For evolutionary psychiatrists, psychologists and others interested in sociophysiological Integration

ASCAP

Volume 10, No. 5 (Cumulative#114) May 1997

"[TJhe nervous system is seen not as a set of fixed, dedicated circuits but as a collection of polymorphic networks, able to assume different configurations according to the dictates of chemical modulators."

Stephen J. Simpson[1]

Contents

Concerning paleobiology, sociophysiology, interpersonal and group relations, and psychopathology

ASCAP Society Executive Council:

President: Kent G. Bailey **President-Elect:** Daniel R. Wilson **1st Vice President:** Mark Erickson **2nd Vice President:** Russell Gardner **Just Past President:** Leon Sloman

Previous Past Presidents:

Michael A. Chance — John S. Price

Paul Gilbert — John Pearce

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 psychopathologically related states. We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups.

Across Species Comparison and Psychopathology (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 research endeavors, etc.

The ASCAP Newsletter is a function of the ASCAP Society.

Editor-in-Chief: Russell Gardner, Jr. Dept. of Psychiatry & Behavorial Sciences Room 4.450, Marvin Graves Building, D-28 University of Texas Medical Branch Galveston TX 77555-0428 Tel: (409)772-7029 Fax: (409)772-6771 E-Mail: rgardner@utmb.edu

European Editor: John S. Price
Odintune Place
Plumpton East
Sussex BN7 3AN
ENGLAND (01144)27-389-0362 Fax: (01144)27-389-0850 E-Mail: 100042.2766@compuserve.com

Managing Editor: Frank Carrel
Dept. of Psychiatry & Behavorial Sciences
Room 1.103, Marvin Graves Building, D-28
University of Texas Medical Branch
Galveston TX 77555-0428
Tel: (409) 772-3475
Fax: (409)772-4288
E-Mail: ascap@utmb.edu

Previous volumes are available. For details, contact Frank Carrel, the Managing Editor of *The ASCAP Newsletter,* at the address above.
or
See Subscription **form on** last page **of** this **issue.**

The WWW address for membership & subscription is:

http://psy.utmb.edu/ascap/aform.htm

The WWW Address for the The ASCAP Home Page is:

http://psy.utmb.edu/ascap

ADDRESSED TO & FROM

Narrative Structures

There is a worthy discussion of ethical egoism by Nathan Teske in the current issue of *Political Psychology*. Sixty interviews with political activists confirm John Johnson's point that altruists derive tremendous satsifaction from doing good. One of Teske's subjects stated that 'there isn't enough substance in altruism to be motivated by it'.

So what activates Teske's subjects? The prime mover, he claims, is the construction of an IDENTITY. This is also my view. Teske interprets identity in the language of humanist psychology. I interpret it in terms of narrative structures, one of which is the heroic endeavor story. The revolution myth of modern times is of this type. Most activists understand their activism in this tradition of meaning construction.

Narrative structures are missing from rational choice theory (criticized by Teske), from utilitarian ethics, and from sociobiology. Their absence is the main reason why these theories fall into the sterile contra-empirical) dichotomies of pleasure/pain and cost/benefit. The utilitarian discerns in Don Quixote an imperfect calculator; the sociobiologist a self-marginalized wannabe mate. But he is also a wonderfully funny knight gone mad in chivalry. To appreciate the humor, you must add narrative structure.

Dick Alexander has examined humor from a sociobiological point of view. He homes in on the fact that humor involves social comparison that embarrasses or discredits the subject of the joke. It's therefore a weapon of social competition, and in skilled hands it can be a deadly weapon. (This is why autocrats suppress political comedy; they can't endure being laughed at because laughter dissipates awe).

Dick thinks the job is complete when the sociobiologist relates the emotions involved to reproductive competition. I don't think so. The psychology of emotion is notoriously difficult, partly because the boundaries between emotion, mood, and feeling are fuzzy, partly because most theorists disregard peak emotional experience (markedly absent in Dick's analysis), and partly because one and the same stimulus can have opposite effects; or indeed a range of effects. What the effects are depend on the narratives used to interpret the stimulus.

Hiram Caton
H.Caton@hum.gu.edu.au
(from E-Mail)

Reference:

Teske, Nathan. 1997. Beyond altruism: identity-construction as moral motive in political explanation, *Political Psychology,* 1997;18:71-91.

Start Drugs in Low or High Dose?

James Brodey, psychologist, suggests a good argument against starting stimulants in pretty high doses with ADDers, especially kids. We are evolved to detect poisons and learn fast, real fast, what is poison and what ain't. When novel stuff is ingested and turns out to make a kid sick, especially sick with vomiting, resistence to further dosing will be very strong. True of kids, and everyone else, though maybe adults are easier to talk into trying again. There is a general rule here: Start low and go pretty slow. More then just good sense - a consequence of evolutionary history and deeply wired in.

There is a contrary American tradition, dating back to American Revolution times, that hardy people need whopping doses - purging, bleeding, etc.. A current version of this muscular approach to dosing: "For maximum therapeutic benefit with this drug, it should be increased until side effects prevent further

increase." (An actual paraphrase. Is this a straw man example? I do hope so...)

John K. Pearce
jkp@world.std.com
(from E-Mail)

Survivor Guilt

I have just been reading "Survivor Guilt, Submissive Behavior, and Evolutionary Theory" by Lynn O'Connor, Jack Berry, and Joseph Weiss, in the March ASCAP, and it seems a promising line of enquiry. Having just come back from India, where the poverty of the majority of the inhabitants is very apparent, I wonder whether survivor guilt due to an unconscious comparison of my own standard of living with that of the Indians may account for the uncomfortable feeling I get from being in India.

I just wonder if the term "survivor guilt" isn't a little oblique and misleading for what they are describing. If guilt is due to the knowledge that one is transgressing one of the "thou shalt not...." instructions internalised from society's moral code in childhood, then those who internalise a moral code demanding equality are likely to feel guilt when they see themselves better off than others - which could be called "affluence guilt". Also, if they have internalised the moral code of counter-dominance a la Boehm, they are likely to feel guilty if they feel themselves becoming dominant over someone else, and the guilt in that case would serve a negative feedback function of obliterating any R-gap and restoring equality. In fact, this kind of guilt (with associated loss of RHP?) may be important in the virtually unique human capacity to maintain close and equal relationships between people of the same sex.

One would predict that the "authoritarian personality" as described by Adorno and by Maslow would not feel survivor guilt. Incidentally, the fictional paradigm for "dominance guilt" is in Stendhal's *"The Charterhouse of Parma",* in which the serving maid of a depressed mistress has to abase herself to an exceptional degree in order to remain "lower" than her mistress.

John Price
100042.2766@compuserve.com

GABA-A Receptor, Ice Cream, Cod Liver Oil, and Pacifier

In response to:

The beta-carbolines as a group are inverse agonists at the GABA-A receptor. (I think harmine and harmaline are relatively low-affinity, though.) GABA inverse agonists have the opposite effects of GABA agonists such as benzodiazepines and barbiturates: the beta-carbolines are anxiogenic and seizure-producing. (This is in contrast to the GABA antagonists such as flumazenil, which block effects of GABA agonists and inverse agonists but have little behavioral effect by themselves.)...

For those of us not in the know, could someone give a more complete explanation of what an inverse agonist is? How is this "in contrast" to an antagonist? How does it actually work at the receptor?

You ask a very good question, and I apologize for not being more thorough in my previous post. The GABA-A receptor is an ion channel thought to be composed of 5 subunits around a central pore. The pore can allow chloride ions to pass through the membrane into the cell: since the Cl- ions are negative, opening the pore causes the cell to become more negative, or hyperpolarized. You may recall that exciting a neuron causes depolarization, so a hyperpolarized neuron is less likely to fire, and is less excitable. This is how GABA functions as an inhibitory neurotransmitter: it binds to the receptor and causes the ion channel to admit Cl- into the cell.

GABA binds to the beta subunit, while benzodiazepines bind to the alpha subunit. Benzodiazepines are GABA agonists because, without competing for or binding at the GABA site, they enhance the effect of

GABA. Something that competes for binding at the same site but has few effects by itself is a GABA antagonist.

One example in clinical and research use is flumazenil, (formerly Ro15-1788) which has little or no effect on a normal patient, but quickly reverses benzodiazepine sedation (and can precipitate withdrawal) in a patient on benzodiazepines. On the molecular level, flumazenil binds reversibly to the benzodiazepine site but does not change GABA's effect at all.

GABA inverse agonists are not in clinical use because they are anxiogenic and often are potent convulsants. On the molecular level, they decrease the effects of GABA at the receptor. They also compete for the same binding site as benzodiazepines and flumazenil. So flumazenil, which will readily reverse the sedation caused by benzodiazepines, will also reverse the convulsant activity of an inverse agonist. Inverse agonists include a group of compounds called beta-carbolines used experimentally only.

A not-very-scientific but easily grasped analogy which I just thought up would be the effect of ice cream, a pacifier, and cod liver oil on a baby. The agonist (ice cream) makes the baby happy, the inverse agonist (cod liver oil) actively makes the baby very very unhappy, and the antagonist (pacifier) is relatively neutral by itself. All compete for the same site-the baby's mouth-so the pacifier antagonizes either the agonist or inverse agonist. Take away the ice cream and substitute the pacifier and the baby will cry, but take away the cod liver oil and substitute the pacifier and the baby will be soothed. (Lower-affinity agonists could perhaps be likened to cottage cheese or bread...)

The GABA-A receptor with its benzodiazepine-binding subunit may be the only receptor that has an agonist/inverse agonist/antagonist model of action. (I'd be very interested to know if folks on the list have heard of others.) A concise and readable discussion can be found in Cooper, J.R., Bloom, F.E., Roth, R.H.; *"The Biochemical Basis ofNeuropharmacology",* Oxford University Press 1996. The diagram is on page 141 (of the 7th Edition, which just came out recently) explains very well visually what I've struggled to convey in words.

Hope this helps somewhat. If you have any more questions, I would be more than happy to discuss them (although perhaps one should e-mail directly to me to save bandwidth, and not everyone on the list is interested in receptor-level discussions.) GABA is the major inhibitory neurotransmitter in the brain (the "great braking system of the brain" as I like to call it), coexists with the classical neurotransmitters such as dopamine, serotonin and lots of others; the GABA-A receptor is a major site of action for benzodiazepines, barbiturates, some anesthetics and steroids, and the oldest manufactured psychoactive substance in the world, alcohol.

