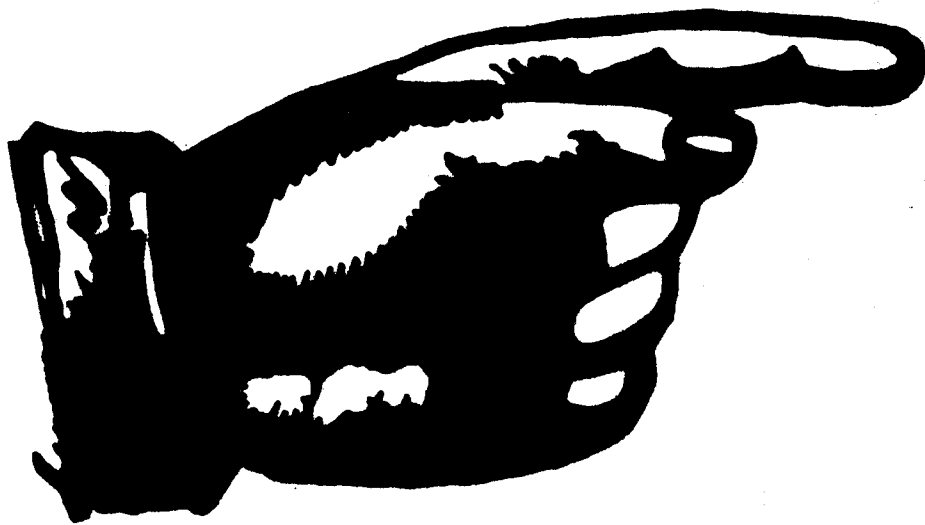


PARABOOK



GLOSSARY INDEX

- A** ABDUCTION: 446
ACCESS: 256
ADAPTATION: 98
ALGEBRA: 132
ALGORITHM: 134
ALLOPOIETIC: 105
ARGUMENT: 371
ARITHMETIC: 133
ARTIFICIAL INTELLIGENCE: 151
AUTONOMY: 456
AUTOPOIESIS: 111
AUTOPOIETIC: 105
- C** CHANCE: 356, 357
COGNITION: 283, 285, 286, 287
COMMUNICATION: 477, 478
COMPOSITION: 479
COMPUTATION: 141
COMPUTER: 150
CONCEPT: 244, 245
CONDITIONING: 97
CONSCIOUSNESS: 269, 270, 271
CONTEXT: 452, 453
CONTROL: 63
CONVERSATION: 246, 247
CYBERNETICS: 2, 3, 4
CYBERNETICS, FIRST-ORDER: 1
CYBERNETICS, SECOND-ORDER: 1
- D** DESCRIPTION: 425, 426
DESIRE: 470, 471
DOUBLE-BIND: 419
- E** ENTROPY: 182
EVIDENCE: 362
EVOLUTION: 123, 124
EXPLANATION: 447
EXTENSION: 424
- F** FACT: 372, 373
FEEDBACK: 33
FICTION: 373
FUTURE: 168
- G** GENERAL SYSTEM THEORY: 32
GOAL: 51, 52
- H** HALLUCINATION: 266
HETERARCHY: 64
HEURISTIC: 448, 449
HIERARCHY: 63, 64
HOLISM: 79
HOLIST: 312
HOMEOSTASIS: 53
- I** ILLUSION: 266
INDIVIDUAL: 351, 353
INTENSION: 424
INTERVIEW: 248
INTUITION: 132
- K** KNOWLEDGE: 287
- L** LANGUAGE: 256, 257, 258
LEARNING: 298, 299
LEARNING MODEL: 299
- M** MACHINE: 150
MEMORY: 312, 313
METAPHOR: 260, 261
MODEL: 333, 334
- N** NECESSITY: 358, 359
NEED: 360
NEGENTROPY: 182
NUMBER: 134
- O** OBJECTIVITY: 374
OBSERVER: 401
ONTOLOGY: 480
ORDER: 171, 172
ORGANIZATION: 104
- P** PARADOX: 262, 263, 264
PERCEPTION: 268
PREDICATION: 245
PROCESS: 63
PROGRAM: 140
- R** RANDOMNESS: 179
REALITY: 374
REDUCTIONISM: 80
REDUNDANCY: 219
RELEVANCE: 372
REPRODUCTION: 123
RETICULAR FORMATION: 103
RETICULUM: 102
- S** SCIENTIFIC METHOD: 125, 127
SELF-CONSCIOUSNESS: 282
SELF ORGANIZING SYSTEM: 231
SOCIALIZATION: 342
SOCIETY: 341
STRUCTURE: 103, 104
SURVEILLANCE: 417
SYSTEM: 33
- T** TIME: 169, 170
TOOL: 141
TRUTH: 490, 491
- U** ULTRASTABILITY: 46
UNDERSTANDING: 297
- V** VALUE: 371
VARIETY: 80

AN INVITATION TO USE A COMPUTER-BASED COMMUNICATIONS SYSTEM

Members of the American Society for Cybernetics are invited to participate in a continuing nationwide discussion of cybernetics research using a computer-based communications medium. Remote terminals of the PLATO computer-based education system are now located at the universities listed in the accompanying table.

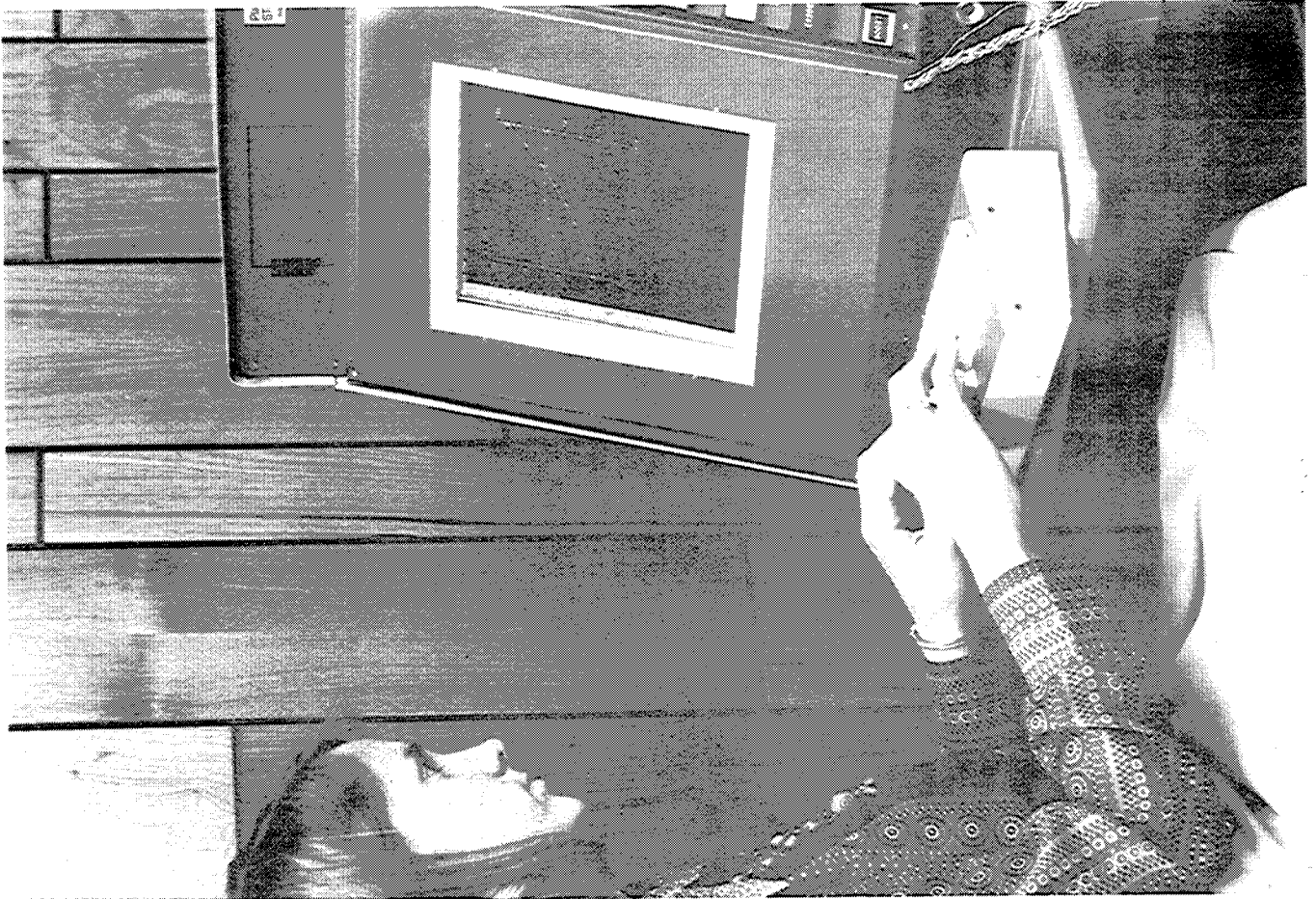
In order to participate you will need to contact the person in charge of the PLATO terminal(s) on your campus to find out when you can have access to it. Each person will have to negotiate access to the terminal in his city with the person in charge of the terminal. So far we have had no difficulty obtaining access to these terminals on a second priority basis. That is, the use for which the institution purchased the terminal comes first. Also, the PLATO laboratory does not dictate who may use the terminals. That decision lies with the person in charge of the remote terminals at each site.

