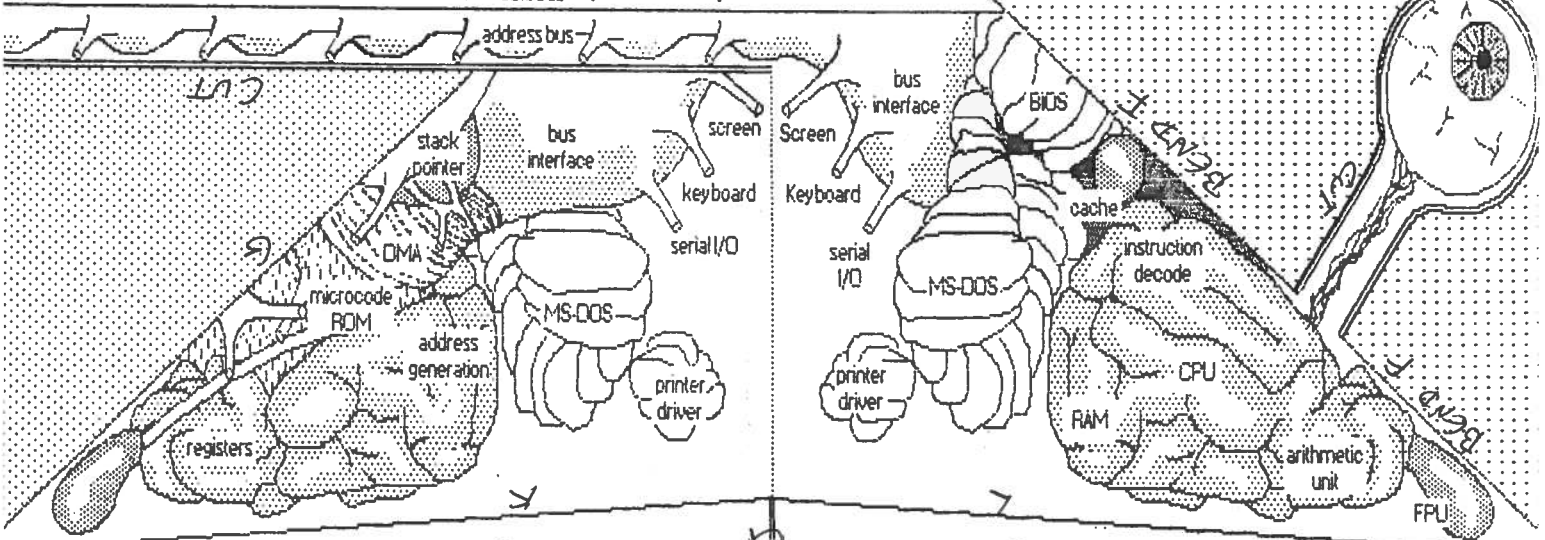
5. Open the fold [C] flat then fold the two corners along the lines [D] and [E] to the line [C] (Valley fold). Do not fold the spinal chord or the eyeballs.

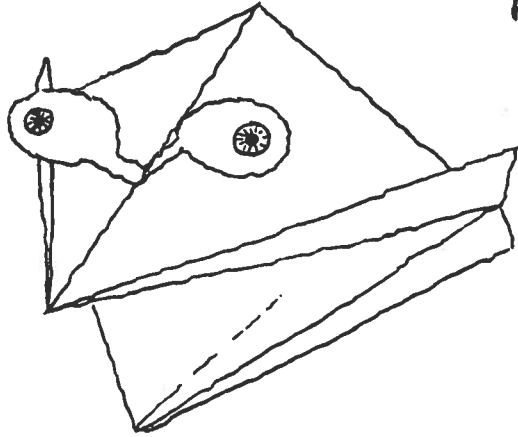
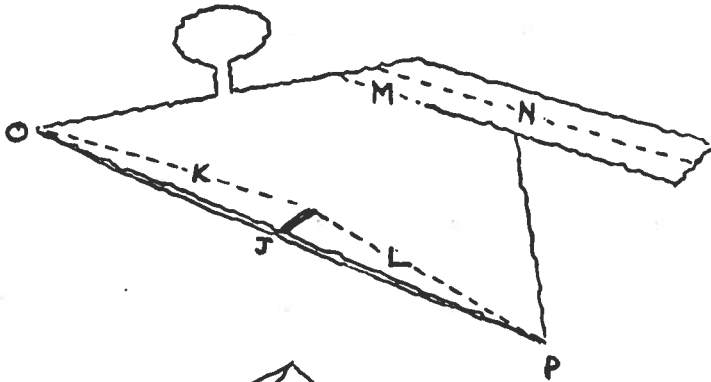