The GABA-A receptor is also amazingly heterogeneous (the various subunit subtypes can form hundreds, perhaps thousands, of distinctly different receptor types) and so, as you might guess, is currently my favorite receptor to study. So I can talk happily about it at length... but I think I'll stop here. (Oh, wait. Anyone wanting to hear a humorous anecdote regarding the discovery of beta-carbolines can e-mail me directly; I wrote about it in the APA *Psychiatric Research Report a* while ago, and the punchline has to do with chicken feathers.)

Receptively yours,

Rona J. Hu, M.D.
hucares@helix.nih.gov
Fellow, Pharmacology Research Associate Program Laboratory of Neuroscience, NIDDK National Institutes of Health

GABA Home Page:

http://www.umontreal.ca/~gaumondp/apd/gaba.html

Getting over One's Universals:

In response to:

...Leaving this aside, it is interesting how certain human universals are thought to be in need of being alleviated, while others are not. Typically, the desire of men for multiple mates is thought to be something one needs to get over. The desire to OWN a mate for life and to prevent the mate from living his/her life the way he/she would like to live (for example to have fun with other partners), is not considered a desire that needs to be alleviated.

Good points about how some universals are disparaged and others not. Great populations of WOMEN generally repress their sexual urges as well. They are told from an early age that they should marry men of high standing and wealth (e.g., "marry a doctor."). The fact that they need to be TOLD such things at all suggests that the phenomenon is at least partly memetic.

And the memetic forces of parental replication are so universal as to explain all or part of the extremely widespread female preference for male status. Things that women do not need to be told by parents, such as what buttock shapes to prefer in men, become repressed in favor of the learned values. (Repressed, in fact, to a level where merely discussing women's sexuality can be taboo). Men who do not satisfy the innate physical attractions of women often become beneficiaries to women's CULTURALLY ACQUIRED mate-status preferences and sexual repressions.

Considering women's partner status preferences as learned can be a rather troubling thought, however-especially to high-status men whose mates chose them by status, and to the women who are or would be their mates. It is more comforting to believe that our mates chose us because we satisfied their innate drives. We also want those around us to believe that mates chose us out of innate attractions.

This contributes receptivity and transmissivity to beliefs about innately status-seeking females that goes well beyond a serenely dispassionate scientific analysis. The actual balance of memetic and genetic influences needs much investigation, even as Darwinian principles apply to both. But these are emotionally loaded topics requiring scientists to take stock of their own belief adoption and re-transmission drives.

Political and moral agendas hide behind every scientist.

Indeed. And might I add amorous agendas?

Aaron Lynch aaron@mcs.net
http://www.mcs.net/~aaron/thoughtcontagion. html
(from E-Mail)

Congratulations!!!

Just saw the announcement for the meeting and the 3rd AS-CAP-Beck award recipient. Congratulate Ed Hagen for me, please. Unfortunately, I won't be coming neither to HBES nor to ASCAP this summer. Rather, I will be getting married and on my honeymoon, both in Italy and Tunisia. Best wishes to you and to all at the meeting, especially Dr. Beck, if he is there.

Souhir Ben Hamida
sousoua@merle.acns.nwu.edu
or s-benhamida@nwu.edu

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 TX 77555-0428, USA. WordPerfect, Microsoft Word or ASCII format preferred. Diskettes will be returned to you. Thank you.

ARTICLE:

by Michael Davies

Climatic Variability: The Key to the EEA

Climatic variability played a fundamental role in hominid evolution. For this reason, much of human behaviour utilizes a capacity to cope with climatic variability. A new synthesis links human biology with the social sciences.

Theoretical studies[1] together with research[2] published in 1996 indicate that climatic variability during the Pleistocene initiated novel Darwinian pressures. Essentially, humankind had to adjust critical elements of its social organisation to an environment which changed radically in periods measured in thousands or even hundreds of years. In these circumstances, evolution by natural selection favoured the development of individual learning and social learning (learning from, and being taught by, others). More generally, climatic variability drove forward all hominid evolution by natural selection, as evidenced by bipedalism, increasing relative brain size and improvements in technology.

The Pleistocene is believed to be unique in the frequency and amplitude of its climatic fluctuations. **Table A** (see page 9 of this newsletter) summarizes the major world climatic oscillations during the last half million years.[3]

In addition to the longer-term oscillations reported in Table A, many more short, sharp transitions are recorded, with warm, wet, or cool, dry interludes lasting, on occasion, no more than a few hundred years. The onset of warm, wet periods (interglacials) was frequently sudden.

The African Pleistocene reveals *"repeated shifts in regional hydrology and vegetation. The widest extremes were expressed over intervals of 10 to 100 thousand years and differed qualitatively from seasonal variations".*[2] For example, at the driest, desert stretched from the Sahara to the Kalahari.[4]

In these circumstances, some *"complex behaviors may be favored that enable resilient and novel responses to new conditions"*.[2]

The effect of climate on human numbers is revealed by genetic research. One of the longest, most extreme dry periods was between c. 186,000 BP and c. 128,000 BP. This era corresponds with a dramatic contraction, as indicated by genetic evidence, of the human population from c. 100,000 adults to c. 10,000 adults.[5] Humans are critically dependent upon water and declined markedly in this dry epoch. Conversely, human population has grown almost exponentially from 13,000 BP, the commencement of the current interglacial.

The environments that favour the evolution by natural selection of social learning may be identified by considering two extremes. In a slow-changing environment, species can adapt solely by natural selection. Suitable behaviour patterns can emerge by chance and then be favoured by differential survival rates. The overhead cost of a brain to select deliberately the correct behaviours is superfluous and a positive disadvantage. On the other hand, in a rapidly-changing environment, for example one which fluctuates daily, social learning possesses no advantages. The time to devise and communicate new behaviour patterns is not present. Accordingly, social learning will only be preferred by natural selection at some intermediate point of environmental variability.[1]

In environments that were changing significantly in thousands or even hundreds of years, social learning could be cost effective, while being able to respond at sufficient speed. Cost-effectiveness is a complex idea. In abstract terms, the energy gained through social learning must exceed that spent on the learning and reasoning process. In concrete

terms, the possible energy gain is a product of a species' potentialities (for example free hands, group living and shared feeding) and the habitat (perhaps many, highly diverse, irregular food sources). A meaningful response to environmental variability involving social learning entails both learning from others' and one's own experience combined with individual and group innovation.

Boyd and Richerson point out that social learning is more efficient than individual learning (teaching oneself).[1] Fewer errors are likely to be made, and less effort is required. One of their recursion models "shows that the cultural system that can pass on acquired variation is favored over the system of genetic inheritance plus individual learning unless the environment is either nearly constant or nearly random".[1] Furthermore, "A cultural system of inheritance combining individual and social learning ought to provide adaptive advantages to a population living in environments with an intermediate degree of environmental similarity from generation to generation".[1] Additionally, and of lasting impact, social learning is potentially cumulative.

The evolution by natural selection of social learning would occur incrementally. At each stage, some additional social learning would assist the survival of certain individuals and groups even if, in total, a species was in long-term decline. For this reason, the precipitating conditions for human social learning, given its overwhelming significance to human behaviour, must be hypothesized as long term. Moreover, these pressures must enforce a sufficiently, but not excessively, variable environment. Long-term climatic oscillation is, therefore, as Boyd and Richerson have already noted, a serious candidate for the engine of human evolution by natural selection.[1]

Persuasive evidence in favour of climatic variability's decisive role in African Pleistocene evolution has been presented by Potts.[2] First, the evolutionary history of other species is consistent with a climate-driven growth in behavioural flexibility. Specialist herbivores were supplanted between 800,000 BP and 400,000 BP by closely related, but more generalized species, evidenced by dental morphologies and smaller bodies.

Second, bipedalism was, by itself and without further adaptation, an effective response to climatic variability, permitting the occupation of terrestrial and arboreal niches c. 5 million BP to c. 3 million BP. Furthermore, growth in hominid relative brain size and tool use c. 3 million BP to c. 1 million BP enhanced potential flexibility, as demonstrated by expanding geographical diversity.

Third, the archaeological record supports the view that hominids were making adaptive responses to climatic variability. Long periods of continuous hominid occupation occurred in regions which were experiencing habitat transformations, for example Olduvai Beds I and II and Combe Grenal.

Fourth, more generalized hominids were succeeding at the expense of specialists. Paranthropus, with its "massive ... dental apparatus",[2] was replaced by Homo erectus, which was, eventually, superseded by humankind. Neanderthals, who were cold adapted, became extinct.

Nevertheless, in this context, our survival represents an apparent paradox. Humans are, in fact, physically specialized to well-watered regions with high, even temperatures as revealed by their lack of insulation and dependence on water. Our continued existence was not a foregone conclusion. After all, the adult population did shrink to some 10,000 individuals just over 100,000 years ago. However, as the Australian Aborigines demonstrated, reason, tools (baskets, spears), memory and the collective transfer of experience from one generation to the next enabled humankind to survive in semi-desert terrain. Humankind's intelligence and complex behaviour patterns emanated from meeting and defeating such daunting challenges. In otherwords, the physical specialisation of humankind was overcome through reason, social learning and technical innovation. As a consequence, humans are cultural beings.

If human social learning is a capacity for dealing with climatic variability, human history over the past 100,000 years ought to illustrate this feature. The most clear-cut evidence is the worldwide spread of humankind to all climatic regions, once adequate tools and clothes furnished the necessary food and insulation. Tools and clothes might be necessary conditions for migration but were not sufficient. As humankind dispersed, social structures had to be instituted to match the new climates.

The case is overwhelming that humankind has a kaleidoscope of potential behaviour patterns, the specific form being shaped by the environmental resources and the application of reason. Field studies during the past hundred years have authenticated the diversity of gatherer and hunter life-styles. In the Australian semi-deserts, social values were devised which permitted humankind to exist where men had little or no economic role and population densities were low. Aboriginal communities were ordered by male elders, keepers of the spiritual world, the Dreamtime. The arid-dwelling Aborigines practised arranged marriages within fixed groups, whose solidarity was maintained by painful, male initiation rites. Social rigidity was enforced.[6]

The Central African rainforests permitted denser human populations, while men and women contributed more equally to the food supply. In stark contrast to the Australian Aborigines, the lives of the Central African gatherers and hunters revolved around fluid groups and love matches, with community decisions taken by the mature men and their wives. Initiation rites were absent. Unlike the Aborigines, where old men married young girls, the Central African custom was for women and men to seek a spouse from the same generation.[7]

The Eskimos, who lived in the harsh regions south of the Arctic Circle, were another striking contrast to the Australian Aborigines. In Eskimo society, the prowess of male hunters guaranteed the survival of the group. Accordingly, the best hunters (fit, mature men) guided decisions. The role differences between men in Eskimo and Aboriginal communities, economically active and inactive respectively, impinged on all aspects of society.[8] Humankind's ability to innovate in social organisation, should the need arise, is powerful corroboration that human culture is, primarily, a capacity for dealing with climatic variability.