In order to use the terminal, you will need several codewords. When asked for your name, type "student." When asked for the course, type "comm" (abbreviation for communications). When asked for the lesson, type "cyber" or "discuss." When in doubt, press the NEXT key. Once you are in the program, use your own name. Many questions might arise about using the system which would be cumbersome to answer here. The best thing to do is to ask one of the local users of the system to help you get into lesson cyber or lesson discuss the first time. Usually people are quite willing to help, so do not hesitate to ask questions.

Our purpose is to explore the use of computer-based communications media as a new kind of aid in conducting scientific research. If correspondence about current research is conducted through this medium, students and other scientists will be able to "audit" the ongoing professional discussions. As the computer storage becomes full, messages will be printed out and distributed through the mail to those who have participated in that part of the discussion.

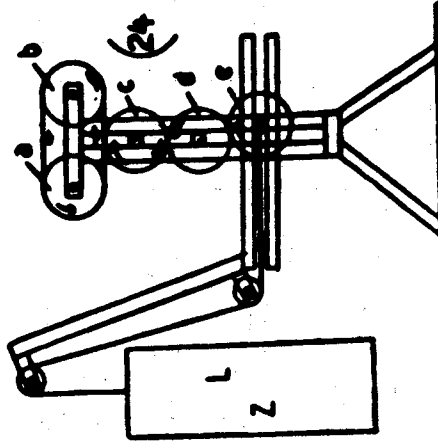
This letter contains all the information you need to get on the system and participate in the conference. Similar discussions using this medium have been conducted since August 1973. If you have any questions, call or write Stuart A. Umpleby, 252 Engineering Research Laboratory, University of Illinois, Urbana, Illinois 61801, tel. 217/333-7451.

Stuart Umpleby



REMOTE PLATO SITES

<u>Institution</u>	<u>Site Supervisor</u>	<u>Phone Number</u>	<u>University of Arizona Tucson, Arizona</u>	<u>Wm. B. Clark John Robeson</u>	<u>602/884-1947</u>
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Chicago Circle Campus of Univ. of Illinois	Sally Droege	312/996-5157	University of Toronto Toronto, Ontario, Canada	Robert Cavanaugh	419/928-7128
College of DuPage Glen Ellyn, Illinois	Jim Boyd	312/858-2800	University of Waterloo Waterloo, Ontario, Canada	Adrian Weherheim	519/885-1211
Educational Testing Service Princeton, N.J.	Ernie Anastasio	609/921-9000	Valparaiso University Valparaiso, Indiana	Donald Shirer	219/462-5111
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Illinois State University Normal, Illinois	Gary Clark	309/436-7661			
Indiana University Bloomington, Indiana	Gary Cagle Silas Warner	812/337-9255 337-3472			
Iowa State University Ames, Iowa	Rex Thomas Trevor Howe	515/294-2219 294-6216			
Kennedy-King College Chicago, Illinois	Barbara Johnson	312/962-3257			
Malcolm-X College Chicago, Illinois	Mitz Yamada	312/942-3068			
Medical Center University of Illinois Chicago, Illinois	Harlan McDaniel	312/996-7256			
MIT Cambridge, Mass.	George Wallace	617/253-6768			
Montgomery County Schools Kensington, Md.	Catherine Morgan	301/949-8700			
Northwestern University Evanston, Illinois	Jim Schuyler	312/492-5367			
National Science Foundation Wisconsin Ave. Washington, D.C.	Erik McWilliams	202/282-7745			
Parkland College Champaign, Illinois	Bob Grandey	217/384-2241			
Purdue University Ft. Wayne, Indiana	Mike Carroll	219/482-5644			
Purdue University Lafayette, Indiana	Steve Deiss	317/749-2204			



ZIELINSKI : BOOK PROPOSAL

ENTAILMENT STRUCTURE

Word	dfn	Indo-Euro Root	Meaning
entail	to have as a (necessary) accompaniment or consequence	endek	→ (Latin: intro) inward within, inner.
en	used to form verbs from nouns to indicate, causing to become or resemble	en	(Latin: docere) to teach (" : discere) to learn
tail	Something that follows or takes place last	dek	
Structure	an organization, an arrangement	--	

EVOLUTION:

Indo-European: [en-dek]

English Concatenation [en-tail]

English: [entail]

[=Inward learning, inner teachings, fastening within]

[=Tail: (B follows A)]

En: (A becomes B) or (A resembles B)

[= (necessary) accompaniment or consequence]

Entailment Structure: dfn. An organization or Arrangement of entities which displays relationships of equivalence or consequence among the entities in the organization.