6. Close the fold [C] again. Now open the fold [B] and fold all four corners along the lines [F], [G], [H] and [I] to the line [B] (Valley fold). Do not fold the spinal chord or the eyeballs. Close the fold [B] again.



7. Cut along the line [J] then bend the lips along lines [K] and [L] towards you to a right angle (Valley fold).
8. Bend the spine towards you to a right angle along line [M] (Valley fold). Then bend the centre of the spine away from you along line [N] (Mountain fold).
9. Turn over your 'Snapping Brain' (TM) and repeat instruction 8.





10. Push your finger into the mouth of your 'Snapping Brain' (TM) and open it up. Push points [O] and [P] together.

11. Fit one spine inside the other. Bend the optic nerves apart and twist the eyeballs so they face forwards.

12. Your 'Snapping Brain' (TM) is now finished! Amaze your friends! Be the first on your block! Frighten horses! This is not a toy; to avoid danger of suffocation, stay away from babies and young children.

ELECTRONIC 'BRAIN'

Machine Quicker Than Mathematician

REVOLUTION OF THE MIND

WELLSIAN developments in the science of electronics, which enormously augment the human senses, were referred to by Admiral Viscount Mountbatten, himself a wireless specialist, at the 21st anniversary dinner in London last night of the British Institution of Radio Engineers, of which he is president.

He spoke of an "electronic brain" which will perform functions analogous to those at present undertaken by the semi-automatic portion of the human brain and of machines which can exercise a degree of memory.

"The electronic brain will enormously extend the scope of the human brain," he said. "The electronic numeral integrator and computer (eniac) employs 18,000 valves and consumes as much power as 100 electric radiators. It will receive and sort information acting in accordance with overall directions given to it by human beings. Even at a distance it will obey orders.

"The eniac can solve complicated mathematical problems in a fraction of the time taken by a mathematician."

The answer to one problem concerning the trajectory of projectiles in flight, which took a mathematician about ten days to find, could be extracted from this machine in four seconds.

CAN PLAY A GAME OF CHESS

"Machines are being designed to exercise those hitherto human prerogatives of choice and judgment. One of them could even be made to play a rather mediocre game of chess.

"In the field of memory alone, however, it seems likely that man is to be provided with vastly greater and speedier access to the inherited knowledge of the ages than he is able to command at the present time."

Dr Vannevar Bush, Director of U.S. Office of Scientific Research and Development, had noted of the electronic memory machine that present methods of storing knowledge are extremely cumbersome. Most of it was put into book form, which occupied 10,000 times the space that microfilm storage of the same information need take up. Writing, printing, and publishing could be replaced by directly recording human speech on to a sound-track in legible form, though it would probably be necessary to redesign present languages on a more mechanical basis.

The reference library of the future would be a kind of memory machine of the size of a large desk.

It seemed that we were really facing a new revolution, a revolution of the mind, and in this revolution the responsibilities facing scientists were formidable and serious.

DANGER OF DISASTER

"At the time of the industrial revolution forces were released before the general intellect and conscience of mankind had been sufficiently indoctrinated to control and direct them for the benefit of man. If such a gap is again permitted to arise in the course of the scientific revolution we are now living through, only disaster can result."