Some 10,000 years ago, climatic change, technological innovation, population growth and initial good returns from virgin soils initiated a fundamental transition from gathering and hunting to agriculture. Once more, none of the preceding conditions was sufficient. The faculty to invent workable social structures to exploit the tending of plants and the herding of animals was again paramount. However, the capacity to cope in relatively small groups with climatic variability was only partly relevant to organising large-scale, physically static societies. Farming was, indeed, a mixed blessing, and, while many more people survived, agriculture led to recurrent wars, mass murder, starvation, slavery and serfdom. Humankind's behavioural potentialities did not fully extend to the novel challenges of agriculture.

The course of human history exemplifies gatherers and hunters coming to terms with the settled life of agriculture and then industry. Humans were nomadic and enjoyed the variety inherent in gathering and hunting. Low-technology agriculture demanded long hours of back-breaking, monotonous, routine work. As can be anticipated, humankind loathed the lifestyle, which was interpreted, in parts of the world, as a divine punishment.

The many catastrophes of the last ten thousand years (war, genocide and famine) have entailed suffering on a vast scale. The whole process is cogent evidence that human flexibility is constrained. The capacity for culture is a means of reorganising society only within defined limits, those constraints being determined by the capacity of gatherers and hunters for responding to climatic variability.[9]

The plasticity of human behaviour has, so far, remained an enigma to social science. At last, little by little, the puzzle is starting to unravel. The

environment of the EEA was not just savannah but a mosaic which incorporated everything from semi-desert to teeming forest. The faculty to cope with this recurrent complexity in thousands or even hundreds of years entails forethought, language, planning, spontaneity, education of the young, freedom, discipline and the management of group and intergroup relationships. The ensuing innovation in social values and organisation encapsulates all the hallmarks of humanity.

A long looked-for synthesis may have been found. As this article reveals, a powerful, prima facie case can be made that climatic variability is the common thread that binds together Darwinian theory, hominid evolution and human social change. *c8*

Table A

Major World Climatic Oscillations during the last 500,000 Years

Years BP (000s)	World Climate	Duration Years (000s)
0-13	Warm, wet interglacial	13
13-24	Cool, dry glacial	11
24-59	Warm, wet interglacial	35
59-71	Cool, dry glacial	12
71-128	Warm, wet interglacial	57
128-186	Cool, dry glacial	58
186-245	Warm, wet interglacial	59
245-303	Cool, dry glacial	58
303-339	Warm, wet interglacial	36
339 - 362	Cool, dry glacial	23
362-423	Warm, wet interglacial	61
423-478	Cool, dry glacial	55
478-524	Warm, wet interglacial	46

Source: Mithen, S.: *The Prehistory of the Mind,* London: Thames and Hudson Ltd, 1996, page 32.

Climatic Variability: Empirical & Theoretical Approaches:

http://www.geo.umass.edu/climate/mike/research.html

Current research involves empirical and theoretical approaches to understanding the mechanisms behind organized decadal-to-century timescale climate variability.

Empirical approaches: Investigation of organized low-frequency variability evident in instrumental and proxy climate records. Spatiotemporal analysis of historical global surface temperature variability to establish modes of low frequency climatic variability based on our frequency-domain Singular Value Decomposition (SVD) technique. [more after this at this website]...

Theoretical approaches: Development of a simplified, zonally-averaged model of the ocean-atmosphere system to simulate natural decadal-to-century scale climate variability. Studying the variability in coupled ocean-atmosphere GCM simulations, and comparison w/ simplified model and observed variability, [more after this at this website]...

ARTICLE:

by Russell Gardner, Jr.

American Football Exemplifies Human Sociophysiology

I write this on January 26,1997, less than two hours before one of the big U.S. celebrations of the year: the Super Bowl Football Game, of which most of civilization knows at least in passing because television and other media coverage goes worldwide. The thirty-first such game will be played in New Orleans at 5:18 pm Central Standard Time. This is American football, not soccer. Player largeness, quickness, agility, coaching, and team effort all make enormous differences in who gets to this game after regular season and playoff games. Regarding the sociophysiological theme signaled in the title of this essay, quickness and agility are obviously physiological but coaching and team effort are not conventionally so. I am interested in how such human relationships can indeed be considered physiological, sociophysiological, to be precise.[1]

This morning's paper described Pete Rozelle, the man who designed the Super Bowl. The author felt that Rozelle had an ultimately deleterious public effect although his promotion of football raised him to the status of industry hero. He died last year and in the game today all players will wear a memorial patch. The critic noted that an overemphasis on American football indirectly fostered the counter-reaction of Soccer Mom, a population segment who figured much in the recent U.S. presidential election. Parents who value their children and worry about their future apparently chose Bill Clinton. The critic's argument held that because American football rewards grotesque sizes and extreme types, the game is hardly suitable for little boys trying out their athletic mettle for the first time. Soccer on the other hand is perfect for this: one runs free form instead of set plays, size matters less, more players participate and shine: hence soccer moms evolved causing an actual schoolyard decline of traditional American football. The author's points tag additional sociophysiological themes: humans venerate their heroes in a way other animals don't, respect for pioneers makes a difference, and parents look out for their kids (as other animals do too). More than most other creatures, however, human parents plan ahead for the welfare of their little ones by monitoring what games they play and by thinking carefully about who gets voted into leadership office.

Well, the author may be right, but for two weeks now the big game has managed to dominate U.S. conversation; it occupies not only newspaper sports pages but regular pages as well. When I phoned my parents in Wisconsin earlier this weekend, my mother noted that people are wondering what they will talk about when the big game is over. They live near Green Bay, Wisconsin. Green Bay is the distinctive small city (population less than 200,000) near the shores of western Lake Michigan whose team called the Packers is so capable that they are the favorites to win against the New England Patriots (really a Boston team; the town of their stadium, Foxboro, Massachusetts, is hardly mentioned).

What is the sociophysiological theme of the preceding paragraph? People like to have novel, exciting stories to talk about. Telling and receiving stories is part of human physiology. We are "the story-telling animal."[2] This includes that stories quickly pall, become repetitive. Once the game is over, win or lose, it will take on a different story flavor, to be savored overtime, different from when it unfolds before one's eyes on that marvelous story-telling instrument, the television. By the way, I also believe that my mother subtly put down those fellow Wisconsinites who overly identify with a mere American style football team. Would my mom have been a soccer mom had she waited to the present era to do her mothering? This illustrates cohort

effects in prevailing storylines: metaphors such as soccer mom are fashionable for humans in ways similar to songs and fads.

American football first entered the pages of *The (ASCAP Newsletter* because several years ago, I asked John Price, expert in social rank hierarchy and its permutations and frequent author in that publication, to comment on a situation with the Houston Oilers football team.[3]

This featured the obnoxious, arrogant Buddy Ryan, then the defensive coordinator of the Houston Oilers versus the smooth, prosocial, offensive coordinator, Kevin Gilbride, who was additionally a hero because he had survived renal cancer. Ryan physically attacked Gilbride on the sideline for what he considered an assinine playcall and also to show who was boss. Newly imported Ryan, formerly a head coach, was indeed dominant on the team (the head coach was a mild retiring man). Gilbride displayed injured dignity only in reaction to the ridiculous assault.

An update on this includes that the Oilers, though they fell far short of the Super Bowl, otherwise did well that year, sufficiently that Ryan was rewarded with a head coach position elsewhere. He lost it after a season as his team did poorly and he made many additional enemies. Apparently he is out of football now but writing some, still saying nasty things about Gilbride.

Gilbride on the other hand, continues a lower profile but smooth path to success; he became offensive coordinator on an expansion team. Such new teams usually do poorly for a decade or more, but under his widely acknowledged important role, the team came close to conference championship. For next year, he has now achieved a head coach position in a location prized more than the one that Buddy had briefly. As is true of many human stories, conclusions can be drawn for guidance of future effort: good triumphs over bluster, restraint is rewarded, true prowess as a team leader and consequent effectiveness prevails over undamped lower brain-body impulses shared with other animals though Buddy's aggression also had a calculated quality perhaps more self-publicizingly human than the American hound-dog he resembles.

Price, I recall, remarked on the comparisons or similarities of humans with other animals, noting that Buddy and Gilbride exhibited facets of ritual agonistic behavior.[4] Today I highlight the contrasts of humans with others. Cultural storylines are part of our heritage and make great differences in how people play out their lives. Image and good stories play roles in the sociophysiology of team leaders who are human, different from if they were dominant chimpanzees, lions, lizards or fish. Regarding the last, Koenraad Kortmulder has pointed out that tendencies towards stabilized social rank differences occur in fish in a manner similar to what seems to hold in people.[5] He additionally notes that ritual agonistic behavior may have vertebrate roots considerably more ancient than the triune brain imagery of MacLean which puts our lowest level brain part as that similar to the land-dweller reptile millions of years more recently evolved than fish. This emphasizes how very ancient are the human manifestations of ritual agonistic behavior. Whether soccer or American football, however, I feel games of any sort are a far better ritual than is war.

So I sit here wearing my Green Bay Packers sweatshirt excited about my Wisconsin origins, sharing in a storyline of underdog success, my own brain physiology participating in it all, overcoming the slight hint of my mother's disapproval. Green Bay is the coldest of the professional football franchises and its smallish open stadium has been the site of famous playoff games. About 30 years ago they won the so-called Ice Bowl over the Dallas Cowboys; the then quarterback (this position on the team is the designated alpha player) Bart Starr did a quarterback sneak that coordinated the efforts of eleven very large men against eleven others to gain a few inches in the last play of the game to triumph on an icy field in extreme cold. All other such teams are in large cities and many have expensive, often covered stadia, protecting players from cold, heat, and precipitation of any sort. Though I haven't lived in the state for over four decades, the Packers have continued as "my team." The theme of this

paragraph is my own sociophysiology. I identify in imagination with those very tall people who are winning. Is this a human elaboration of de Waal's chimpanzee politics?[6] The allies of the chimp alpha need to be getting something out of the experience; why else help the other chimp become the top-dog alpha individual of the group? I suggest that an identification with the winner may be exaggeratedly developed in our species as exemplified today by this worldwide phenomenon involving American football.