DEFINITION OF TERMS

Term	Symbol	Definition
Domain	(D)	A target of Cybernetics
Dominee	D*	A target book, article or paper
Abstract	A	Summerizes D* and presents conclusions A can proceed any D*, (S), (C)
Simplifier	S or (S)	Introductory venture into realm of (D) or D* Purpose is to make simple the ideas and concepts of a subset of a domain (D) (S) can proceed A, (C), (S), (R) What is needed to understand what follows

MD(R(C(S(A(D*))))): AN ORGANIZATIONAL PROPOSAL Bob Zielinski

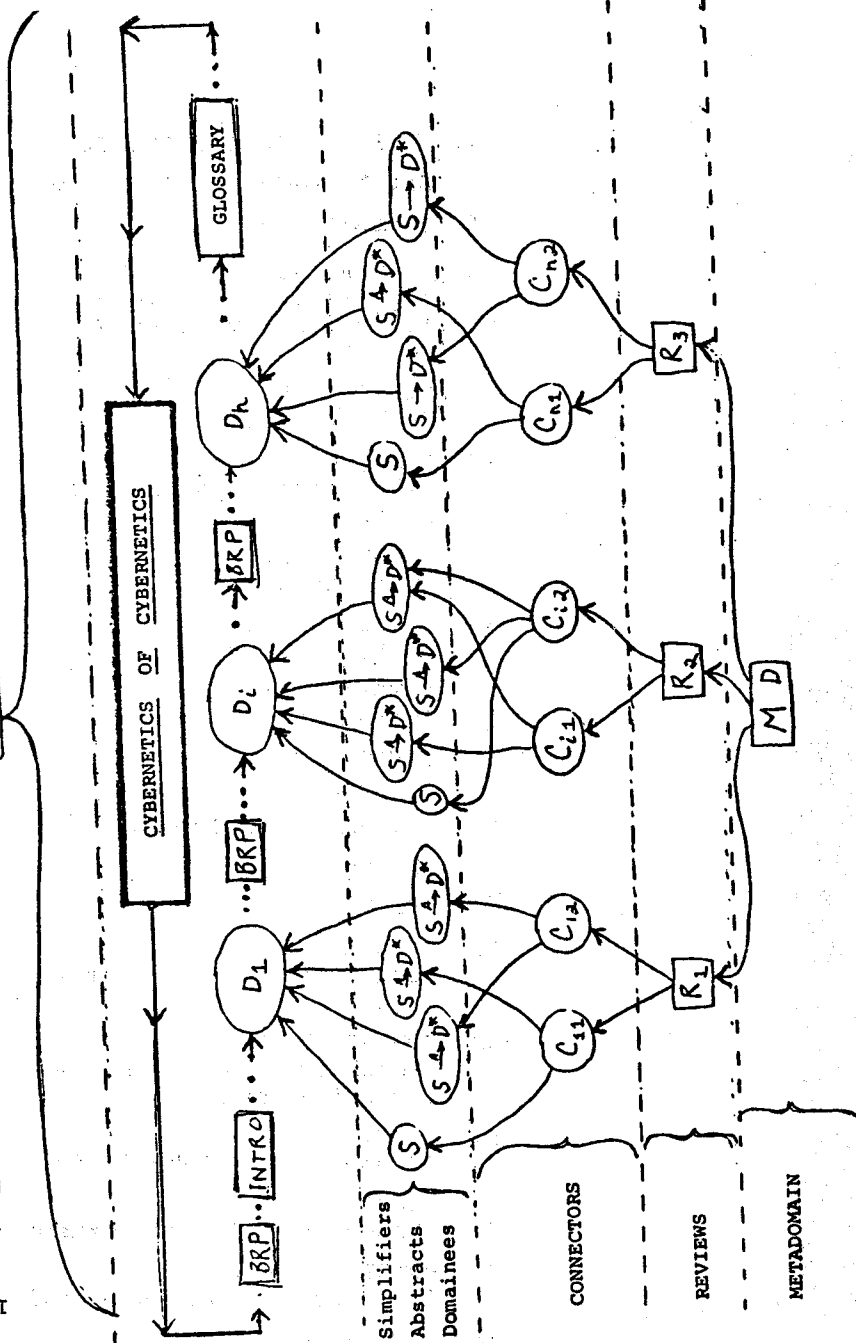
The following is a description of an evolution of a proposal for the organization of the book Cybernetics of Cybernetics. The basic underlying idea is the "Entailment Structure." An excursion into the American Heritage Dictionary revealed that the Indo-European root of "entail" is "en-dek" which means "inner teachings, inward learning, or fastenings within". The construction of a definition of "entailment structure" is almost the description of the proposal itself. Following this is a list of terms and possible definitions. Its purpose is to establish a working language we can use in order to talk about the different types of articles and presentations for the book Cybernetics of Cybernetics. Finally, an entailment structure is given which presents the hierarchy of organization for the terms discussed.

The idea was brought up that we would like the book itself to be a cybernetic event and organized in a cybernetic way. To me, this meant that I could see, all at once, what the book was about and how it was organized, and, if I were to open the book to any one page, I could see where I was in relation to everything else. An entailment structure could be used to meet the first need, that is, a display of everything in one place and an indication of connections. On each node of the structure would be a pointer to the location in the book where the article or presentation is located. To meet the second need, opening to any page and knowing where I was in relationship to everything else, caused more of a problem. But it would have to be on each page. The idea occurred to have a pointer on each page giving a location on the entailment structure. For example, I want to locate Champaign on a map of Illinois. I go to the list of cities and find "Champaign (H,9)". Then I go down the vertical edge to "H" and across to "9" and look in the area indicated and find Champaign.

In short then, the proposal includes two implementations: an entailment structure "map" within a co-ordinate system and an indexing function on each page which points back to the entailment structure.

ENTAILMENT STRUCTURE

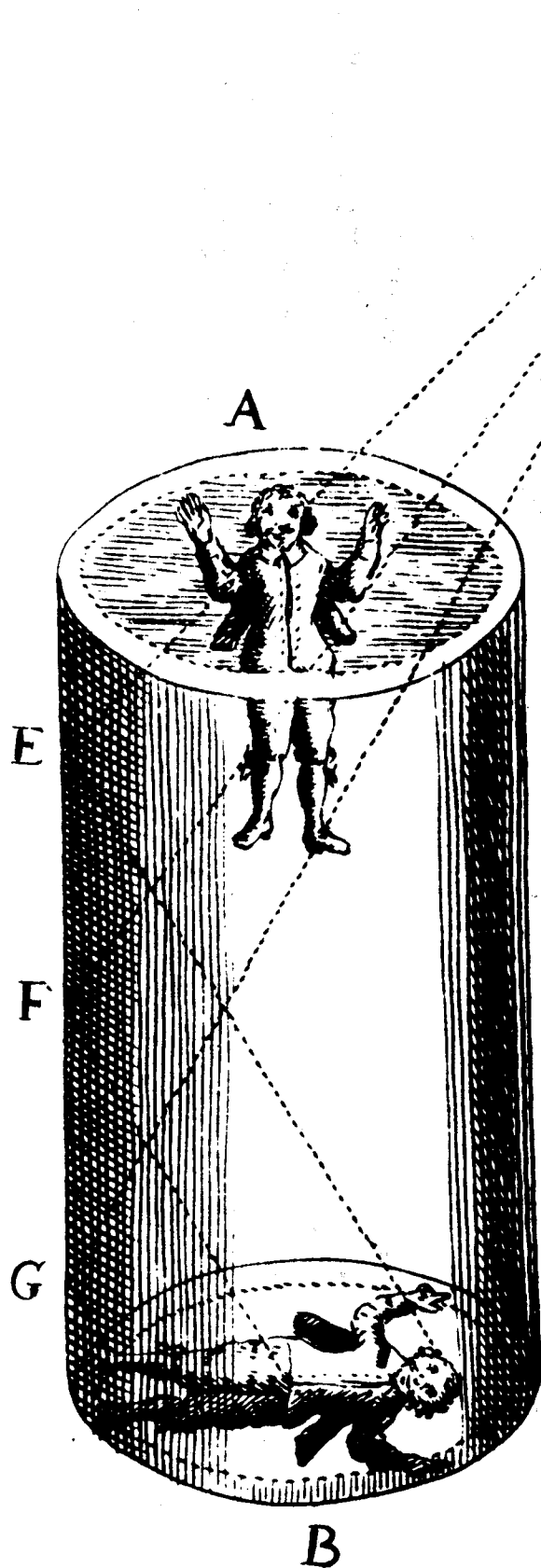
MMD = Indexing Function From Book to Map



Term	Symbol	Definition	Term	Symbol	Definition
Connector	C	Relates each D* to the other D*'s in one particular domain (D) Target of C is (S A D*)	Bob Rebitzer Proposal	BRP	Presentation of a concept using the "bit" technique of graphics and statements.
Review	R	Current State of the Art	Introduction	Intro	Contains goal and purpose Points to table of contents Discussion of Organization (E.S.) Has Entailment Structure (E.S.) Tells about glossary Discusses BRP's
Meta-domain	MD	Displays relationships among domains Shows similarities in applications of cybernetics to individual domains	Entailment Stru.	E.S.	(Generates a) recursive function to organize the book cybernetically
Meta-meta-domain	MMD	An indexing function on each page showing where you are in relation to everything else (a point on E.S.)			



