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Chapter 10

The role of mood change in defining relationships: a tribute to Gregory Bateson (1904–1980)

John Price

In almost all group-living vertebrate species, relationships are asymmetrical in terms of power. The mechanism for creating and sometimes reversing asymmetry is ritual agonistic behaviour (threat and attack). In human beings the requisite asymmetry may also be produced by verbal means, as, too, may symmetry. Gregory Bateson included all these means of producing symmetry and asymmetry (words, threat, attack) in the term "defining the relationship", so that each asymmetrical (or complementary) relationship has a Definer and an Acceptor (who accepts the definition proposed by the Definer). In this chapter it is suggested that one evolutionary function of mood change is to facilitate the formation and reversal of complementarity, and another is to maintain complementarity once it has been established. Elevation of mood gives the Definer the courage, energy and forcefulness to impose a definition on a possibly reluctant Acceptor. Depression of mood enables an Acceptor to accept a definition which may deprive him of power and resources, and which in a normal mood state he would find unacceptable.

10.1 Introduction

The idea that mood changes relate to the gain or loss of territory or social rank has a history of at least 40 years (Price *et al.* 2007). Over the years, various formulations of this basic thesis have appeared, mostly written by clinicians who treat depressed patients every day (Price 1967, 1972, 1998, 2000, 2009; Gardner 1982; Price and Gardner 1995, 2009; Wilson and Price, 2006). In this chapter, I will review the many sources of inspiration for this hypothesis, and relate it to Gregory Bateson's work on communicating about the definition of human relationships.

The basic inspiration for the so-called "social competition hypothesis" of depression came from Darwin's theory of sexual selection (Price 1999). Darwin proposed that one sex selects members of the other sex for mating, and in so doing it rejects the rest. Even within each sex, there is selection and rejection. Darwin noted that animals, especially males, "drive away or kill their rivals" (Darwin 1871, p. 916) but he did not further pursue the fate of the unselected. The implication of this idea is that, in each generation since social life began, the population has been divided into those who have been selected, those who have not been selected, and also possibly those who have first been selected but then been de-selected (section 10.3).

A second source of inspiration came from comparative ethology (and, later on, behavioral ecology), which described the social structures that had evolved throughout the vertebrate sub-phylum to deal with the results of sexual selection. In group-living species, we were shown social hierarchies in which the selected occupied the senior positions while the unselected were pushed, often by means of fighting or agonistic behavior, into inferior ranks. For us, as psychiatrists, the marzipan on the cake was the fact that this fighting was largely ritualized, in that it took a symbolic form rather than lethal fighting. A corollary of the ritualization of fighting is that there must also be a ritualization of losing, and of the incapacity that accompanies losing in real fighting, such as being dead or seriously incapacitated. An animal that has been defeated has two main characteristics. First of all, it lies down on the ground. Second, it cannot get up. Both these qualities must be ritualized, but surprisingly the second quality was overlooked by the ethologists. They gave wonderful descriptions of the ritual submissive gestures that losers make to winners, but what about not being able to get up? It takes a psychiatric view to appreciate this ritual incapacity—an incapacity that we see in our depressed patients who are unable, for purely psychological or ritual reasons, to get up and carry on with their lives (section 10.4).

Further inspiration came from Paul MacLean's concept of the triune brain, providing the anatomical basis for the triune mind, or the old idea that the mind has three parts which operate relatively independently. We could see that fighting strategies could occur at all three levels, and that de-escalation at the higher level (in the form of voluntary surrender) could pre-empt or terminate de-escalation at one of the lower levels (in the form of depressed emotion or depressed mood). Moreover, MacLean's framework can account for both behavior based on intimidating the rival and also behavior designed to be attractive to the rival and to the social group as a whole (section 10.5).

Even though Bateson did not study animal hierarchies or depressed patients, his analysis of the nature of human relationships is of interest here for

two reasons. First, he was one of the few people to study and describe relationships in terms of symmetry and asymmetry, and his definition of "complementary relationships", in terms of differential response to threat, seems to be an important clarification that has been neglected by social psychologists. Second, Bateson suggested that communication contains a "definitional" component in addition to the more obvious "informational" component, and this definitional component can be used to maintain asymmetry, or to create asymmetry, or even to reverse an asymmetrical relationship. In general, Bateson's ideas have been fully acknowledged in the family therapy literature, but as far as psychiatry is concerned he has been forgotten and his insights are unused. In part, this chapter is a personal tribute to Bateson, who has provided useful tools for my own thinking about power allocation in human beings and its relation to mood disorders (section 10.6).

To illustrate the arguments put forward in this chapter, I will first offer a story of a fairly typical depressive patient (section 10.2).

10.2 The overthrown tyrant: a clinical case illustration

A 55-year-old solicitor was referred to the psychiatric outpatient clinic after an overdose, at which time he gave a history of 3 months of major depression. He complained of sleeplessness, loss of interest in things, poor concentration and memory, poor appetite with the loss of half a stone in weight, tiredness, and suicidal thoughts. He had been off work for a month, and treated by his general practitioner with the antidepressant drug dothiepin. There was no previous history. He was a married man with two daughters; he had a good work record and was a moderate drinker. The depressed mood was associated with what the referring doctor called "obsessional thoughts" in which, when walking down the street, he felt irrational surges of anger against women who were pushing babies in prams. The anger was associated with images of assaulting them and injuring them. He was terrified that he was going to turn into a serial killer.

