For evolutionary psychiatrists, psychologists and others Interested in sociophysiological Integral on

ASCAP

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"Without blind controls, almost any new therapy can be said to work faster than you can say "placebo." Also relatively new is the suspension of disbelief in any experimental result until it has been replicated by at least one other investigator, preferably someone who hates the initial experimenter passionately.'

Steven Austad[1]

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ASCAP Society Mission Statement:

The ASCAP Society represents a group of people who view forms of psychopathology in the context of evolutionary biology and who wish to mobilize the resources of various disciplines and individuals potentially involved so as to enhance the further investigation and study of the conceptual and research questions involved.

This scientific society is concerned with the basic plans of behavior that have evolved over millions of years and that have resulted in psychopathologi-cally related states. We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups.

ASCAP Newsletter Aims:

- A free exchange of letters, notes, articles, essays or ideas in brief format.
- Elaboration of others' ideas.
- Keeping up with productions, events, and other news.
- Proposals for new initiatives, joint

The ASCAP Newsletter is a function of the ASCAP Society.

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ADDRESSED TO & FROM ...

An Open Letter to ASCAP Members

To the members of ASCAP,

After having read Glantz and Pearce's *"Exiles from Eden",* Brown's *"Human Universals",* Miller's *"How to Want What You Have", "The Adapted Mind*", Tooby and Cosmides, editors, among other things, I have enjoyed a year's friendship with our kindly editor, and have wrestled with the idea of organizing a symposium on the practical uses of evolutionary psychology. Finally, this very morning I reread Kent Bailey's series of tables that provided the foundation of his ASCAP talk at Tucson. All the time I've been wondering what evolutionary psych can contribute to the lives of human beings. Now, I have concluded that the next step must come from the community of psychiatrists and clinical psychologists.

Unfortunately, not everyone can have a psychiatrist for a friend... or even hire one... and most of us, fortunately, are too sane for the state to let us borrow one of you for free. But I've realized that we all need one. When I first met Russell Gardner at Northwestern over lunch at the 1996 HBES annual meeting, I cleverly and unoriginally suggested that a good friend was as useful as a psychiatrist, and he anathetically agreed.

The trouble is that few of us know how to be a good friend and that takes me to my point in writing. I suggest that psychiatrists and clinical psychologists know how to be good friends. I propose that ASCAP make one of its aims teaching people techniques for anathesis, listening, criticizing, and reciprocity. Everyone wants to hear what psychiatry is about, and you can all achieve invitations on lecture circuits, or local clubs, if you don't want to take that on, and, especially schools. Most elementary and high-school teachers would be delighted to have a psychiatrist lecture their classes on friendship and how psychiatry works.

I would like to have a symposium at HBES 1998 on techniques for friendship as seen by professional psychotherapists. What mistakes do we make? How do we ruin our friendships. Why do we fall short in keeping them? What should we do when a friend changes ... gets in trouble ... loses her husband ... his wife. Should married couples be friends? How do we achieve that? What can we do about the destruction of mutuality that children cause? All of these questions have roots in evolutionary psychology and the EEA.

I am convinced that this is where evolutionary psychology must go, and that you're the ones who must take it. There has not been a new idea, I think, since inclusive fitness, and I think the researchers have gone about as far as our present proximate knowledge can take us. As for the ultimate knowledge, I think we need only a little bit more data on hip-to-waist ratios.

At Tucson this year, in attempting to get input for a symposium on Human universals next year, I talked to a number of people and during the conversations, almost as a routine test, I told them the effect that sociobiology had on me when I first read it, how it cleared up so many questions that I was unable to answer, and seemed to lighten the emotional atmosphere. In every case, even the most hard-bitten anthropologist, they attested to having had the same experience for the same reason. So why aren't they telling the rest of the world?

Well, maybe some are trying, but you can do it better and more directly. Be a friend, create and teach us psychiatric friendship. Maybe a few hundred years will make a difference in the world. Other kinds of public education have made such differences.

Glenn Cochran
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Kudos to ASCAP

Thank you so much for the fascinating June issue. I loved Mike Waller's poem and cried at the end; poetry may be my favorite reproductive strategy. Also very impressive was Hagen's prize paper on the potential adaptive value of delusions. I wonder if he has considered the psychohistorical implications of his hypothesis?

It seems to me that when we look at popular culture—film, genre fiction, tabloids—we find a great deal of delusional material of all three varieties: persecu-tory, grandiose and somatic (PGS).

It is as if we are practicing something. Folklore motifs might be searched statistically to determine the percentage that fall into these PGS categories. If indeed, we frequently are telling ourselves stories which are like delusions, this would suggest to me that there is something fundamental in these PGS patterns. Certainly they all occur in nightmares.

Of course we are always checking for attacks, for status injuries, for bodily damage. There may be more implications than Hagen has yet identified. The phenomenon is striking however. We are predictably fascinated by any story about conspiracy, about the elevation of the humble or strange bodily experiences that may augur werewolf transformation or alien abduction. Thanks for a fine intellectual ride.

Jean Goodwin
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Missing ASCAP

While watching the famous Dr. Weil on PBS. I listened to him talk about the frustration of trying to have more of his Medical colleagues look at "Mind-Body" Medicine. He further stated that he thought with so much difficulty there, it was a waste of time to even touch on the idea of "Mind-Spirit" Medicine. There has been speculation on the "spiritual" side of healing; but exactly what is meant by "spiritual" is unclear or very broad. The idea can be related to everything from prayer to astrology. But, I have noticed that often when folks discuss the "spiritual" component of healing, usually they are talking about the quality of social relationships or the sense of belonging or unity among people. And once on that subject the natural next progression is Sociophysiology. But I doubt if Dr. Weil or most others in the field have ever even heard of the term, much less considered the implications of it.

I was deeply disappointed not to be at ASCAP this year. Just not able to be away from the job that week. We have a major in-house training and I am to be one of the instructors. Though I could get to Tucson by Saturday, I felt it wouldn't be worth the time, money, and trouble, especially if I already missed ASCAP.

Hope you will report on the meeting at length for those of us who could not be there. What percentage of ASCAP do you think made the meeting?

David Paxson
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Animal Models

I am a new member of ASCAP and would like to ask you for info or help on finding info on mouse models of psychopathology. In particular, could you direct me towards sources on schizophrenia-related aspects of mouse models?

I know of a lot of work done with fear/anxiety, etc., with mice, but have investigators tried to develop anything related to schizophrenia spectrum type behaviors? Thanks.

Mark Waugh
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Elementary Pragmatic Model (EPM)

I truly appreciated John Price's article. John has worked on my Model and related it to his high-level knowledge and literary culture. He has positioned himself to seek elements common to both the Elementary Pragmatic Model (EPM) and other models.

I think we both have a common footing, namely that models impoverish reality, though I wish to add that on the other hand they actually enrich reality too, as they allow us to grasp the full flavor of some particular aspects. The best example of this is given by airplanes. An airplane is the model of a bird, it does not have the some flexibility, range of flying capabilities, or very low energy consumption rates, yet it can carry 300 persons at 1000 kilometers an hour.

I think we all agree that, in any case, models are useful. We speak of models of the mind that are instrumental in understanding human interactions and their changes, for example, models to be used in clinical practice. They become a sort of "container" or mental organizer, ordinator, or definer, etc. All that patients and human beings say are elements that go into these "containers". The importance of the elements fades away as they become a background to the containers. The next step is to consider how the containers follow upon one another (the relationship between them) to describe the "music of the mind". Having made this fundamental premise, the Elementary Pragmatic Model presents a certain type of container.

John Price has taken some aspects from our containers and has related them to containers from other models. The result is very interesting and useful.

In its essence, the Elementary Pragmatic Model proves to be a method which can be practiced just like "the well-known Japanese art of arranging flowers or making tea or like archery art" to acquire a new mental instrument by which one can grasp "reality" -actual reality or reality put in quotation marks. This instrument allows you to disregard the usual ways of classifying mental disorders and to conceive interactions which otherwise would not occur to you. In other words it serves to broaden our mental horizon and thus develop our creativity in problem-solving. This does not at all mean that I think it is better than other models; I only think it is different.

John Price was prompted by the Elementary Pragmatic Model to elaborate a model of his own which shares a number of point with the EPM. For instance, the interpretation of F3, F7, and F5 is quite similar to ours while the interpretation of functions that relate to the world outside the two interacting subjects ("antifunctions") is very different. The introduction of outside elements to us is tantamount to the introduction of paradoxes which occur in various ways.