CONTENT



1	FIRST ORDER CYBERNETICS
	SECOND ORDER CYBERNETICS
2	CYBERNETICS
5	WIENER, N.: "Cybernetics" (With an introduction by Heinz Von Foerster)
12	BIBLIOGRAPHY: Norbert Wiener
18	PASK, G.: "The Background of Cybernetics"
23	ASHBY, W.R.: "What is New"
26	BIBLIOGRAPHY: W. Ross Ashby
30	LAMONT, V.: Societies
31	LAMONT, V.: Journals
32	GENERAL SYSTEM THEORY
33	SYSTEM FEEDBACK
35	CLOUGH, R.: "Two Examples of Negative Feedback"
39	POWERS, W.T.: "Feedback: Beyond Behaviorism" (Summary)
40	BAUM, W.M.: "Feedback and Behaviorism" REESE, H.W.: "Feedback and Behaviorism"
41	POWERS, W.T.: "Feedback and Behaviorism"
43	CLOUGH, P.: "Behavior and Feedback Control: No Dialogue"
44	NAST, J.: "Feedback and Behaviorism" CLOUGH, R.: "Booty"


CONTENT

46	ULTRASTABILITY
47	REBITZER, J.: "Playing With Feedback"
	CLOUGH, P.: "Mechanism Maybe"
48	CLOUGH, R.: "S, S*, Δ, R"
51	GOAL
53	HOMEOSTASIS
54	HAWKINS, D.: "The Nature of Purpose"
63	PROCESS CONTROL HIERARCHY
64	HETERARCHY
65	MCCULLOCH, W.S.: "A Heterarchy of Values De- termined by the Topology of Nervous Nets"
68	BIBLIOGRAPHY: Warren S. McCulloch
79	HOLISM
80	REDUCTIONISM VARIETY
81	PASK, G.: "Industrial Cybernetics"
86	BEER, S.: "Managing Modern Complexity"
97	CONDITIONING
98	ADAPTATION
102	RETICULUM
103	RETICULAR FORMATION STRUCTURE
104	ORGANIZATION
105	ALLOPOIETIC
106	ASHBY, W.R.: "The Self-Reproducing System"
111	AUTOPOIESIS
112	MATURANA, H.R.: "Neurophysiology of Cognition"

CONTENT

123	REPRODUCTION EVOLUTION
125	SCIENTIFIC METHOD
128	VON FOERSTER, H.: "Cybernetics of Cybernetics" (Physiology of Revolution)
130	UMPLEBY, S.A.: "On Making a Scientific Revolu- tion"
132	INTUITION ALGEBRA
133	ARITHMETIC WILSON, K.L.: "Enrico Fibonacci"
134	NUMBER ALGORITHM
135	KOLAKOWSKI, L.: "In Praise of Inconsistency"
140	PROGRAM
141	TOOL COMPUTATION
142	SCHULTZ, D.: "Reflections on Notation and Cog- nition"
150	COMPUTER MACHINE
151	ARTIFICIAL INTELLIGENCE
152	AMOSOV, N.M.: "Simulation of Thinking Processes"
168	FUTURE
169	TIME
171	ORDER
173	LÖFGREN, L.: "Recognition of Order and Evolu- tionary Systems"
179	RANDOMNESS
180	KOWACK, G.: "If You Smile at Me I will Under- stand..."
182	ENTROPY NEGENTROPY

CONTENT

- 183 FELDMAN, B., ET. AL.:
"H, Entropy, Information Theory,
Partitions, Coalitions, Tables"
- 184 Information Theory
- 189 Table of $x \log_2 x$
- 192 Partitions and Their Entropies
- 194 Table of Entropies of Simple
Partitions
- 202 Number of Partitions
Todd's Table of Partitions
- 205 Coalitions
- 206 Table of the Stirling Numbers
of the Second Kind
- 218 Distributions
- 219 REDUNDANCY
- 220 VON FOERSTER, H.:
"On Self-Organizing Systems and Their
Environments"
- 231 SELF-ORGANIZING SYSTEM
- 232 ASHBY, W.R.:
"Principles of the Self-Organizing
System"
- 243+ PARABOOK
- i* Glossary Index
 - ii* Umpleby : Invitation
 - iv* Zielinski : Proposal
 - vi* Content  YOU ARE HERE
 - x* Production Credits
 - xi* Acknowledgements : Contributors
 - xiii* Course Description
 - xiv* Session Abstracts
 - xix* Acknowledgements : Graphics
 - xx* Acknowledgements : Articles
 - xxi* Author Key
 - xxii* Author Index
- 244 CONCEPT
- 245 PREDICATION
- 246 CONVERSATION
- 248 INTERVIEW
- 249 HOWE, R.H.:
"Habermas Outline"

CONTENT

- 256 ACCESS
LANGUAGE
- 259 ZIELINSKI, B.:
"A Cybernetic Book"
- 260 METAPHOR
- 262 PARADOX
- 266 HALLUCINATION
ILLUSION
- 268 PERCEPTION
- 269 CONSCIOUSNESS
- 272 FISCHER, R.:
"A Cartography of the Ecstatic and
Meditative States"
- 282 SELF-CONSCIOUSNESS
- 283 COGNITION
- 287 KNOWLEDGE
- 288 HABERMAS, J.:
"Knowledge and Human Interest"
- 297 UNDERSTANDING
- 298 LEARNING
- 299 LEARNING MODEL
- 301 PASK, G.:
"Anti-Hodmanship: A Report on the
State and Prospects of CAI"
- 306 SLOAN, S.:
"Innovation, Imagination and Edu-
cation: A Recapitulation of Gordon
Pask on Learning"
- 312 HOLIST
MEMORY
- 314 VON FOERSTER, H.:
"Memory Without Record"
- 333 MODEL
- 336 BRÜN, H.:
"The Need of Cognition for the
Cognition of Needs"
- 341 SOCIETY
- 342 SOCIALIZATION
- 343 VON FOERSTER, H.:
"Personalities, Affinities, Genes
and Happenings"
- 346 HOWE, R.H.:
"Theses on Literature /LITERATURE"