A diagnosis of major depressive illness was made. As he had not responded to dothiepin in 4 weeks, and was not getting any side effects, it was decided to double the dose. An arrangement was made to interview his wife, who confirmed the sketchy history given by the patient and added a rich background of family difficulties. She revealed that he had always been a tyrannical man, had dominated her, and had been severe with his two daughters. The younger daughter had a rebellious personality and there had been frequent rows between the father and this daughter. He had prevented the daughter taking a course of study, which she bitterly resented. After the daughters left home, relations with their father improved. The elder daughter married and had a miscarriage, and was told she was unlikely to have further children. The younger daughter married and had a son. This daughter would bring her child to visit the parents at weekends, and the father became devoted to his grandson. Gradually, however, the younger daughter started to take liberties with her father, make demands on him and in general to put him down. When he remonstrated with her and tried to resume his old bullying tactics, she stayed away for a few weekends. Eventually, she managed to induce a situation in which the visits of the grandchild were made conditional on her father's submissive behavior. This situation was tolerated for a while, but then she went beyond the bounds of what even the devoted grandfather was able to tolerate. On one occasion she said to her mother who was vacuuming, "Don't do that, Mum, let Dad do it, he's got nothing better to do." It was shortly after this episode that he became depressed.

This case represents a reversal of complementarity (an inversion of hierarchy) in that the father who had been dominant to his daughter now became subordinate to her. The daughter had found an effective weapon in her control of the grandchild, and the father had no defense against it. It was not a case of an elderly parent gratefully relinquishing the dominant role and leaving the child to take on the task of caring for the parent. The father suffered from what we once called an "involuntary subordinate strategy" (Gardner and Price 1999), and this was the outcome of a battle of wills; it was recognized by the medical profession as a major depressive illness.

The case also illustrates how easy it is for hostility to be transferred from one object to another. In this case the father had reason to be hostile to the daughter and her baby for frustrating his wishes, but he did not feel this hostility, instead he transferred it to mothers pushing their babies in the street. He could not express his hostility to his daughter because she was more powerful than he, and so he had what might be called free-floating hostility, which became attached to objects like his daughter but without her power. Transfer of hostility is, of course, common in the animal kingdom. When the alpha animal in a group threatens the beta animal, the latter does not respond with threat but rather with submission, and then in turn threatens the gamma animal in the group. The same can be seen in human military situations: the sergeant-major gives a "bollocking" to the sergeant, who bollocks the corporal, who bollocks the private (who may then take it out on the regimental cat). Whether the corporal feels consciously hostile to the sergeant or the private has not to my knowledge been studied.

Therapy in this case took the form of using the patient's depression (with associated readiness to take a back seat) to enable the mother to become more influential in the family. In joint interviews with the patient and his wife, she was encouraged to take a more assertive role, so that she was able to keep a

reasonable peace between her husband and daughter, and when the latter tried to interfere she was able to say, "Please don't try to dictate who shall do what in my house!" and on the whole she did this so tactfully that the daughter was able to continue to bring the grandson for visits without attacking her father and so increasing his depression. In the end, father and daughter laughed about it together, saying they were both congenital tyrants, who needed to be kept in check by someone as amiable as the mother. The depression gradually resolved, but of course in the individual case it is not possible to say whether this was due to antidepressive medication, the passage of time, or the resolution of the family problem. In terms of social rank, the father started off dominant to his daughter, then became subordinate, and ended up equal; the mother started off subordinate to her daughter and ended up (benignly) dominant—which is a healthy form of family female hierarchy—and this reversal of rank did not induce depression in the daughter because it was managed very tactfully by the mother and was acceptable to the daughter.

Reversal of a dominance/subordinate relationship is not common, but it is probably easier to achieve than equality once any sort of asymmetry has already been established. I have seen several cases in marriage, when a previously subordinate wife gains confidence due to work experience or exercising authority over her children, and then becomes dominant to the husband. It is then the husband who gets depressed. Reversal also occurs when there is breakdown of dependent rank. I treated a woman who had been raised by her father to the number two position in the family hierarchy, over her mother and older sister. He did this to punish his wife for having the older sister while he was away at war. When the father died the mother and older sister took their revenge, the younger sister fell in rank and became depressed. I have also treated cases in which a grandparent raised a grandchild above the parents, with dire consequences when the powerful grandparent died.

10.3 Darwin, Huxley, and sexual selection

Darwin made it clear that natural selection is based on differential ability to deal with the physical environment, including predator and prey relations with other species, but at the same time he recognized that selection also occurs as a result of interactions with members of the same species. In *The Origin of Species* he wrote:

> This form of selection depends not on a struggle for existence in relation to other organic beings or the external conditions, but on the struggle between individuals of one sex, generally the males, for the possession of the other sex.
>
> (Darwin 1859, p. 69)

In 1871 Darwin published *The Descent of Man and Selection in Relation to Sex*, which was devoted to a meticulous analysis of sexual selection. In this book he introduced the term for the first time, and he pointed out that sexual selection has two components. He wrote:

> Sexual selection depends on the success of certain individuals over others of the same sex, in relation to the propagation of the species (. . .). The sexual struggle is of two kinds; in the one it is between individuals of one sex, generally the male, in order to drive away or kill their rivals, the female remaining passive; whilst in the other, the struggle is likewise between the individuals of the same sex, in order to excite or charm those of the opposite sex, generally the females, which no longer remain passive but select more agreeable partners.
>
> (Darwin 1871, p. 916)

Darwin included both types of sexual selection under the same heading, but did not give them separate names. Julian Huxley (1938) introduced the term "intra-sexual selection" for the social process between members of the same sex, and he called mate choice "epigamic selection". Epigamic selection is a powerful amplifying device; if women would only mate with men who can sing in tune, the musical ability of the population would rapidly improve. Darwin concentrated on epigamic selection, rather than on intrasexual selection, and so have most of the biologists who have followed him. This, and the rather clumsy name, have probably shielded intrasexual selection (and the mainly nonlethal forms of social competition which subserve it) from the biological enquiry that it deserves. Huxley (1966) pays some attention to the fate of the unselected, pointing out that a significant proportion of adult birds fail to mate each year, and he wrote:

> [D]efeat in combat has far reaching general effects, birds though physically uninjured sometimes dying as a result, if not promptly removed from contact with other birds, and even when physically recovered losing the impulse to mate for the rest of the season. Conversely, successful threat-displays promote both general and sexual vigour.
>
> (Huxley 1966, p. 260)

As a result of Darwin's and Huxley's theorizing, we can speculate that in each generation of our ancestors, the population was composed of some who were selected, some who were not selected, and maybe some who were selected to start with and then were de-selected. This variation has not to my knowledge been used as the basis of personality study, but it would seem to account for at least some of the variation along the neuroticism/stability dimension of personality (Price 1969). One confusing thing about intrasexual selection is why anyone should choose to be unselected or de-selected—why hasn't the tendency to allow oneself to be "driven away" been bred out of the population? In the next section we will see that there are two answers to this, one from ethology and one from behavioral ecology.