We define the relationship considering both the triad: subject A/ subject B/ result of the interaction. I wrote of symmetry on page 338 of "Finite Systems and Infinite Interactions".[1] I wrote of Symmetry and Complementarity, Complete and Incomplete Fitting, Complete and incomplete Symmetry, where I proposed a broader range of possibilities than the traditional symmetry, complementarity and parallelism. I also formalized the idea of "distance".

We are fully aware of the limits of the human mind of which John writes of at the end of his article. As I have already stated, these are relative and utilitarian models. Even the title of my book, "Finite Systems and Infinite Interactions" purports to highlight our limits. But, our minds still work in spite of these limits, we fabricate the world with our models and act on the basis of these models. For instance, if in the field of psychotherapy interventions emerge from these models which prove to be effective in achieving certain aims, they may be recorded and reproduced. In the latest article,[2] we demonstrated that apart from the dominant psycho-educational approach, also a paradoxical approach would yield statistically educational result. This paradoxically in schizophrenia saps energy from the EPM which is paradoxical par excellence (and I would add "like any model" because the "map is never the territory" -- Korzybski.)

I thank John Price for having valued the model and used it for further extensions. A more extensive exchange of views

would be necessary to define the areas and possibilities of the Elementary Pragmatic Model and its relation with other models. In the meantime I am duly taking note of all those who have expressed their interest in the Elementary Pragmatic Model. I would like to establish contacts with them and others via the Internet or by other means, and then, hopefully meet everyone at a specially planned conference.

Piero DeGiacomo

SEROTONIN & ITS ANCIENT FUNCTIONS

Thanks for inviting me to speak. It was an effective way to get in the loop and start the fabulous experience of Tucson. My main conclusion didn't hit me until my Sunday talk and wasn't articulated very well. It is this: we don't have to justify our theories anymore. We are integrated with basic science. Classic theories are not.

The basic science of serotonin supports the basic evolutionary theories of depression: an adaptive response which makes us slow down and increase information processing. Serotonin's basic function is facilitating gross motor tone and repetitive motion - but not fine motor; and more than anything, suppressing information processing. Depression occurs with low serotonin and consists of motor retardation and increased information processing. An ancillary function is regulation of self esteem from social cues about hierarchy status, and this is mostly in males. But the MAIN function is motor.

Also serotonin is the oldest and main biogenic amine neu-rotransmitter -1,000 million years old and has been conserved thru evolution in all vertebrates and invertebrates. The adrenergic and muscarinic receptors all evolved from 5HT-1 receptors. Additionally, men replace their serotonin twice as fast as women. We have the same amount in the brain, but men synthesize it 52% faster. That suggests men needed it for gross motor movement and did the heavy lifting. In the modern environment when we are stressed, we use up serotonin. Men replace it faster. Women cannot, and this may be one of the reasons they have greater rates of depression. They are more vulnerable to go into serotonin deficits.

Therefore we are consistent with neuroscience. We don't have to justify our basic evolutionary psychological theory. Others (psychoanalytic, etc.) now need to do that. Theirs are not consistent with neuroscience. Our task is now refining the evolutionary theories of depression as articulated by Price, Gardner, Sloman, Gilbert, Allen, for some instances, and turning them into effective therapy.

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KUDOS AGAIN!!!

This morning one of the leading researchers at Menninger -came up to me with a paper he thought I needed to read. *"Extremely well written. Incredibly interesting,* he said. On top of the article *"Outstanding?* was written (underlined 3 times).

The article was the ASCAP-generated paper in the *British Journal of Psychiatry* of 1994. RG's letter about the Aaron T. Beck ASCAP Award happened to be in my hand. I agreed with the researcher's assessment and pointed out that I knew the article well and also the first 3 authors. Thought you-all would like to know.

Mark Erickson, President-Elect
The ASCAP Society

Please E-mail any contributions to ascap@utmb.edu, or mail hard copy and 3.5" HD diskette to: Russell Gardner, Jr., c/o Frank Carrel, Department of Psychiatry & Behavioral Sciences, University of Texas Medical Branch, Galveston, Texas 77555-0428, USA. WordPerfect, Microsoft Word or ASCII format preferred. Diskettes will be returned to you.

ARTICLE:

by Piero De Giacomo

A Book Review and Three Abstracts/Extracts on Single Bit Information Exchange (SBIE) & the Elementary Pragmatic Model (EBM)

Introduction by Russell Gardner, Jr.:

In the May issue of *The ASCAP Newsletter,* John Price told us of his excitement in discovering the work of Piero De Giacomo (PDG) of Bari, Italy. Starting with the early ideas of the family theorists and developing them in conjunction with systems theorists, De Giacomo has developed an extraordinary alphabet or lowest common denominators for the analysis of interpersonal interactions. He and his collaborators have a logical scheme that can be used to analyze any interaction. He has applied these with systematic, controlled, and empiric studies. Drugs are carefully included as variables in some of the designs. I believe this alphabet or lowest common denominators require mastery and application; I intend to gain that, but decidedly haven't yet. But I intend to: I believe this kind of endeavor is core to the development of a proper sociophysiological science encompassing behavior as importantly as analysis of neurons and their actions and tbe genome and its.

In his May article, John applied what he learned of PDG's alphabet of interactions to his own thinking and tried generalizing it to non-human animals as well.[1] In the meantime, Professor De Giacomo sent me articles and a book[2] and I have come to share in the excitement. As a way of not making the ASCAP readership suffer from my lack of mastery, yet share in this excitement, I provide you in the following with the abstracts and selected extracts from three core papers, prefacing them with an excerpt from a review by Luciano L'Abate of PDG's book for the *American Journal of Family Therapy.* This sets a context as well as provides a brief summary.

Luciano L'Abate's excerpt:

Once in a generation one reads a book that leaves a marked impression. This impression may become incorporated into one's thinking and eventually into one's writing and research. This is one of these books ... Systems thinking has pervaded most therapeutic practices, especially in the fields of marriage and family therapy. Criticism can be summarized according to the following points:

1. Its level of explanation is so abstract that it fails to describe, account for, or explain specific interactions or recurrent patterns of interaction, except in globally vague and generally abstract terms.
2. [O]utdated metaphors [are] derived from machines, like thermostats, rather than beings.
3. Bypassing the individual and focusing on the family *qua* family as the major unit of interaction. Even in focusing on the family, as its major unit of analysis, it has kept separate from sociological thinking and evidence about the family and families.
4. It has kept separate from psychotherapeutic evidence and research, assuming an antiempirical stance.
5. Imperviousness to substantive criticisms.

Because of its antireductionistic and rigidly emergent nature, systems thinking is couched in terms that render it difficult if not impossible to reduce family transactions to the individual contributions of family members. It maintains, instead, that the family-as-a-whole is greater than and different from its parts, that is, its individual members. How can we think in ways that are applicable to individuals, dyads, and multirelational family units all at the same time? [O]ne needs to stress also many of its positive contributions.

First, systems thinking added an holistic perspective that was needed to shake up cherished shibboleths and established ways of thinking (i.e., linearity).

Second, systems thinking, by breaking up traditional ways of thinking, forced re-thinking about behavior and especially families in new, different, and actually revolutionary ways.

Third, this new way of thinking influenced the development of completely new ways of intervening with families that would have not taken place were it not for this new way of thinking.

Fourth, systems thinking sharpened our awareness and criticality about what we have been doing interventionally with individuals, couples, and families. In other words, it produced a quantum jump and a definite changejn ideology as well as practice.

Fifth, by stressing the importance of context in the understanding of behavior, systems thinking made us aware of the importance of the family as the most crucial and primary context of development and of change.

Within this historically critcal context enters Piero DeGiacomo's contribution of the concept of "recurring, repetitive, relational patterns." Although often used, no system theorist has been able to define and specify operationally what these recurring patterns consist of. Such specification would be necessary as a prelude to eventual verification. This important step is brillantly accomplished in this book.

Operating from the physical setting of an Italian psychiatric institute within a state university, DeGiacomo and his team of collaborators developed their thinking practically on their own, separated from major publication outlets in Italy as well as abroad. This book includes 15+ years of continuous defining and refining of concepts and ideas that, although germinated outside that setting, developed a refreshingly new and definitely relevant and original contribution to the theory or general systems and to the practice of paradoxical psychotherapy. Within this matrix, De Giacomo includes his Elementary Pragmatic Model (EPM), to distinguish it from two other levels of the theory, the intermediate and the superior which are not elaborated in this volume. Within the EPM, there are four possible coordinates of:

1) accepting the reality of another (spouse, child, parent);
2) preserving one's own reality by negating the other's reality;
3) sharing parts of one's reality with other; and
4) taking in something that was not present or part of one's reality or the reality of the other.