CONTENT

- 350 CLOUGH, P.:
"Recently, Sociology"
- 351 INDIVIDUAL
- 354 WILSON, K. and H. BRÜN:
"Assignment for Cybernetician #5"
FORD, B.J.:
"Response"
- 355 LEBAILLY, A.:
"Response"
PETTY, D.:
"Response"
GOOCH, S.:
"Response"
- 356 CHANCE
- 358 NECESSITY
- 360 NEED
- 361 BRÜN, H.:
"about five of the great Is"
REBITZER, R.:
"I Need"
- 362 EVIDENCE
- 364 HACKMANN, J.:
"LAW: Reflections"
- 365 BRÜN, H.:
"Premiss"
- 371 ARGUMENT
VALUE
- 372 RELEVANCE
FACT
- 373 FICTION
- 374 OBJECTIVITY
REALITY
- 376 VON FOERSTER, H.:
"On Constructing a Reality"
- 382 BRÜN, H.:
"Competition vs. Cooperation"
- 386 HARDIN, G.:
"The Cybernetics of Competition:
A Biologist's View of Society"
- 401 OBSERVER
- 402 PASK, G.:
"The Meaning of Cybernetics in the
Behavioural Sciences"

CONTENT

- 417 SURVEILLANCE
- 419 DOUBLE-BIND
- 421 WILSON, K.:
"The Establishment of Connections"
- 422 FORD, B.J.:
"The Establishment of Connections"
- 423 BRÜN, H.:
"The Establishment of Connections"
- 424 INTENSION
INTENSION, EXTENSION
EXTENSION
- 425 DESCRIPTION
- 427 HERMANN, H.T., and J.C. KOTELLY:
"An Approach to Formal Psychiatry"
- 446 ABDUCTION
- 447 EXPLANATION
- 448 HEURISTIC
- 450 HOWE, R.H.:
"Positivism and Reflection"
- 452 CONTEXT
- 454 REBITZER, R., and J. REBITZER:
"Distinction is a Perfect Contin-
ence"
- 455 WILSON, K.:
"Metaface"
- 456 AUTONOMY
- 457 MATURANA, H.R.:
"Cognitive Strategies"
- 470 DESIRE
- 472 BRÜN, H.:
"Drawing Distinctions, Links, Con-
tradictions"
- 477 COMMUNICATION
- 479 COMPOSITION
- 480 ONTOLOGY
- 481 GÜNTHER, G.:
"The Historical Category of the New"
(Translated by Richard Herbert Howe)
- 487 BIBLIOGRAPHY:
Gotthard Günther
- 490 TRUTH
- 501 HOWE, R.H.H. and S. SLOAN:
"Metabook"



PRODUCTION CREDITS

Members and friends of "Cybernetics of Cybernetics" cooperated in the production of this collection. Their individual contributions are credited according to these categories:

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ADENA KERSHNER: <i>Typ, Lay.</i>	BOB ZIELINSKI: <i>Pl & Ed, Lay.</i>
GLENN KOWACK: <i>Lay, Gra, Ph & Vi.</i>	

Special credit goes to Adena Kershner who typed with incredible speed and uncanny accuracy the lion's share of this collection, kept her and our spirits up through nights of production, and -- in the midst of bedlam -- always knew where things were and what to do with them; to Professor Herbert Brün from our Department of Music who, despite his own stringent schedule, participated in almost all our classes, saw to it that our dialogue did not degenerate into monologue, and kept us alert to the crippling effects of language when it controls -- instead of being created by -- our thoughts; and to Ken Wilson whose indefatigable patience, persistence and drive for converging toward an as yet under-specified goal kept us all on our toes. That indeed a tangible result emerged goes to his credit.



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Moreover, my thanks go to all of the "glossarists" who so kindly responded to our invitation to participate in this venture, and to the United Mime Workers whose understanding of combinatorial matters made partitions and coalitions for everyone to see.

H.V.F.



COURSE DESCRIPTION

CYBERNETICS OF CYBERNETICS

Instructor: Heinz Von Foerster

EE 272 Bph 199
EE 490 Bph 491

Fall Semester 1973, continued through
Spring Semester 1974.
3 hours (1 unit)/ semester

Prerequisite: Consent of Instructor.

Course Description

This is a project oriented course. Its principal aim is to arrive at a format (model) for a publication (monograph, anthology, reader, source book, handbook, catalogue, primer, or whatever) that, when published, shall serve as a nucleus for a comprehensive presentation of the full range of methods and concepts in cybernetics as they are available today with regard to cognitive, social and cultural processes. However, a knowledge of cybernetics is not required as a prerequisite in this course.

"First-Order Cybernetics" developed the epistemology for comprehending and simulating biological processes as, e.g., homeostasis, habituation, adaptation, and other first-order regulatory processes. "Second-Order Cybernetics" provides a conceptual framework with sufficient richness to attack successfully such second-order processes as, e.g., cognition, dialogue, socio-cultural interactions, etc.

It is the purpose of this course to make this conceptual framework accessible to a large and diversified audience (from high school students to university professors, from local organizers of voluntary action programs to administrators of large civic systems), by a publication whose design should be accomplished on or about midterm of the Spring Semester, 1974. The book to be designed will be a thousand (1000) page volume, 8 1/2" by 11", to be run off on rotary presses. Moreover, besides its internally fully interacting organization by means of cross-referencing, concordance, glossary, and newly to be developed graphic means, this volume is to be abundantly illustrated, comparable to McLuhan-Fiore's The Medium is the Massage or the Whole Earth Catalog, so that going through this volume should be an intellectual as well as a visual feast.

Students who wish to participate in this course should be prepared to meet exacting production schedules and a considerable workload. Last day for dropping this course will be the date as posted in the University Calendar. Only those students should apply who believe in learning by doing.

SESSION ABSTRACTS

JOHN HACKMANN

29 Aug 74

Orientation. POINT Proposal distributed and discussed. Population and oil use projections given; basic concepts of the subject matter are sketched; trivial and non-trivial machines, second-order cybernetics, limitations of logic, non-linearity, hierarchy, and heterarchy.

5 Sep 73

Etymology of 'cybernetics' and 'epistemology'. In Greek, a distinction: episteme, to know by doing and gnosis, to know by and from the senses.

Theorem One: The logic of the world is the logic of the description (of the world).

Theorem Two: All our experiences, perceptual, intellectual, emotional are states of nervous activity.

10 Sep 73

Explanatory Paradigms and the Nature of Explanation; Monadic, Dyadic, triadic, n-adic Relationships. Symptoms of Paradox, Arrangement/Description: To say that an arrangement is ordered is to say that the length of a subject's description of the arrangement is longer than the description of that arrangement for which this is the shortest description.

Theorem Three: Explanations link descriptions semantically. Explanation is a lifting from a plane, making two dimensions into three. Paradigms of causation are discussed. Lexical and ostensive definitions are defined.

12 Sep 73

PLATO Session--Valerie LaMont and Stuart Umpleby. Functions of citizen participation and information exchange described, also the history of hardware of PLATO. Demonstration of terminal use. Discussion program for class planned.

13 Sep 73

Work on PLATO terminal.

17 Sep 73

Recursive nature of relations. Order is a relation of the subject; alphabets, arrangements, descriptions, lengths of descriptions, and length of the shortest description. Proportionality of functions is clarified. Logarithms are used. That two people did not know logarithms was hard for some people to accept. Entropy--everyone had heard of it, no one could use it quickly. Inference and Causation are relations, thus Causation is a form of description. In civil law, when the law is broken, the law-BREAKER goes to jail. In scientific law, when the law is broken, the law-MAKER goes to jail.

10 Oct 73

"Behaviorists react violently when the issue is learning or social change."--Patricia Clough. Discussion of Powers' article and responses. "Resistance to information is an indication of feeling flawless."--Herbert Brhn.

22 Oct 73

Discussion of organization. Group spirit. Legal and financial parameters of final project. Domain vs. Production groups. What is wrong, what to do, discussion.