10.4 Ritual agonistic behavior and ritual losing

One of the outstanding achievements of comparative ethology has been the demonstration of asymmetrical relationships between the members of almost all group-living vertebrates (Alcock 1989). Few species apart from man seem able to form a close, equal relationship with a member of the same sex. In the rest, relationships are defined as complementary by agonistic behavior. One animal threatens the other and if the other submits, the first animal has defined the relationship as one in which he is entitled to threaten the other, but the other is not entitled to threaten him. If the other one does not accept the definition, they adopt an escalating pattern of threat and fighting until one finally submits (or is dead) or one leaves the group (Huntingford and Turner 1987; Archer 1988).

In all species so far studied, this agonistic behavior has become ritualized so that outcomes are usually decided by threat rather than by fighting. The rituals adopted by different species vary, such as butting with the head, lashing with the tail, singing (in birds) and roaring (in stags), erection of gill pouches in fish, push-ups in lizards, but the overall framework is the same for all species. In most animal and human groups complementary relationships between those of different ages develop naturally during ontogeny, since the older members are larger and stronger than the young ones, and among a cohort of young ones there is often some fighting at adolescence, following which relationships tend to be stable. If two strange members of the same sex are put together, there is an agonistic encounter following which one becomes dominant to the other. Schjelderup-Ebbe showed this for domestic hens in 1935, when he described the confrontation between two strange hens. 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 realize 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 behavior disturbance (Schjelderup-Ebbe 1935; Price and Sloman 1987). The vast majority of animals develop relationships with strange conspecifics in the same way. A particularly clear account for hamadryas baboons is given by Kummer (1995).

Behavioral ecology is concerned with animal behavior from the point of view of its function, often applying mathematical models and using game theory (Krebs and Davies 1997). Unlike classical psychology, it sees behavioral variation in terms of alternative strategies, both life-long strategies, such as antisocial personality versus law-abiding personality (Troisi, 2005), and short-term strategies, such as the alternative fighting strategies of escalation and de-escalation (based on the primitive fight or flight response[1]). By utilizing game theory, behavioral ecology has explained the survival of apparently maladaptive strategies, such as allowing oneself to remain unselected or to be de-selected.

The capacity to "drive away or kill one's rivals" was not given a technical name until, in 1974, Geoffrey Parker introduced the term "resource-holding potential" (RHP). RHP is an intervening variable that is defined by its input and output. The input to RHP is whatever makes for success in fighting, such as size, strength, skill, and the availability of allies. The output from RHP is of two kinds: one relates to an immediate rival, with whom RHP is compared, giving a measure of relative RHP. If relative RHP is favorable, attack or other forms of escalation occur; if relative RHP is unfavorable, retreat or other forms of de-escalation occur. Undirected RHP is signaled by the general bearing of the individual, as in swaggering or furtive behavior. In humans, a fall in RHP is characteristic of depressive states, in which there is a general lowering of self-evaluation and pessimism about the likely outcome of any endeavor (Parker 1974).

The choice between escalation and de-escalation is also affected by the desirability of what is being fought about, technically known as the resource value (Krebs and Davies 1997). Obviously, the more valuable a thing is, the harder people are going to fight over it. Whereas RHP provides the "can", resource value provides the "will" to compete, and this may be over a particular issue or prize, or it may reflect general social ambition. A fall in resource value is characteristic of depression, in which nothing seems worthwhile and there is a generalized loss of energy.

The third variable important for the analysis of fighting behavior is ownership. Most animals win agonistic encounters on their own territory, and a hamadryas baboon, for example, will fight harder over a female belonging to his own harem. The sense of ownership is reduced in depression, as is the sense of entitlement. These three variables account for most of the symptomatology of depression, so that when we speak of depression, depressed mood, or clinical depression we refer to a state in which one or all of RHP, resource value, and sense of ownership are reduced.

It is useful to think of antagonistic encounters as occurring in two stages: a stage of assessment and a stage of engagement. The stage of assessment may

[1] Although fight and flight are well-known concepts in psychology, the wider categories of escalation (including not only fight but the active pursuit of goals) and de-escalation (including not only flight but submission and the relinquishing of goals) are not recognized. This is clear from the position of depression and anger in the classification of the emotions. In most systems anger and depression are classified together as "negative emotions" in contrast to the "positive emotions" of joy, exhilaration, and so on. But escalation/de-escalation theory recognizes anger as an escalatory emotion and depression as a de-escalatory emotion.

end with an amicable distribution of roles. One animal can see clearly that the other is bigger, stronger, and has 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. An animal that backs off in the assessment phase suffers no loss of RHP, so its relations with other animals are unlikely to be affected. However, if it is defeated in a ritual agonistic encounter, it loses RHP, so that it is no longer nearly equal to its former rival and its relation to other animals may be jeopardized.

10.5 A triune mind in a triune brain

The idea that the mind consists of two or more relatively independent parts has been around at least since the time of Plato. It has been most pithily expressed by Blaise Pascal in his well-known aphorism: "The heart has its reasons which reason knows nothing of." Ancient Eastern philosophers, whose ideas were largely promulgated in the West by Gurdjieff, used the metaphor of the cart, horse, and driver. The driver represented reason, or the rational mind, but he had only limited control over the horse, who represented the emotional mind (located in the heart), who in turn had limited control of the cart, representing the instinctive mind, located by some in the gut. Plato likened the three minds to different organs of state.