Numerous people own the Green Bay team. Each person owns a single share. These shares were sold in 1950 and now owners now live in all states of the union and who knows how many other countries as well. Other teams by contrast are owned by very rich people who move to another city if the host municipality doesn't come up with a fancy enough stadium, football being a big money maker in this era of no world wars for the past 50 years. For instance, the Houston Oilers are now contracted to move to Nashville, Tennessee. They'll change their name. The millionaire owner, Bud Adams, represents to me (I am the almighty fan) another version of Buddy Ryan's stupidity. Many other area people are now resolutely staying away from the games (of course they may also miss the bread and circus sideline qualities of the colorful, unrestrained Buddy). League rules now don't let another team develop the way Green Bay did. Millionaires protect their fellow concentrators of resources, providing still other reasons why Soccer Moms may feel the way they do, having trouble identifying with power-oriented males who sequester monies and focus control even if done in a relatively civilized manner.

Hearkening again to our sociophysiological theme, note that resource distribution makes a difference in how one's body works; those with more money usually do better. I see this in my clinical work at the general hospital. People with fewer resources have increased depression, anxiety, irritability, substance abuse, illness, injuries and death. We also need to note limiting factors for being too well off. Psychiatrist Ronald Immerman calls to our mind that well funded and unrestrained high living may include acquisition of sexually transmitted disease; this unwelcome side effect may limit survival and reproduction of those exhibiting unrestrained alpha physiology!

Elsewhere I have called this alpha physiology, restrained or unrestrained, alpha psalic: this comes from Programmed Spacings and Linkages in Conspecifics in one acronym and Propensity States Antedating Language in Communication in another.[7] The term focuses on the fact that communi-cational states exist, that these seem to have genomic coding providing capacity for distinctive modes of relating to others of one's same species, and that they are ancient and compare to parallel states in other animals, even fish. I've discussed not only alpha but other psalics as well, for example, nurturantand nurturance-recipient states. I emphasize again, however, that in this essay, I wish to highlight human-non human contrasts not similarities in alpha psalic. In humans this is often restrained or channeled in human-specific ways. Instead of absolute power corrupting absolutely, the person is often more contained, dampened for greater effectiveness. One exercises more limited facets of the pleasures that seem to prevail when one is in charge (versus the unhappiness of when one is defeated or if one happens to be a fearful though attentive subordinate when the group is in Chance's agonic mode where tension prevails and punishment lurks around every corner).[8]

Religion represents a distinctively human manner of containing alpha physiology. Reggie White, a dominating defensive Packer player, has in his career sacked more quarterbacks than any other defensive player in the history of the game (this means he has often stopped the opposing quarterback for a loss). He is also an ordained minister and preaches often. He has much prestige, is nicknamed the "Minister of Defense." Human leaders of all stripes often not only publically but privately defer to an almighty being or the representatives of such. The Super Bowl may now have become a secular holiday, but one Packer story may make it not only that. A Green Bay observer saw a van with license plates from Iowa stop before

the Packer museum in Green Bay. The driver descended, knelt before the building, and bowed three times. He may have been worshipping Vincent Lombardi, the legendary coach who won the first two Super Bowls.

In those initial versions of the now super day, Green Bay represented the traditional National Football League already decades old. The team had been nearly winless the year before Lombardi's arrival. He renovated it with an iron will, and displayed an uncanny ability to stimulate much effort from his players using well timed, individually tailored, dominance displays combined with great affection for his players.[9] The newer, upstart, American Football League had decided to share in the spoils of what people were willing to spend and after years of negotiating became the American Football Conference presumably on a level with those already there. The discussions led by the well contained human alpha, Pete Rozelle, allowed them to confront the older teams in the final game of the season. While the Packers won the first two Super Bowls, the AFC won the third. Now the winner of the Super Bowl takes home the Lombardi trophy expensively made anew each year. For winning the game today each player will take home $48,000 and the losing players a mere $29,000.

This year the Super Bowl in New Orleans is very near the small home town of the Green Bay quarterback, Brett Favre (pronounced Far). This is Kiln, Mississippi (population about 1300). Favre spent considerably more than his potential Super Bowl winnings to bring his friends and relatives to the game. Some argue that the human brain expanded three times its weight (compared to chimps, gorillas and prehuman ancestors) because it's a social brain. Favre is extraordinarily linked to his family and community of origin and demonstrates lower key behaviors as a result perhaps; thus, with his wealth from being a very good quarterback, he acquired land near his parents' place, but instead of putting a mansion on it as many other footballers have done (stars command millions of dollars in this era), he bought a double trailer, not ostentacious, but rather keeping with the ambience of Kiln.

Regarding Favre's sociophysiological development, his first coach was his father. Trained by and well identified with the older man, he became a brash and capable player though not the top college player of his year, in contrast to the opposing quarterback who was the first to be selected by the pros (the New England quarterback is also, interestingly, the son of a football coach!).

The crusty heart-of-gold Lombardi stopped coaching the Packers after the second Super Bowl and the team went into a three decades decline until five years ago, when Mike Holmgren came as head coach. Now 48 years old, he was a star high school quarterback, backup quarterback on championship college teams, and then for 12 years a high school history teacher and coach, losing the first 22 games played under his aegis.

But apparently he won more later, as he became an assistant coach for a college team, then quarterback coach for the very successful San Francisco professional team which went to the Super Bowl twice while he coordinated offense. He is known as a remarkable quarterback coach, having helped five of the outstanding quarterbacks of the present day to win extraordinarily. How he does this seems to me exquisitely human; I propose from the information below that he implicitly deploys with himself and his quarterbacks the shiver/ATP formula that I mention regularly to patients.[10]

Shivers, as John Price has explained, are lower brain-body thermogenic responses to cold just as many other reactions are responses that humans possess are comparable to those of other animals, such as unduly wishing to take charge, such as happens, I have hypothesized, in the psychiatric disorder, mania.[11] To counter or circumvent shiver-like responses when they are maladaptive, large brained humans can deploy allies (A) meaning warm, receptive, interested discussion partners, so they thereby think (T) and analyze better; once cause-effect relations are well understood, one can plan (P) better in handling oneself in one's life tasks.

To illustrate, the following quote comes from the Houston Chronicle's John McLain in the Sunday, January 26,1997, Super Bowl XXXI Extra Section: Holmgren's success with Favre has been magnificent. Favre has won the last two MVP awards [most valuable player of the entire league]. About his relationship with Holmgren, Favre says, 'We *get along very well. There were some times where we didn't, but I think that was part of the growing process."*

"Back in my first or second year, I thought that I knew it all, but what I found out was that I didn't know anything. He was just trying to help me through some tough times. He was very patient with me. He knew there were going to be tough times. Now I respect him for that and I realize that he was right. I don't know when the turning point was, but I'd have to say about two years ago, midway through the season when we finally started sitting down and actually communicating and going over stuff that we'd never gone over."

Holmgren tells a story about the 1994 season. He and Favre were in their third year together. When Green Bay had acquired Favre from Atlanta in 1992, he was cocky and loaded with talent, but he made a lot of bad decisions. They were decisions born of inexperience, but they had something to do with his attitude. Holmgren says Favre had a "gunslinger's mentality," and the coach knew his pupil had to at least harness it. Early in the 1994 season, Favre threw some bad passes and the Packers lost a game. Afterward, Holmgren discussed Favre with his wife. "She says, 'Maybe you're not helping him as much as you think you are,'" Holmgren said. "She thinks I should loosen up. She thinks my ego is getting in the way of my relationship with Brett."

The next day, Holmgren had a heart-to-heart talk with Favre. He told his quarterback they were going to win or lose together. He assured Favre that he was the quarterback and that he wanted him to make plays and win games. Favre has been doing that every since that meeting.

There are many facets of this story, but I'll make one additional highly important point about human sociophysiology. With their great capacity for storylines, humans have the capability of exhibiting alpha psalic in any number of different ways, for example, Favre's stature in Kiln (all the more impressive for being unostentacious), competition with one's coach (or cooperation) on how to do things, and competition with other teams on the football field.

There are others, for instance, Favre was addicted to pain-killers and therefore required substance abuse treatment last summer, between his two years of MVP triumph. He achieved an additional limited alpha status with respect to commanding his past and his desire for pain medications. With the help of allies in his treatment program he took charge of his compulsive, shiver-like appetites and cravings. Having a human capacity for metaphor, one can treat components of oneself like subordinates. Success in curbing the troublesome elements of the self is something quite different from what other animals can do and seems to be one of the payoffs for the extraordinarily large human brain.

I finish this now after the Super Bowl game has been played. Fortunately for what I had already drafted above, the Green Bay team won handily displaying heroics along the way and generating stories that will be discussed and enjoyed for at least a little while, not only in Wisconsin but elsewhere too. Reggie White had three quarterback sacks for a Super Bowl record. Brett Favre also starred (some felt he should have been the MVP of the game). Two other players did dramatically well who also exemplify the struggle to contain otherwise too exuberant and unwise alpha physiology. Desmond Howard, actual MVP of the game, for instance, had been the outstanding college player of his last year at that level, winning the Heisman Trophy. But then he fell on hard times, and over several years was almost out of professional football until Green Bay took a chance on him. He became a star again and in this Super Bowl set records for the special teams (kickoff and punt return specialists). On one occa-

sion, for instance, he ran the ball through the eleven men 99 yards for a touchdown (there are only 100 yards on the official playing field). But he is a less good example than the other, Andre Rison, who was dramatically the league's bad boy for his entitled, rebellious and arrogant attitude. He descended to the trashcan until the injury-depleted Green Bay receiver corps needed his talent.

Holmgren apparently felt he and the team would gently subdue the young man such that he would express fire without scorching himself and the team. Rison caught Brett Favre's first pass, Green Bay's second offensive play, and took it in for a score, celebrating with a triumphal victory dance, the details of which were distinctively his, distinctively human, although, of course we know that victory celebration is not unique to our species as a marker of conflict resolution. Watching a televised interview with him after the game, I noted with special interest that Rison mentioned Jesus, perhaps showing the influence of Reggie White, an important team leader. He gave other indications of understanding the value of restraint. Of course, Vince Lombardi would never have allowed that victory dance. Fashion — cohort effects — determines what can be gotten away with then and now.