The 'Electronic Brain'

It is always much easier to introduce a false term than to evict it. The term 'electronic brain' has probably come to stay, but it must be handled with care.

AI AT THE CROSSROADS

A REPORT OF THE FIRST INTERNATIONAL CONFERENCE INTO THE FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE.

In the Crossroads Motel, at the junction of Adenauerstrasse and Karlmarxstrasse in Aachen, a rectangular negligent conference centre in the style of the "nouvelle brutalisme", a cross-disciplinary team have been examining the foundations of Artificial Intelligence research. This is the first fruit of the new interdisciplinary initiative funded by the NADIR directorate of the SERC. The problems this distinguished team have been addressing were first recognised by students studying advanced AI courses at the Universities of Margate and Auchtermuchty. These courses were sufficiently advanced to have cast doubt on the simplistic assumption that Artificial Intelligence is Expert Systems. The students realised at the end of the courses that they still didn't know what artificial intelligence was. In practice this could be reduced to the empirical question of how to tell an artificially intelligent program from one that was just pretending - or, to be more precise about it, how to tell a system that, if it were a human being, would naturally be supposed to be intelligent, from one that, if it were a human being, would naturally be supposed to be pretending to be one.

Prof Smart of Auchtermuchty's Department of Sociology and Comics (a cost-saving merger purely in order to share administrative overheads) said that his research had shown that self-categorisation of the different types of AI Research had been skewed by inappropriate nomenclature. Searle had popularised the categorisation of "strong ai" and "weak ai", but being a philosopher he had not considered the Adlerian problems posed by terms with such personal meaning to the super-ego.

This was the value of a cross-disciplinary approach. For example, if you were a small nyaff with spectacles who got beaten up in the school playground, and had worked hard for twenty-five years to become a professor so you could tip your nose at boneheaded bullies, would you admit to doing research into "weak ai"? Consequently almost all researchers claimed to be doing "strong ai" themselves, asserting "weak ai" to be research done by people in other disciplines which had run out of research funds, but who had found some way of convincing the research councils that what they were doing was relevant to AI. For example, German research had shown that photographs of tall blond people were generally supposed to be more intelligent than small dark people, even though half of them were actually wearing wigs and sitting in misleadingly scaled chairs. Indeed, this practice (of increasing the appearance of intelligence by wearing wigs and sitting in special chairs) had been used for centuries by the British Judiciary to give an appearance of intelligence.

Reasoning that analogous effects might pertain in AI, Smart's HCI researchers had established that programs running in computers with large display screens and moving coloured pictures were indeed judged to be the most intelligent, but were also thought to be dauntingly unapproachable. It has been known for a long time that the highest approachability index is possessed by fluffy things with large round eyes and bulging foreheads, hence the prevalence of spectacles, beards, and baldness amongst both male and female academics, thought to be an evolutionary adaptation to offset their otherwise off-putting intelligence. The HCI team are now conducting experiments in improving the approachability of artificially intelligent systems by replacing the plastic mouse with with a fluffy bunny rabbit. It turns out that the colour of the bunny is very important, but that this varies considerably between individuals. This poses as yet unsolved and very difficult technical problems which their industrial collaborators in the intelligent fluffy toy industry are working on.

Prof Abelson of Margate's Department of Divinity and Medieval Music (a cost-saving merger purely in order to share administrative overheads) pointed out that many of the current philosophical disputes underlying AI were intriguingly similar to the theological disputes which troubled the early Church. The question of the relation between real and artificial intelligence was very similar to the dispute between the Homoousians and the Homoiousians which Athanasius the Great settled in AD 362 in Alexandria. As recorded in the 'Tomus ad Antiochemus', Athanasius asserted that the 'ousia' of 'homoousia' meant 'having a common element' rather than 'identity', but it was not true, as first proposed by Zahn, and accepted in some form by Gwalkins, Harnack, and Seiburg, that 'homoousios' triumphed by a transformation into 'homoiousios'. Duchesne's verdict in 'The Early History of the Church' (vol ii E.T. p281) was a fair statement of the case: "The Nicene term was in no way ousted... But the idea which the 'homoiousios' accentuated was admitted, under another formula - that of the three 'hypostases' - as a useful and even necessary explanation of the 'homoousios'." The similarity to the current philosophical debates in AI was most striking.