From these coordinates 16 interactive styles, which are the heart of the model, are derived (see page 13 for diagrams). These styles are characterized by:

1) the impossibility of the relationship by obliterating oneself;
2) sharing;
3) withdrawal into one's own world;
4) maintaining one's own world;
5) giving in to the world of the other, accepting it without sharing it;
6) entering into the world of the other and conforming to it;
7) maintaining one's own world and accepting the world of the other without sharing it;
8) maintaining one's own world and accepting and sharing the world of the other;
9) forming an impossible relationship with a tendency to use elements that do not belong neither to one's world nor to the world of the other;
10) sharing and using elements outside of one's own world and that of the
11) oppositionality;
12) retaining one's own world and using external elements;
13) totally renouncing one's own world and using external elements instead;
14) entering into the world of the other and using external elements;
15) accepting everything except what is shared;
16) accepting totally.

From this classification of relationships De Giacomo draws interventions that are specific to each style, consisting of direct, indirect, subtle and not-so-subtle directives or prescriptions What is even more important, De Giacomo gives information of the outcome for each of about 30 cases where this approach was used. Representative cases, described in detail with a rationale for the intervention, include anorexia nervosa, obsessive phobias, irritable colon, and various conversion and somatization disorders, including insomnia, and hysterical psychoses; also paranoias, schizophrenias, bipolar disorders, and sexual dysfunctions. When necessary, medication was administered.

One example of an initial therapeutic strategy consists of telling the family that the therapist knows what the solution to the family's problem is. However, this solution cannot be revealed because the family is not ready to receive it. Consequently, the family has to do whatever the therapist wants it to do in order to show its readiness for the solution to be given eventually. This is called the "empty box," seemingly a variation on Haley's "pact with the devil" technique, where family members are asked whether they are ready to do anything to solve the family's crisis.

De Giacomo uses also a variety of tests translated from the USA, including equations developed by the late physicist Alberto Silvestri. He used these equations to quantify certain aspects of the theory, which remain arcane to this reviewer and to any reader without advanced mathematical training.

Hence, this model is what systems theory was not. It is very specific. It lines specific relationships with specific interactions. It is creative in how it links evaluation of individual family interactions with interventions. It is reductionistic in that respect. It can be verified once the 16 different types of interactions are specified even further and possibly rated for their validity by independent judges. It is a definite advance, within an historical perspective, to general systems theory. *c8*

De Giacomo, P.; Silvestri, A.; Pierri, G.; Lefons, E.; Cortiati, L; & Tangorra, F.: Research on the effects of psychodrugs on human interaction. Acta Psychiatrica Scandanavia, 1986;74:417-424.

Abstract: An original method of testing which can measure interactional patterns is presented. This method is based on a relational model, which describes the relational behaviour as a sequence of elementary interactions, in which a "single bit of information" is exchanged. The model and the testing method are applied to monitoring treatment of patients with psychodrugs.

Extract: [O]ur group, in recent years, has tried to analyse whether some theorization is possible on the nature of the human interaction, considered as an exchange of information, when the input and output information are reduced to the minimum transmissible entity, a single bit.

The term "bit" should not be confused with the unit of storage in computer systems. The same term (with some slight ambiguity!) is used to identify the unit of information as introduced by Shannon and Ashby.

The unit of information is defined as the information that must be transmitted as one of two possible responses to a question. Thus, we have looked for a testing method in which only two responses, "yes" or "no" are allowed.

Messages carrying one bit of information:

The information contained in a message is strictly dependent on the uncertainty that the message is able to remove. In the case of messages with only two alternatives, the maximum information is defined as the unit, namely a bit. When people interact by exchanging simple propositions, having only two possible alternatives, we define this process as a Single Bit Information Exchange (SBIE) (12-14).

Obviously, the human interaction is normally far from being composed of SBIEs. However, it is possible,

in theory, to reduce very complex exchanges of information to sequences of simple (SBIE) interactions. Thus, we can assume that any process has this form without any loss of generality.

The elementary interaction can schematized as follows:

Subject A: proposal on a given topic (yes or no)

Subject B: answer (alternative proposal) (yes or no)

Subject A: conclusion of the topic (yes or no)

Subject B: conclusion on the same topic (yes or no)

Thus, the sequence of interaction can be recorded as follows:

Topic 1:	pa, pb, ca, cb
Topic 2:	pa, pb, ca, cb
Topic n:	pa, pb, ca, cb

where pa and pb are the proposals of A and the alternative proposals of B and ca and cb are the respective conclusions. Any p and c can assume only values of "yes" or "no".

Suppose now, as a hypothesis, that subject A, subject B, and any observer of the process of interation are not interested in the object of the single interaction, but in the process as a whole (as is the case when we try to classify an interaction style as "symmetrical" or "complementary". This means, from our point of view, ignoring any reference to the topics in the sequence, i.e., cancelling the column "Topic 1", "Topic 2"... "Topic n", from the scheme.

From the observer's point of view, this means that the only "observables" in the process are the <pa, pb, ca, cb> tuples and that any regularity in the interactional process (patterns) must be recognized without any reference to the specific "content".

From the subject's point of view, the partner is always seen as he or she makes his or her counterproposal to the "generic" proposal or to "any" proposal. According to our hypothesis, the "story" of the relationship with the partner will be synthetized by some aggregate property of the set of SBIEs (for example the most frequent, or the most recent, or, as we assume later, a sort of average). In everyday language, this assumes some definite connotations. For example: my wife is "oppositive".

Definition of the "coordinates":

In conclusion, if we consider the interactional process from the SBIE point of view, the "story" of a given relationship can be represented by a sequence of elementary interactions, each one consisting of a given quadruple <pa, pb, ca, cb> (see above).

For example:

<0,0,0,0>

Clearly, any interactional sequence is determined, in the sense that both the time origin and the end of observation can be arbitrarily chosen. The arbitrary choice of the starting and ending point of the observation is usually called the definition of the "punctuation".

Once the punctuation has been established, some conclusion can be derived from the observation of a given sequence. In particular, the recognition of some regularities in the observed sequence can lead to the insight of some relational pattern.

De Giacomo, P.; Pierri, G.; Lefons, E.; Mich, L: A technique to simulate human interation: Relational styles leading to a schizophrenic communication pattern and back to normal. Acta Psychiatrica Scandanavia, 1909;82:413-419.

Abstract: This article describes an attempt to use a theoretical model of human interaction called the elementary pragmatic model to determine which communication style leads from a normal subject's interactive pattern to a schizophrenic's and, conversely, from schizophrenia to normality. Results of this experimentation reveal a clear correspondence with the data published in the literature on communication deviances and family therapy. The computer

simulation indicates preferential ways of therapeutic intervention.

Extract: The Elementary Pragmatic (EPM) is based on the concept that human interactions can be regarded as the mere exchange of single bits of information (single elements, hence elementary in its strict connotation) between interacting subjects and the pragmatic (behavioural) effect thereof.

In other words, when 2 subjects, whose worlds comprise a set of elements, interact, they exchange elements; such an exchange then results in a change in their initial world. For instance, it is Mr. Smith's intention to go for a walk (going for a walk is part of his world; he leaves home and meets one of his friends, Mr. Rossi, who is going to the cinema (his world includes the idea of going to the cinema); Mr. Rossi suggests that they both go to the cinema and Mr. Smith agrees. The interaction thus results in them both going to the cinema.