24 Oct 73

Cybernetics, control, and communication in the animal and the machine--Norbert Wiener. Since we are talking of communication and control, this is cybernetics of cybernetics. Topology of feedback systems is formalized.

29 Oct 73

A distinction is drawn between a cell and its environment. When a distinction is made, entities are created and a relation established. Environment + Organism; Organism + Environment. Thus an evolution of environment exists just as does evolution of the organism. 'Reality' is the complement of the organism thinking or perceiving. Relationship between total number of cells N, and number of classes of cells n, in an organism $N = n \log n$. Types of nerve cells, structure, function. Description of action potential. Principle of Undifferentiated Encoding: The electrical activity of a nerve cell encodes only the magnitude of perturbation that caused its activity and not the nature of the perturbing agent (i.e., 'that much', but not 'what'). Upside-down google experiment in Innsbruck--the wearer after a time could see through them as he did before until it snowed--up!

5 Nov 73

Interview group reported that people do feel that they know about cybernetics--group had assumed not. But they don't use cybernetics--why? Organization Groups proposed: Domains--Collect domains, abstracts, connectors, simplifiers, connectors, review these, find glossary terms and find experts in the domain; Metadomain group connections between domains, and Metametadomain group connections between the connections. Story of how music was invented--Herbert Brhn.

7 Nov 73

Metaphors are the topic of a class discussion led by Mike Holloway. Metaphors bring out or transfer characteristics from one model to another. Metaphors presuppose models and analogies. Model demonstrative; metaphor descriptive, can serve the purpose of implication. There could be a complete linguistic universe without metaphor. Analogies reproduce structure in one context by mapping structure from another structure. Models map properties. A good model demonstrates certain properties, and few or no others, and is satisfying to the creator.

"Mind as a map" is strongly objected to by Patricia Clough. Some difficulties in dialogue and context. "The alternatives in the asker and answerer must be the same; there must be a common 'truth table' whose values are sought by the asker."--Mike Holloway.

19 Sep 73

Causation is of the observer, not the world. Language is a result as well as a construct. We say what we think sometimes, but usually we think what we say. Principle of Variation. History of Cybernetics is told, organized around the individual scientists and their contributions.

24 Sep 73

History of Cybernetics continued into current generation. Difficulty with second-order concepts noted. A model of sensation, perception, cognition and effector action is described. Memory is essential to such a system. The Quantum Theory of Memory is described. A second Generation of Cybernetics was initiated by Gordon Pask, who showed that purpose is necessary for the interpretation of a model requiring purpose. Every complex system has a language. If such a system can reflect on its use of that language, it is said to have a second-order language. Osgood's and others' investigations of semantics.

26 Sep 73

General discussion of needs, goals, and organization. Bi-monthly internal publication proposed, to be called Cybernetician or Cyberneticist.

1 Oct 73

"The Establishment of Connections", as assignment by Herbert Bruh is given and discussed. Trial of the human mind in making connections where none exist. "I am my major field of interest." --HVF. Meet a sentence--ask, why was that said to me? "these two things are not connected" is a relationship.

2 Oct 73

Treno's meeting. Class members introduce themselves by interest and intent. "What we would like to see is a group spirit arising through the processes of the class with the knowledge of the class so that these processes might be used in a book"--Ken Wilson.

3 Oct 73

An assignment is given to comment on "Feedback: Beyond Behaviorism" by W.T. Powers. Approaches to cybernetic material are requested. Self-study, pick-up and read articles in Biological Computer Laboratory Library/ HVF will lecture and provide integrated feedback. "It won't work out if we are only given Heinz's point of view"--Connie Ekstrom. Discussion on domain and organizational group structure.

8 Oct 73

Resources for the Cybernetician and its content are discussed.

12 Nov 73

Format discussion. Varying attitudes towards the book are expressed. Scientific Revolution by Thomas Kuhn is mentioned by Stu Umplaby, he wants a book that "will really shake people up". Who is this audience? Why has Mannheim's work on the sociology of knowledge had no effect since its publication in 1936? Bob Rebitzer proposes 'a digestible book', accessible to all. Based on the interviews, people do not want cybernetics.

A traditional approach is justified on the grounds that books have gone through 'natural selection' and people have well defined notions of how to receive information.

Who is the unspecified audience? We are designing a book for ourselves. The book should fulfill needs people have that they do not yet know they have.

A statement of need is a work of art.

14 Nov 73

Danger of specialization. An experiment with slides shown to two audiences, a set of art slides "in the style of..." mixed with slides of original art works. Art people failed to see the difference: but non-art people saw the distinction as obvious.

Hypothesis: One only sees what one can say.

Every medium has a particular syntax and semantic that is germane to its language, and which is peculiar to it. Familiarity with these may rob us of the ability to experience freshly.

Discussion/Organization of Cybernetician and the book.

26 Nov 73

Assignment to define goals of Cybernetics of Cybernetics given --"This is what I envision the book to be," "This is what I would contribute."

28 Nov 73

Lecture. Trivial, non-trivial, machines. An ultra-trivial machine, S* (desired state) remains constant. Operators and elements as system concepts.

EXPLANATIONS link DESCRIPTIONS. Five types of causation: Aristotle. Transitivity of causation generates time.

Functioning organism eliminates time.

A system is defined when all of its elements and operators are defined.

Principle of closure.

3 Dec 73

Domains. Notation for operators and elements. Closure.

Operators as numbers. Operators and Operands.

5 Dec 73

Elizabeth Pask. A distinction: Psychological individuals and Mechanical/individuals. P-individual capable of explaining a concept. Distinction between concept and name drawn. Process One--Concept of basic relation. Process Two--Concept of a concept. Process Three--Concept of Process Two => P-individual.



Blue: Two-slit experiment as metaphorical point of view; on providing links.

Black: Space, excited by electro-magnetic radiation from two sources produces "Moiré"; photo effect.

18 Feb 74

Discussion of p. 18 of Cybernetician #5, censorship, bureaucracy, 'enlightened' class vs. 'ignorant' world, value of confrontation, sexism in censorship, role of short term history in a small organization, strategy for printing Cybernetician #5.

20 Feb 74

Earl Jordan, Chairman of EE Department visits the class.

25 Feb 74

Announcements, organization, assignments, mixed discussion.

27 Feb 74

Examples of positive and negative feedback are discussed. "Social power is process with positive feedback."

"One can reject reflection or reflect. If one reflects, one need not attribute what one knows to unknowables."

4 Mar 74

Professor Kuo gives mathematical description of feedback system. "Paramount objective is stability; unstable system is useless; feedback is simply a regulating feature." Linear and non-linear systems. Sensitivity = Noise Reduction.

7 Mar 74

Presentation on Symmetry by Jim Wise. "Perceptual processes are modeled by symmetry operatives." Symmetry operates in visual system. Iaget's group theoretic model. "The concept of group, at least is essence, is in our spirit."

13 Mar 74

"On the Concept of Causality and the Causality of Concepts." Richard Herbert Howe.

History of problem of color shadows. Umpleby's model of self-interest, theories and social systems. Discussion structured by organizational group with five 'tickets to speak' issued each member.

24 Mar 74

A label is introduced to explicate a relation. Confused with the relation, the explanation, then the label is reified. What is left is the label.

Reform--you fiddle within a given feedback model. Revolution--you change the sign of the feedback. Economic systems feedback systems.