The work of the evolutionary neuroanatomist Paul MacLean has given support to the idea of the triune mind by his demonstration of a triune brain (MacLean 1990). Prior to MacLean, it was thought that over the course of evolution the brain had gradually grown in size, with the later additions on the whole controlling the earlier parts, largely by inhibition. MacLean pointed out that the forebrain had grown in three distinct stages, leaving three "central processing assemblies" which relatively independently respond to changes in the environment. First, the reptilian forebrain evolved from the fish and amphibian brains and concerned itself, as far as social relations went, with the courtship of the opposite sex and competition with the same sex by means of agonistic behavior. This brain is present in all reptiles, birds, and mammals, and in humans it occupies the basal ganglia or corpus striatum. Then, instead of a homogeneous accretion of additional brain volume, there developed a "paleomammalian brain", which dealt with mammalian social life, the family, the parent/offspring bond, play, and such social matters as were not part of reptilian life. This brain is situated in the limbic system. Not only did it deal with mammalian matters, but it also dealt with those problems that had been faced by reptiles and were also faced by mammals, such as the courtship of the opposite sex and competition with the same sex. In higher mammals there developed the neomammalian brain, which subserves what we recognize as rational thought and decision-making, and it brings these capacities to bear not only on modern problems such as technology and litigation, but also on the older problems that are addressed by the reptilian and paleomammalian brains, such as courtship and competition. This neomammalian brain is situated in the neocortex.

Thus we have three brains dealing with the same problems, and to some extent they co-operate, but also to some extent they act independently. They have different sources of information, they make different executive decisions, and they have different representations in awareness. This is quite a surprising situation, one that would not have been predicted, say, by an engineer accustomed to designing robots. The most surprising thing is that the rational brain, which appears to be the most sophisticated thinking machine ever to have evolved, has so little control over the two lower brains. One cannot will oneself to feel less depressed or less angry. The driver is not in control of the horse or the cart. It would have been easy for such control to have evolved, so the fact that it has not suggests that there is some advantage in having one or more relatively independent lower "central processing assemblies". In competitive relations with conspecifics, a decision frequently has to be made between escalation (fighting harder) and de-escalation (fleeing or submitting), and this decision appears to be made, relatively independently, by each of the three brains, sometimes sequentially, sometimes simultaneously. Possibly the rational brain, in order to maximize fighting ability, has delegated the contemplation of possible defeat to fail-safe mechanisms at the lower brain levels.

As noted earlier, decisions to escalate or de-escalate take place either simultaneously or consecutively at all three levels of the triune brain (see Table 10.1 for an overview of the options). At the rational, or neomammalian, level the decision is made consciously and voluntarily either to escalate by fighting harder or to back off. Escalation may take many forms, such as insulting or

Table 10.1 Escalating and de-escalating strategies at three brain levels: Agonistic competition

	Escalate		De-escalate
Rational, neomammalian level (isocortex)	Decide to fight on (stubbornness or courage)	**or**	Decide to back off (submission or escape)
Emotional, paleomammalian level (limbic system)	Feel assertive, angry, or hostile	**or**	Feel inferior (anxiety, depressed emotion)
Instinctive, reptilian level (basal ganglia)	Elevated mood	**or**	Depressed mood Anxious mood

attacking the opponent, obtaining a weapon, or recruiting allies. When de-escalating or backing off, the appeasement display may take the form of a graciously worded apology or a flowery speech of submission. At the emotional or limbic level, escalation takes the form of anger, indignation, and the exhilaration of combat, with its associated bodily changes. De-escalation at this level may recruit the dysphoric emotions of anxiety, depression, and the sense of being chastened. At the instinctive level, we hypothesize that escalation in the reptilian brain takes the form of elevated mood, giving the individual a prolonged increase in energy, optimism, and self-confidence. Since mood is pervasive and, from its origin in the reptilian brain, affects all the higher levels of the brain, in the human (and probably the chimpanzee) it will increase sociability with which to recruit allies. Conversely, de-escalation at the instinctive level takes the form of depressed mood and may include unfocused anxiety, fatigue, and a sense of physical disability. The appeasement display at this level communicates this impairment and disability to any rival or to society as a whole.

Methods of competition have become more complex over the course of evolution. Group living lengthened the duration of contests, so that even in apes a struggle for dominance may take several months to be resolved. In additon, instead of fleeing, as happens in territorial species, the loser could remain in the group with the winner of the contest, and this gave rise to appeasement or submissive behavior, which reflects the capacity to live in a subordinate social role. Anxiety and fear of the dominant individual, together with relatively low self-esteem and lowered mood, enabled the social hierarchy to maintain stability and prevent rebellion. At some stage in evolution, this stabilizing anxiety gave rise to a new way of relating to a higher-ranking individual: respect. The leaders of the group made themselves attractive to the group members instead of (or in addition to) intimidating them. Social rank was then determined by the choice of the group rather than by agonistic dyadic encounters. The new self-concept of social attention-holding power (Gilbert 1992) began to replace RHP, as group members evaluated themselves according to their power to attract interest and investment (such as votes or other forms of political support). Related to social attention-holding power is the concept of prestige, which is the extent to which the group is prepared to invest in the individual. Prestige competition was added to, but did not entirely replace, agonistic competition (Barkow 1991).

The capacity for escalation and de-escalation appears to have survived the switch to prestige competition, but takes different forms, at least at the upper two forebrain levels. At the highest level, pursuit of goals replaces the decision to attack, so that escalation consists of the adoption of new goals and de-escalation consist of giving up goals. The goals are usually ones that lead to prestige, if achieved. Also, on social occasions, escalation takes the form of self-assertion, such as standing up to speak and promoting one's own goals, whereas de-escalation takes the form of self-effacement and allowing other people's goals to take precedence in the group. At the emotional level, the escalation of prestige competition is less dramatic than the anger of agonistic competition; it takes the form of exhilaration, enthusiasm, and self-confidence. De-escalation reflects the fact that punishment comes from the group rather than from a dominant individual, so there is social anxiety, guilt, and shame. This is an appeasement display to the group, expressing contrition for breaking group rules or for failing to come up to group standards.