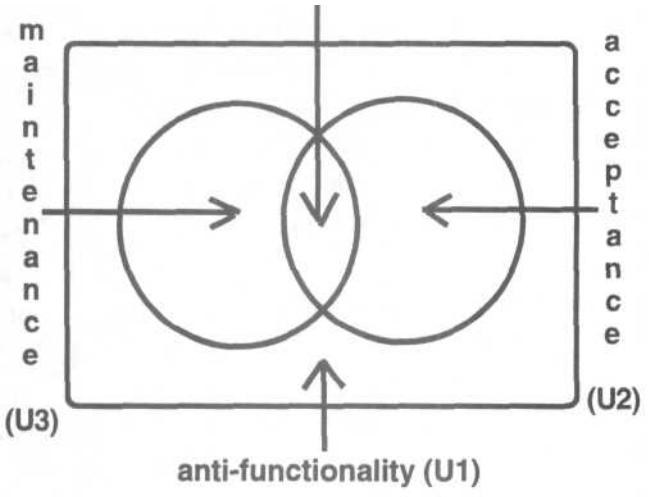
In terms of the EPM, the 2 subjects met and thn exchanged information (Mr. Smith was invited to go to the cinema by Mr. Rossi); after that he gave up (his initial element) going for a walk, and agreed to go to the cinema instead (Mr. Rossi's initial element); hence, their final behaviour of going to the cinema. Actually, Mr. Smith had 3 other possibilities than accepting. They could maintain the initial plan (element) to go for a walk, both could agree on some element of both of their worlds. For instance, both of them were thinking and walking to a bar nearby for a drink and a chat, and then did it; both gave up their initial element to choose a solution shared by both. This behaviour will be referred to as sharing. Finally, there is the foolish possibility of giving up one's initial plan, the other's proposal, and the proposals deriving from shared elements, and then do something outside the worlds of both (going for a swim outside in winter, for example). Such behaviour will be referred to as anti-functionality.

In other words, the EPM foresees four interactional patterns accounting for four modalities (coordinates). **(Figure 1):**

- anti-functionality: something emerges from the interaction between 2 subjects that initially belonged to neither subject's world (U1).
- acceptance: as a result of the interaction, something emerges from the world of the second, but not from that of the first (U2).
- maintenance: as a result of the interaction, something emerges from the world of the first, but not from the second (U3).
- sharing: something being shared by the two worlds stems from the interaction between the two participants (U4).

Somewhat more precisely, the sequence of all 3 values [Single-Bit Information Exchange (SBIE)], consisting of the proposal and the responses of each person defines how much each of the 4 probabilities counts in a given relational style for a given lapse of time to be thought. If, for instance, Mr. Smith, while interacting with Mr. Rossi, always agreed to this proposals, Mr. Smith would then be said to have established an acceptance (U2) relationship at 100%; if he always sticks to his initial intention, his maintenance realationship (U3) is 100%.

***Figure 1* - <u>The 4 coordinates of the EPM</u>.**



De Giacomo, P.; Pierri, G.; Lefons, E.; Santoni, R.A.; Buonsante, M.; Vadruccio, F.; Zavoianni, L: Schizophrenia: A study comparing a family therapy group following a paradoxical model plus psychodrugs and a group treated by the conventional clinical approach. Acta Psychiat-rica Scandanavia, 1997;95:183-188.

Abstract: A short family therapy in schizophrenia, according to a specific systemic model (the "Elementary Pragmatic Model" or EPM) with a strong paradoxical structure is presented. A total of 38 schizophrenic patients, randomly allocated, were treated according to the EPM model combined with psychotropic drugs (19 cases, each of whom underwent 10 weekly sessions of family therapy) or a traditional clinical-pharmacological approach (19 cases). With regard to all measures (number of drop-outs, symptoms according to the Brief Psychiatric Rating Scale, social activity according to the Strauss-Carpenter Outcome Scale and an interactive test), the EPM group showed better results. It is suggested that the systemic approach could be used not only as an effective therapy model in schizophrenia, but also as an intervention in addition to or integrated into an ongoing psychoeducational family therapy.

Extract: In addition to the prescription of drugs, the session included a discussion about the diagnosis and the effect of the treatment; occasionally, the patient's views about his or her problems were discussed in detail. All of the attending family members were listened to. The 16 styles of the EPM were used as guidelines for our interventions. We can not discuss in detail here how the model organizes the therapists' mental constructions. However, we do point out that our interventions often assume a stong paradoxical connotation, a few examples of which follow.

In a case of *auditory hallucinations* we can ask the patient to express the content of the voices and their characteristics, and then ask for these to be repeated by all members or by one specific member of the family (e.g., the father or mother), so that the patient may distinguish between the imitation of the voice and the voice inside him. Again, in a case of *auditory hallucinations,* each family member is asked to talk to the patient in a very low voice, so that he or she can not grasp the content of what is being said. The patient must then try very hard to see wether and how much he or she can understand (a paradox, like trying to reinforce the patient's tendency to listen).

In the case of patients with *autistic tendencies,* the family must go to the places that are most stubbornly rejected by the patient (e.g., a public garden, a crowded stadium, the town's central square), take some moving photographs of the places under what are the very worst conditions in the eyes of the patient, and then view them at home every day, for a given period of time, with the patient and his or her family sitting together in front of the screen (this is an interactive style whereby a long and laborious activity must be carried out in order to remove the disorder).

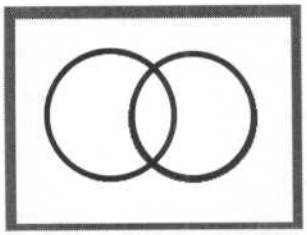
In yet another case, a family believed in *magic,* and thought that the maternal grandfather, who had died a long time previously, had brought a curse on the family. A propitiatory funeral service in memory of the deceased grandfather was prescribed (the interactive style of entering the family's world by amplifying).

In one case a patient had, during a *psychotic crisis,* destroyed all of the pictures he himself had painted. The family was asked to "reconstruct" them mentally, and then to discuss the contents of these pictures with the patient (the interactive style of entering the patient's world).

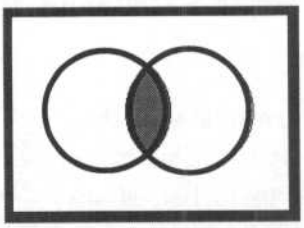
In a case in which *attention was being paid to the patient all the time,* the prescription was for the family to watch the patient intently, but in such a way that he would not notice, and for the patient to watch very carefully whether he was being observed, but to pretend that he was quite unaware of being watched, so we prescribed a type of behavior in which an implicit attitude was not made explicit.

In another case, the prescription was for the family to behave metaphorically as they did in reality, although this behaviour was not quite grasped just by talking about it. Thus, the parents in the session had to try to get away from each other, while the index patient and the other members of the family had to circle around the two of them, as fast as they could, to prevent them from parting (i.e., the prescription was a behavioural metaphor).

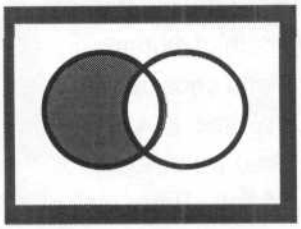
Sixteen Styles of the Elementary Pragmatic Model



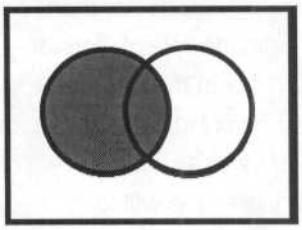
F_0: Characterized by the impossibility of a relationship.



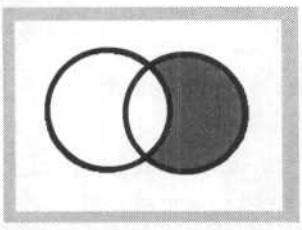
F_1: Characterized only by sharing.



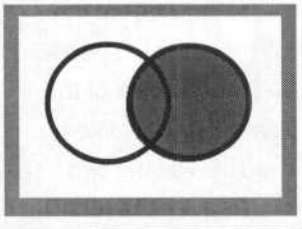
F_2: Withdrawal into one's own world.



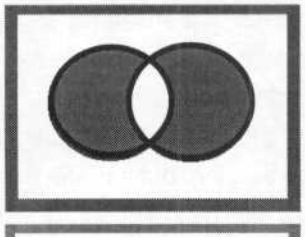
F_3: Maintaining one's own world.



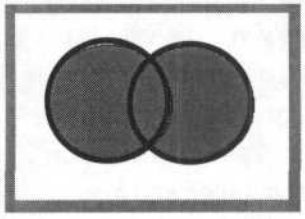
F_4: Giving in to the world of the other.



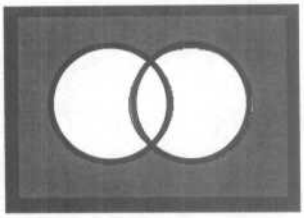
F_5: Entering the world of the other.