The limits of the P-individual are the limits of the physical domain in which the conversation takes place. People like to play games of how each other's minds work. A pyramid structure of Construct and Metaconstruct is made. Ask the question, what is this guy doing? P-individual can be one person, two people, n-people. One must externalize internal processes in order to ensure understanding goes on in a conversation. How to construct an interview in this framework.

10 Dec 73

Social Science discussion starts with definition of living system. Procreation not part of Maturana's definition of a living system. What can be done with Social Science? It is done by people not just social scientists. Purpose of Social Science is described as control; purpose of Social Scientists is described as professionalism.

12 Dec 73

Jean Taupin speaks on Maya-Reality and Illusion. Four levels of interaction with reality: Newtonian, sensual, perceptual, and cognitive are described in terms of Central Nervous System activity, self-awareness, and use of symbols. Unfolding his personal vision sparks a wide discussion. Impossibility of not imagining hippocotami is mentioned. Chance and the principle of indeterminacy are discussed.

A need to grow symbols; a recognition of the existence of the undecipherable. Need for new use of language for symbols. That which is now revealed will be hidden again. Maturana's use of 'political' and Patricia Clough's use of 'moral' are seen as similar.

16 Dec 73

Meeting on a Sunday evening at H.V.F.'s house. Discussion of Cyberneticians; seminar on language follows. Class dynamics and communication obstacles are discussed. HVF gives notion of what he desires, a took box of concepts.

Linguistics is anatomical. "Start people thinking in circles." One is ruled when one takes things for granted. "Everything happened because of history"--this is what we are taught in high school. A functional book is desired--not a 'glass case' work.

21 Jan 74

Eight new members of class are sponsored and approved by the class, usually following personal or introductory statements. A tutorial is suggested. HVF states he has failed to promote or explain certain ideas or tools, that is, not sufficient for operational learning.

A need for a chairperson is suggested. One class member can't wait, and appoints Ken Wilson as temporary chairman.

Homework: view music as a cybernetic system, instead of seeing the contribution of music to cybernetics is proposed.

23 Jan 74

Ken Wilson starts as chairperson. Open-membership organization group created to administrate. Reports of class groups necessary. Rodney Clough forms group to do exhibition of formats for book. Other organizational matters.

28 Jan 74

Steve Sloan chairs the first meeting run by the organization group. Class starts on time, following an agenda, which is accomplished with difficulty. Sherwin Gooch starts discussion of positive and negative feedback.

30 Jan 74

Proposal: Experiencing Brightness. 1) System of learning should be instructor independent. 2) Any starting point leads one through entire course of concepts. Suggestion for encouraging outside 'group dynamics' people to come and be learned from is not taken up. HVF gives no explicit evaluation scheme for judging whether one is or is not learning in a dialogue--underspecification.

5 Feb 74

Gottard Günther. Multi-valued logic. Subject-object relationship--crisis in modern science. Plato's number theory and Heisenberg's theory.
Contexture: Vulgar and dialectical materialism. "I still think in two-valued logic, in spite of thirty years of study of multi-valued logic."
An assignment (with stipulations) for Cybernetician #5: Formulate a description of yourself which is distinct from all descriptions of anybody else or anyone you can think of--Kenneth Wilson and Herbert Brn.

6 Feb 74

Stu Umpleby asks questions of the application of cybernetics to social systems. The nature of the scientific method is clarified. Difficulties in applying scientific method to social systems discussed; two approaches in cybernetics are mentioned. Class members reflect on "what criteria steer my life" and "I must see why I am doing what I'm doing."

11 Feb 74

Brightness Proposal initiated by HVF in a lecture. Dialogue categorized in three languages.
Yellow: Design of Experiment
Blue: The Interaction Process
Black: Subject Matter (Vehicle)
Hypothesis One: Integration will diminish distinctions;
Hypothesis Two: Understanding is independent of both instructor and the material.

The preceding is yellow. In Blue, a theorem, choices of topic. In Black, two-slit experiment, photo effect. Dialogue blossoms in three colors.

Languages are defined in the context of the discussion. Concentration of class is very great; notes are accurate and copious.

13 Feb 74

Yellow: "...always be aware that what we are studying in this interaction is interaction."
LINKING BLUE "...those who do not understand are the most valuable in the group."

27 Mar 74

Electro-magnetic fields. Mathematics of Photo-electric experiments. Quantum Mechanics contrasted with Wave Mechanics. Two-to-one mappings. Relation of stability and size. Metaphorical images.

1 Apr 74

Mappings in the Eye. Can sensors perform decomposition?
A: You have a perception of space.
B: You have a transformation of what is coming in.
C: You can decompose compositions.
Composition: An overlay of several agents at one point.
Decomposition: Regaining the sources of the activity.

8 Apr 74

Model of dialogue--Richard Howe and Steve Sloan.
No access to interiors of others, but conjectures are made --models. Model of each participant is made by other, remarks directed toward that model.
"What you're trying to crack is the code of my dance."
--HVF. Coherence is mapped incoherence.

16 Apr 74

Global phenomena of image mapping--sensory reality. Lens, retina, image, photos, receptors.

15 Apr 74

Coalition and Partitions Function of eye in higher and lower mammals.
"NOW WE BEGIN TO START ENTERING BRAIN" Cortex cells; sensory cells. Habituation. Adaptation. Acclimatization. Anatomical organization does not mean functional. Principle of undifferentiated encoding.

17 Apr 74

Formalized model of dialogical process is presented by Howe and Sloan.

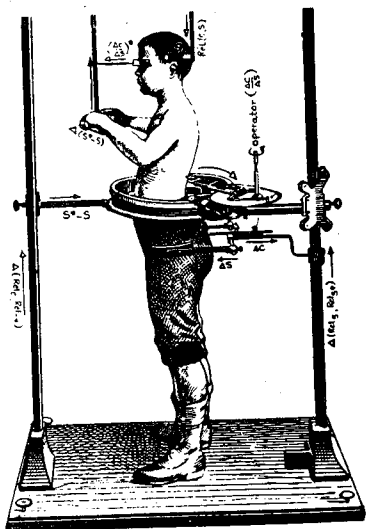
22 Apr 74

Sensory Implication: Agent does not imply sensory response; response implies existence of agent. Composition obs. Computation--Ascending into other kinds (Aristotle) binary operations. Transformation on a composition.

24 Apr 74

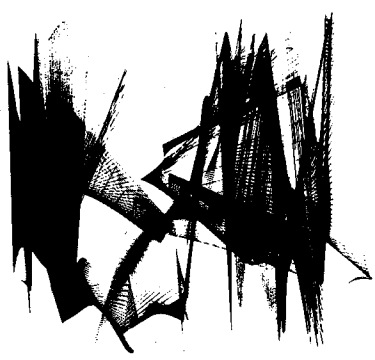
Dilthey's conception of dialogue.
Format (plan) for Cybernetics of Cybernetics. Semantic-Inter-action, Reader connections, execution.
State of Affairs of book reviewed.