Prof Abelson suggested that artificial intelligence was like moral goodness, or happiness, i.e., something which could never be achieved by trying to achieve it directly, but only as a side effect of trying to achieve it in other people - or in this case, machines. Thus theological and philosophical justification had been found for one of AI's basic, but hitherto unproved, assumptions.

As to the question of whether it would be possible for a machine to have an immortal soul, he considered that no machine which was not clever enough to wonder whether it had a soul could possibly be supposed to have one. In the case of machines which were capable of worrying about the question, it would initially have to be a question of faith on the part of the individual machine. The question would only be finally resolved by the advent of an Artificial Machine-Based Messiah. The NADIR directorate were currently seeking peer comment on the rather delicate question of Who should be responsible for this research project, and whether to waive the usual requirements of industrial relevance and the completion of the RG2 form in sextuplicate.

Their own special interest (i.e. the Department of Divinity and Medieval Music) was in artificially moral machines. Their current research project concerned scripture-based machines which were capable of understanding simple news stories from the tabloid press, and deciding whether or not the various actions described were right or wrong, using an Assumption-Based Morals Maintenance System based on the Holy Scriptures.



KAROL KZAPEK'S PROPHETIC THEATRE PIECE
COMES TRUFF!

Masters of Computer Science

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PRODUCT ANNOUNCEMENT

LISP users will know that Common LISP is essentially a 'bare bones' specification, only including the minimum number of functions, and omitting many that AI programmers have come to demand as standard. Happily, the Massachusetts AI firm of Belt, Bottleneck and Tumour have now released their UnCommon LISP. It is our pleasure and privilege to be able to review this outstanding new package.

List-processing

UnCommon LISP introduces a variety of new list-processing functions. The function CAR, to take the head of a list, is supplemented by the functions VAN, TRUCK, and EFFING-GREAT-JUGGERNAUT, which return increasingly large portions from the front of the list. The list constructor CONS now has its inverse, SNOG, which returns two values, the head and tail of a list, and can be used to implement the function DEPEND (opposite of APPEND) which splits any list in some unspecified but arbitrary position.

Iteration

Common LISP's DO functions have been augmented by a new construct, DO-WA-DIDDY, which prints gibberish on the console for several minutes. The mapping function MAPCAN is now extended by the addition of the functions MAPCAN'T, MAPWON'T and MAPSHAN'T, while the higher-level functions MAPDEV and MAPUSER are provided, to apply some function to a list of devices and users respectively, e.g.

```
(MAPUSER #'TWO-FORTY-VOLTS '(FRED JIM BILL))
```

Flow-of-control

Where Common LISP provided only CATCH and THROW, UnCommon LISP offers the user FUMBLE, which causes the receiving function to entirely miss the result of any THROW from a lower level, and return the error string "Oops, butterfingers!", and SNATCH, which allows some arbitrary function to intercept a THROW, and return the stolen value. THROW can also take the optional keywords :OVERARM, :UNDERARM and :SPIN.

Data types

UnCommon LISP allows zero-dimensional arrays and arrays with negative dimensions to be defined (but not accessed), and provides the data type 'rope', which is like a string, only thicker and more useful for hanging yourself when it all gets too much. The 'gullible Boolean' is a data type which can take the single value T. Instead of structures, an unstructure can be defined using DEFUNSTRUCT; an unstructure is just a random collection of bytes, to which any data type can be assigned, and from which any data type can be read. Precisely what is returned from an attempt to access an unstructure is implementation dependent.

Variables are flexibly scoped - the interpreter attempts to remember when it last saw something looking approximately like that variable name, and assigns it whatever it thinks the last known value was. If it can't remember, rather than distracting the user with "Variable not bound" error messages, it assigns some random value.