Finally, at the instinctive, reptilian level of the forebrain, little seems to have changed: elevation of mood represents escalation and depression of mood de-escalation. However, the information which leads to the activation of the strategy set is clearly different. Instead of measuring punishment received from the rival, the reptilian brain in some way monitors social standing in the group, and is sensitive to group approbation and disapprobation, to comparison of self with other group members, and with one's own aspirations, and to the knowledge of having failed the group in some way by not living up to its standards, or, having broken the group's rules, to the likelihood of being found out. Note that depressed and elevated mood are "all or nothing" things; whereas at the higher levels it is possible to escalate in some areas of life and de-escalate in others, in the reptilian brain the mood change is pervasive and affects all aspects of life, it is not situation dependent. This may reflect the pervasive change in the defeated reptile, who often loses his gaudy adult coloring and reverts to the dull brown or green of the adolescent coloration (Greenberg and Crews 1983).

The manifestation of escalation and de-escalation at the three brain levels are shown for agonistic competition in Table 10.1 and for prestige competition in Table 10.2.

Normally "ranking stress" or a "resource challenge" will activate only one or two of the three levels and then, if anger accompanies rational escalation, the individual is likely to win the conflict and the resource challenge is dealt with. Or, if chastened mood accompanies rational submission, the individual loses the conflict and becomes reconciled to the loss of whatever was at stake. However, two very human tendencies may lead to trouble. Our often implacable ambition and stubbornness may lead to prolonged escalation at the rational level in situations in which victory is extremely unlikely, and then the anticipation of losing may activate the reptilian level strategy set and select for de-escalation at that level. The resulting incapacitating depression makes winning even less likely, and a chronic situation results in which there is continued escalation at the rational level and continued de-escalation at the instinctive level. This is a common manifestation of depressed mood seen in

Table 10.2 Escalating and de-escalating strategies at three brain levels: prestige competition

	Escalate		De-escalate
Rational, neomammalian level (isocortex)	Adopt new goals, actively pursue existing goals, assert oneself	**or**	Give up goals, efface oneself
Emotional, paleomammalian level (limbic system)	Feel assertive, exhilarated, and enthusiastic	**or**	Feel inferior (shame/guilt/sense of failure, social anxiety)
Instinctive, reptilian level (basal ganglia)	Elevated mood	**or**	Depressed mood Anxious mood

the clinic, as first pointed out by Edward Bibring (1953), who noted that his depressed patients were often clinging on to unrealizable goals.

The other human tendency is our desire to see fair play and our intolerance of injustice. This manifests at the emotional, limbic level, which seems finely tuned to evaluate the fairness of events and particularly of other people's actions. If we feel we have been treated unfairly we feel angry, and if this anger is ineffective in righting the situation, our reptilian strategy set may be activated and we have a mood change. If elevation of mood is selected, we may then have enough energy to right the wrong, but if depression is selected, the depressive incapacity then makes effective action even more impossible. Then, again, we get chronic reptilian de-escalation, which presents in the clinic as depressive illness.

10.6 Gregory Bateson: defining the relationship

In human beings the methods of analyzing relationships are more various, and whereas we have fighting and physical threats, like the raised fist or wagging finger, in most cases the method of ritual fighting is verbal, so that one could say that verbal fighting is the human species-specific form of ritual agonistic behavior. The type of verbal exchange is varied in both quality and quantity. There may be an exchange of insults, or shouting, or verbal abuse at the more primitive end of the scale. Then there may be reasoned argument to persuade the other person that they are at fault or in the wrong or otherwise in a one-down position. There may be direct assertions of control, such as "you are my daughter and therefore you do what I say". There may be more subtle attempts at gaining power, like being bossy and telling others what to do.

It may be difficult to tell where power lies in a relationship. Who decides, but who decides who decides? In my view, Bateson's concept of "defining the relationship" gives the best solution to the problem of identifying control in a relationship (see also Hinde 1987). In the 1950s Gregory Bateson, an English anthropologist, gathered together in Palo Alto a brilliant group of people who had skills in anthropology, psychiatry, family therapy, and communications engineering (Lipset 1980). Many ideas came from this group, such as the double-bind theory of schizophrenia and the concept of systemic versus linear thinking, and in fact they were the inspiration for the diaspora of family therapy around the world (Watzlawick *et al.* 1967; Bateson 1972; Watzlawick and Weakland 1977; Wilder-Mott and Weakland 1981). Out of this group grew the Mental Research Institute, which celebrated its 50th anniversary in 2009.

Focusing on human communication, Bateson had two important ideas. One is the idea that each communication between two people contains at least two components: one is an informational component and the other is a command or definitional component, which confirms or defines the nature of the relationship between the two communicators. The other is the idea that relationships can be either symmetrical or complementary along a number of dimensions, but particularly in terms of relative power. In a symmetrical relationship the expression of power is responded to by the expression of power (what Bateson called "more of the same"), whereas in a complementary relationship the expression of power is responded to by a reduction in the expression of power or by the expression of submission (what Bateson called "less of the same, or more of something different"). In a complementary relationship the definitional communications of one member are accepted by the other, resulting in an asymmetrical relationship in which one member is dominant or one-up, and the other subordinate or one-down (Sluzki and Beavin 1965). Since the basic difference is who defines and who accepts the definition provided by the other, I will call the dominant or one-up member the Definer and the subordinate or one-down member the Acceptor, although I do not think the Bateson group used the terms in this sense. The definition of a relationship contains influence from three sources: from each of the two members of the relationship and from outside the relationship; this situation may be illustrated by a series of Venn diagrams (see Appendix 10.1).

The daughter's statement in the case described at the beginning of the chapter, "Let father do the vacuuming" has an informational component that concerns the allocation of housework, but it also has two definitional components, one being that the daughter is entitled to allocate the task of vacuuming to her father, indicating that she is the Definer in relation to her father, and the other being that she is entitled to allocate housework in her mother's house, indicating that she is the Definer in relation to her mother. It is a very powerful assertion of power. The father must have been made angry by being told to vacuum by his daughter, but he could not afford to be angry because of the daughter's hold over him, and so he developed a de-escalating

strategy at the reptilian level of the forebrain, which manifested itself as depressive illness. This enabled him to accept her definition of their relationship, or at least not to oppose it. He retired from the arena as a medical casualty. Hostility is often redirected to a safer target (usually down the hierarchy), and in this case the father redirected his anger to women pushing their small children along in the street.