Mike Holmgren was as modest in the spotlight as he had been earlier, telling the world after the game that it was not his play selection, but Favre's, that in a spectacular fashion first put the Green Bay team ahead in that second offensive play only minutes into the game. Favre detected from their positioning that the opposing team was planning to come after him en masse (technically this is called a blitz). He had the option of changing Holmgren's scripted play just before its onset and did; he changed it to one that took advantage of the other team's intent. With panache, the gunslinging quarterback propelled the ball to Andre Rison who then ran half the field for the score, deflating the other team, setting the tone for the victorious day. Television caught the six-shooter Favre running off the field after the play without his helmet, boyish, laughing, a young male such that any soccer mom could love. President Bill Clinton, just two months earlier re-elected by those soccer moms, called the team afterwards, praised MVP Desmond Howard's comeback, and conferred still more glory to the rural team from northern small town America which had skillfully practiced the artfully productive deployment of alpha psalic, muted and contained for maximum teamwork and planned success. *c8*

The Footprints at Laetoli

Ash, blasted into the falling rain
From Sadiman's vent Covered
Laetoli's land with gray cement,
Thirty-six thousand centuries ago, And cast the footprints of a woodland carousel:

Rhinocerus and millipede,
Antelope and guineafowl,
Ostriches, hyenas, and giraffes;
Hiparion (partly hoofed),
Some hares and some pigs,
Baboon, deinotherium,
And a cat (saber-toothed).

Among these mud-cast spoor are prints of feet
Like ours, with toes aligned and not a sign
Of Chimpanzee's knuckled gait: they strode upright,
Their hands were free. But, their minds inchoate,
They walked obtusely toward the blasted hill
And death: Sadiman would erupt again.

The largest walked in front with shortened steps,
Perhaps because the muddy ground was slick.
The second superposed her prints on his,
Trusting him to watch: she watched her feet.
The smallest stretched to match its stride to hers.

In these prehuman signs of humanity to come,
Another hint: for seventy hurrying steps
The tracks are closely parallel.

It's amusing to think
Of Mom's holding our hands
To allay our fears
And drag us along
To keep up with Dad...
For three million six hundred thousand years.

Glenn Cochran
pithycus@worldnet.att.net

ARTICLE:

*by **John** S. Price*

Defining Reiationships

Introduction:

This paper was inspired by Piero De Giacomo's book *Finite Systems and Infinite Interactions: The Logic of Human Interaction and its Application to Psychotherapy.* I met Piero at the WPA meeting in Madrid in the summer of' 96, and we subsequently exchanged books. After brief perusal, I laid his aside to await a thorough reading during my winter sojourn in India. And it certainly repaid the wait. It is not an easy book to read, but I strongly recommend it, both for its logical approach to human interaction, and for the originality of some of his therapeutic interventions.

For instance, he has an intervention which derives from the interactive style of "moving into the world of the other". He uses this with anorectic girls, and will so manipulate the family that the girl, together with her distant father, evade the intrusive mother, and spend a month together during which they are in each other's company 24 hours a day, and during which the father learns about his daughter. This was effective in a high proportion of cases. I have used it myself (slightly modified) in one case, to good effect. I got the impression that it tackled what is probably a widespread alienation of daughters from their fathers, caused by modern working and family practices, fear of incest, adolescent rebellion, etc., and as a result of which the daughters have low self-esteem and are at risk of various types of psychopathology.

Piero has been Professor of Psychiatry in Bari in southern Italy since a very young age, and, like the Milan group, moved from psychoanalysis into Batesonian/Palo Alto type family therapy in order to deal with the situation which followed the sudden closure of Italian psychiatric hospitals. His book is a remarkable application of logic to human interaction and so to styles of intervention.

Defining animal relationships:

Most animals form relationships which are asymmetrical in terms of power; that is to say, one becomes dominant and the other subordinate. No species apart from man seems able to form a close, equal relationship with a member of the same sex. Probably the nearest is the female chimpanzee, but their relationships tend not to be close in the wild.

The procedure of forming a relationship was described for the first time in English by Schjelderup-Ebbe in 1935, when he described the confrontation between two strange hens.[1] Three things could happen. Both hens could claim dominance, in which case they fought, and the winner became dominant. Or one hen could claim dominance, and the other not contest the issue, and automatically adopt a subordinate role. Or both could behave like subordinates, in which case one or the other would eventually realise that the dominant role was vacant, and adopt it. Once formed, the asymmetry in the relationship was stable, and a reversal of asymmetry was associated with behaviour disturbance.[2,3] The vast majority of animals develop relationships with strange conspecifics in the same way.

It is useful to think of the operation as occurring in two stages: a stage of assessment and a stage of engagement. The stage of assessment may end, as described above, with an amicable distribution of roles. One animal can see clearly that the other is bigger, stronger, and with more powerful allies, and so makes a signal of deference and/or submission. It is only if they are equally matched that a serious fight occurs, leading to the victory of one and the defeat of the other. So an animal can reach subordinate status either by backing off in the assessment stage or being defeated in the engagement phase.

Defining human relationships:

A human relationship may be defined in the above way, but it is likely to be complicated by two factors that do not apply to animals. One is the possibility of symmetrical closeness already referred to; the other is the influence of outsiders and outside forces (cultural expectations).

I am using the term "definition of a relationship" in the sense of Bateson[4] and Sluzki and Beavin[5]. Relationships may be either symmetrical or complementary in terms of power. The ultimate source of power lies in the person who defines the relationship (or,in a symmetrical relationship, the definition is shared as the result of negotiation). Thus every dyad either contains two "joint definers" or a "definer" and an "acceptor" (of the definition provided by the other). Every communication within the dyad has an informational component and a definitional component (which acknowledges the current definition of the relationship). Most definitional components are redundant, and when they are redundant, the relationship may be said to be in the hedonic mode. When the definitional components of communications are not redundant (that is, when they offer a new definition of the relationship, not yet mutually accepted) the relationship may be said to be in the agonic mode.[6]

In order to depict the various possibilities, I will follow the example of De Giacomo[7] and use Venn diagrams. In a Venn diagram, two people are represented by overlapping circles situated within a rectangle. The intersection, or overlap of the circles, represents what they have in common; the remainder of the circles represent what they each have but do not share; and the area of the rectangle outside the circles represents what they do not have, but other people have. An element can be taken from any of four areas - from the space of one or other person, from the shared space, or from the space occupied by neither person. De Giacomo considers the case of the interaction of George and Mary, and the way it affects George. George enters the interaction and exits from it, having had the chance to select an element from any of the four spaces: from his own space, from Mary's space, from their shared space, and from the space outside them. There are 2 times 2 times 2 times 2 = 16 interactive styles, which result from George's repetitive tendency to take elements from one or other space.

I would like to make two modifications to this scheme. One is to make the relationship the protagonist, rather than George. We are concerned with defining the relationship, and we can say that the final definition can select an element from the definition proposed by George, and from the definition proposed by Mary, from proposals that they both put forward, and from outside people and forces. We insert George and Mary into the system, and come out with (let us say) the Smiths. In doing this we lose some detail (the difference in interactive style between Mary and George) but we gain by moving from the linear concept of interactive style into the systemic concept of the relationship. In the psychology of differences, we are concerned, not with the differences between individuals, but with the differences between pairs of individuals.

The other change is to acknowledge that outside forces may or may not affect the symmetry of the relationship. Instead of two options, there are four, as follows:

0 Outside forces do not affect the relationship.

1 Outside forces require George to be dominant.

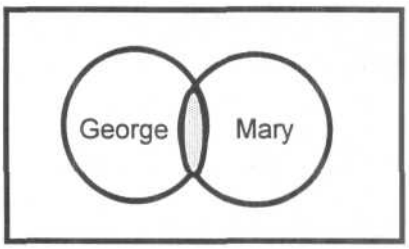
2 Outside forces require Mary to be dominant.

3 Outside forces require George and Mary to be equal.

Therefore, with this new model, instead of having 16 Venn diagrams depicting 16 interactive styles, we have 32 diagrams depicting 32 different ways a relationship can be defined. Of course, not all of the 32 diagrams are of equal interest, and I shall only deal with some of them.

I shall start with those relationships in which outside forces have no influence, and I shall take first the diagrams which represent symmetrical relationships.

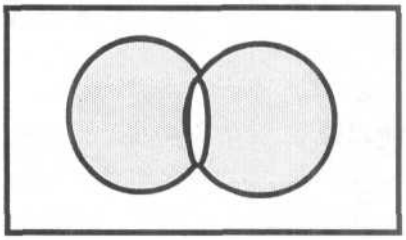
f1



(the shaded area represents the source of the definition of the relationship)

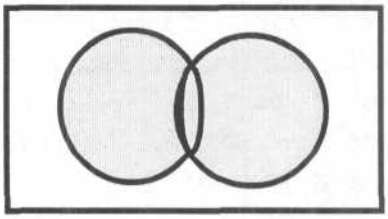
f1: a relationship based only on agreed defining elements. A marriage of convenience. Or two people who come together to play golf once a week, but do not meet in the intervening time.

f6



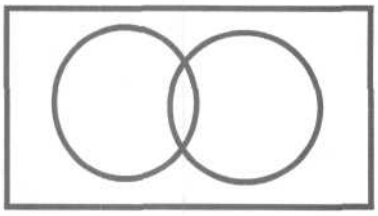
f6: a relationship in which shared elements are rejected, and the final definition is a compromise between opposing definitions. This is the classical family therapy meaning of "symmetrical relationship", implying hostility between two evenly matched parties. It is likely to be unstable, tending either to disintegrate in what Bateson called "symmetrical schismogenesis"[4] or to lead to the defeat of one party. The usual example given is the marital relationship depicted in Edward Albee's play Who's Afraid of Virginia Wolf? Another example is the antagonistic relationship between Struan and Brock in James Clavell's novels *Taipan* and The *Noble House.*

f7



f7: an equal relationship between two relatively independent people who are nevertheless willing to share what they have in common. The equivalent "interactive style" is that of "maintaining one's own world, accepting the world of the other and sharing". An early classical example is that of Theseus and Pirithous. In John Birtchnell's two dimensional scheme it is represented by "neutral closeness".[8] f7 is probably the peak of human relating. It includes a joy in similarities and a respect for differences. Of course, it is in danger of becoming unstable if any differences of opinion become salient and irreconcilable, as occurred in Rosamund Pilcher's novel *September.* If we can agree that being close and sharing with another person is a situation of trust which, if the trust is broken, may give the other person power or at least some advantage over us, then two people in f7 are formally in a Prisoner's Dilemma situation. Each benefits from co-operation over many iterations, but in the short term there is a temptation to make a sudden bid for the definer role, and whoever defects in this way scores an advantage, whatever the other does.