Logical predicates

UnCommon LISP offers several new equality predicates, for programmers who feel that the four mutually indistinguishable predicates provided by Common LISP are inadequate. The new predicates are:

EQQ	Is exactly like the four existing equality predicates - only more so.
EQMAGP	Returns T if its arguments are of the same order of magnitude.
EQSIMP	Returns T if its arguments are approximately similar.
EQUANTP	Returns T if its arguments are identical at the quantum level.
EQITUSS	The arguments are Equal If The User Says So - this

can be used for those tricky situations where you know you ought to use an equality test, but don't want the hassle of a possible failed test.

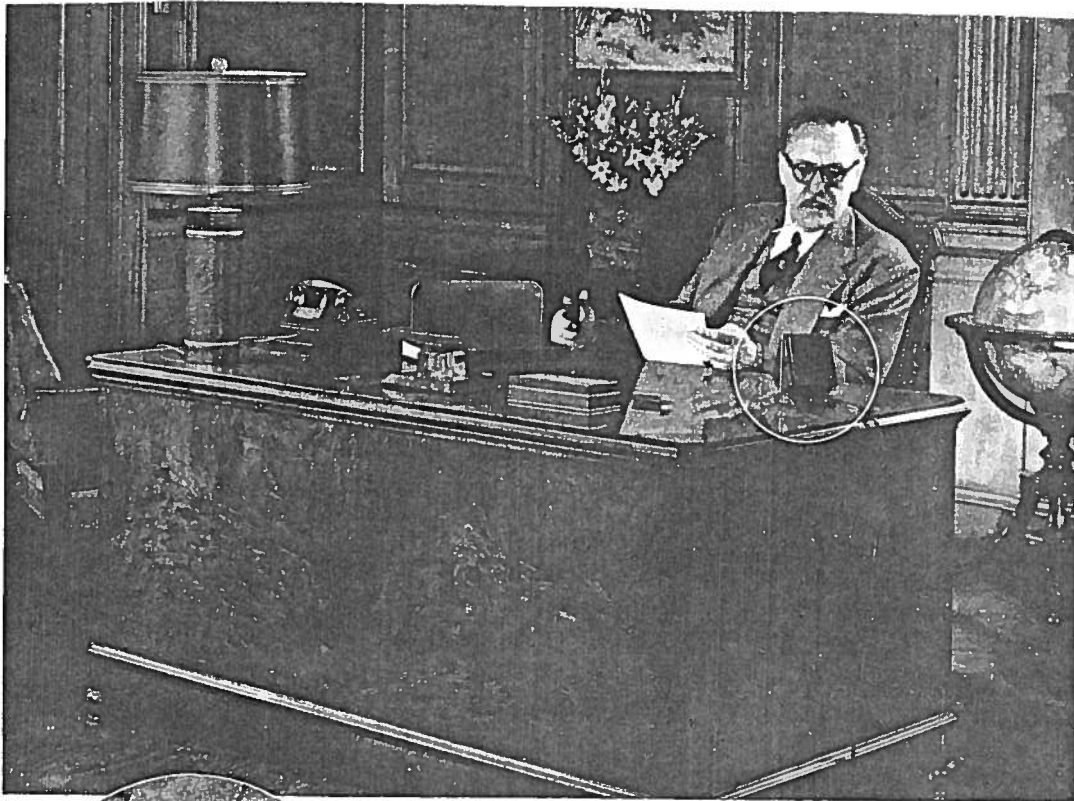
Always returns T.

EQUUS Returns T if its argument is either a horse, or a play by Peter Shaffer.

Other functions

(**BROWN-PAPER-AND-STRING**) is used to make LISP packages harder to get into. The corresponding (**SCISSORS**) function is also provided. A complete environment, (**POST-OFFICE**), is available, which irretrievably loses any package you send it.

Further advances incorporated in the UnCommon LISP package will be described at a later date.



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