In many such cases the Acceptor is not aware of being manipulated into the role of Acceptor. The fate of being maneuvered into the role of Acceptor may still be associated with depression, even if the statements used appear boosting rather than putting down, and even if the role as defined is not at all depressing. This is particularly the case when one person uses forms of speech that are associated with use by superior people to inferior people, especially when such usages are complimentary, such as bestowing praise in a situation in which an inferior would not normally praise a superior. In these cases the Definer appears well-disposed to the other, who does not consciously realize that he or she is being maneuvered into the role of Acceptor. However, at an unconscious level the effect is felt, and then the escalation/de-escalation strategy set is accessed, and the Acceptor finds him/herself becoming irrationally angry or inexplicably depressed. In general, depression occurs when submission is unacceptable or impossible (Dixon 1998; Gilbert 2001). Often submission is acceptable, or even welcomed, and then depression does not occur, as when the daughter in our case study accepted the dominance of her mother.

The offering of a unilateral definition of a relationship comes into the category of a catathetic signal, defined as a signal which lowers the RHP of the recipient unless returned in full measure (Price 1988). It is therefore like a blow or an insult, and is part of the repertory of ritual agonistic behavior. It is like a serve at tennis, which if returned leaves the two players equal, but if not returned leaves the receiver one-down.

Like a serve, the offer of a unilateral definition is not only a catathetic signal, but also a request for a reply, to enter into a negotiation (a rally), so that the outcome of the interaction is not something boring like an ace service, but a manifestation of repeated superior skill by the eventual winner. People do not like to win too easily, like the merchant who is disgusted if the buyer accepts the first price—he enjoys haggling. Kortmulder (1998) has pointed out that even fish have an appetite for a symmetrical encounter and may handicap themselves to get a more even "rally". It is more fun to beat someone who is near one's own level of skill than someone who cannot even return a serve. Of course, a negotiated definition can leave a couple with an equal relationship, which cannot happen with a tennis rally. In this sense, tennis is more similar to animal agonistic behavior than to human conflict.

It has been noted by ethologists that the general form and rules of ritual agonistic behavior are similar for all vertebrates, but that each species has a particular method of fighting. Offering definitions could well be the human species-specific form of agonistic behavior. It depends on language, which ties in with the fact that ritual agonistic weapons tend to become hypertrophied like the peacock's tail, and language is certainly hypertrophied in humans. Moreover, it does away with the problem which in humans, but not in animals, attends the use of "aggressive" acts such as hitting and insulting. This problem lies in the moral code that condemns fighting, and particularly a man hitting a woman. Therefore, if A attacks B and B does not retaliate, it could be that B is weaker than A, but it could also be that B has been trained not to settle differences by fighting, or, if A is a woman and B a man, B has been trained to believe that a man should not hit a woman. This moral training makes fighting a bad method of determining dominance in many situations, especially between the sexes. By not returning the blow for moral reasons, the courteous man loses RHP. This may be balanced by a gain in social attention-holding power as he contemplates his chivalrous behavior, but it seems likely that some damage is still done.

If offering a definition is a catathetic signal, like hitting or insulting, what are we to make of Bateson's suggestion that every communication contains a definitional (or command) component as well as an informational component? Can we deal with a situation in which every communication is like an insult or blow? One answer to this is given by Brown and Levinson (1987), who do indeed approach communication with the idea that every statement runs the risk of lowering the "face" of the recipient, and they demonstrate how this omniprevalent danger is counteracted in normal intercourse by forms of politeness and other subtle strategies.

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

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

is based on mutual trust, and that the offer of friendship gives the other the option of abusing the trust and using the friendship to gain a one-up position. Then the two prospective friends are in a prisoner's dilemma situation (Pusey and Packer 1997). The possible outcomes, in order of payoff, are: (i) to be one-up by the abuse of trust, (ii) to be equal friends, (iii) to have to enter a fair fight for the one-up position, and (iv) to be one-down because of abuse of trust by the other.

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

If the third option is chosen, the two faithless friends enter into a negotiation for the one-up position, which in animals takes the form of ritual agonistic behavior and in humans can take many different forms, including ritual agonistic behavior. The moves in this game can be described in terms of offered definitions of the relationship, and the one-up winner (the Definer) is the one whose definition is accepted by the one-down Acceptor. The various moves or bouts of this negotiation can be described by the dollar auction model (Editorial 1989). In a dollar auction, the winner of the auction gets the dollar, or whatever sum is being auctioned, less his bid, but the second-highest bidder also loses his most recent bid without getting any prize. Once involved in the exchange, each contestant gets into a situation of "too much invested to quit" and so cannot withdraw until he runs out of money (comes to the predetermined point at which he "gives up" in a war of attrition). This should be true if the costs of the engagement increase with each bid or with each bout of the ritual agonistic encounter. The selection of which runs out of money first can be described by the hawk/dove game (Maynard Smith 1974) in the form of the war of attrition, if we make hawks richer than doves. In the real-life negotiation, neither contestant knows how much money either he or the other has— they have to go on bidding until one runs out. The fact of being hawk or dove is a hidden component of RHP: the discovery of which contestant, if either, is a hawk, is what the engagement phase of the ritual agonistic encounter is all about.

According to this model, people entering an asymmetrical relationship may play three consecutive games: prisoner's dilemma, in which they both "defect," the dollar auction, in which they both have "too much invested to quit", and the hawk/dove game, which decides which of them will win the dollar and be one-up on the other. Perhaps it is not surprising that some people prefer to be hermits!