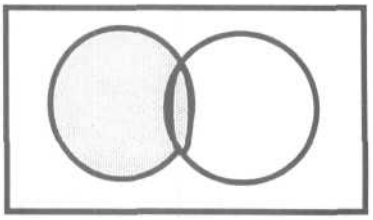
f0



fO: a relationship in which no definitions are offered. This type of relationship was found in the families of schizophrenics by Palazzoli et al.[9] No decisions were ever made, and no initiatives taken. Any statement that seemed likely to offer a tentative definition was immediately invalidated either by the speaker or by another family member.

That completes the symmetrical relationships (apart, from those including outside influence). In dealing with asymmetrical relationships, it will be convenient to make use of the fact that each relationship has a mirror image, and to include the variable of "initiative in creating asymmetry". Those in which George on the left is dominant I will assume are so because of his assertiveness, while those in which Mary is dominant I will assume are so because George idolises Mary.

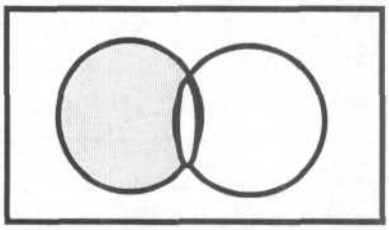
f3



f3: George is assertive, and only accepts those of Mary's definitions with which he agrees. This kind of relationship is typical of the husband-dominated marriage.

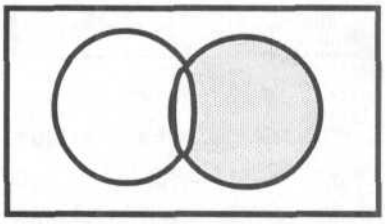
The process of forming this type of relationship (and also **f2)** is best described by game theory (hawks and doves or game of attrition - Maynard Smith.[10]

f2



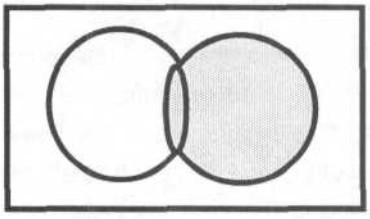
f2: George is again assertive, but this time he rejects those elements of the definition which he shares with Mary. In doing this he denies himself in order to reduce Mary's power. He is the typical tyrant husband, who does not enjoy his wife and will not let anyone else enjoy her (or let her enjoy herself).

f4



f4: George idolises Mary, and puts her on a pedestal, so that she is on a different level from him and they cannot share.

f5

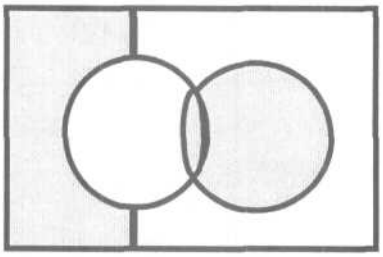


f5: George loves and respects Mary, seeing her as a superior being, but not so superior that they cannot share. Perhaps this is the best definition for a happy marriage. It also applies to mentor/protege relationships of various sorts.

Outside influences:

Then we come to those cases in which the outside world affects the definition. There are 24 of these, and it would be tedious to detail them all. In fact, they are only of interest when the definition demanded by the outside world clashes with the definition arrived at by the interacting couple.

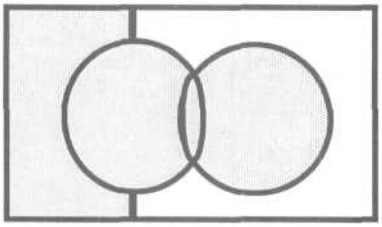
f12
f13



f12 and f13: The world expects George to be dominant to Mary, but in fact Mary is dominant to George. This common situation was called "marital skew" by Lidz et al.,[11] who related it to pathology in the offspring. It can certainly cause suffering in the subordinate spouse, who has not only the pain of being dominated, but also the ridicule of the outside world at his pathetic situation. Bishop Proudie in Anthony Trollope's *The Last Chronicle ofBarset* is the prototype here, and it is probably no coincidence that Trollope makes the Bishop undergo a recognisable episode of clinical depression.

It causes trouble in the work situation too, when a subordinate feels more competent than his boss, and both suffer. The problem was tackled in the past by psychologists under the heading of "status incongruence".

f15



f15: The boss treats his subordinate as an equal. This is a delicate situation which might reflect excellent working practice, or it might confuse the subordinate as to his exact role. Not to be recommended for the "authoritarian personality".

Limits of the model:

All theories are oversimplifications, and one hopes that the information left out justifies the simplicity of the model. One variable I have left out is John Birtchnell's axis of closeness/ distance. This is not

because the axis is unimportant, but that it is less important for the kinds of negotiation represented here. I have also left out that component of Birtchnell's axis of upperness/lowerness which includes the sort of lowerness that people want to have (like being looked after), because I think that lowerness of that sort is different from the sort of lowerness that Bateson and others talk about, and with which I am concerned here.

Birtchnell's lowerness is to do with nurturance and parent/child relationships, whereas the sort of subordination I am talking about is a property of relationships between adults, and is unrelated to the question of who nurtures whom. To some extent, closeness/distance must be related to whether any of the definition of the relationship is shared (i.e., to the difference between f2 and f3, f4 and f5, and f6 and f7).

Also left out is the question of whether the equal relationships are co-operative or competitive, and whether the unequal relationships are protective or exploitative. In my view this depends on whether the definitions are accepted fully by both parties, in which case the relationships are co-operative and protective, and interaction can be said to take place in the hedonic mode.[6]

If the definitions are not accepted (in the case of symmetrical relationships) or if they are only accepted with reluctance and resentment (in the case of asymmetrical relationships) the interaction of the relationship can be said to take place in the agonic mode. To reflect the agonic/hedonic variable, we would need each of the Venn diagrams to be repeated in agonic and hedonic forms, giving us 64 diagrams altogether. That, of course, is the number of hexagrams in the I Ching, so perhaps at that stage we are approaching some natural limit.

John Birtchnell[8] distinguishes between positive and negative relating, and some of this difference is subsumed under the agonic/hedonic distinction. Other aspects of the positive/negative axis such as whether the parties feel secure in their relating, and whether they treat each other with respect, are not included in the present scheme.

A final comment on the situation in which outside forces prescribe symmetry. In this case, they may also prescribe the mode. An example of outside forces prescribing the hedonic mode is provided by the Athenians sending both Nikias and Alcibiades as equal joint generals to command the expedition to Sicily. The message is "We want you to co-operate for the common good." The fact that in the event they did not co-operate and the expedition failed is another matter, reflecting the limited influence of outside forces, at least at a distance. Contrasted with the Alcibiades/Nikias relationship is the relationship between two boxers before a fight, or two parliamentary candidates before an election. Here the message from neutral observers is, "Be equal but competitive, until the ritual event proves one of you the better man" (in addition, each competitor is getting messages of his superiority from his supporters, but, of course, these cancel each other out from the point of view of the diagram).

Summary:

I have tried to extend to relationships the logical approach which Piero De Giacomo applied to the interactive styles of individuals. With 64 Venn diagrams we can portray the diversity of power relationships between same-sexed adults (and, with less confidence, to opposite-sexed adults). Each of the 64 can vary continuously on the axis of closeness/distance, giving a multiplicity and complexity which is likely to defy analysis, and to leave the art and mystery in human relationships safe from the probes of science. *c8*

Editor's Note:

The following quote is selected by and commented on by John S. Price in a letter to the editor. This seemed an excellent add-on for the above discussion of relationships.

Trollope, A: *Can You Forgive Her* (1864/1865), Penguin English Classics, 1986, pp. 196-197.

The lives of men such as Mr. Grindley, - men who are tolerated in the daily society of others who are accounted their superiors, do not seem to have many attractions. And yet how many such men does one see in almost every set? Why Mr. Grindley should have been inferior to Mr. Maxwell the banker, or to Stone, or to Prettyman who were brewers, or even to Mr. Pollock the heavyweight literary gentleman, I can hardly say. An attorney by his trade is at any rate as good as a brewer, and there are many attorneys who hold their heads high anywhere.

Grindley was a rich man, - or at any rate rich enough for the life he led. I don't know much about his birth, but I believe it was as good as Maxwell's. He was not ignorant, or a fool; - whereas I rather think Maxwell was a fool. Grindley had made his own way in the world, but Maxwell would certainly not have made himself a banker if his father had not been a banker before him; nor could the bank have gone on and prospered had there not been partners there who were better men of business than our friend. Grindley knew that he had a better intellect than Maxwell; and yet he allowed Maxwell to snub him, and he toadied Maxwell in return. It was not on the score of riding that Maxwell claimed and held his superiority, for Grindley did not want pluck, and everyone knew that Maxwell had lived freely and that his nerves were not what they had been. I think it had come from the outward look of the men, from the form of each, from the gait and visage which in one was good and in the other insignificant. The nature of such dominion of man overman is very singular, but this is certain that when once obtained in manhood it may be easily held.

Among boys at school the same thing is even more conspicuous, because boys have less of conscience than men, are more addicted to tyranny, and when weak are less prone to feel the misery and disgrace of succumbing. Who has been through a large school and does not remember the Maxwells and Grindleys, - the tyrants and the slaves, - those who domineered and those who submitted? Nor was it, even then, personal strength, nor always superior courage, that gave the power of command. Nor was it intellect, or thoughtfulness, nor by any means such qualities as make men and boys lovable. It is said by many who have had to deal with boys, that certain among them claim and obtain ascendancy by the spirit within them: but I doubt whether the ascendancy is not rather thrust on them than claimed by them. Here again I think that the outward gait of the boy goes far towards obtaining for him the submission of his fellows.

But the tyrant boy does not become the tyrant man, or the slave boy the slave man, because the outward visage, which has been noble or mean in the one, changes and becomes so often mean or noble in the other.