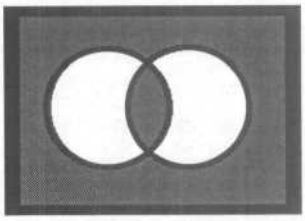
F_6: Maintaining one's own world & accepting the world of the other, but not of the shared elements



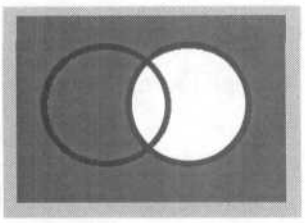
F_7: Maintaining one's own world, accepting the world of the other, and sharing.



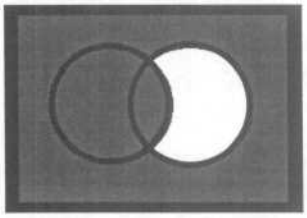
F_8: Impossibility of engaging in a relationship with the tendency to use elements belonging to neither one's own world nor that of the other.



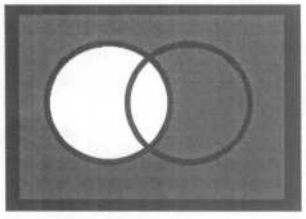
F_9: Sharing and using elements that are outside one's own world and that of the other.



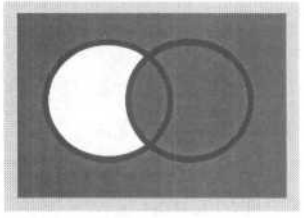
F_{10}: "Mistress Mary, quite contrary"



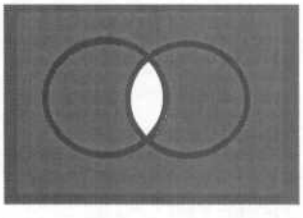
F_{11}: Maintaining one's own world and using outside elements.



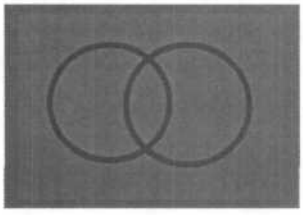
F_{12}: Total renunciation of one's own world and using outside elements.



F_{13}: Entering the world of the other & using outside elements.



F_{14}: Accepting everything except what is shared.



F_{15}: Total Acceptance.

ARTICLE:

by John S. Price

More on Defining Relationships

In the May issue I drew attention to Piero de Giacomo's use of Boolean algebra and Venn diagrams to describe different forms of relating (between people). Then I applied a similar method to the problem of defining relationships (in terms of power and control). Here are some further thoughts on the matter.

The act of defining is at a higher logical level than the definition given:

What is important is the act of defining rather than the definition given. This is a subtle but important distinction. It can be illustrated by a paradox, in which the act of defining and the definition are contradictory. It can occur in two forms. One is a situation between A and B in which A defines B as dominant: this happens, for example, when a masochist pays B to act sadistically towards him. Although B is acting dominantly, A is the Definer and is in ultimate control.

The other form of the paradox occurs when A defines the relationship between A and B as equal. Although the definition is one of equality, the act of defining has been a unilateral act on the part of A and so it makes A the Definer, and so in control. I have seen this happen in courtship, when A is usually the male and B the female. The prospective husband says words to the effect that "I absolutely insist that we have an equal marriage." If B accepts this without argument, she is accepting a subordinate role in the marriage, more so than if she replies, "On the contrary, it is my view that the male should take responsibility in a marriage, and so I absolutely insist that you take the leadership role in our marriage." In the latter case, she has redefined A's offered definition; if they compromise, they may have a really equal marriage; if A accepts the dominant role as defined by B, he forfeits the role of Definer, adopts the role of Acceptor, and is likely to end up as a hen-pecked husband.

Anyone interested in defining marital roles should read P.G.Wodehouse's *Spring Fever,* in which one heroine happily negotiates a role for herself which is subordinate to her fiance, while the other treads -the more difficult but exciting path of mutual negotiation and compromise, and ends up with a symmetrical relationship. Of course, in real life, if a girl hears a man say "I insist that we be equal", she should ditch him without delay. There may be one exception - when a woman chooses her man and then exits permanently from the role of Definer. George Eliot noted this possibility in the character of Annette Ledru in her novel *Felix Holt* " ...she was one of your meek little diablesses, who have a will of their own once in their lives - the will to choose their own master."

The unilateral definition as a hostile act:

The offering of a unilateral definition of a relationship comes into the category of a catathetic signal (defined as a signal which lowers the RHP of the recipient unless returned in full measure). Therefore it is like a blow or an insult, and is part of the repertory of ritual agonistic behaviour. It is like a serve at tennis, which if returned leaves the two players equal, but if not returned leaves the receiver one-down. Like a serve, the offer of a unilateral definition is not only a catathetic signal, but also a request for a reply, to enter into a negotiation (a rally), so that the outcome of the interaction is not something boring like an ace service, but a manifestation of repeated superior skill by the eventual winner. People do not like to win too easily, like the merchant who is disgusted if the buyer accepts the first price - he enjoys haggling. Koenraad Kortmulder has pointed out that even fish have an appetite for a symmetrical encounter, and may

handicap themselves to get a more even "rally". It is more fun (and presumably more adaptive) to beat someone who is near one's own level of skill than someone who cannot even return a serve. Of course, a negotiated definition can leave a couple with an equal relationship, which cannot happen with a tennis rally. In this sense, tennis is more similar to animal agonistic behaviour than to human conflict.

It has been noted by ethologists that the general form and rules of ritual agonistic behaviour are similar for all vertebrates, but that each species has a particular method of fighting (such as head-butting, mouth pulling, singing, croaking, locking antlers, etc., etc., etc.). Offering definitions could well be the human species-specific form of agonistic behaviour. It depends on language, which ties in with the fact that ritual agonistic weapons tend to become hypertrophied like the peacock's tail, and language is certainly hypertrophied in man.

Moreover, it does away with the problem which in humans, but not in animals, attends the use of "aggressive" acts such as hitting and insulting. This problem lies in the moral code which condemns fighting, and particularly a man hitting a woman. Therefore, if A attacks B and B does not retaliate, it could be that B is weaker than A, but it could also be that B has been trained not to settle differences by fighting, or, if A is a woman and B a man, B has been trained to believe that a man should not hit a woman. This moral training makes fighting a bad method of determining dominance in many situations, especially between the sexes. By not returning the blow for moral reasons, the courteous man loses Resource-Holding Potential (RHP). This may be balanced by a gain in Social Attention Holding Power/Potential (SAHP) as he smugly contemplates his chivalrous behaviour - but it seems likely that some damage is still done.

Do all statements define the relationship?

If offering a definition is a catathetic (put-down) signal, like hitting or insulting, what are we to make of the suggestion by Gregory Bateson that every communication contains a definitional (or command) component as well as an informational component? Can we deal with a situation in which every communication is like an insult or blow? One answer to this is given by Brown and Levinson,[1] who do indeed approach communication with the idea that every statement runs the risk of lowering the "face" of the recipient, and they demonstrate how this omniprevalent danger is counteracted in normal intercourse by forms of politeness and other subtle strategies.

Another answer lies in the fact of redundancy. Even if every statement defines the relationship, the vast majority of statements define the relationship in the way it has already been defined and agreed on by the two parties. In other words, the vast majority of definition statements are redundant and therefore do not come into Brown and Levinson's category of "face threatening acts" (FTAs). It is the unilateral definition statement that is an FTA (catathetic signal), in that it gives a definition which has not already been bilaterally agreed.

I have suggested that the consistent redundancy of definition statements is one way of defining the hedonic mode. If no new definitions are being offered, no fighting, verbal or otherwise, is taking place. This is a functional definition of the hedonic mode, and differs from the more usual structural definition in terms of the absence of social hierarchy, differential payoffs, non-random communication patterns, and other agonic social structures. It may well be that both definitions are necessary, and the question is whether we use the term hedonic for both. An egalitarian society in which no fighting is taking place could be described as both structurally and functionally hedonic.

Assessment versus engagement:

I would like to offer a justification for distinguishing between the assessment stage and the engagement stage of the ritual agonistic encounter. It could be argued that these merge into each other

imperceptibly, and that it is artificial to make a categorical distinction between them.

One distinction is that in the assessment phase there is no change of RHP. The smaller animal merely notes that the other animal is a lot bigger than he is (has higher RHP). Then he backs off. That does not make him feel smaller. If the interaction goes beyond the assessment stage, there is a change in RHP in one or both of the contestants. In this way the engagement stage does not have to be repeated endlessly.