Finally, I think it is an open question whether a close, long-term human relationship can be both hedonic and symmetrical. Relationships can be so subtle that it may be difficult to decide just what is going on. Hinde (1987) realized this and pointed out that one not only has to know who makes the important decisions, but who decides who makes the important decisions, and who decides on who it is who decides, and so on in infinite regression. To observe who defines the relationship is probably the closest we can get, bearing in mind that it is possible for A to define B as the Definer.

10.7 **Conclusion**

In this chapter, I have touched on the complex issue of the balance of power in relationships, and have found the most satisfactory model in that provided by Gregory Bateson and his colleagues. In a regressive situation of "Who decides?" and "Who decides who decides?", and "Who decides who decides who decides?" the most economical formulation is to ask who defines the relationship and who accepts the definition offered by the other, giving each complementary relationship a Definer and an Acceptor. Definition can be by any means available, including fighting, verbal abuse, nonverbal signals, definitive statements, and the use of words or behavior that are generally known to be used only by high-ranking to low-ranking people, even when such asymmetrical statements are friendly and supportive. We are surprised that, in spite of the brilliance of the Bateson team and their interest in ethology, they did not extend their discussions of symmetrical and complementary relationships to animals. This may well have been due to the fact that Schjelderup-Ebbe's original description of the "pecking order" in English was published as a book chapter as late as 1935 and at the time they were working (in the 1950s) the subject of social hierarchy was virtually taboo. It was believed that there was no phylogenetic relation between human and animal hierarchies (Tedeschi and Lindskold 1976, p. 496), and it was widely thought that hierarchy in animals was an artifact of captivity (Rowell 1974). The concepts of symmetry and complementarity have been largely restricted to the marital and family therapy literature (e.g., Rogers-Millar and Millar 1979). Human communication research has moved away from Bateson's ideas (Littlejohn and Foss 2008), so that we have obtained no input from relational dialectics (Baxter 1988) or from the study of speech acts; the dimensions of illocutionary force do not include symmetry versus complementarity (Searle 1969; Doerge 2006). Studies of social dominance orientation have been concerned with group effects and personality rather than mood changes (Sidanius and Pratto 2001). Work on the authoritarian personality has been concerned with social hierarchy, but has been mainly about the redirection of hostility onto political and racial groups which are perceived as inferior (Stone *et al.* 1993).

We have been accused of emphasizing the importance of competition at the expense of sexuality and affiliation. Freud based his evolutionary speculations on the effect of the ice-age on sexuality (De Block 2005), and Bowlby was rightly concerned with the importance of attachment for good human development (Bowlby 1980), but if these theorists had had at their disposal the knowledge we now have of animal behavior and evolutionary theory, they might well have concerned themselves more with the problems of interpersonal competition, which has been important in evolution for hundreds of millions of years, antedating the evolution of the family and complex sexual relationships. Sexuality and affiliation are of vital importance to mankind, but we would suggest that they were grafted onto already existing mechanisms for managing social symmetry and asymmetry.

Summarizing the theme of this chapter, the adaptive function of the capacity for mood change has been the creation and maintenance of asymmetry in relationships. This can be conceptualized at a number of different levels. Social asymmetry is predicted by Darwin's theory of sexual selection: who is selected and who is not; who, having been selected, is then de-selected? Social asymmetry is observed at the structural level of social hierarchy and territory: who is up and who is down, who is going up the hierarchy and who is going down, who has gained a territory and who has lost one? Social asymmetry is created at the level of ritual agonistic behavior: who has won and who has been ritually defeated? Social asymmetry is maintained in the population because it is an evolutionarily stable strategy according to the game theory models of behavioral ecologists. No-one wants to be unselected or low-ranking or defeated; these undesirable social roles can be made acceptable at the highest brain level with humility or at the lowest brain level with depressed mood.

After over 40 years of pondering on these matters, I think the best and most comprehensive theory is Bateson's idea of defining the relationship: who defines, and who is manipulated into the position of accepting an unacceptable definition? This covers all methods of creating asymmetry and even deals with death, in that we define our loving relationships as permanent, and when death offers another definition we are forced to accept it whether we like it or not. To prescribe for population mental health, we should ask parents and educators to encourage in the young the development of equal, reciprocal relationships, and to avoid the insidious maxim of "He who is not one-up is one-down" (Potter 1947). If asymmetry is inevitable, it should be managed at the highest mental level, to ensure that it is based on respect rather than fear and depression. Therefore, although Bateson may not quite have hit the target with his double-bind theory of schizophrenia, he may well unwittingly have provided an epistemology for the better understanding of affective disorders.

Appendix 10.1

Venn diagrams are used in this instance to illustrate the origin of the definition of a relationship between two people. Some or all (or none) of the definition originates from one person, some or all (or none) from the other person; these are represented by the nonoverlapping parts of the circles. The overlap represents that part of the definition agreed on by both people. The dark parts of the circles signify definition, the light parts lack of definition. The surrounding area represents the influence of people outside the pair; when dark it indicates that the person on that side is identified as Definer. The two circles can represent independent people or those in a particular relationship, such as husband and wife, brother and sister, or master and servant. In this case the circle on the left represents the husband and the circle on the right the wife. One should note that, although informative about the origin of definition, Venn diagrams have nothing to say about other important aspects of relationships. For instance, they say nothing about closeness or intimacy, which are characteristics of relationships which themselves may be the subject of conflicted definitions. More importantly for our own purpose, the diagrams do not give information about the acceptability of definitions proposed by one member and accepted by the other. Some definitions proposed by one member may be so acceptable that they almost constitute shared definition; others may be entirely unacceptable, but have to be accepted because there is no alternative. This difference is clearly important for the mental health of the Acceptor. It could be indicated in the diagrams by some form of hatching, but for present purposes it seems best to keep the illustrations reasonably simple.

I am indebted for the use of Venn diagrams to describe relationships to Piero De Giacomo, who used them in a somewhat different way (to describe current relating rather than the origin of the definition of relationships) (De Giacomo 1993; L'Abate and De Giacomo 2003).