To my mind, he gets through a lot in this short piece. He observes the fact of the complementary relationship, but finds it puzzling, and cannot determine what causes it - eventually putting it down to "spirit", but acknowledging this is not really an answer. He excludes the possibility that it is due to qualities which give people status in the hedonic mode. Then he makes some telling comments about the importance of non-verbal behaviour. Then he takes a developmental approach. Finally, he makes the astonishing claim that dominance/subordination in childhood is uncorrelated with dominance/subordination in adult life. It seems to me that writing 130 years ago he got further than most social psychologists have got today.

Anthony Trollope, English Novelist-1815-1882

http://www. sas. upenn. edu/~varese/tonyt. htm

The Trollope Society

http://mirrors.org.sg/victorian/trollope/tsociety.html

ABSTRACTS & EXTRACTS...

Wilson, D.: Evolutionary Epidemiology: Darwinian theory in the service of medicine and psychiatry. *Ada Biotheoretica,* 1993;41:205-218.

Abstract: Epidemiology is a science of disease which specifies rates (illness prevalences, incidences, distributions, etc.). Evolution is a science of life which specifies changes (gene frequencies, generations, forms, function, etc.). 'Evolutionary Epidemiology' is a synthesis of these two sciences which combines the empirical power of classical methods in genetical epidemiology with the interpretive capacities of neo-darwinian evolutionary genetics.

In particular, prevalence rates of genetical diseases are important data points when reformulated for the purpose of analysis in terms of their evolutionary frequencies. Traits which exceed *prevalences beyond the rates of mutation* (in Hardy-Weinberg calculations) or evidence unusual *range of phenotypic reaction are* of special interest. This is because traits which did not confer advantages in the environment of evolutionary adaptation cannot accede, through natural selection, to anything but low rates of genomic prevalence.

Evolutionary epidemiology is, in all of medicine, of particular promise in ongoing efforts to better understand psychopathology. Many complexities of phenotypic adjustment arise when new developmental demands are placed on an 'old' genome. The new and complex biosocial ecology of human mass society now evokes different phenotypes than those in the prehistorical ecology to which the genome is structurally and functionally better adapted. Some of these new phenotypes are darwinian failures. In this paper, the theoretical implications of evolutionary epidemiology are extended and some tentative points of clinical application (particularly to psychiatry) are offered.

Grattan, D.R. & Selmanoff, M.: Regional variation in gamma-aminobutyric acid turnover: Effect of castration on gamma-aminobutyric acid turnover in microdissected brain regions of the male rat. *Journal of Neurochemistry,* 1993;60:2254-2264.

Abstract: This study compared the turnover of GABA neurons in different brain areas of the male rat and examined the effect of castration on GABA turnover in regions of the brain associated with the control of gonadotropin secretion. To estimate GABA turnover, GABA was quantified by HPLC in microdissected brain regions 0, 30, 60, 90, and 120 minutes after inhibition of GABA degradation by aminooxyacetic acid (100 mg/kg, i.p.). GABA accumulation was linear in all areas for 90 min ($p < 0.01$), and GABA turnover was estimated as the slope of the line formed by increased GABA concentration versus time, determined by linear regression. There was considerable regional variation both in the initial steady-state concentrations of GABA and in the rates of GABA turnover. Of 10 discrete brain structures, GABA turnover was highest in the medial preoptic nucleus and lowest in the caudate nucleus. Turnover times in the terminal fields of known GABAergic projection neurons ranged sevenfold, from 2.6 h in the substantia nigra to 0.4 h in the lateral vestibular nucleus.

The effect of castration on GABA turnover in 13 microdissected brain egions was investigated by measuring regional GABA concentrations before and 30 min after injection of aminooxyacetic acid in intact rats or 2 or 6 days postcastration. Following castration, steady-state GABA concentrations were increased, and GABA turnover decreased in the diagonal band of Broca, the medial preoptic area, and the median eminence. GABA turnover increased in the medial septal nucleus and was unaffected in the cortex, striatum, and hindbrain. These results are consistent with the hypothesis

that testosterone negative-feedback control of luteinizing hormone-releasing hormone involves steroid-sensitive GABAergic neurons in the rostral and medial basal hypothalamus.

Grattan, D.R. & Selmanoff, M.: Prolactin-and testosterone-induced inhibition of luteinizing hormone secretion after orchidectomy: Role of preoptic and tuberoinfundibular gamma-aminobutyric acidergic neurons. *Journal of Endocrinology,* 1994;143:165-174.

Abstract: The inhibitory amino acid neurotransmitter gamma-aminobutyric acid (GABA) may play an important role in the regulation of LH-releasing hormone secretion. The present study examined the effect of prolactin on GABAergic neuronal activity in microdissected brain regions of the orchidectomized rat, to determine whether inhibition of LH secretion after castration by acute hyperprolactinaemia was associated with prolactin-induced changes in GABAergic neuronal activity.

The effects of prolactin were contrasted with the effects of testosterone on hypothalamic GABAergic neurones after orchidectomy. GABA concentrations were measured by high pressure liquid chromatography in eight microdissected brain regions in untreated rats and 60 minutes after inhibition of the GABA catabolic enzyme GABA transaminase by injection of aminooxyacetic acid (AOAA). The rate of GABA accumulation in microdissected brain regions following injection of AOAA was taken as an index of GABAergic neuronal activity. Rats were divided into seven experimental groups: intact controls, 2 days after castration, 2 days after castration with prolactin treatment (2.5 mg ovine prolactin injected s.c. every 12 h, starting at the time of castration), 2 days after castration with testosterone replacement (30 mm silicone elastomer implant containing crystalline testosterone), 6 days after castration, 6 days after castration with prolactin treatment, and 6 days after castration with testosterone replacement. Both 2 and 6 days after castration, plasma LH was markedly elevated above levels in intact rats, and AOAA-induced GABA accumulation was significantly decreased in the diagonal band of Broca at the level of the organum vasculosum of the lamina terminalis, in the medial preoptic nucleus and in the median eminence. Hyperprolactinaemia significantly reduced LH levels 2 days but not 6 days after castration. GABAergic neuronal activity, however, was not significantly affected by prolactin at either time. Testosterone replacement blocked the postcastration elevation in plasma LH and prevented the castration-induced suppression of GABAergic neuronal activity both 2 and 6 days after castration. There were no castration- or hormone-induced changes in GABAergic neurones observed in the medial or lateral septum, caudate nucleus, cingulate cortex or arcuate nucleus. These results demonstrate that the activity of GABAergic neurones terminating in the rostral hypothalamus and the median eminence is positively regulated by testosterone, and that these steroid-sensitive GABAergic neurones may be important in the negative-feedback control of LH secretion. Inhibition of LH secretion by hyperprolactinaemia, however, may not be mediated by changes in GABAergic neuronal activity.

Grattan, D.R., Park, S.-K. & Selmanoff, M.: Orchidectomy and NMDA increase GnRH secretion as measured by push-pull perfusion of rat anterior pituitary. *American Journal of Physiology,* 1995;268:E685-E692.

Abstract: Using push-pull perfusion to measure concentrations of gonadotropin-releasing hormone (GnRH) in the extracellular fluid of the anterior pituitary gland of the male rat, we have measured GnRH release at specific times before and after castration and in response to acute administration of N-methyl-D-aspartate (NMDA). After castration (7 days), mean GnRH levels were subtantially increased (4.3-fold) compared with intact controls (0.94 +/- 0.16 vs. 0.22 +/-

0.08 pg/10 min, respectively, P < 0.05) due to an increase in both the frequency and amplitude of GnRH pulses.

Testosterone partially reduced GnRH release (0.62 +/- 0.10 pg/10 min). NMDA induced a rapid increase in plasma luteinizing hormone (LH) in both intact and castrated rats and increased GnRH concentrations in the perfusion samples (P < 0.05). There was no change in LH release induced by two doses of injected GnRH (5 and 25 ng/100 g body wt) 2 days after castration, but by 6 days after castration the response to both doses was significantly increased. These results demonstrate that GnRH release in the male rat is acutely increased by NMDA and is chronically increased after orchidectomy. Increased pituitary sensitivity to GnRH also contributes to the hypersecretion of LH after castration, particularly at longer times after removal of testesterone negative feedback.

Grattan, D.R., Rocca, M.S., Sagrillo, C.A., McCarthy, M.M., & Selmanoff, M.: Antiandrogen microimplants into the rostral medial preoptic area decrease GABAergic neuronal activity and increase LH secretion in the intact male rat. *Endocrinology,* 7996,137:4167-4173.

Abstract: GABAergic neurons terminating in the rostral hypothalamus are stimulated by testosterone. To investigate whether this action is mediated locally through androgen receptors in the rostral hypothalamus, bilateral microcannulae (28 gauge) containing the androgen receptor antagonist, hydroxyflutamide (HF), were stereotaxically implanted into the anterior medial preoptic area (MPA) just dorsal to the major population of gonadotropin-releasing hormone (GnRH) cell bodies. Two days later, blood samples were collected for assay of luteinizing hormone (LH), and animals were sacrificed for determination of GABAergic neuronal activity in tissue dissected from the site of the implanted cannulae. Animals were decapitated either without treatment, or 60 minutes after inhibition of GABA degradation by AOAA (100 mg/kg, i.p.). The rate of GABA accumulation in the tissue after AOAA was used as a measure of GABA turnover. Levels of mRNA for both forms of glutamic acid decarboxylase (GAD65 and GAD67), the rate limiting enzyme responsible for GABA synthesis, also were measured by a microlysate ribonuclease protection assay. LH levels were significantly increased (1.8-fold) in HF-treated animals compared with controls. In the MPA, beneath the implant cannulae, GABA turnover was significantly reduced in HF-treated rats. There was no effect of treatment in the frontal cortex, which was used as a control region. Surprisingly, levels of mRNA for both GAD65 and GAD67 were significantly increased in HF-treated rats. The results suggest that GABAergic neurons terminating in the rostral hypothalamus are tonically stimulated by testosterone acting by means of androgen receptors localized in this region. These findings support the working hypothesis that androgen-sensitve GABAergic neurons in the MPA mediate the negative-feedback action of testosterone on GnRH secretion in the male rat.

Want to see a GABA research website?
Check out the the University of Otago Neuroendocrinology Laboratory at:

http://www.otago.ac.nzResearchPostGrad/Neuro/Grattan/home-page.html

For a **list** of abstracts of various research and articles go to the following website:

http://www.otago.ac.nzResearchPostGrad/Neuro/Grattan/articles.html

You can reach them at:
Department of Anatomy & Structural Biology
School of Medical Sciences
University of Otago
Post Office Box 913
Dunedin, New Zealand

or you can **E-Mail** Dr. David R. Grattan at:
david.grattan@stonebow.otago.ac.nz

As CITED BY.....