The engagement stage starts when both animals have assessed that they are as big as the other (or in general have "favourable relative RHP"). They disagree about which should be one-up, but they agree that it is necessary to sort out their relationship. They agree that other biological goals such as feeding, mating and predator avoidance should be put on "hold" until the "business" of deciding their relative rank is completed. They come to this agreement in the context of what Fogel[2] calls a "co-regulated consensual frame". In the terms of Cronen et al.,[3-4] they agree on the context of the next episode in the relationship, which is to be a pairwise contest or fight or agonistic encounter. In our own jargon they switch from the hedonic to the agonic mode.

They engage by facing up to each other and offering mutual catathetic signals, which may in the first instance take the form of mutual direct gaze. The catathetic signal has two meanings, one based on the sender and one on the receiver. The sender's meaning is "I have made an assessment of our relative RHP, and decided that mine is at least as high as yours". The meaning for the receiver is that the signal must be returned in full measure, otherwise he will suffer a loss of RHP. The catathetic signal is like an invitation to the other to lower his RHP. The other animal may accept the suggestion and submit, with lowered RHP, or he may reject the suggestion and counter it with a suggestion that the other lower his RHP (he returns the catathetic signal in good measure). Sooner or later, one of them does not return the offer, accepts the other's suggestion that he should lower his RHP, and in so doing he adopts the role of loser in the encounter. He exits from the engagement stage with lower RHP than he entered it.

Another way of looking at the change that occurs in the engagement stage is in terms of a change in discrimination of RHP differences. One can imagine that RHP is a continuous variable of infinite length, so that no two animals have the same RHP. However, the animals have only a very limited ability to discriminate RHP differences, so that fairly similar values of RHP seem the same. Then, in a fight, we could say that one animal says to the other, "Have a closer look at our relative RHP; I think if you look more closely you will find that mine is greater." The other animal retaliates with a similar-suggestion, and they go one exchanging these catathetic signals until one looks closely enough at the relative RHP values to agree that his relative RHP is unfavourable. He then emits an anathetic signal (submissive signal) and adopts the role of the loser of the fight. Following this fight, there has been no change in RHP in either contestant, but both have become better discriminators of their mutual RHP difference.

These two ways of looking at the problem give different predictions when it comes to the loser fighting a third party. If there has been no change of RHP, there should be no effect on the chances of winning against another opponent. But the experimental evidence from animals seems to indicate that success in fighting one opponent increases the chances of winning against another, and vice versa, so it would seem sensible to assume that following a decisive fight, the RHP of the winner rises, and the RHP of the loser falls.

Is it true to say that, the longer and more intense the fight, the greater the change in RHP? One could argue either side here. I would just like to point out that if this statement is true, an agonistic encounter has the properties of a dollar auction;[5] once involved in the exchange, each contestant

gets in a situation of "too much invested to quit" and so cannot withdraw until he runs out of money (comes to the predetermined point at which he "gives up" in a war of attrition). This should be true if the costs of the engagement increase with each "bid", or with each "bout" of the ritual agonistic encounter. (In a dollar auction, the winner gets the dollar, or whatever sum is being auctioned, less his bid, but the second highest bidder also loses his bid without getting any prize; once two people start bidding against each other, it is very difficult to stop - the dollar often fetches many times its value).

Prisoner's Dilemmas

Unlike animals, a pair of humans has the choice of forming a symmetrical or a complementary relationship. This decision has to be made before they decide who is going to be one-up in the event of their forming a complementary relationship. Let us say that A and B have passed the assessment stage and have agreed that there is no disparity in RHP (social power) between them. Will they become friends on an equal basis? Or will they enter a trial of strength to compete for the one-up position?

Let us make the assumption that friendship is based on mutual trust, and that the offer of friendship gives the other the option of abusing the trust and using the friendship to gain a one-up position. Then the two prospective friends are in a Prisoner's Dilemma situation.[6] The possible outcomes, in order of desirability, are:

1. To be one-up by the abuse of trust.
2. To be equal friends.
3. To have to enter a fair fight for the one-up position, **and**
4. To be one-down because of abuse of trust by the other.

Certain social arrangements help to maximise the chances of arriving at the second option (to be equal friends). The payoff from the first option (one-up by abuse of trust) could be reduced, either by lowering the advantage to be gained from the one-up position, or by some form of social scrutiny so that reputation is damaged if the abuse of trust is made public (this is the situation which pertains in egalitarian hunter/gatherer societies). Or there is the possibility of playing a tit-for-tat strategy, so that incipient attempts to abuse trust can be detected and punished by the other before the one-up position is secured.

If option three is chosen, the two faithless friends enter into a negotiation for the one-up position, which in animals takes the form of a ritual agonistic behaviour, and in man can take many different forms, including ritual agonistic behaviour. The moves in this game can be described in terms of offered definitions of the relationship, and the one up winner (the Definer) is the one whose definition is accepted by the one-down Acceptor. The various moves or bouts of this negotiation can be described by the Dollar Auction model, forcing the contestants to go on bidding until one of them runs out of "money".

The selection of which runs out of money first can be described by the Hawk/Dove game,[7] in the form of the war of attrition, if we make Hawks richer than Doves. In the real life negotiation, neither contestant knows how much money either he or the other has - they have to go on bidding until one runs out. The fact of being Hawk or Dove is a hidden component of RHP: the discovery of which contestant, if either, is a Hawk, is what the engagement phase of the ritual agonistic encounter is all about.

According to this model, people entering an asymmetrical relationship may play three consecutive games: Prisoner's Dilemma in which they both "defect", the Dollar Auction in which they both have "too much invested to quit" and the Hawk/Dove game which decides which of them will win the dollar and be one-up on the other.

Perhaps it is not surprising that some people prefer to be hermits! *c8*

ARTICLE.-

by ***Tim Miller***

Involuntary Strategies

I've been vaguely uncomfortable with descriptions of "involuntary" adaptive strategies that have been described in recent years in the ASCAP newsletter and elsewhere. These include "involuntary failsafe mechanisms" and "involuntary subordinate strategies" among others. Having lately read David Chalmers' excellent (and difficult) book about consciousness, *"The Conscious Mind',* I have become able to articulate my previously formless discomfort with these theories. ASCAP readers might enjoy reflecting upon this critique, and, I hope, replying to it. I would enjoy discovering the fault in my position.

The trouble with hypothesized "involuntary" strategies is that they beg the question of "voluntariness." This seems like a simple matter, but, as Chalmers points out comprehensively and persuasively, it is not a simple matter at all. To the contrary, it is the most profound mystery in the known universe. The common sense understanding of voluntariness is simply that the action is under conscious control. Consequently, in order to compare "voluntary" and "involuntary" strategies, we must understand what "conscious control" is. In everyday discourse, we presume that we know what conscious control is. However, from the scientific and philosophical perspectives, we haven't a clue.

The public has enjoyed quite a bit of intelligent speculation about consciousness lately. Evolutionary psychologists tend to consider consciousness in terms of the modular organization of the brain. There are many good reasons to assume that mammal brains are "modular." Chief among these, in my opinion, is the problem of "combinatorial explosion" as eloquently described by Cosmides and Tooby in the opening chapters of *"The Adapted Mind'.* The essence of the "combinatorial explosion" argument is that no brain could be a general problem-solving machine able to process the inconceivably vast amount of data presented by the real world in a way that would consistently and rapidly produce adaptive solutions. A brain the size of Yankee stadium, running at the speed of light and consuming millions of watts would be too small and slow to do that. Consequently, we have little choice but to conclude that the brain consists of many rather simple and stupid modules, each specialized to solve a narrow class of problems. Hypothetical modules might include, among many others, face-recognition, counting small numbers exactly, estimating large -numbers, calculating the distance to nearby objects by parallax, calculating the distances to places farther away using other cues, calculating the probability that a given potential food source is nourishing and non-toxic, and so on.

Most models of the modular brain presume an "executive" function. The executive function consists of a master module that coordinates the effort of all the subordinate modules, which operate simultaneously and more or less independent of one another. The contents of the executive function are presumed to be "conscious." Other metaphors have been used to describe the executive function. One is a "workspace" which might be likened to a blackboard from which all modules can read, but to which they have tightly restricted "write access." The information "written on the blackboard" is presumed to be conscious. The presumption of brain modularity seems quite reasonable, and some empirical evidence supports it, though not much. At first glance, the identification of the executive function with consciousness seems quite reasonable, also. At second glance, it is utterly unreasonable.