no.1

The Cybernetician



no.2

The Cybernetician



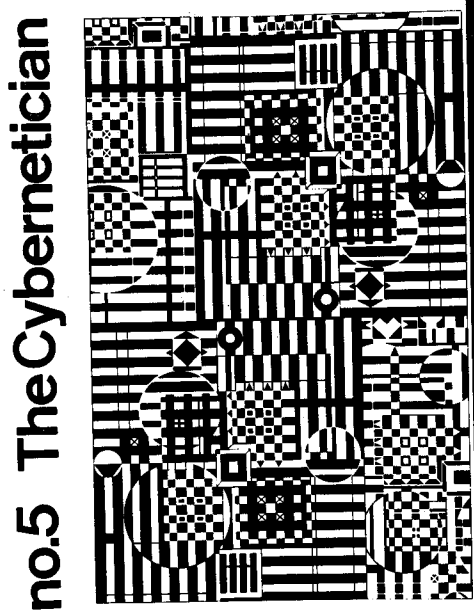
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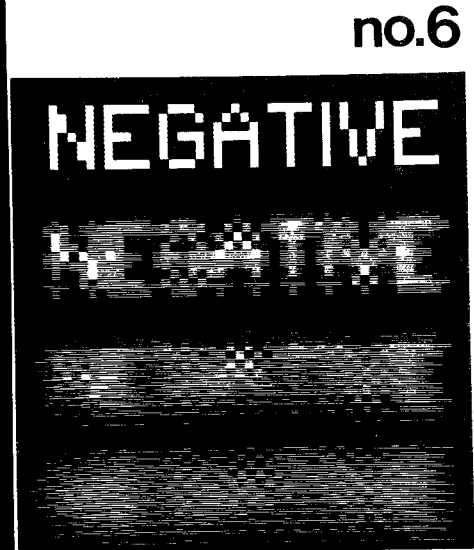


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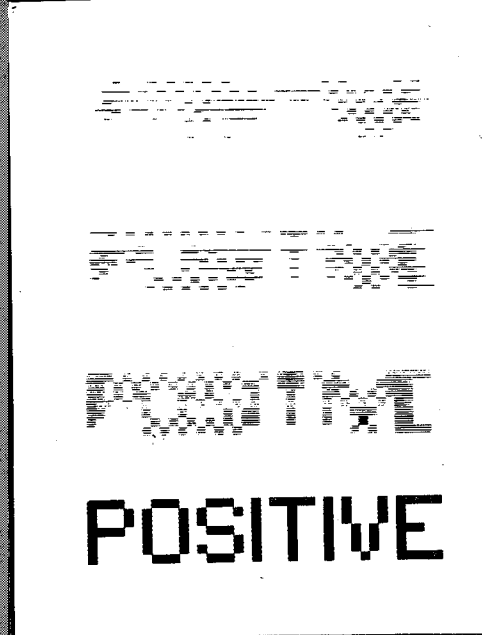


no.6

The Cybernetician



no.7 The Cybernetician



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ANONYMOUS → 46; ARBUS → 342; ARNOLD → 54; BALDUNG-GREEN → 399; BRACELLI → 96; BRODATZ → 102; BRÜN → 365-370, 383-385, 472; CALLOT → 417; CEZANNE → 333; CLOUGH, R. → 151, 171, 333, 336, *ii*, *iii*; CODEX MARCIANUS → 1; COMMUNICATION → 140; DORÉ → *Metabook*; DÜRER → 173; ELEAZAR → 122, 456; EMDE → 281; ERNST → 349; ESCHER → 124; FARBMAN → 373; FAHRAEUS → 64; FLUDD → *xii*; FRASNEY → 258; FÜ-HSI → 79; GLUSKE → 105; GOURMELIN → 340; GOVINDA → 32; GOYA → 300, 311, 418; GRIMAUD → 357, 358, 449; GROSZ → 255, 335, 363; GURBERG → 457; HACKMANN, B. → 336, *ii*, *iii*; HACKMANN, J. → *ii*, *iii*; HOFFMAN → 38; JAHNKE → 281; JUSTE DE JUSTE → 345; KIRCHER → *vi*; KLEE → 219, 477; KLINGER → 446; KOLLWITZ → 360; KOWACK → 34, 194, 207-211; LINDGREN → 65; LORAN → 333; MAIER → 62; MARZULLO → 26; MUTTER → 265, 267, 375, 489; MUYBRIDGE → 169, 170; L'OEIL → 467; OROZCO → 425; PASK → 222, 228, 305; PATINKIN → 269, 352, 454; PREISLER → *xi*; RAY-JONES → 452; RICHTER → 179; RICHTER, F. → *xix*; RIMMER → 52; ROMBERCH DE KYRSPE → 314; ROTA → 261; SCHEERBART → 151, *iii*; SCHLOSSBERG → 18; SCHÖN → 220; STEINBERG → 130, 247, 282, 426; SULZER-KLEINEMEIER → 296; TITIAN → 447; TOKURIKI → 297; UNIDENTIFIED → 128, 256; U.P.I. → 181; VESALIUS → 112, 141, 150, 281, 284; WIENER, M. → 12.



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AUTHOR INDEX

- A** AMOSOV: 152
ASHBY: 23, 106, 232
- B** BATESON: 97, 98, 299, 419
BAUM: 40
BEER: 2, 32, 33, 46, 53, 80,
86, 102, 111, 134, 182,
219, 449
BRAND: 34, 51, 53, 141, 371
BRUN: 336, 354, 359, 360,
361, 362, 371, 365, 382,
423, 471, 472, 478, 479,
490
- C** CLOUGH, P.: 43, 47, 334, 350
CLOUGH, R.: 35, 44, 48, 256, 417
- F** FISCHER: 179, 266, 269, 272,
313, 372
FOGEL: 63, 123, 283, 449
FORD: 354, 422
- G** GALAMBOS: 3, 257, 285, 299
GARVIN: 151, 256, 283
GOOCH: 355
GÜNTHER: 481, 487
- H** HABERMAS: 288
HACKMANN: 364, *xiv*
HARDIN: 386
HAWKINS: 54
HERMANN: 427
HOSKINS: 63, 79, 80, 125,
171
HOWE: 140, 245, 249, 257, 260,
264, 270, 341, 342, 346, 372,
450, 480, 491, *Metabook*
- I** ILLICH: 298
- K** KILMER: 446
KOLAKOWSKI: 135
KOTELLY: 270, 297, 334, 427, 453
KOWACK: 63, 180, 183, 266, 374
- L** LAMONT: 30, 31
LEBAILLY: 355
LILLY: 150, 261, 270, 285, 372
LÖFGREN: 104, 173, 333, 424,
426
- M** MATURANA: 112, 401, 457
MCCULLOCH: 65, 68
MURPHY: 183
MUSES: 134, 168, 170, 172, 258,
262, 286, 351, 356, 358, 470
- N** NARANJO: 266, 268, 374
NAST: 44
- P** PASK, E.: 246, 248
PASK, G.: 18, 51, 81, 231, 244,
247, 260, 271, 301, 312, 353,
402, 424
PETTY: 355
POWERS: 39, 41
- R** REBITZER, J.: 47, 454
REBITZER, R.: 361, 454
REESE: 40
- S** SCHLOSSBERG: 168, 172, 357,
359, 477
SCHULTZ: 4, 127, 132, 142,
169, 448, 452
SLOAN: 183, 306, *Metabook*
SPENCER-BROWN: 132, 133
SUTRO: 103, 141, 150, 283
- T** TODD: 202
- U** UNITED MIME WORKERS: 194, 208,
209, 210, 211
UMPLEBY: 33, 46, 52, 53, 64,
130, 182, 245, *ii*
- V** VARELA: 4, 33, 104, 105, 111,
124, 282, 447, 456
VON FOERSTER: 1, 4, 128, 183,
220, 263, 312, 314, 343, 357,
359, 373, 376, 425, 447
- W** WIENER: 4, 12
WILSON: 33, 103, 104, 105,
111, 123, 133, 354, 401,
421, 455, 456
WITZ: 268, 287, 299
- Z** ZIELINSKI: 259, *iv*

PARABOOK