Cover page

[1] Simpson SJ: review of *The Neurobiology of the Insect Brain* by Malcolm Burrows, Oxford University Press, 1996. *Nature,* 1997;385:785-786.

Climatic Variability: The Key to the EEA ... page 7

[1] Boyd, R. and Richerson, P. J.: Culture and Human Evolution. In: Rasmussen D. T. (editor): *The Origin and Evolution of Humans and Humanness,* Boston, MA: Jones and Bartlett, 1993, pp. 124-126.

[2] Potts, R.: *Science,* 1996;273:922-923.

[3] Mithen, S.: *The Prehistory of the Mind.* London: Thames and Hudson Limited, 1996, p. 32.

[4] Kingdon, J.: *Island Africa,* London: William Collins, 1990, pp. 15-16.

[5] Stringer, C. & McKie, R.: *African Exodus,* London: Jonathan Cape, 1996, p. 150.

Davies, M. & H. & K.: *Humankind the Gatherer-hunter.* Kent, England: Myddle-Brockton Publishers, 1992, pp. 281-282.

[7] Ibid., pp. 279-281. [8] Ibid., pp. 213-214. [9] Ibid., pp. 43-208.

Defining Relationships ... page 17

[1] Schjelderup-Ebbe, T: Social behaviour of birds. In: *Handbook of Social Psychology,* C. Murchison (editor). Worcester, Masschusetts.: Clarke University Press, 1935, pp. 947-972.

[2] Price, J.S. & Sloman, L: Depression as yielding behavior: an animal model based on Schjelderup-Ebbe's pecking order. *Ethology and Sociobiology,* 1987;8:85S-98S.

[3] Price, J.S.: Alternative channels for negotiating asymmetry in social relationships. In: *Social Fabrics of the Mind.* (editor, M.R.A. Chance). Hove: Lawrence Erlbaum, 1988;157-195.

[4] Bateson, G.: *Steps to an Ecology of Mind.* New York: Ballantine Books, 1972.

[5] Sluzki, C.E. and Beavin, J.: Symmetry and complementarity: an operational definition and a typology of dyads. *Acta psichiatrica y psicologica de America Latina,* 1965;11:321-330. Reprinted in: Watzlawick, P. & Weakland, J.H. (editors),*The Interactional View.* New York: W. W. Norton, 1977, pages 71-87.

[6] Price, J.S.: The agonic and hedonic modes: definition, usage, and the promotion of mental health. *World Futures,* 1992;35:87-115.

[7] De Giacomo, P.: Finite Systems and Infinite Interactions: The Logic of Human Interaction and its Application to *Psychotherapy.* Norfolk Connecticut: Bramble Books, 1993.

[8] Birtchnell, J.: *How Humans relate: A New Interpersonal Theory.* Hove: Erlbaum, 1993.

[9] Palazzoli, S.; Cecchin, G.; Prata, G.; Boscolo, L.: *Paradox and Counterparadox.* New York: Aronson, 1978.

[10] Maynard Smith, J.: *Evolution and the Theory of Games.* Cambridge: University Press, 1982.

[11] Lidz, T.; Cornelison, A.R.; Terry, D.; & Fleck, S.: The intrafamilial environment of schizophrenic patients. 2. Marital schism and marital skew. *American Journal of Psychiatry,* 1957;114:241-248.

American Football Exemplifies Human Sociophysiology ... page 11

[1] Gardner, R.: Psychiatry needs a basic science titled sociophysiology. *Biological Psychiatry,* 1996;39:833-834.

[2] Calvin, William H.: *How Brains Think: Evolving Intelligence, Then and Now.* New York, New York: BasicBooks, 1996, p.88. The quote is from Kathryn Morton who titled an essay with this phrase in a 1984 *New York Times* Book Review section.

[3] Gardner, R: Can John Price explain American football? *The ASCAP Newsletter,* 1994;7(1):5-6,(#74).

[4] Price, J.S.: Commentary on the ranking problems of the Houston Oilers. *The ASCAP Newsletter,* 1994;7(3)(#76):8-11.

[5] Kortmulder, K.: R-gap homoeostasis: some observations on animal behavior. *The ASCAP Newsletter,* 1997;10(1):25-27,(#110).

[6] deWaal, F.: *Chimpanzee Politics: Power and Sex Among Apes.* Baltimore: The Johns Hopkins Press, 1982, 1989.

[7] Gardner, R.: Psychiatric Syndromes as Infrastructure for Intraspecific Communication. Chapter in Michael R.A. Chance (editor), *Social Fabrics of the Mind.* Hove, East Sussex, England: Lawrence Erlbaum Associates, Publ., 1988, pp 197-226.

[8] Chance, M.R.A. (editor): *Social Fabrics of the Mind.* Hillsdale, USA: Lawrence Erlbaum Associates, 1988.

[9] Kramer, J. (editor): *Lombardi: Winning is the Only Thing.* NY: Pocket Books, 1970.

[10] Gardner, R.: Terminology for what we do, a case and a reply to Annette Hollander. *The ASCAP Newsletter,* 1997;10(1):6-10,(#110).

[11] Gardner, R.: Mechanisms in manic-depressive disorder: an evolutionary model. *Archives of General Psychiatry,* 39:1436-1441,1982.

THE INTERNATIONAL SOCIETY FOR THE STUDY OF THE ORIGINS AND EVOLUTION OF LANGUAGE

http://baserv.uci.kun.nl/~los/general.htm

The Language Origins Society was founded in Vancouver, Canada in August 1983. Its aim is to promote the study of the origins and evolution of language, including the phytogeny of the cerebral correlates, the adaptation of the vocal tract, and the development of linguistic features. This is a multidisciplinary effort enlisting the cooperation of scholars and scientists from linguistics and psycholinguistics, laryngology and logopedics, anthropology and primatology, palaeontology and archaeology, genetics and molecular biology, psychology, ethology and neuroscience, cognition science and artificial intelligence, and, last but not least, philosophy.

The society meets each year, alternatively in Europe and North America. The announcements of the annual meetings and calls for papers are sent by the organizer to academic institutions and posted on electronic networks. Registration is open to members and nonmembers alike, and everyone is free to submit an abstract. A selection of the papers given during these meetings are published in volumes titled Studies in Language Origins. The society has its official periodical, the LOS Forum, which is published twice a year. It contains a report on the year's foregone LOS meeting, information about the forthcoming one, a calendar of languageorigins related colloquia and conferences, news of scientific developments of interest to the membership, articles, notes, and book reviews.. *The Forum* appears in the Fall and Spring semesters.

Application for membership is open to scholars and scientists interested in the study of the origins of language. Applicants are officially admitted by the general assembly, which convenes during the society's annual meeting. The membership fee is 40.00 Dutch guilders, approximately US$ 30.00. Members receive the LOS Forum, The List of Members, and The Book of Abstracts of the annual meeting. The society now counts between 200 and 250 members from approximately 30 countries.

Motor theory animations

The motor theory of language origin and function proposes that language evolved as an exaptation of the complex organisation of the cerebral motor control system. The practical significance of this is that there must be a close relation between movement patterning and speech patterning (an idea to some extent related to the concepts of articulatory phonology developed by Browman and Goldstein at the Haskins Laboratories). This fits in with the ideas of David McNeill and Adam Kendon on the systematic relation between gesture and language. It also leads to the rejection of the essentially gradualistic account of language evolution presented by Steven Pinker in The Language Instinct.

More specifically the motor theory proposes that speech sounds are the product of elementary motor programs (particularly for controlling hand and arm movements) applied to the articulatory system and that corresponding to a specific set of arm movements there are specific sets of speech sounds. With the advances made in the sophistication of Internet browsers it is now possible to display these relationships on the WorldWideWeb. The WWW page at:

http://www.percep.demon.co.uk/niappfol.htm

presents graphic animated illustrations of the arm movement/speech sound relationships and the way combinations of speech sounds when translated into the corresponding movements produce gestures clearly related to the meanings of the words listed. The relationships are similar across most languages and are shown in this instance for English, French and Japanese. An appropriate multimedia browser is needed to see the animations - Microsoft Internet Explorer works well but not certain about other browsers.

Robin Allott, E-Mail: RMAllott@percep.demon.co.uk
http://www.percep.demon.co.uk
Tel/Fax:+44 1323 492300

The ASCAP Newsletter
Russell Gardner, Jr., M.D., Editor-in-Chief
Frank Carrel, Managing Editor
Department of Psychiatry & Behavioral Sciences
Marvin Graves Building, Room 1.103
University of Texas Medical Branch
Galveston, TX 77555-0428
Tel: (409)772-3475
Fax: (409) 772-4288 or (409) 772-6771
ASCAP E-Mail: ascap@.utmb.edu
rgardner@utmb.edu
fcarrel@psypo.med.utmb.edu

SUBSCRIPTION & MEMBERSHIP FEES

For the twelve 1997 issues (Vol 10, Nos. 110-121), please remit $35.00 with this cover sheet. Checks or money orders are payable to *The University of Texas Medical Branch.* Please mail to Frank Carrel, Managing Editor, at the above-mentioned address.

Reprints of previous volumes are also available: Indicate below the Volumes that you want. Please send me:

____	Vol. 1,1988 (nos 1-13)	$15.00	____	Vol. 6,1993 (nos 62-73)	$15.00
____	Vol. 2,1989 (nos 14-25)	$15.00	____	Vol. 7,1994 (nos 74-85)	$15.00
____	Vol. 3,1990 (nos 26-37)	$15.00	____	Vol. 8,1995 (nos 86-97)	$15.00
____	Vol. 4,1991 (nos 38-49)	$15.00	____	Vol. 9,1996 (nos 98-109)	$25.00
____	Vol. 5,1992 (nos 50-61)	$15.00	____	Vol. 10,1997 (nos 110-121)	$35.00

TOTAL AMOUNT ENCLOSED: _____

If you prefer to use a credit card, please complete the following:

I authorize The University of Texas Medical Branch to charge to my

Master Card / Visa / Discover / American Express **(circle one)**

The following amount: _____ **Card Number:** _____

Card Expiration Date: _____ **Signature:** _____

Please fill out the following items for our membership/subscription list :

Name: _____

Tel: _____ **Fax:** _____ **E-Mail:** _____

Address: _____

_____

_____