The problem is this. Imagine a hypothetical computer with a modular architecture and an executive function similar to the brain's. Would the existence of an executive module make the computer conscious? Not necessarily. There is certainly no cause to presume that such a computer would be conscious. Neither is there any cause to presume that such a computer would function any more effectively if it were conscious. Further reflection reveals further complications. How would we know whether the hypothetical computer was conscious or

not? For that matter, how do we know (in a rigorous way) that other human beings are conscious? In such discussions, one must take care to clarify what consciousness means. It is sometimes supposed that conscious means "not asleep," "capable of introspection," "capable of self-report," or "capable of self-criticism," among others. However, none of these definitions is adequate. It is possible to imagine a computer that had all these capabilities in the absence of consciousness.

The fact is, consciousness is almost impossible to define. Certainly no adequate, concise definition exists. To define it at all, specialized terms and roundabout discussions are necessary. The essential definition goes like this. First we must employ "qualia," a highly specialized term. (The singular would be "qualium", I suppose.) Qualia are the contents of consciousness. This is obviously a circular definition. Qualia can be defined only by example. Look at something red. You are experiencing the redness of that object. Redness is familiar to you. It is salient and distinctive. It is unmistakable. That experience of redness is a qualium. Qualia take many forms: All of the senses evoke qualia, emotions and moods evoke qualia, thoughts and memories evoke qualia and so on.

The more you think about qualia, they more mysterious they become. There is no way to know that your qualium of redness resembles anyone else's. It would be easy to devise a simple instrument that could report the presence of red, with a high degree of precision, in the likely absence of any redness qualia. On the other hand, it is theoretically possible that a simple instrument might experience a redness qualium. How would we know? Would its redness qualium be similar to yours, or utterly different? How would we know? Obviously, similar arguments could be made for every kind of qualium. The extreme arguments involve hypothetical devices that could report every type of information experienced as qualia by human beings, yet that were specifically designed not to be conscious. Another argument involves hypothetical organisms able to report every type of information experienced as qualia by human beings yet that are not conscious.

Some psychologists and philosophers are aware (in varying degrees) of the problems associated with qualia. They proceed with their work by dismissing qualia as "epiphenomena." We all learned in graduate school that an epiphenomenon is sort of like a reflection on a pool of water. The pool of water is really real. The reflection appears to be real, but isn't really real. Of course, this is not an adequate definition of "epiphenomenon." To understand the definition of epiphenomenon, we have to go back to the original Greek. The Greek prefix "epi" means, "We don't think it's important and if you do, you're an idiot." Okay, that was a snide joke. "Epiphenomenon" is a term that cannot be defined clearly, nor can it be separated from its slightly pejorative connotation. You want to experience an epiphenomenon? Try jamming a needle into your thumb real hard. Reflect on the unreality of your pain qualium. So much for epiphenomena.

Incidentally, there are other very important concepts in science that can only defined by example, or by tautologies that ultimately refer only to ordinary experience. "Mass" is one, so is "time, so is "gravity." There are others These are sometimes called "primitives" by philosophers of science. Qualia may or may not still be considered "primitives" a hundred centuries hence. So far, science and philosophy offer no reason to consider them otherwise.

Do we seem to have strayed far from involuntary submission strategies? Okay, now we'll return. The experience of "choice," "free choice," "free will," or "making a decision" is a qualium. Free choice is logically impossible. A choice is either "free" or "determined." Or as philosophers like to say, an event is either "caused" or "uncaused." If our choices are "free" then they are "uncaused." If events (and a choice is an event) are uncaused, how and why do they occur at all? Perhaps such events are random? But then, how can we say we "chose" them? Do qualia "cause" free choices? Or is the experience of free choice a qualium itself? Can one qualium "cause" a secondary qualium, and if so, how? Is free will an epiphenomenon? If so is it the "same kind" of epiphenomenon as, say sensory experience, or a "different kind" of epiphenomenon. How can epiphenomena be classified? Don't bother looking up these questions in the encyclopedia, folks. Chalmers suggests, rather persuasively, that

they will never be there, because, qualia, are in fact, primitives. Consequently the reductive scientific method will *never* be able to say what they are or where they come from. I won't repeat his arguments here. They are long, difficult, and irreducible.

Now we return fully to "voluntary" versus "involuntary" strategies. The terminology presumes the existence of an organism that makes more or less free and conscious choices at some times. At other times, the same organism finds itself behaving in ways it did not choose and cannot necessarily account for. For instance, I might find myself repeatedly choosing to oppose the stupid harmful decisions of my boss, even though it is very stressful and perhaps risky to do so. In essence, I am challenging the dominance of a higher-status person. At some point, if things go badly, I might find myself unable to stop crying, get out of bed and go to work where I can continue challenging the boss, even though I intend to. In other words, I have become clinically depressed. In this example, my depression could be understood as an involuntary submission strategy or an involuntary fail-safe mechanism, or both.

For this example (and many other similar examples) to make sense, we must understand clearly what I mean when I say "I choose to continue challenging my boss." We must also understand clearly what I mean when I say, "I intend to continue challenging my boss, but I am unable to do so." All we know for certain about these statements is that I am reporting qualia. However, qualia are profoundly mysterious. Consequently, my self-reports are, ultimately, incomprehensible, even though their common sense meaning is obvious.

One might infer from the foregoing example that some tug-of-war is taking place in my brain. One module demands, "Keep on challenging your boss." Another demands, "Stop challenging your boss before he/she retaliates." This is eminently reasonable, and likely correct. However, it is not a satisfactory solution to the question of "voluntariness." The computers that fly modern airplanes sometimes have arguments about how to set the wing flaps, yet we presume them not conscious. Consciousness is not necessary to account for a tug of war between two brain modules, nor is such a tug of war sufficient to account for consciousness.

In these rather arcane arguments, the original intention of evolutionary theories about depression can get lost. An adequate theory of depression must account not only for overt behavior (submissive behavior, for instance). It must also account for the phenomenology of depression. The depressed person experiences persistent and multiple qualia — qualif of misery. It is the misery we wish to understand and to remedy. (After all, for every dominant human, we must have at least one submissive one.) Misery is neither necessary nor sufficient to produce submission, or to give up a lost cause. People do sometimes cheerfully submit to dominant others. People do sometimes cheerfully give up lost causes. And, for that matter, miserable, depressed people do sometimes continue to challenge dominant others or to pursue lost causes.

I am reminded of one of Richard Brautigan's poems. I don't have the book here, so I can only approximate it. The title is longer than the poem. The title: *This Poem Is Dedicated to the English Department at Columbia University.* The poem: *There is something wrong with this poem. Can you find it?* The foregoing discussion is likely to produce extreme exasperation in some readers. To such readers, I offer sympathy, not hostility. Once the exasperation subsides, I encourage you to search patiently and diligently for the flaw in this sequence of ideas. I can't find it. I don't think anyone else can, either, but I will congratulate anyone who succeeds.

I originally became excited about evolutionary psychology because it explained many human (and animal) phenomena that had previously mystified me. For a short period of time, I thought it might explain the entire human situation, or at least promise to explain it all eventually. The foregoing discussion suggests that psychology, evolutionary and otherwise, actually explains rather little, and offers rather little promise that we'll understand the human situation better in the foreseeable future. It also opens the door to the possibility that the human situation is ultimately and permanently mysterious. Paradoxically I'm kind of happy to have the mystery back. *c8*

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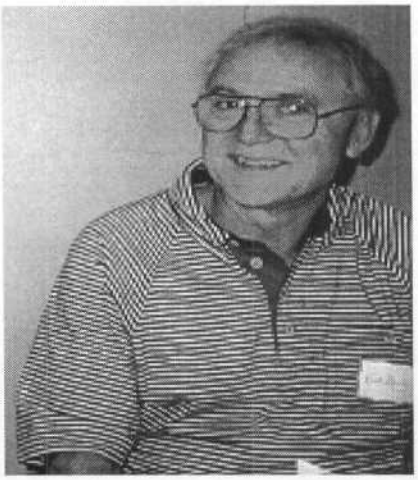
Some Participant Photos from the ASCAP Meeting in Tucson, Arizona