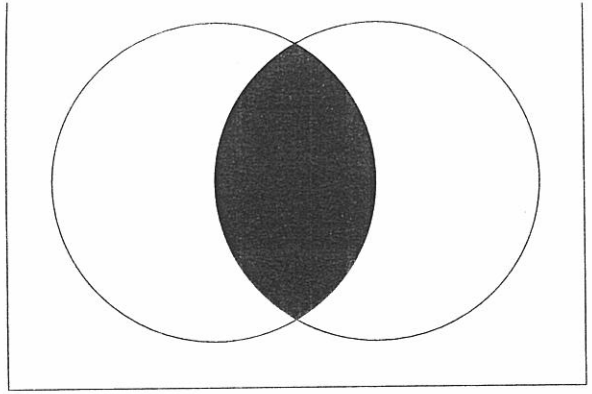

Fig. 10.1 A reciprocal, symmetrical marriage. The definition is mutually agreed between husband and wife.

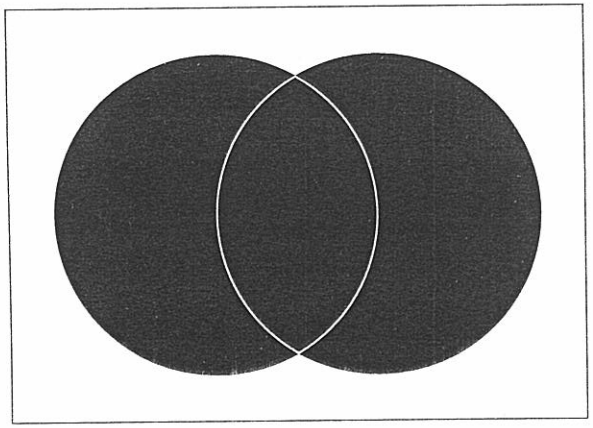

Fig. 10.2 A contested symmetrical marriage. Each is trying to define the relationship and there is only a certain amount of agreed definition.

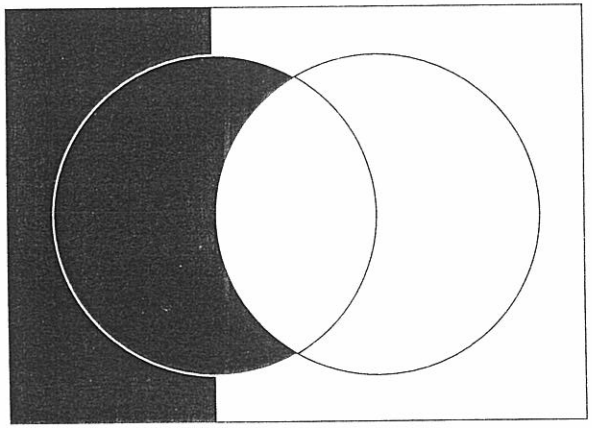

Fig. 10.3 A dominant husband in a male-dominated society. There is no shared definition and no contribution to the definition from the wife.

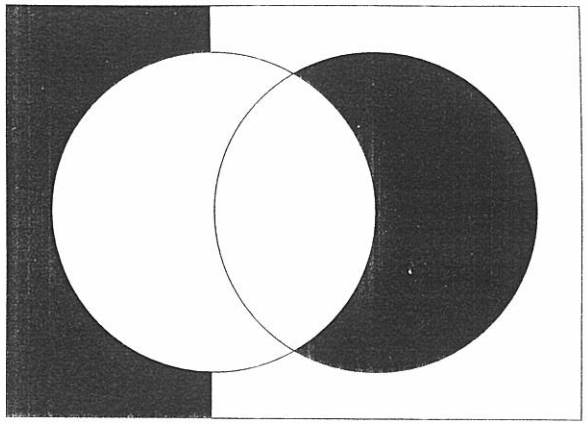

Fig. 10.4 A dominant wife in a male-dominated society.

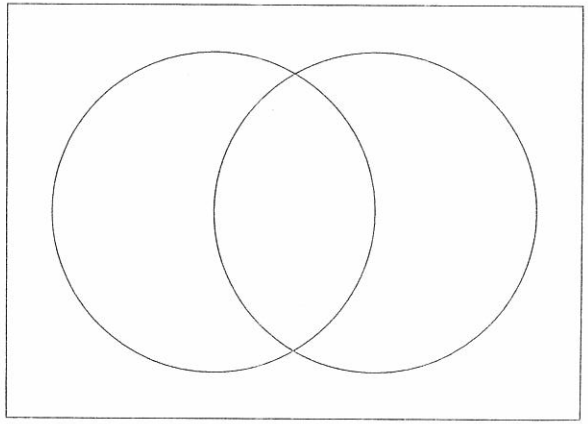

Fig. 10.5 Neither has attempted to define the relationship. This has been reported in the families of schizophrenic patients (Palazzoli *et al.* 1978).

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Chapter 11

From "evolved interpersonal relatedness" to "costly social alienation:" an evolutionary neurophilosophy of schizophrenia

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There is evidence that modern humans evolved a brain highly attuned and adapted to complex interpersonal relatedness. This 'social brain' is the substrate for an embodied understanding of 'mind' – a mind embedded in the physical matter of body, environment and social world. After Heidegger, Merleau-Ponty and Fromm, this philosophical stance better reflects the social origins of mental life than does the redundant dualism of Descartes. Schizophrenia is conceived as a disorder of social brain evolution in that it is characterised by what Eugene Bleuler termed an 'affective dementia.' Individuals with schizophrenia exhibit anatomical, functional and clinical evidence for social brain disorder. In this chapter, I describe this most human of maladies in terms of a 'phenomenology of social alienation' and, drawing on contemporary research data, make the case that schizophrenia represents a costly evolutionary trade-off in the emergence of embodied social consciousness.

11.1 Introduction

For more than a century, the psychopathological phenomenon termed "schizophrenia" has perplexed and frustrated clinicians and researchers alike. It has proved itself a vague and elusive concept, the subject of much controversy and little agreement. At every level of enquiry and at every historical stage, division and dissent have characterized schizophrenia discourse. Contemporary research in fields as diverse as genetics, brain imaging, neuropsychology,