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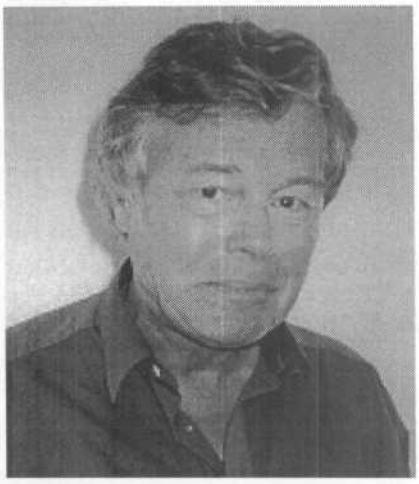

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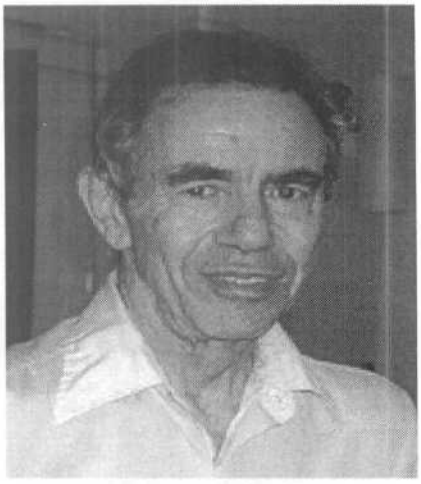

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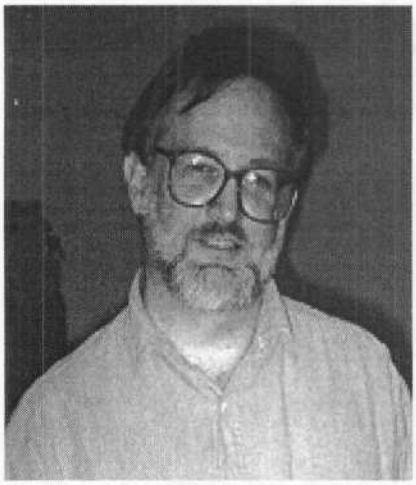

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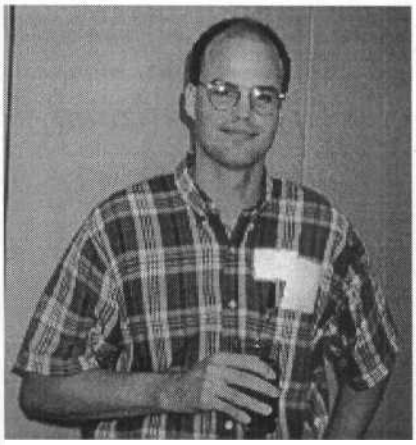

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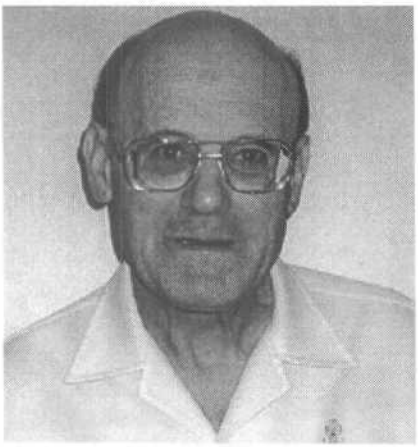

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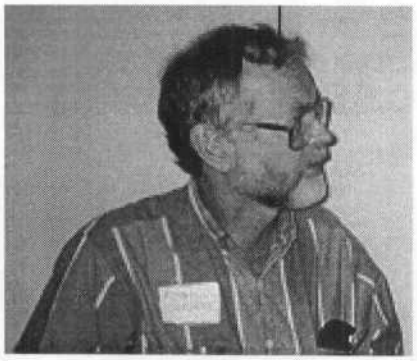

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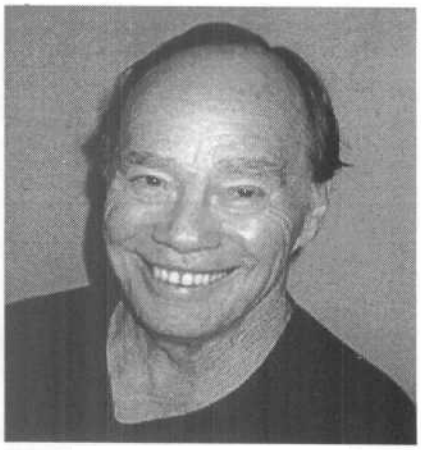
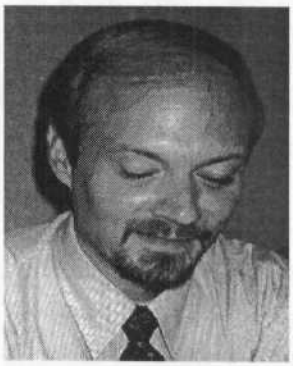


Glenn Cochran, one of the ASCAP poets



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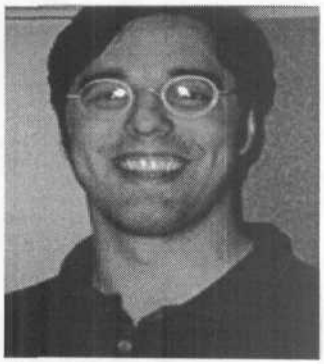

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ABSTRACTS & EXTRACTS...

Helbing, D.; Keltsch, J.; Molnar, P.: Modelling the evolution of human trail systems. *Nature,* 1997;388:47-50.

Abstract: Many human social phenomena, such as cooperation, the growth of settlements, traffic dynamics, and pedestrian movement, appear to be accessible to mathematical descriptions that invoke self-organization. Here we develop a model of pedestrian motion to explore the evolution of trails in urban green spaces such as parks. Our aim is to address such questions as what thejopological structures of these trail systems are, and whether optimal path systems can be predicted for urban planning. We use an "active walker" model, that takes into account pedestrian motion and orientation and the concomitant feedbacks with the surrounding environment. Such models have previously been applied to the study of complex structure formation in physical, chemical, and biological systems. We find that our model is able to reproduce many of the observed large-scale spatial features of trail systems.

Engel, S.; Zhang, X., & Wendell, B.: Colour tuning in human visual cortex measured with functional magnetic resonance imaging. *Nature,* 1997;388:68-71.

Abstract: The primate retina contains 3 classes of cones, the L, M, and S cones, which respond preferentially to long-, middle-, and short-wavelength visible light, respectively. Colour appearance results from neural processing of these cone signals within the retina and the brain. Perceptual experiments have identified 3 types of nerual pathways that represent colour: a red-green pathway that signals differences between L- and M-cone responses; a blue-yellow pathway that signals differences between S-cone responses and a sum of L- and M-cone responses; and a luminance pathway that signals a sum of L- and M- cone responses. It might be expected that there are neurons in the primary visual cortex with response properties that resemble these 3 perceptual pathways, but attempts to find them have led to inconsistent results. We have therefore used functional magnetic resonance imaging (fMRI) to examine responses in the human brain to a large number of colours. In visual cortical areas V1 and V2, the strongest response is to red-green stimuli, and much of this activity is from neurons receiving opposing inputs from L and M cones. A strong response is also seen blue-yellow stimuli, and this response declines rapidly as the temporal frequency of the stimulus is increased. These responses resemble psychophysical measurements, suggesting that colour signals relevant for perception are encoded in a large population of neurons in areas V1 and V2.

Ehgbali, M.; Curmi, J.P.; Birnir, B.; Gage, P.W.: Hippocampal $GABA_A$ channel conductance increased by diazepam. *Nature,* 1997;388:71-74.

Abstract: Benzodiazepines, which are widely used clinically for relief of anxiety and for sedation, are thought to enhance synaptic inhibition in the central nervous system by increasing the open probability of chloride channels activated by the inhibitory neu-rotransmittery-aminobutyric acid (GABA). Here we show that the benzodiazepine diazepam can also increase the conductance of $GABA_A$ channels activated by low concentrations of GABA (0.5 or 5 μM) in rat cultured hippocampal neurons. Before exposure to diazepam, chloride channels activated by GABA had conductances of 8 to 53 pS. Diazepam caused a concentration-dependent and reversible increase in the conductance of these channels towards a maximum conductance of 70-80 pS and the effect was as great as 7-fold in channels of lowest initial conductance. Increasing the conductance of $GABA_A$ channels tonically activated by low ambient concentrations of GABA in the extracellular environment may be an important way in which these drugs depress excitation in the central nervous system. That any drug has such a large effect on single channel conductance has not been reported previously and has implications for models of channel structure and conductance.

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